

Motorways economic regulation: A worldwide survey



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ABSTRACT

During the last few decades, the motorways sector greatly expanded around the world. Today it represents an essential infrastructure asset of a country. In the majority of cases the network was initially built and maintained with public funds through direct state provision. In the early 1990s many developed and emerging countries moved towards private involvement in toll roads provision, increasing the need for sound economic regulation. However, no comprehensive analysis of the existing regulatory and institutional frameworks has been carried out so far. Starting from a survey involving 21 countries, the paper tries to fill in this gap through a review of existing motorway regulatory frameworks. Various aspects of regulation have been collected and analysed in order to provide an overview of the current practices, both in quantitative and qualitative terms evidencing the strengths and the weaknesses among the various models.

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1. Introduction and aims

The need for regulation is crucial in all network industries, where natural monopoly conditions often exist and where the heritage of legal monopolies is still deeply present and governing the sector. In the field of transport, the presence of vertical integration between infrastructure and services, the complexity of the networks and the relationship between state intervention and privatisation tendencies, make regulation even more complicated. The basic principles of the theory of market regulation in the transport sector are quite homogeneous (De Palma et al., 2011), even if there is not only one possible orientation. To the contrary, practical applications are strongly differentiated and influenced by many factors such as the historical and political context, the status quo, or the presence of powerful private operators.

In general, the way in which the principles of regulation in transport sector are actually applied in the world, at present, seems substantially unknown in a systematic way. This paper aims at shedding a light on the different ways motorway infrastructures¹ are regulated across a sample of 21 countries.

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¹ Following OECD Glossary, we consider roads reserved for specific categories of vehicles, with separate carriageways, minimum two traffic lanes for the two directions of traffic with no at level intersections, no traffic signals, strict control over entry (commercial businesses and homes cannot be accessed directly). In the case of Brazil, China, India and Mexico all double carriage roads have been taken into account.

The paper is structured as follows. In Section 2 we briefly recall the previous studies on this topic. In Section 3 we introduce the three parts of the desk survey conducted and the chosen sample of countries. Sections 4–6 discuss, in a comparative way, the results obtained for the 21 countries surveyed. Finally, Section 7 provides some additional considerations deriving from the analysis of the data.

As the cases will show, no dominant model exists. Rather, a broad range of different and contrasting solutions is found, ranging from free public provision to totally privatised natural monopolies.

2. Existing comparative studies

To back our survey, here we will limit our review to case studies and comparative studies only, leaving theoretical contributions or policy papers to other works.

Comparative studies based on surveys are particularly helpful to provide a common field for research and to drive more effectively the work to the most significant best practices. For a regulator, moreover, they can also be useful as the starting point to better study the sector. However, while in literature there is a large number of studies dealing with economic regulation including some on single countries' practices (see further in the text for single references), comparative works on groups of countries are instead scant.

Concerning Europe, Bousquet and Fayard (2001) review road

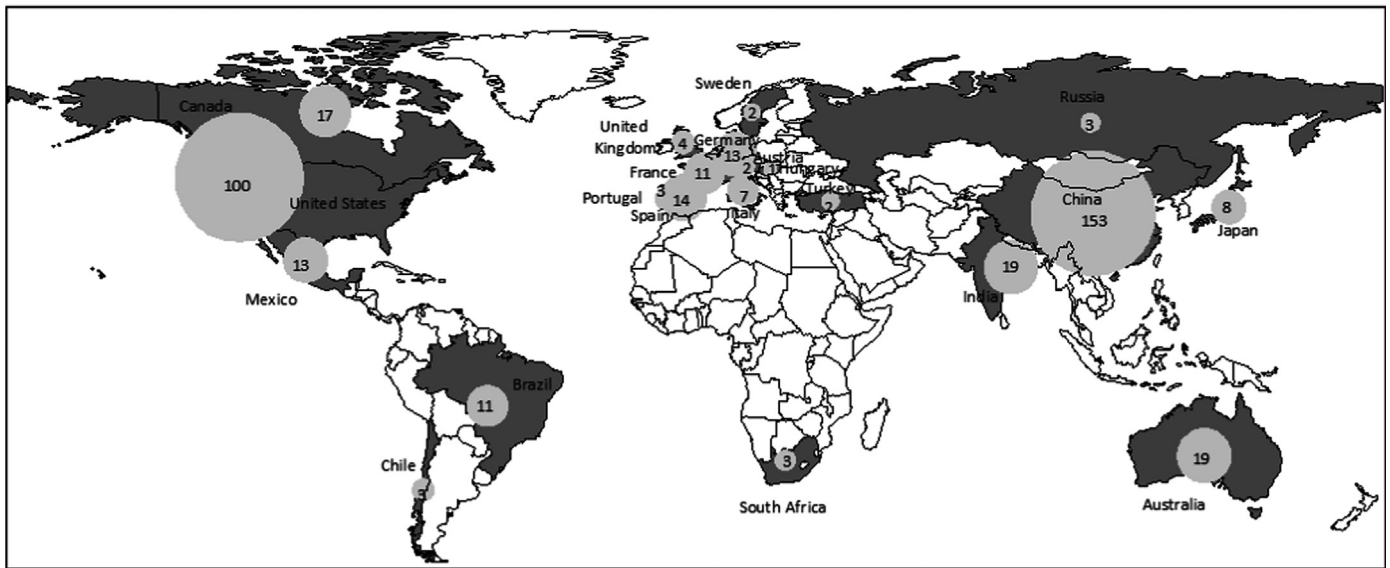


Fig. 1. Countries surveyed and length of the motorway network [000 km].

infrastructure concession practices in light of examples of public authorities acting as concession authorities. Ragazzi and Rothen-gatter (2005) analyse in detail the shortcomings and caveats of concession schemes introduced in Europe for managing and financing motorways. Albalade et al. (2009) describe current trends in toll motorway privatisation in Europe as an illustration of the paradox of simultaneous deregulation/privatisation and reregulation. Outside Europe, Engel et al. (2003) review the Latin American experience with highway privatisation during the last decade of the XX century.

The work of Queiroz and Kerali (2010) reviews the institutional arrangements for road asset management. Brown et al. (2006) provide guidance on conducting independent and public evaluation of regulatory systems for infrastructure sectors.

For statistical data, otherwise specified, we referred to ASECAP (2013), the European Association of Operators of Toll Road Infra-structures, which provides a yearly updated “National report” for each country which contains the main information about the length of the network, investments, tolling and safety.

However, to our knowledge, no comprehensive analysis of the regulatory framework in a large group of countries has been carried out so far, resulting in a substantial ignorance on the overall picture of world motorways regulation.

3. The framework of the survey and the sample

We built a database on motorway regulation now including 21 countries from all continents. The database is structured in three parts, focused on:

1. general and quantitative aspects of road infrastructure, including which regulatory mechanisms are used;
2. specific regulatory aspects, i.e. how regulatory mechanisms work;
3. regulatory bodies, i.e. who regulates.

The collection of the information derived primarily from the analysis of existing literature sources. We used institutional data (e.g. governmental websites, national agencies reports, etc.) or academic documents (papers, presentations, etc.). We tried to find up-to-date data in order to present the most recent information and scenarios in the regulatory field for each country. In addition,

for most of the countries, at the end of the process the data collected have been reviewed by a national expert.

The countries have been chosen considering the relevance of their motorway network, of their economy, their peculiar regulatory features, their geographical location and, in some cases, the availability of information.

We gathered data for the following countries (Fig. 1): Austria, Brazil, Canada, Chile, China, France, Germany, Great Britain, Hungary, Italy, India, Japan, Mexico, Portugal, Russia, Spain, South Africa, Sweden, Turkey and United States. In these countries lives the majority (55%) of the world population and they represent the main economies of the world. Moreover these countries have the largest motorway networks accounting in total for 415.000 km.

4. General aspects

In the United States, Canada, Western Europe, Japan and Australia the construction of a nation-wide motorway network began approximately after the World War II. In the remaining countries, most of the present network has been built in the last twenty years also thanks to international co-financing. This is the case of the European Union in Spain, Portugal and Poland, as support to economic development.

4.1. Regulatory framework and network management models

In almost all countries the majority of the network was built and maintained with public funds and managed directly by the State or by means of a national or local road agency.²

The only relevant exceptions have been Italy, France and Spain, where the tool of concession was used since the beginning, often by private or public-private enterprises. The concession model refers to the existence of a subject entitled to manage the infrastructure, the *cessionaire*, for a given period of time. In exchange of certain obligations (e.g. network construction or expansion), it is granted with the right to collect fees, typically from the users of the infrastructure, in order to recoup its investment and make some profit. The concession can be given to a private

² Also Japan and Austria belong to this group, while using different models of public concessions

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