



Unbundling political and economic rationality: A non-parametric approach tested on transport infrastructure in Spain[☆]



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ABSTRACT

This paper suggests a simple quantitative method to assess the extent to which public investment decisions are dominated by political or economic motivations. The true motivation can be identified by modeling each policy goal as the focus of the optimization anchoring a data envelopment analysis of the efficiency of the observed implementation. In other words, we rank performance based on how far observed behavior is from the optimal behavior under each possible goal, and the goal for which the distance is smaller reveals the specific motivation of investment or any policy decision for that matter. The approach is tested on Spain's land transport infrastructure policy since it is argued by many observers to be driven more by political than economic concerns, resulting in a mismatch between capacity investment and traffic demand. The method clearly shows that investments have generally been more consistent with a political objective (the centralization of economic power) than with an economic objective (maximizing mobility).

1. Introduction

The common occurrence of a divergence between the private interests of politicians and their responsibilities to their voters is now widely taken for granted in the economics literature (e.g. [Bandiera et al. \(2009\)](#); [Besley \(2006\)](#), [Besley et al. \(2011\)](#), [Jones and Olken \(2005\)](#), [Mueller \(2003\)](#) and [Persson and Tabellini \(2000\)](#)). Some of this literature has focused on the importance of corruption, incompetence or other private characteristics of the politician. But we also know, from the public choice and the political economy literature, that the divergence may be the result of incoherence between the political agenda of the politician or its party and the optimal policy choice from a strict economic viewpoint. Transport investment decisions offer a powerful illustration.

Transport investments are based on long term traffic estimates and in the short run, they may be relatively easy to justify on economic grounds, even when the real agenda is political. Because the incentives and scope

for bluffing are quite high, transport investment decisions thus leave a solid margin for a combination of political visibility and a hidden disregard for robust basic policy insights from economics.

The higher the stakes, the higher the incentives to be cynical in politics are likely. In transport, the stakes are indeed high since on average, in OECD countries, transport enjoys budgetary commitments of close to 1% of GDP. The high political visibility of transport projects further fuels the political attractiveness of the sector (think of the media coverage of the inauguration of very expensive train stations or airports around the world). According to the Infrastructure Journal database, between 2008 and 2015, the average transport project supported through project finance techniques was for US\$ 558 million. These are significantly sized projects.¹

Moreover, the sector also offers a significant scope for technical creativity and innovation, which seems to justify ex-ante the support to expensive solutions to mobility, mismatched with willingness or ability

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¹ There were on average 110 such projects every year.

to pay. Many politicians love to be able to claim to be at the frontiers of knowledge or skills in transport as in any other field (think of the Concorde airplane or of the commonly over-designed rail, roads and port facilities). And this love seems to have no (fiscal) price.

The short run political payoff to the combination of strong politics and poor economics could be a credible explanation for the long lasting record of repeated mistakes in the estimation of costs (e.g. of contract renegotiations leading to significant increases in budgetary demands for major transport related constructions) and demand as documented by Flyvbjerg (2014) for instance in the political literature (e.g. of the roads to nowhere or the train stations serving hardly anyone).² The manipulations that produce these payoffs are, in turn, likely to explain the widespread incoherence between the commitments to improve modal options to contribute to climate change concerns and actual investment decisions. In most countries, observed investments do not reflect a structured, network-oriented approach aware of modal options and coordination requirements, coherent with both mobility and climate change concerns. This rational approach is instead distorted by a project-by-project, excessively political, analysis of specific investment proposals (Grimes, 2010).

To be able to increase the transparency of the political manipulation of investment decisions, efforts to document any distortion that goes beyond the ex-ante underestimation of costs and overestimation of demand should help improve awareness among voters and hence accountability, at least for the biggest, costliest mistakes. These concerns have already been the subject of solid academic research for a few years in the transport sector, usually at the project level.³ They are also now becoming a common concern for national auditing office. These audits tend to focus on financial costs levels.⁴

Although the academic and policy analysis has managed to highlight the relevance of political mismanagement at the project level (i.e. political ranking vs cost-benefit ranking of projects), there is hardly any economic research on political biases at the sector level in transport. To assess formally the extent to which politics may, indeed, have dominated economics in the sectoral investment choices, we suggest a somewhat unusual use of the measurement of efficiency through data envelopment analysis (DEA). The approach functions as a preference revelation mechanism since it allows us to rank preferences over various goals.

Since efficiency is best measured as the degree of success in achieving some goal, the approach starts with a diagnostic of the possible goals that the investments were expected to achieve. We suggest to compute the efficiency scores associated with the investments observed for each of the possible objectives to be compared, keeping in mind that the DEA is nothing more than an optimization with respect to a specific objective. When the comparison boils down to a political and an economic objective, only two optimizations are needed. The optimization anchored in the observed investments leading to the highest efficiency score reveals the most likely motivation for the policy decisions.

The Spanish transport policies of the last 30 years or so, offer a good experiment to illustrate the potential of the approach since it has been well analyzed (e.g. Albalade and Bel (2011); Albalade et al. (2012, 2015), Bel et al. (2013) and Castillo-Manzano et al. (2016) for recent reviews). For instance, as Bel (2010) points out, in 1997 Arias-Salgado, minister in charge of transport infrastructure, described his policy as being focused on strengthening the center of the peninsula, with the goal of remedying

the imbalance towards the Mediterranean that could imply political instability. Likewise, Bel highlights that former President of Spain José María Aznar, claimed in 2000 to have among the priorities of his new administration the development of a high-speed rail network that would connect every regional capital to Madrid. This was a political statement without a clear concern for the economics of the decision.

In this paper, we focus on public investment in both roads and high-speed rail in Spain between 1980 and 2012. If investments in rail and roads during that period were intended to achieve an economic purpose, they would have improved mobility and hence traffic. In other words, they would have met a demand for passenger and freight transport services. This is relatively easy to measure and easy to include in an optimization diagnostic. If investments were made to achieve a political objective, we need to be able to identify a proxy for this particular objective. The literature suggests that the centralization of economic power around Madrid may have been the real driver of the specific choice of investments. We model this as the increase in the economic size of the Madrid region⁵ relative to other regions. As it often happens, this other possible goal is much less official and less transparent. It is essentially supply driven since supply is designed to achieve a political agenda rather than an economic agenda.

For the motorway network, the stylized facts suggest that the central government may have followed a mixed strategy between the mid-1960s and the mid-1980s making the most of its available financing options. Where the demand was strong enough, investment was left to the private sector. The outcome was that, during that period, the road infrastructure was built in areas of high traffic density reflecting a high agricultural, industrial, and tourism activity. Public financing focused on non-commercially viable roads.⁶ Getting the private sector to finance the demand driven road investment allowed the government to allocate more of its budget commitments to invest in roads with lower demand or in other public sector concerns. It also gave a margin to implement political preferences aiming at developing a network that maximizes the leverage of the capital city, Madrid.⁷

This political dimension became more obvious with the acceleration of public investment in the sector since the mid 1980s. According to this hypothesis, access to European funding allowed a rebalancing of investments towards the centralization objective.⁸ European funding indeed allowed the politicians to rely on public financing of roads rather than to have to rely on concessions to private constructors and operators.⁹ If politicians did distort the allocation of resources to the sector, efficiency measures of road investment performance should be telling different stories to those told by the measures obtained assuming that the main focus of investment was mobility.

Politics rather than economics may have also influenced the development of the Spanish high-speed rail since 1992, according to Bel (2010). This has resulted in a mismatch between the size of the network and the demand for its services. As pointed out by Bel (2010), Spain has now the largest high-speed rail in Europe and the OECD, and the second largest in the world, just behind China.¹⁰ In terms of traffic densities, despite having a significantly larger network than France or Japan, Spanish high-speed rail carried only 15% and 5% of the passengers transported by these countries' high-speed rail, respectively. This is why

⁵ Comunidad de Madrid.

⁶ Note that an ex-ante assessment of financial viability is not a guaranteed protection for the taxpayers. The requests for refinancing and public subsidies in the sector has reached a point at which in 2015, the Minister in charge of the sector decided to stop catering to almost predictable recurring requests for refinancing.

⁷ Albalade et al. (2012) derive this conclusion from the estimation of an investment equation which allows them to test an assumption amply documented from a more historical perspective by Bel (2010).

⁸ see Bertoméu-Sánchez and Estache, 2016.

⁹ This centralization risk had actually already been pointed out by the World Bank (1963) when it was still lending to Spain.

¹⁰ It has been developed by Spanish construction companies, largely subsidized by the taxpayers without much concern for real short and long term demand.

² This has been amply demonstrated by the productivity literature across sectors and across country types.

³ In addition to Flyvbjerg (2014), there are also very thorough case studies of political manipulation of project selection processes such as Annema et al. (2007) for the Netherlands, Eliasson and Lundberg (2012) or Hammes (2013) for Sweden, Knight (2004) for the US, Nellthorp and Mackie (2000) for the UK, or Nyborg (1998) and Odeck (2010) for Norway.

⁴ Since 2014, there is a very transparent debate between the public auditors and the toll road operators on the surprisingly high rate of return of investments in the sector. In 2015, the French Competition Agency stated that the motorway operators' high profitability rates could not be justified by the costs they have to bear or the risks they face.

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