

EUROPEAN ECONOMY

ECONOMIC PAPERS



Number 286 – September 2007

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**Economic
and Financial Affairs**
DIRECTORATE - GENERAL



EUROPEAN COMMISSION

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European Commission

Directorate-General for Economic and Financial Affairs

Publications

BU-1

B - 1049 Brussels, Belgium

ECFIN.E2/REP/53530

ISSN 1725-3187 (online)

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THE ECONOMIC ANALYSIS OF STATE AID: SOME OPEN QUESTIONS

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Abstract

The last few years have seen both a significant shift in EU state aid policy towards a more sophisticated economic approach and a great enrichment of the economic literature on state aid. This paper examines the control of state aid in the EU in the light of the new literature. It begins with a discussion of the objectives of state aid control, taking account of the principle of subsidiarity. We discuss whether state aid control should concentrate on limiting the effects of aid on trade and competition (i.e. harm to rivals) or whether the purpose is broader and includes also considerations such as avoiding government failures and encouraging Member States to use state aid more sparingly and target it more efficiently. This leads to a brief analysis of how the appropriate welfare standard to be applied in state aid control would vary according to the weight given to different objectives. The paper then considers the objectives pursued by governments in granting aid with particular emphasis on the concept of market failure. The nature and magnitude of the market failure addressed by a state aid, together with the design of the aid, will strongly influence the extent of any anti-competitive effects. The last two parts (4 and 5) of the paper are devoted to specific problems of assessing anti-competitive effects using the types of information normally available to the aid-granting authorities and the European Commission. Part 4 discusses the problem of assessing the effects on competition of aid schemes and broad classes of aid, when the beneficiaries and even the affected markets are not known. Because Member States grant a vast number of individual aids every year, the Commission has to apply simple criteria to screen out those aids that are unlikely to have significant anti-competitive effects. We survey a range of indicators that can be used for this purpose and conclude that they all have drawbacks. Part 5 deals with the problems of assessing individual awards of aid which have failed the screening test, discussing how the main characteristics of firms (e.g. market share, vertical integration) and markets (such as product differentiation and market growth) may influence a state aid's impact on competition.

Keywords: European Union, state aid, subsidies, competition policy.

JEL Classification Numbers: D6, H25, L10, L52.

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Acknowledgements

The authors thank Rainer Nitsche of CRA International, Thibault Kleiner and Hans Friederiszick of the Directorate-General for Competition for comments on an early draft of this paper. The opinions expressed herein and any errors, however, are the authors' own.

THE ECONOMIC ANALYSIS OF STATE AID: SOME OPEN QUESTIONS

1. Introduction

The control of State aids is an almost unique feature of competition policy in the European Union. Only in the EFTA is there a similar system of supranational control over the subsidies granted by States to enterprises, a system which owes its existence to the need to harmonise competition policies in the European Economic Area. Other regional economic groupings and even federal States lack mechanisms for controlling the subsidies granted by their constituent parts. For example, in the United States the federal government has no mechanism for controlling or even coordinating the aids granted by the States, even though such aids are covered by the WTO subsidies code. The benefits of State aid control are clear. In many circumstances, subsidies can reduce economic welfare by weakening the incentives for firms to improve their efficiency and by enabling the less efficient to survive or even expand at the expense of the more efficient. The resulting distortions of trade can lead to friction between national governments and to retaliatory measures which may be a source of further inefficiency. Furthermore, unless some supranational discipline is imposed, competition between governments to attract investment can lead to costly subsidies races. The EU's system of control, based on an agreed set of fundamental principles firmly anchored in the Treaties therefore makes an important contribution towards ensuring that the benefits of economic integration can be realised¹.

Article 87 EC establishes the general rule that state aid is forbidden if (a) it is granted selectively to "certain undertakings or the production of certain goods", (b) it distorts competition or threatens to do so and (c) it affects trade between Member States. However, some aids of a social character and aid to make good damage caused by natural disasters are exempted from this prohibition. In addition, the Commission has the power to grant derogations in respect of aid for the following purposes:

- a) to promote the economic development of areas where the standard of living is abnormally low or where there is serious underemployment;
- b) to promote the execution of an important project of common European interest or to remedy a serious disturbance in the economy of a Member State;
- c) to facilitate the development of certain economic activities or of certain economic areas, "where such aid does not adversely affect trading conditions to an extent contrary to the common interest";
- d) to promote culture and heritage conservation "where such aid does not affect trading conditions and competition in the Community to an extent that is contrary to the common interest."

Over the past half-century, a large body of secondary legislation and guidelines has grown up in order to give practical application to these basic principles. The rules must evolve to keep pace with economic and technological change, with the emergence of new political priorities, such as the increased emphasis placed on the protection of the environment over the last decade, and with new developments in economic theory. Consequently, Community State aid policy has undergone a number of important changes in recent years and further reforms are envisaged.

¹ For a general overview of the rationale for state aid control, see Lehner and Meiklejohn (1991), Chapter 3.

In 2005 the Commission published its State Aid Action Plan² (SAAP). In this consultation document the Commission foresees a thorough modernisation of the EU state aid rules on the basis of four groups of objectives:

- 1) less and better targeted state aid,
- 2) a refined economic approach,
- 3) more effective procedures and enforcement, greater predictability and transparency,
- 4) sharing of responsibility between the Commission and the Member States.

The main focus of the present paper is on the second objective. In relation to this objective, the SAAP explains that:

"Making more use of a refined economic approach is a means to ensure a proper and more transparent evaluation of the distortions to competition and trade associated with state aid measures. This approach can also help investigate the reasons why the market by itself does not deliver the desired objectives of common interest and in consequence evaluate the benefits of state aid measures in reaching these objectives."

The Action Plan outlines an assessment procedure based on balancing the positive impact of a state aid against its potential negative side-effects. The procedure consists of three steps for evaluating the positive effects of a state aid, three for assessing the negative, anti-competitive effects. In the first three steps, the Commission asks (i) whether an objective of common interest has been accurately identified, (ii) whether state aid is an appropriate instrument for achieving the objective and (iii) whether the aid creates the necessary incentives and is proportionate. Implicitly, it is assumed that objectives of common interest are normally related to remedying market failures, although equity considerations and merit goods may also be taken into account. To assess the anti-competitive effects, the Commission considers (i) the procedure followed by the Member State to select beneficiaries, (ii) the characteristics of the market and the beneficiary and (iii) the amount and type of aid. The Action Plan does not specify how – i.e. according to what welfare function - the positive and negative effects will be balanced. This is perhaps understandable, since both types of effects are very difficult to quantify *ex ante*.

To date, the fullest operational expression of the "refined economic approach" is to be found in the Commission's Community framework for state aid for R&D and innovation³. The first part of that document contains quite a full exposition of the market failures that may lead to sub-optimal levels of R&D and innovation and may therefore justify state aid. The framework insists on the importance of targeting the aid accurately so that it has a real incentive effect. To demonstrate such an effect, the Member State may produce evidence that the aid has led to an increase in the size or scope of a project or that it has induced the aid beneficiary to increase its total spending on R&D. The framework also points out that aid may distort competition by creating or strengthening a position of market power, maintaining an inefficient market structure or, most importantly, reducing the incentives for non-aided firms to carry out research and to innovate. A number of criteria are listed for assessing the extent of the distortions caused by the aid, such as the closeness to the market of the aided project, the degree of product differentiation and the costs associated with exit from the innovation process⁴. The framework contains only a vague description of how negative and positive

² European Commission (2005a).

³ European Commission (2006b).

⁴ According to the framework, competitors are more likely to maintain or increase their investments in R&D when exit barriers are high, e.g. when competitors have committed significant past investments to a particular R&D and innovation trajectory.

effects are to be weighed against each other in order to determine whether an aid is in "the common interest" but it does establish the important principle that the Commission equates the common interest with economic efficiency, i.e. total welfare⁵.

The aim of our paper is to contribute to the further development of the "refined economic approach" envisaged in the SAAP. In so doing we are able to take advantage of important recent additions to the previously rather sparse economic literature on state aid. The following articles and reports are of particular interest:

- A major study carried out for the European Commission by CRA International on "Methods to analyse the impact of state aid on competition" (CRA 2006), hereafter referred to as the CRA report,
- An important contribution to the debate on the State Aid Action Plan from the U.K.'s Office of Fair Trading, one of the few national competition authorities to take an interest in the impact of state aid and state aid control on competition (OFT 2005),
- An overview of the legal and economic framework with proposals for a new "architecture" of state aid control by Friederiszick et al. (2005).
- A paper by Garcia and Neven (2005), which constructs a benchmark model for analysing the cross-country effects of state aid.

Of these documents, CRA (2006) is a particularly thorough and wide-ranging review of the economic underpinnings of Community state aid control. The structure of our paper is therefore inspired by the themes and recommendations of the CRA report⁶. Independently of the value of its specific recommendations, the report has the virtue of questioning the traditional assumptions that are embedded in the state aid rules. A radical reform of state aid policy, as envisaged in the SAAP, needs to re-examine these assumptions, jettison those that do not correspond to reality and make better use of the knowledge gained from theoretical and empirical economics.

The CRA report makes the following principal recommendations:

Recommendation a

State aids should be judged against a social welfare standard, of which the effect on rivals is only one element; the analysis should also encompass effects on domestic and foreign consumers and non-market effects (externalities), as well as taking account of the marginal cost of public funds.

Recommendation b

The sequence of analysis should be:

1. Is there a significant market failure (or other obstacle to achievement of a Community objective)?
2. Is the aid appropriate?
3. Definition of the relevant market.
4. Analysis of the counterfactual scenario.
5. Decision and remedies.

⁵ However, since the text specifies that this principle applies "for the purposes of this framework", it may not necessarily be applied to state aid which is subject to other rules.

⁶ For a very readable presentation of the main themes of the CRA report, see Heidhues and Nitsche (2006).

An alternative sequence, giving more weight to the principle of subsidiarity, would start with the definition of the relevant market. If the market is national or smaller, the aid would be considered compatible with the common market. The aid would also be considered compatible if, in a second step, it were found that the recipient would be unlikely to behave in an anti-competitive way (predatory pricing or foreclosure) and the other Member States are not significant net exporters of the relevant product.

Recommendation c

Member States should be required to show that there is a significant market failure and that the aid is an appropriate means of remedying it.

This recommendation could be understood as an analogy to merger control, where the EC Merger Regulation places the burden on merging firms to show that efficiency gains are merger-specific, likely to be realised and sufficient to counteract any adverse effect on consumers that might otherwise result from the merger. In the present context of state aid control, Member States could be required to provide relevant information in order to demonstrate that the claimed efficiencies (i.e. remedy of a market failure) are aid-specific, likely to be realised and to outweigh any adverse effects on consumers and producers.

Recommendation d

The criteria used to screen state aids should be tailored to the market failure. In particular, it should not be assumed that low amounts of aid or low aid intensities⁷ are *ipso facto* innocuous.

Recommendation e

The analysis of an aid's impact on rivals and consumers should focus on the longer-run effects on market structure and incentives.

Our discussion of the questions raised by the CRA report starts with the fundamental questions of the objectives of state aid control, considered in the light of the principle of subsidiarity, and the welfare standard to be applied. Without clarity about the objectives and about the way different costs and benefits are to be traded off against each other, methodological questions cannot be answered satisfactorily. To gain some insight into the rationale of state aid control, we take account of the legal and institutional background. Turning then to the actual process of evaluating state aid cases, we consider the role that market failure plays in the analysis, screening criteria that can be used to concentrate the Commission's resources on the most problematic cases and, finally, factors that may be taken into account in the detailed assessment of the competition effects of individual state aids.

2. The objectives of state aid control and the welfare standard

State aid control has evolved through time to encompass different objectives. We examine several of them in turn, distinguishing in particular between the explicit (i.e. legal/Treaty based) objectives of state aid control and other accessory candidate objectives often suggested or called for, mainly for efficiency reasons. We also address the issue of subsidiarity, i.e. the division of tasks between the Commission and Member States. To conclude this part, we discuss the welfare standard which would best capture the objectives of state aid control.

⁷ Aid intensity is the term used by the European Commission to denote the ratio (expressed as a percentage) between the amount of aid and the eligible costs.

As a preliminary remark it should be pointed out that unless Member States respect their notification and reporting obligations to the Commission, the control of State aid will not be effective, whatever its objectives. In this context, one may reflect on the desirable features of an effective disciplining mechanism that would encourage Member States to better comply with their obligations. This could for example result from strengthening the Commission's investigative powers in state aid cases, or from setting up credible sanctioning tools at the Community level.

To avoid distortions of competition and trade

The initial motivation of State aid control was to avoid trade disputes between Member States and collectively wasteful subsidy competition. Economic theory shows that subsidies, in the presence of market distortions, can restore efficiency. However, it also shows how subsidies often introduce distortions and therefore welfare losses into the domestic and the global economy. Certain countries may for example try to protect their domestic production through subsidies and deter foreign competition from entering the market in order to shift profits from abroad to the home industry. The resulting distortions of trade can lead to retaliatory measures and counter-subsidisation which may be a source of further inefficiency (Lehner and Meiklejohn, 1991). A supranational body is clearly needed to ensure that competition and trade are not distorted and in the institutional structure of the EU the Commission is the obvious candidate.

The trade policy literature concerning subsidies focuses on export or production subsidies. However, in the EU export aid is forbidden, while production subsidies are only permissible in a narrow range of circumstances. On the other hand, with increasing mobility of capital, the practice of granting subsidies aimed at attracting or retaining footloose investments has become widespread both in the EU and in the rest of the world⁸.

One could imagine a world in which every country or region is free to bid for investments. This would result in an overall increase in welfare if:

1. public authorities always bid only as much as the investment is worth to them⁹, implying (a) that they have perfect information, (b) that they are not subject to budget constraints and (c) that decisions are not influenced by capture or corruption;
2. firms choose the location on the basis of a cost-benefit analysis of all the options, taking account of the incentives offered by public authorities;
3. raising public funds entails no deadweight loss;
4. we are indifferent as to the distribution of income/wealth.

In practice, the first condition is unlikely to be met because of asymmetric information and because most public authorities are subject to tight budget constraints. The second condition is rarely met, because firms have imperfect information about all the investment options open to them. On the other hand, the third condition can be approximated by reducing the public authority's bid by the average deadweight loss associated with taxation. Finally, although the fourth condition is a matter of political choice, while some economists may profess complete indifference to distributional issues, no politician could do so and survive.

In the light of these four conditions, we can identify four main reasons why EU control of state aid might be justified as a means of limiting "competition for capital" between Member States. The first is based on equity considerations. More prosperous countries and regions

⁸ For a good discussion of competition to attract investment, see Besley and Seabright (1999).

⁹ More strictly, what it is worth to have the investment in the region rather than elsewhere.

clearly have a better chance in a bidding war to attract investment than their poorer counterparts, because the budget constraints are not so tight in the former¹⁰. Second, state aid control could be welfare-enhancing if it limits the probability of government failure, due to asymmetric information, capture or corruption. Third, even in the unlikely situation where all of the first three of the above conditions are fulfilled, such competition between Member States could enable the firms concerned to capture for themselves – via the taxpayer - the value of all the externalities which they confer on the regions where they establish themselves. It may therefore be in the interest of Member States to agree to restrictions on their ability to bid for investments in order to limit such redistributive consequences. Finally, Community control of state aid enables Member States to credibly commit to refuse demands for "retention incentives". The practice of paying "retention incentives", which is widespread amongst states and municipalities in the USA, involves the payment of substantial sums of taxpayers' money not to promote new investment but simply to retain a firm in its present location. If the local authority is persuaded that the firm in question could profitably move elsewhere, it could be rational for the authority at any given point in time to pay an amount equal to the value of the local externalities for the rest of the establishment's life. If such a game is repeated a number of times, the taxpayers could ultimately pay many times the true value of the benefits derived by the local community from the firm's presence¹¹.

The effects linked to globalisation – and in particular the increasing competition between EU firms and firms based in other jurisdictions – may however call into question the way State aid control has been carried out until now. The European control of state aid is unique in the world as other regional economic groupings and federal states, including the USA, lack mechanisms for controlling subsidies. One of the key questions (frequently raised by Member States) is whether the EU state aid control regime puts EU firms at a disadvantage compared to firms in other jurisdictions, even if the use of subsidies is to some extent already restricted by WTO rules.

It may be worth reflecting on whether and how to extend State aid control at the international level or whether any adjustments need to be made to EU policy to take account of the global context. However, revising the existing rules in such a way as to give Member States effective powers to take counter-measures against trade-distorting actions of non-members may be difficult to do without opening up too many new possibilities for distorting intra-EU competition. Moreover, it could be argued that the state aid rules are already flexible enough to cope with global markets and thus enable EU firms to compete with the best firms globally, while still being strict enough to ensure that EU firms remain efficient. For example, the EU State aid framework in the field of R&D includes a "matching clause" which is specially designed to allow higher R&D aid in cases where it is shown that firms outside the EU have benefited from more aid than would normally be allowed under EU rules. Finally, countervailing subsidies would in addition be in breach of the WTO code, which only allows two kinds of countervailing measures if a country refuses to withdraw a subsidy, namely countervailing duties and voluntary undertakings by exporters to revise their prices. On the other hand, it may be worth bearing in mind that countervailing subsidies may do less harm to domestic welfare than other trade policy measures, because they directly enhance consumer

¹⁰ The EU attempts to address this problem, in part by providing extra funds for disadvantaged regions and in part by restricting the amounts of aid that can be granted in different types of regions in order to give the poorer regions a better chance of succeeding in their efforts to attract more investment.

¹¹ It might be argued that, if distributional consequences are disregarded, the payment of retention incentives is economically efficient since it compensates the firm for the opportunity cost of remaining in its present location. However, each time the game is repeated the problem of asymmetric information is posed anew.

welfare, whereas the direct effect of measures which restrict trade is detrimental to consumers (Messerlin, 1999).

Government failures – less and better targeted state aid

Reducing the overall level of state aid is a long-standing EU policy objective which is incorporated, along with better targeted aids, in the Lisbon Agenda¹² and later became a leitmotif of the State Aid Action Plan. Reducing the volume of state aid is not only a question of budget discipline (although no part of government expenditure should be exempt from discipline); it also reflects a wide-spread view that a significant proportion of state aid is inefficient and distortive¹³. Hence, state aid control is seen as being concerned not only with minimising distortions of competition but also with limiting government failures.

The Commission can play a role in helping Member States to limit inefficient and distortive aid, for example by requiring Member States to carry out *ex ante* impact assessments and *ex post* evaluations. In this way, progress can be made towards the objective of better targeted aid. However, the competition rules do not impose limits on the budgetary envelopes allocated to state aid. If the rules were to be redesigned to take account of the objective of reducing the total volume of aid, a methodology would be needed for determining what the acceptable aggregate level of aid may be and all expenditure would have to be monitored closely, including aid granted under the *de minimis* rules and under block exemptions.

Government failures may arise when governments are lobbied. Lobbying can be effective when the government is handicapped by asymmetric information. Furthermore, governments may fear the electoral consequences of giving way to pressure from an interest group less than the consequences of resisting it, since the benefits of a state aid are readily perceived in the firm, industry or region concerned while the costs are diffused amongst the taxpaying population. It has also been plausibly suggested that governments may regard wasteful spending as a worthwhile price to pay to signal their apparent commitment and 'hard work', thus improving their chances of re-election (Dewatripont and Seabright, 2005). Control at the EU level does not necessarily solve these problems, since the Commission may also be influenced by stakeholders. As State aid control deals with Member States' behaviour, there is in particular a risk of intervention by national governments in the Commission's decision-making. However, the fact that the Commission is subject to much more diverse pressures than national governments should, in principle, help to ensure that its decisions are more balanced.

One may however question whether intervention by the Commission in cases of misspending of public funds is compatible with the principle of subsidiarity. After all, it is in the Member States' own interest to provide effective aids at the lowest cost, even if short-term electoral considerations sometimes obscure this fact. Decentralised mechanisms at the level of Member States, such as the involvement of the national audit authority may be a better way of limiting "government failure" of this sort.

In addition, the evaluation of the positive impact of aids as well as shadow costs of aid such as the cost of taxation and redistribution is not easy for the Commission, which may lack relevant information. As explained in the section on market failure below, it may be difficult to determine whether there is a significant market failure which can be well remedied by State aids for example. The Member States are clearly in a better position to carry out evaluations

¹² The Lisbon Agenda is a package of measures that were introduced in 2000 with the aim of making Europe the most dynamic and competitive knowledge-based economy in the world by 2010.

¹³ Ilzkovitz et al (2001).

of the benefits and costs of their own aid measures because they have better access to relevant information.

Finally, the EU has alternative means of exerting pressure on the Member States to use state aid more effectively, since economic policies pursued by Member States are coordinated at the EU level through mechanisms such as the Broad Economic Policy Guidelines.

The Welfare standard

From an economic perspective the total welfare standard is often favoured over other ways of measuring welfare because it avoids the potential for inefficient outcomes that is inherent when considering exclusively either the consumer or the producer surplus.¹⁴ The CRA report recommends applying a social welfare standard where a trade-off between positive and negative effects of state aid is implied. In addition to distortion of competition, the negative effects would also take into account the direct cost of the subsidy and the deadweight loss arising from the distortive effect of taxation. The social welfare standard differs from total welfare in that equity objectives are also taken into account, i.e. benefits or costs to certain disadvantaged groups or regions are given a special weight in the analysis. This is coherent with the objectives of EU policy, including better targeted aids and increased allocative efficiency.

However, other parts of EU competition policy explicitly equate “distortion of competition” with harm to consumer welfare. According to Martin and Strasse (2005), state aid control does not sufficiently take into account the European consumer interest. Friederiszick et al. argue that there should be a special emphasis on consumer welfare to counterbalance the fact that governments are more likely to support the interests of domestic producers than consumers and because non-domestic rivals are likely to be well represented in the Commission's decision-making process.

Past State aid decisions paid much less attention to effects on consumers than to effects on rivals. The emphasis on the effect on rivals may be justified by the fact that if efficient rivals are weakened, effective competition may be hindered with the result that allocative efficiency is reduced in the long run. In other words, there may in the long run be little difference in a dynamic framework between the consumer welfare standard and a standard based on the impact on competitors' profit.

The need to make a trade-off between costs and benefits is explicitly mentioned in a number of Commission policy documents and Court judgements. In principle, therefore, CRA's recommendation to adopt a social welfare standard is not particularly radical. However, up to now the assessment of costs and benefits has been made in an opaque way and there is a need to clarify the weights that the Commission attaches to different effects of state aid. Depending on the objective of State aid, the welfare standard may vary.

In conclusion, it seems to us that a number of questions concerning the objectives of state aid control remain to be clarified. Perhaps the most important of these are:

- What are the precise objectives of State aid control and what is the relative priority of each of them?
- What costs and benefits should be encompassed in the trade-off?
- Should the marginal cost of public funds be explicitly taken into account?

¹⁴ The total welfare standard takes into account the effect of a change on the sum of producer and consumer surpluses (that is the costs and benefits to both consumers and producers) whereas the consumer and producer welfare standards are concerned solely with the effects on consumers and producers respectively.

The answers to these questions will to a large extent determine the choices to be made concerning many of the issues discussed below.

3. Market failure

The economic concept of market failure describes those situations where the market fails to provide the optimal level of a good or service because the assumptions which allow markets to provide optimal outcomes do not hold. For example, where the assumption of complete information is not met, banks may be unwilling to provide credit to companies about which they do not have sufficient information to calculate the risk of default, even though these loans may in reality be low risk.

The economic definition of market failure is only concerned with efficiency, and does not cover all of the Community objectives that are set out in Article 87 of the Treaty such as the development of poorer regions of the EU or the execution of important projects of European interest, although the concept could be applied to the latter. In this note we concentrate on true market failures in the economic sense, but we recognise that by using a social welfare definition that takes account of the community objectives outlined in Article 87 it would be possible to widen the definition of market failure to include these objectives.

Typical examples of situations where market failures often occur include those activities which have negative environmental impacts, because property rights associated with damage to the environment often do not exist or are not enforceable, and the activities of SMEs, which suffer from various market failures including those caused by capital market imperfections. Another example is research and development, where the spillovers created by R&D efforts lead to benefits (positive externalities) which cannot be captured by the firm carrying out the research.

However, within these broad categories there is significant heterogeneity in the seriousness of the market failure. For example in the case of R&D activities, fundamental research often leads to significant positive spillovers and it is therefore more difficult for firms to extract all the benefits. Research relating to products which are close to being marketed is less likely to lead to spillovers and so market failure is less of a concern.

The CRA report identifies the existence of a significant market failure as a key condition for determining whether a particular state aid has the potential to enhance welfare.¹⁵ The report also makes clear that market failure is a necessary but not sufficient condition for government subsidies to be welfare enhancing. This means that even where a market failure exists, state intervention will not always be beneficial and in many cases will do more harm than good. However where no significant market failure exists, state aid can only have a negative effect overall.

Determining whether a significant market failure exists

Once it has been established that aid can only be welfare enhancing in cases where there are significant market failures, the problem for state bodies giving out aids is to decide when a particular activity is characterised by market failure. Economic theory provides useful insights but general empirical indicators of market failures are not easy to find. One option is to examine whether other countries give aids to a particular activity. If a significant number of countries give aid to an activity it may indicate that market failures exist which are best

¹⁵ As already mentioned, the CRA report concludes that social welfare is the appropriate measure.

solved by state aid. However this method is by no means perfect. The giving of aid in other countries may be due to factors other than market failures. For example, the existence of aid for a particular activity in multiple countries could be due to a subsidy race between these countries.

Putting the concept of market failure at the heart of the decision on whether an aid is compatible with the common market leads to important policy conclusions. In cases where no significant market failure can be identified, the CRA report argues that the aid should be declared incompatible without the need for further analysis. This is because in the absence of market failure there can be no positive welfare effect from the aid and so the overall effect on welfare must be negative once the costs of raising the funds to finance the aid are taken into account. The Office of Fair Trading report¹⁶ takes a less strict approach and argues that if a market failure cannot be identified, aid should not be declared incompatible but be subjected to a more in-depth analysis of its anti-competitive effects.

Our interpretation of Article 87 and the case law is that, as long as there are some potential effects on trade and distortion of competition, however slight, the Commission cannot authorise an aid unless it is justified by some Community objective. However, one could imagine circumventing this problem by applying only rudimentary tests of the purpose and appropriateness of the aid whenever the trade effect is small. In other words, in the first stage of the analysis the Commission would attach very little weight to the domestic effects of the aid, which would be seriously considered only in those cases when the aid seems likely to have important negative consequences for other Member States. This approach could be justified by the principle of subsidiarity but is not compatible with the view that the Commission has a duty to use all the instruments at its disposal to promote the efficiency of the European economy. From a practical point of view, it would require the identification of reasonably reliable indicators of the effects of aid on trade and competition, as discussed in more detail in Section 4.

In cases where a significant market failure is identified, OFT (2005) argues that as long as the aid is not too selective in terms of the eligible recipients, it can be approved up to certain intensity ceilings without further analysis. The CRA report takes a more extreme position by arguing that if state aid addresses a market failure in a targeted way, the distortive effect on effective competition is zero, independent of the dominance of the recipient. This seems to be a step too far because even aid which perfectly remedies the intended market failure can lead to inefficient firms remaining in markets and/or efficient ones being forced out. For example, R&D aid is given to small firms to offset capital market imperfections which may prevent them from securing the necessary research funding. The aid may well reduce the externality caused by capital market imperfections but it can also be argued that it helps to maintain firms which may be below the minimum scale required to operate efficiently in the market.

The burden of proof

The CRA report recommends that Member States should be required to show evidence that there is a significant market failure and that the aid is an appropriate means of remedying it. From a legal point of view, since the starting point of Article 87 is a presumption of incompatibility, it is logical that the burden of proof should lie on the Member State which proposes to grant an aid. In practice, however, the Commission's guidelines and regulations have created a presumption that significant market failures affect certain types of activity in

¹⁶ OFT (2005).

all Member States and can be efficiently remedied by state aids which satisfy a few minimal conditions.

The current Community rules do not usually diagnose precisely the market failures concerned or require that the aid should be targeted to a specific market failure¹⁷. Thus, for example, the SME block exemption regulation assumes that subsidising investment is an appropriate response to multiple possible market failures, which are not clearly distinguished (e.g. positive externalities, risk aversion, asymmetric information in capital markets). The strict implementation of the CRA recommendation would therefore represent a radical departure from past practice.

It is generally accepted that it is extremely difficult to measure the importance of a market failure. It is doubtful, therefore, whether this part of the CRA recommendations could ever be implemented rigorously. However, Member States could be required to provide much more information to demonstrate the appropriateness of the state aid measures that they propose to remedy the market failures, such as *ex ante* impact assessments of their proposals and *ex post* evaluations of similar schemes, including schemes implemented in other countries. For many Member States, particularly those that have not yet developed a culture of evaluation, such requirements would initially impose a very heavy burden. However, the burden could be gradually reduced by pooling information on evaluations carried out by the Member States.

Effectiveness of state aid as a remedy for market failure

Even where a significant market failure has been identified and state aid is a candidate solution, whether and how it can represent an optimal solution will depend on a number of factors:

Availability of alternative remedies

Even in cases where the benefits of giving aid outweigh the costs, state aid is not necessarily the optimal way to reduce or eliminate the market failure; other ways of achieving the same result may be available that are more cost-effective and therefore lead to a greater increase in welfare. Market failures can be reduced using policy tools such as taxation or regulation. For example, a government may wish to reduce levels of air pollution. In order to do this it could give state aid to polluters for the purchase of filters to clean their emissions. Alternatively it could simply create a tax on emissions which would encourage producers to buy their own filters or find other means of reducing emissions. If a similar result in terms of reducing environmental externalities can be achieved through taxation then it is likely to be a superior solution in welfare terms as it does not require an increase in distortive general taxation which would be required in order to raise the necessary funds for the aid.

As a general rule, in the case of overprovision of a good or service (negative externalities) the obvious solution is to impose a tax or regulation. However in reality in some cases it is necessary for practical reasons to either substitute a tax or regulation with a subsidy or to give subsidies in order to soften the impact of a tax or regulation. One reason for adopting this strategy may be the political difficulty of full implementation of the principle whereby the agent causing the externality must internalise the externality (for example, in the case of environmental externalities, the polluter-pays principle). Another reason may be to level the playing field with competitors from other countries who are subject to less strict environmental regulation. When a country adopts stricter environmental standards than its trade partners, the resulting cost increase may lead to a reduction in domestic output of the

¹⁷ The new framework for state aid for R&D and innovation represents a step forward in this respect.

affected products and an increase in the output of the other countries. The increase in foreign output would in turn result in a growth in those countries' emissions of pollutants. Such an increase in foreign emissions could greatly diminish or even nullify the environmental benefits from applying the stricter regulations to the domestic industry.

In most cases the Commission will not have enough information to be able to decide by itself whether viable alternatives to state aid are available. Putting the burden on Member States to show that no alternative remedies are available allows it to make use of local knowledge of alternatives. Clearly Member States that are keen for the aid to be allowed will have an incentive to present potential alternatives in a negative light but it is for the Commission to assess the Member State's submission critically. The process would also force the Member State to at least consider on a systematic basis whether alternatives to state aid are available.

Amount/intensity of aid

Current Commission guidelines on state aid in some cases put explicit limits on the intensity of aid that can be given in particular circumstances. The CRA report argues strongly that such limits are misguided and that the intensity of aid necessary to correct a market failure depends on the seriousness of the market failure. In particular the report argues that the intuition "more aid means more distortion" can lead to wrong conclusions. The report argues that, on the contrary, if state aid effectively addresses market failures, a larger amount may not distort but *benefit* effective competition. While this argument is clearly correct, it needs to be balanced against the Commission's desire to define where possible clear and simple rules for identifying cases where aid is likely to harm competition.

OFT (2005) acknowledges that the intensity of aid is not a perfect measure, since even where intensity is high the investment being made may be small relative to the size of the market and so unlikely to affect competition. However, the OFT considers that using intensities as a criterion for further investigation allows the Commission to look in more detail at subsidies which, "give a high degree of assistance in changing the recipient's behaviour". This conclusion is based on the assumption that aid which does not lead to a significant change in behaviour is unlikely to harm competition. There are two problems with this assumption. Firstly, from an economic point of view if the aid does not change behaviour of the recipient then it cannot help to reduce the identified market failure. From a legal point of view, if the aid does not change the behaviour of the aided firms, it cannot contribute to the furthering of Community objectives as set out in Article 87(3) and so should be considered incompatible with the common market.¹⁸ The issue of aid intensity is also discussed in part 4, in relation to whether it is appropriate to use intensity as an initial screening criterion.

Aid instrument

Our knowledge of the effectiveness of different aid instruments is limited. However, some instruments seem to be more appropriate than others for remedying specific market failures. As the CRA report points out, the literature shows that the optimal aid instrument depends on the policy objective. The form of the aid should also follow from the nature of the market failure.

For example, where the market failure in question is that financial institutions do not have sufficient information about small firms' likelihood of defaulting on a loan, the correct form of aid should be state support for venture capital, loan guarantees, subsidies towards banks'

¹⁸ cf. the Commission's decision on the proposal of Austria to award aid to the Hoffmann-La Roche company for the development of the drug 'Orlistat', designed for the treatment of pathological obesity (European Commission (1997)).

costs of processing small loan applications and - possibly - interest rebates, rather than outright investment grants. The correct response targets the cause of the market failure rather than the symptoms.

The Community rules concerning rescue aid provide an example of existing restrictions on the aid instruments that can be used; the rules state that loan guarantees of a limited duration are the only acceptable form aid for supporting firms in financial difficulties while they draw up restructuring plans. However, there is a lack of both theoretical and empirical work on the workings of different aid instruments. More knowledge of this subject must be accumulated, notably through evaluation studies of state aid schemes, before the "goodness of fit" between the aid instrument and the objective can be used more widely as a criterion in state aid analysis.

Conditions of aid

By conditions of aid, we mean rules which define to which firms the aid is granted and also on which activities the aid can be spent. Depending on the nature of the conditions, they may have direct impact on whether the aid will have a positive or negative impact on welfare. In general, the more closely the conditions target the aid on the market failure in question, the more likely it will be that the aid is effective in addressing that market failure.

One problem with attaching conditions to how aid can be spent is that in some cases it may be impossible to identify whether firms have shifted away to other activities expenditure which previously would have been spent on the aided activity, thereby negating the beneficial effect of the aid. When combined with the extra administrative costs of monitoring that the conditions are being met, in some cases attaching conditions to the aid may be welfare reducing compared to simply giving the aid without linking it to eligible expenditure. This situation is likely to be limited to cases where a counterfactual (without aid) situation is hard to estimate and where monitoring of the conditions is difficult.

Most awards of aid place conditions on which firms can benefit. Some kind of selectivity is almost always necessary as there are no market failures from which all firms suffer to the same degree. Selectivity allows aid to be targeted at firms which are most affected by the market failure that the aid is designed to address and in this sense selectivity is desirable as giving aid to firms which do not suffer from the particular market failure will most likely be welfare reducing.¹⁹

On the other hand, aid which is selective between companies in the same market is much more likely to lead to competition distortions. In reality, because no two companies are exactly the same, even aids which are not selective by design will have different effects on different companies and so will distort competition to some extent. The question is when do these distortions become so important that the aid should be declared incompatible? Clearly, selective aid which leads to the exit of unaided firms from a market should not be looked on favourably, but it is less clear whether aid should be banned if it allows the aided firm to increase its market share at the expense of unaided firms while not pushing them below the minimum efficient scale.²⁰

¹⁹ From the legal point of view, an aid is only subject to control under Article 87-89 if it is selective.

²⁰ In some rare cases - namely network industries providing services of general economic interest (SGEI), a *de facto* monopoly may be necessary to take advantage of economies of scale. In such cases, the award of the concession is an example of competition for the market, as opposed to competition in the market. In practice, it is often found that even if firms which bid unsuccessfully for a concession in one period retire from the market, new firms or consortia form when tenders are invited for the next period.

Use of impact assessment, evaluation, benchmarking

The *ex ante* measurement of market failures and of the success particular state aids have in reducing market failures is extremely difficult. The CRA study proposes improving the system of monitoring and assessing the effect of state aids after they have been awarded. A good quality *ex post* evaluation of the effects of a state aid on welfare is a difficult exercise but over time the results of evaluations would feed back into the decision making process, allowing Member States to determine which aids give the best value for money and allowing the Commission to make better decisions on which aids should be permitted.

Over time, a systematic *ex post* evaluation of aids would also allow Member States to build up an evidence base of those that were successful and those that were not. These data can then be used to provide additional evidence to the Commission when the compatibility of aid is being considered in future cases. It is probably unrealistic to expect Member States to evaluate all aid schemes. However, the "culture of evaluation" is slowly spreading in the EU and it does not seem unreasonable for the Commission to impose a requirement for *ex post* evaluation as a condition for approval of the largest schemes. It is important to safeguard against unconscious or intentional bias in such evaluations, notably by entrusting them to bodies which are not involved in the design or implementation of the schemes.

4. Screening criteria

To make best use of its resources, minimise the administrative burden imposed on Member States and enterprises and ensure a minimum degree of predictability, the Commission makes use of a number of legal instruments: the *de minimis* regulation, block exemption regulations and Commission guidelines²¹. A common feature of all these instruments is that they specify quantitative limits, in terms of absolute aid amounts or aid intensities, below which state aid is allowable if other conditions are met. The rules may also impose limits on the granting of state aid according to the characteristics of the aided firms, e.g. by limiting eligibility to SMEs, modulating aid intensities according to the size of the firm or excluding particular sectors. Furthermore, the rules may differ according to the size of the aided project (R&D, regional aid). If aid exceeds the limits laid down in the relevant regulations, guidelines or frameworks, it may be either forbidden or subject to individual notification and approval.

In its current practice the European Commission applies two screens to filter out state aid cases that do not need an in-depth examination. The first is the *de minimis* rule, which, with a few exceptions, exempts from notification aid which does not exceed €200000²² for any one firm over any three-year period. The test here is primarily quantitative, focussing on the amount of aid per firm. The second screen consists of the application of the other block exemption regulations. These regulations exempt aid measures that address specified policy objectives²³ and meet a mix of conditions, both qualitative and quantitative. The quantitative limits in these regulations always include maximum aid intensities and usually also include limits on the total eligible cost of the aided project or on the absolute amount of the aid.

²¹ We use the term "guidelines" to cover also the documents known as frameworks, which differ from guidelines in that they impose certain obligations on Member States.

²² €100000 in the road transport sector.

²³ At the time of writing block exemption regulations covered aid to small and medium-sized enterprises, aid for employment and training and regional aid. The Commission was consulting Member States on a draft general block exemption regulation which would consolidate and simplify these regulations and include additional provisions relating to aid for environmental purposes, R&D and the promotion of risk capital.

Member States are expected to undertake a self-assessment and to notify to the Commission all those aids that do not satisfy the conditions laid down in the block exemption regulations. Aid measures which fail the tests of the appropriate block exemption regulations or which address policy objectives outside the scope of these regulations are examined by the Commission. The first step in this examination is to determine whether Commission guidelines are applicable. Since guidelines have been adopted to cover all the major market failures and policy objectives that are targeted by state aid, aid measures that fall outside the scope of these guidelines are subject to very searching scrutiny. Such scrutiny focuses in particular on determining whether the aid addresses a significant market failure or other objective of Community policy and whether it is an appropriate and proportionate means of meeting the objective. Aid measures that fall within the scope of guidelines are usually subject to a less rigorous analysis, which in the past was often limited to a rather mechanical application of a checklist of criteria²⁴. These criteria included notably maximum aid intensities that could not be exceeded in any circumstances.

The application of these instruments makes it possible to single out cases which, in the Commission's view, present a high risk of significant distortions of competition. However, the quantitative ceilings and thresholds applied by the Commission reflect a subjective ranking of the perceived gravity or importance of the problems addressed and are not derived from any empirical knowledge of the levels of aid required to overcome specific market failures. Consequently, as the CRA Report argues, they may also be a poor guide to the extent of the market distortions that could be caused by an aid.

Aid is especially likely to cause harm to competition in the following circumstances:

- The aid is granted in the absence of a clearly established market failure. In this case competition can be harmed either because the subsidised output displaces output of non-aided firms or because the aid has no effect on the activity which is its ostensible object but can be diverted by the beneficiary to strengthen its position in some other market.
- The aid exceeds the amount necessary to correct the market failure. The beneficiary may use the windfall gain to support some other activity with potentially distortive effects.
- The conditions under which the aid is granted are either not defined with sufficient precision to ensure that the market failure is corrected or not strictly enforced. As a result, the beneficiary may be able to divert some or all of the aid from its intended objective.

The primary question raised by the CRA recommendation on screening is how thresholds and ceilings can be fixed in a less arbitrary way that more closely reflects the market failures addressed by the state aids. As discussed in section 3, the empirical data needed to relate the screening criteria to specific market failures are not yet available although they could be assembled with the cooperation of the Member States. In this section and section 5, therefore, we consider only very broad general indications of the extent of the market failure (or other obstacle to achieving Community objectives) and give more attention to assessing the usefulness of different indicators of the size of potential effects on trade and competition.

We shall examine the following parameters:

- Objective of the aid
- Method of allocating the aid

²⁴ Since the publication of the State Aid Action Plan, the Commission has gradually moved towards a less mechanical approach, paying more attention to testing the Member States claims concerning the extent of the market failure and the incentive effect of the aid.

- Size of the effect on trade
- Aid intensity
- Size of the project
- Absolute amount of aid
- Size of the recipient firm
- Sector of activity

The number of quantitative screening criteria must be kept to a minimum, preferably only one, because all the potential quantitative indicators have important disadvantages. Each of the indicators can potentially result in errors of both Type I (misidentifying some innocuous aids as harmful) and Type II (failing to identify some harmful aids). Using cumulative criteria (BOTH...AND) would result in clearing too many aids that could create competition problems and should be examined in more detail, while applying two or more criteria as alternatives (EITHER...OR) could catch too many harmless aids.

Market-specific characteristics, which can give a much more accurate picture of the likely impact of an aid, cannot easily be taken into account in general rules and regulations but must be considered on a case-by-case basis. They are discussed in the last part of this paper.

Outside of services of general economic interest²⁵ and some environmental aids, operating aids²⁶ are relatively unusual in the EU. Aid for investment in fixed assets and R&D predominates. Our discussion in this section therefore concentrates on these categories of aid, while bearing in mind that the effects can often be comparable to the effects of operating aid. We focus in this part on the use of indicators to establish thresholds above which aids would be subject to individual notification and approval. Although it has always been the Commission's practice to impose strict upper limits on aid intensity (so-called aid ceilings), we consider that the economic arguments in favour of this practice are weak. As CRA (2006) points out, very grave market failures may require very high levels of aid, whereas the more serious the market failure the less likely it is that the aid will significantly distort competition. Furthermore, since, as we argue below, all simple indicators of competition effects have substantial weaknesses, it seems undesirable to impose rigid limitations in terms of such variables.

Objective of the aid

As mentioned above, the practice of the Commission is to examine in detail all aids, other than those that qualify as *de minimis*, whose purpose differs from the normally accepted objectives of state aid, e.g. promoting the development of disadvantaged regions or remedying market failures affecting R&D or the financing of SMEs. This is an essential screen since, as we have argued above, no aid can be welfare-enhancing if it does not constitute an appropriate response to a genuine market failure. When a Member State proposes to grant aid for a novel purpose, therefore, the existence of a market failure has to be verified and the appropriateness of state aid as an instrument to remedy the alleged market failure has to be very carefully evaluated.

²⁵ Services of general economic interest are sometimes known as public service obligations or, particularly in the post and telecommunications sectors, universal service obligations. See European Commission (2005b) for an explanation of the rules governing compensation for these services.

²⁶ The term "operating aid" is used by the European Commission to denote any aid which reduces the recurring costs of an enterprise. The notion of recurring costs covers not only variable costs but also recurrent elements of fixed costs, such as the cost of servicing debt.

Method of allocating aid

The effectiveness of aid is enhanced if it is allocated by means of an open and transparent mechanism (cf CRA, 2006, section 4.4.3), particularly if the selection criteria are well designed to identify the firms that can most efficiently contribute to achieving the aid's objectives. Eligibility for aid should therefore be as open as possible. Indeed, if aid appears to have been allocated arbitrarily the suspicion could arise that the aid is a response to lobbying or that it is motivated by strategic trade considerations, rather than by a need to remedy a market failure.

Open tendering procedures are common practice for services of general economic interest. Under the “Altmark” rules, aid granted following an open call for tenders often falls outside Article 87(1) and is not subject to control because it is regarded as simply a compensation for a service performed on behalf of the state. However, even aid allocated by fair and open competition is not necessarily harmless to competition, given that some firms will not receive aid and may subsequently exit the market. The exit of less efficient firms can lead to lower welfare if the resulting reduction in competitive pressure leads to higher prices and lower output.

While bidding procedures are usually the best way of allocating responsibilities for providing public services, they are not appropriate for most other situations in which aid is granted. An alternative approach for ensuring openness and transparency is to institute a system of widely publicised calls for expressions of interest, coupled with transparent selection procedures based on clearly defined criteria. Indeed, the Community guidelines on agricultural aid stipulate that aid for closing production, processing and marketing capacity may only be granted if the Member State has put in place such a system²⁷. However, this rule does not apply to aid for other purposes. If both tendering and calls for expressions of interest are too costly in relation to the size of the aid scheme, “first come, first served” may be the only feasible non-discriminatory rule.

Whatever the method used, selection criteria and restrictions on eligibility that do not seem to be justified by the objective of the aid should be scrutinised closely. Furthermore, since the award of aid always involves the exercise of some discretion, *ex post* checks on the distribution of aid would be useful to detect biases that are not evident in the formal rules.

Size of the effect on trade

As explained in the introduction, CRA (2006) proposes two options for the sequence of analysis of state aid cases. The second option begins with the effect on trade. This is in accordance with Article 87(1), which gives the Commission jurisdiction only when trade is affected and competition is, or could be, distorted. However, according to past practice and jurisprudence, as explained in Section 3, the notions of effect on trade and distortion of competition are to be interpreted so widely that very few cases escape from the Commission’s oversight for this reason²⁸. CRA’s second option therefore goes further by proposing that the *magnitude* of the effect on trade could be the first screening criterion and that all aids that do not appreciably affect trade could be cleared without having to satisfy other conditions.

Aid intensity

²⁷ European Commission (2006c).

²⁸ The most notable exceptions relate to services of general economic interest, following the Preussen Elektra and Altmark judgements. The criterion of selectivity (“favouring certain undertakings or the production of certain goods”), which we do not discuss here, is in practice a much more important limitation on the scope of the Commission’s powers.

Aid intensity is defined as aid divided by the eligible expenditure. The most obvious argument in support of aid intensity as a screening criterion is that when aid exceeds the level needed to change the recipient's behaviour in the desired way, the excess can be used by the beneficiary for some other purpose, which may be detrimental to competition²⁹. Other things being equal, the higher the aid intensity, the greater the probability that the project is over-subsidised. Another argument in favour of the intensity criterion is that a minimum contribution by the beneficiary is needed to ensure that the latter has an incentive to carry out the subsidised activity efficiently³⁰.

As an indicator of the effect on rivals, aid intensity has the drawback that it relates only to eligible expenditure. If the eligible expenditure is only a small part of the total costs of the activity concerned, even a high aid intensity will not have a big impact on competition³¹. In an attempt to deal with this problem, the Commission's rules on regional aid for a time applied a capital/labour (K/L) factor to correct for capital intensity. This was not a good solution because high K/L firms often have high variable costs other than labour and because there are wide variations in unit labour costs between industries and countries.

As an indicator of over-subsidisation, aid intensity has to be considered in relation to market failure. The aid intensity ceilings and thresholds applied hitherto to whole classes of cases have been arbitrary and there is a need to find reliable empirical evidence to provide a more objective basis for them. However, even in an in-depth analysis of an individual case, it can be very difficult to estimate the aid intensity needed to overcome a market failure.

In this respect, CRA (2006) argues (section 4.4.1) that if the aid intensity is too low to change the recipient's behaviour, the aid is clearly welfare-reducing, taking account of the marginal cost of public funds, since it does not correct a market failure. Indeed, low aid intensities may indicate that there is no significant market failure. Following this argument, guidelines should not encourage or require Member States to fix very low aid ceilings. On the other hand, serious market failures may require high aid intensities, while any detrimental effect on competition may often be small, since in the "no aid" situation the pre-existing or potential competition would be weak or non-existent.

If the aid-giving authority is a reasonably good judge of the level of incentives needed to induce firms to undertake the desired investments, the aid intensity should be negatively correlated with the private rate of return. A government that aims to maximise social welfare must determine an aid intensity i such that $(s - r)/m \geq i \geq h - r$, where s is the social rate of return on the investment, r is the expected private rate of return, $m > 1$ is the marginal cost of public funds and h is the hurdle rate of return required by the beneficiary. A government which wishes to minimise transfers from the taxpayers to business will try to establish a value of i as close to $h - r$ as possible. Consequently, low aid intensity may indicate either that the difference between social and private returns is small or that the expected private return is close to the hurdle rate. Since in imperfectly competitive markets, a higher private return is likely to imply a bigger effect on rivals, this constitutes an additional argument for not considering low intensity as an extenuating factor. Nevertheless, because governments often cannot judge how much aid is necessary to create the desired incentive effect, it would be unrealistic to infer the corollary that a high aid intensity necessarily indicates that the private return on the investment is low and that the aid is therefore innocuous.

²⁹ The aid will be a simple transfer from taxpayers to the beneficiary with no direct effect on competition if it is used to increase managers' salaries and fringe benefits, paid out in dividends or invested on the open market.

³⁰ This may be psychologically accurate, even if a rational entrepreneur would focus on profit opportunities rather than sunk costs.

³¹ Note that OFT (2005) does not refer to aid intensity but to the size of the subsidy "relative to the costs of the activity being subsidised" (emphasis added). Thus the denominator is much broader than the mere eligible costs.

A final argument against the use of aid intensity as a screening criterion is that high-intensity aid will have little effect on competition if the subsidised project or activity is small.

However, as we argue below, even if project size may be a more meaningful simple indicator of competition effects and in spite of the drawbacks of using more than one indicator, aid intensity limits might be used in conjunction with aid amounts in order to discourage recipients or Member States from understating the size of projects.

Size of the project

Project size thresholds, beyond which aid proposals have to be individually notified and approved, are currently laid down in the Community rules on regional aid³² and aid for R&D and innovation³³. The rules on aid for other purposes disregard project size as an indicator of the aid's potential to distort competition.

It is obvious that, other things being equal, the bigger the aided project, the greater the potential effect on competition. Strictly speaking, however, the impact of the *aid* is only identical to that of the project if the aid is an essential precondition for the decision to invest. In many cases, however, the aid may influence the scale of the project or its location but not the initial decision to invest. Moreover, in some cases the aid will be a pure windfall gain for the recipient if the subsidised activity is profitable without any aid.

However, in Community guidelines and regulations and when assessing aid schemes it is not possible to distinguish between the various possible impacts that the aid may have in individual cases. Therefore, if the size of the aided project is used as an indicator of the effect on competition, a worst-case scenario will have to be assumed. This scenario is the one which equates the effect of the aid with that of the entire project, i.e. it assumes that the beneficiary would not invest at all in the absence of the aid. However, it seems probable that cases which satisfy this assumption are atypical. It is more likely that the aid influences the scale of the project or its location – or, indeed, that the aid is simply a windfall gain. In such cases the amount of aid is a better guide to the effects on competition than the total size of the project.

If, in spite of these considerations, the size of the project is used as an indicator, to determine whether the size of a project is significant we ideally need to compare it with the size of the sector or (preferably) the market concerned but this would require a case-by-case examination. Project size thresholds in guidelines and regulations therefore have to be fixed at levels that are not so high that they are irrelevant to a large number of smaller sectors and markets or so low that they greatly increase the number of individual cases to be examined³⁴.

Rules are also required to prevent national authorities from circumventing the individual notification requirement by artificially splitting projects. The regional aid guidelines therefore stipulate that all investment undertaken over a period of three years in economically indivisible assets is to be considered part of one and the same project. A similar rule could be applied to R&D, although three years might not be long enough to cover major R&D projects.

If the project size is the only screening criterion and aid intensity is therefore not taken into account, Member States wishing to avoid close scrutiny of large projects would be encouraged to understate the size of the project, e.g. by defining the eligible costs so that they are significantly smaller than the total costs. To overcome this problem, either the amount of aid or the aid intensity may have to be taken into account as an alternative criterion even if

³² European Commission (2006c and d).

³³ European Commission (2006b).

³⁴ The project size threshold is €50 million in the regional aid guidelines but €25 million in the R&D framework. The reason for this differentiation is unknown.

our main interest is in the size of the project. Where the apparent size of the project is small but the aid intensity is high, the competition effects of the aid should be assessed in the light of any related investments undertaken or planned by the beneficiary.

Absolute amount of aid

CRA (2006) argues (in section 4.4.1) that allowing small amounts of aid encourages wasteful use of public funds, that the cumulative effect of a large number of small aids can be important and that the transaction costs for “project-based” schemes are likely to be so high that small aids will not produce positive net welfare effects. On the other hand, it can be argued, firstly, that the incentive for governments to make excessive use of small aids is weak because small aids are unlikely to receive wide publicity and, secondly, that a small amount of aid cannot induce a large change in output and therefore cannot create a big distortion of competition³⁵. There is a lack of empirical data to indicate whether governments commonly misuse small aids (e.g. for electoral advantage) and on the distribution of small aids. Since small amounts of aid may have a significant incentive effect on small firms, a low absolute amount of aid should not be regarded as constituting in itself evidence that there is no significant market failure.

For the reasons given above in the discussion of project size, the absolute amount of aid may be an appropriate criterion for deciding when a project should be subject to individual approval by the Commission. As a very rough general rule, the larger the amount of aid the greater the change in the recipient’s behaviour and hence the greater the potential effect on competition. As in the case of project size, an aid amount threshold will inevitably be somewhat arbitrary but, on the basis of past cases, it could be fixed at a level that is relevant to the important sectors of the economy.

However, a drawback of the aid amount as an indicator of effects on competition is that it does not distinguish between large projects aided at a low intensity and smaller projects aided at a higher intensity. Furthermore, a rule would still be needed to prevent Member States from artificially dividing projects.

There may also be a case for controlling the cumulation of aid by a single company, even if different eligible costs are concerned, since there may be a close economic link between the aided investments, as when a vertically integrated firm expands its capacities both upstream and downstream. Even if the aided investments are apparently unrelated, repeated aids to the same firm may indicate that the firm enjoys the special favour of the national authorities, thereby discouraging potential entrants. It may also be desirable to control cumulation of aid from more than one country, because a project may involve investment at more than one location.

Size of the firm

The size of the recipient firm can be used as an indicator both of the potential impact of aid on rivals and of the existence of market failures (especially capital market failures). For the first purpose, the most useful measure of size is market share but, as this requires definition of the relevant market, it is not a practicable screening criterion. Size in terms of turnover and/or employment therefore has to be used as a proxy for both purposes.

CRA (2006, section 3.6.4) points out that larger firms are less likely to be financially constrained than smaller firms and hence more likely to use aid for non-targeted purposes,

³⁵ Furthermore, as CRA (2006) points out (section 4.4.1), if the change in output is nevertheless large in relation to the relevant market, the market is probably local and the aid is therefore unlikely to affect trade.

such as predation and foreclosure. The CRA report also notes that large firms are more likely than smaller firms to provide internal financing to overcome capital market failures and are better able to protect information flowing from their R&D (section 7.1.3). Consequently, the size of the recipient firm could be a relevant criterion for the assessment of the necessity and proportionality of aid.

On the other hand, on the basis of the Bergstrom-Varian result³⁶, CRA argues that the size of the recipient firm is not a good indicator of the effect of aid on competition. According to the Bergstrom-Varian result, the equilibrium output and market price in a Cournot setting depend only on the sum of the marginal costs, not on their distribution across firms. This suggests that a given amount of aid will hurt rivals' profits most (and benefit consumers most in the short run) if it is granted to the smallest firm, provided that the aid reduces marginal costs. This is probably of little practical relevance to EU state aid control, in particular because much of the aid is given for investment or R&D. The effect of such aid on marginal cost is indirect and the effect on rivals is usually limited by capacity constraints on the beneficiary. Furthermore, the Cournot assumptions, notably product homogeneity, are not often satisfied in real cases that come before the Commission.

Sector of activity

In rules relating to regional investment aid³⁷, the Commission traditionally imposed restrictions on aid to declining industries or industries where there is structural overcapacity (steel, shipbuilding, synthetic fibres, clothing and textiles). Overcapacity has been abandoned as a criterion in the regional aid guidelines because it is difficult to define it and to find adequate data. A recent proposal to introduce a general ban on regional aid to declining industries was abandoned because the historical output data do not cover all sectors. Investment aid is likely to harm competition in declining sectors if it results in an increase in the beneficiary firm's capacity. In sectors where there is already excess capacity, investment aid can also distort competition if it lowers the firm's variable costs without increasing its capacity, since the firm's output is likely to increase at the expense of rivals.

If the Commission attaches particular importance to cross-border effects on competitors, an important assessment criterion would be the extent to which the affected products or services enter into intra-Community trade. The now-abandoned LET (limited effect on trade) proposal, for example, envisaged that aid to sectors producing largely non-traded products and services would be subject to less stringent rules. However, this proposal encountered at least two difficulties. One was that, although services are most likely to be non-tradable, hard data on trade in services are scarce. The second problem was that the progress of market integration means that the category of non-tradables is shrinking over time.

In spite of these problems, a list of sectors producing predominantly non-traded products could be a useful tool for reducing unnecessary administrative costs of state aid control, even if the list is partial and needs to be reviewed regularly.

Conclusions on screening criteria

Our analysis of screening criteria has dealt only briefly with the relatively unexplored field of indicators of market failure. However, the way in which Member States choose the beneficiaries of state aid may shed some light on this question, albeit obliquely. Indeed, the selection of aid beneficiaries deserves much more attention than it has hitherto received. Even in the more familiar territory of indicators of the trade and competition effects of state aid, we

³⁶ Bergstrom and Varian (1985).

³⁷ Also in the rules formerly applied under the ECSC Treaty.

find that all the candidate criteria, taken either singly or in combinations, have drawbacks which could lead to quite large numbers of false positives or false negatives. Amongst the quantitative criteria, we are inclined, on balance, to favour the absolute amount of aid. However, we have not addressed the important question of setting appropriate threshold values for these variables; this is a question that merits a significant research effort. The view of the OFT³⁸ is that such values can only be valid for individual affected markets. However, without more research, it would be unduly pessimistic to rule out the possibility of determining some typical values that would be appropriate, without too wide a margin of error, for most markets.

5. Analysis of individual cases: market- and firm-specific indicators of competition problems

This section discusses indicators of market and firm characteristics that may be important in the assessment of the impact of state aid on competition. The identification of such indicators is conditional on the prior definition of a relevant market, provided it exists.³⁹ Before considering individual indicators in turn, it is thus necessary to briefly discuss the concept of market definition in a state aid context first.

Relevant market definition in a state aid framework

The definition of a relevant market is a standard tool used in merger control and antitrust to identify the firms that are present in a market and to measure their degree of market power. The market definition exercise as such defines boundaries of a market in product, geographic and time space, within which a hypothetical monopolist could impose a price above the competitive level.⁴⁰ While the techniques developed and applied in merger control and antitrust may serve as a useful starting point, the use of market definition has to be adapted to the objectives of state aid control. Indeed, whereas in the former cases the aim is to identify potential competition-distorting effects arising from (increased) market power (as a result of firms' harmful – unilateral or coordinated – behaviour, such as abuses of dominant positions or collusion), the aim in the case of state aid control is to identify competition-distorting effects arising from changes in firm-behaviour triggered by the reception of state aid.⁴¹ Such distortions are more likely to be observed where the objectives of the state aid are not well-defined and where the aid is ultimately inadequate either to remedy a market failure or to meet another Community objective. In contrast to antitrust, where the expected harm done to consumers may arise from practices which lead to excessive prices, output restrictions or product quality reductions, these channels can almost certainly be ruled out in the short run in the case of an aid. Depending on the eventual use of the aid by its beneficiary, such harmful effects can however occur over a longer time horizon. We now consider in turn two cases in which the identification of the relevant markets affected is particularly complex: multi-product firms and vertically-related markets.

Multi-product firms

³⁸ OFT (2005), Annex C, paragraphs 1.11 and 1.12.

³⁹ While the latter condition may sound trivial, the objective of state aid may in certain cases precisely be to create a market in the first place, for instance by promoting the development of a new product

⁴⁰ Usually the so-called SSNIP (Small Significant Non-transitory Increase in Price) test is applied, which consists of widening the candidate market until the point is reached where a hypothetical monopolist in that market could profitably increase its price by 5-10% relative to the competitive price.

⁴¹ For an extensive discussion of the use of market definition in state aid control, see Fingleton et al. (1999).

In cases where the aid beneficiary is a multi-product firm that is able to cross-subsidise its activities or engage in tying or bundling practices, one should ideally take into consideration all the different markets it is operating in, regardless of whether the aid is targeted to a specific sub-activity⁴². In addition, the firm's ability and incentives to enter other markets upon reception of the aid would have to be considered too. This would however require extensive information on firm strategy, which may be impossible to obtain in practice. A resulting complexity when approving state aid is that the identified markets may exhibit different characteristics (e.g. market concentration, maturity of the market, etc), and the recipient's market position is likely to vary across them, e.g. it might have a large share in one market and at the same time a small share in another; it might not (yet) be present in a market at all. If the ultimate use of the aid granted to the firm cannot be directly traced or monitored and other markets need to be taken into consideration, this could imply:

- A risk of incompleteness, i.e. the assessment is partial and omits the (potentially) negative effect on markets that were not explicitly targeted by the aid.
- A risk of contradictory conclusions regarding the distortive potential of an aid (e.g. aid to a particular firm would be allowed on the basis of the characteristics of market A; aid to the same firm would be prohibited on the basis of characteristics of market B) and the resulting need for arbitration, depending on the weights and standards applied.

Where the traceability of an aid cannot be guaranteed, other markets in which the firm is present (but which are not themselves targeted by the aid) should thus ideally be included in the assessment. While this does not necessarily need to become a default option, it is justified in cases where the existence and significance of a market failure is doubtful or where there is a reasonable suspicion that the aid awarded to address it is excessive and may be used by the firm in the pursuit of anti-competitive objectives.

Vertically related markets

If a subsidised firm has strong upstream or downstream linkages, these markets should be included in an assessment, as they are also likely to be affected by any aid-induced changes in the market of the recipient. If a subsidy leads to an increase in the output of the aid recipient (possibly at the expense of its competitors), two scenarios can be envisaged regarding the effects on upstream markets. In the first scenario, the aid beneficiary and its competitors use the same input without discriminating between upstream suppliers. The subsidy would then have a neutral or positive effect on all suppliers operating in the upstream market, who can compete for any additional demand⁴³. In the second scenario, the aided firm discriminates between the suppliers. This could be the case where the aided firm and its competitors source their inputs from suppliers who respectively operate in different countries, or whose products are imperfectly substitutable. In that case the subsidy would have a positive effect on the suppliers of the aid beneficiary (who, as a result of the aid, demands more inputs) and could have a negative effect on the suppliers of non-aided firms (who, as a result of the aid to their competitor, may reduce their demand for inputs). Such a scenario would be conceivable in situations where a beneficiary has an own personal incentive to engage in customer foreclosure.

Analogously, one can infer the expected effect of a subsidy on downstream markets. If all firms in the downstream market have access to the cheaper or additional output of the aid

⁴² In particular, the effects of an aid are likely to spill over to other markets in which the firm is active if the products sold in these different markets are complements (cf. discussion on vertically-related markets).

⁴³ In this scenario a subsidy increasing total output in a downstream market would thus correspond to a proportional increase in the demand faced by upstream firms.

beneficiary, the subsidy will have a positive effect on the downstream market since it will reduce firms' production costs. On the other hand, if some firms in the downstream market are excluded from purchasing additional, cheaper inputs, either for technical reasons (use of different inputs) or because the beneficiary engages in input foreclosure, the subsidy could have a distortive effect in downstream markets.

Vertical foreclosure scenarios are most likely to occur when aids are awarded to vertically-integrated firms, which have the incentive to discriminate between their own inputs and those of rivals. State aids to vertically-integrated firms thus deserve a particularly careful control.

Market characteristics indicators

We now consider the extent to which market characteristics can help to predict the effect of an aid on the beneficiary's rivals. Among its principal recommendations, CRA (2006) suggests to analyse an aid's impact on rivals *and* consumers by focusing on the long-run effects on market structure and incentives. Indeed, the short-run impact of an aid on consumers is highly unlikely to be negative, since the aid provides the beneficiary with additional resources. Market characteristics indicators can reveal the likely incentive structure of firms and make it possible to draw up scenarios concerning the evolution of the market. One can then assess how firms' incentives and the conjectured long-term evolution of the market would be affected as a result of the aid. These indicators could, in individual cases, substantially enrich the underlying analytical basis for allowing or prohibiting an aid. They may also prove useful when comparing the aid-scenario(s) to different counterfactual scenarios (e.g. non-intervention, non-aid-intervention). Furthermore, a better knowledge of the functioning of markets will also be useful to reassess, and as a result to validate or refute, any conclusions drawn in the initial steps of the screening, such as the identification of market failures.

Aids which reduce the marginal cost of firms at the same time modify their supply conditions⁴⁴. As a result, firms increase their production level (relative to the counterfactual scenario) and – under the realistic assumption that markets are not perfectly competitive, and the firms face a downward-sloping demand curve – also lower the price charged. On the condition that the aid recipient reduces its price, rivals will face a reduced demand⁴⁵. The resulting harm suffered by rivals increases with the cross-price elasticity of demand. Harm to rivals is interpreted here as an erosion of their profits, forcing them, in the extreme case, out of the market. In the longer-run this harm to rivals could be passed on to consumers in the form of any adverse effects resulting from reduced competition. Focussing on the long-run effect on rivals and the long-run effect on consumers is to some extent equivalent. Indeed, as noted by Friederiszick et al. (2005) "the effect on rivals [...] can be a proxy for the negative impact on consumers in a dynamic sense. The greater the negative effect on rivals, the more likely it is that consumers will be negatively affected in the longer run".

The market characteristics indicators discussed below should not be seen as stand-alone indicators, but should be considered in conjunction with the other information about the market failure and aid characteristics discussed in parts 3 and 4. It should also be pointed out that the list of indicators presented here is not necessarily exhaustive.

⁴⁴ Even if in practice most aids are targeted at reducing fixed costs, they can nonetheless be assumed to lower marginal costs via efficiency and productivity increases. Here, we abstract from cases where an aid also alters the demand conditions faced by the firm (e.g. environmentally-friendly production may increase consumers' valuation of a product).

⁴⁵ Rescue aids are a special case since in the counterfactual scenario a firm would exit the market and its output would consequently be zero.

Market concentration

The significance of competition distortion resulting from a subsidy is likely to increase, other things being equal, with the degree of market concentration. Intuitively, in a non-concentrated market, each firm has a low market share and presumably little influence on the market price. Conversely, in a highly concentrated market where firms have higher market shares, they are also more likely to influence the market price by their decisions and thereby directly affect any existing rivals.

A possible proxy for market concentration is the Herfindahl-Hirschmann Index (HHI)⁴⁶. Analogous to its use in merger control it could be used to measure market concentration prior to the aid and to estimate the change in market concentration as a result of the aid (the 'delta'), given certain assumptions. As the aid may cause a reshuffle in market shares, the HHI could possibly fall, if a beneficiary firm gained market shares at the expense of a larger one. For *ex ante* authorization of state aid, a high pre-aid HHI and an expected negative delta could be deemed pro-competitive and, provided that the aid is given to an efficient firm, tend to a favourable assessment.⁴⁷ Other measurements for market concentration may include concentration ratios (CR n)⁴⁸.

Product differentiation

The lower the degree of product differentiation, the stronger the effect of a subsidy on rivals' profits will be, other things being equal. Intuitively, product differentiation implies that firms have some market power, as their products are less substitutable. The lower the substitutability, the more limited will be the impact of price changes on competitors (i.e. there is limited rivalry between the firms).

In practice it is difficult to measure the degree of product differentiation, once it is established that the products under consideration belong to the same market. An easily verifiable indicator could be the nationality of firms (as suggested by Garcia and Neven (2005)). Indeed, if there is a national bias similar products may be considered as imperfect substitutes merely because of their origin. In that case the effect of a subsidy to a domestic firm on its foreign rivals would be attenuated. Other indicators used as proxies for product differentiation include the ratio of advertising to sales (to capture the degree of brand loyalty), and expenditure on R&D. They can provide a good indication of the effort undertaken by firms to differentiate their products from those of rivals. High advertising or R&D expenditures would thus point to high product differentiation and non-price competition.

Barriers to entry

The significance of competition distortions resulting from a subsidy is likely to increase when there are entry barriers to the market. Barriers to entry can be defined as "anything that allows incumbent firms to earn supranormal profits without threat of entry" (Tirole (1988)). The nature and magnitude of factors preventing such a threat indicate the degree of contestability of a market, that is the extent to which a potential competitor, willing to enter the market, would be deterred from doing so. The threat of entry can be absent or be severely reduced as a result of two types of barriers: institutional barriers to entry (any restrictions resulting from government interference such as licences, regulations, norms, etc.) and economic barriers to

⁴⁶ The HHI is the sum of the squares of the market shares of the companies in the market. A monopoly has an HHI of 10 000.

⁴⁷ The HHI may in any case be a valuable indicator in an *ex post* analysis of the effects of state aid on competition.

⁴⁸ The cumulative market share of the n firms with the largest market shares.

entry, such as the level of sunk (i.e. non-recoverable) costs. Analysing barriers to entry in state aid control is important to the extent that the state aid could lead a firm to engage in predation and the eviction of rivals from the market, in order to gain market power. If high market barriers preclude the threat of entry, the aid beneficiary would then ultimately have an incentive to abuse its market power. The long-term consequences would be negative for forced-out rivals and consumers alike.

A symptom of the presence and the deterrent effect of entry barriers to a market is the firm-turnover in that market. This is defined as the total number of firms entering and leaving the market in a given year, relative to all firms active in a market. A low value (relative to some benchmark, which could be another product market or the same product market in another geographic area) would suggest that there are existing entry barriers to a market, and that they are effectively difficult to overcome (without, however, pointing to any specific barrier in particular).

A number of proxies exist to measure the importance of market entry barriers, which include:

- Advertising expenditure (endogenous sunk cost): a high level of advertising expenditure relative to sales in a market may indicate that the demand for a particular product is highly conditional on the advertising made for it. New firms would thus have to spend substantial amounts upfront, which – if available to them at all – would have to be recovered subsequently on the market, adding to all the risks already faced by entrants. A similar argument holds for R&D expenditure.
- Fixed costs relative to the market (and exogenous sunk costs): The argument for high fixed and exogenous sunk costs constituting barriers to entry is similar to the endogenous sunk cost example above. The difference, however, is that they are barriers of a technical nature. Besides the risks linked to the recovery of these costs through sales, they may also give an indication of the time necessary to enter a market.
- Regulatory barriers: regulatory barriers comprise all administrative burdens that are imposed upon firms entering a market. They range from the time necessary to set up a new firm, to licences (i.e. authorisations), awarded by public or professional bodies, which are necessary to carry out a specific activity.

Barriers to exit

Subsidies are less likely to harm rivals if market exit costs are high. Despite making losses in the short run, firms would be expected to remain in a market as long as the price they receive for their product exceeds the average variable cost of producing it. The gap between average total and average variable costs – and hence the likelihood of the price falling in between the two – increases with fixed costs of production. In industries that are characterised by high fixed costs, the predatory pricing strategy of an aid recipient, aiming at its rivals' eviction, would be more likely to fail and the aid recipient would therefore be less likely to engage in it in the first place.

Entry and expansion deterrence effects

A firm's decision to enter or expand its activities in a market is determined by the profits it expects to earn in that market. Expected profitability depends on structural factors (such as factor costs, taxes, regulatory burdens and demand characteristics) and on the nature of competition in the market. When assessing the impact of state aids, a fundamental point to consider is the extent to which the aid itself alters these expectations about profitability and

ultimately influences entry decisions (i.e. at what point does state aid itself become an entry/expansion barrier). A subsidy could affect expectations through different channels:

- An investment aid to a firm, inducing or upholding an activity by cutting a firm's perceived non-recoverable (start-up or adjustment) costs, could credibly commit it to future production. This increased certainty about future production capacity could negatively affect the entry or expansion decision of a non-aided firm.
- An aid that reduces the firm's effective marginal costs would exert downward pressure on prices charged in the market and negatively affect the expected profitability of a non-aided potential rival.
- An aid may also better equip an incumbent to accommodate the effects of entry in the market and in the worst case allow it to engage in predatory behaviour.
- A subsidy to a firm may also be a signal of a government's willingness to support incumbents or domestic firms. If perceived as such, subsidies could have a dissuasive effect on potential entrants, in particular from abroad. The effect would be particularly strong if subsidies were repeatedly given to the same firm or firms.

Nascent, growing and declining markets

If the aid creates an entirely new market, the distortion is limited to any foreclosure of potential entrants. In such cases, the first step in the investigation should be to determine whether other companies could plausibly enter the market in the foreseeable future. This may not be easy, since it may require good information on the know-how and IPR available to other companies, their R&D programmes, their access to customers in the new market etc. In the second step, the ability to foreclose has to be examined. In some cases it may be found that, far from deterring entry, the aided project has a demonstration effect that encourages other firms to enter the market. Aid to a firm in an established but growing market will not have this demonstration effect but is less likely to have a catastrophic effect on rivals (i.e. the exit of one or more of them) than aid given to a firm in a declining market. However, while firms may not necessarily see their current level of sales being affected by an aid to rivals, they may nonetheless be hindered from seizing new opportunities, and thus from growing in the future.

Mature markets

In mature markets, harm to non-aided rivals is likely to occur much more directly and rapidly than in a growing market. Indeed, in such markets – where demand is stable and demand growth consequently absent – any (aid-induced) expansion of sales by one firm would inevitably occur at the expense of another. Such reshufflings of market shares are particularly likely to spill over to vertically-related markets through the channels described above.

Recently opened markets

Firms which operate in markets that are being deregulated or opened up to competition may be particularly ill-suited for receiving aids. Frequently, these markets are already mature and are characterised from the outset by very few market participants (a good illustration are markets supplied by network industries, such as electricity and gas). Having been regulated, they have hardly ever experienced effective competition, which takes some time to develop, since market entry is usually sluggish at first. In such markets entry costs may already be substantial anyway and aids may only reinforce the already favourable position of

incumbents, reduce the entry incentives of potential entrants and ultimately hold back the development of effective competition.

Physical size of the project

Where investment aid is concerned, the effect on rivals is a function of the additional capacity created by the project. The regional aid guidelines contain a rule forbidding aid to projects which create additional capacity equivalent to more than 5% of EEA apparent consumption, unless the market is growing faster than the economy as a whole. However, capacity is difficult to measure in service sectors other than transport.

Conclusions on the analysis of individual cases

This section has reviewed indicators of market and firm characteristics that might have to be taken into account in state aid control. Even though none of these indicators can by itself enable firm conclusions to be drawn, in appropriate combinations they can shed light on the probable effect of aid on competition.

Conclusions

Governments regularly provide state aids to firms, which may be justified on efficiency or equity grounds. However, such aids may also inflict harm on non-aided firms, which may ultimately be passed on to consumers as well, especially if inefficient firms are supported at the expense of more efficient ones. The main objective of state aid control is thus to contain these adverse effects, without prejudicing potential benefits. Besides eliminating anti-competitive state aids, a good state aid control system may also guide Member States towards more efficient design and implementation of state aid schemes. Indeed, the need to comply with a particular assessment sequence, starting off with the examination of the need for aid in a particular circumstance and its contribution to addressing this need, incites aid-awarding institutions to reflect thoroughly on their reasons for intervening, thus limiting the scope for wasteful and harmful aids.

The SAAP has outlined a sequence, which has since been applied in various Commission guidelines, beginning with an analysis of the positive effects of aid (i.e. its contribution towards addressing a particular need). The second stage of the procedure focuses on negative effects resulting from the aid, while in the final stage both effects need to be traded off against each other. Other than this conceptual approach, many open questions remain as regards the practical implementation of state aid control.

This paper has aimed at raising and discussing some of these open questions, which need to be more rigorously addressed in subsequent analyses. It has notably considered the issue of whether state aid control should be aimed solely at minimising distortions of cross-border competition or whether it should also promote economic efficiency in a wider sense. In the context of the justifications for subsidies the paper has stressed the central role of market failures and discussed their identification as well as different conditions under which aids could be successful in addressing them. Finally, we have suggested a series of indicators that can contribute to identifying conditions (e.g. aid-, firm- or market characteristics) which would give rise to or exacerbate negative effects as a consequence of aids. Such indicators should be taken into account either as screening criteria or in the context of individual aid assessments. However, work remains to be done as regards the quantification (notably the determination of thresholds) of some of these indicators.

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