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TRANSPORT AND DECENTRALISATION

ROUND TABLE 131

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INTRODUCTORY REPORTS

DECENTRALISATION, INTERGOVERNMENTAL COMPETITION/EMULATION AND EFFICIENCY: LESSONS FROM AND FOR THE TRANSPORT SECTOR

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DECENTRALISATION, INTERGOVERNMENTAL COMPETITION/EMULATION AND EFFICIENCY: LESSONS FROM AND FOR THE TRANSPORT SECTOR

SUMMARY

Montreal, June 2004

INTRODUCTION

The purpose of this paper is to present an analysis of the link between decentralisation, intergovernmental competition/emulation and efficiency in the context of the transport sector. To meet this objective, we have divided our paper into three sections. The first section briefly presents various definitions of decentralisation, recalls the principles of Musgrave and Oates in that area and concludes with a discussion of the theoretical impacts of decentralisation on competitiveness and efficiency. The second part presents the salient points of the literature on decentralisation and transport with regard to four modes, namely road, rail, ports and airports, and ends with a discussion of fiscal decentralisation in relation to transport. The third section presents empirical findings regarding the general impact of decentralisation on various performance indicators in the transport sector.

1. DECENTRALISATION

1.1. Types of decentralisation[1]

The term "decentralisation" generally covers the following three types of institutional arrangement:

De-concentration

De-concentration is when the territorial distribution of functions allows decentralised bodies with decision-making authority to resolve the problems that the administration must deal with, primarily because being closer to the ground they have a better understanding of local conditions. According to Delcamp, territorial decentralisation, as he terms it, means "a transfer of decision-making power or responsibility for implementation to an administrative entity within the same legal person[2]."

Central government thus retains its powers and responsibilities for a given function, but has that function performed/implemented outside the capital, i.e. by administrative agencies or offices located in the regions. Such a system can be put in place either by transferring authority to governors or prefects whose offices are located outside the capital or by setting up ministerial directorates at the level of the region or prefecture. What is important is that officials and managers working in the regions are able to take decisions without having to refer back to the capital for advice and thus are no longer merely links in a chain. While the powers of central bodies include general policy steering, co-ordination and control of decentralised bodies, the same decentralised bodies have general decisionmaking authority over matters within their jurisdiction.

Delegation

Delegation is when central government retains its authority and responsibilities but delegates service delivery and administration to sub-national (provincial, cantonal, etc.) or local governments (referred to throughout this paper as **sn/l governments**). It is worth noting in this respect that authority is delegated to a government; the politicians (if we disregard those holding several offices) accountable to citizens for managing the delivery of the services delegated are not therefore the same as those managing central government.

Bolderson and Mabett, who use the principal-agent model for their analysis, argue that the delegation of authority to sn/l governments improves the efficiency of public service administration[3]. Therefore, if the requisite funding is available at the sub-national/local level or, in other words, if no account need be taken of the problem of unfunded mandates, services will be adequately administered, which will confer a certain degree of autonomy on sn/l governments with regard to the delivery of delegated services. Functional duplication, i.e. a situation in which the distribution of functions between different levels of government has not been properly defined[4], must be avoided.

Devolution

Devolution is the transfer of responsibilities and authority from central government to sn/l governments. This transfer means that central government loses all rights of oversight over the quantity and quality of services provided as well as modes of delivery. Examples include the responsibilities of Canadian provinces and Swiss cantons. Devolution may also be accompanied by continued funding by central government funding and/or national standards, which will ensure a certain level of service in terms of quantity and quality. The outcome in such cases is a mix of delegation and devolution, whose precise balance varies according to country and responsibilities.

Rosenbaum defines devolution as follows: *"genuine decentralisation consists in the delegation of responsibilities and resources to relatively independent and autonomous infra-national authorities which are answerable not to central government but to the citizens of the region or community*[5]*."* According to him, a major aspect of the devolution movement has been the strengthening or even creation of intermediate governments in the form of either provinces, regions or sub-national states. This movement apparently encourages participation by citizens and groups and the development of community organisations in both rural and urban areas[6].

Table 1. **Three aspects of three types of decentralisation**

Type	Political authority	Implementing authority	Funding authority
Deconcentration	National elected representatives	Central government officials	National budget
Delegation	National and local elected representatives	Local government officials supervised by central government officials	Local budget, with or without contractual payments by central government, taken from the national budget
Devolution	Local elected representatives	Local government officials (including groups of central government officials)	Local budget, taxes or central government transfers from the national budget

Source: Gauthier and Vaillancourt (2002).

Table 1 presents each type of decentralisation from three standpoints: political authority, implementing authority and funding authority. This table also illustrates the similarities and differences between the three types of decentralisation and, on examination, reveals that delegation is the most complex form of decentralisation. In the following sections, we shall discuss these three options again but with greater emphasis on devolution.

1.2. Principles underpinning devolution

Two sets of principles govern the distribution of authority among different levels of government: the general principles singled out by Musgrave (1959), and the more specific and complementary principles identified by Oates (1972). Musgrave distinguishes between three types of government actions: macroeconomic, redistributive and microeconomic. Oates looks at the third type in greater detail and proposes four rules for the distribution of authority.

Macroeconomic actions

These actions are primarily taken by central government, given the need to co-ordinate fiscal and monetary policies. Sn/l governments can act as agents by activating sn/l investment in response to requests or incentives provided by central government.

Redistributive actions

Like macroeconomic actions, these actions are primarily taken by central government when the population can shift from one sn/l government to another. In contrast, if there is little or no mobility, a sn/l government can introduce redistributive policies.

Microeconomic actions

Sn/l governments have an important role to play in this type of action. As a general rule, for a given activity:

- To generate greater economies of scale, the size of the production unit should be increased, which encourages production at the central level;
- The greater the diversity of preferences (heterogeneity) for the quantity and type of goods and services provided by the public sector, from one geographically concentrated group to another, the less decisionmaking about the quantity and quality produced should be centralised, which encourages production at the sn/l level;
- The greater the positive and negative externalities from one sn/l to another, the more production should be centralised, in order to internalise those externalities and thereby ensure an optimum level of production;
- The greater the scope to produce different types of public goods and services or the same types in different ways, the more production should be decentralised in order to encourage innovation in production and therefore emulation between sn/l governments.

The conclusion which may be drawn from these rules is that each intervention by government must be studied to determine whether it should be taken by central government or by sn/l governments. Such an approach consists of tables showing the assignment of powers to different

levels of government. Excerpts from three such tables are given below, taken from Fox and Wallich (1998), Prud'homme (1992) and Shah (1994). For comparative purposes, these tables show the assignment of powers not only for transport but also for other selected activities chosen from those discussed by the present authors. It is worth noting that each one deals with the issue differently, taking either an overall approach (Prud'homme), with or without linkage to type of good or service (Fox and Wallich), or by separating design from implementation (Shah). A review of their discussions shows the following:

- All three authors examine road transport in detail and concur in assigning authority by area served. Urban/local roads are more decentralised than national roads/motorways;
- Authority for air transport, whether it be airports (Fox and Wallich) or airlines (Shah), is assigned at the federal level by two of the authors. In contrast, Prud'homme believes that this sector lends itself more to decentralisation than rural roads;
- Rail transport is assigned by Shah at the federal level and is seen as not readily lending itself to decentralisation by Prud'homme;
- Prud'homme alone deals with ports, which he considers to be highly amenable to decentralisation.

Table 2. **Assignment of powers to different levels of government**

Category of expenditure	**Type of service**	**Level of government**
Health	Primary	L
	Secondary (hospitals)	SN
	Tertiary (research)	F
Education	Primary	L
	Secondary	SN/L
	University	F
Transport	Urban roads	L
	Intercity roads	SN/F
	Airports	F
	Urban public transport	L
	Intercity public transport	F
	Private transport (taxis)	SN/L
	International	F
Environment	Pollution (air/water)	SN
	Water, forests	F/SN
Waste collection, water supply, wastewater, fire protection		L/SN
Telecommunications		F

Source: Fox and Wallich (1998).

Table 3. **Assignment of powers to different levels of government**

Category of expenditure	Policies, standards & regulation	Implementation & administration	Comments
Health	F/SN/L	SN/L	Transfers in kind
Education	F/SN/L	SN/L	Transfers in kind
Road:			
National	F	SN/L	Internal common market
Regional	SN	SN/L	Regional benefits and costs
Local	L	L	Local benefits and costs
Airports	F	F	Central benefits and costs
Railways	F	F	Central benefits and costs
Environment	F/SN/L	SN/L	C/SN/L benefits
Waste collection, water supply, wastewater	L	L	Primarily local benefits
Fire protection	L	L	Primarily local benefits
Domestic trade	F	F	Central benefits and costs

Source: Shah (1994).

Table 4. **Scope for decentralising certain public services**

	Scope for externalising (high-low) 1-2-3-4-5	Scope for charging (high-low) 1-2-3-4-5	Degree of technical complexity (high-low) 1-2-3-4-5	Scope for decentralisation (high-low) 1 to 15
Primary education	3	3	2	7
Motorways	1	2	2	4
Rural roads	2	2	5	8
Urban transport	4	4	4	12
Airports	3	4	2	9
Railways	1	4	2	7
Ports	4	4	3	11
Waste collection	5	1	5	11
Water supply	4	5	4	13

Source: Prud'homme (1992).

1.3. Efficiency and decentralisation: the theoretical approach[7]

There are two theoretical approaches to the impact of decentralisation on efficiency:

- The normative public economics approach, encompassing the work of authors such as Musgrave (1997) and Zodrow and Mieszkowski (1986), which holds that decentralisation leads to inefficient allocation of resources, regressive taxes and inadequate public service

levels for the poorest members of society[8]. The view is that the loss of economies of scale and the externalities inherent in the decisions taken by local and sub-central governments result in inadequate budgets. Furthermore, competition at the fiscal level between governments and the highly mobile tax basis at the sn/l levels forces governments to reduce their supply of goods and services and to use benefit taxes instead of taxes with mobile bases or based on ability to pay and, therefore, of a more redistributive nature[9]. Predicating a concept of government as a benevolent social planner which wishes to maximise the welfare of citizens, these authors hold that decentralisation must be supported by co-ordination and planning policies and a transfer system aimed at remedying distortions[10].

- A second approach, based on public choice, holds that governments pursue their own interests and seek to maximise their revenue, and that competition between governments is a necessary constraint designed to impose discipline[11]. According to Tiebout (1956) and Brennan and Buchanan (1980), competition is seen as encouraging efficiency in terms of the taxation, regulation and supply of goods and services, whereas decentralisation encourages competition.

The authors in this area distinguish between two types of competition[12]: vertical or intergovernmental and horizontal or interjurisdictional. Two mechanisms ensure that competition generates the incentives required for efficiency, democratic process and elector mobility. Democracy permits vertical competition, which in turn "*ensures that the assignment of powers in decentralised governmental systems reflects the comparative advantage of governments operating at different levels in the supply of goods and services. Put more simply, because politicians will only move into the supply areas of governments at different levels, if by doing so they will improve the consent (or vote) accorded them by citizens, only projects that enhance welfare will be undertaken*[13]."

Whereas democracy and elections permit vertical competition, elector mobility, in addition to the electoral process, encourages horizontal competition. By "transfer" voting, electors will choose the jurisdictions offering the best goods and services (those matching their preferences) at the lowest prices (taxes)[14]. Consequently, governments find themselves obliged to contend with two conflicting forces in their goal of attracting electors and votes. On the one hand, they are under pressure to reduce taxes (and tax competition) while, on the other, they have to deliver the best services possible (emulation competition)[15]. It is these two forces in a competitive environment which encourage governments to produce efficient outcomes in the delivery of goods and services.

The issues addressed in this area are the efficiency of consumption (allocation) and production[16]. Allocative efficiency is defined as the ability of governments to supply public goods and services whose nature, quantity and quality match the expectations of citizens. Productive efficiency consists in minimising the costs of supply of public goods and services. Decentralisation moves away from a monopolistic model and encourages competition between governments by producing the necessary incentives to minimise costs and reduce taxes[17]. In a context of electoral mobility, when faced with the same supply of goods and services, electors will choose the jurisdiction with the lowest taxation for a given output of goods and services. Furthermore, decentralisation, through a process of experimentation/innovation and emulation, produces more efficient outcomes than it would be possible to obtain with a single, central government adopting a uniform approach to all jurisdictions[18].

In practice, certain aspects of public management will determine whether decentralisation is successful or not, for example:

- The intensity of democratic life at central and sn/l levels: it could be argued that if one of these levels of government is less democratic than the other, then the more democratic level will be the one which will best meet the expectations/needs of the sn/l population;

- The level of corruption at the sn/l and central levels: there is a danger of greater corruption at the sn/l level in view of the closer proximity of elected representatives, officials and the population;

- Sn/l bureaucracies may be of lower quality than central government bureaucracy, due to higher salaries and greater scope for career advancement at the central level[19].

2. TRANSPORT AND DECENTRALISATION: EXPENDITURE, REGULATION AND REVENUE

We shall first consider the production of transport services attributable to public expenditure and government regulation, before turning our attention to revenue.

2.1. Expenditure and regulation

Here we shall present the main observations made in the literature with regard to the four sectors. We shall first discuss the road and rail sectors, which both have large-scale networks, followed by the port and airport sectors in which major hubs play an important role.

2.1.1 Road sector

On average, the road network is used for between 60 and 80 per cent of passenger and freight movements[20] in any given country. It consists of a variety of elements, such as residential streets, rural roads, major urban boulevards and motorways, which have a component that is at once local, regional and, in some cases, national. We therefore need to adopt a specific, analytical framework when considering the decentralisation of road administration, construction and funding.

Characteristics

Roads are a network good and are mutually interdependent. They only have utility as components of a network which must meet the needs of a variety of users. Some roads are only used by a few vehicles a day, whereas other parts of the network, such as motorways, are used by tens of thousands of vehicles a day. One road may be used primarily by cars, whereas others may be used by HGVs, inflicting highly variable degrees of wear and tear. Damage to a macadam pavement from axle load varies to the power of four, which means that a 30-tonne lorry with three axles causes as much damage to the road as 240 000 cars weighing one tonne each[21]. However, the most important issue here is that there are several types of user, which can be divided into two main categories, namely, local and foreign (transit) users. The presence of these two types of user has implications with regard to the management of a given road, because the preferences of local users in terms of trip, fluidity and safety differ from those of transit users (regardless of whether trips are at the national or even international

level), as do the levels of government that are likely to meet their demand for public services in the road sector.

Administering a road network is in fact more complex than other types of public infrastructure (such as sports complexes, fire stations, etc.) for two reasons: the existence of junction points and the fact that roads often run through several jurisdictions. It is therefore important to establish which authority will be responsible for co-ordination, construction and maintenance. The large externalities which are generated by certain decisions taken by sn/l authorities, and which justify the application of standards relating to quality, safety and development, make decentralisation a complicated process. Furthermore, individual sections of a given road can vary in terms of age, condition, construction materials and standards. Landscape, terrain, environment and climate impose constraints on the type of road that can be built, which varies from one region to another, as well as influencing the degree of wear and tear, all of which must be taken into account in the construction and maintenance of a road network. Any decentralisation project must therefore give due consideration to the skills and know-how of different levels of government.

Lastly, whether roads should be funded by means of special tax levies, tolls or even government budgets is a particularly critical issue in this area of state intervention. Some parts of a road network can be viewed as an "open system[22]", i.e. one in which it is not possible to control the number of network users: for example, in a city or on country roads where traffic controls would be too expensive and too cumbersome to manage. Other components, such as national motorways, could be funded through tolls. It is therefore up to the authorities to determine the most effective funding mechanism.

Types of decentralisation

A variety of relationships can be forged between different levels of government, depending upon the type of model and degree of decentralisation sought. The most commonly encountered models[23] are:

- The centralised model, in which central government is both owner and operator of the network through an agency or central ministry;
- The administratively decentralised or deconcentrated model, in which the network is the property of central government, but decisions are taken by different central government agencies;
- The delegated model, in which central government (the owner of the network), transfers administration to semi-autonomous organisations, such as public enterprises, which are accountable to it;
- The devolved model, in which sn/l government is both owner and operator of its own road network.

A distinction must be drawn between so-called functional decentralisation and financial decentralisation. The former refers to the process which consists in decentralising operations relating to functions such as planning, policymaking, implementing work, etc.; the latter refers to the funding of those operations. Note that these two forms of decentralisation are relatively independent of one another and that this has major implications for the viability of the reforms undertaken in different countries[24].

Decentralisation criteria

This section describes the various criteria which apply to decentralisation processes. There are two approaches[25] which provide an analytical framework for a decentralisation process. An initial approach is to look at tasks and responsibilities relating to roads administration. These are divided into three major categories: administration, construction and renovation and maintenance.

Administration can be further subdivided into planning, co-ordination of junction points, implementation of policies, regulation and standards of quality and safety. This dimension affords significant economies of scale[26] and it is therefore advisable in many cases to entrust it to the centre. Central government is thus able to impose standards and procedures in the aim of standardising certain social, environmental and technical attributes of the network; it can also encourage local or regional governments to take account of national interests in their planning and decisionmaking. Lastly, central government can assist the administrative function through, *inter alia*, policy research and assessment and the provision of facilities which might sometimes be beyond the means of smaller or less wealthy regions[27].

Construction and renovation are the second part of this classification and embrace engineering work, cost analysis, work scheduling and submission of contracts and calls for tender. These responsibilities call for a level of expertise and technical know-how, in the governments responsible for management, to which they do not always have access, particularly in developing countries. Furthermore, road construction requires the use of heavy plant and equipment and, in many cases, substantial investment. Nonetheless, the presence of private enterprises in this sector of activity allows sn/l governments to assume these responsibilities more efficiently, so it would seem, than central governments[28].

The third category of expenditure is network maintenance. Usually less demanding in terms of funding and technical resources, although more intensive in terms of labour and frequency, this responsibility is one that sn/l governments would seem to be better able to manage by virtue of their ability to maintain networks at lower cost[29]. Under this approach, it would therefore seem appropriate to consider the nature of the tasks and responsibilities to be fulfilled when a decentralisation process is initiated by a government.

The second approach consists of classifying the nature and characteristics of roads in order to determine which level of government should be given responsibility. While the appropriate classification of roads obviously depends on the specific situation of each country, there are four major categories of network which are generally recognised: national, regional, rural and urban. The difference between them lies in the function they perform and the type of user they accommodate. The national network is composed of roads which are of national interest, rather than simply the interest of neighbouring communities. Regional networks consist of roads linking major urban communities as well as rural access roads which are of benefit to a large part of a region, state or province. Rural networks are roads providing access to peripheral communities and, lastly, urban networks allow traffic to flow inside towns and villages. The latter can also be divided into sub-categories according to the size of towns; however, such a classification blurs the distinctions made between roads, tracks and paths in rural areas of poor countries (Robinson and Stiedl, 2001).

Economic logic dictates that the level of government responsible for a particular network should be that chosen by network users. If a road is used by local users, local government will be more alert to their preferences and thus better able to meet local demand. In contrast, the maintenance of a road used by a large number of transit users, but under the control of local government, would probably not reflect the preferences of such users. They would have no effective means of persuading the level of

government responsible to take account of their preferences, since they have no right to vote in the jurisdiction concerned. Likewise, the management of a road of national interest under the responsibility of an sn/l government will not necessarily be geared towards meeting the objectives favoured by central government as appropriate for society as whole.

There can be no doubt that attempting such a classification is a hazardous exercise in that the use made of a road cannot be readily identified and the technical, financial and political considerations to be taken into account often complicate matters. Nonetheless, this approach provides us with an interesting starting point from which to assign different responsibilities within the transport sector.

It is also possible to combine the two approaches outlined above. The summary table below provides a general framework for dividing responsibilities between different levels of government. It is similar to the one proposed by Shah (1994) and illustrated above as Table 3, but leans more slightly towards the centre in the distribution of powers.

Table 5. **Decentralisation in the road sector**

	Administration	**Construction/ renovation**	**Maintenance**
National network	Central	Central or regional	Central or regional
Regional network	Regional/central	Regional	Regional
Rural network	Regional/central	Local	Local
Urban network	Local/metropolitan	Local	Local

Source: Gutman (1999) and Darbéra (1993).

2.1.2 Railways

Railway networks differ from road networks by requiring greater technical expertise and by being less accessible. Decentralisation in the rail sector is at an advanced stage in most industrialised countries[30]. While rail transport in both the freight and passenger sectors has been completely privatised in the United States and Japan, the public sector plays a greater role in Europe. Although privatisation is a form of decentralisation, it nonetheless lies outside the scope of our analysis in that it no longer relates to the public sector.

Characteristics

A distinction must be drawn in the rail sector between different types of usage and infrastructure. Rail transport primarily concerns the movement of goods or freight and passengers. While the private freight sector is highly efficient in the United States, where 550 firms share a network of over 270 000 km[31], Germany and France offer examples where freight is concentrated in the hands of a few firms. The sector primarily consists of long-distance movements, the average being around 300 km[32]. In the passenger sector, a distinction can be drawn between long-distance trips, in many cases by high-speed train (TGV), and regional trips. While long-distance movements are managed at the central level in most western European countries[33], decentralisation in both Europe and North America may be found at the regional level. The 150 regions, *länder*, cantons, autonomous communities or provinces in western Europe are therefore, to varying degrees, responsible for the organisation and funding of regional passenger rail transport[34]. There are several models of decentralisation in which

relations between the national and regional levels depend on a variety of factors, e.g. territorial scale, population density, regional heterogeneity, political traditions, degree of regional autonomy and the financial situation of networks[35]. Co-ordination, planning and funding issues, which in many cases warrant central government intervention, therefore pose different problems in individual countries and regions. Some countries, such as Switzerland and the Netherlands, exhibit very high levels of co-ordination with regard to transfers, tariffs and investment steering, for example. There are also cases such as Germany, Italy and Spain, which are much larger countries with marked differences and lower levels of co-ordination between regions. It is worth noting that the United Kingdom has privatised its railway network. It is therefore clear to see that the role of central government varies significantly from one country to another[36].

Forms of decentralisation

Decentralisation in the regional rail transport sector assumed a variety of forms in Europe, but the areas where the greatest differences lie are those relating to infrastructure management and network operation. Some countries have separated infrastructure from operations; as in the case of Sweden, which in 1988 set up the Banverket, the administration responsible for the single national network; and of France, which in 1997 established the *Réseau Ferré de France*. These central bodies are responsible for planning, investment and infrastructure maintenance. Other countries, such as Switzerland, Germany, Spain, Italy and Denmark, have many public and private regional networks operating alongside the national network. While the national network competes with these regional networks in Switzerland and Germany in the passenger sector, regional transport in Spain and Italy is restricted exclusively to regional networks[37].

If we now turn to the operations side, France has awarded network operation to a national monopoly, the *Société Nationale des Chemins de Fer* (SNCF) and, following the reform of 2002, the regions now have to reach agreement with the national operator regarding the supply of services. Sweden, on the other hand, has granted access to its network to private operators since 1996. The regions, which are responsible for organising timetables and tariffs, are therefore free to choose between the national company, SJ, and one of the 15 private companies for the supply of transport services[38]. This type of decentralisation is also to be found in the Netherlands, Switzerland, Germany and Denmark. Lastly, Italy and Spain have public or semi-public enterprises responsible for the management of transport supply and regional network infrastructure; there is therefore a single operator for each regional network. Table 6 lists the decentralisation models adopted by a number of European countries.

Table 6. **Decentralisation in the regional rail sector in several countries, 2004**

	Single operator	**Multiple operators**
Single network (national)	France	Sweden
Multiple networks (national and regional)	Spain Italy	Germany Switzerland Denmark Netherlands

Source: Authors.

2.1.3 Ports and airports

Ports (airports) differ from road and rail networks in that:

- their role as a point where infrastructure is concentrated allows transhipment between a slow mode of transport that is cheap per tonne (or in the case of airports, a fast mode of transport that is expensive per tonne) and a contact point with road, and often rail, networks;

- their role in several cases as an international gateway to a country for goods (or passengers) and therefore their role in ensuring security (of goods and people, disease control, etc.) and collection of customs duties.

Ports

The decentralisation process with regard to port management has reached an advanced stage in Europe, where almost all countries have one form or another of regional port management[39]. The local attributes of infrastructure and the labour force, and the commercial nature of activities such as handling and forwarding, explain in part the degree to which port administration has been decentralised. Nonetheless, the existence of major externalities such as reduced transport and distribution costs and times, together with the need to co-ordinate freight transport planning and development, can justify state involvement in port management and administration[40].

Characteristics

Ports differ from other transport infrastructure in that they are sited at specific locations, serving an area of economic influence or hinterland[41]. Some trading ports can serve several regions or even countries, whereas others are simply fishing ports or harbours for local recreational activities. Classifications vary according to country: for example, France which, *inter alia*, has 17 ports of national significance under central government control[42]; or Japan, which has four ports referred to as "specifically designated major ports"[43]. Market liberalisation, new technology, developments in maritime transport and the integration of transport modes are all factors which have fuelled competition between ports[44]. This context, which requires a decentralised form of management, allows ports to pursue commercial activities efficiently and flexibly. This is how North American ports, for example, have been able to adapt to demand from cargo forwarders in a state of complete organisational transition, in response to developments in the container industry, communications technology and cargo handling[45]. Yet a port cannot function simply as a commercial enterprise, and port management must undoubtedly remain a concern for governments.

Management at an exclusively local level would not permit pursuit of a national development strategy. Furthermore, the economic logic of private firms would certainly not tolerate pursuit of a goal relating to the common good, for example, access to areas poorly served by the road network, or the maintenance of services for certain types of economically unprofitable freight traffic. Ports can act as an economic engine for growth within a given region, open up a region to the international economy and, in some countries, allow the collection of foreign currency revenue[46]. Ports are also part of the national border, and port regulations on police and customs procedures must be dealt with at central level[47]. Besides efficient management, ports must also be able to enjoy co-ordinated investment by central and sub-central governments. Ports must be integrated into industrial networks within a country by an inland transport network, either road or rail. It is therefore important to ensure the consistency of port development plans with those for inland transport infrastructure. Central government can also involve itself at other levels, such as dredging, ice-breaking and the provision of navigational aids[48]. Investment in major infrastructure, such as channels, dikes, docks and locks, to

allow ports to be used by high-capacity vessels is also considered to be a matter for central government[49].

Forms of decentralisation

Decentralised port management can take a variety of forms but will always provide for two basic entities, namely, the port authority and the port enterprise. Four spheres of activity are divided between these two entities: regulation, planning and co-ordination; the management of port operations (security, police, maintenance); investment; and commercial activities relating to the port[50].

The port authority may be a public body, either centralised or decentralised, or it may be semi-public or private. Centralised public management means that planning, development and investment decisions, as well as commercial strategy and sometimes even pricing policy, will all be the responsibility of a central authority. This means that central government takes charge of regulation, the cohesion of the port marketplace and port operations. It can therefore decide whether or not to delegate trade activities to private port enterprises, and whether the port is a landlord port or an operating port. This type of management leaves local port authorities little room for manoeuvre and seems incompatible with the current competitive climate in which ports operate. Decentralised public management allows greater participation by local authorities, although central government must remain responsible for drawing up a national ports policy, which sets out the rules of management, funding, assignment criteria, public investments, the obligations of ports with regard to public service obligations and regional interests, that is to say, the area of co-ordination and regulation[51]. Participation by sub-central governments can assume a variety of forms, ranging from infrastructure funding, support for investment projects and acquisition of a share in the capital of the landlord port[52]. Private management means that the port is the property of individual investors, holding companies or conglomerates, and that the latter are responsible for the port authority.

The port enterprise can similarly take a variety of forms, such as a private company, public or semi-public enterprise, co-operative, partnership and so on[53].

Airports

Airports have similar attributes to ports. They too have local infrastructure, employ local labour and are used for commercial activities. Airports are also major tools for economic development and, like ports, are points of entry to a country, which therefore involves areas such as customs, immigration and security. Government intervention is thus warranted by these issues of public interest. However, while ports are primarily used for movements of goods, airports are mainly used for movements of passengers.

Forms of decentralisation

While public policy towards airports began to change in 1970, privatisation accelerated during the 1980s with the privatisation of the British Airport Authority (BAA, 1987). In several cases, airports were sold off, either wholly or partially, to the private sector. There are three types of ownership[54]:

- Corporatisation: a separate, autonomous administrative entity is set up to manage the airport. This is a type of administrative decentralisation which encourages a "business" approach, allows a distinction to be made between regulatory agency and operator as well as enabling greater retention of the revenue arising from operations;

- Private participation: this can be accomplished through management contracts or the leasing of the airport for a given period of time;

- Full or partial privatisation: some or all of the ownership rights to the airport are sold off.

In practice, various forms of management cannot only co-exist but may also replace each other over time. In Denmark, for example, until 1990 airports were operated by a public company owned by the Danish Government. This company was subsequently transformed into a publicly listed company which was fully publicly-owned. In 1994, a 25 per cent share was sold off to the private sector and in 2000, a majority shareholding was in the hands of the private sector. In 2004, one-third of the share capital was held by the Danish Government and the remainder by various private investors. In Canada, as part of the National Airports Policy, the Federal Government created airport authorities, to which is entrusted the management of 26 airports, identified as part of the National Airports System. The criteria for selecting airports were that they had to handle more than 200 000 passengers a year and/or be located in a provincial capital. The central government has remained owner of the airports but has leased them for 60 years to the authorities. The remaining airports have been transferred either to provincial, regional or local public bodies or, as a last resort, to private enterprises[55]. The creation of these airport authorities was designed to make airport operators more efficient and flexible compared with the previous situation locally. To allow investment and ensure that airports are profitable, the Federal Government has delegated responsibility for setting user charges to the airport authorities without legislating at the national level[56].

2.2. Revenue

The different levels of government all need revenue to finance their activities, including transport. As a general rule, the main criterion for revenue sharing is the mobility of the tax base, i.e. its ability to move from one tax jurisdiction to another in order to escape all or part of its fiscal obligations. The greater the mobility of the tax base, the more it should be taxed at a higher level of government in order to avoid tax competition and the shifting of burdens between local governments. The property tax base is immobile and therefore a good source of funding for local services, such as waste collection or fire fighting, when users' costs cannot be employed. Taxes on labour (income tax and payroll tax) and consumption (VAT, excise duties) apply to the activities of individuals and households, agents that are more mobile than land but less mobile than capital. Lastly, corporations have a number of instruments at their disposal (transfer pricing, financial structure, etc.) with which to shift their tax burden.

But what about taxes associated more specifically with transport, such as fuel taxes, administrative fees (logbook, registration plates, driving licence) and user charges (tolls, annual road tax)? Table 7, proposed by Shah (1994), makes precise proposals for these various sources of income. His study notes that the reply depends upon how responsibilities for roads are assigned. It is worth adding the following:

- Fuel taxes can be used not only to finance roads, but also to reduce pollution and road congestion by reducing the use of private vehicles, particularly for commuting. In such cases, part of this revenue must be assigned without taking account of responsibilities for roads[57]. This also raises the issue of what percentage of these taxes should be allocated to road funds, where such funds exist. Note that the relevance of such funds has been challenged (Gwilliam and Sahlizi, 1999);

- The choice of levying mechanism is not straightforward either. The report on *Reforming transport taxes and charges*[58], which makes recommendations for Europe, clearly illustrates this in its discussion of current mechanisms, when it states that "*Fuel taxes …though efficient in relation to CO_2 emissions, …cannot be differentiated to provide effective incentives for reducing congestion, pollution, noise and accident costs* (p. 7).". It is therefore proposed that use be made of kilometre charges varying according to time and place, while recognising that cordon tolls and differentiated road tolls might also be effective. The allocation of this revenue to different levels of government is not discussed. Note that work in the United States has shown that political factors, such as the share of non-residents among users and the behaviour of neighbouring states, partly governs choices in this area (Levinson, 2001).

Table 7. **Assignment of tax-raising powers**

Type	**Determination**		**Collection and adminis-tration**	**Comments**
	Base rate			
Employee tax	F	F/SN/L	F	
Payroll tax	F/SN	F/SN	F/SN	Taxation of profits (e.g. social insurance)
Sales taxes (VAT)	F	F	F	
Property	SN	L	L	
Taxes on thermal units	F/SN/L	F/SN/L	F/SN/L	According to impact of pollution
Fuel	F/SN/L	F/SN/L	F/SN/L	According to responsibility for roads
Taxes on emissions	F/SN/L	F/SN/L	F/SN/L	According to impact of pollution
Toll posts, road tax	F/SN/L	F/SN/L	F/SN/L	According to responsibility for roads
Parking fees	L	L	L	Control of local congestion
Registration fees, transfer taxes and annual fees	SN	SN	SN	Responsibility of state, province, canton
Driving licence and fees	SN	SN	SN	Responsibility of state province, canton

Source: Shah (1994).

3. IMPACT OF DECENTRALISATION ON EFFICIENCY

3.1. General results

Several indicators have been employed in the literature to measure the efficiency associated with decentralisation. Microeconomic indicators are used, such as the efficiency of government bureaucracies, indicators of corruption, the health of populations, schooling and literacy levels, as well as cost analyses of output, public infrastructure maintenance and the supply of public services. Macroeconomic indicators of the impact of decentralisation on fiscal equilibrium, the size of governments and economic growth are also used.

Microeconomic indicators

In a study of the impact of decentralisation on governance, Huther and Shah (1998) found a positive and statistically significant correlation between decentralisation ─ measured as the ratio of sn/l government expenditure to government expenditure as a whole ─ and government bureaucracy efficiency. Likewise, the lack of corruption was correlated to decentralisation, a linkage confirmed by other papers on this topic[59].

It has also been observed that decentralisation produced better results on the UN Human Development Index (HDI). This index, derived from various measurements relating to basic healthcare provision, life expectancy, literacy rate, average schooling and per capita income, provides a good measure of governments' ability to provide basic services to the population[60]. Huther and Shah (1998) also found a positive correlation between HDI and decentralisation.

In a study on sn/l government expenditure on public infrastructure, Estache and Sinha (1995) found that expenditure rose more than proportionately to the degree of decentralisation in developing countries, but less than proportionately in developed countries. Humplick and Estache (1995), in a study of 100 developing countries, found that decentralisation led to increases in power-station generating capacity. They also found that lower prices were another outcome of decentralisation. In addition, decentralisation was associated with improvements in the efficiency of water supply systems, with percentage reductions in water losses and production costs and with lower rates of disease transmission by untreated water[61].

Macroeconomic indicators

In a 1985 Study, Oates attempted to verify the relationship between decentralisation, measured by the share of sn/l expenditure and revenue in total government expenditure and revenue, and the size of the public sector. His conclusions failed to establish a significant link between decentralisation and the size of the public sector[62]. Attempts have been made since then to study this link, by means of more appropriate data and measurements of decentralisation providing a better fit to this complex concept. However, the results do not always allow any definitive conclusions to be drawn. Ehdaie (1994) found a negative correlation between decentralisation and public sector size, Jin and Zou (2002) found that decentralisation of expenditure increased the size of the public sector. More recently, in a study of ten transitional eastern European countries, Meloche, Vaillancourt and Yilmaz (2004) failed to find a significant link between decentralisation and size of the public sector, although they nonetheless obtained a negative correlation between the fiscal autonomy of sn/l governments and the size of the public sector. Lastly, Ebel and Yilmaz (2002) followed the same methodology as Oates, but with data more representative of sn/l revenue, and found a negative correlation between decentralisation and public sector size.

In the same paper, Ebel and Yilmaz also tried to measure the impact of decentralisation on the budgetary performance of the public sector. They found that the fiscal autonomy of sub-national governments (measured as the ratio of taxes whose rate can be set by such governments and the tax base for all sn/l government revenue) improved the fiscal position of those governments[63]. Huther and Shah (1998) drew similar conclusions by finding a negative correlation between decentralisation and the ratio of public indebtedness to GDP. However, these results were contradicted by other studies which found a negative impact of decentralisation on the fiscal position of sn/l governments and a significant link between sn/l deficits and their impact on the budgetary equilibrium of central governments[64].

Lastly, the impact of decentralisation on economic growth has been studied in countless papers in recent years. Once again, the results obtained do not allow any definitive conclusions to be drawn on the subject. Ebel and Yilmaz (2002) found a positive link between the fiscal autonomy of sn/l governments and economic growth, a link also found by Akai and Sakata (2002) in their study on fiscal decentralisation in the United States. However, Meloche, Vaillancourt and Yilmaz (2004), as well as Freinkman and Yossifov (2001) found no significant link between fiscal decentralisation and economic growth. Zhang and Zou (1998), for their part, found that higher fiscal decentralisation was linked to lower economic growth in the provinces over the period 1980 to 1992 in China. Lastly, Davoodi and Zou (1998), in their study of decentralisation in 80 developing and developed countries, found that decentralisation was associated with lower growth in GDP in developing countries, but found no correlation in developed countries.

The following table provides a summary of various studies on the impact of decentralisation on efficiency. These studies examined microeconomic and macroeconomic indicators and the table provides an overview of current empirical knowledge on the topic.

Table 8. **Decentralisation and efficiency: Some general empirical results**

Paper	**Description**	**Conclusions**
	Microeconomic indicators	
Huther and Shah (1998)	Decentralisation and governance, sample of 80 countries	Decentralisation is correlated with bureaucratic efficiency, lack of corruption and high Human Development Index (HDI)
Lindaman and Thurmaier (2002)	Decentralisation and basic needs, panel of 100 developing countries	Decentralisation produces higher HDI results
Humplick and Estache (1995)	Decentralisation and infrastructural efficiency, sample of 100 developing countries	Decentralisation permits higher generating capacity and lower prices (electricity), lower water losses (water supply system)
	Macroeconomic indicators	
Meloche, Vaillancourt and Yilmaz (2004)	Decentralisation, size of public sector and economic growth, panel of 10 transitional countries	No significant link between decentralisation and size of public sector and decentralisation and economic growth
Ebel and Yilmaz (2002)	Decentralisation, size of public sector, fiscal equilibrium and economic growth, panel of 6 transitional countries	Negative correlation between decentralisation and size of public sector, positive correlation between fiscal position and decentralisation and economic growth and decentralisation
De Mello (2000)	Decentralisation and fiscal equilibrium, sample of 30 countries	Decentralisation damages the fiscal equilibrium of sn/l and central governments
Davoodi and Zou (1998)	Decentralisation and economic growth, panel of 46 countries over the period 1970-89	Negative correlation between decentralisation and economic growth for developing countries

Source: Authors.

3.2. Transport-related applications

Road sector

In this sector, efficiency is defined in terms of the costs of production, usage and quality. While production costs are measured in $/km, road usage costs must be inferred from quality indicators[65]. The indicators normally used[66] are the proportion of paved roads, the proportion of paved roads in a poor state of repair and the proportion of unpaved roads in poor condition. The first variable indicates the value of the road stock, in that paved roads are more valuable than unpaved roads, while the other two indicate the quality of this stock. A standard measurement, the International Roughness Index (IRI), is used to determine whether roads are in good or poor condition according to the criteria defined by Paterson (1987)[67].

We learned from a World Bank study of 42 developing countries that, in countries where road maintenance had been decentralised, delays were less frequent and road conditions better. In aggregate, the share of paved roads in poor repair fell from 22 to 12 per cent with decentralisation and that of unpaved roads in poor repair from 33 to 15 per cent[68]. Another study compared the performance of the road sector for 1985 in a sample of 76 developing countries and found that decentralisation helped to improve the condition of unpaved roads, but that the condition of paved roads and the share of paved roads in the network as a whole remained unchanged[69]. Lastly, a case study by Robinson and Stiedl (2001) on three developing countries in Africa and Asia found that decentralisation of the road sector did not improve the road system, due to the lack of structural factors, such as inadequate responsibilities and political powers, unstable and insufficient financial resources and a lack of local managerial capacity[70].

An important study by Humplick and Moini-Araghi in 1996 considered the optimum structure for road supply (construction of new roads and maintenance of the existing network). The authors analysed data from 35 industrialised and developing countries over a ten-year period, as well as South Korea over the period 1968-92 and another panel of eight German *Länder* over the period 1980-92. Through a double-cost approach, that is to say, by incorporating road production and usage costs into their analysis, they found that decentralisation allowed maintenance costs to be minimised, thereby making it possible to provide better quality roads at lower cost. The financing of network administration costs had to be divided up so that sub-central government financed 90 per cent of network expenditure, leaving 10 per cent of the funding to central government. It seems that the best results were obtained when central government shared in planning, co-ordination, policymaking and development of quality and safety standards. Lastly, the authors found no link between the level of decentralisation and the minimising of construction costs. Other factors, such as competition between private suppliers and the quality of contractual procedures, appeared to be more important[71].

Railways

While rail transport has been privatised in the United States, Japan and the United Kingdom, freight transport is being increasingly liberalised in Europe and long-distance passenger transport remains under national control, we shall consider a number of case studies of regional passenger transport in several western European countries. In view of the recent reforms in France and Germany, as well as the various levels of decentralisation of regional railways in European countries, we shall attempt to identify the impact of decentralisation on the efficiency of rail transport.

Some countries have a long tradition of decentralisation in the rail sector. Regional passenger transport in Switzerland, for example, has always been the responsibility of the cantons and its highly co-ordinated system is one of the most efficient in the world. Moreover, the Swiss rank second in terms of rail mobility, with average per capita travel of 2 200 km a year. Exceptionally dense network coverage, frequent services on all lines and intermodal co-ordination make the Swiss network highly efficient[72]. There are other examples, such as in Italy and Spain, where the decentralisation of regional networks has produced excellent results. The Lombardy network, *Ferrovie Nord Milano Esercizio*, is the most efficient in Europe with 327 km of track, 500 trains a day and 50 million passengers a year[73]. *Ferrocariles de la Generalitat de Catalunya*, the Spanish regional network, has only 195 km of track, yet carries 60 million passengers a year[74]. These brief examples of the regional management of passenger transport, among the most efficient in Europe, succinctly illustrate the benefits of decentralisation in the rail sector.

Other traditionally more centralised countries, such as Germany and France, have only decentralised their regional transport service recently, in 1997 and 2002, respectively. However, the reforms brought some noteworthy improvements. The *Länder*, which are now responsible for funding and organising regional rail services, can choose as their operator either the national network, DB-AG, or one of 150 private networks. The outcome has been an acceleration in the growth of regional traffic, while the *Länder*s' budget allocation for regional passenger transport has risen from DM 8.7 billion in 1996 to over DM 15 billion four years later[75]. What remains to be established, however, is whether the increase in expenditure is due to higher costs or to the emergence of a demand previously masked by centralisation. The sector needs to be studied in greater depth.

In France, following the promising results of an initial trial period involving seven regions in 1997, full responsibility for regional rail transport was transferred to the regions in 2002. It is therefore up to the latter to determine the scale and frequency of supply and to sign a contract with SNCF for the delivery of services. It is still too soon to draw any firm conclusions at this stage, although there would appear to be problems with the transfer of the financial resources[76]. The results achieved by the regions involved in the trial over the period 1996-99 are nonetheless highly encouraging: supply growth, measured in terms of train/coach kilometres, of over 17 per cent, compared with merely 1.4 per cent in the other regions (apart from Ile-de-France and Corsica); the introduction of quality standards into agreements with the SNCF, with a system of bonuses and penalties, resulting in improvements in punctuality, the quality of stations and trains, access for persons of reduced mobility, passenger reception services and facilities in stations, user information services, and so on. The funding assigned to regional rail services in the regions involved in the trial between 1997 and 2000 amounted to FrF 4.7 billion, more than twice the total amount for all other regions combined[77]. Lastly, incentives offered to the regions helped to increase productivity not only by improvements to the use of rolling stock, i.e. faster trains, shorter intervals between trains and shorter changes for passengers, but also by revamping regional train services which had become less attractive due to lack of investment[78].

Ports

Decentralisation has enabled European and North American ports to develop an adaptability and ability to innovate in response to the new realities of maritime transport. Fierce competition between ports, advances in communications and cargo-handling technologies, and the upgrading of facilities for modern container vessels are all factors which have led to the emergence of a decentralised framework for management and planning[79]. However, experience with decentralisation in the port sector has not been universally positive. The decentralisation of ports in Japan, for example, has not been as successful as hoped[80].

The financial position of Japanese ports is currently precarious. The nature of the funding and sharing of responsibilities between different levels of government is such that, after forty years of decentralisation, the Japanese port sector is currently facing problems with overcapacity and a budget deficit[81]. While there are several accounting and political factors involved, problems relating to financial transfers between different governments have created a situation in which revenue is no longer linked to expenditure. Under the Act on Ports and Havens, regional governments are responsible for the funding of ports, but planning and investment decisions are taken at the local level. This situation has resulted in a port development policy that is no longer aimed at reducing distribution times and costs but at job creation and transfers in the form of investment. Because of the way the funding provided for in the Act is structured, local authorities only have to pay for part of the investment decisions they take. Despite the regional and national review committees, in particular those of the Ministry of Transport, being assigned the task of auditing development plans, local development plans are seldom turned down[82]. Japan illustrates the case of a decentralisation process in which the financial incentives encourage the local authorities to act in a sub-optimal manner from the national standpoint.

Moreover, the same criticisms made of the decentralisation of Japanese ports have also been applied to North American ports, where some commentators have criticised the overcapacity of port facilities, port development plans that fail to take sufficient account of the economic potential of coastal sectors, as well as the environmental impact of large-scale construction work such as dikes, canals, locks, etc. In addition, the decentralisation of North American ports has created a situation in which the very large number of actors makes it very difficult to co-ordinate policies, planning and operations[83].

Airports

The decentralisation of airports, which in several countries led to the creation of an autonomous entity, allowed major gains to be made in terms of efficiency. The overall financial situation and the decentralisation of airport management systems have tended to improve[84]. This was particularly evident in Canada where, after the 1992 reforms which transferred the responsibility for national airports from the Federal Government to local airport authorities, airports started to generate surpluses after years of making losses. Prior to the transfer, it was estimated that the Federal Government provided funding worth almost $135 000 to the national airport system. In 2001, the Government received over $235 million in rent from local airport authorities[85]. According to a review by Transport Canada in 2001, the transfer of airports was a success not only in financial terms, in that the airport authorities of the four largest airports managed to generate budget surpluses, but also with regard to customer services, security and operations. In addition, decentralisation was a spur to investment in Canadian airports, in that in 2001 over $5 billion were invested by the private sector alone[86].

CONCLUSION

Decentralisation is an extremely complex phenomenon which has given rise to an increasing number of studies as well as reforms throughout the world. In this report, we have attempted to identify the lessons learned from decentralisation in a specific domain, namely, how decentralisation has encouraged efficiency in the transport sector through intergovernmental competition and emulation. Economic research in this area is still in its infancy and we have set out to collate what has so far been learned about this topic. While there is a consensus on the theory, the empirical findings with regard to decentralisation do not always allow any clear and definitive conclusions to be drawn. The analysis is often complicated by structural, historical and political factors which have a non-negligible impact on the results of reforms and decentralisation programmes. In addition, our conclusions remain limited in scope due to problems of data availability and the fact that few papers have been written on the specific applications of the decentralisation process to the transport sector. The topic therefore deserves to remain a central concern of governments and researchers, in view of both the substantial gains in terms of efficiency that decentralisation has allowed to be made in many cases of reform and the predictions of theory.

NOTES

1. This section of the paper draws on Gauthier and Vaillancourt (2002).
2. Delcamp (1995), p. 733.
3. Bolderson and Mabbett (1999), p. 178.
4. Delcamp (1995), p. 735.
5. Rosenbaum (1998), p. 509.
6. Rosenbaum (1998), p. 510.
7. The empirical results are to be found in 3.1.
8. Oates and Schwab (1991), p. 127.
9. Sato (2003), p. 20 and Edwards and Keen (1996), p. 115.
10. Edwards and Keen (1996), p. 115.
11. Sato (2003), p. 20.
12. Breton (1999), p.12.
13. Breton (1999), p. 14.
14. Hamlin (1991), p. 201.
15. Shannon (1991), p. 119.
16. Shannon (1991), p. 119.
17. Hamlin (1991), p. 201.
18. Tanzi (1996), p. 300.
19. Tanzi (1996), p. 300.
20. Gutman (1999), p. 87.
21. Hourcade (2002), p. 308.

22. Robinson and Stiedl (2001), p. 55.
23. Robinson and Stiedl (2001), p. 55.
24. Humplick and Moini-Arighi (1996a), p. 33.
25. See, for example, Humplick and Moini-Araghi (1996a) and Gutman (1999).
26. Humplick and Moini-Araghi (1996a), p. 38.
27. Darbéra (1993), p. 206.
28. Humplick and Moini-Araghi (1996b), p. 30.
29. Humplick and Moini-Araghi (1996a), p. 38.
30. Batisse (2003a), p. 58.
31. Ibid, p. 47.
32. Batisse (2003b), p. 9.
33. Faivre d'Arcier (2002), p. 390.
34. Batisse (1999), p. 49.
35. Ibid, p. 48.
36. Batisse (2003a), p. 53.
37. Ibid, p. 56.
38. Batisse (1999), p. 49.
39. Terrassier (2002), p. 1.
40. Terada (2002), p. 10.
41. Chapon (2002), p. 304.
42. Terrassier (2002), p. 1.
43. Terada (2002), p. 10.
44. Terrassier (1999a), p. 4.
45. Newman and Walder (2003), p. 160.
46. Chapon (2002), p. 305.
47. Chapon (2002), p. 305.

48. Terrassier (1999b), p. 4.

49. Chapon (2002), p. 305.

50. Terrassier (1999a), p. 1.

51. Ibid, p. 3.

52. Terrassier (2002), p. 4.

53. Terrassier (1999a), p. 3.

54. Cortes (2002), p. 7.

55. Valo (2001), p. 3.

56. Ibid, p. 3.

57. Turgeon and Vaillancourt (2002), p. 178.

58. European Conference of Ministers of Transport, Council of Ministers CEMT/CM(2003)3/FINAL, May 2003.

59. See Fisman and Gatti (2000) and Mello and Barenstein (2001).

60. Lindaman and Thurmaier (2002), p. 923.

61. Humplick and Estache (1995), p. 95.

62. Oates (1985), p. 756.

63. Ebel and Yilmaz (2002), p. 14.

64. Freinkman and Yossifov (2001), p. 130, de Mello (2000), p. 375 and Fornasari, Webb and Zou (2000), p. 426.

65. Humplick and Moini-Araghi (1996a), p. 9.

66. See Humplick and Estache (1995), Gutman (1999).

67. Humplick and Estache (1995), p. 83.

68. World Development Report 1994, p. 75.

69. Humplick and Estache (1995), p. 95.

70. Robinson and Stield (2001), p. 62.

71. Humplick and Moini-Araghi (1996a), p. 38.

72. Batisse (1999), p. 48, and Batisse (2003a), p. 54.

73. Batisse (2003a), p. 56.
74. Ibid, p. 56.
75. Batisse (2003a), p. 55.
76. Batisse (2003b), p. 5.
77. Faivre D'Arcier (2002), p. 393.
78. Crozet and Heroin (1999), p. 193.
79. Newman and Walder (2003), p. 160, and Terrassier (2002), p. 4.
80. Terada (2002), p. 14.
81. Ibid, p. 12.
82. Ibid, p. 13.
83. Newman and Walder (2003), p. 163.
84. ICAO (2001), p. 3.
85. Valo (2001), p. 4.
86. Ibid, p. 5.

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TAXING FINANCING AND THE TRANSFER OF RESPONSIBILITIES IN THE TRANSPORT SECTOR

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SUMMARY

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1. INTRODUCTION

Transportation is, at least in part, a government responsibility. It is an area in which market failures abound: there may be declining marginal costs; positive and negative externalities; pure public goods; or merit goods. Left to itself, the sector will not lead to optimal outcomes. This may not necessarily justify a government intervention, as was thought thirty years ago[2], because government failures also have to be taken into account. But these market failures provide at least a presumption for government intervention. In practice, upon examination, this presumption is often transformed into justification, and in all countries "government" is an active player in the transportation field.

But "government" is a multi-faceted actor. It should be used in the plural: governments. In all countries, except in the most primitive or the smallest, there are several levels of government, not to mention groupings of governments of a given level. Even in unitary countries, governments of all levels have a strong political legitimacy, usually derived from universal suffrage. They have the power to tax, spend, regulate or prohibit. Saying that governments should intervene in transportation does not tell us which level of government should intervene in what.

Decentralisation is the transfer of responsibilities and resources from a level of government *n* to a level *n-1*, usually from a central to a regional government. The concept is ambiguous in that it is utilised to describe both the outcome (the degree of decentralisation) and the process (the movement towards this outcome). In this paper, we will try to restrict the use of the word to the first of these two meanings, that is, where responsibilities and resources are primarily in the hands of the *n-1* level of government.

Transportation responsibilities — as well as transport-related taxes — can therefore be more or less decentralised, and may be decentralised in different fashions. Some systems are likely to be better than others. Above all, in the transportation area, rapid changes in the technical, economic and social contexts imply changes in the allocation of the various players' responsibilities, including government players. There is no reason to think that, for any given country, the present state of decentralisation is the best possible one. Every country should therefore be constantly asking itself what changes could and should be considered in the decentralisation of transportation management.

This brief note is a modest attempt to discuss some of the issues involved, with particular emphasis on the tax and financing dimension of the equation. All too often — and much to the surprise of public finance economists — transport policies are considered from the expenditure viewpoint only, as if the origin, availability and uses of public money did not matter[3]. The paper begins with a presentation of the theory of decentralisation in general, i.e. of the benefits and costs associated with decentralised systems (Chapter 2). It continues with a discussion of what could be decentralised in the various transport modes and activities (Chapter 3). Chapter 4 considers transport-related taxes and asks whether and how they could be decentralised. Chapter 5 concludes.

2. THE DECENTRALISATION DEBATE

Economists have been slow to realise that government does not consist merely of central government. The first edition of Musgrave's *Theory of Public Finance*, the most influential treatise on the subject, devoted only a few pages, at the end, on local governments. Over the past thirty years, however, what could be called a theory of decentralisation has been developed, which has thrown light upon the potential benefits and costs of a decentralised system. Much of it has been produced in the USA under the strange name of "fiscal federalism" (Oates, 1972).

To begin with, decentralisation is not only, and not primarily, an economic issue. Its objectives, and implications, are also political. It redistributes power. It fosters political participation and creates a feeling of empowerment. It makes it more difficult for a single party or individual to monopolise power and therefore makes a country more democratic, or at least better protected from dictatorship. In practice, decentralisation is often pushed forward by groups or parties which expect some purely political gains from it.

The main economic benefit expected from decentralisation is improved *allocative efficiency*. The argument of the standard fiscal federalism theory is as follows. The inhabitants of different regions or areas have different tastes and needs. If taxes and expenditures are decided by a central government, there is no bundle of taxes and expenditures which will suit all regions, in terms of volume or of structure. People in region A will have more taxes (and expenditures) than they really want; people in B will have less; people in C will have more transport and less education than they want, while the reverse will be true for people in region D. By contrast, a decentralised system, in which each region decides on the volume of taxes and on the structure of expenditures which best suits its needs, will make it possible for all the inhabitants to enjoy their preferred bundle of public goods and services. In this view, the change from a centralised to a decentralised system will necessarily improve welfare.

Decentralisation is also likely to improve *productive efficiency*. Sub-national governments, it is argued, can perform as well as national governments at a lower cost. They are better informed of local needs and opportunities, they can respond faster and more flexibly and they are more closely watched and monitored by the electorate. They enjoy an information advantage. In other words, decentralisation decreases transaction costs.

Counter-arguments have also been offered (Prud'homme, 1995). The allocative efficiency argument assumes that all the inhabitants of a given region have similar tastes and similar incomes. It further assumes that local and regional elections are an effective mechanism for the expression of a detailed demand for public goods and services. It assumes that central governments are unable to treat different regions in different ways and, in practice, assumes away deconcentration. All these assumptions are highly questionable and should be empirically verified.

The productive efficiency argument is weakened by the existence of economies of scale and by the strength of nation-wide bureaucracies. If, or rather when, unit costs decrease with quantities produced, national provision may turn out to be more cost-effective. Ready-made clothes may involve greater transaction costs than clothes made to measure by a next-door tailor, and yet be cheaper.

In many cases, strong, efficient, well-controlled and properly monitored national bureaucracies perform better than fragmented, generally more politicised, not so well-trained local bureaucracies. Here again, more empirical studies would be required.

Decentralisation, it has been noted, can *jeopardise macroeconomic stability*. Macroeconomic management, by means of budgetary and monetary policies, is a central government responsibility (or a European one, for euro-zone countries). If the share of sub-national taxes, expenditures and borrowing becomes too large and out of their control, central governments will lose the possibility to face their macroeconomic management responsibility. The experiences of certain Latin American countries illustrate this point.

More importantly perhaps, decentralisation can *increase disparities*. In reality (although not in the pure theory of decentralisation), the various regions or local governments of a country are not equal. Some are richer than others in terms of activity and income. Whatever the local tax bases, be they on property, income, consumption or on activity, tax bases per capita will differ between regions. In a centralised system, this does not matter too much. Richer regions will contribute more (on a per capita basis) to the central government budget. Let us assume that central government expenditures are equal throughout the country (always on a per capita basis). Richer regions will receive less from the budget than what they contribute to it; they will lose at the budget game. Poorer regions, by contrast, will gain. A centralised system and budget therefore tends to be automatically redistributive. (If central government expenditures favour poorer regions, as is often the case, the redistribution will be even more important.)

In a decentralised system, by contrast, and nearly by definition, nothing of the sort happens. Poor regions with poor tax bases have an impossible choice. Either they decide to impose average tax rates, or they will not raise enough tax income to provide average levels of services; people and enterprises will be induced not to settle in these regions, making them even poorer for the future. Or they decide on higher than average tax rates, in order to raise enough tax income to provide average levels of services; but this will also turn people and enterprises away from these regions, again making them poorer for the future. Tax and expenditure decentralisation incorporates a built-in mechanism for increased spatial inequality.

This issue is called the “horizontal imbalance problem”. There is also a vertical imbalance problem. This refers to the fact that there are few good local taxes. All taxes are distortive and costly to some extent, some more so than others. Above all, many taxes are more distortive and costly when levied at a local rather than a national level. This is the case in particular of all the “good” modern taxes, such as the value-added and income taxes. When imposed at the local level at different rates, they induce enterprises and households to locate in low-rate areas, at an economic cost. (In a globalised world, this problem is even becoming serious at the international level.) Expenditure decentralisation is therefore much easier than tax decentralisation: this is the definition of vertical imbalance.

Both vertical and horizontal imbalances can partly be corrected by central government transfers. The central government can collect the bulk of taxes. It can make important transfers to sub-national governments, thus correcting the vertical imbalance, and can ensure that poorer sub-national governments receive more than richer ones, thus correcting the horizontal imbalance. But there are limits to what transfers can achieve. Decentralisation cannot be: “you (central government) raise the money; we (local governments) spend it”. Such a system would run counter to the basic pro-decentralisation argument, which implies tax responsibility, and would empty decentralisation of its alleged virtue.

The theoretical debate over decentralisation is interesting in that it throws light on a number of important, partial but often contradictory mechanisms. It does not point to any illusory "optimal" degree of decentralisation in general. Rather, it shows that different systems, resulting from the striking of imperfect compromises, must be employed for different services and cases.

It also suggests that the "decentralisability" of a given service is a function of its characteristics. Three characteristics appear relevant: externability, chargeability, and technicity. The *externability* of a service refers to the quantity and types of external effects and geographical spill-over associated with the service. The smaller the externability of a service, the easier it is to decentralise; services with important network effects or spill-over are not easy targets for decentralisation. The *chargeability* of a service refers to the ease with which the service can be financed by charges, as opposed to taxes. The greater the ability to charge for a service, the easier it is to decentralise it. *Technicity* refers to the degree of technical and managerial expertise required to provide the service. The lower the technicity of a service, the easier it is to decentralise, because the economies of scale and scope associated with its provision - which are difficult to reap in the case of multiple providers - will be less important and the potential production efficiency losses will therefore be minimal.

3. UNBUNDLING TRANSPORTATION

From the viewpoint of decentralisation (as well as from many other viewpoints) "transportation" is very heterogeneous and does not lend itself to easy generalisations. The actual and desirable degree of decentralisation is a function of mode (rail, road, air, water, pipes), of usage (goods, people) and of component (infrastructure provision, operation).

3.1. Road transport

Governments everywhere are heavily involved in road transport, because road infrastructure is in most cases publicly provided. The exception is privatised toll roads, which are generally relatively unimportant. In most countries, roads are classified as being of national, regional or local interest. The concept of "interest" is not very rigorous, but in practice is quite clear. It recoups the notion of externability discussed above. A road of local interest is mainly exploited by local users. The benefits associated with its existence and its quality (in construction and maintenance) will mostly accrue to people based in a local jurisdiction, not to outsiders. This provides a justification for decentralisation of road construction and maintenance to this jurisdiction. The danger of overprovision or underprovision of local roads will be minimised by decentralisation. When a given road in a local jurisdiction begins to be utilised by too many people from outside the jurisdiction, a danger of underprovision will appear. Local taxpayers (and voters) will be reluctant to pay for a service which will benefit outsiders. Better consider the road as a road of regional interest, and have it decentralised to a regional government. Similarly, there are roads which are, to a large extent, utilised for interregional traffic, and cannot be left to regional governments, but must remain centralised in the hands of the central or federal government. This is why in most countries, roads of national interest are under the responsibility of the national government, roads of regional interest under regional governments and roads of local interest under the responsibility of local governments. The issue, however, is more complex than that for several reasons.

The allocation of roads to the three categories is in part arbitrary. Much of the traffic on "national" roads is in fact regional. In urban areas, the traffic on national roads which bypasses cities (often on ring roads) is often predominantly local. Spillovers are unavoidable. One can consider that the associated misallocations are minor, and therefore should be ignored or accepted.

One can also devise *ad hoc* transfer or co-financing systems which will in part deal with such spillovers. A ring road which will benefit both local users and national users can be financed jointly by the central and local governments interested. Who is formally responsible does not matter much: if it is the local government, it will obtain a transfer from the central government; if it is the central government it will obtain a subsidy from the local government.

Decentralisation of road provision and maintenance to a sub-national level of government does not mean that the central government can and should ignore how road transport service is provided by the sub-national government involved. If every local government, or even every region, were to develop its own signalling system, its own road designs, safety devices, snow removal activities, speed limits, axle weights, etc., road transport in the entire country would obviously be made more complicated, dangerous and costly. A certain common set of norms and standards is highly desirable or even necessary. It can either be achieved by negotiations between the various levels of government, or be imposed by the central government. A centralised regulatory framework is not incompatible with a decentralised system; it might even facilitate it.

Should the responsibility for provision and maintenance be dissociated? In certain cases, a level of government is responsible for the design and construction of a given road, and another for its maintenance. Construction is centralised and maintenance decentralised. There are some arguments in favour of such a solution. Maintenance is (or is said to be) less technically sophisticated than construction. It is also an area in which local information plays a greater role. On the other hand, what counts is the service offered by a road, and this service (in practice, mostly road quality) depends upon both construction and maintenance. In addition, maintenance costs are a function of construction costs. If the government which provides the road is not in charge of maintaining it, the temptation of delivering a "cheap" road will be hard to resist. This will lead to additional maintenance costs and will in most cases increase the total (construction plus maintenance) cost of the road. Not taking into consideration maintenance costs might also lead to an oversupply of roads. Divorcing provision from maintenance is not without serious dangers.

3.2. Air transport

In many OECD countries, air transport has become the second most important transport mode and, in terms of actual sales, the least bad measure of utility available. Governments of all levels are no longer much involved in air transport. In all dimensions of air transport, a massive shift from the public to the private sector took place in the past twenty years. Airplanes and airlines are overwhelmingly private. Airports are increasingly so, and even air guidance is being privatised in certain countries (such as the UK). Government responsibilities are limited to: (i) the siting of airports; (ii) the allocation of slots in airports and of routes authorizations; (iii) noise controls; and (iv) safety and reliability controls of air planes, flights and of air companies. None of these functions, mostly control and monitoring, is very costly. Several can be contracted out in part. Nevertheless, these functions are essential and must be performed (directly or indirectly) by some form of government: but by what levels of government?

The scope for decentralisation appears rather limited here. Almost by definition, a flight from A to B, taking a route over C, involves more than one sub-national jurisdiction. Its regulation cannot

be left to A or to B alone. One could imagine that A and B - and C - get together and agree upon a common regulation. But the transaction costs would be high, and it seems reasonable to leave that task to a national or international authority. The same is true of environmental and safety controls. They have a pure public good dimension, in the sense that every jurisdiction can benefit from a (central) government inspection at a zero marginal cost, and that no jurisdiction can be excluded from this benefit. This justifies central government provision.

The only task which might, at least in part, be decentralised is the siting of airports. A local or regional government is probably better placed than a national government to select a location for and decide on the design of an airport. Even in this case, the viewpoint of the central government must be taken into account, because location and design must be compatible with national (or international) environmental or safety norms.

3.3. Rail transportation

Rail transportation, by contrast, is heavily dependent upon government. First and foremost, rail transport is heavily subsidised by governments practically everywhere (with the exception of the US). Although the massive subsidies involved are often hidden by means of various accounting gimmicks[4], they become apparent when one compares what is actually paid by users with what is actually spent to provide the service. The rule of thumb is that in many countries rail transportation pays about half its costs. The balance is borne by public finance. In many cases, operating costs are not even covered by sales. There are, needless to say, no specific rail transport related taxes; in many cases, rail transport is even totally or partially exempted from ordinary taxes. Second (as a consequence) in most OECD countries, rail companies are still publicly owned, even when they take the form of shareholding companies. Third, because of heavy fixed costs, there can hardly be competition between rail infrastructures: there cannot be two or three rail tracks going from A to B and competing with each other.

The level of government which is usually involved in rail transportation is the central government. There are good reasons for this. As in the case of air transportation (although to a lesser extent) most rail links concern cities located in different jurisdictions, which makes it difficult to allocate responsibility for service provision to a single, sub-national jurisdiction. Rail transport is also marked by network externalities. A partial optimisation by link or by sub-network will not maximise utility for the entire network; this can only be achieved by a central authority intervention. Environmental and safety control issues cannot be decentralised either.

In spite of these difficulties, several countries, eager to increase the efficiency of rail transport, have tried to introduce a dose of decentralisation (and of privatisation) in the sector. The Japan National Railway has been divided into six distinct geographical entities for passenger traffic, responsible for both infrastructure and operation (and these entities have been privatised). In many counties, ownership and control of rail infrastructure have been divorced from operation of rail service (often to be privatised). In some cases, as in the UK, the operating companies created have a limited geographical scope. In most cases, however, the regulation of rail transport operations in these geographically limited zones has remained a national function exercised by the central government or by a national regulation agency. In these cases, therefore, one should rather speak of partial or even pseudo decentralisation.

In yet other cases, the national rail enterprise negotiates directly with regional authorities for the provision of regional transport services. The region offers a subsidy and, in exchange, the rail agency operates a money-losing line. The central government also asks regions to contribute to rail track

investments of interest to them, particularly when it is clear that operation will never be able to pay back the investment.

3.3.1 Partial decentralisation of rail transportation in France

An interesting experience of transport decentralisation has been conducted in France in recent years (Chauvineau, 2003). The context is the following. On the one hand there are 22 regions, with elected councils and modest tax resources and, on the other hand, there is the SNCF, the powerful and monopolist nationalised rail operator. (There is also the RFF, *Réseau Ferré de France*, the nationalised infrastructure owner, but RFF does not play an important role in this decentralisation experience.)

Rail transportation is a major drain on public finance in France. Total expenditures in 2002 amounted to 18.4 billion euros[5]. The amount paid by rail users for the same year was 8.7 billion euros, or 47 per cent of costs. The balance, representing 0.6 per cent of GDP, is covered by various subsidies, or by additional debt that will later on be picked up by government.

Part of the rail traffic is considered of "regional interest", meaning that most of it has its origin and destination in the same region. The relative importance of this traffic in terms of sales is not made public. We know it represents about 13 per cent of passenger traffic in terms of passenger-kilometres, and should be slightly less than 10 per cent in terms of sales. The associated costs are not known, but they are likely to represent more than 10 per cent of total costs, because this traffic, with its low volumes, is costly. Sales therefore represent a low share of costs, perhaps one-third. The government, and even the SNCF, would probably be happy to get rid of some of these rail services (which could in most cases be replaced by non-subsidised bus lines). This, however, would be politically very difficult because the demand for goods so highly subsidised is obviously strong. This is why the government found it expedient to decentralise to the 22 regions the responsibility for rail transport of regional interest. This was first done in 1998 for seven "experimental" regions, and has been generalised in 2002 to all regions.

Each region therefore negotiates with the SNCF, or its regional branch, detailed contracts for the operation of the service. These contracts define the volume and characteristics of the expected service (in terms of quantity, quality, accuracy, reliability, etc.), as well as the subsidies to be given by the region. They raise a delicate principal-agent problem. The principal is the region, which knows what it wants for its people; the agent is the SNCF, which knows what can be done at what cost. The asymmetry of information is formidable. Technical and economic knowledge about rail transportation is almost entirely concentrated in the SNCF, the rail monopoly. Particularly in the beginning, regions did not have competent people in this matter and found it difficult to hire any; they could not easily have recourse to specialised consultants, because they hardly existed. What did they do? A detailed study (Desmaris, 2004) of the first seven contracts suggests three different and contrasted approaches.

First, there is a *command-and-control* approach. Contracts are relatively short-term, i.e. five years (the minimum period prescribed by the central government). They define the expected output in great detail. They attach great importance to service continuity, with heavy financial penalties for non-delivery (i.e. scheduled trains not operated), even in cases of strikes. Control mechanisms are put in place: many documents must be communicated by the agent to the principal, the region can audit the SNCF, or have it audited by external observers.

Second, there is an *incentive-based* approach. Technical specifications, which are also numerous, are designed to induce the SNCF to improve its performance in terms of quality and productivity. For instance, if the punctuality rate for year *n* is x%, it can be prescribed that it will be (x+y)% in year *n*+1.

Performances better or worse than agreed standards give rise to bonuses or penalties for the agent. Relatively strict controls are also planned in the contract. Contracts are signed for a somewhat longer period, such as six years.

Third, there is the *trust-based* approach. Contracts are for a longer (7-10 years) period. They do not define very precisely the service characteristics and do not include many objectives. Continuity of service is not discussed in the contracts. Penalties for failures to achieve objectives or even to produce information are weak or inexistent. Monitoring and auditing is also weak. The principal relies on the full loyalty of the agent, and does not want to jeopardise it by un-gentlemanly controls.

Actual contracts often include elements of these three approaches. In practice, however, regions availed themselves of the freedom given to them and negotiated contracts which are quite different from region to region, with some contracts close to the pure command and control type and others close to the trust type.

The increased responsibilities and expenditures of regions have been accompanied by a specific yearly subsidy of 1.5 billion euros (indexed upon another major subsidy), which is supposed to be equal to what the central government was spending, before decentralisation, for rail transportation of regional interest.

It is too early yet for a full assessment of this decentralisation experience, which would include, *inter alia*, an evaluation of the relative efficiency of the different contract types. A few points can be made, however.

1. Total subsidies increased by about 13 per cent. Regions are reported to contribute another 0.2 billion euros from their own resources.

2. As a result, the supply of regional rail transportation increased very significantly in terms of seat-kilometres. How much of that increase is due to increased expenditures or to increased efficiency is not known.

3. Traffic also increased (from 7.6 billion passenger-kilometres in 1998 to 9.2 in 2002) and it increased faster in the seven regions which benefited from decentralisation than in the other regions. In most cases, however, traffic increased less than supply. The overall elasticity of traffic to supply for the 1987-2002 period is 0.7. Since costs are a function of supply and sales a function of traffic, this suggests a decline in the financial viability of rail transportation of regional interest.

4. The outcome may not be as brilliant as the protagonists of the reform would like to make it appear. It nevertheless seems quite clear that regions are doing a better job than the central government at improving supply qualitatively, at monitoring and controlling the SNCF, at exerting pressures on SNCF for punctuality and reliability and at pushing cost-efficiency. Considering that they are at the very beginning of a learning curve, this is all the more remarkable.

3.4. Water transportation

From the viewpoint of decentralisation, the case of sea transportation is markedly different from that of canal and river transportation. The former lends itself well to decentralisation; the latter does not.

Because ships are generally privately owned and operated, government intervention in sea transportation consists basically of regulations and the supply of harbour services. Regulations related to safety, environmental protection, working conditions, etc., are very much needed, and must be provided centrally. But "centrally" usually means at an international rather than at a national level. Much of sea transportation takes place in international waters, and what takes place in national waters is predominantly international. This leaves little scope for central government intervention. Harbours, on the other hand, are mostly a sub-national business, without major spatial spillovers, and can easily be decentralised to regional or even local governments. In addition, harbours, like airports, can - and do - charge users, and do not necessarily necessitate public funding. This is not to say that the co-ordination of sea transport with land transport does not require central government intervention, but this co-ordination need not interfere much with local harbour development and management.

Inland water transportation, by means of canals and rivers, is a completely different matter, for two reasons. Goods transported by barges usually cross local and even regional borders, so that canals and rivers are like roads of "national interest". Then, like rail transportation, inland water transportation is usually heavily subsidised. A large degree of centralisation seems appropriate.

3.5. Urban transportation

Urban transportation refers mostly (but not merely) to the transportation of people in cities, for work purposes, but also for education, shopping and other trips. In most OECD countries, the dominant mode of urban transportation is the private automobile. In France, for instance, transport surveys undertaken in a score of large agglomerations (CERTU, 2002) show that in recent years the share of the automobile ranged from 77 to 90 per cent (of mechanised trips, excluding walking and cycling) and continues to increase. For smaller cities, this share would be significantly higher. Even for the Paris agglomeration, the figure was 68 per cent. It follows that urban transportation intersects largely with road transportation. This is even truer if one considers that bus transportation (which dominates public transport in all but the very large cities with subways) also utilises road infrastructure.

Nevertheless, urban transportation has important specificities. It is a key determinant of the efficiency of cities. It is associated with all sorts of externalities, including congestion and pollution. Alternatives to the private automobile must be offered to people who do not have access to them. All this fully justifies government intervention in the area of urban transportation. Such intervention usually takes the form of (i) public transportation provision, and (ii) private transportation control. The purpose of this paper is not to discuss such policies, but to see whether they could and should be decentralised.

The answer is: yes. Practically none of the issues justifying government intervention touches upon national interests. Urban transportation is therefore best left to local governments. Two complicating factors, however, must be taken into account.

One relates to the appropriate jurisdiction. Policies should be designed, financed and implemented at the agglomeration level. In many OECD countries, however, agglomerations consist of many local governments. This leaves us with three options, none of which is very satisfactory. Urban transportation can be decentralised to local or municipal governments. This implies that, in a given agglomeration, there will be a juxtaposition of various urban transport policies, which may or may not converge. Another option is to decentralise to a higher, intermediate — in practice regional or provincial — level of government. Many of the benefits of decentralisation will be lost, because the decisional and financial jurisdiction will be much larger than the agglomeration and will lack the

information and motivation required for appropriate provision. The last option is to create an *ad hoc* institution to conduct urban transport policies in the appropriate area. But this institution will not be a full sub-national government, with an elected council and the desirable legitimacy to raise taxes and define policies.

This final option is the one chosen in France, for instance. In each agglomeration, an appropriate perimeter for urban transportation is defined (it is proposed by the central government) and an "organizing authority" (*autorité organisatrice*) is created, which consists of the municipalities of the perimeter. Municipalities are not forced to join it, but in practice most of them do and they make up the governing board of the authority. There is a "carrot": organising authorities are allowed to levy a special tax (a tax on wages, called *versement transport*), earmarked for urban public transportation. The system functions in the sense that it has given authorities an important source of income to provide public transport at the appropriate geographical area. On the other hand, taxation without representation (more precisely, without *direct* representation) is always dangerous. It tends to dilute responsibility and to increase public expenditure, particularly when taxes are business taxes largely exported from the tax jurisdiction.

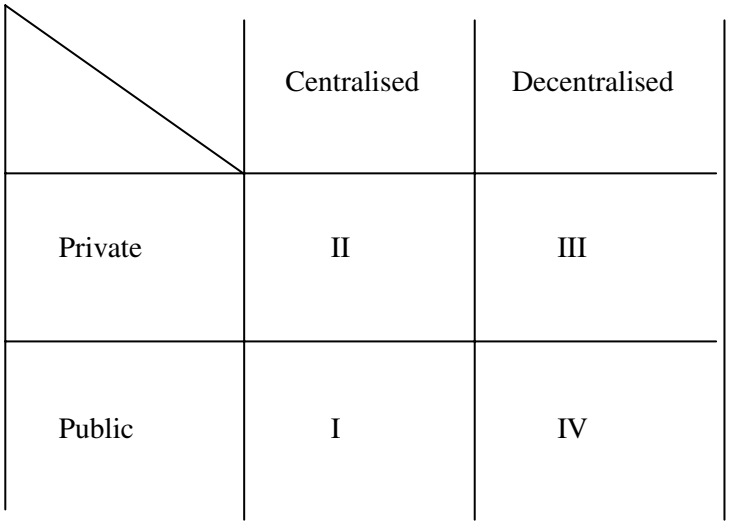
The other complicating factor is that urban public transportation is very demanding in terms of public finance. Nowhere do user charges cover the costs. Local governments want public transportation, but they also want the central government to pay for it. They ask for specific subsidies, thus weakening the main justification for decentralisation.

3.6. Privatisation and decentralisation

A number of transport-related functions or activities *within each mode* can be privatised or rather, contracted out to private enterprises. This is, for instance, the case of road construction or maintenance, of airport construction and operation and of harbour development or operation. In relation to decentralisation, should privatisation be considered as an alternative or as a complement?

Figure 1 gives a partial answer. The starting point, in quadrant I, is centralised public provision, as in the case of traditional rail transport provision, for instance. Two changes may be introduced, separately or jointly. The system can remain public, but be decentralised, i.e. move to quadrant IV, as in the case of devolution of roads to a lower level of government. The system can also remain centralised but be partly contracted out to a private enterprise. This is represented by a move to quadrant II, and can be illustrated by the case of the privatisation of air control in the UK. Figure 1 suggests that the system can also be jointly decentralised and privatised, i.e. move to quadrant III. However, in a decentralised system, there is no reason to expect that all regions will have the same attitude towards privatisation. Some might indeed choose to contract out part of their new responsibilities (quadrant III), but others will prefer to discharge them directly (quadrant IV). Practically by decentralisation's definition, a central government cannot decree a global move to quadrant III.

Figure 1. **Public/Private and Centralised/Decentralised Provision of Transport Services**



As is well known, privatisation is never (and should never be) complete and always comes with government initiative and control (and often with government money). The greater the dose of privatisation, the greater the amount of regulation required. The success or failure of a particular privatisation is largely a function of the success/failure of its regulation. Supply or concession contracts have to be designed, auctions have to be organised, performance has to be monitored, changes or conflicts have to be negotiated, regulatory agencies have to be created and regulators appointed. These are complex and difficult tasks. Some national governments find it difficult to perform them efficiently. It must be feared that they are beyond the capability of many sub-national governments.

This suggests that decentralisation might make it more difficult to contract services out to private enterprises. Because the regulatory capability of sub-national governments is often low or at least lower than that of national governments, so is their capability to privatise. In that sense, one could see privatisation as an alternative to decentralisation.

One way out of this dilemma would be to have national regulatory agencies working for sub-national governments. Regulation is clearly an activity with important economies of scale, which cannot be easily decentralised. Since regulators must be independent of the government which creates them (and be seen as such), there is no reason why they could not work on behalf of sub-national governments wishing to privatise services which have been decentralised.

4. DECENTRALISATION OF TRANSPORT-RELATED TAXES

Decentralisation, as mentioned above, cannot be decentralisation of responsibilities and expenditures only; it must also include decentralisation of taxes. Transfers (from central to sub-national governments) can play a role. But an excessive reliance on increased transfers undermines the potential benefits of decentralisation. The basic theorem of fiscal federalism is that welfare will be maximised if and when each region selects its own level of taxes-cum-expenditures (a level where the marginal utility of public expenditures equals the marginal disutility of taxes for the regions' inhabitants-voters). This theorem assumes taxes. The question is: could and should transport-related taxes be targeted for decentralisation jointly with decentralisation of transport expenditures?

4.1. Characteristics of transport-related taxes

Most tax systems do not generally discriminate between sectors. The corporate income tax, the personal income tax or the value-added tax apply equally to income earned or spent in the shoe, in the book or in any other industry. The transport sector is an exception. In most countries, it is subjected to a number of *specific* taxes, i.e. taxes which do not exist for other goods or activities. Seven points can be raised about such taxes.

1. These taxes concern road transport only. Air, rail or water transport are not subject to specific taxes. "Transport-related taxes" actually means: "road transport-related taxes".

2. Road transport taxes are many. In France, for instance, there are at least nine such taxes: a registration tax (*certificats d'immatriculation*), an ownership tax (*vignettes*[6]), a tax on automobile insurance, a surcharge on automobile insurance tax earmarked for social security[7], a tax on corporate automobiles, an axle tax, fuel taxes and two specific taxes paid by tolled highway companies. More generally, road transport taxes fall into two main categories: taxes on motor vehicle ownership (registration taxes, yearly property taxes, axle tax, yearly inspection taxes, etc.) and taxes on motor vehicle usage (fuel taxes, insurance taxes, etc.).

3. In most countries, the picture is dominated by fuel taxes. In France, for instance, fuel taxes (in excess of the ordinary VAT paid by all goods) account for 79.5 per cent of transport-related taxation. The tax rate is usually significantly higher for gasoline than for diesel oil. Tax rates vary from country to country and over the course of time. In Europe, the average tax rates are about 200 per cent (of the pre-specific tax price) for gasoline and 150 per cent for diesel oil. In the UK, the country with the heaviest road transport tax burden, the numbers are 285 and 257 per cent, respectively. In France, they are "only" 270 and 178 per cent.

4. There is a good economic justification for this heavy taxation of road transport. All (or nearly all) taxes are distorsive — and modify resource allocation and welfare in an undesired

way — but some are less distorsive than others. They should be preferred. The least harmful taxes are those that hit goods and services which exhibit the smallest price elasticities. A large increase in the price of such goods will only moderately decrease the demand for them, and only moderately change the allocation of resources. The theory of "optimal taxation" therefore states that tax rates on goods should be inversely proportional to the price-elasticity of goods[8]. The benefits of road transport are so great that road transport can be, and is, heavily taxed without overly affecting demand and consumption. Ministers of Transport may not be fully aware of this, but Ministers of Finance certainly are.

5. Road transport taxation represents an important gross contributor to public finance in most OECD countries. Its relative importance varies from country to country (and with the definition of "public finances" used), but is close to 10 per cent in many European countries. In France in 2003, *specific* road transport taxes represented 2.2 per cent of GDP and 12.7 per cent of central government taxes (but only 4.8 per cent of all government taxes, including social security taxes). Total road transport taxes would represent much more[9].

6. Road transport-related taxes and fees are generally much more important than road transport public expenditures. In France, for instance, in 2002, specific road taxes represented nearly twice as much as public expenditure on roads (total road-related taxes would represent four of five times as much). Similar orders of magnitude would be found for most other European countries, although not for the USA and Canada. In public finance terms, road transport is a major *net* contributor[10].

7. A last characteristic, particularly relevant for our discussion, is that this contribution is very unevenly distributed between levels of government. Most taxes accrue to the central government, but most expenditure is borne by sub-national governments. Table 1 illustrates this point in the French case. Government as a whole benefits greatly from road transportation, in public finance terms. However, local, that is sub-national, governments do not. If decentralisation in road transportation means giving more expenditure responsibilities to sub-national governments, as it does generally, then decentralisation means increasing the massive net gain of the centre and increasing the equally massive net loss of local governments.

Table 1. **Road transport-related taxes and expenditures, by levels of government, France, 2001**

	Taxes[a] (G euros)	Expenditures[b] (G euros)	Balance (G euros)
Central government	33.0	3.2	+29.8
Local government	0.2	13.6	-13.4
Total government	33.2	16.8	+16.4

Source : Calculated from URF (2003), pp. III-10-11.
Notes : [a]Specific taxes only ;
[b]Current expenditures plus investment expenditures; « G » (giga) stands for billion (10^9).

4.2. Decentralisability of transport-related taxes

One could argue that increased decentralisation of expenditure in the transport sector should be treated independently of increased tax decentralisation: true, greater local transport expenditure implies greater local resources, but this concerns local resources in general and has nothing to do with transport-related taxes. This argument has some value, but it is not entirely convincing either, for several reasons.

Greater local resources should, at least in part, consist of greater local taxes (or more precisely, greater local access to tax bases). Transfers from the central government are only a second-best solution. As mentioned above, transfers do not force local governments to weigh the political benefits of an additional euro of expenditure against the political costs of an additional euro of local taxes. Accountability suffers, and the main theoretical advantage of decentralisation is lost or eroded. One cannot recommend decentralisation of expenditures without also pushing simultaneously for decentralisation of taxes. The importance of transport-related taxes is such that they must be considered, like any other tax, as candidates for the tax decentralisation consistent with expenditure decentralisation. Then transport-related taxes are a particularly interesting candidate because of the specific tax treatment of the transport sector. To a certain extent, road taxes are user fees. They are a price paid by road users for the costs they inflict upon society when using the roads. Since many (not all) of these costs, and certainly road damage costs, are borne locally, there is a case for taxes to be paid locally also. One cannot escape a discussion of the decentralisability of road transport taxes: can they be good local or regional taxes?

A good local tax has several characteristics. It is a tax that will not induce taxpayers to move out of a high tax rate jurisdiction at too high an economic cost. A corporate income tax, levied at the location of corporate headquarters, is not a good local tax, because it is too easy for corporations to move their formal, paper, headquarters in order to reduce their tax burden. The tax base of a "good" local tax must also be associated with activities which take place in the local jurisdiction and nowhere else. For that reason also, corporate income tax does not qualify, because the income of the society is produced (at least for multi-jurisdiction corporations) in many different jurisdictions, and cannot be easily allocated to each of them. A good local tax has a tax base which is reasonably well distributed between the various localities or regions. An import tax or a mining tax, for instance, would not qualify, because it would unfairly favour the regions which have, by chance, a harbour or a mine located on their territory.

Decentralisability of vehicle ownership taxes. Taxes on motor vehicle ownership can make relatively good regional or even local taxes. They can be considered as a form of property tax — and property taxes are the local tax *par excellence*. There is a slight danger that motor vehicle owners may register their vehicle in a low tax rate jurisdiction. It happened in France with a yearly ownership tax (*vignette*) which was established as a *département* tax[11] (the *département*, of which there are about 100, is an intermediate level of government between municipal and regional governments). The Haute-Marne, a *département* which was not very populated nor very rich, deliberately chose a very low tax rate to become an attractive location for car rental companies to register their vehicles. By definition, these vehicles operate over the entire country. It worked. Many of these companies responded by having a sizable share of their fleet registered in the Haute-Marne, and the *département* ended up having a much higher than average tax yield per capita. But this is an extreme and not very significant case. Most of the time, paying registration, inspection or ownership taxes in a region other than that where the motor vehicle owner lives is considered cumbersome, time consuming or costly and not worth the potential gain. In addition, in developed countries at least, motor vehicle ownership is spatially quite well distributed. Car ownership ratios do not vary much between regions, much less so than many other tax bases, such as income or output or goods consumption. Motor vehicle

ownership taxes are therefore good candidates for decentralisation. In fact, they are already decentralised in many countries.

Decentralisability of fuel taxes. Can the same thing be said of fuel taxes, which constitute the bulk of road transport-related taxes?: to a certain extent, yes, for at least three reasons.

Varying tax rates between regions could induce some people to cross the borders of high rate regions in order to buy fuel in neighbouring, low tax rate regions, or to cross several regions to fill their tanks in low tax rate regions. But this tax competition (which would not be entirely negative in the sense that it would make people aware of tax rate differentials) cannot possibly be very significant. Most road transportation takes place within regions, and tax rate differentials could hardly justify the time and money required for fuel shopping outside the region.

Regional tax collection would be easy. Fuel taxes are presently calculated and paid at the refinery level by oil companies, which are few and well organised. They know how their sales are regionally distributed and it would not be difficult for them to apply the tax rates decided by the different regions of a country, and to pay them accordingly. Their natural reluctance at playing the role of taxman should be easy to overcome.

Third, fuel consumption per capita is also spatially well distributed, better than GDP per capita, for instance. In France, for example, the coefficient of dispersion (standard error divided by mean) of per capita fuel consumption is 0.13, lower than that of GDP per capita (0.16) or than that of existing regional tax bases per capita (0.15).

There are, nevertheless, several serious difficulties with the decentralisation of fuel taxes. One is that fuel consumption no longer increases as fast as GDP in developed countries; road transport almost does. But the fuel efficiency of all types of vehicle keeps increasing. Furthermore, there is a shift from gasoline powered cars to diesel oil powered cars. This is one of the reasons why the ratio of fuel consumption to mileage declines. Also, since diesel oil is not as highly taxed as gasoline, this further shrinks the fuels tax base. There is every reason to expect these trends to continue. Great efforts are made to reduce oil consumption in transport and to develop non-oil-based vehicles; in the medium term, they cannot but be successful. Giving regions fuels consumption as a tax base is therefore partly a poisoned gift, or at least a gift which is not as attractive as it might seem.

A second difficulty is that in most countries a decentralisation of fuel taxes would only be partial. The amounts involved are so high that in many cases they would exceed the additional and even present (road) transport expenditures of regions, not to mention the drain this would put on central government budgets. In practice, such a decentralisation would mean that fuel consumption as a tax base is shared between central and regional governments. They would be eating from the same pot, with each imposing its own tax rate. The freedom of regions in rate setting could be, at least at the beginning, somewhat limited or constrained by floors and/or ceilings.

Note that this is very different from “shared taxes”. A shared tax is a central tax, with a rate decided by the central government. A certain share of the tax (30 per cent, for instance) is allocated to regional governments, usually pro-rata the tax amount which has been collected in each region. For a region, a shared tax is not a tax, it is a mere subsidy. The regional government does not take the political decision of voting a tax rate. It takes what is given to it by the central government, which is the definition of a transfer or subsidy. The total amount of the subsidy is defined in relation to a national tax (30 per cent of a fuels tax, for instance), but it does not “come” from that tax, since all central government resources are fungible. This total amount is then allocated, *pro rata*, the amount collected in each region: this is one criteria for the regional allocation of a transfer, but one amongst

many possible criteria, and usually not a very good one. Shared taxes do not qualify as decentralised taxes.

Shared tax bases do, but at least in the case of fuel taxes they raise problems of their own. Both the central government and each region decide their tax rates. The actual price paid by the road user depends upon: (i) the pre-tax price, which fluctuates over time; (ii) the central government tax rate; and (iii) the regional government tax rate. Not every taxpayer identifies the exact relative importance of each cause. This does not facilitate tax responsibility. Regional governments might be tempted to increase their tax take in the hope that taxpayers will blame the central government — or OPEC or oil companies — for it.

National fuels taxation is presently also utilised for non-fiscal purposes. Central governments use it to moderate fluctuations in pre-tax prices, to favour diesel oil as opposed to gasoline or to discriminate against road transport. In addition, the European Commission tries to harmonise and restructure fuels taxation, without much power or success, it is true. Fuels tax rates are therefore an important and legitimate instrument of energy and transport policy in many countries. Defining and modifying tax rates in a way that pleases the many stakeholders (producers, haulers, the EU, the Greens, etc.) is a difficult task. Letting regions define and modify a part of these tax rates can only complicate that task.

These two difficulties are serious, but perhaps not detrimental. A partial decentralisation of fuel taxation would introduce spatial differences. At a given date, there would be only one national tax rate (and one pre-tax price). Interregional differences would therefore come from regional rates and policies only. In view of the great importance of fuels expenditure in household payments, and of the relatively small number of regions in most countries, it can be hoped that the media would emphasize interregional differences, that purchaser-voters would be aware of such differences and that regionally elected officials would be held accountable. The greater the relative importance of regional fuels taxation, the more likely this responsibility mechanism will function. In practice, decentralised fuels taxation should account for at least something like 25 per cent of present fuels taxation to fulfil the accountability function expected from a decentralised tax.

Relative to the issue of national non-fiscal policies, two points can be made. One is that regions too can want to utilise fuel taxation for non-fiscal purposes. If a region wants to tax even more road transport in order to subsidise even more rail transport, why not? Taxpayer-voters will approve or disapprove this choice at elections, provided this choice is made clear to them (and not hidden behind central government subsidies). The other point is that decentralised fuels taxation could be defined as proportional (rather than additional) to central fuels taxation. Regions would vote a surcharge to national taxes. This would respect the fuels tax *structure* sought by central government (on the gasoline-diesel oil differential, for instance) as well as fuels tax *evolutions* also required by central government.

Decentralising fuels taxation, and more generally road transport related taxation, is not as simple and obvious a solution as is often alleged. The tax base will not increase as fast as GDP. Tax responsibility will be shared, and therefore in part diluted. Using fuels taxation for non-fiscal purposes will be made more difficult. On the other hand, most other conceivable tax bases raise similar or even greater difficulties when one tries to decentralise them. There are very few tax bases that lend themselves perfectly to tax decentralisation. Yet tax decentralisation is a necessary corollary of expenditure decentralisation and imperfect tax decentralisation is the price to pay for the benefits of decentralising expenditure. All things considered, fuels taxation appears as a reasonably good candidate for decentralisation.

5. CONCLUSIONS

Over the past two or three decades, most OECD countries (with only a few exceptions, such as the United Kingdom) have become significantly more decentralised. Local governments and intermediate level governments (regions or provinces) have become stronger and now play a much larger role. This movement may not be as uniformly desirable as is often said, but on the whole it is generally considered a good thing. It has certainly strengthened democracy and probably increased efficiency. Over the same period of time, the relative importance of both passengers and goods transport in our economies and societies increased, much to the benefit of welfare and efficiency. Yet, the two phenomenons seem to have developed simultaneously rather than jointly. This paper has attempted to discuss how the potential benefits associated with decentralisation could be achieved in the area of transportation, and how some of the potential pitfalls could be avoided. Two conclusions stand out:

- One is that the topic does not lend itself to easy generalisations. Transport is so varied in terms of modes and processes, that what is true for one component (such as rural roads) need not be true for another (such as airports). One must proceed case by case and examine each component in turn, to devise the most appropriate optimal degree and form of decentralisation.

- The other conclusion is that decentralisation of responsibilities and expenditures alone is dangerous. Decentralisation cannot be: the central government collects the money and sub-national governments spend it. For governments to behave responsibly, there must be some balance between tax collection and spending. The balance cannot and need not be perfect; the realities of horizontal and vertical imbalances cannot be ignored; some transfers are legitimate and required. But a system relying too much on transfers would eliminate the responsibility mechanism which justifies decentralisation, and thus shoot itself in the foot. Decentralisation of tax resources (and not only increased transfers) should accompany decentralisation of responsibilities. Since transport-related taxes — in practice road transport taxes — are so important, the question of their decentralisation cannot be avoided.

NOTES

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2. This would be acting like the jury of a beauty contest with two candidates, which examines the first one only, finds some defects and pronounces the other candidate the winner.

3. The European Commission White Paper on transport is a good example of this approach: it ignores the amount of taxes contributed by (some) transport activities, as well as the amount of subsidies granted to (some) transport activities, and offers policy prescriptions without even mentioning their public finance consequences.

4. In some countries, such as France, various subsidies are considered as "sales".

5. Of which: 12.7 for operating expenditures, 2.5 for interest and 3.2 for investments. If instead of investments one were to consider the opportunity cost of the capital utilised plus depreciation — a methodologically more accurate method — one would arrive at a higher cost. These numbers ignore the 3 billion euros contributed by central government to the retired rail workers' social security system.

6. This tax was in principle abolished in 2000.

7. "Social security" in France refers to medical assistance, as well as to pensions, unemployment allowances and family assistance.

8. This idea was first introduced by Ramsay before World War II, and then rediscovered by Boiteux after the war in a slightly different context.

9. Total road transport taxes would also include VAT on fuel, vehicle purchases, vehicle repairs and maintenance, social security taxes on the wages of those working in road transport related activities and the corporate income tax of enterprises involved in such activities.

10. Public finance is not the only dimension to be considered but it is an important one, although curiously often neglected.

11. This tax was abolished in 2000.

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SUBSIDIARITY AND TRANSPORT POLICY CO-ORDINATION IN THE EUROPEAN UNION

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SUMMARY

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1. INTRODUCTION

The concept of "subsidiarity" is defined as the principle according to which decisions should be taken at the lowest decision-making level possible, given the objective pursued. For pricing policy in the transport sector, subsidiarity is understood to mean that while, for example, levying charges and taxes on heavy goods vehicles is within the competence of the European Union (EU) because such vehicles compete in an international market, determining the principles for an urban pricing scheme is best dealt with by national or local authorities. As regards transport infrastructure policy, it is stated in the EC Treaty that the Union would not be able to take decisions on projects without the agreement of the Member State concerned. It should, however, be noted that subsidiarity is not a static notion but it evolves with time; transport policy having been brought into the discussion only in 1996 under the Maastricht Treaty.

Perhaps because of the vagueness of the definition, applied research on subsidiarity and on (de)centralisation of decisionmaking in the transport sector has been rare. Proost and Sen (2003) have explored implications for a pricing policy whereby multiple levels of government have different degrees of powers and control over the instrument, as in the case of Brussels. De Borger *et al.* (2003) have assessed a similar setting in the context of Belgium and its neighbouring countries. Regarding infrastructure, several research projects[1], funded under the EU's 4th and 5th Framework Programmes, have attempted to define and measure network effects which occur in a neighbouring country, while Roy assessed the bias in cost-benefit analysis resulting from the omission of benefits to users in neighbouring countries in the case of the PBKAL project[2].

This paper aims at exploring how the concept of subsidiarity could be interpreted in two interlinked transport policy domains: infrastructure investment policy and charging policy. The paper is structured as follows. It starts by giving a brief overview of recent EU proposals to revise existing legislation regarding TEN investment and charging policies. Next, the occurrence of deficits from following marginal cost-based charging by mode is assessed, and efficient rules to cover this are presented. The paper then briefly discusses the empirical results of recent research projects, which assess the socio-economic impacts of investments and charging and concludes by advancing proposals for a combined investment and charging policy, taking subsidiarity into account.

2. INVESTMENT AND PRICING POLICIES AND SUBSIDIARITY

2.1. EU infrastructure investment and pricing policies

Creating a dynamic EU economy and fostering deeper integration of the national economies depends on a properly functioning transport system. Increasing transport volumes, a lack of

interoperability between the transport modes and systems, poor interconnections between national networks plus a fall in real investment are leading to bottlenecks and inefficient functioning of the EU transport system overall. This also leads to increased pollution and greenhouse gas emissions, in particular due to the continuously growing share of road transport. Furthermore, the peripheral countries of the European Union suffer not only from long distances and isolation, due to insufficient connections to the central markets of the EU, but also from congested networks in the centre. To address these problems, the European Commission has recently proposed two interlinked policy initiatives:

- The revision of the **Trans-European transport Network (TEN) Guidelines**[3] aims at concentrating funding on major trans-European axes serving long-distance and international traffic. Thirty priority projects on these axes have been identified and declared of European interest. The new Guidelines have a strong focus on the integration of the new Member States' networks as well as on non-road modes, with a view to modal rebalancing, curtailing congestion and the reduction of environmental pressure from road transport.

- The revision of the so-called **Eurovignette Directive**[4] foresees the possibility to charge heavy goods vehicles (HGV) on roads for the infrastructure (construction and maintenance) costs as well as accident costs caused by usage of the TEN network. To manage congestion and environmental effects, charges may be differentiated to reflect the damage caused. The revenues of the charging system should be earmarked to the benefit of the transport system as a whole, making financing of other modes thus possible.

Despite their clear interlinkages – financing of TEN investments – the development of these two policies has followed a different logic. The TEN package relies on national funding, given that only up to 10 per cent of investment costs can be covered from the TEN budget[5]. The package has not been put together under a given budget constraint but relies on increased resources for it to be successfully implemented[6]. Regarding the charging directive, it is not fully clear what the underlying economic logic is. On the one hand, the proposal aims at extending the principle of territoriality, by allowing all HGVs to be charged their share of investment costs. On the other hand, it allows the charging of investment costs either made by private investors or already financed by general taxation. In the first case, roads are assumed to be close to a private good (or a club good, see section 3.1.), whereas in the second case charges seem to have a revenue-raising logic.

2.2. Infrastructure planning and subsidiarity issues

In the case of transport infrastructure, it is the Member State and the regional or local authorities which bear the burden of the financing and manage the complex administrative procedures prior to construction authorisations, particularly public consultations. Even in the case of projects co-financed by the Cohesion Fund, which may provide up to 80 per cent of investment costs, the Member States concerned remain liable for the risks of non-compliance with the project objectives.

The EC Treaty confers on the Community the task of identifying projects of common interest and, where appropriate, contributing financially to their implementation. However, these powers are limited for a number of reasons:

- Projects of common interest require the approval of the Member State concerned[7];

- Since 1993, the average contribution by the Community has been less than 3% of the cost of the priority projects[8];

- Construction authorisations, which depend on compliance with a host of national rules and on expropriation, remain in the hands of the Member States, although Community directives on environmental impact assessments introduced some common requirements.

Past experience has shown that investments in the sections of the TEN which mainly benefit foreign traffic are typically not prioritised in national planning, and Community funding is seen as a necessary leverage to launch these projects. Transnational links have a low implementation rate of 24 per cent, as against 44 per cent for purely domestic links, and the most significant delays were concentrated on projects' cross-border sections[9].

3. METHODOLOGICAL APPROACH

3.1. Economic theory on pricing and financing

According to economic theory, investments in public goods should be carried out until the point where the sum of marginal benefits is equal to the marginal cost of the investment, while prices and taxes should reflect marginal costs[10], including external costs.

Setting prices equal to marginal cost will lead to efficiency[11] in resource allocation. For **private goods** with constant returns to scale, marginal cost is equal to average cost and full recovery of all costs, including investment cost, is automatically obtained. For **public goods,** the situation is different and cost recovery can rarely be attained. Depending on the sector and the existence of (dis)economies of scale in production, surplus revenues or deficits may occur. Surpluses are more likely for sectors with persistent congestion (impure public or club goods) while deficits are typical for sectors with high fixed investment costs and with little congestion (pure public goods).

According to the literature, such deficits (surpluses) should be covered (redistributed) by non-distortive lump-sum taxes. If such taxes are not feasible, as they typically are not in practice, economic theory suggests several options to cover financial deficits. These efficient charging rules vary depending on the organisation of the market, notably on the degree of regulation and competition. What is common to all such rules, irrespective of the type of good, is a variable element based on **marginal cost**. To complement marginal cost based prices, economic theory suggests the following efficient charging rules for the different types of good:

- *Pure public good*: general taxation, as it is not economically justified or technically possible (non-excludability) to add mark-ups to prices, because that would decrease demand beyond what is beneficial to society;

- *Impure public good*: general taxation, Ramsey pricing or fixed entry charges (two- or multi-part tariff). The optimal solution depends on the context, elasticity of demand by user segment, level of fixed costs in relation to variable costs of use, etc.;

- *Club good*[12]: two- or multi-part tariff consisting of an entry fee (fixed price) and user fee (marginal cost price). The fixed fee is set to cover the financing deficits, at the same time it ensures that supply is at an optimal level;

- *Private good*: marginal cost pricing (all costs are variable) typically leads to recovery of all costs but can in some cases generate deficits or surpluses depending on the degree of economies of scale. Profit-maximising prices are based on Ramsey pricing and include price discrimination where feasible.

All the above-mentioned schemes rely on marginal cost pricing as the basis. In Ramsey pricing a mark-up is added to the marginal cost price, which is inversely related to price elasticity and thus depends on the intensity of use. In a multi-part tariff system, a fixed charge is levied on each user, for example, as an entry fee to the system. The fixed price may be differentiated according to user characteristics.

Pricing and financing applications in the transport sector today rely to some extent on these principles. In many countries, road use charging is based on two-part tariffs with a variable element ─ fuel tax ─ and a fixed annual fee. It has to be noted, however, that fuel tax is a particularly poor proxy for internalising external costs caused by road use (see section 3.2.). On the other hand, differentiated prices for business *vs*. leisure are used in, for example, air travel and they go beyond pure differences in quality of service, thus reflecting the willingness to pay (cost elasticity) of different user groups.

3.2. Marginal costs in different regions of the EU

External costs of transport infrastructure use include infrastructure wear and tear (approximated often by maintenance costs), congestion, air pollution and noise, greenhouse gases and accidents. These vary considerably according to the place and time of driving as well as to the vehicle used.

The level of costs to be internalised depends strongly on the level of congestion and, to a lesser extent, on the effects on health of air pollution. Although marginal costs can vary constantly, average marginal costs in various regions can be approximated by population density, as presented in Table 1 for a typical heavy goods vehicle:

Table 1. **External costs**

Route type	Description	External costs (eurocent/km) for EURO-III heavy goods vehicle
Rural	Rural regions with low population density and very little congestion	5-10
Normal	Average population density regions	10-25
Mountain	Routes in environmentally sensitive mountain regions	20-40
Urban	Urban areas with high population density	20-40
Metropolitan	Metropolitan areas	40-70

Source: RECORDIT[13].

3.3. Deficits in the transport sector

Research has shown that marginal cost pricing can be implemented in a revenue-neutral way in the transport sector (see, e.g., ECMT, 2003; UNITE, 2004). Due to inherent differences between the modes and regions within Europe, the financial result will differ considerably by mode and by region. The result depends on the relative importance of two main factors:

- Economies of scale in production (fixed costs/operation costs, difference between average and marginal costs); and

- The degree of congestion (relationship between increases in traffic volumes and average speed/delay).

The lower the fixed costs and the higher the level of congestion, the more likely it is that financial surpluses will occur, and *vice versa*. A general assessment of possible surplus/deficit areas by mode is presented below. The financial result is, however, highly context-sensitive and depends on the (dis)economies of scale in production (investments) and use (congestion) in the specific situation.

- **Roads**: Efficient charging for the use of *urban roads* as well as some severely congested *interurban axes* would typically produce surpluses, because capacity cannot be expanded due to lack of space, which leads to persistent and high levels of congestion. On congested *interurban roads*, charging can often lead to recovery of investment costs, whereas for *roads in rural regions* and roads with very little congestion, if any, charging would lead to deficits, given the indivisibility of investment and high fixed costs;

- **Rail**: Given the important economies of scale in production and indivisibilities, it is likely that charging based on marginal cost would, in most cases if not always, lead to financing deficits[14];

- **Aviation and maritime**: Both sectors could cover investment costs in many cases, the main exceptions being regional ports and airports, which have low traffic volumes and whose main function is to ensure accessibility. The biggest hub airports and ports, which suffer from continuous congestion, might show considerable surpluses;

- **Inland waterways**: Given the considerable advantages that inland waterways provide to other sectors, such as irrigation or electricity production, it is possible that charging marginal costs only for transport users would lead to deficits in many cases.

4. EMPIRICAL RESULTS FROM THE EU 5TH FRAMEWORK PROGRAMME

4.1. TEN policy packages (IASON project[15])

The IASON project has developed tools to assess the socio-economic impacts of TEN and charging policies. The impacts are calculated in terms of the percentage of GDP. Two TEN packages were looked at:

(i) Implementation of the 29 priority projects[16] according to the Commission's initial proposal, with a total cost of approximately €225 billion;

(ii) Implementation of projects on the whole TEN network, the cost of which amounts to *ca.* €600 billion. Equity is also addressed in IASON by giving a different value to the parameter reflecting the inequality aversion of the decisionmaker.

Overall, the benefits of the all-TEN scenario exceed those of the 29 priority projects, 0.21 *vs*. 0.14 per cent of GDP respectively. This is particularly striking for the new Member States, for which the difference between the two alternatives is fourfold. However, given the difference in costs of the alternatives, €225 billion *vs.* 600 billion, implementing only the 29 priority projects seems to offer better value for money for the whole EU. Only with very strong inequality aversion would the opposite hold.

Implementing all projects on the overall TEN network has a strong equalising effect in the enlarged Union. The benefits are considerably higher in the new Member States[17], 0.46 *vs*. 0.24 per cent of GDP, which are typically less well-off than the EU-15 countries. On the other hand, the effects of implementing only the 29 priority projects are mixed in terms of equity. While the policy package shows a strong equalising effect for the "old" EU-15 Member States, the opposite holds for the new countries. As a consequence, the overall impact is somewhat unclear.

4.2. Financing of the TEN investments (TIPMAC project[18])

The cost of TEN investments varies considerably by country. In absolute terms, Italy, Spain and France show the highest investment costs, while Finland, Ireland and Sweden have the lowest. For investment costs relative to GDP, the highest figures are for Portugal, Spain, Northern Italy and Austria (>5.5 per cent) while the lowest relative costs are in Western Germany, Belgium, Sweden and Finland (<1.6 per cent). This is only partially reflected in the fuel excise duty increase, which is necessary to meet the increased investment volumes. This rise is the highest in Austria, Italy and Greece (>6.3 € cents/litre) and lowest in Germany, the UK and Belgium (<2.2 € cents/litre). These differences reflect variations in traffic volumes and the level of fixed investment costs in the various countries.

The TIPMAC project has looked at scenarios whereby the investments in the TEN priority projects[19] were financed either through increases in fuel excise duties or by levying marginal cost based charges on heavy goods vehicles.

According to TIPMAC, if investments are financed by increasing **fuel excise duties** – or through average cost pricing – impacts on GDP are positive but very small, if not insignificant. By 2010, GDP would increase by 0.2 per cent, while the stimulating effect would be somewhat higher in 2020, or 0.5 per cent. This occurs partly because of the economic dampening effect of the increase in fuel excise duties. The impacts of this scenario are negative in all peripheral countries of the Union because of their open economies and in particular their long distances from central markets.

Investments in the 29 priority TEN axes will increase GDP by 1.4 per cent by 2010, when only some of the projects will be implemented, and by 2.6 per cent by 2020, when all projects are to be completed if user fees (**marginal cost based charges**[20]) are applied which reflect congestion and environmental nuisances and cover the whole TEN network. This increase in GDP means a 0.11 per cent rise in the trend of GDP growth rate (2.5 per cent per annum). This is considerable, given the rather small share (10 per cent) of transport in the overall economy. The distributional impacts of this financing alternative are more or less geographically balanced, only Portugal and Spain would lose out somewhat. The highest benefits (>4 per cent GDP increase) would accrue to Ireland, France and Finland, the smallest to Belgium, Greece and the Netherlands (*ca.* 0.1 per cent increase).

4.3. Charging transit traffic

In De Borger *et al.* (2003), the potential revenues and inefficiencies are analysed when transit infrastructures are priced by regions or Member States. They found that monopoly pricing indeed generates important revenues for the Member State charging transit, but that the mark-up on top of marginal costs and the associated inefficiencies are, in the end, rather low when there is at least one competing alternative in another region or country. Although the inefficiency is rather small, it is a net transfer from the transit traffic to the governments operating the transit fees. From the economic point of view, this means, firstly, that equity[21] is the main issue rather than efficiency. A second implication is that transit countries which can charge the transit traffic may have sufficient incentives to invest, even if direct transport benefits for local users are small.

5. DISCUSSION OF THE RESULTS AND SUBSIDIARITY

Given the low priority set by Member States on integrating national transport networks with those of neighbouring countries and on cross-border sections of major axes, **stronger co-ordination at the EU level** would seem necessary, shifting decisionmaking upwards from the Member States. This would also ensure that those sections which mainly benefit foreign users receive appropriate priority in planning. However, the necessity for the Member States to give their approval to projects on their territory limits the possibilities for efficient co-ordination and planning at this stage. As a change to the Treaty does not seem likely, one way of gaining such powers in an indirect way could be a considerable increase in the EU budget for the TEN and priority projects offering a sufficiently strong leverage effect. Charging users, including transit traffic, could provide another way to create the

necessary incentives for cross-border investments, as shown in section 4.3. However, it should be ensured that the revenues are used for cross-border investments and not as a revenue-raising scheme.

Regarding financing and selection of TEN projects, the concentration of EU funding on main transnational axes, according to the recently adopted revision of the TEN policy, follows the objectives of the Single Market and of free movement of goods between Member States. Following this notion of subsidiarity, investments in other parts of the network are an issue for national or regional authorities. This notion is based more on "efficiency", given the focus on major axes and high traffic volumes, while "equity" is addressed only indirectly, through the involvement of the Member States and the European Parliament as co-legislators.

A **stronger focus on equity,** however, would also seem to be in line with the "European model" in the transport sector. Including equity along with efficiency as a priority for the TEN would put more emphasis on peripheral regions, which suffer from poor accessibility to the TEN and to central markets, and where user charging is not an answer because of low traffic volumes, high fixed investment costs and indivisibilities. This would be particularly relevant for the new Member States, as shown in section 4.1. For such a policy to be effective, a minimum level of service could be determined and agreed upon, to be offered to all EU citizens irrespective of their place of residence. This could only be carried out at the EU level.

The TEN policy seems to implicitly take into account the different possibilities for cost recovery of the individual transport modes. This is reflected by the focus given to investments in rail and, to a lesser extent, in inland waterways. However, the TEN package does not seem to address the **potential of financing gaps** within a mode and in different regions. First, the priority projects are located on major transnational axes, which carry the highest volumes of long-distance and international traffic, whereas the main financing deficits can be expected to occur in peripheral regions with low traffic volumes. Second, whilst the increased EU contribution for cross-border sections of the priority projects takes into account the low interest of Member States in financing these sections, it does not take into account the possibilities for user charging and the likely occurrence of financing deficits in different regions in Europe. The "Eurovignette" Directive would allow the levying of charges to meet investment needs. It would also allow the strengthening of the principle of territoriality and charging transit traffic (see section 4.3.). However, as shown in section 4.2., this would be detrimental to the peripheral economies, which suffer from long distances and relatively low traffic volumes.

To address both modal and regional differences, an efficient charging system, based on marginal cost pricing, as outlined in section 3.2., could be created at the EU level to complement funding from the national and EU budgets. In such a system, surplus revenues from congested regions, typically located in the centre of the EU, would be used to cover financing in regions suffering from deficits, which are often located on the EU's periphery.

NOTES

1. See, e.g., PROFIT http://europa.eu.int/comm/transport/extra/web/index.cfm or IASON http://www.wt.tno.nl/iason/

2. PBKAL, Paris-Brussels-Köln-Amsterdam-London high-speed rail project, is one of the priority projects of the Trans-European transport Networks.

3. The revised Guidelines were adopted by the Council and European Parliament in April 2004.

4. The proposal is currently being discussed by the co-legislators.

5. This share has been recently doubled to 20 per cent for projects crossing borders and natural barriers. For regions benefiting from the Cohesion or Structural funds, the EC contribution can be considerably higher.

6. When preparing the next EU budget for the period 2007-13, the Commission has clearly demonstrated its awareness of this issue and has therefore proposed a considerably higher budget for the TEN projects.

7. As provided for by Article 156 of the EC Treaty, despite the qualified majority rule laid down in the same Treaty for the Trans-European Networks.

8. For countries and regions eligible for the structural financial instruments, this share can be considerably higher. The countries or regions not eligible for the structural financial instruments qualify only for funding from the Trans-European Network budget, 40 per cent of which is allocated to the priority projects.

9. For further details, see Commission staff paper SEC(2003)1060, "Extended impact assessment of the proposal amending the amended proposal for a decision amending Decision No 1692/96/EC on the trans-European transport network".

10. Marginal cost is the cost incurred from the production of one more unit of the good. It comprises the cost of producing the good as well as possible external costs of the use.

11. Efficient resource allocation means that a given level of output can be reached with least input/cost or that, with a given input level, most output is obtained.

12. "Club good" is an impure public good but supplied privately, so it has to break even.

13. See www.recordit.org for details.

14. Marginal costs typically represent some 20-30 per cent of overall costs in the rail sector. Full cost recovery charging, on the other hand, would in many cases lead to too-high charges for users' willingness to pay.

15. IASON has been funded under the 5th Framework Programme for Research. The project comprised 12 institutions from seven countries and was co-ordinated by TNO-Inro, Netherlands, while the author of this paper was the scientific officer in charge of the project at the European Commission. In this paper, the results of the CGEurope model are used, developed by Prof. J. Bröcker from Kiel University, Germany. The model is a computable general equilibrium model. Further details of the model, the IASON project and deliverables can be obtained from the project website http://www.wt.tno.nl/iason/

16. In the final list, there are 30 priority projects, as the inland waterway axis, Seine-Scheldt, was added.

17. In addition to the 10 countries which joined the EU in May 2004, Romania and Bulgaria are among the 12 candidate countries covered by the new TEN Guidelines and IASON analysis.

18. TIPMAC has been funded under the 5th Framework Programme for Research. The project comprised six institutions from five countries, and was co-ordinated by Cambridge Econometrics, UK. The author of this paper was the scientific officer temporarily in charge of the project at the European Commission. Further details of the project and deliverables can be obtained from http://www.camecon.com/services/projects/Tipmac/Tipmac_project.htm.

19. The TIPMAC model covers only the EU-15 countries.

20. It is assumed that any surplus revenues are redistributed through lower labour taxes (the best use of surplus revenues is to decrease the taxes on the markets with the highest distortions – also called double dividend).

21. Equity in this paper means the distribution of net economic benefits either equally across regions or favouring poorer regions/households. The concept of "solidarity" is often used to the same effect.

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THE POLITICAL ECONOMY OF TRANSPORT DECENTRALISATION

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THE POLITICAL ECONOMY OF TRANSPORT DECENTRALISATION

SUMMARY

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ABSTRACT

Political economy tries to incorporate the incentives and constraints which are at play within a democracy in the analysis of governmental institutions. In the context of decentralisation versus centralisation the effect of interest groups, the scope and incentives for innovation and the career concerns of public officials can differ. The broader economic context and what type of policies have priority determine in theory whether the trade-off is in favour of the decentralised or centralised provision of transport. Empirical evidence for EU countries in 2000 suggests, however, that there is a higher level of traffic safety, measured by an indicator of traffic deaths, in countries with more decentralised provision of public goods. Increasing the degree of expenditure decentralisation by 0.10, which, for instance, is the difference in decentralisation between Italy (0.25) and Germany (0.35), is associated with a *reduction* by 2.2 traffic deaths per 100 000 inhabitants. The benefit of decentralisation is, however, contingent on the presence of strong institutions and low levels of corruption.

1. INTRODUCTION

One of the key constitutional questions faced by the European Union is the need for a consensus over the appropriate political and administrative decision structure. At what level of government should expenditure decisions be made? Which administration should be in charge of the implementation of policies? How much autonomy should be granted to regional and local governmental units? These are critical questions, in particular for those sectors of the economy which are regulated or financed by the government and have a high need for capital investment and where the choices over regulatory frameworks and financial models have important effects on other regions.

Both these criteria are met for the transport sector in the European Union. On one hand, the financial capacity required for individual projects and the extent of government involvement are among the highest of all government sectors. Although government expenditure is greater, for instance, on education and health, the individual projects with the highest costs are typically found in the infrastructure and transport sectors. Given the ever-increasing demand for mobility in the EU implies that close attention must be paid to incentives for research and innovation. On the other hand, a well-managed and appropriately funded transport sector in one country or region has important economic repercussions on other regions, as it will attract business and commuters from them.

The challenges here can thus be categorised into two broad areas: (i) How to maintain or extend capacity for the flow of goods and passengers; (ii) How to bring about the necessary innovation in those areas which have no, or outdated, transport networks. The first point is the principal, but not exclusive, challenge faced by the EU members predating the last round of extensions. The second

challenge, on innovation, is high up on the agenda for the new-entry States of 2004, in particular in light of the considerable capital and human resource investment involved.

One organisational and constitutional aspect which received prominent treatment recently is the role of decentralisation and its potential to improve the delivery of publicly financed or regulated goods. This interest is by no means a speciality of the EU, where the principle of subsidiarity may be the source of this policy focus. Indeed all intergovernmental entities, such as the World Bank, the IMF or the OECD, have special research and task programmes committed to this topic. Given this interest and despite the fact that decentralisation is not a new "idea", we are still in the process of gathering understanding on how to decide when decentralisation is advantageous.

This chapter attempts to give a political economy approach to this question. Political economy tries to understand the incentives and constraints that are at play within a democracy. It wants to shed light on the motivations and restrictions which affect not only members of government and public officials, but also voters themselves in a jurisdiction. This approach thus attempts to open up the "black box" of government to analyse different institutional structures and how they affect policy choices and the efficiency of public goods provision. In this approach, one specifically allows for the fact that members of government may want to pursue a private agenda, that electoral competition and scrutiny by voters can put pressures on representatives and that they are subject to influence from special interest groups during the political deliberation and legislation process. All these aspects come into play in the comparison of centralised versus decentralised structures. Note that this is in some contrast to the more traditional view in economics, i.e. that governments always try to choose a policy which optimises welfare in society, which has then been put in juxtaposition to the private sector, where profit maximisation is the driving motive of actions. In such a view of the world, however, constitutional design often does not matter. Under the political economy approach, the judgement of what the government will do is indeed determined by the institutional features and the policy implications which crucially hinge on them.

In Chapter 2, some theory of political economy will be reviewed to illustrate a few of the key arguments. We also explore a further issue of practical importance, which is whether to appoint or to elect public officials. This is of direct relevance to those countries which prefer more decentralised structures, entailing the creation of many further public positions. Given the contrast between the traditional approach and the taxonomy of political economy, we turn to empirical evidence in Chapter 3 to illustrate the effect of decentralisation on the efficiency of public goods provision. We employ statistical methods to show that traffic safety, as measured by an indicator of traffic deaths, is significantly better in more decentralised EU countries. This result is robust to a host of alternative explanations illustrating the important contrast of incentives between centralised and decentralised structures. Chapter 4 then summarises the findings and concludes.

2. SOME POLITICAL ECONOMY THEORY

2.1. The basic model

Despite some considerable differences in regimes among representative democracies, the basic common feature is that all individuals above a certain age can vote for representatives who, in turn, determine which policies are adopted. An early approach to understanding which policies will be chosen was formulated by Downs (1957) and Hotelling (1929), who argued that, when standing for election, parties will make electoral promises that, under some assumptions, converge to a very special and unique point.

To illustrate this, suppose the only tax levied in the economy is on income and the only policy choice is what the tax rate should be. Assume furthermore that there are only two parties, the election is determined by pure majority rule and that everyone turns out to vote. The prediction of the Downsian party competition is that both parties will converge on the platform they propose to the voters at an election. What will this platform be? To win an election a party needs the support of at least half the voters. Now if one party proposes an extremely low tax rate, the other party may find it optimal to propose a somewhat higher tax rate, thereby pleasing more voters with their more moderate platform than the party with the extremist platform. As the party with the extremist platform knows that the other party will choose a more moderate policy, he, in turn, will find it more promising to propose such a policy in order to, again, ensure the majority of votes. This game of optimal response continues until neither party will find it in their interest to deviate from their current position. This position will then be such that increasing (or lowering) the proposed tax rate will reduce the number of votes to below 50 per cent. This policy thus corresponds to the median position in the policy dimension such that half the voters will prefer a lower and the other half a higher tax rate. The voter who will be the most satisfied with such a policy is called the "median voter".

This theoretical approach of party competition has been the building block of many subsequent models. But it has also been used to explain important empirical regularities. First, it has been observed that in countries with majority rule and two parties, both parties will run for election on practically indistinguishable party platforms, which some believe to be the case in the USA or Britain. Second, it also shows that the policy which will be successful at the ballot will indeed be that preferred by at least half of the electorate. Despite the strong assumptions and the simplicity of the model, both these predictions explain the empirical evidence found in some countries.

However, under this model many institutional features should not matter at all: for instance, take the case of decentralisation versus centralisation. Suppose there are two regions which are identical in that the types of policy preferred by voters are equally present in both of them. The policy chosen in each region will then be that of the median voter. As both regions are identical, the same policy will be chosen under centralisation, as here again the median voter will be the same person. To attain a different policy outcome, the two regions would need to be populated by different voters, such that the median voter of each region and that of the merged central government differ[2]. As we will show in the next section, however, this does not reflect the empirical reality, which shows that policies differ between centralised and decentralised democracies.

2.2. Relaxing assumptions

2.2.1 Commitment

One reason why this model may fail to reflect empirical realities satisfactorily is due to the restrictive assumptions. Parties rarely make credible policy promises. In fact, in this model there is no real action within any electoral period as all the policy choices are made *before* the beginning of the legislative term. However, policies are often a direct function of the effort put in by the government when they are in office.

Take a case where a country considers the reform of the rail sector. Suppose that the government can either choose to adopt a standard rail reform – one which has a proven track record in another country – or it may try to develop an innovative rail reform which has the potential of being better than the standard reform. When innovation is costly and the pay-off from it is uncertain, the government will choose to pursue it if the expected pay-off from it is higher than its cost.

The question is whether there will be more or less policy innovation under centralisation than under decentralisation. This hinges on the heterogeneity among regions and the type of innovation cost. When all regions are the same then the same type of policy innovation can be adopted in all regions. It would be better to have only one central government which then innovates than to have many regional governments which each spend money on innovation. This is a typical example where the returns to scale favour central governments.

However, when regions differ widely in their characteristics, what is an appropriate innovation in one region may not be useful in another. If this implies that more policy research is needed to explore the optimal reform for each region, it can lead to less innovation under centralisation. To see this, suppose that a critical aspect of cost is time, which can be allocated to a reform in parliament. Since this time is limited, only a certain extent of policy reform can be considered at the central level. Therefore, the scope of the reform may not be able to accommodate all regional characteristics, which can lead to poor policies being adopted[3]. Contrast this with innovation by each local government which may find it less constraining to sink the investment in policy innovation. We therefore find that when policy innovation is an important feature of government it may be better to have more decentralised structures where spatial heterogeneity matters (Barankay and Lockwood, 2004). On the other hand, the optimal level need not be complete decentralisation. The potential of economies of scale at the central level suggests that an intermediate level of decentralisation is optimal.

2.2.2 Career concerns

A further question is why governments try to innovate at all? The implicit assumption underlying the above argument is that governments have a personal interest in policy outcomes. This may not be a plausible assumption in many instances: rather what will be driving decisions to innovate are the career concerns of politicians. Successful policy reform is an important signal to the electorate of motivation and competence and can have a strong influence on the probability of re-election. A politician will therefore try to impress the electorate when he cares enough about being re-elected.

Whether centralisation or decentralisation generates stronger career concerns amounts to comparing the prestige of re-election between the local and the central level. It is often argued that it is more reputable to hold a central rather than a local office, which suggests that centralisation is preferable. However, here again the extent to which a politician will care about policy outcomes comes into play: local politicians are more likely to have a personal interest in policy

outcomes than members of the central government. Again, we see that the optimal degree of decentralisation is a balance between these two aspects.

2.2.3 Ideology

In the Downsian model, electoral competition parties have no ethos or ideology to structure their policies. Instead they behave more like TV channels that switch their programme to whatever the majority wants to see. This may not be realistic in many circumstances. For example, it would be hard to conceive that the Green Party would start to advocate the construction of nuclear power plants only on the basis that it would generate more votes.

The role and the effect of parties which have inherent ideologies – or non-pliable policy platforms – are still not entirely understood. If ideological parties are more prominent in politics, then the policy chosen need not correspond to that preferred by the majority of voters. If such is the case and if ideologically motivated parties are more common at the local than at the central level, this is an area of research which merits more attention. In fact, such ideologically motivated parties often take on the role of lobbies that are active outside parliament, and this will be explored in the next section.

2.2.4 Lobbying

All economies generate concentrated interests; however, the activity of lobbying is particularly of relevance for transport where individual projects are of considerable financial scope. Take a lobby that supports the interest of a large construction company. This interest group will try to find a way to change the policy that bypasses the electoral system (Grossman and Helpman, 2001). This can be through financial support (e.g. campaign financing) or through the supply of special, policy-relevant information which is transmitted strategically to the relevant public official. Whether the presence of these lobbies is in fact welfare improving or diminishing is what needs to be assessed on a case-by-case basis.

First, it is hard to come up with a consensus on how to aggregate the welfare of all members of society. It could be argued that a policy which improves the welfare of the majority of voters should be preferred to one that does not. However, this will ignore the well-being of minorities which a society may wish to protect. The question of whether the influence of an interest group is benign or harmful depends on whether the policy distortion they bring about will benefit an elite that does little for the rest of society, or a minority that deserves protection. For instance, many would agree that the activity of the World Wildlife Fund is good for society whereas fewer feel supportive of the presence of a lobby pursuing the interest of a single construction company.

Second, the question of lobbying is also related to the ability of new lobbies to enter the stage. If it were costless to enter the market of lobbyists then that would create severe competition amongst them. It can be shown that new entry will always affect policy but the upshot can be a bias in policy towards that preferred by the median voter (Felli and Merlo, 2003). However, political lobbying is generically very costly and thus the competition for influence does favour more resourceful lobbies. This is at the heart of the motivation to regulate the activity of lobbyists.

Given that interest groups matter for policy choice, how does it affect the trade-off between centralisation and decentralisation? This depends crucially on the industrial organisation of lobbying activity. When capture of politicians by interest groups is easier at the local level, centralisation is favourable. This is in line with the argument that centralisation is better because local governments tend towards "weak institutions", a point to which we return in the empirical section. However, the cost side for the lobby also needs to be considered. When a lobby has to be active in many small

jurisdictions to achieve its aim rather than in one large jurisdiction, its effectiveness declines in the various regions when there are returns to scale. This simple trade-off suggests an optimal number of jurisdictions that balances the ease of capture of local governments with the resource constraint of lobbies.

2.2.5 Elected versus appointed public officials

Another important aspect of institutional design that has been shown to affect public goods provision is the structure of selection of candidates into public office. Suppose a country wishes to increase the local government responsibilities and autonomy. For example, a country wishes to decentralise the maintenance and attribution of contracts for roads to the local level. How should those additional public officials who will be in control of this charge be selected? Over recent years there has been renewed interest in the question: should public officials in a democracy be appointed or directly elected by voters?

In a democracy, electoral competition often forces parties to converge towards median policy preferences. This implies that governments will be evaluated by voters when they make a decision as to whether to re-elect them. Thus one may think at first glance that it would be better for the majority of the electorate to elect public officials directly rather than to have them appointed, as these public officials will be more likely to adopt policies that are in the interest of the median voter.

However, this argument is incomplete given that those who are appointing public officials have, in turn, been elected themselves. Thus they may also want to appoint public officials who will carry out policies that are in the voters' interest. In this framework of political decision-making, the question of electing or appointing public officials is irrelevant.

This limited view of government does not, however, live up to the actual reality of political deliberation. One important aspect, as pointed out in the last section, is the presence of concentrated interests that leads to the formation and activity of special interest groups. They then try, by various means, to influence policy choices in a way that is more beneficial to them. If we bring such lobbying into the picture, appointment rather than election of public officials can lead to different policies. In a recent paper, Besley and Coate (2004) argue that elected public officials are more likely to implement policies that are in the interest of voters than those chosen by appointed officials, as the latter are more exposed to pressure from special interest groups. They support this argument by looking at the electricity sector in the USA and show that those states that elect their electricity regulators have more consumer friendly policies, in the sense that per-unit costs of electricity are lower. This is also directly linked to lower profits and market capitalisation of electricity providers in these states, suggesting a transfer of rents from these companies to the voters. It should be noted, however, that this outcome is not always desirable. When a company cannot make much profit in a market, it may have lower incentives to invest in innovation. Indeed, Besley and Coate (2004) find that states that appoint their electricity regulators have higher investment. They also show that more investment is related to fewer power cuts and thus the efficiency of public goods provision.

These empirical results are very suggestive for the challenges faced in the European Union. There is a clear need to contrast the incentives to invest with incentives to be customer oriented when moving from appointed to elected officials. The implication for decentralisation in the EU could well be that those countries that have a strong need to have the right incentives for investment should rather appoint public officials whereas those countries who find it more important that services are realigned with consumer interests are more likely to achieve this by electing their public officials.

2.3. Concluding remarks

In this section a few aspects of political economy are brought into play to illustrate their effect on the trade-off between centralisation and decentralisation. Which of these factors are of importance depends on the specific country and its policy priorities. Whereas some countries find it more important to renovate their transport sector, others will find consolidation and maintenance to be higher up on the agenda. The trade-off between decentralisation and centralisation depends on the underlying incentives that may vary across these policies.

3. THE EFFECT OF DECENTRALISATION ON THE EFFICIENCY OF PUBLIC GOODS PROVISION

3.1. The background

Given the contrasting predictions of the standard economic approach and that offered by political economy, it is useful to turn to data to see how important the effects are. Indeed in most cases a theoretical discussion of a problem yields contrasting policy implications, depending on which factors we think will dominate in reality. Given this ambiguity, we need to find real-world evidence to better understand when one factor dominates another. Empirical testing must therefore be an integral part of the shaping of any policy recommendation.

Under the standard approach, public goods that exert important spillover effects across regions generically lead to less distortion when provided centrally, as this spillover can better be taken into account. This implies that a central government can always be as good as a decentralised government. Under the political economy approach this conclusion is less obvious. Even if a central government *could* provide public goods more effectively it need not imply that they *will*. Taking into account the different incentives on the local and central levels can thus reverse the beneficial effects of central public goods provision.

This problem proves to be particularly acute when we think of the high costs involved in infrastructure but is even more important when the cost to society of providing bad public goods is an issue. In the case of transport the cost of bad public goods is reflected in more congestion and less dense road networks but also in lower road safety. In this section we will provide some empirical evidence focusing specifically on the last point: road safety. This is but one example of a dimension through which the efficiency of the transport sector is revealed but is arguably a particularly acute one. If the use of roads is important for economic development but drivers are reluctant to use them out of concern for safety, then the effects may be very harmful for society at large.

The empirical question is whether road safety is greater or less in more decentralised countries. As pointed out in the last section, there are a number of reasons why the efficiency of transport may be different under the two regimes. The incentives to innovate and to implement the most appropriate technology may differ at the central and local levels. Whether public officials will be more exposed to electoral pressure and capture by interest groups at the central or the local level of government can affect the type of policy choices made.

In the context of transport, one might think that the principal advantage of centralisation is the better incorporation of regional spillovers and better co-ordination in the design and implementation of policies. Also, since technological aspects are becoming more complex it is not obvious that they can be managed and understood effectively at a local level. On the other hand, transport is a sector in which procurement and contracts can be of considerable financial importance. The capture of governments by lobbies can thus lead to rents being diverted to that particular interest group and away from the general interest. Finally, the incentives to implement innovations, which can be risky in the short run but beneficial in the long run, may be different at the local or the central level.

3.2. The data

To get a feel for the data, we assembled a cross-section of observations for the year 2000 in the European Union, focusing on road safety. There are clearly other important aspects of transport, for instance, pertaining to availability of public transportation, the financial viability of a transport scheme, etc. Yet the data situation is quite elusive on those measures of policy performance. Road safety, in contrast, is better documented for EU countries. We therefore present evidence on a measure that is available – at least across space – and, more importantly, that is comparable across countries. The measure of decentralisation we use here will be the share of local expenditure to total government expenditure in a country.

A few comments on the data are in order. A common challenge on any cross-country studies is whether the variables are measured consistently. In our context, this translates to asking if a degree of decentralisation and a degree of traffic safety measured in two countries can be compared reliably. This criticism has been raised by users of the IMF Government Finance Statistics in the context of decentralisation (Meloche, Vaillancourt and Yilmaz, 2004; Ebel and Yilmaz, 2002). The issue concerns two points: first, whether government expenses and revenues are measured and defined in the same way across countries; secondly, if local government expenses can be used as a proxy for local autonomy and control over revenues.

Concerning the first point, much more satisfying data is now available than ever before. Since the publication of data using a revised methodology in the Supplement of the 2002 edition of the IMF Government Finance Statistics (2002), expenditure data and definitions have now been further consolidated and double-accounting of expenditures at the local and central level have been better taken into account.

On the second point – what expenditure decentralisation actually measures – a recent comprehensive OECD (2002) study shed more light on that question. That report results from a survey conducted in European transition countries[4] to assess further dimensions of decentralisation. Apart from the standard expenditure decentralisation measure, the share of spending over which the local level had effective autonomy and the discretion over tax rates and tax bases have also been assessed. Thus for a given level of local spending, if the local authorities have more freedom as to what they can spend money on, effective decentralisation is assumed to be higher. Also, when local levels of government raise most of their revenues and have to rely less on transfers from the centre, they may be more independent in their decisions. These more disaggregated measures do in fact reveal more precisely the type of local autonomy in a country. In a study on the effect of decentralisation on growth using the new OECD measures, Meloche, Vaillancourt and Yilmaz (2004) report that it is the independence from central transfers and the availability of non-tax revenue resources that contribute to higher economic growth. Similarly, Barankay and Lockwood (2004) showed, for the case of education in Swiss cantons, that expenditure decentralisation and real local autonomy over policy choices are closely related. These and related studies do yield important insights into what we actually

measure with aggregate data. They also reveal an acute shortage of data on this important subject. It must be a priority in the coming years to generate better measures of all aspects of decentralisation, in order to uncover which dimension of public management matters for the provision and regulation of publicly provided goods such as, for instance, transport.

3.3. Empirical evidence

To establish the empirical relevance of political economy, we now present some evidence from European Union countries for the year 2000. As the disaggregated decentralisation indicators of the OECD (2002) study are only available for transition countries, we use the more standard measure of expenditure decentralisation[5]. In the first column of Table 1 we can see the variation in expenditure decentralisation across the EU. The lowest level is in Greece, with a value of 0.04, i.e. 4 per cent of all expenditure in 2000 was at the local government level. The highest level was in Denmark, at 0.48. It is often argued that some countries are more decentralised than others due to their size. However, we have no statistically significant support for this in the EU. The correlations between the degree of decentralisation and population size on the one hand and decentralisation on the other hand are both very low, at 0.29 and 0.16 respectively: indeed, legal, historical and demographical factors are more important determinants of the degree of decentralisation[6].

The question of interest now is the relation between road safety and local expenditure levels. For this we focus on the number of traffic injuries and traffic deaths, both per 100 000 inhabitants[7]. For the year 2000, the indicator on traffic injuries ranges from 134.5 in Estonia to 697.8 in Austria. The spread in values for traffic death statistics spans from 5.8 deaths per 100 000 inhabitants in the UK to 24.8 in Latvia.

We first look at the relation between traffic injuries and decentralisation. Table 2 reports some simple cross-section regression analysis which allows us to test if there is a significant relationship between these two variables. In column (1) we present such a regression for 22 EU countries[8] and we see that expenditure decentralisation is not related in a statistically significant way to the level of traffic injuries. There are clearly other factors that may be more important determinants for this measure of road safety. One could argue that richer countries can afford to build better roads. But, in fact, we fail to find evidence for this in our test in column (2), where we add per capita GDP as an additional explanatory variable. This could certainly be due to opposing forces: on the one hand, spending may be higher in richer countries but also the volume of traffic increases, which makes the role of per capita wealth in a country ambiguous. In column three, we investigate if the size of a country matters. This can be due to the fact that larger countries need to span longer distances in their road network, which makes maintenance more expensive. Yet this does not seem to matter in the context of the European Union, as the coefficient is insignificant. Measures of development and economic performance are crucially determined by the history of a country. Since the accession of 2004 there are now eight formerly communist countries[9] and one could expect that this will be reflected in road safety. In column (4) we add a dummy variable for countries with a communist legacy and find that they have a significantly lower degree of traffic injuries. This can possibly be due to the lower number of vehicles in those countries. This idea is confirmed by two further pieces of evidence. First in column (5) we see that countries with larger population density have significantly more traffic injuries. Second, in the last column (8) we report that countries with more congested roads – as measured by the number of vehicles per km of road – are also less safe. The estimated coefficient is very large. Having one more vehicle per km of road is associated with five more injuries per 100 000 inhabitants, suggesting the importance of appropriate road provision or incentives for car purchases.

Table 1. **Decentralisation, economic variables and transport efficiency measures, EU, 2000**

Country[1)]	Expenditure decentralisation[2)]	GDP per capita[3)]	Surface (km^2)[3)]	Population density[3)]	Government expenditure (% of GDP)[4)]	Median age[5)]	Traffic injuries[6)]	Traffic deaths[6)]	Vehicles per km[7)]
Austria	0.35	32695	357030	230	0.49	41.3	633.9	9.5	66
Belgium	0.32	33621	83860	96	0.52	39.4	697.8	12.2	22
Czech Republic	0.28	30890	33120	310	0.49	40.0	677.2	14.3	35
Denmark	0.48	38556	43090	124	0.54	39.1	170.3	9.3	31
Estonia	0.28	17411	505990	80	0.38	38.7	367.0	14.2	54
Finland	0.20	3791	45100	30	0.36	38.1	134.5	14.9	11
France	0.33	31727	338150	15	0.49	40.3	175.0	8.3	31
Germany	0.16	30097	551500	107	0.51	38.3	275.3	12.8	38
Greece	0.04	13175	131960	80	0.47	39.8	291.7	19.8	28
Hungary	0.24	5426	93030	108	0.44	38.4	238.4	12.0	16
Ireland	0.30	27796	70270	54	0.46	33.1	315.8	10.9	12
Italy	0.25	20938	301340	191	0.47	41.0	549.0	11.5	74
Latvia	0.23	2608	64600	37	0.41	39.0	229.7	24.8	11
Lithuania	0.20	2566	65200	54	0.32	36.6	198.6	18.3	17
Luxembourg	0.12	58464	2586	169	0.38	38.1	303.9	17.4	51
Netherlands	0.28	31257	41530	383	0.46	38.6	--	--	58
Poland	0.28	3678	312690	124	0.44	36.0	185.4	16.3	32
Portugal	0.10	12827	91980	110	0.43	37.6	615.8	16.6	50
Slovak Republic	0.07	4275	48845	110	0.41	35.0	187.2	11.6	34
Slovenia	0.18	5381	78870	130	0.43	38.4	315.8	14.5	67
lSpain	0.22	22233	242910	242	0.40	38.4	538.4	5.8	62
Sweden	0.12	11669	20250	98	0.38	38.6	581.9	15.7	46
UK	0.41	32874	449960	20	0.59	40.1	248.4	6.7	21

Notes: 1) All EU countries except for Cyprus and Malta. 2) Defined as all local expenditure as a share of all local plus central expenditure. *Source:* IMF (2002) except Czech Republic, Estonia, Hungary, Latvia, Lithuania, Poland, Slovak Republic and Slovenia, taken from OECD (2002), and Ireland from IMF (2003). 3) *Source:* World Bank. 4) GDP per capita in constant 1995 US$. *Source*: IMF (2002), (2003).
5) *Source: CIA World Factbook* (2003).
6) Per 100 000 inhabitants. *Source*: International Road Federation (2003). All figures are for 2000, except Finland, Germany, Italy, Spain and UK for 1999.
7) Number of vehicles as a share of total road network.

Source: International Road Federation (2003).

Table 2. **The relation between decentralisation and traffic injuries, EU, 2000: Regression analysis**

Dependent variable: Traffic injuries (per 100 000 inhabitants)

	(1) No controls	(2) Control: income levels	(3) Control: country size	(4) Control: communist legacy	(5) Control: population density	(6) Control: age	(7) Control: public spending	(8) Control: traffic congestion
Expenditure decentralisation	-30.53	-233.69	-15.97	-287.46	-34.10	-227.87	-257.60	76.18
	(370.53)	(436.28)	(408.59)	(389.92)	(349.38)	(375.32)	(464.68)	(321.88)
GDP per capita (in thousands of US$)		3.84						
		(3.21)						
Surface (in thousands of km^2)			-0.030					
			(0.022)					
Dummy equal to one for former communist countries				-158.12**				
				(73.37)				
Population density (inhabitants per km^2)					1.57***			
					(0.19)			
Median age of population						39.12*		
						(20.31)		
Total government expenditure (as % of GDP)							674.69	
							(678.01)	
Total vehicles per km of road								4.97***
								(1.36)
R-squared	0.0003	0.0805	0.0010	0.1387	0.3961	0.1472	0.0365	0.2611
Number of observations	22	22	22	22	22	22	22	22

Notes: See Table 1 for notes on data. All regressions include a constant. Robust standard errors reported in parentheses.
*** denotes significance at 1%, ** at 5% and * at 10%.

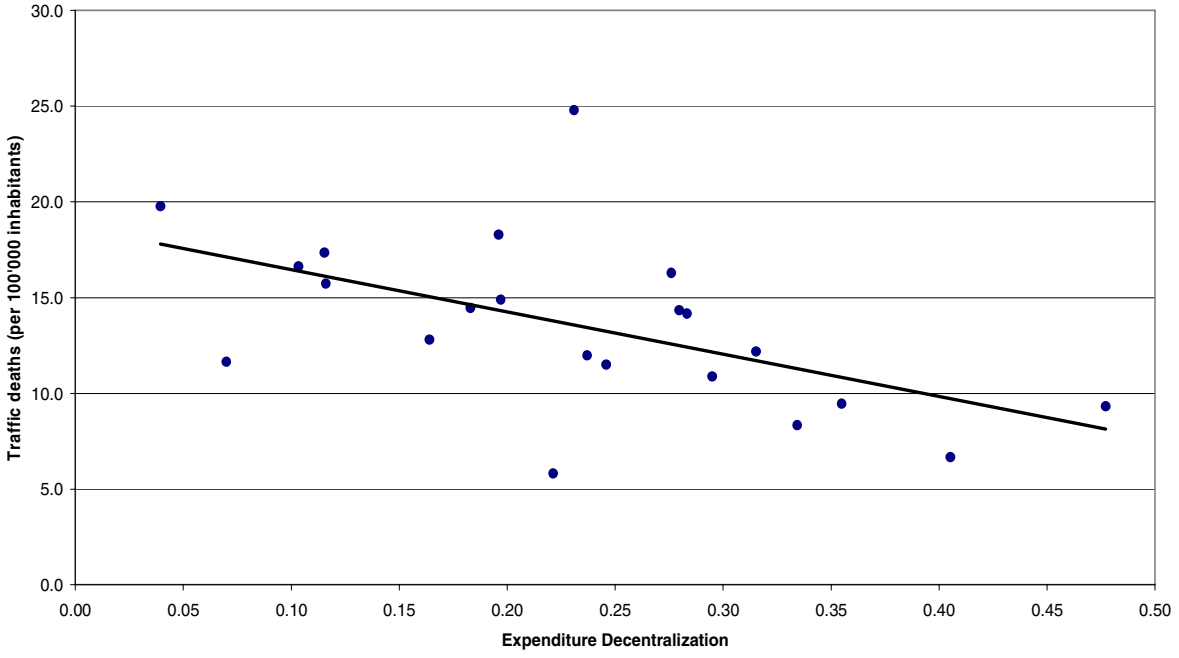
Another common argument for the incidence of traffic injuries is the age and experience of drivers. We do not have available statistics of average driving licence tenure across countries so we approximate the inexperience of drivers by the median age in the population. In fact we find that when the median age in the population is higher there are more traffic injuries on aggregate[10]. A final important test is to see if the level of total expenditure is related to traffic injuries. However, in column (7), we can see that higher government expenditure is not related to injuries on the road. What is important to note though is that in none of these simple cross-section regressions is the coefficient on decentralisation significant.

In summary, we can see that, although traffic injuries are most importantly related to traffic congestion and population density, decentralisation – as measured by local expenditure as a share of total government expenditure – has no statistically significant relation to it. What we can learn here is that traffic injuries are principally a function of demand for mobility in a country that is constrained by the size of the road network but not by the level of government at which these roads are financed. This can also reflect the fact that countries principally co-ordinate the road network centrally and the local level only implements the infrastructure plans approved by central government. Thus, higher decentralisation may not mean more local autonomy over road network provision.

One further important aspect of the road network on which the local government level can have a defining influence is the quality of infrastructure maintenance (Humplick and Moini-Araghi, 1996a and 1996b). Maintenance is often contracted out but is very often supervised at the local level. Therefore the incentives of local public officials to excel in their capacity when supervising maintenance could be a key element in the quality of the road network. Consider two extreme case scenarios. Under the first, a public official at the central government level is appointed centrally to supervise road maintenance and is accountable to voters in all regions. In the second scenario, there is a public official in each region, accountable to voters in his region. In the first scenario, the benefits from doing a good job in a particular region are diminished in comparison to the second scenario, where pleasing that single region determines the future career of that public official[11]. Thus the incentives to improve the effectiveness of maintenance can be higher when managed at the local level.

To see if this is reflected in the data, we look at the number of traffic deaths per 100 000 inhabitants in the European Union in 2000. This is a more acute measure of road safety that is arguably a direct consequence of inefficient provision of infrastructure. Figure 1 shows the degree of expenditure decentralisation on the horizontal axes and traffic deaths on the vertical axes. The dot furthest to the left represents Greece, with a degree of decentralisation of 0.04 and a traffic death incidence of 19.8 per 100 000 inhabitants. The observation furthest to the right represents Denmark, with 48 per cent of all expenditure being disbursed at the local level and traffic deaths at only 9.3. The graph suggests a strong negative relationship: more decentralised countries are associated with a lower number of traffic deaths.

Figure 1: Decentralization and Traffic Deaths in the EU in 2000
(See Table 1 for notes on the data)



In Table 3, we investigate this pattern more formally by means of a regression analysis. This helps to uncover if the relationship that was apparent in the graph is statistically significant and robust to alternative explanations. In column (1) of Table 3, we present results of a cross-section regression in the EU for 2000. The coefficient on expenditure decentralisation is highly significant and negative and has a large magnitude.

Increasing the degree of expenditure decentralisation by 0.10, which, for instance, is the difference in decentralisation between Italy (0.25) and Germany (0.35), is associated with a *reduction* by 2.2 traffic deaths per 100 000 inhabitants. Given that the average level of death statistics in the EU was 13.5 in 2000, this is a very important difference. In the remaining columns (2) to (8) we include, one by one, the same control variables as in Table 2. There are two important observations to be made. First, variables like traffic congestion and population density that were a plausible and statistically significant factor for the level of traffic injuries, have no significant explanatory power for traffic deaths. Second, and more crucially, across all alternative specifications, the coefficient on death statistics remains highly significant at all conventional levels.

Table 3. **The relation between decentralisation and traffic deaths, EU, 2000: Regression analysis**

Dependent variable: Traffic deaths (per 100 000 inhabitants)

	(1) No controls	(2) Control: income levels	(3) Control: country size	(4) Control: communist legacy	(5) Control: population density	(6) Control: age	(7) Control: public spending	(8) Control: traffic congestion
Expenditure decentralisation	-21.99***	-18.21**	-18.85***	-18.74**	-21.96***	-22.25***	-16.10**	-23.52***
	(5.22)	(7.56)	(4.88)	(6.78)	(5.91)	(4.77)	(7.56)	(5.88)
GDP per capita		-0.071						
(in thousands of US$)		(0.075)						
Surface			-0.0064					
(in thousands of km^2)			(0.0038)					
Dummy equal to one for				2.00				
former communist countries				(2.25)				
Population density					-0.012			
(inhabitants per km^2)					(0.014)			
Median age of population						0.051		
						(0.337)		
Total govt. expenditure							17.50	
(as % of GDP)							(12.36)	
Total vehicles per km of road								-0.071
								(0.045)
R-squared	0.2918	0.3413	0.3474	0.3313	0.3326	0.2922	0.3352	0.3873
Number of observations	22	22	22	22	22	22	22	22

Notes: See Table 1 for notes on data. All regressions include a constant. Robust standard errors reported in parentheses.
*** denotes significance at 1%, ** at 5% and * at 10%.

3.4. Corruption and decentralisation

One common criticism of decentralisation is that it can lead to very damaging results in countries where corruption among public officials is more common (Robalino *et al.*, 2001). Corruption – the abuse of public office for private gain – has received prominent focus over the last decade among policy-makers and has led to many legislative adjustments. This is most evident in the Transparency International's[12] and the OECD's successful projects to change legislation among its member countries such that the payment of bribes abroad by companies is now illegal and no longer tax exempt.

It is often argued that decentralisation can lead to inefficiencies when institutions are weak. The idea is that when a country has weak institutions, a central government can be more easily controlled by voters through the dynamics of election than many local governments. When a local public official has little to lose from embezzlement or diverting public resources, he may be more tempted to allow and foster it. The probable root of this argument is the observation that governing is a complex task and countries with few experienced public officials are more prone to irregularities unless the policy decisionmaking is controlled by the few competent people holding positions in experienced institutions. For instance, if the probability of detection and punishment for the abuse of public office is increasing, then a public official will choose an optimal level, from his point of view, of rent extraction, bearing in mind the expected detection and punishment. Under such a scenario, centralised structures are superior to decentralised structures: when there is only one central government which extracts this optimal amount rather than many local governments, then the total rent extracted will be higher under decentralisation.

Note, however, that this can lead to important incentives to distort resources at the centre as well. When all the resources are controlled and concentrated at the central level rather than distributed among the local jurisdictions, there is more potential for rent extraction at the centre, which in some cases may be more of a problem than many small rents at local levels, in particular when the central government is also weak.

Therefore, we have a trade-off between the potentially higher frequency of rent extraction at the local level and the quantity of potential rents at the central level. To see which of these factors dominate, we also collected data on the level of corruption in the EU countries using the Corruption Perception Index constructed by Transparency International[13]. The level of corruption for 2000 is summarised in the following Table[14]. The index of corruption ranges from 0 to 10 where, for convenience, zero refers to the lowest level of corruption.

Table 4. **The level of corruption in the European Union in 2000**

Country	Corruption	Country	Corruption
Austria	2.2	Latvia	6.6
Belgium	3.4	Lithuania	5.2
Czech Republic	6.1	Luxembourg	1.3
Denmark	0.5	Netherlands	1.2
Estonia	4.4	Poland	5.9
Finland	0.1	Portugal	3.7
France	3.3	Slovak Republic	6.3
Germany	2.6	Slovenia	4.8
Greece	5.8	Spain	3.0
Hungary	4.7	Sweden	1.0
Ireland	2.5	United Kingdom	1.7
Italy	4.5		

Source: Transparency International (2001).

In this index, Finland has the lowest level of corruption with a value of 0.1 and Latvia has the highest with 6.6. In fact, this table put together with the data from Table 1 also suggests that traffic safety may be related to the level of corruption, and indeed the correlation between corruption and the rate of traffic deaths is very high at 0.67. Furthermore, we also find that decentralised countries have significantly lower levels of corruption than centralised countries. One must be cautious about interpreting this as a causal link between corruption and decentralisation. It may well be that decentralisation leads to lower levels of corruption. It can also be, however, that the institutionalised reforms carried out in a country with low corruption leads to more decentralisation. This can either be because concentrated interests – which prefer a more centralised governmental structure – have less influence in countries with strong institutions and thus more decentralisation is achieved. Or more decentralisation is preferred by the electorate when they believe that public officials will work in strong institutions.

In terms of our original empirical issue, the question is if decentralised public goods provision is less efficient when corruption is high. Using the corruption index and the death statistics we indeed find that when a country has a high level of corruption, decentralisation is less advantageous than in those countries where it is low[15].

3.5. Summary and discussion of findings

In this section we provide some evidence on the effect of decentralised structures on public goods provision in the transport sector. A simple test using a cross-section of EU countries revealed that efficiency, as measured by road safety, is strongly related to the degree of decentralisation. It has also been found, however, that the gains of decentralisation are diminished by weak institutions. This result is also in line with other findings. Barankay and Lockwood (2004) found that decentralisation is associated with higher educational attainment in a panel of Swiss cantons[16]. It is also a case in point to show empirically that institutions affect policies[17].

Of course there may be many more important explanations that should and do affect the number of fatal accidents on the roads of the European Union. It is notable, however, how strong and robust

the relation to decentralisation is and it therefore merits further investigation. First, more detailed information on competencies by expenditure and revenue type could reveal more precisely why we see such a strong link in the data. At the moment no comparable disaggregated data has been compiled which allows such an analysis. Second, it is also important to obtain further measures on the provision and the efficiency of transport, such as the reliability and pricing of public transport, the financial viability of road networks and congestion control. Again, it should be a priority to generate and to make available such information to policymakers and academic researchers in order to improve policy recommendations[18].

4. CONCLUSIONS AND POLICY IMPLICATIONS

In this chapter we outline the approach of political economy in the analysis of public goods provision. We discuss the various aspects of institutional design that can determine whether centralisation or decentralisation is preferable. Given the theoretical discussion, but also the empirical evidence, a number of policy implications can be derived for the transport sector.

First, when road safety and maintenance is an important concern, more decentralised structures can lead to better results.

Second, if the presence of interest groups is an important factor in the political deliberation process and when local governments are more likely to have weak institutions, a relatively more central structure is favourable.

Third, when regions in a country are heterogeneous and when investment in innovation is high on the agenda, decentralised structures are more likely to accomplish this aim.

Fourth, if a country wishes to increase the sub-national level of government, it needs to consider whether new public officials should be appointed or directly elected. Directly elected officials may be more influenced by pressure from special interest groups. When the principal interest is to provide policies that are in line with voters' preferences, election of public officials is the better option. However, to avoid distortion through investment incentives, appointed officials will be more appropriate.

Fifth, better efforts need to be made to provide detailed and comparable data for all aspects of government decentralisation in the European Union. This needs to be combined with further data on the performance of public goods provision beyond the measure of road safety presented in this chapter.

NOTES

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2. This is not the only relaxation needed. One important argument against decentralisation is that local median voters will choose policies that create externalities and policy spillovers that have a negative effect on other regions and lead to inefficiencies. This will be reduced by a central government that internalises these negative effects across regions.

3. It is also argued that central governments are less well informed than local governments about the specific circumstances in a region. However, given the ease of information transmission today this argument may carry less weight.

4. Countries included in the surveys for 2000 and 2001 were Bulgaria, the Czech Republic, Estonia, Hungary, Latvia, Lithuania, Romania, the Slovak Republic, Slovenia and Poland.

5. This refers to all government expenditures. It would be more precise to calculate decentralisation measures for expenditure on transport only but unfortunately such disaggregate data are not available.

6. See Oberholzer-Gee and Strumpf (2002), who show that decentralisation is related to heterogeneity.

7. See notes to Table 1 for data sources and descriptions.

8. This excludes Cyprus, Malta, for which local expenditure data is unavailable, and the Netherlands for which no traffic data was published in 2000.

9. This is in addition to GDR which reunified to FRG.

10. Note that this is an aggregate measure in the population. Thus it should not be read to mean that older people generate more traffic injuries but rather that countries with an older age profile are associated with more serious accidents.

11. See Lockwood (2002) for a formal political economy model, where costs and benefits of policies are shared across regions in a centralised economy, giving rise to different policy choices.

12. A non-governmental organisation that focuses on the worldwide fight against corruption.

13. For further data description and sources, see http://www.transparency.org/cpi/index.html.

14. The data is taken from the corruption index 2001, which covers the period 1999-2001, as best reflecting the level of corruption in 2000.

15. The statistical test uses a so-called interaction term which is a multiplicative term between decentralisation and level of corruption. The coefficient of this term is 4.7 and is statistically significant.

16. See also Khaleghian (2003), investigating the effect on immunisation, and Robalino *et al.* (2001) for the case of infant mortality rates, showing that more local spending is associated with higher vaccination coverage and lower infant mortality rates for poor countries, yet revealing that for middle-income countries the benefit is a function of institutional quality and democracy.

17. See Besley and Case (2003) for a review of the evidence from the USA.

18. Finally, it would also be useful to collect information over time, as this allows the control of those variables that are time-invariant and specific to a country but hard to measure reliably.

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SUMMARY OF DISCUSSIONS

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SUMMARY

1. INTRODUCTION

With cyclical variations in its importance, decentralisation continues to remain on the agenda of research and policy discussions. The decentralisation of transport policies forms part of this general discussion. Much of the recent impetus of the discussion is derived from the generally critical review of economic activities which have traditionally been assigned to the public sector. The need for such a review was often claimed on the basis of the expectation that the private organisation of these activities would lead to productivity gains and a reduction of the burden for the taxpayer.

That major parts of the transport sector were located in the public sector seemed to have a solid foundation in traditional public economics. The results of the allocation theoretic part of public economics -- trying to identify conditions under which free markets would not lead to the supply of goods and services at least costs -- were often held to suggest that the production associated with such conditions should not be left to the market but assigned to public production, with governments taking production and pricing decisions. If the market failures extended to the whole population of nation states, their correction would call for solutions by a central state. If this is not the case, a number of arguments have been put forward to argue the superiority of a decentralisation of public goods provision.

One type of public good with much relevance to the transport sector, is that whose cost per user decreases with an increase in demand. A first argument for the decentralisation of the provision of these goods, for example infrastructure facilities, can be made if the costs per user do not decrease for all use levels but at some level of demand the facility or the service becomes congested. In many of these cases of "public goods", governments could provide services (for example in the transport sector) like private producers, implementing supply regimes that mimic well-functioning markets.

If such user groups are identified as the population of a certain geographic space or through the occupancy of land, they are interpreted as communities or jurisdictions below a central, national or even supra-national level. If the residents or firms in these jurisdictions are mobile, governments will try to compete for the improvement of their economies, solving many of the problems governments face in providing public goods. The most far-reaching hypothesis on the benefits of such competition claims that the mobility of citizens would over time lead to a sorting of households and firms into distinct communities according to their preferences and costs of production, entailing a differentiation of jurisdictions according to population types. Residents' "voting with their feet" would force governments to act in the interest of the local population, much reducing the danger of distortions resulting from political processes. In such an idealised world, there is also a particularly straightforward answer to the question of how transport policies should be financed. With a perfectly functioning land market (and under a number of other conditions), the quality of government policies in general, including transport policies, would drive up land rents due to immigration pressures. Land taxes would be the ideal means of financing, *inter alia*, transport policies.

Nowhere have developments towards such a completely decentralised government system been observed. In fact, in most countries a hierarchy of jurisdictional levels exists with differences in the distribution of powers across the different tiers. The main argument in favour of decentralisation in such a system of "fiscal federalism" is a political one. If transport policy solutions have to be found for different sub-regions, a central government would have less precise information about the local needs of the individual regions and less reason to care politically about the well-being of the local population. That is, without residents revealing their preferences by migrating to the region whose government best serves their demands, local political processes would reveal the interest of the local population, leading to a supply of services that would specifically serve the interests of that population. A central government, in contrast, would tend to follow the average interest of the national population, with the consequence of implementing identical policies across regions even if they differ substantially in demand and production conditions of service.

However, with a central legislature consisting of locally elected representatives, there is no reason to presume that central governments necessarily tend to provide identical services across different jurisdictions. A political argument can still be made in favour of decentralisation if the members of a winning coalition strongly favour the constituencies whose representatives are in that coalition, and if the election process creates a high degree of uncertainty in the public services, due to the unknown identity of the winning coalition. Even a co-operative legislature would not necessarily lead to a desirable distribution of services across regions, as voters, anticipating the interregional conflict within the legislature, might tend to vote for delegates with high demands for local public goods. Such a strategic voting behaviour could, in turn, lead to an overprovision of public goods. A centralised system of public policy might still be superior if services in one region have consequences for the services in other regions, i.e. if there are interregional spillovers. Without co-ordination between lower-rank jurisdictions through central governments or through co-operation, decentralisation will lead to an under-provision of services (if other regions benefit from local services) or an over-provision (if other regions suffer from the negative effects of local services).

In contrast to these political economy models, much of the literature in favour of decentralisation contains the view that the electorate cannot perfectly control the policymakers and that decentralisation reduces the belief that policymakers use informational advantages to act in their personal interest. The hypothesis that the local electorate is in a better position to control the behaviour of its community's government officials than central politicians, has been studied rigorously only recently. It is based on the argument that local citizens are often able to make inferences concerning the accountability of local government officials by using observations of local conditions and behaviours which cannot be used as hard evidence in a court of law.

Others see local decision-makers as not necessarily less susceptible to capture. Depending on a high industry and/or wealth concentration at the local level, low industry productivity and a lack of local political competition, local governments might protect local industries against entry, federal tax payments and bankruptcy proceedings in return for campaign contributions and other forms of support in local elections. Only with a strong central government, implying high costs for local government actions against the interest of the central government, can these dangers be avoided. The possibility of political capture also throws new light on the discussion of fiscal relations between the central and local governments in financing transport policies. With political influence depending on wealth, complete fiscal autonomy at the local level will lead to the highest level of public services; services which are, however, expected to be biased towards the interests of the wealthier groups of citizens and to be a strong fiscal burden for the less wealthy. In terms of the local population's welfare, restrictions on fiscal powers at the local level, with the permission to level user charges, will lead to a superior outcome, associated with lower service levels.

The Round Table discussed in detail the implications of these general points for the decentralisation of transport policies. "Transport policy" entails a large number of heterogeneous elements, differing according to the transport mode (road, rail, air, maritime, inland waterways, pipelines), the usage (passenger, freight) and to whether it concerns the provision of inputs for the transport sector (infrastructure, maintenance) or final transport services.

Overall, there are two characteristics of the transport sector which limit the opportunities for decentralisation. A large number of transport policy measures taken at the local level do not only affect the local populations but also those of other jurisdictions. As local decision-makers are not liable to the citizens of other than their own jurisdictions, they will not take account of all the benefits (or costs) of the transport policy decisions taken at the local level. From this it follows that a completely decentralised, well-functioning transport policy is difficult to conceive of. The question is rather: which tasks should be assigned to different levels of decision-making in a multilevel system of transport policy making. In a decentralised system, a central level has to ensure that interjurisdictional spillovers that are relevant for transport policy will be internalised. This depends on either a central co-ordination by a suitable system of fiscal redistribution or by the supervision of a system of self-co-ordination of lower-level jurisdictions to ensure that it follows constitutional rules.

2. TRANSPORT POLICY OUTCOMES AND PUBLIC GOODS

2.1. The case for centralisation

In all societies, the public sector plays a major if not dominant role in providing the goods needed to produce transport services and in providing transport services themselves. While this might to some extent be due to historical accident, many of the activities in the transport sector have characteristics that have in general justified a role for government to provide goods and services. The most important of these characteristics is what is termed "non-rivalrousness" in consumption. This is an important feature of many of the services that were traditionally provided by transport policy. At low levels of demand, the number of infrastructure facility users can be increased without mutually limiting the benefits. Technical standards help to reduce transport sector costs, independent of the number of users who apply these standards. The supply of such goods to private markets and the ownership by individuals who could exclude others from the use of such goods would lead to an increase in the resources required to produce those goods or services. If owners could not exclude other potential users from consuming a collective consumption good, it would be underprovided as there would be a tendency to "free ride" on the supply and consumption of other individuals. The domain and the extent of collective consumption form part of the basis of the debate on decentralisation in general and on transport policy in particular.

As long as nothing but the joint consumption characteristic enters the picture, economic efficiency, i.e. the provision of goods and services for all citizens at the least costs per head, derives strong advantages from centralisation. However, not all goods and services provided by the transport sector are consumed collectively by the entire population.

2.2. The case for decentralisation

While for most transport policy services the characteristic of collective consumption by a relatively large share of the population is valid, there are limits to their "non-rivalrousness". In all these cases a decentralisation argument can be made. The Round Table looked into the economic arguments for decentralising transport policies as well as arguments that deal with problems of political decision-making resulting from centralisation. The welfare economic arguments, abstracting from the policy process, refer to limits to increasing the number of users of a transport system and the consequences of citizens' mobility. They differ according to whether the interaction of transport policies with the land market is taken account of and whether the jurisdictional boundaries are considered to be given.

Many proponents of decentralisation implicitly or explicitly base their analysis on the assumptions that local policies do only impact on the local community for which they are planned and implemented. Additionally, all local communities are assumed to be small, i.e. policy action in one jurisdiction does not change the policymaking environment of others. These are restrictive assumptions in the transport policy context. In subsection 2.3, we summarize how the decentralisation arguments are altered if the assumptions of the basic analysis are not met. In section 3, political economy arguments for the decentralisation of transport policy will be discussed.

2.2.1. Congestion and decentralisation

A basic argument for the decentralisation of transport policies is derived from the fact that there are limits to the "non-rivalrousness" of individual consumption of the services provided by transport policies (cf. Starrett, 1988, on the classification of public services). These limits emerge if the admission of additional users reduces the benefits of those who used the service earlier (Buchanan, 1965). A transport policy example of such a good may be seen in a local road infrastructure link, connecting two geographic points within a jurisdiction and being used by the local population. At low levels of demand, the use of this link by an additional car will reduce the benefits of other users very little or not at all. At high levels of demand, additional users may reduce the travel speed of other users. The reduced travel speed translates into time costs for all users. For "pure" public goods, an increase in the number of users simply leads to a subdivision of their total costs on more heads, and therefore to lower costs per citizen. With congestion, two opposing effects occur. On the one hand, the increase in the number of users reduces, as before, the cost per user but it also increases the congestion costs. When congestion sets in, a further increase in the number of users will increase the additional costs of congestion. This implies that the decrease of individual user costs resulting from a greater number of consumers will at some point be matched by the simultaneous increase in congestion costs. When demand increases beyond this level, the sum of user costs and congestion costs will increase. A basic and abstract notion of a "jurisdiction" is then a group of users of transport or other public policies, organising membership to consume public services at least costs. In the presence of congestion costs such a group would be smaller than the national population.

While the idea of organising some of the transport policy services as if they were organised by the users is a useful concept of user orientation, and is for example applicable to the provision of infrastructure services (Round Table Report 135, forthcoming; Kopp, 2005), it might also be seen as a background to the link between decentralisation and privatisation (Prud'homme, 2006). "Jurisdictions" are, however, not normally formed to provide special transport policy services.

Even if this were the case, it is not to be expected that a collection of these decentralised groups would interact in a way that preserves the efficiency of its internal organisation. Pauly (1970a, 1970b) studied whether the outcome of citizens maximising their joint benefits from collective consumption

leads to an allocation where no group of agents can enrich itself using only its own resources. Pauly's main observations were that group formations and their internal organisation lead to minimum costs but that the system of groups will not be stable: the group formation process will be unstable in the sense that some groups will have an incentive to form a new group. For example, if not all groups are alike, some groups will feel motivated to induce a new assignment of members, in a process that will not settle down to equilibrium.

A different interpretation of this decentralisation argument sees local governments in the role of an entrepreneur, competing with other jurisdictions for citizens by providing high-quality services at minimum costs. As the number of jurisdictions will be small, unlike an infinite number of suppliers in a perfectly competitive market, the competition between communities will be oligopolistic rather than perfectly competitive. The "price" for the services would be an accession fee to the services of the jurisdiction. Such a price would not be like that in a competitive market for private goods, as the quality of the services would change with the price. A reduction of the accession fee would attract more members of the group and add to congestion. A limited competition intensity follows from the fact that the supply of the highest quality services and the lowest price by one jurisdiction would not lead to serving the whole population, due to the congestion costs (Scotchmer, 1985).

2.2.2. Decentralisation and the free mobility of citizens

As argued in the previous section, to derive support for transport policy decentralisation from the models of user group formation meets with a number of difficulties. In contrast to these models, jurisdictions are typically defined geographically. The boundaries of these jurisdictions are normally fixed. A first consequence of these facts is that to enjoy the local services provided by a local government, a "user" has to be a resident of that particular community. He or she can normally belong only to one jurisdiction. A second consequence is that there is not only a possible direct interaction between the citizens of a jurisdiction due to congestion, but also an indirect one resulting from the fact that migration between jurisdictions might change the demand for land and, as the land area is fixed, change the price for land.

Tiebout (1956) conjectured that the mobility of households would exert political pressure to improve the quality of public services and ensure their cost-effective supply. The mobility of households was epitomised as "voting with their feet" and as a shopping act. As Tiebout put it, "*just as a consumer may be visualised as walking to a private market to buy his goods, the prices of which are set, we place him in the position of walking to a community where the prices (taxes) of community services are set. Both trips take the consumer to market… Spatial mobility provides the local public goods counterpart to the private market's shopping trip* (p. 422)."

Based on this model, local governments are seen as entrepreneurs in a market for a differentiated good. Not only would the competitive pressure resulting from the mobility of citizens make sure that public services were supplied to citizens at minimum costs, but they would also induce a sorting of households and firms into different communities, according to their preferences and production technologies. The mobility of households and supply reactions of local governments would ultimately lead to the formation of communities with citizens having identical preferences for public services. Given different perceived costs of local environmental damage, for example, the ultimate outcome of the sorting process would lead to some communities with high transport costs and low levels of environmental damage and others with lower transport costs and higher environmental costs. The self-selection of voters into different communities would reduce the importance of the political (voting) process. If the local community members' political preferences were homogeneous, there would be no need to aggregate heterogeneous preferences by a political process.

Whether decentralisation may help transport policy depends on whether the idealising Tiebout model can be applied to transport policy and whether the characteristics of the transport sector agree with those of the Tiebout model. It is clear that some areas of transport policy predominantly or exclusively serve local user groups, residing in the low-level jurisdiction in question. If a road is predominantly used by these groups, its construction and maintenance can be left to local transport policy decisions. The same may hold for urban light rail or bus systems. On a larger geographical scale, decentralisation may even be possible for railways. The Japanese National Railway has been divided into six geographical entities for passenger transport, responsible for both infrastructure and operations. In some cases, as in the UK, operating railway companies have a limited geographical scope. For many other transport policies, it is more difficult to argue that they are of strictly local interest: local roads will be used by some interregional traffic, for example. Where this leaves the decentralisation argument will be discussed below (Prud'homme, 2006). In this section we discuss under which conditions the connotations raised by the Tiebout conjecture hold where transport policies are indeed almost exclusively of interest to the local population. This mainly concerns the question of the types of costs associated with implementing the transport policies and how they are financed.

Local transport policies with fixed costs

Whether the decentralisation of transport policies is indeed associated with efficiency, as suggested by the Tiebout argument, depends – even if the resulting services are strictly local – on whether their financing provides the right incentives for both the residential choices of potential users and for the use of the services provided. This depends a) on the tax and pricing system at the local level, and b) on the behaviour or objectives of local governments.

Finance

Given the fact that jurisdictional boundaries, and therefore the community's land area, are fixed and if the population is rather mobile between jurisdictions, transport policies will have an effect on attracting or determining firms and residents to locate in the respective jurisdiction. This does not only depend on the benefits of the policies but also on the direct and indirect charges for the resulting services plus the consequences for land prices. The intuition is that migrating firms and households will bid for places in jurisdictions, and places will be allotted to the highest bidders. The bid process capitalises public services into the land prices in different jurisdictions (Scotchmer, 1994). If the costs of providing the transport services are fixed, i.e. they do not depend on the number of residents in a certain jurisdiction, the only tax to finance the services should be land taxes. Consider, for example, the case of local road infrastructure being provided. If no congestion is to be expected and if the (routine) maintenance were independent of the (relatively low) level of demand, any tax but a land tax would distort the dual role of the land price, to guide location decisions and to allocate space to households and firms (Brueckner, 1979).

If the costs of transport policies depend on the number of residents, i.e. if a rise in the number of residents increases the costs of its services, a head tax should cover the variable costs (Scotchmer, 1994). To extend the above example, if a rise in the number of users requires that road maintenance efforts be intensified, a head tax would have to be implemented to avoid too many residents using the infrastructure. If the maintenance costs rather depend on vehicle-km, a per-km charge would have to make sure that users overuse the public facility for want of an indication of the real user costs.

If there are other costs related to transport policy services resulting from interaction between users, these should be corrected by using fiscal instruments as well. If local road use is associated with congestion, the value of time losses resulting from additional road use should be charged, to signal to the residents of that jurisdiction the direct and indirect costs of using the services.

Limits to the market analogy

These arguments following from the Tiebout model have a long history (Pines, 1991). The literature has focussed on characterising efficient equilibria, i.e. situations in which firms and households no longer want to relocate. What is less studied is the question of how local governments arrive at such states. But if, for example, a cross-section of local governments implements policies that could be improved upon, a move towards efficiency requires pro-active governments which risk experimenting with innovative policies. Benchmarking, looking at the cross-section of communities, would be uninformative. Moreover, unless local governments could predict induced relocation decisions by firms, they will not be able to predict the reaction of land prices and with them the financial basis of their policy projects.

A closely related problem is how to think about the local government's constituency. Will they respond to the political interest of the existing local population or do they (correctly) anticipate the local population after policy changes and induced relocation movements have taken place? Postulating that local governments should anticipate welfare changes, not only of the local population but of future immigrant populations (or of other jurisdictions) to some extent contradicts the idea of "decentralisation".

The Tiebout argument of decentralisation does rely on the notion of "perfect competition", alluding to the efficiency properties of perfect private goods markets. This is reflected by the modelling assumption that the action of a single local government has negligible effects on the economic opportunities of residents in other jurisdictions. If jurisdictions are "large", improvements in public services will lead to induced emigration of other jurisdictions to the extent that the price for land falls. In such a case, these jurisdictions enjoy an external benefit. As the active local government has little reason to take these benefits into account, there could be the risk of an under-provision of public services. As transport policy is trying to ensure mobility for citizens at the least social costs, the "perfect competition" arguments which depend on the absence or unimportance of transport and migration costs are hard to reconcile. With non-negligible mobility costs, the competition between jurisdictions would be a variant of "spatial competition" rather than "perfect competition".

Given that major parts of transport policies do not just affect the jurisdiction where they are implemented; there is the possibility that transport policies are used to shift the financial burden to other jurisdictions. In this context, the issue of "tax exporting" has received much attention (Arnott and Grieson, 1981; Crane, 1990). However, the decentralisation argument being based on a high level of mobility of the citizens' successful attempts to export fiscal burdens, will lead to immigration and an increase in land prices, removing much of the advantages expected from shifting the tax burden to neighbouring communities.

Even restricting the discussion to purely local services, there are limits to a purely economic argument for decentralisation. The question arises then how to organise transport policy to take account of the fact that local policies have spillovers to neighbouring communities. Two basic solutions are conceivable and have been touched upon in the Round Table discussions. The first one is to create a hierarchy of jurisdictions where higher level governments correct for interregional spillovers. A second solution consists of the implementation of constitutional rules to ensure that

lower level governments will co-ordinate among themselves. The first approach is discussed in the literature under the label of "fiscal federalism", and the second one as "co-ordination mechanism design".

2.3. Fiscal federalism

Most of the discussion on "fiscal federalism" does not juxtapose decentralised and centralised systems of policy making. It rather takes a hierarchical, multi-level jurisdictional order for granted As Oates put it: "But the proper goal of restructuring the public sector cannot simply be decentralisation. The public sector in nearly all countries consists of several different levels. The basic issue is one of aligning responsibilities and fiscal instruments with the proper level of government." (Oates, 1999, p. 1120).

For the road sector, the hierarchical multiplicity of levels often manifests itself in a classification system that defines roads as being of national, regional or local interest. The distinction is normally based on an assessment of the road being "mainly" used by local or regional users and to a "small" extent by outsiders. If the delimitation is precise, a full decentralisation of road infrastructure provision, i.e. the local construction, maintenance and financing of roads, avoids over- or under-provision of road infrastructure.

Similar classes are defined for airports and ports. Arguments against decentralisation are perhaps strongest for the railway sector. The inter-jurisdictional co-ordination costs of rail operations and network economies are held to outweigh the advantages of a decentralised railway system. There is, however, the example of the Japan National Railway, subdivided into six regional entities for passenger traffic, with responsibilities for both rail infrastructure and operations. In France, a model has been implemented with regions negotiating contracts for the operation of services with the SNCF.

In practice, these categorisations tend to be somewhat arbitrary due to much of the traffic on national roads being, in fact, regional or local. On the other hand, outsiders and long-distance transport use local or regional roads. There might even be some sort of "tax exporting" game going on between the different levels of road administrations, in that congestion in the system of one level will lead to a shift of demand to another level (Prud'homme, 2006). The decentralisation of transport policy functions which do have strong effects on superior jurisdictional levels, has the tendency to lead to an underprovision of services.

The problem of inter-jurisdictional spillovers is not confined to the regional or local level. The background paper of Sikow-Magny (2006) on the subsidiarity principle and transport policy co-ordination in the European Union introduced the discussion on the international consequences of national transport policies, in particular of transport infrastructure provision and charging policies for infrastructure services.

Specifically, national infrastructure policies need support to take account of benefits accruing to foreign countries. Even in the planning phase of infrastructure policies, co-ordination of project identification has to help to avoid a bias against serving international transport demand and the identification of projects of common interest across national borders.

Moreover, with the promotion of charging schemes for transport infrastructure, there is the concern that national charging schemes could be dominated by fiscal interests, leading to an underutilisation of transport infrastructure in general and negative effects on the movements of goods being equivalent to trade policy barriers to trade. Particularly distorting effects would result in the use

of infrastructure charging schemes to discriminate against foreign users, turning what was intended to improve the tax structure and the efficiency of infrastructure services provision into a vehicle to "export" taxes.

Taxation

Corresponding to the assignment of tasks to different jurisdictional levels, there is a discussion of how the different jurisdictional levels should tax finance their activities. Echoing the discussion on taxes under free mobility, the literature on the "tax assignment problem" (McLure, 1983) differentiates the tax instruments recommended for the different levels of a hierarchical system of jurisdictions according to the mobility of their residents. "Mobility" is basically interpreted as the taxpayers' ability to shift their "purchases" of public services away from taxed goods. In the spatial setting of transport policy, such distortions would take the form of locational inefficiencies, as citizens would tend to migrate to jurisdictions with favourable tax treatment. At decentralised levels of government, the taxation of highly mobile units (final goods, capital or mobile households) should be avoided. More precisely, at low levels of jurisdiction, mobile units should be taxed with benefit levies. Differences in taxes would then reflect differences in the volume or quality of the public services of which transport policy is a part.

A concrete example of reform in the sense of these recommendations is the replacement of the general tax financing of transport infrastructure by infrastructure user charges. Non-benefit taxes should rather be employed by higher level jurisdictions with less mobility of the tax base. In practise, non-benefit taxes are used at all levels of jurisdiction. The distortions resulting from non-benefit levies have been analysed in an optimal taxation framework (Gordon, 1983; Inman and Rubinfeld, 1996). The inefficiencies include tax exporting, external congestion effects and impacts on the level of other jurisdictions. The dynamics of these interactions have recently received much attention as part of proposals to harmonize taxes to avoid a "race to the bottom", i.e. a process of competitive tax cuts that leads to an under-provision of transport policy. At the international level, these concerns have manifested themselves in the expectation that globalisation erodes the basis of tax financing transport infrastructure. Recent research has shown that tax competition does not necessarily lead to a reduction in government activities. Competition in providing benefits to attract households or firms might well lead to a "race to the top" (Wilson, 1996).

Fiscal grants

In view of the network character of many infrastructure facilities and the spatial geographical dimension of inter-jurisdictional competition mentioned above, a major part of transport policy measures will lead to inter-jurisdictional spillovers. The important fiscal policy question is then which instruments governments of higher level jurisdictions should use to correct for these co-ordination failures. If, for example, a local infrastructure investment project leads to benefits for neighbouring communities, fiscal transfers from higher-level jurisidictions should help to give the right signals for the capacity choices of lower-level governments. Such "matching grants", which can possibly be negative, are designed to internalise the external effects of local government action in the same way as Pigou taxes are used to contain the external effects of individual behaviour. Additionally, fiscal grants can have the purpose of correcting for local fiscal policies which violate the prescriptions of optimal local taxes. In many cases, these will be corrections for non-benefit levies on mobile economic units (Inman/Rubinfeld, 1996).

In short, transport policy measures, even if they mainly serve the local population, will often have strong effects on other local communities. One way of correcting these "decentralisation failures" is to install a system of (positive or negative) fiscal grants to give to local governments, in order to take the

costs and benefits arising in other communities into account when deciding on local transport policy measures. If there are no fiscal measures to correct for co-ordination failures at the level of low-level governments, either because of policy mistakes by higher level governments or because of the absence of a higher jurisdictional level, co-ordination between lower level governments has to be self-organised. In general it is unlikely that co-operation between jurisdictions emerges when there are no outside mechanisms to ensure reciprocal co-operative behaviour in a non-co-operative setting. The question then arises whether constitutional rules, either decided by a higher-level jurisdiction or self-imposed, could help the co-operation between low-level communities. If this were the case, transport policies could be decentralised, despite considerable spillovers of transport policies at the lower end of a hierarchy of jurisdictions.

2.4. Rules for self-organised jurisdictional co-ordination: mechanism design

All the arguments discussed above, for assessing costs of decentralisation due to interdependencies of low-level jurisdictions, would be obsolete if we could conceive rules which constrained all local governments to take account of the effects local policies have on other jurisdictions. If such self-coordination by quasi-constitutional rules were feasible, the need for higher-level jurisdictions to co-ordinate lower-level communities could become obsolete. All jurisdictions could, for example, agree to renounce transport policies that shift fiscal burdens to neighbouring communities, and self-impose sanctions should a member of the group of communities violate such an accepted obligation.

Through rational behaviour on the part of the local governments and complete knowledge about their objectives, the relevant characteristics of the local economies and the response of governments to actions taken by other local governments, the outcome of the interaction between the public policies of the collection of local governments could be predicted. An agreement on the best outcome of such interaction would allow restrictions to be obtained on the actions of individual governments in order to arrive at the collectively desired policy outcome (see introductions in Starrett, 1988 and Laffont/Martimort, 2002). Perhaps not surprisingly, the theoretical work on identifying such mechanisms has been largely negative:

If local governments have less than full information on each others' objectives and constraints, the agreed set of co-ordination rules must offer an array of possible actions to local governments which are consistent with those of individual policymakers. Two types of mechanism have been studied in this respect: one seeks to find rules that imply incentives to the co-ordinating partners to reveal private information, independent of the actions of the co-ordinating partners (Gibbard, 1973). The results of the literature on the existence of such a set of rules, called a "straightforward, direct revelation mechanism", are negative. Various authors have shown that an outside planner with dictatorial powers is needed for the implementation of such a mechanism when the number of co-ordinating partners is finite (Dasgupta/Hammond/Maskin, 1979).

If the co-ordination rules also took account of the reactions of local governments to the announcements and actions of other jurisdictions' governments, the enormous information collection and processing requirements by the co-operating partners would become even greater. Each partner would have to truthfully announce not only its own decision parameters but also the beliefs about those of other local governments (Maskin, 1999). To summarise, in view of the current discussion on self-organised co-ordination between local governments, it seems unlikely that rules ensuring such co-ordination could be easily found and implemented.

3. THE POLITICAL ECONOMY OF DECENTRALISATION

Much of the support for decentralisation of transport policy, however, as with other public policies, does not derive from the purely economic argument discussed so far. The Round Table exposed political arguments supporting decentralisation, some of which parallel the economic arguments. This sub-topic was introduced by a background paper from Ivan Barankay (2006).

The decentralisation argument -- which is based on the assumption of the limited geographic impact of local policies and/or the crowding characteristic of public service provision -- explicitly and sometimes implicitly associated statements about the characteristics of public goods with claims of benefits from reducing the role of the State. The metaphor of a local government as a club manager invokes analogies to the theory of the firm which obviate the consideration of a distinct political process contrasting with the market mechanism. Brennan and Buchanan (1980), for example, adopt a universal "Leviathan assumption", i.e. the assumption that all governments seek to maximise the surplus of tax revenues over expenditure on public goods supply for their own benefit. Policymakers' pursuit of self-interest is limited by the mobility of tax-payers and users of public policies: the abuse of tax power for the self-interest of policymakers is either contained by citizens' "consumption decisions" concerning public goods or by the migration of residents to other communities, responding to differences or emerging differences in land values, which reflect the differences in the quality of public policies through capitalisation.

The assignment of tasks to various hierarchical layers of jurisdiction was based on the "decentralisation theorem" (Oates, 1972). This "theorem" consists of the proposition that "…*in the absence of cost savings from the centralised provision of a [local public] good and of inter-jurisdictional externalities, the level of welfare will always be as high (and typically higher) if Pareto-efficient levels of consumption are provided in each jurisdiction than if any single, uniform level of consumption is maintained across all jurisdictions* (ibid. p. 54)."

What had long received little attention is the fact that "the presumption in favour of decentralised finance is established by simply assuming that centralised provision will entail a uniform level of output across all jurisdictions. In a setting of perfect information, it would obviously be possible for a benevolent central planner to prescribe the set of differentiated local outputs that maximises overall social welfare; there would be no need for fiscal decentralisation…(Oates, 1999, p. 1123)."

Without the costs of acquiring and processing information, or without an explicit discussion of limits to accountability, both elements which were absent from the early literature on decentralisation, it remained unclear which centralised transport policies should suffer from a "one size fits all" bias across jurisdictions or different socio-economic settings. An empirical example of transport policies provided unequally by a central government in a federal system is the US Federal Highway Aid Program. Funds from this programme are earmarked by legislators for specific projects in their districts. Moreover, while the remaining funds are allocated according to a formula, the formula is manipulated toward target spending in particular favoured states (Knight, 2002).

The concerns about decentralised policymaking have recently been picked up in the political economics literature without making the assumption of a uniform provision of public goods.

Whether decentralisation is indeed improving the process of political decision-making and reducing "political failures", by reducing opportunities for politicians and other actors in the political decision-making process to capture parts of the fiscal surplus for personal objectives, has only recently been studied (Bardhan/Mookherjee, 2006a, 2006b; Besley/Coate, 2003; Seabright, 1996). The key question asked in this literature is whether decentralisation indeed acts as a disciplinary device for government officials. While some of the political arguments support the expectation that decentralisation will serve the interests of the transport system users-cum-taxpayers better than a centralised system, there is no unambiguous argument in favour of decentralisation, as was suggested by the literature on "taming the Leviathan".

A first source of this ambiguity arises from differences in the notion of decentralisation (Vaillancourt/Wigender, 2006): the differences concern the authority of local decision-makers over legislation, the implementation of local regulation or local public expenditure. A second source is financial autonomy, i.e. the right to set and collect taxes, to borrow from capital markets and to be entitled to fiscal grants as well as to competence in allocating expenditures to local services. Thirdly, ambiguities arise from different notions on the independence of local decision-making processes, i.e. whether local government officials are elected by local residents or appointed by higher level governments.

Even when assessing the effects of decentralisation at the macro-policy level, there is no clear-cut conclusion: Quian and Weingast (1997) and Jin, Quian and Weingast (2005) argue that decentralisation has been an important factor contributing to rapid economic growth in China since the early 1980s, while Blanchard and Shleifer (2001) see local governments as responsible for a growth slowdown in Russia (see also Sonin, 2003).

The conceptual discussion on the effects of decentralisation on political decision-making confirms the suggestion that its disciplining force may be highly context-specific. In particular, the political desirability of decentralisation has been discussed as depending on the trade-off between higher accountability at the local level and the costs of co-ordination between lower level jurisdictions. Seabright (1996) focuses on this lack of accountability as the principal drawback of centralisation. Accountability at the local level is ensured through democratic pressure for re-election. Local governments are seen to be in closer proximity to citizens than central governments. Local citizens are often able to make reliable inferences concerning the competence and efficiency of local government officials by observing local conditions and officials' behaviour. Citizens are able to express their dissatisfaction about the performance of local governments by refusing to re-elect them. As the substance of the evaluation evidence could not be included in a contract between central governments and local bureaucrats, local citizens cannot use their observations as hard evidence in courts of law nor submit them to watchdog organisations. Therefore, decentralisation is seen as a superior mechanism to ensure the accountability of government officials.

Another way for the local electorate to exert control of how local demands are served is a central legislature composed of locally elected representatives. To what extent the local interest is reflected in the central policymaking depends on the outcome of the local election process and the behaviour of the representative in the central legislature (Besley/Coate, 2003).

Two types of legislative behaviour are possible: the minimum winning coalition determines public service supply at the local level or the legislature maximises the total of the surplus of all its members. In the first case, two allocation problems result: the minimum winning coalition might use its power to skew expenditures towards those districts whose representatives are members of the winning coalition. The second problem associated with the dominance of the minimum winning coalition is uncertainty among the local population about its composition.

If the legislature maximises total surplus, a policy problem arises from the attempt to "free ride" on the fact that costs are shared by all, through strategically favouring local candidates with a preference for a high level of service provision, for example, with a strong preference for high transport infrastructure investments at the local level. All of these allocation problems weaken the case for centralised policymaking. The disadvantages, however, do not result from a lack of accountability, as local representatives perfectly transport the local interest to the central legislature. The advantage of central policymaking is a better co-ordination of inter-jurisdictional spillovers.

This co-ordination is of central importance for the analysis of Lockwood (2002). The central legislative process is seen as a bargaining process between the local representatives. The outcome of this bargaining process crucially depends on the nature and intensity of the inter-jurisdictional spillovers.

Less favourable results emerge if the political analysis is extended to the possible influence of local special-interest groups. Their influence has been studied with respect to regulatory policies (Laffont/Pouyet, 2003) and infrastructure policies (Bardhan/Mookherjee, 2006a). An analysis of decentralised regulation shows that in the absence of distortionary influences from the political process, a central regulator leads to better services for the users of the transport system. Decentralised regulation implies the danger that the competition between regulators leads to a too low level of regulation intensity: monopolistic transport or infrastructure service providers earn large rents due to the lack of co-ordination between the regulators. If regulators are subject to capture, the result changes. Competition between regulators, in a decentralised system, reduces the discretionary power of the regulator, increases regulation intensity and increases the benefits to consumers of the transport sector services.

Until recently, very little attention has been paid to the possibility that local democratic processes may not function properly, despite the fact that this concern has a long tradition in political philosophy (Bardhan/Mookherjee, 2000). The view is that the lower the level of government, the greater the extent of capture by vested interests and the less protected minorities tend to be. With limited political contestability at local elections, leaders under capture by special-interest groups may provide low-quality transport policies without facing the risk of losing their positions. In that case accountability may worsen under decentralisation. Bardhan and Mookherjee (2006a) analyse this possibility, comparing the delegation of service delivery to a bureaucracy or to local governments. In the case of a bureaucratic system, an accountability problem arises from the fact that the actions of the bureaucrats cannot be monitored perfectly by the policymakers who appoint them. This inability is due to the fact that central governments face high costs in carrying out audits of the actual service delivery in local communities. The bureaucrats are thus able to extract rents that should accrue to the consumers of the public services. A centralised system of public policy leads to an outcome of differentiated services to different groups of users, the differences reflecting differences in lobbying influence.

Decentralisation shifts control rights to local governments, with local policymakers who have to stand in local elections. With differences in personal demand depending on the wealth of the citizen, the effect of a switch from centralisation to decentralisation is determined by the mechanism through which service provision by local governments is financed.

The results of the analysis show that, taking account of the political decisionmaking process, local governments do not normally adopt the tax instruments as recommended by the tax assignment analysis reviewed above. The results were obtained for three archetypical financing schemes:

- Local governments have complete fiscal autonomy for local government expenditures, including unrestricted powers to tax;
- Local governments are restricted to levying user fees, which is similar to the "benefit taxation" discussed in the fiscal federalism literature;
- Local governments have no competences to raise funds. They are entirely dependent on fiscal grants from higher-level jurisdictions.

Under the first arrangement to finance local transport policies, users with a relatively strong demand use their political influence to ensure an overprovision of services. The strong political influence is based on the opportunity to free-ride on the tax payments of the users with a relatively low demand. A high level of service provision is obtained at the cost of an increased inequality within the community. The stronger the political capture, the stronger is the regressive effect of the switch to a decentralised system. The overall effect is therefore ambiguous and depends on the distortionary effects of the political process.

When local governments are restricted to financing services from user fees, the scope for regressive transfers is limited. As a consequence, the level of services will be lower. In terms of both efficiency and equity, the outcome thus dominates the case of fiscal autonomy for local governments. The superiority of the restriction on fiscal autonomy is independent of the difference in the political influence of users with stronger or weaker demand for local services. However, the income gains from the improvement of the provision of public services, due to the switch from centralised to decentralised policies, accrue entirely to the group with high demand.

In the case of local expenditures being financed by fiscal grants from higher level jurisdictions, control measures of these jurisdictions will lead to severe restrictions on the use of the transferred resources. The control measures will aim at excluding local governments from misrepresenting their demands and own resources, or serving local special interests. These conditions lead to two disadvantages relative to the case of complete fiscal autonomy and the restriction to user fee finances:

- The constraints in centre-local relations cause grants to be restricted and unresponsive to local need variations;
- Financially constraining local governments by a system of fiscal grants will lead to lower service levels compared with self-financing or user fees.

This excludes the overprovision of the fiscal autonomy case, also leading to a more equitable pattern of service provision, as the bias to favour the high demand groups is contained. It is not possible to conclude in general which solution is superior in welfare terms.

In summary, political processes might have a strong impact on the effects of decentralisation of transport policies. Decentralisation does not necessarily lead to a reduction in distortions resulting from the policy process. Whether the dominant expectation of a higher political accountability at the local level is justified depends on the opportunities for local special interests to influence the policy outcome. In the case of strong local capture, decentralisation may lead to a net welfare loss even in the absence of interregional spillovers, with the associated co-ordination benefits of a centralised transport policy.

The discussion also shows that empirical studies on comparative evaluations of centralised and de-centralised transport policies may easily be misleading. Estache and Sinha (1995), for example, in a sample of 20 countries over the period 1970-92, found that greater local fiscal autonomy leads to a higher level of public service supply. This result is in line with the discussion on the political economy

of local public policies. However, as the analysis also shows, the higher service levels can be associated with discrimination against certain user groups, implying a lower welfare level. Whether decentralisation of transport policies leads to a welfare gain, particularly given the important inter-jurisdictional spillovers of some transport policy measures, will critically depend on local conditions.

4. CONCLUSION

Against the backdrop of decentralisation efforts in many member countries, the Round Table discussed the pros and cons for decentralising transport policies. The decentralisation arguments had both an economic and a political dimension. The economic arguments for decentralisation start out by questioning the empirical importance of public policies, and transport policy in particular, to address the entire population at the nation state level. The associated critique of the classical allocative branch of public finance is often aimed at assigning a reduced economic role to the government sector in general.

- A first decentralisation argument is based on the fact that some public services and public facilities are congestible. Goods and services that qualify as public goods at low levels of demand can be supplied like quasi-private goods at the local level. Competition between different providers, resulting from decentralisation, is expected to reduce the costs of these services and improve their quality. This argument is of particular relevance for transport infrastructure facilities that exclusively serve the local population.
- With a limited geographical reach of the transport policy benefits, a superior supply of services organised by local transport policies may induce firms and residents to relocate into that community. If the mobility of households and firms is sufficiently high (and the boundaries of communities fixed), land prices will reflect the attractiveness of communities, induced by local transport (and other) public policies. The taxation of land rents then provides a benefit taxation mechanism. This raises the connotation of the private market analogy, with communities as competing "firms" and land rents or land taxes as the revenues from supply of public services.
- Due to the network character of transport infrastructure and the network economies inherent in transport operations, a major part of transport policy will not affect merely a local population. Interjurisdictional spillovers, for example, by providing transport infrastructure that is also used by clients from other jurisdictions, require taxes and subsidies that work as payment for these cross-border effects. The organisation of such payments will require a hierarchy of fiscal institutions or jurisdictions more generally.

  Much of the decentralisation argument is based on the expectation of "policy failure", i.e. that government officials and policymakers will be able to pursue self-interest at the expense of the citizen-cum-taxpayer. Decentralisation and competition between jurisdictions was considered to curtail such abuse of political power. Moreover, much of the discussion on decentralisation was based on the claim that centralised transport policies would be unable to cater to local demands.

The possible reasons for such an inability have only recently been studied.

- In a democracy where districts are represented in a central parliament, minimum winning coalitions might discriminate against those jurisdictions which belong to the minority. In addition, local observations on and evaluation of local transport policies might be sanctioned in local elections but not, or less effectively, by court cases against government officials who represent central transport policy authorities at the local level. In these cases, decentralisation makes "policy failures" less likely.
- On the other hand, it is not possible to make a general case as to whether capture of transport policy is less likely at the local level. With heterogeneous local populations, unrestricted fiscal powers at the local level might lead to an overprovision of, *inter alia*, transport services, or services which are biased towards special user groups. The latter would lead to a high level of services with an unequal distribution of the burden of finance and thus to ambiguous welfare effects.

  Such an outcome could be avoided if the financing of local services could be restricted to user fees or a strict "benefit taxation". Ambiguous effects follow from making local governments dependent on fiscal grants from higher level jurisdictions.

Overall, transport policies should be decentralised if they predominantly serve the local population. A large part of transport policies serve all jurisdictions and lead to high co-ordination costs when delegated to the local level. Such co-ordination costs might be balanced by greater accountability from local policymakers. To what extent local governments might be susceptible to capture by special interests, and to what extent this could reduce the benefits of decentralisation is a question that can only be answered empirically for individual communities.

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TRANSPORT AND DECENTRALISATION

Over the past decades many OECD countries have become more decentralised. ECMT member transition countries follow this example or are strongly advised to do so. Are the expected economic benefits justified in the domain of transport policy? Has the experience of transport policy decentralisation been positive?

The Round Table shows that the answers to these questions depend on three crucial determinants:

- The answers vary according to the mode of transport. The different modes have varying scale and network economies, leading to differences in the costs of decentralisation.
- Whether decentralisation works for transport depends on the type of decentralisation. In particular, it depends on the transfer of responsibilities being combined with a transfer of financing obligations and taxing powers.
- The success of decentralisation depends on the transport users' representation in the process of policy decision-making. Decentralisation offers the chance for greater accountability but with the risk of excessive influence being exerted by small interest groups at the local level.

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