

**EVALUATION OF TRANSPORT INFRASTRUCTURE PROJECTS
BEYOND COST-BENEFIT ANALYSIS.
AN APPLICATION TO BARCELONA'S 4TH RING ROAD.
A REPLY**

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Ponti (this issue) raises methodological questions about a paper of ours that appeared in an earlier issue of this journal (Asensio and Roca, 2001). We understand that Ponti's comments can be summarized in two main points. First, he finds that the multi-dimensional approach, consisting of the combination of cost-benefit analysis (CBA) with other economic impacts which result from the investment project, shows consistency problems. Second, he considers that our assumption of no crowding out (or "displacement") effect from public investment in transport infrastructures, in the sense that "there is no marginal opportunity cost for public expenditures", is in contrast with current fiscal policy in Europe. In this reply we expose our views on those issues.

The potential inconsistency would be due to the aggregation of the CBA results and the economic effects calculated afterwards in the manner clearly shown by Ponti. However, our intention when computing and presenting those effects (the demand and supply effects) is to complement the information provided by the CBA, but not to aggregate the results. In line with current practice in European countries (Grant-Muller *et al.* 2001), we think that this multi-dimensional approach could provide the policy maker with more information for taking investment decisions. It is true that given

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the degree of disaggregation of the data employed when modeling the supply and demand effects, the impact of a particular piece of infrastructure analyzed cannot be distinguished from the one that would result from any other transport infrastructure of the same size. Thus, taken on their own, the estimation of the demand and supply effects does not provide additional basis for prioritizing the project with respect to similar road developments in the same economic area (in this case the Spanish region of Catalonia). Despite this limitation, the approach employed provides useful information to select between projects located in different regions.

Regarding the second point, it should be stressed that our result concerning the crowding out (or displacement) effect refers to the impact of public investment, and not to any kind of public expenditure. In this sense, most empirical evidence shows that, in fact, there is a crowding in effect in that investment in public infrastructures increases private investment. This positive impact was initially pointed out by Aschauer (1989) for the US, showing a strong positive relationship between productivity and the ratio of public investment to private capital stock. Using more recent data Pereira (2001a) confirms this crowding in effect in the US economy. Argimón *et al.* (1997) and Pereira (2001b) employ data from OECD countries (including Spain) and also find a positive effect of public investment on private investment. In the Spanish economy this result is detected both at an aggregate and regional level (Pereira and Roca Sagales, 1999), as well as for most economics sectors (Pereira and Roca Sagales, 2001). Moreover, a study of the socio-economic impact of projects financed by the Cohesion Fund (LSE, 1997) shows that in the long run investment in transport infrastructures tends to produce a positive impact on private investment and contributes to the economic development of the regions.

All discussion regarding the use of impact evaluation techniques is welcomed. More precisely, the improvement of methods that go beyond the CBA methodology is particularly relevant, given the current use of such models to analyze the effects of regional policy. As the 6th report of the EU on the state of the regions details (EC 1999), the models that quantify the supply and demand effects of infrastructure investments are one of the main tools at our disposal.

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