

**TAXING FINANCING AND THE TRANSFER OF RESPONSIBILITIES
IN THE TRANSPORT SECTOR**

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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 ago², 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 matter³. 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 gimmicks⁴, 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 countries, 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 euros⁵. 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**

	Centralised	Decentralised
Private	II	III
Public	I	IV

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 security⁷, 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 distortive — and modify resource allocation and welfare in an undesired

way — but some are less distortive 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 goods⁸. 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 more⁹.
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* contributor¹⁰.
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 : ^aSpecific taxes only ;

^bCurrent expenditures plus investment expenditures; « G » (giga) stands for billion (10⁹).

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* tax¹¹ (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 phenomena 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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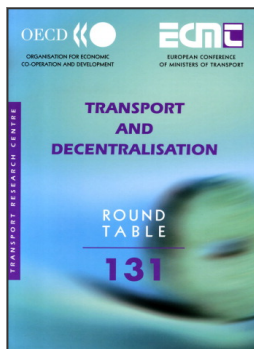
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