Hearing on first findings of ex post evaluation of Objectives 1 and 2
23 June 2009, Brussels

Comments on
WP 10, Unit costs of major projects – data, use and right incentives

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First of all, I would like to thank the invitation of D.G. Regio to participate in this hearing on *ex post* evaluation of infrastructure projects. *Ex post* evaluation is very important for *ex ante* evaluation. The findings of this exercise can be very useful for the improvement of the evaluation of projects in the near future

My comments concentrate on the incentives member countries have at the moment to build and operate infrastructure with the minimum unit costs. Therefore I would not deal with the question of cost overruns and strategic misrepresentation but with the incentives in the present financing mechanism that can explain why member countries have an incentive to produce with costs that are higher than those technically feasible or why they do not have too much interest in pricing according with user-pays principle or the polluter-pays principle (this of course has again a repercussion on costs as the volume of demand and the capacity needed are affected by the price charged).

I will try to give some answer to the questions:

- How can Member States and regions balance the need to spend the resources of Cohesion Policy correctly and ensure that the impact of that expenditure is maximised?

- How can good performance be incentivised - and are there disincentives in how the policy is structured?

The construction of major infrastructure is an expensive task. The decision to invest public funds for this aim is subject to cost, and particularly, demand uncertainty. The irreversibility of the decision and the significant amount of public funding involved makes the economic appraisal of the project quite relevant. Therefore it is sensible to examine how the institutional design affects member countries choices when co-financing from the European Commission affects the costs they have to bear.

To understand the effects of this public support in the investment decision it is useful to distinguish two levels in the process of funding major infrastructure projects. The first one relates to the institutional design, in which supranational and national governments (or national and regional governments) agree the projects to be financed. The second one is related to the selection of contracts for the construction and operation of the infrastructure. This level includes the relationship between the national (or regional government) beneficiary of the project with the agent(s) responsible(s) of the construction and operation of the project.

The co-financing system in the EU is the so-called “funding-gap” method consisting in a type of cost-plus financing mechanism where the difference between investments costs and the discounted revenues (net of operating costs) of the project is partially covered by the supranational organization. The European Commission finances a percentage (the co-funding rate) of this financial gap. The incentive nested in this mechanism is perverse as the subsidy

increases with total investment costs and decreases with net revenues. This financing mechanism penalizes the internalization of externalities and congestion, leads to excessive demand and biases the capacity size and the choice of technology, so the unit costs will be higher than necessary even without cost overruns (Cost overruns are common in large infrastructure projects and it has been demonstrated that the deviation is not only explained by unforeseen events (Flyvbjerg *et al.*, 2003).

Let us suppose that a country facing a problem of capacity in the transport network is considering mutually exclusive projects, including the construction of a new transport infrastructure that can apply for financial support of a supranational agency. The country is governed by a politician, who must decide the main characteristics of the project (let us say high speed rail or upgraded conventional train), make a cost-benefit analysis, and report it to the supranational planner in order to get funds for the construction of the infrastructure.

The effects of the present system of co-financing in the EU, or any other in which a national government pays the infrastructure within the national budget and the regional government decides the type of project to be financed, can be modeled in the following way (de Rus and Socorro, 2009). Suppose only two periods. During the first period, the new rail infrastructure is constructed. During the second period, the citizens of the country use it. The real construction costs are paid by the national government. We know that actual costs do not necessarily coincide with the minimum investment cost. To minimize construction costs requires the politician to make an effort, which is a cost for him.

It is not uncommon that national governments are better informed than the supranational agency about the transport problem and the set of alternatives available and therefore about the minimum investment cost required to solve the problem. For this reason, we assume that the supranational planner cannot observe (or verify) either the minimum investment cost, or the effort exerted by the politician in order to be efficient. Moreover, the national government has to decide the price to be charged for the use of the new infrastructure and consequently the number of users. There are also operating and maintenance costs, which are privately known and in many cases different technologies and/or capacity sizes with significant cost differences.

Once we abandon the idea of a benevolent supranational planner with perfect information and assume that the utility function of the politician depends on his own private income (only obtained if the politician is governing the country) we can go further explaining some of the evidence concerning the national government decisions on expensive infrastructure. The higher is the welfare of voters in the second period, the higher is the probability of re-election. The welfare of voters in the second period is the sum of their consumer surplus and the value of social expenditures.

The fixed costs/total cost ratio can be 50 per cent or higher in major infrastructure projects (Campos *et al*., 2009), so these projects are always candidate for supranational funding. In a world of perfect information, the supranational agency maximizes social welfare forcing the national government to exert the maximum level of effort and so minimizing project costs and introducing marginal social cost pricing. In the real world, efforts and marginal costs are not observable and the behavior of the national government will respond to the incentives of the financing mechanism.

With the present funding gap mechanism (as well as with any other cost-plus financing system) it is costly to be efficient. Governments have no incentives to minimize investment costs or to introduce optimal pricing. There is a bias in favour of expensive-last technology-mega projects and pricing will depart from user-pays or polluter-pays principles as the higher is the price for the use of the new national infrastructure, the lower is the consumer surplus of voters, and the

lower is the probability of re-election. As a consequence, the politician will choose the maximum number of users and will not charge for the external costs.

The evidence supports these conclusions. It is remarkable that member countries have promoted the construction of major projects with demand too low to pass a strict cost-benefit analysis. An *ex post* evaluation of a sample of projects co-financed by the Cohesion Fund in the period 1993-2002 concludes that national governments have been focusing primarily on timely commitment of the available funding, paying less attention to the technical contents and economic priority of projects (ECORYS Transport, 2005). The evaluations generally fail to assess the quantitative contribution of the project to the declared objectives. Problem descriptions and analyses are sometimes lacking.

Moreover, it was generally impossible to determine whether projects were technically sound, and this deficiency led to: improper designs; technical amendments after approval but before the start of the construction; late amendments to design/tender dossiers; late start of implementation; cost overruns due to additional activities for the contractor, who is then in a good position to claim additional costs; longer implementation periods than foreseen; and too many requests for the extension of the implementation period. The document concludes that "the evaluators have found only pragmatic criteria for the co-financing rate. In addition some basic dilemmas exist between general policy objectives and the rules applied for calculation of the co-financing rate. In particular the polluter-pays principle is only partially adopted since increasing user charges is discouraged by the present system of determining the co-financing rate" (ECORYS Transport, 2005).

These disappointing results are not completely unexpected. As we have already discussed, national governments are in general more informed than supranational planners about the costs and benefits of the infrastructure projects to be constructed in their own regions, and they do not necessarily share the same objectives. Governments may have incentives to manipulate project evaluation to get more funds from the supranational planner. In a context of asymmetric information and different objectives, the relationship between national governments and supranational planners cannot be modelled in a conventional cost-benefit analysis framework.

The existence of information asymmetries and conflicting interests requires a different approach in which incentives are explicitly accounted for. Florio (2006) proposes to move away from the current low-powered incentive European Union co-financing mechanism, essentially an investment cost part-reimbursement scheme, towards a more incentive-based system.

As argued in de Rus and Socorro (2009) a fixed-price financing mechanism may provide the necessary incentives to reduce costs and charge the socially optimal price. Moreover, with the funding-gap method, cost-benefit analysis may ends up as a bureaucratic requirement for national governments to obtain supranational funds. However, with the fixed-price financing mechanism, cost-benefit analysis is a very useful tool for governments to allocate the supranational funds in the most efficient way.

It is worth stressing that giving national governments an *ex ante* fixed amount of funds the European Commission loses its influence on the selection of projects. This is not the position of the European Commission, which establishes infrastructure investment priorities for the member countries. An intermediate solution is to substitute the funding-gap method by an alternative financing scheme based on an *ex ante* fixed-quantity funding linked to generic objectives like investing in "accessibility" or "minimizing the total social cost of transport" in selected corridors, a mechanism that should be dissociated in any case from costs and revenues and the selection of any specific technology. The risk of building socially unprofitable infrastructure would be dissociated of the co-financing mechanism as the selection of the more expensive (and may be inappropriate) project will now have a completely different opportunity cost for the national governments.

References

Campos, J. and de Rus, G. (2009): "Some stylized facts about high-speed rail: A review of HSR experiences around the world" *Transport Policy*, 16, 1: 19-28.

de Rus, G. and Socorro, P. (2009): *Infrastructure investment and incentives with supranational funding*. Paper presented at the VIII Milan European Economy Workshop, University of Milan, in the framework of the EIBURS project.

ECORYS Transport (2005): "Ex post evaluation of a sample of projects co-financed by the Cohesion Fund (1993-2002)", *Synthesis Report for the European Commission*. DG Regional Policy.

Florio, M. (2006): "Cost-benefits analysis and incentives in infrastructure planning and evaluation: a research agenda for the EU cohesion policy", 5th Milan European Economy Workshop 26-27 May 2006.

Flyvbjerg, B., Bruzelius, N. and Rothengatter, W. (2003): *Megaprojects and risk: an anatomy of ambition*. Cambridge University Press.