



Regulatory federalism and industrial policy in broadband telecommunications



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ARTICLE INFO

Article history:

Received 5 September 2011

Received in revised form 17 December 2012

Accepted 22 January 2013

Available online 18 February 2013

JEL classification:

L50

L96

K23

H77

Keywords:

Regulation

Industrial policy

Decentralization

Telecommunications

Broadband investment

ABSTRACT

We analyse the impact of regulation, industrial policy and jurisdictional allocation on broadband deployment using a theoretical model and an empirical estimation. Although central powers may be more focused and internalize inter-jurisdictional externalities, decentralized powers may internalize local horizontal policy spillovers and use a diversity of objectives as a commitment device in the presence of sunk investments. The latter may, for instance, alleviate the collective action problem of the joint use of rights of way and other physical infrastructures. In the empirical exercise, using data for OECD and EU countries for the period 1999–2006, we examine whether centralization promotes new telecommunications markets, in particular the broadband access market. The existing literature, in the main, claims it does, but we find no support for this claim in our data. Our results show that indicators of national industrial policy are a weakly positive determinant of broadband deployment and that different measures of centralization are either irrelevant or have a negative impact on broadband penetration.

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1. Introduction

Both theory and empirical evidence suggest that there are two main types of public intervention in broadband Internet access markets: those related to market power (regulation and competition policy) and those related to positive externalities (network externalities or impact on overall economic growth).² The first of these two types of intervention is carried out in the United States by the Federal Communications Commission (FCC) and by the states, and in the European Union by the European Commission

and the National Regulatory Authorities (NRAs) of the member states. The third package of European directives on telecommunications created the Body of European Regulators for Electronic Communications (BEREC), a pan-European telecommunications regulator based on the coordination of NRAs. Policies related to the promotion of broadband through different combinations of subsidies and public investments (“industrial policies”) are mainly carried out at decentralized levels both in the US³ and in Europe. This is in contrast with countries that have achieved very high levels of broadband deployment, such as South Korea and Japan, which have promoted strong national policies to promote broadband penetration for many years (see Trillas, 2008a).

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² Belloc et al. (2011) also emphasize the multidimensionality of broadband policies.

³ At least until President Barack H. Obama initiated the promotion of broadband in his 2009 fiscal stimulus package.

In this paper, we present both a theoretical model and an empirical estimation to analyse the interaction of regulation, industrial policy and jurisdictional allocation, and their impact on broadband deployment. Although central powers may be more focused, internalize the relevant territorial externalities and have a more balanced matching of instruments and objectives, decentralized powers – lacking regulatory specialization – may internalize local horizontal policy spillovers (such as the promotion of e-health and e-learning) and use a diversity of objectives as a commitment device in the presence of sunk investments. A significant part of the investments needed to deploy broadband is highly specific (for example, underground optical fiber) and its value for alternative uses is very low or close to zero. This commitment by local authorities may be reflected in a variety of policies, for instance, local powers may have incentives to help alleviate the collective action problem of the joint use of rights of way and other physical infrastructures.⁴ This enhanced commitment, similar to that mentioned by Weingast (1995) in the so-called theory of market-preserving federalism, may counter-balance the temptation of local powers to make expropriating or confiscatory demands when managing the rights of way (see among others Neufeld, 2008; Troesken, 1996).

The analysis of how policy intervention is organized in the vertical structure of government matters for historical, technological and political reasons. The history of network industries, including telecommunications, shows an evolution from an essentially local industry⁵ to an increasingly larger geographic market size that ran parallel to the increasing role of the state and federal levels (see Trillas, 2008b). Modern physical networks in telecommunications exhibit increasing returns to scale but require local rights of way. At the beginning of the 21st century all levels of government are active (through regulation, competition policy or “industrial policy”) in the policy vector that affects the broadband sector. The degree and nature of the involvement of each level of government are of great importance to telecommunications firms, which have lobbied exhaustively for the approval of the third package of European directives on telecommunications with the argument that increased regulatory harmonization and market integration will reduce the costs of European wide operators.

Liberalization processes have unbundled the above-mentioned policy vector, which previously was bundled at the national level and in many countries in a publicly owned, vertically integrated monopoly. The policy vector

includes interventions to address market power (competition policy, behavioral regulation and structural regulation), and policies to promote broadband, such as the supply-side and demand-side policies carefully described by Belloc et al. (2011). Different arguments of this vector have different optimal geographic scope, which typically induces the intervention of a variety of government levels. For example, Nuechterlein and Weiser (2007) point out that the division of responsibilities between federal and state level in the US was not problematic for many decades, but that the complexity of liberalization under the 1996 Telecommunications Act started a difficult process of cooperative federalism between the FCC and the states. Gómez-Barroso and Feijóo (2010) argue that for many decades, the main market failure that justified public intervention in telecommunications was market power, and the stable government architecture that addressed it fit with a stable technology and industry structure. Liberalization and technological change have made policy intervention more complex.

The presence of different types of externalities in telecommunications explains or may potentially justify many public interventions in the industry. There are territorial externalities (direct among consumers and indirect due to the enhanced value of applications with a larger network) and policy externalities (those arising from the interdependence of policy objectives and instruments). In this paper we argue that centralization better internalizes territorial externalities while decentralization better internalizes policy externalities.

The coexistence of public intervention at different government levels has been a fact of life for most of the history of network industries, and broadband in telecommunications is not an exception. One reason for this coexistence is the trade off between economies of scale and territorial (positive and negative) externalities, which justify a strong role for central powers, and the need for local management of rights of way required by physical networks.

The aim of this paper, therefore, is to provide insights into the impact of the degree of policy centralization or decentralization on broadband penetration. For this purpose we first develop a simple theoretical framework to show the existing trade-off between the different spillovers internalized by each level of government: the central government (centralization) internalizes territorial spillovers while regional/local governments (decentralization) internalize policy spillovers. At the local level, there are more objectives than instruments. Although this may cause static inefficiency, the diversity of objectives may act as a commitment device to facilitate higher investment levels. As a result, the empirical prediction of our model is that the impact of decentralization on network extension is ambiguous. In a preliminary empirical exercise, using data for OECD and EU countries for the period 1999–2006, we examine whether centralization is necessary to promote new telecommunications markets, in particular the broadband access market. The existing literature, in the main, claims it is, but we find no support for this claim in our data. Our results seem to point out that indicators of national industrial policy are a weakly positive determinant of broadband deployment and that different measures of

⁴ Local powers have a choice of either charging a high price (in monetary or other terms) for the use of rights of way or expediting procedures and minimizing the transaction and disruption costs of digging streets and of other collective infrastructures. Moreover, rights of way were the policy instrument that inaugurated regulation at the local level in the 19th century and it remains crucial in the telecommunication sector.

⁵ Historically there has been a trend to move regulation up the vertical structure of government. Troesken (1996) analyzes the transition from local to state regulation in the US gas industry. Electricity and telecommunications also started being regulated at the local level but at the beginning of the 20th century it was moved to the state level. Yet there are still many instances of local intervention, and regulation is still mainly carried out at the state level, despite the creation of the Federal Communications Commission (FCC) in 1934 in the US and the increasing role played by the European Commission since the late 20th century.

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