Institut Européen
d'Administration Publique
European Institute
of Public Administration

Forthcoming in the Proceedings of the Annual Conference of the
European State Aid Law Quarterly

24 August 2006

Economic Analysis of State Aid: An Assessment of the Balancing Test and its Application in the Draft Framework on State Aid to Research, Development and Innovation

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I am grateful to Maria Kleis for comments on an earlier version of this paper.

1. Introduction

The main objectives of the State Aid Action Plan are to reduce and better target state aid, introduce a refined economic analysis of state aid and improve the effectiveness and predictability of state aid procedures.

The purpose of this paper is to evaluate the refined economic analysis as first outlined in the SAAP and then elaborated by the Commission in its draft Framework on state aid to Research, Development and Innovation.

The justification for granting state aid to support R&D&I is to encourage firms to undertake more research than they would otherwise under normal market conditions. There is ample empirical evidence that shows that the market does not function optimally in relation to research.

The typical problems are that, first, firms cannot prevent others from exploiting the results of their own research [problems of externalities or appropriability of research results]. Second, small innovative firms cannot obtain adequate finance because the capital markets do not have sufficient information about their credit worthiness, capability and potential of their research projects [problems of incomplete or asymmetric information]. And third, firms may encounter problems combining their research effort with that of others even if joint research is to their advantage because they may combine expertise or share risks [coordination problems].

At the same time, however, state aid to R&D&I appears to be crowding out private investment and, like all kinds of public subsidies, it may distort competition.

Therefore, it is not sufficient to claim that aid to research can in principle be justified because it generates positive effects for the economy. It must also be shown that aid actually raises economic efficiency without causing excessive distortion of intra-Community trade and competition. This is the objective of the balancing test.

The next two sections review the principles of balancing test and how it has been elaborated in the R&D&I Framework, while the fourth and fifth sections evaluate the balancing test by considering possible alternative tests.

2. The balancing test

The “refined economic analysis” of the SAAP is embodied in a so-called “balancing test” in the draft R&D&I Framework. The balancing test consists of three stages, each answering the following respective questions:

1. Is the aid measure aimed at a well-defined objective of common interest? For state aid to be exempted it must pursue one of the policy objectives which are defined in Article 87(3) [or (2)].

2. Is the aid well designed to deliver the objective of common interest; i.e. does the proposed aid address the market failure or other objective? This in turn is broken down into three subsidiary questions:

i. Is state aid an appropriate policy instrument? There may be other instruments that do not involve subsidies and which are equally good or even better at achieving the desired policy objectives.

ii. Is there an incentive effect; i.e. does the aid change the behaviour of firms? For aid to be exempted it must be capable of inducing firms to do things they would not otherwise do without government intervention.

iii. Is the aid measure proportional; i.e. could the same change in behaviour be obtained with less aid?

3. Are the distortions of competition and effect on trade limited, so that the overall balance is positive? Even if the aid is appropriate and proportional, it may still generate significant distortions of competition that may harm other member states. These harmful effects have to be taken into account.

3. The balancing test in R&D&I

In the case of R&D&I, not all aid will be subject to the balancing test. It is assumed that for most cases, compliance with the criteria and ceilings laid down in the Framework will also satisfy the conditions of the test. Aid will be subject to a more detail assessment only when it exceeds EUR 5 million. The level of the Commission's assessment will be proportional to the risk of distortion of competition. This means that the detailed assessment will not necessarily require that all the criteria be verified; the scope of the analysis will depend on the nature of each case.

The starting point of the balancing test is the identification of market failure that hampers R&D&I. The Commission expects proof of knowledge spillovers, imperfect and asymmetric information or coordination failures. Member states can illustrate the existence of market failure through benchmarking showing that other regions, markets or sectors experience higher levels of R&D&I. To show that state aid is an appropriate instrument, the Commission wants proof of the advantages of using a selective instrument such as state aid over other possible policy responses.

The next important step is to determine whether the aid has an incentive effect. The Commission considers that as a result of aid, R&D&I activity should be increased in size, scope, amount spent or speed. The incentive effect is identified by counterfactual analysis, comparing the levels of intended activity with aid and without aid.

At the same time, aid must be proportional; i.e. even if aid is necessary and has an incentive effect, it must not exceed the minimum amount required to carry out the R&D in question or it must not result in excessive distortion of competition. The amount of required aid is linked to the degree of market failure.

Whereas in all cases it must be demonstrated that the incentive effect and proportionality are satisfied, only a few cases will be subject to detailed assessment.

How to demonstrate incentive effect

In order to verify that the planned aid can induce undertakings to pursue research which they would not otherwise have pursued, member states are expected to provide the following quantitative elements for all individual measures assessed by the Commission, on the basis of a counterfactual analysis comparing a situation without aid and situation with aid being granted:

i. changes in R&D&I spending;
ii. changes in the number of people assigned to R&D&I activities;
iii. changes in R&D&I spending as a proportion of total turnover;
iv. other relevant quantitative factors indicated by member states.

When a measure undergoes a detailed assessment, the Commission considers that a more precise analysis of the incentive effect of the aid is necessary to avoid undue distortions of competition. The Commission will, in addition to the indicators mentioned above take into consideration the following elements:

i. Specification of intended change.
ii. Counterfactual analysis [i.e. the likely level of intended activity with and without aid].
iii. Level of profitability [if a project is not, in itself, profitable for an undertaking, it is more likely that the aid has an incentive effect].
iv. Amount of investment and time path of cash flows [high start-up investment, low level of appropriable cash flows and a significant fraction of cash flows arising in the very far future are considered positive elements in assessing the incentive effect].
v. Level of risk involved in the research project.
vi. Continuous evaluation [pilot projects, well-specified milestones, ex-post monitoring are considered positive indicators].

How to demonstrate proportionality

Where aid is found to have an incentive effect, the eligible costs and maximum aid intensities laid down in the Framework are considered proportionate.

However, in the case of a detailed assessment, the Commission requires additional information from member states to secure that this criterion is met. The additional information is as follows:

i. Open selection process [where there are multiple (potential) candidates for undertaking the R&D&I project, the proportionality requirement is more likely to be met if the project has been allocated on the basis of an open tender procedure].
ii. Aid to the minimum [member states have to explain how the amount given has been calculated to ensure that it is limited to the minimum necessary].

Analysis of the distortion of competition and trade

The negative effects of aid (distortion of competition) must be limited and can be categorized in the following:

i. Disruption of the dynamic incentives of undertakings and crowding out of private investment.
ii. Support of inefficient production.
iii. Encouragement of exclusionary practices and enhancement of market power.
iv. Impact on trade flows between member states.

There are three distinct ways in which R&D&I aid can distort competition in product markets:
i. R&D&I aid can distort the dynamic incentives of market players to invest (crowding out effect). In its analysis, the Commission takes into consideration the following elements:

i. Aid amount. The significance of the aid amount will be measured with reference to total private R&D expenditure in the sector, and the amount spent by the main players.
ii. Closeness to the market / category of the aid
iii. Open selection process
iv. Exit barriers
v. Incentives to compete for a future market
vi. Product differentiation and intensity of competition.

ii. R&D&I aid can create or maintain positions of market power. The Commission is unlikely to identify competition concerns related to market power in markets where each aid beneficiary has a market share below 25% [still to be confirmed] and in markets having a market concentration with Herfindahl-Hirschman Index (HHI) below 2000 [still to be confirmed]. In its analysis, the Commission takes into consideration the following elements:

i. Market power of aid beneficiary and market structure.
ii. Level of entry barriers.
iii. Buyer power.
iv. Selection process.

iii. R&D&I aid can maintain an inefficient market structure. The Commission considers whether the aid is granted in markets featuring overcapacity, in declining industries or in sensitive sectors.

Balancing and decision
The analysis in each particular case is based on an overall assessment of the foreseeable positive and negative impacts of the state aid. For that purpose the Commission does not use the criteria set out above mechanically but makes an overall assessment based on the proportionality principle.

The Commission may consider attaching the following conditions, which must reduce the resulting distortions or effect on trade and be proportionate:
i. Lower aid intensities than the maximum intensities allowed, including claw-back mechanisms and different conditions for repaying reimbursable advances.
ii. Diffusion of results, collaboration and other behavioural commitments.

iii. Separation of accounts in order to avoid cross-subsidization from one market to another market, when the beneficiary is active in multiple markets.
iv. No discrimination against other potential beneficiaries (reduce selectivity).

4. Alternative tests

In order to evaluate the Commission's balancing test it is instructive to consider what kind of other tests have been proposed. These alternative tests provide us with a benchmark against which to consider the breadth and depth of the Commission's test and appreciate whether it is reasonable or too cumbersome.

The OFT test[2]

The OFT believes that not all state aid cases should be subjected to detailed economic analysis. There is a need to focus on most distorting cases in order to save administrative resources at the EU level and relieve member-state administrations from the burden of notifications. In addition, the OFT is of the view that current rules allow distorting aid to be approved simply because they satisfy the criteria laid down in the regulations and guidelines. The purpose of more detailed economic analysis would be to prevent approval of distorting aid that formally complies with regulations or guidelines. The Commission would retain its current role as the sole entity assessing state aid, but national competition authorities would be given the possibility to offer formal advice.

The OFT is in favour of keeping the structure of Article 87 and in particular the criteria of Article 87(1) for classifying public measures as state aid. It follows that a more detailed analysis would have to be carried out under Article 87(3).

Such an analysis would involve a two-phase investigation. Phase 1 assesses the likelihood of distortion of competition. Phase 2 carries out detailed investigation of the effects of aid.

Phase 1 would consist of three steps each focusing on the following questions:
i. Does aid remedy market failure?
    If yes, go to the following question.
    If no, go to phase 2.
ii. Are there objective selection criteria linked to market failure?
    If yes, has recipient small market share? If yes, apply relevant guidelines.
    If no, go to phase 2.
iii. Are there many eligible firms? If yes, apply relevant guidelines.
    If no, go to phase 2.

Phase 2 defines the relevant market and assesses the impact of aid on market operators. The factors that are taken into account are the amount of aid, project size, effect on costs,

[2] See OFT, European State Aid Control, November 2005, OFT 821, accessed at "http://www.oft.gov.uk/NR/rdonlyres/F346B4FF-4C97-4970-BD95-70E9EB56ADBE/0/OFT821.pdf"

market concentration, size and symmetry of firms, product differentiation and entry & exit barriers.

Charles Rivers Associates test[3]

CRA has outlined its test in a study they carried out for DG Economic and Financial Affairs. The test is made up of five steps.

Step 1: Is there significant market failure? Without some kind of market mal-functioning there is no need for government intervention.

Step 2: Is aid appropriate? Although the market may not function perfectly, it does not follow that state aid is capable of remedying the problem. So it must be shown that the aid instrument and amount of aid are capable of correcting the market failure.

Step 3: What are the relevant markets and relevant products? To identify the effects of state aid on competitors it is first necessary to define the relevant markets and products that will be affected by the aid.

Step 4: Counterfactual analysis. The analysis in this step aims to establish what would have happened to competition and how the market would have evolved in the absence of aid.

Step 5: Decision and possible conditions attached.

5. Evaluation

It is important at the outset to clarify whether an economic test is necessary in state aid procedures. The answer must definitely be in the affirmative. Currently, aid is exempted if it formally satisfies the criteria laid down in regulations and guidelines. There is only incidental correspondence between those criteria and the actual impact of aid on competition. Therefore, a more thorough assessment of the effects of aid is certainly needed in the EU.

The balancing test has so far been criticised for a number of reasons the main of which are the lack of legal certainty and its inherent complexity. Undoubtedly, any test which does not depend on procedural criteria but on results which are not known in advance is bound to raise uncertainty. But this is not necessarily a negative development. Legal certainty is not the only concern in state aid control, nor the most important one. The most important concern is to prevent distortion of trade and competition. Naturally, it is desirable that prevention of distortion of competition can be achieved with procedures that afford a high level of legal certainty. However, a reduction of certainty for the sake of avoiding competition distortions is a trade-off worth making.

[3] R. Nitsche, P. Heidhues, Study on Methods to Analyse the Impact of State Aid on Competition, European Economy, Economic Papers, no. 244, February 2006, DG Economic and Monetary Affairs, European Commission.

The other criticism is also misplaced. Attempting to remedy market failure through state aid is a difficult task. Refusing to acknowledge that difficulty and criticising the complexity of the balancing test is the policy equivalent of hiding one's head into the sand. If assessing the impact of state aid is as difficult as critics claim, then they must explain why governments grant aid without actually knowing what its impact may be and whether it will achieve its objectives. The argument that the economic assessment of state aid is difficult is more of an indictment of the laxity and ineffectiveness of current procedures.

The balancing test and all the alternative tests reviewed in the previous section begin by asking whether aid has a legitimate purpose. This is absolutely correct because if aid is not intended to remedy some kind of market failure then there is hardly any justification for the government to intervene in the economy.

In this connection, it should be noted that there is a subtle difference between the balancing test and the other tests. The balancing test uses a broader criterion because it refers to "policy objectives of common interest". The reason is that aid which is exempted under Article 87(3) may serve objectives other than the remedying of market failure. However, in the R&D&I Framework the emphasis is, correctly, on market failure because it is not possible or efficient to attempt to raise R&D&I by giving aid, for example, to employment, and vice versa.

The next step of the balancing test is to ask whether state aid is an appropriate instrument. The test proposed by CRA asks the same question. The OFT test differs significantly in this respect. It tries first to find out whether the recipients are large companies, whether they operate in oligopolistic industries and whether the aid is granted to a few chosen firms. It is in these situations that aid is likely to have its biggest and most distortive impact on competition and cross-border trade. Since state aid control in the EU is intended to protect the interests of the other member states and those of the Community in general, it makes sense to have a "filter" to identify the most problematic cases for the common interest.

In fact, this consideration could be taken a step further. This kind of filter should operate at the very first stage of economic analysis of state aid. Aid that is granted only to companies with insignificant market share or which are unlikely to engage in cross-border trade, should not be subject to Community scrutiny, irrespective of whether that aid is granted for a legitimate objective or not or whether it constitutes an appropriate policy instrument or not. If member states waste their public money on ineffectual policy instruments it is their problem as long as they do not cause any negative cross-border spillovers.

After determining the necessity and proportionality of aid, the balancing test and the other tests seek to assess the trade and competition impact of aid. They all look at factors such as market shares, the degree of market concentration, the existence of entry barriers,

the extent of product differentiation, etc. But here lie the five most significant weaknesses of all tests.

First, it is not clear how the precise effect on competition is to be calculated. When a company receives an amount of money that is to be spent on an R&D&I project, the impact on the market and competition will depend on how the research results are used as inputs in the production of new products and which these products may be. The same research may lead to different products or have many different applications. The channels and magnitude of causality are still vague.

A second and related problem is that the competition impact will also depend on how the recipient company would have used its own resources if it did not carry out the aided R&D project. Would it use them in alternative projects? Would it do research at all or would it pursue other kinds of research? Would it use its money to buy in technology from other companies or would it simply buy out those companies? The tests appear to assume that the counterfactual analysis is confined to comparing situations with more aid, on the one hand, and less aid, on the other, while other factors remain unchanged. But the counterfactual in state aid cases can be much more complicated and diverse.

Third, the specific weights that the Commission will attach to the various factors will change from case to case. This leaves national authorities with considerable degree of uncertainty as to whether the aid under investigation can be approved or not. This is an uncertainty that is created by the various assumptions that the Commission will make rather than from the objective facts that vary from case to case. This kind of uncertainty may be reduced by more precise guidelines and examples from the Commission.

Fourth, even when the distortion of competition can be estimated there is still a problem of how to decide whether the aid should be granted. Even when the uncertainty about the weighting to be used in each case could be accepted as inevitable, it is still unclear how the overall impact on competition is to be compared to the overall positive effects of the aid in question. The determination of whether the aid pursues a legitimate purpose, which is carried out at the beginning of the economic tests, is not the same as a calculation of the size of the benefits to the economy. Without a quantitative assessment of the benefits from aid it is rather difficult to conclude whether they are worth the distortions caused by the aid.

Fifth, none of the tests is really explicit on the distribution of the costs and benefits across member states. It is probably assumed that a euro of costs borne by one member state is worth a euro of benefits accruing to another member state. Perhaps this is an inevitable assumption. But in the context of the EU it raises a difficult question. Is it legitimate to prohibit aid that causes significant distortions in other member states when such aid aims to give a boost to the economy of that member state which is at a lower level of development? Perhaps the answer is that the Commission will ignore distribution effects. But then it should be explicit on this issue.

6. Conclusions and possible improvements

A more refined economic analysis of state aid is much needed in the system of state aid control of the EU. A number of tests have been proposed and the Commission has adopted a test that seeks to balance out the positive and negative effects of state aid.

However, in view of the various weaknesses of the balancing test, there are two kinds of improvement that should be tried out. The first concerns the cases to which the test is applied. The second concerns how the test is applied.

Since the balancing test is complex and to some extent unpredictable, it should be applied to the cases that are most likely to cause significant distortions. The threshold adopted by the Commission is expressed in terms of the amount of aid. If aid exceeds EUR 5 million, then a more detailed and more demanding assessment is carried out.

But the absolute amount of aid is not likely to be a good threshold for two reasons. First, there is a Community interest in controlling state aid when trade is significantly distorted. It is unlikely that intra-Community trade will be distorted by aid of EUR 5 million to a company that hardly trades across national borders or whose products are mostly local. Hence a better threshold would be some measure or combination of measures of cross-border trade. Second, the distortion to competition is more likely to be caused by large rather than small companies. This means that market share is likely to be a better indicator of distortion of competition. The balancing test will not be applied to SMEs, but the critical factor here is not the absolute size of the aid recipient but its market power and market shares are better indicators for this purpose.

I believe that the Court of Justice would not object to this approach. In its judgement in the case Matra v Commission [C-225/91, paragraph 36], it ruled as follows: “It must be stated that the size of an investment or aid cannot in itself constitute a serious difficulty, as otherwise the Commission would be obliged to initiate the procedure under Article 88(2) whenever the investment or aid exceeded a certain level, which would moreover have to be defined. Besides, the decisive factor is not the amount of the aid so much as its impact on intra-Community trade.”

These considerations suggest that the balancing test should start not by asking why aid is granted but by determining whether there is a cause for Community concern. The indicators that can be used for this purpose are market shares, share of trade in total sales of a given product, number of players in the market, etc.

With respect to how the balancing test is applied, there is certainly a need for guidelines by the Commission with examples of how it will determine and treat things such as weakening of dynamic incentives or strengthening of exclusionary practices. There is also a need for a more explicit definition, even if it is only qualitative, of the weights that will be used to perform the balancing between the positive and negative effects of state aid. Although there is some unavoidable uncertainty in the use of any test of this kind,

such uncertainty should not be compounded by the use of one set of weights by notifying authorities and another by the Commission.

In conclusion, thorough economic assessment of state aid is long overdue. Like any other policy reform it creates some uncertainty which, however, should gradually decline as people become more familiar with the new concepts and as the procedures and tests are streamlined as experience is gained from their application. Undoubtedly, there will be improvement. But that improvement can be speeded up if the Commission relies on more thresholds at the beginning of the balancing test and provides more guidance on the final stages of the test.