DISCUSSION PAPER SERIES

No. 1105

THE COHERENCE OF EC POLICIES ON TRADE, COMPETITION AND INDUSTRY

Jordi Gual

INDUSTRIAL ORGANIZATION

Centre for Economic Policy Research

ISSN 0265-8003

THE COHERENCE OF EC POLICIES ON TRADE, COMPETITION AND INDUSTRY

Jordi Gual

Discussion Paper No. 1105
January 1995

Centre for Economic Policy Research
25–28 Old Burlington Street
London W1X 1LB
Tel: (44 71) 734 9110

CEPR Discussion Paper No. 1105

January 1995

ABSTRACT

The Coherence of EC Policies on Trade, Competition and Industry*

This paper assesses the coherence between industrial policy, competition policy and trade policy in the European Union (EU). This assessment is undertaken from the perspective of the optimal deployment of economic policies as prescribed by economic analysis and takes into consideration the legal mandate and the institutional constraints imposed by EU treaties and regulations. The analysis shows that as a result of the limited policy tools available to the Union, trade and competition policies have to fulfil several competing goals. This multiplicity of objectives leads to non-optimal interventions. Policy inconsistencies arise also between trade/competition policies and the industrial policy of Member States. Current policy practice leads to inefficient outcomes both in mature and sunrise industries. These inefficiencies could be reduced with a reinforcement of integration policies (notably, state aid control). The paper argues that the current institutional arrangements allow for a strengthening of centralized industrial policy, however, which could be usefully utilized to achieve more efficient outcomes. Other policy conflicts, mostly between trade and competition policies, are also discussed.

JEL Classification: F13, L40, L50
Keywords: trade policy, competition policy, industrial policy

Jordi Gual
Directorate General for Economic and
Financial Affairs, DG II
European Commission
200 Rue de la Loi
1040 Brussels
BELGIUM
Tel: (32 2) 299 3534

*This paper is produced as part of a CEPR research programme on *Market Structure, Industrial Organization and Competition Policy in Europe*, supported by a grant from the Commission of the European Communities under its SPES Programme (no. SPESCT910071).

Submitted 4 January 1995

NON-TECHNICAL SUMMARY

This paper assesses the coherence between industrial policy, competition policy and trade policy in the European Union (EU). This assessment is undertaken from the perspective of the optimal deployment of economic policies as prescribed by economic analysis and takes into consideration the legal mandate and the institutional constraints imposed by EU treaties and regulations.

The first part of the paper is devoted to an analysis of the optimal use of the three policies and a discussion of the contradictions which may arise even in a theoretical world where policies can be deployed without statutory or institutional restrictions.

With regard to trade policy, theoretical analysis and empirical evidence provide few arguments for a protectionist trade policy. The new international economics implies that the optimality of free trade is no longer taken for granted. But even within the realm of theoretical models and formal empirical analysis, the optimality of trade intervention is far from clear. Moreover, protectionist trade policies often contradict competition policy objectives by contributing to non-competitive conduct in domestic markets.

At the normative level, the case for an active industrial policy seems more powerful, however. Theory shows, nonetheless, the stringent conditions that justify such action, pointing out the relevant market failures (for example, the cases of imperfect sectoral adjustment and R&D investment). Moreover, in many cases theory indicates the second-best nature of industrial policy relative to other more suitable interventions (for example, labour market reform). In other cases economic analysis clarifies the conflicting tendencies at work (as in the case of the incentives for R&D), thus orienting policy but falling quite short of providing detailed guidelines. Additionally, the political economy of industrial and trade policies implies that, in practice, industrial policy objectives are pursued by trade policy tools. This is, of course, a main source of conflict between industrial policy and the free trade objectives of trade policy.

Finally, competition policy has a clear objective: preserving competitive markets. Theory helps identify the few exceptions to this rule. They arise precisely because of the complexity of industrial markets, in particular when dynamic efficiency considerations are introduced. A relaxation of competition policy may be used as an appropriate tool to guarantee the achievement of industrial policy objectives in industries where dynamic efficiency gains might

outweigh static welfare losses arising from reduced competition. This is an example of the inherent tension between industrial and competition policies.

The analysis of the consistency between trade, competition and industrial policies in the EU requires an assessment of EU policy objectives and a discussion of the scope of Union and Member State policies. The paper draws upon this and the earlier analysis to assess the main contradictions inherent to the statutory and institutional design of EU policy. The discussion suggests some changes in policy assignment and implementation which could increase efficiency by alleviating the most harmful policy conflicts.

Trade and competition policies have well defined priority objectives: the preservation and encouragement respectively of external and internal competition. They have to fulfil other competing goals, however, notably in terms of cohesion and industrial competitiveness. One could argue that the multiplicity of objectives is the result of the limited policy tools available to the Union. That is, the direct instruments available (structural and cohesion funds in the case of cohesion) are insufficient and, as a consequence, policies aimed at securing a competitive and integrated market are tempered by the contradictory goal of maintaining social cohesion. In any case, the nature of the conflict between trade/competition policies and cohesion policy is clear. Imposing the cohesion restriction might lead to the choice of non-optimal policies in trade and competition, protecting or subsidizing a particular industry on the grounds of cohesion.

The second main source of policy inconsistency arises between trade/competition policies and the industrial policy of Member States. Although EU policy is based upon the central idea that the best industrial policy is the promotion of an environment of competition with a large internal market and external pressure, actual policy at the Union and the Member State level has departed from this rule. In some cases economic theory itself has cast doubt on this principle. In others, policy practice has not followed the statutory objectives.

The theoretical results have influenced the relaxation of EU competition policy with respect to R&D subsidies and R&D cooperation. Arguably, this need not be the best policy for R&D. A better alternative might be to adopt a policy mix that combines stricter competition control with some centralization of technology policies.

Policy practice has departed from the statutory objective in the case of trade as a result of the political economy of EU trade and industrial policies. An effort should be made to restrict trade instruments to their proper use under Treaty

objectives, and not to use them as instruments of industrial policy. This then begs the question of how these industrial policy objectives might be achieved. Industrial policy is in fact an area of conflict itself, quite apart from its interaction with other policies. Aside from the potential disagreements on the extent of intervention in a centralized nation state, there is also the question of the conflict between policies at the EU level, and between the policies of different administrations.

In several industries, Member States intervene (through public procurement, state aid, procrastinating in transposing legislation) to favour the national competitors. In mature industries we confront an exit game with a non-cooperative outcome which is significantly inefficient. In sunrise industries the subsidizing of entry leads often to a similar result. Given the institutional nature of the EU and the fact that Member States retain most of their sovereignty and governments are responsible to national electorates, it is not reasonable to expect a non-intervention, free market outcome.

Two basic alternatives are available. The first is to strengthen significantly the decisions in the area of the internal market (state subsidies, procurement, national quantitative restrictions). This would be consistent with competition and industrial policy. It would be strongly opposed by powerful interest groups within Member States, however, which could find cohesion or competitiveness arguments to support their case. The second alternative argues that more centralization in industrial policy may be justified in terms of efficiency. This could be the appropriate way to break the current deadlock, where Member States interference is leading to inefficient outcomes in many industrial markets. Additionally, it could promote the positive adjustment that, in principle, EU industrial policy attempts to achieve.

Favouring and focusing on the achievement of an efficient economic outcome might have its costs in terms of redistribution. To that extent such an industrial policy needs to be complemented by cohesion policy measures which automatically compensate the losers depending upon the geographical impact of the rationalization that takes place. Finally, note that centralization of this policy may be superior to coordination, given the lack of credibility of cooperation and the imprecise nature of industrial policy, which makes it harder for the parties to stick to negotiated agreements. Moreover, undertaking a more active industrial policy would be consistent with the new emphasis given to industrial policy by the EU Treaty.

Introduction

Industrial policy, competition policy and trade policy are becoming increasingly interrelated in the European economic policy scene. This is the result of economic and political trends such as internationalization and trade liberalization, but also a consequence of the statutory and institutional framework within which these policies are currently designed and implemented.

This paper assesses the coherence and conflicts between these policies in the European Union. This assessment is undertaken from the perspective of the optimal deployment of economic policies as prescribed by economic analysis and takes into consideration the legal mandate and the institutional constraints imposed by EU treaties and regulations.

The first part of the paper is devoted to an analysis of the optimal use of the three policies and a discussion of the contradictions which may arise even in a theoretical world where policies can be deployed without statutory or political restrictions.

The second part analyzes the regulatory framework which determines the policy assignments in the European Union. Both the legal mandate as well as the allocation of competences across institutions are discussed. The analysis focuses on the implications for economic policy design and it may be viewed as complementary to the legal approach adopted by Bourgeois and Demaret (1994).

The third part of the paper draws upon the previous analyses and presents the main contradictions inherent to the statutory and institutional design of EC policy. The discussion focuses on the potential conflict between policies. Nonetheless, some attention is also paid to inconsistencies in practice since in many cases these conflicts reveal shortcomings in policy design which are often the consequence of statutory constraints.

The paper concludes with a few remarks pointing out the changes in policy assignment and implementation which could increase efficiency by alleviating the most harmful policy conflicts.

Part I. Trade, competition and industrial policies: a normative view.

This part of the paper discusses the general objectives of trade, competition and industrial policies from a broad perspective and draws attention upon the areas where conflict between policies may arise. The allocation of policies to the different objectives and how conflicts can best be resolved are discussed from a normative viewpoint.

This part provides also general definitions of trade, competition and industrial policies which will be used as guidelines for the analysis of EC policies discussed in the rest of the paper. Although the policy definitions are quite general, an effort is made to analyze specific policy instruments to allow for a detailed discussion of policy conflicts.

I. 1. Optimal trade policies.

Trade policy can be defined as including all taxes (or subsidies) levied on goods traded by a country with the rest of the world, other trade-related regulations (such as quotas or non-tariff barriers -antidumping, countervailing duties-) and trade-related foreign investment measures (also known as TRIMS) such as local factor content requirements. This definition could be expanded to include also preferential financing arrangements such as export credit subsidies as well as national procurement policies[1].

Trade policy modifies the allocation of resources which would result from free trade. Goods and factors of production will be allocated differently between the country and its trading partners and, as a result, also within the domestic economy. This may, of course, be also the consequence of other domestic policies. What defines narrowly trade policy

is the fact that it achieves these results by way of imposing taxes and/or regulations on foreign goods, services or investments which do not apply to their domestic counterparts[2]. Note, also, that this definition of trade policy includes not only (protectionist) policies that impose trade barriers, but also (liberal) policies that remove trade restrictions.

From a normative viewpoint, it is well known that a protectionist trade policy only makes sense under a limited set of circumstances. The traditional reference is the work of Bhagwati (1971)[3].

Consider first, the case of perfectly competitive markets. The generalized theory of distortions shows that free trade is the best policy except if the country is comparatively large and, as a consequence, enjoys monopoly power in trade. In that situation, there is a difference between the marginal foreign rate of transformation and the marginal rates of transformation in domestic production[4]. The optimal policy dictates the exploitation of the large-country advantage when setting tariffs, which is tantamount to a policy intervention that eliminates the market-induced distortion.

Even when the country is large, the possibility of retaliation has to be considered and may question the attractiveness of optimal tariff policies. Optimal tariffs are lower if the trading partners can retaliate[5]. We can think of this from a game-theoretic perspective. Within a static approach the situation is akin to a prisoner's dilemma where tariffs are set at the optimal level by both countries, who end up worse off relative to a tariff-free equilibrium. In a dynamic setting one may expect, on average, lower tariffs because there will be equilibria where tacit cooperation between trading partners is sustained by the threat of reverting to a protectionist policy[6].

The generalized theory of distortions shows that other types of distortions that may arise are best dealt with what we define as part of industrial policy. That is, taxes/subsidies on production/consumption which target the source of the distortion and do not alter

domestic prices relative to international prices. For example, if the production of a good is insufficient from the social point of view (the marginal rates of substitution in consumption and of transformation in domestic production are different), the optimal policy is a production subsidy rather than a tariff, since the subsidy avoids the negative consumption effects induced by the tariff.

Within the framework of perfectly competitive markets, two traditional distortions have been considered in the literature[7]: the presence of industry-wide external economies (or diseconomies)[8], and the existence of distortions in input markets[9]. In both cases, however, theoretical analysis shows that the use of trade policy to correct these distortions is second best.

Distortions in input markets will be explicitly considered under industrial policy. Consider, for the moment, an industry where externalities are generated at the industry level, and are thus not being captured by the firms. The divergence between the marginal social cost and the supply curve of the industry implies that a strictly positive tariff would be welfare improving. However, the introduction of such a tariff would introduce a consumption distortion since it would raise the domestic price of the good above its international level. Thus, trade policy is second best to an alternative industrial policy which, in this case, would be a subsidy. More generally, the appropriate intervention is a subsidy or a tax depending on the sign of the externality.

If we allow for imperfectly competitive industries, two more reasons for active trade policy arise. These are sometimes called rent-extracting and rent-shifting[10].

The extraction of (foreign) rent takes place when a country faces a foreign monopolist[11] which is the sole supplier of a good in the domestic market (for details see Helpman and Krugman (1989) chapter 4)[12]. In these conditions, the optimal policy calls for a ceiling on the price of imports such that the monopolist prices at marginal cost. Additionally, a lump-sum tax on the monopolist is needed to capture the producer surplus. Of course,

this type of import policy is not usually implemented, but with a tariff/subsidy[13] the domestic country obtains also some of the rent-extraction effect. Although a tariff raises further the price to domestic consumers, under certain conditions on the demand function the increase in tariff revenue compensates the loss in consumer surplus. When that is not the case, the optimal policy is a subsidy. In that instance the cost of the subsidy is compensated by the increase in consumer surplus[14].

The idea of rent-shifting is a very simple one[15]. Consider the simplest case where two firms from different countries compete in a third market as a duopoly. That kind of market structure causes what Eaton and Grossman (1986) have denoted as a strategic distortion. Both firms perceive a marginal revenue curve different from the one they would really face if they were to commit to a certain output (or price, depending on the nature of the game) before competition takes place. The optimal policy for this strategic distortion is an export (or production) subsidy when firms compete in quantities and a tax when they compete in prices[16]. The optimal policy is again contingent on the (residual) demand function (or on the perceived marginal revenue function), and that is why it will be different in quantity or price competition.

A full discussion of the optimality of policies, however, has to drop the assumption that the two firms sell only in a third market. That is, we have to incorporate the consumption effects[17].

When firms sell in a third market but also domestically, the design of the optimal policy involves both a consumption tax/subsidy, and production and export tax/subsidies which in this case need not be equivalent. Since we have at least two markets (the third market and the domestic market) a key issue is the extent to which the two markets remain segmented or are integrated via arbitrage.

With segmented markets[18] the optimal policies for the duopoly case are simple and intuitive. The consumption tax/subsidy is set to confront the monopoly distortion[19], while the export tax/subsidy is used to offset the strategic distortion.

When markets are linked through arbitrage, the consumption tax/subsidy targets the monopoly distortion, but production and export taxes/subsidies have to deal not only with the strategic distortion, but also with the linkage effects on foreign markets resulting from domestic tax/subsidies.

Overall, it is not at all clear to what extent one can advocate an optimal trade (or industrial) policy on the basis of what is known about international competition in imperfectly competitive markets. From the theoretical viewpoint, the results are quite sensitive to detailed information on market structure and conduct, which is unlikely to be available to the policy maker[20]. Apart from the degree of segmentation of markets and the type of competition between firms, theoretical research has shown that the extent of potential entry is also important (see Horstman and Markusen, 1986). Similarly, the eventual positive welfare effects of the policies may be substantially reduced in the presence of a scarce factor (such as scientists) intensively used in the production of the subsidized good and in other potentially targeted industries[21].

From the perspective of the policy maker, it is also relevant to consider the practical importance of strategic trade policy in terms of its quantitative effect on welfare when applied in the real world. Most of the research in this area has been undertaken through the use of calibration techniques given the limited data sets available for econometric research. The results, recently synthesized in a research volume (see Krugman and Smith, 1994) show that a) the effects of unilateral trade policy are indeed positive for the economy undertaking the intervention; b) that these effects, nonetheless, are of non-significant quantitative importance; but, most importantly, c) that if retaliation takes

place the welfare-reducing impact on all trading partners may be quite significant (see Krugman and Smith, op. cit.).

Summarizing, theoretical analysis and empirical evidence provide few arguments for an active trade policy. The new international economics implies that the optimality of free trade is not taken for granted anymore. But even within the realm of theoretical models and formal empirical analysis, the optimality of trade intervention is far from clear.(even when combined with taxes and subsidies to production, in what we later call strategic industrial policy). Extending the analysis to the political economy of trade policy formation would reinforce this conclusion since trade activism promotes unproductive rent-seeking activities.

I. 2. Industrial policy: scope and optimality

We will define industrial policy as the set of government interventions that by way of taxes (or subsidies) and regulations on domestic products or factors of production attempt to modify the allocation of domestic resources that results from the free operation of the market.

This is a very broad definition, which includes measures related to goods and services, as well as taxes and regulations on labor and capital. In principle, it could encompass policy instruments such as agricultural subsidies, accelerated depreciation allowances and financial market regulations.

We will exclude measures directed to primary sectors as well as those related to non-tradable service industries (i.e. housing services, retail trade) although the extent of tradability may be uncertain in some segments (i.e. telecommunication services, wholesale banking).

Similarly, we will exclude the regulations which attempt to alter the geographical allocation of resources (what is usually known as regional policies) and the policies which have a general nature, in that they affect most of the firms in a country to a similar extent. For example, investment tax credits, subsidies for the employment of particular kinds of labor or public investments in the development of communication infrastructure.

Within these limits, industrial policy will cover three types of actions:

a) Strategic industrial policies. These are actions which attempt to develop specific industries, strategically supporting domestic firms in international markets where rents can be obtained. This policy may combine trade instruments (such as tariffs) with industrial policy tools (taxes or subsidies on production and consumption).

b) Structural adjustment policies. These policies aim at facilitating the adjustment to structural changes in the economy when the adaptation through market mechanisms is impeded by factor market rigidities and other market imperfections.

c) Horizontal policies that attempt to modify the allocation of resources of some type of industries (or firms) towards specific inputs (R&D investment) or activities (quality improvement, export networks, brand development) because of the existence of production externalities or other kinds of market failure. Policies that support the access to financial instruments of small and medium enterprises (SME) would be included under this heading. Note, however, that SME policies are usually targeted to both industrial and non-industrial companies.

We will consider, next, the last two cases, outlining the optimal industrial policy in each circumstance and the motivation for policy intervention, which in general is the correction of some type of market failure (Caves, 1987). The case of strategic industrial policy has already been discussed in the previous section in the context of rent-shifting trade policy and we will come back to it later when we discuss the promotion of infant industries. As for policies which affect the inputs and activities of some firms, we will focus on the case of R&D investment incentives, a widely used industrial policy instrument.

I. 2.1. Structural adjustment policies

Adjustment policies are designed to correct market failures that prevent the natural adjustment of industrial sectors through the individual and decentralized decisions of private firms to changing technological and market circumstances. Note that, in principle, this could refer both to emerging and declining industries. In practice, however, market failures related to emerging industries deal with R&D and we will be treating them separately.

We will therefore focus on mature or declining industries where drastic long term changes are taking place due to either technical innovation or the changing impact of country-specific comparative advantages.

The nature of the market failure may be quite diverse. Some of the most prominent examples include incomplete information on the part of private agents, capital specificity which leads to the consumption of real resources when deploying capital to new activities and induced distortions such as factor price rigidities[22]. In fact, already within the framework of optimal targeting Brecher (1974) considered the role of trade and other policies in the presence of distorted factor prices (sticky wages) and concluded, in the spirit of the generalized theory of distortions, that the optimal policy should target directly the market failure. In this case, the functioning of the labor market. The work by Neary and Mussa confirms this view. They detect market failures which justify intervention, but the optimal measures are part of industrial policy (including subsidies to factors of production), and trade policy is always a second-best instrument. For example, Neary showed that in a specific factor model with rigid real wages, the optimal policy may sometimes require a temporary subsidy on labor employed in the industry. As Lloyd (1987) indicates, this kind of result is useful as a policy guide, but when the market failure is induced by an institutional distortion (wages might be sticky because of the design of the bargaining process), first-best policy requires the direct removal of that distortion.

This type of research provides in principle a substantial basis for active industrial policy in these domains. As usual, a note of caution is needed because the analysis often presumes that either the governments have information which is not available to the private sector, or they know the extent of the distortion, which allows them to optimally implement the corrective policy. Additionally, the framework assumes an altruistic government and one needs to worry about the usual incentives of industries to

misrepresent their case for assistance. Overall, however, we may conclude following Caves (op.cit.) that despite those caveats, it is probably wise not to be dogmatic about the general efficiency of private decisions in intersectoral allocation.

Note finally, that the results that we have reviewed emphasize the efficiency aspects of adapting to structural change and sidestep the income distribution question by assuming the existence of lump-sum taxes that may be used to compensate the losers. In reality these taxes are not easily implemented and it is worth considering the optimal policy in its absence. That is, optimal industrial (or trade) policies need to be formulated taken into account their redistributive impact.

Diamond (1982) explicitly assumes away lump-sum taxes. His results suggest that subsidies to the production of declining industries might be justified on equity grounds. At the same time labor mobility out of these industries needs to be fostered by subsidizing labor. In terms of the actual adjustment of the industry to the changed competitive circumstances, the first kind of subsidy retards exit but it may be counteracted by the effect of the second subsidy[23].

I. 2.2. Research and Development

The case for an active industrial policy has traditionally been quite strong in the area of research and development. This is not unrelated to the fact that a substantial body of economic theory appears to show that under some circumstances R&D policy is welfare-enhancing.

The existence of market imperfections in the provision of R&D has been explored in detail. Essentially, the theory emphasizes the public good nature of R&D, which may lead to the provision of insufficient effort in R&D on the part of private firms and to an inefficient pricing of the resulting knowledge. On both accounts public policy may be justified in order to achieve a social optimum.

The basic argument has to do with the degree of appropriability of knowledge[24]. To the extent that the benefits from R&D cannot be fully internalized by the firm (because of imperfect patent protection or other reasons) we are likely to observe an insufficient amount of effort devoted by firms to research and development activities.

At the same time, once knowledge is generated, optimality requires that it is transmitted at the marginal cost of transmission, which is likely to be very low. Higher appropriability, while providing the right incentives to engage in R&D, does not lead to the conditions that facilitate the optimal transmission of research results.

It must be realized, however, that economic theory provides a well-known counter argument to this under-provision thesis. The argument focuses on the impact of rivalry on the incentives to invest in R&D. Competition among firms in patent races will lead to excessive R&D spending since each firm disregards the effect of its own spending on the expected returns of its rivals. This is sometimes known as the business-stealing effect.

The welfare analysis of the market provision of R&D is thus inconclusive. Furthermore, even if one accepts that the appropriability effect may dominate the business-stealing effect, the general issue of the optimal policy intervention is still unresolved. The best known result is due to Spence (1984) who (in a specific setting) argues that subsidizing R&D (which is modeled as lowering production costs) will improve market performance, in particular in the presence of low appropriability. Spence incorporates the business-stealing effect partially to the extent that he considers several market structures and takes into account that, with some of them, too much spending in R&D is needed to achieve a given level of cost reductions.

If the theoretical basis for an active industrial (R&D) policy is weakened when the question is explored in some detail, the issue is even more inconclusive when the empirical evidence is examined.

Empirical research has indeed highlighted that the extent of appropriability is relevant, although its importance appears to vary widely across industries. This is reinforced by empirical evidence indicating that patents are an appropriate tool of protection on a very limited set of industries (see Cohen and Levin, 1989). It seems, however, that there is no clear correlation between the degree of appropriability and the extent of R&D spending undertaken at the industry level[25].

It seems fair to conclude that the results of theoretical analysis are not robust enough to provide a definite guidance for optimal policy. For that matter, theory has even failed to support detailed empirical analysis of some of the important issues at stake (i.e. the relationship between appropriability and R&D effort). But this may not be all that surprising by the very nature of R&D spillovers, which leave no paper trail and therefore are very difficult to track down. Economic policy has been guided by the presumption that the public good nature of R&D leads to its under provision and to an incorrect pricing of the knowledge generated. The issue of excessive rivalry and duplication of R&D efforts has been tackled by fostering R&D cooperation among firms, a question which we will discuss later on, as it pertains to the interaction of competition and industrial policy.

I. 3. Competition policy

Competition policy focuses on the static and dynamic allocation of resources within specific industries or a limited set of related markets.

In many industries the strategic behavior of firms may lead to market outcomes which differ from the social optimum. Strategic moves by firms can impinge upon the final stage of the competitive process (pricing, production) or affect early stages of competition (i.e. product introduction, R&D spending) and thus alter the structure of the industry.

Thus, competition policy attempts to maximize social welfare either through regulating the conduct of market participants (anti-trust or dominant firm regulations), or by direct intervention in the structure of the market (merger regulations).

From a static point of view the question of the optimal competition policy does not seem controversial. The basic issue is the trade off between the possible efficiency gains from increased firm size and the welfare losses that may arise if a reduction in the number of competitors leads to increased collusion.

However, even within a static setting things get complex because in most industrial markets firms compete in many dimensions (i.e. service, advertising) and the social optimum is possibly more complicated than what is prescribed by simple marginal cost pricing. Consider, for example, a market with spatial product differentiation. The socially optimal provision of goods is the result of two conflicting tendencies: the fixed costs involved in the supply of each good, and the increased consumer welfare as goods closer to what consumers prefer are being provided. The key issue is, however, that in theory it is unclear whether an invisible hand (free entry) outcome is likely to result in too much or too little product variety as compared with alternative (regulated) market structures. In the free entry equilibrium the non-appropriability of social surplus leads firms to under

provide variety, but this effect is counteracted by a business-stealing effect whereby firms disregard the cost imposed on their competitors by introducing a new variety and diminishing the rivals' market share (see Tirole, op. cit.). On the whole, theoretical analysis offers only partial guidance to anti-trust or competition policy.

What complicates matters most, however, is introducing dynamics. Then the optimality of competition policy has to be discussed within the context of the compatibility with the other objectives of industrial policy, an issue which we will develop below (see section I.4.3.).

I.4. Policy conflicts

In this section policy conflicts are discussed at the normative level but also in relation to the kind of policies implemented in practice given the usual political and institutional constraints. As we will see, policy conflicts are widespread because policies have multiple objectives and not only those that would be specified under optimality.

We will offer here a very broad overview, since later on we will focus on the conflicts that arise at the EC level given a) the (statutory) objectives of EC policies; b) the limited set of instruments available; and c) the EC decision making process.

I. 4.1. Trade and competition policy

Some of the conflicts that arise between trade and competition policies are straightforwardly identified from simple economic theory. First of all, the existence of multinational firms operating outside the jurisdiction of individual countries may weaken the effectiveness of competition policy. Secondly, the implementation of trade policy itself may result in market outcomes which jeopardize the objectives of competition policy. Apart from these theoretical contradictions, however, divergences in the implementation of competition policy have led to an increasing number of policy conflicts.

Consider first the case of firms (or the mergers of firms) which potentially enjoy market power beyond the reach of national jurisdictions. Clearly, unless competition policy is applied under the principle of extra-territoriality, a policy of open trade conflicts with the objectives of competition policy. Several cases are possible. For example, foreign firms might coordinate their sales in the domestic market, or they might merge with the resulting increase in the domestic market share. The domestic competition authorities need to apply competition law beyond their borders (or restrict trade) to limit the increase in market power.

Alternatively, the foreign firm might acquire a domestic rival that serves only the domestic market and enjoy a dominant position in that market with the cumulative share of exports and domestic production. In that instance, competition policy authorities in the two countries may disagree on their assessment of the impact of the merger since they are likely to take into account a different set of interests (see Neven and Siotis, 1993)[26].

Finally, in the two cases that we have considered we have focused on the impact on the domestic market, but clearly the assessment of the consequences of acquisitions or coordination in third (world) markets may also be relevant. Again disagreements on the extent of potential non-competitive behavior and diverging interests might lead to conflicting competition policies, which may result in trade restraints.

The second illustration of possible policy conflicts is related to the extent to which trade policies have an unwanted impact on domestic competition or are inconsistent with domestic competition policies.

Several conflicts may arise. First of all, it is well known both theoretically and empirically that foreign competition is a significant discipline in non-competitive domestic markets. Under a variety of market structures, it is easy to show that protection policies such a tariffs, quotas or VERs are likely to lead to an increase in the market power of the protected firms[27]. The empirical evidence on the importance of foreign competition to limit the exercise of market power is also abundant for exports markets in general and also for the EC[28].

Additionally, we have to consider the contradiction between laws relating to unfair trade practices and domestic competition policies. For example, the OECD has indicated that "in the enforcement of anti-dumping and countervail laws, different standards are applied to import pricing practices than if such practices were examined under competition

statutes" (see OECD, 1984). In a recent paper, Hoekman and Mavroidis (1994b) argue that allegations of dumping should be first investigated by competition authorities of the two countries involved. According to these authors, a pre-requisite of dumping would be either the existence of anti-competitive practices or government induced entry barriers in the exporter's home country, or the finding that the importing country's market is competitive, so that introducing trade restrictions could not be protecting oligopoly rents. The authors argue that the unavoidable discrepancies between the different competition authorities could be resolved within the framework of GATT. We will return to this issue when examining this conflict of policies at the EC level.

Finally, a third area of policy conflict relates to the implementation of competition policies that lead to trade distortions[29]. This includes the treatment of issues such as state-aids as well as divergences in the enforcement and nature of anti-trust rules (for example, anti-trust exemptions for export cartels or for distribution sectors that might restrict access to markets).

Note that this policy conflict is intimately linked to the sort of strategic industrial and trade policies discussed above. The key contentious point is the extent to which policies such as allowing oligopolistic coordination or granting subsidies improve the competitive position in third markets.

According to Hoekman and Mavroidis (1994) and Jackson (1992) at the international level policy conflicts in this domain can be at least partially handled with the current negotiating and dispute settlements procedures within the GATT.

1.4.2 Trade and industrial policy

In the realm of theory, trade and industrial policy should entail little conflict since the optimal trade policy is usually free trade, and industrial policy is aimed (as a first best) to a well defined set of market failures.

The conflicts that arise in this domain may be traced to the political economy of trade and industrial policies. That is, trade policy is often used to achieve industrial policy objectives. This is so because of the different public finances implications of both policies. Trade policy raises revenue while industrial policies usually lead to increased spending.

In general, one can also view trade (and industrial) policies as the results of lobbying competition between interest groups (Grossman and Helpman, 1993). In this respect, taxes or regulations on imports involve mostly foreign interest groups which are less well represented in the domestic political process and, therefore, less successful at preserving their interests and limit the use of discriminatory trade policy.

Conflicts arise to the extent that trade measures which might conflict with international trade agreements are used to achieve industrial policy goals. This happens usually when the policies are sectoral (whether aimed at facilitating adjustments or at promoting specific industries), and to a much lesser extent when they are broad-based policies (R&D tax credits, etc.). Support for strategic trade-industrial policy leads to a conflict with the objective of trade-barrier reduction which is the corner-stone of international trade agreements.

The issues at stake in these policy conflicts mirror those highlighted when discussing strategic trade policy. In fact, a well-known case of policy contradiction is the infant industry argument, which is currently perceived under a new light in part thanks to the theory of strategic trade.

As opposed to the simple rent-shifting argument behind the strategic trade policy considered above, the modern infant-industry argument takes into account that industry support might be worthwhile at the early stages of industry development because of the existence of learning by doing effects[30].

The traditional infant-industry argument has been based on the existence of market failures such as capital-market imperfections, informational barriers or production externalities. The consideration of learning by doing has usually reinforced the case for industry support if one assumes that governments can pre-commit to a specific policy course[31]. In that case, by supporting the industry at the initial stages, the domestic firms are able to move down the learning curve and beat their rivals in international markets. Similar results are obtained if the industry enjoys static economies of scale -the marginal cost curve is downward sloping- and the industry is protected (for example, through public procurement) at the beginning; or if the economies of scale are dynamic and achieved through investment in R&D (see Krugman, 1990).

The results of the dynamic strategic trade/industrial policy resemble those of the rent-shifting trade policy reviewed above. They provide an attractive depiction of some industrial markets and therefore they pose a more serious potential conflict between interventionist industrial policies and free trade. Nonetheless, they are subject to the same type of criticisms remarked above. In particular, the dangers of retaliation are quite significant since the targeted industries are likely to be objectives of industrial policy in several countries.

I.4.3 Industrial and competition policy

The conflict between industrial and competition policy is apparent even at the theoretical level and it is made even stronger because of the often ill-defined objectives of both policies.

As a first example, in theory competition policy might work against industrial policy in R&D intensive industries if it is the case that large or dominant firms are likely to invest more in R&D than small competitive firms. It is often argued that R&D investments by small firms may be thwarted by the high fixed costs involved. This, of course, will be

relevant if we assume that capital markets are imperfect. However, if we leave aside the issue of capital markets, it is not clear that the incentives to innovate are higher for a monopolist than for a perfectly competitive firm. Consider an innovation which reduces (constant) marginal costs. The monopolist stands to gain less than a competitive firm from such an innovation because of the well-known replacement effect (Arrow, 1962). In the absence of perfect price discrimination, the incremental gains from innovation are smaller for monopolists, because they already earn rents and restrict output before innovation.

Note, however, that comparing different market structures may not be the most useful approach. Alternatively, we could consider the possibility of entry. Then; the incentives of the monopolist change substantially and lead to a higher R&D effort because of a profit preservation effect which counteracts the replacement effect[32].

Research joint ventures (RJV) may be institutional forms that can suitably deal with the contradictions between static (and dynamic) efficiency and appropriability externalities. RJV allow small firms to undertake R&D investments which otherwise may be beyond their capabilities and may also avoid duplication of R&D. Additionally, RJV might increase R&D investment by way of internalizing at least part of the appropriability externalities[33]. It is often feared, however, that these gains in efficiency can be counteracted by strategic effects which work in the opposite direction. Competition could be reduced in R&D markets, and the same could happen in output markets. Nonetheless, recent work on this topic shows that cooperation both in R&D and the product market can lead to social welfare improvements. In the presence of substantial spillovers, R&D investments increase and, although output is reduced, the overall welfare effect is positive[34].

Finally, it is important to note that the conflicts between competition and industrial policy will tend to be widespread if the two policies reflect fundamentally different views

of policy makers on the impact of government intervention in economic performance[35] (i.e. if cooperation among firms and firm size are viewed as sources of competitive advantages in international markets). On the contrary, competition policy will be consistent with industrial policy objectives if competition among firms is perceived as a major force behind industrial competitiveness. However, even within such a free market approach industrial policy measures designed as responses to market failures will conflict with the competition policy objectives in strategic or structural adjustment sectors. Typical examples are exemptions from competition policy that allow firm coordination or state subsidies designed to phase down capacity in mature industries.

I.5. The optimal deployment of policies

Overall, theoretical analysis provides some clear principles which should guide the optimal deployment of trade, industrial and competition policies.

Despite recent advances in trade theory in imperfectly competitive markets, free trade appears to be the optimal trade policy in most instances, even if one neglects the political economy and the practical implementation difficulties of undertaking an interventionist strategy. Moreover, protectionist trade policies often contradict competition policy objectives by contributing to non-competitive conduct in domestic markets.

At the normative level, the case for an active industrial policy seems, however, more powerful. Theory shows, nonetheless, the stringent conditions that justify such an activism, pointing out the relevant market failures (i.e. the cases of imperfect sectoral adjustment, R&D investment). In many cases, moreover, theory indicates the second best nature of industrial policy relative to other more suitable interventions (i.e. labor market reform). Still in other instances, theory clarifies the conflicting tendencies at work

(as in the case of the incentives for R&D) thus orienting policy, but falling quite short of providing detailed guidelines.

Additionally, the political economy of industrial and trade policies implies that in practice industrial policy objectives are pursued by trade policy tools. This is, of course, a main source of conflict between industrial policy and the free trade objectives of trade policy.

Finally, competition policy has a clear objective: preserving competitive markets. Theory helps underlining the few exceptions to this rule. They arise precisely because of the complexities of industrial markets, specially from a dynamic viewpoint. A relaxation of competition policy may be used as an appropriate tool to guarantee the achievement of industrial policy objectives in industries where dynamic efficiency gains might outweigh short term static welfare losses arising from reduced competition. This is an example of the inherent tension between industrial and competition policies.

Part II. Trade and industrial policies in the EC.

The analysis of the consistency of trade and industrial policies in the EC requires a preliminary assessment of EC policy objectives and a discussion of the scope of Community and Member-State policies.

The determination of EC policy objectives is, in itself, a complex issue. At the Member-State level policy goals are determined through the political process. It is possible to think in terms of an aggregate social welfare function which policies attempt to maximize or, alternatively, in terms of the different constituencies that politicians attempt to satisfy in order to maximize the probability of reelection[36]. By contrast, EC economic and social objectives have a statutory nature and are more limited in scope than the usual economic policies. Conceptually, one cannot easily think of EC policy making in terms of maximizing a welfare function, and much less a probability of reelection.

Since the objectives and the scope of policies themselves are substantially limited by the EC statutes, the analysis of potential conflicts between policies requires a clear definition of the goals and instruments included in each policy category.

Finally, given the multinational nature of the Community, the coherence issue relates not only to policies, but also to the question of the level of government where decisions should be taken. Conflicts can arise between actions undertaken by administrations at different layers of government. This has always been an important issue in the Community, but it has become of paramount concern with the establishment of the subsidiarity principle in the EU Treaty.

A related question is that of the decision-making process. Whether it is the Commission or the European Council that adopts and approves policies (and whether the approval takes place with unanimity or qualified (or simple) majority within the Council) turns out to be significant, as this different procedures involve "de facto" that different sets of

interests are taken into account in policy implementation. Only in a few cases the distribution of competences among administrations and the decision-making process involve a federation-like institutional arrangement (see CEPR, 1993)[37].

Part II of this paper will start by briefly outlining the broad EC policy objectives that are embedded in the Treaties. Later on, we turn to a summarized description of each policy as defined in the Treaties and some European Council statements, focusing on the main instruments available, the assignment of competences and, when appropriate, the design of the decision-making process. Note, however, that we will not perform detailed individual policy assessments, since the focus of the paper is in the consistency of policies, to be appraised in part III below.

II. 1. The EC social and economic objectives

The EC has established as one of its main objectives the promotion of "balanced and sustainable social and economic progress" (art. B of the EU Treaty). The Community purports to achieve this broad objective fundamentally by means of three intermediate goals: a) the creation of an area without internal borders; b) strengthening social and economic cohesion and c) the establishment of economic and monetary union (EMU) (art. B of the EU Treaty).

The revised art. 2 of the Treaty provides a detailed description of what balanced and sustainable social and economic progress means. It includes the following: "a harmonious and balanced development of economic activities, sustainable and non-inflationary growth respecting the environment, a high degree of convergence of economic performance, a high level of employment and social protection, the raising of the standard of living and quality of life, and economic and social cohesion and solidarity among Member States".

Article G (b) of the EU Treaty, which revises article 3 of the Rome Treaty, includes a long list of policies which detail the three basic intermediate goals established in article B and which should be used to achieve the objectives of the Community. These policies range from the suppression of border duties to issues such as tourism, energy and civil protection.

Two broad issues have to be raised in terms of the general EC objectives and the deployment of policy tools.

First of all, in terms of the conventional distinction between the allocative and the distribution function of government (see Padoa Schioppa, 1987) it appears that both the drafters of the Rome and the EU Treaty considered that the role of the Community is to provide increased economic performance (an efficiency assignment) while achieving an appropriate territorial balance (a distributive role).

However, it is possible to argue that most of the detailed policies correspond to the intermediate goals of achieving the internal market and EMU, while little attention is paid to the strengthening of economic and social cohesion. Specific policies on this issue are absent and the only reference is included in article 3 (j) where the intermediate goal is simply reasserted. The article gives no further details on the means by which this general objective is to be achieved.

The specific Title in the Treaty that deals with social and economic cohesion (Title XIV) supplies more details. Apart from providing specific funding for this objective, art. 130b establishes that "the formulation and implementation of the Community's policies (...) shall take into account the objectives set out in art. 130a". That is, strengthening social and economic cohesion and, in particular, "reducing the disparities between the levels of development of the various regions".

As we will see, this provides a major source of inefficiencies in EC policy making, to the extent that this equity or redistribution mandate constraints the formulation of policies in all domains and gives rise to the inefficient use of policy instruments.

A second issue refers to a certain inconsistency between the intermediate goals by which the Community is to achieve its general objectives, and the set of policies at its disposal as established by the Treaties. Although article B indicates that the internal market and the EMU are the basic means to achieve the EU economic objectives, the list of policies in article 3, includes areas which are not mentioned in art. B and which have not been traditional Community policies in the past. In particular, this refers to art. 3(l) the strengthening of the competitiveness of industry, art. 3(m) the support of R&D and art. 3(n) the development of trans-european networks. We will return to this question when discussing industrial policies, since the debate on the scope of EC industrial policy is related to the potentially ambiguous status of this policy in the statutory determination of the EU general social and economic objectives.

II.2. EC trade policy: objectives, main instruments and implementation

The general objectives of EC trade policy are the harmonic development of world trade and the reduction of restrictions to international exchanges (art. 110 and also article 18). The EU Treaty also indicates that the common commercial policy should " take into account the advantages that the absence of internal barriers offers to EU firms " (art. 110). Arguably, this constitutes a statement which furnishes an additional rationale for the mandate of negotiated tariff reductions.

Nonetheless, a first thing to note is that the objectives of EC trade policy do not correspond to any of the main Community objectives established by the Treaty. The common commercial policy is mentioned in art. 3, but it is possible to argue that it is

considered as an EC policy to the extent that supports the accomplishment of the central intermediate goals of the Community (basically the internal market).

Nonetheless, the objective of liberalization of international exchanges has been achieved by the participation of the EC in the GATT and the successive negotiations of tariff reductions. Of course, critics of EC trade policy (see for example Winters (1993)) indicate that, from the very beginning, agriculture, steel and textiles were under a different -and substantially restrictive- trade regime. However, it is also clear that the willingness to decrease tariff protection has resulted in the progress experienced in the Uruguay Round where, for example, textiles are being progressively brought into the main GATT procedures.

It is nonetheless true that the EC has developed substantive instruments to take (arguably within the bounds of GATT) what is perceived abroad as a defensive attitude (see Tyson, 1992) in world trade. These instruments include basically Regulation 288/82 which allows quantitative restrictions[38], the anti dumping regulation (Regulation 2423/88); and the New Commercial Initiative, (Regulation 2641/84) which is an instrument designed to react promptly to foreign trade policy[39].

With regards to competences, commercial policy is an example of a policy where the Community is obliged to take action. Under some circumstances (for example the Common External Tariff) this implies an exclusive competence to the extent that Member-States have been deprived formally of their own competences. Nonetheless, this affects only some domains of commercial policy. Member-States have not been deprived of all their competences, particularly in the areas of trade instruments and bilateral international agreements, and in practice competences are shared[40].

The discussion of EC trade policy should therefore encompass also the trade policies of Member-States. Of course, as a substantive part of the internal market objectives, the Treaties establish significant limits on Member-States trade policies, aimed at

guaranteeing the maintenance of a free trade area and a uniform trade policy with respect to the rest of the world (arts. 3a and 113). However, the fact that Member States have not been formally deprived of all trade competences and the existence of a trade deflection provision in the Treaty (art.115 which allows the temporary introduction of quantitative restrictions to the movements of goods within the internal market), have meant that, at times, the independent trade policies of Member States have disrupted the uniformity of EC trade policy and the smooth functioning of the internal market . The possibility of these disruptive activities has been significantly reduced by the EU Treaty (arts. 190h-2b) (see CEC, 1993). We will return to this below (see section III.2).

In terms of the decision-making process, most of trade policy is carried out by the standard decision procedure within the Community: the Commission presents proposals to the Council, that takes decisions on the basis of majority vote. For a few cases, however, (antidumping cases and safeguard actions) the Council has delegated decision powers to the Commission , although even then the Council has the right to ultimately review the decision (see CEC, 1993) and therefore it is not a complete delegation of powers.

II.3. EC competition policy: objectives, main instruments and implementation

Competition policy has always been one of the corner-stones of EC policies. It was already included in the Rome Treaty (the current art. 3 (g)) and it has remained unchanged with the Single Act and the EU Treaty. If anything, competition policy has been strengthened, since the new art. 3a explicitly states that in pursuing the goals established in art. 2. "the activities of the Community shall include an economic policy which is conducted in accordance with the principle of free competition ".

The Treaty is not very explicit on the objectives that are assigned to competition policy, although from the relevant articles it appears that the legislators designed competition policy with the basic aim of maintaining a level playing field for all competitors within the single market. Competition policy includes a set of rules that deal with cooperation among firms that may distort competition (art. 85), behavior of firms that may constitute abuse of dominant position (art. 86) and state aids (art. 92 to 94). All of them, however, focus on the extent to which the behavior of firms or governments affects intra-EC trade. Actions that have an effect only within Member States or on third non-EC markets are not tackled by EC competition policy (more on this in section III.1).

The other important piece of EC competition legislation is the merger regulation (Regulation 4064/89). The objective of the regulation is to deal explicitly with all Community size mergers in order to make sure that they do not result in reduced effective competition at the EC level.

Competition policy is an area of policy explicitly assigned to the Community in the Treaty. Obviously this does not mean all competition policy, since non-competitive behavior that does not restrict intra-EC trade is left to Member States. Otherwise, however, the Community has the obligation to take action and in some cases it has an exclusive competence, since member States have been deprived of theirs. This is the case of the merger regulation, one of the few areas where the delegation of competences from the Member States to the Community has been made clear and formalized (as noted by CEPR, op. cit. page 26, this is an unresolved issue in other domains of policy)[41].

Finally, in terms of implementation, competition policy has been delegated to the Commission by the Council (Regulation 17, 1962), with the exception of state aids. This delegation is significant since it implies that the functioning of the Community on this matters comes close to that of a federation. State aids follow the standard procedures

(qualified majority voting by the Council on proposals presented by the Commission) according to the details laid down in article 94.

II.4. EC industrial policy: objectives, main instruments and implementation

From the point of view of the broad definition of industrial policy introduced in part I, EC industrial policy comprises some policies related to the completion of the internal market, R&D policies and sector specific policies.

EC internal market policies have, in general, a scope that goes beyond a strict definition of industrial policy. They comprise a complex set of measures that has as its main objective the removal of barriers to the movement of goods, persons, services and capital as established in the art. 7A of the Treaty. For example, internal market policies include actions in services such as banking. For the purpose of this paper, only internal market measures related to public procurement, normalization and intellectual property will be considered as part of industrial policy.

R&D policies are, in principle, horizontal measures that aim to support collaborative research and technology development among EC countries and firms. It could be argued, however, that to the extent that these technologies affect a few specific sectors, we are really confronting sectoral policies of positive adjustment for high technology industries (see for example the Council Resolution which deals with electronics, information technology, and biotechnology (CEC, 1991)).

Finally, sectoral policies refer to actions regarding mature industries such as steel, automobiles or textiles, where governments intervene to prevent market disruptions and to encourage a particular adjustment to changed market (or technological) circumstances.

Historically, Community competences on industry have been constraint to measures related to the internal market, domain in which the Community has to take action as mandated by the Rome Treaty. Competences have been quite limited with regard to specific sectors except for steel, where the CSCA Treaty equips the Community with ample competences. In this industry the Community is obliged to take action and the competences are exclusive to the extent that certain actions by Member States are ruled out.

The rest of the industries, and in particular high-tech industries, where dealt with Member State's industrial policies. Nevertheless, some Community programs for advanced technologies were already started at the beginning of the eighties (ESPRIT, BRITE, BAP)[42]. Similarly, intervention in other industries such as textiles and clothing, shipbuilding, and automobiles has been substantial, as the Community has attempted to coordinate Member-State sectoral adjustment policies .

As we discussed earlier, the Treaty of the European Union has further extended the competences of the Community in what we define as industrial policy. With the European Single Act, R&D policy was already brought into the realm of the competences of the Community (the current articles 130f-130p). R&D has been explicitly mentioned in art. 3(j) of the EU Treaty.

Similarly, the Treaty states unambiguously that the activities of the Communities "shall include (..) the strengthening of the competitiveness of Community industry" (art. 3(l)). In fact, art. 130 in the new Title XIII devoted to industry endorses the view of industrial policy advanced in earlier Commission documents and Council Resolutions (CEC, 1990; CEC, 1991). This policy standpoint has also been developed in the White Book on Growth and Unemployment (CEC, 1993) and in what is known as the Bangemann communication (CEC, 1994b).

From these policy statements we may conclude that the Community's approach to industrial policy is based upon an active policy of positive adjustment that attempts to avoid defensive strategies by industries in difficulty. This policy is to be pursued in a context characterized by competitive markets, both within and outside the Community. The competitive domestic environment is to be supplied by an adequate competition policy (with special care of mergers and state aid) and the strengthening of the internal market measures. Internationally, by an open trade policy.

Community statements also emphasize that industrial policy has to be deployed within an overall framework of policy that favors industry but is compatible with social and environmental goals. No explicit reference is made, however, to the need of maintaining economic cohesion throughout the EC when implementing these policies. This can be inferred, however, from the general objectives of community policy.

This approach to industrial policy includes some substantive industrial policy measures, as outlined above (internal market, R&D policy and sectoral policies), as well as a set of accompanying policies. Some of the later clearly fall outside the sphere of industrial policy, and relate to issues such as education, human resources and business services. In a sense this is a set of general infrastructure policy measures which may favor industrial competitiveness (as would be the case with the general tax policy).

Another set of accompanying policies may be closer to what is usually understood as industrial policy. This refers to SME support and the development of trans-european networks. We will, however, not be including these policies in our discussion either, since they are horizontal policies which can effect non-industrial business.

Through article 130, the EU Treaty opens the door to specific industrial policy measures by the Community in the attempt to strengthen the competitiveness of European industry. But it requires that these initiatives be adopted unanimously by the

Council. In the absence of specific measures approved by the Council with this procedure, the new Community industrial policy buttressed by the EU Treaty is limited to: a) the coordination of individual Member State policies; and b) the fact that the Commission is instructed to take industrial policy objectives into account when implementing other policies.

Nonetheless, the other areas of industrial policy have been rather active in recent years. Public procurement and standardization are not explicitly mentioned in the Treaties but both have come to be regarded as key aspects in building the internal market and in the Community policy designed to foster industrial competitiveness (CEC, 1990).

In public procurement this has led to several directives which should open up public contracts to all Member States on an equal footing and in all industries and services including previously excluded sectors such as telecommunications (Directives 93/4, 93/36, 93/37, 93/38). In standardization, the new approach based on mutual recognition was started by the Single Market initiative and has continued to be promoted by the Commission (for ex. the Council Resolution of 9/7/92). Of course the promotion of industrial policy through internal market measures has been facilitated by the fact that this is a domain where the Community has the obligation to act and where decisions are adopted by the Council by qualified majority voting.

Art. 130f of the EU Treaty clearly indicates that the objective of the Community R&D policies is to strengthen the scientific and technological bases of Community industry. This objective is to be achieved by the Community complementing the activities of Member States in a) the promotion of cooperation with and between undertakings, research centers and universities; b) the promotion of cooperation with third countries and international organizations; c) the dissemination and optimization of the results of activities; and d) the stimulation of training and mobility of researchers.

Community R&D policy is to be implemented by means of Multiannual framework programs, that coordinate the different domains of EC activity on R&D support. The multiannual program is adopted by the Council by unanimity (art. 130o), and specific programs within this general framework are approved by qualified majority (art. 130i).

As for sectoral policies, recent statements on industrial policy indicate the desire of the EC to avoid interventionist industry-specific policies that might prevent the positive adjustment of industrial sectors (see CEC, 1990).

In the past, Community adjustment policies have attempted to coordinate the intervention of national industrial policies, to the extent that these interventions could affect negatively the internal market objectives. The results have shown divergent degrees of success since the powers of the Community to intervene differ substantially across industries (see Geroski, 1989; and the literature cited therein). As we will discuss in the next section, the control of state aids constitutes a key area of Community policy to intervene in industrial markets. Additionally, for statutory and political reasons trade policy has been used to achieve industrial policy targets.

Part III. Coherence and conflict in EC policies

The conflicts between the different Community policies reviewed in the previous section may have several different roots. First of all, some of the conflicts are inherent to the very nature of the policies and modern industrial markets, and have been highlighted in section I of this paper. An obvious example is the contradiction between industrial and competition policy in terms of the efficiency gains associated with increased firm size.

A second source of conflict is the statutory nature of policies within the EC. The aims of policies are usually defined by the fundamental regulations and, furthermore, other policy tools that might be available at the Member State level are absent at the EC level. A clear example is state aid policy, where the EC treaties allow several objectives to be considered apart from the pure internal market objective of leveling the playing field. To the extent that the additional objectives involve the strengthening of economic cohesion, it is possible to argue that this multiplicity of objectives is the result of a weak cohesion policy.

A third reason for conflict has to do with the fact that the policies involved are sometimes defined and implemented at different levels of the administration. This explains, for example, the contradictions between EC competition or trade policy and national industrial policies.

Finally, an ultimate source of conflict arises from the differences between the nature of the integration process that is taking place within the EC, as compared to the international integration process. As we will see, this translates into a conflict between the trade policy of the Community and both competition and industrial policies.

III.1. Trade and competition policy

As emphasized in the general discussion of policy conflicts (see section I.3), three categories of policy conflict arise between trade and competition policies. All of them have become substantial policy issues at the EC level.

The first conflict refers to the question of the impact on world markets of the activities of conglomerates outside the jurisdiction of anti-trust authorities of the different trading world mark partners. From the point of view of EC policy, Jacquemin (1993, page 94) points out that this issue involves not only the impact of "external actors and practices on the domestic European market", but also "the problem of the conduct of European actors in foreign markets".

According to Jacquemin, an analysis of the application of article 85 and the EC merger regulation shows a "trend towards rejection of strict territoriality". The EC merger regulation takes into account the impact of foreign actors on the EC economy both when assessing market dominance (the case of market definition, for ex. in the de Havilland acquisition) as well as when determining whether non-EC mergers affect the EC market through the European based subsidiaries of the merging companies. Similarly, art. 85(1) has been applied to non-EC companies selling in the Community. In both cases, "jurisdiction is grounded on the territoriality principle while there is an extra-territoriality principle in terms of enforcement".

In terms of the conduct of EC firms (or governments) in foreign markets, the provisions of EC competition policy imply that competition policy cannot interfere when agreements or concentrations affect third markets, since European competition policy is geared at prohibiting decisions "which may affect trade between Member Countries and which have as their object or effect the prevention, restriction or distortion of competition within the common market "(art. 85).

However, this question should not be considered independently of a second source of conflict between trade and competition policy. Commercial and competition policy may clash as the result of conflicting anti-trust practices between trading partners. EC competition policy does not interfere in the actions of European firms and governments in third markets, but is aware of the problem, which is tackled together with the impact on the EC market of anti-trust and competition policy practices abroad. To this regard, Article 24 of the EC Merger Regulation establishes a reciprocity clause which implies that the EC expects from its trading partners a merger policy treatment "comparable to that granted by the Community to undertakings" from non-member countries. According to Jacquemin (op.cit.) this implies that the EC should establish negotiation with trading partners whenever mergers of EC firms are blocked abroad not on the basis of actual and potential competition, but on other criteria such as industrial policy[43].

This is nothing but one instance of the more general issue of conflicting competition policy practices and stances among trading nations. The EU-US agreement on this issue is an important step in the process of convergence of criteria between policies and practices. As we already pointed out it has been proposed that this question be addressed at the Gatt level (see Hoekman and Mavroidis, 1994). However, it is likely to remain unresolved as it involves a much deeper integration between countries than the one that seems to be currently feasible. As Jacquemin puts it, the integration required goes beyond the "national treatment" principle. To take into account the mutual interests of the trading partners in anti-trust procedures as contemplated in the EU-US agreement, implies an advance in the integration process along the mutual recognition lines, which requires a much deeper sense of trust between countries (Woolcock, 1993). This, at most, can be found between some of the industrialized nations and that is why bilateral treaties are possibly a feasible way to proceed.

The third policy contradiction refers to the extent to which some trade measures may counteract competition policy objectives. The application of anti-dumping policy is possibly the clearest case, but the impact of VER is also worth mentioning. For example, Winters (1992) has shown that VER on footwear in Europe led to reduced competitive pressures and higher prices by the domestic incumbents.

According to some researchers, one of the problems with anti-dumping rules is that they are based on the impact of dumped imports on the domestic industry (the concept of injury), disregarding whether the industry enjoys oligopoly rents and therefore neglecting the pro-competitive effect of imports (see Nicolaides and Van Wijngaarden, 1993). In fact, Nicolaides and Van Wijngaarden (op. cit. table 2) quote official figures that indicate that for many of the EC anti-dumping cases between 1988-1991, dumping margins where lower than the extent of price undercutting of local firms. This would clearly show that in many cases the foreign firms would be able to establish lower prices than domestic firms without having to dump their products in the EC market.

A detailed analysis of the competitive consequences of anti-dumping policies has been conducted by Patrick Messerlin (1990). This author studied two anti-cartel actions where the companies involved had previously benefited from anti-dumping decisions. The author argued that EC firms used anti-dumping law as a means of obtaining a *de facto* exemption from EC competition law. Messerlin showed that anti-dumping actions where crucial to the survival of the cartels and, moreover, according to his analysis the cartels captured the anti-dumping procedures, both in terms of the definition of the extent of damage and the duration of the penalties.

III.2. Trade and industrial policy

Trade and industrial policies in the EC have conflicted to the extent that the absence of a coordinated industrial policy and different levels of decision have resulted in the use of trade policy to achieve industrial policy objectives. This has two aspects. The first is the use of trade policy to undertake sectoral (fundamentally adjustment) policies. The second area of conflict is the extent to which the goal of the internal market, which is a key dimension of the industrial policy of the Community, conflicts with the external trade relations.

A third related issue is the way in which the Community is proceeding through integration, and whether it conflicts with the broader objective of multilateral integration. That is, the question of regionalism vs. multilateralism.

The sectoral use of trade instruments has been highlighted and investigated by many analysts of EC trade policy. For example, Winters (1993b) points out that restrictive trade policy has tended to gain ground in industries with weak performance in terms of the world market share of EC producers (mechanical engineering, consumer electronics, machinery, household appliances and motor vehicles). Tyson (1992) stresses also the role of trade and investment policy to promote high technology industries (in particular electronics), by way of discouraging imports using anti-dumping regulations and promoting inward investment by means of local-content requirements[44].

Trade policy has been used at the EC level as a substitute for an absent industrial policy. In so doing it has not fulfilled its statutory objectives, which should lead to the development of freer trade. Moreover, it has not fulfilled either the industrial policy objectives, since it has not promoted a positive adjustment to changed market conditions and an increasingly competitive environment.

However, even the more competition oriented policy makers within the EC have argued that trade policy has basically reacted to unfair international competition, and that, in that respect, it has fulfilled its aim (see for ex. Brittan, 1994). This refers to policies such as anti-dumping, although it is precisely this policy which has been more widely criticized. According to many analysts the design of the anti-dumping process in the EC is severely flawed . In a detailed research Hindley (1988) shows that the methodology prescribed by EC Council Regulations 2176/84 and 2423/88 is strongly biased against exporters. It relies upon the computation of ex-factory prices where the deductible expenses differ between the domestic and the foreign market. Additionally when investigations cannot rely upon actual prices, constructed prices are based upon unrealistically high rates of return for domestic sales.

Criticism of the EC anti-dumping procedures are, indeed, widespread. As we saw, some authors argue that it is based on the extent of injury to the domestic firm, not on the relative efficiency of firms (Nicolaides and Van Wijngaarden 1993). Others complain that the impact on consumers is not taken into consideration (Winters 1992); that the policy punishes not only the offending firm but also other exporters (Tyson, 1992) and, finally, that it is not perceived as a transparent regulation by trading partners (Tyson, op. cit.).

In high technology industries anti-dumping could, however, be justified from a trade policy (and an industrial policy) viewpoint as a retaliatory move to foreign subsidies. But again, the design of the antidumping regulations does not seem to support this view.

Finally, it is possible to defend policies such as VER or safeguard actions as sectoral adjustment policies on the grounds that the private market adjusts inefficiently slowly to changed market conditions because of market imperfections (section I.2.1). However EC industries that have been protected by VER do not seem to have adjusted successfully (see Winters (1992) in footwear, and de Melo and Messerlin (1988) and Smith and

Venables (1990) in automobiles). This would cast doubt on the efficacy of such a trade policy to achieve the adjustment objective.

A second source of conflict relates to the introduction of protectionist rules in order to preserve the internal market (see Jacquemin and Sapir (1991b)). As a result of the action of domestic pressure groups, some Member States have rejected the acceptance of some imports and preserving the internal market has resulted in an overall trade restriction. O'Cleireacain (1990) and Winters (1993) provide a detailed discussion of the extent to which these internal market breakdowns have continued despite successive drives to complete the internal market.

Winters (1993) has gone even further and argued that "an organization designed to promote mutual market penetration and whose yard-stick is *integration* is particularly prone to such protectionist pressures" particularly if policy-makers "persuade themselves that competition from other EC members is a substitute for that from outside the Community", which is not the case (see Jacquemin and Sapir (1991)). It is not clear the extent to which Winters substantiates this point. The political economy of protection within a customs union (see de Melo and Panagariya , (1993)) provides arguments that may explain the pressure towards more protection, but also a tendency to a more liberal stance. The asymmetry of preferences between the countries conforming the Union may lead to higher demands for protection, as some countries are obliged to accept the protection of some of their partners' industries. However, pooling trade policy may also lead to preference dilution and allow national governments to resist lobbying which on a purely national level might well be successful.

The question of translating Member State protection to EC-wide restrictions is, of course, not unrelated to the possible contradiction between the integration within Europe and the integration of Europe with the rest of the world.

Woolcock (1993) discusses the extent to which the "acquis communautaire" is compatible with multilateral trade rules. This author reviews the areas of technical standards, public procurement and services-investment. He argues that, on the whole, the integration process within Europe has reinforced the multilateral negotiations. For example, this has been rather clear in the issue of public procurement. However, the basis for integration within Europe has increasingly shifted to mutual recognition and departed from the national treatment approach prevalent in multilateral negotiations[45]. Since these are two fundamentally different procedures to achieve integration, the question arises as to whether they will tend to be compatible in the future. Mutual recognition requires a deep mutual understanding and substantial trust among the countries involved (see Jones, 1993). This is likely to be achieved within some regions in the world, particularly in industrial countries. And the question is whether these advancements will favor or not further integration, with other areas. As discussed previously with respect to the anti-trust policies, there is a risk that the use of reciprocity provisions render these advancements incompatible with the multilateral liberalization process, but bilateral agreements between trading blocks appear to be feasible steps in the right direction.

III.3. Industrial and competition policy

There are three broad areas of conflict between competition and industrial policy within the European Community. The first refers to the consideration of industrial policy objectives when implementing competition regulations, in particular with regards to mergers. The second has to do with the possible conflicts between Member State aid policies as an instrument of industrial support and the competition rules established in art. 92 of the Treaty. Finally, a third domain of conflict has to do with the cooperation of firms in R&D intensive industries, and the competitive concerns that this may raise.

According to Jacquemin and Sapir (1991), the fact that the merger regulation looks at the impact of mergers on effective competition, implies that the "efficiency defense" is not explicitly taken into account and this reduces the danger of mixing competition and industrial policy.

This view is only partially shared by the analysis in Neven et al. (1993). According to these authors, most observers agree that the regulation excludes an efficiency defense of mergers, despite the fact that article 2 refers to the "development of technical and economic progress provided that it is to consumers' advantage and that does not form an obstacle to competition". However Neven et al. (op. cit.) conclude that a close analysis of merger decisions indicates that quite often efficiency criteria have been used in the procedures.

From a general competition point of view, some authors have argued that competition policy may have been applied to different industries to a divergent extent (Holmes and Smith, 1994) as a substitute for industrial policy. This is clearly a misuse of the competition policy instrument in relation to arts. 85 and 86. If the differences relate to state aid, then one could argue that the policies may be consistent provided that it can be shown that granting state-aid was justified as a positive policy of sectoral adjustment (as defined in I.2.1).

The Community distinguishes between horizontal aid, regional aid and sectoral aid. We are mainly interested in sectoral aid, although horizontal aid includes public enterprises and the so-called rescue and restructuring aid, which could also adversely distort competition. Horizontal aid and regional aid are not considered here, since they are not sector or firm-specific. However, (horizontal) R&D aid will be discussed below since this is an example of the use of competition policy to achieve an industrial policy objective.

In general terms, sectoral state aids originate a contradiction between competition and other EC policies to the extent that overall EC objectives other than those pursued by competition policy (i.e. leveling the playing ground within the common market) are taking into consideration when appraising state support for industries. For example, when the Commission ties the aid to industries to cohesion objectives (see CEC, 1994), it risks generating inefficient intervention unless the support is also related to positive geographical externalities.

Community guidelines (for example, in motor vehicles) indicate that sectoral aid can be granted if the aid benefits regional development exceeding "possible adverse effects on the sector as a whole" (CEC, 1991); if "it relates to fundamental rationalization beyond the firm's capacity to finance (...) or to products or processes which are genuine innovations from the Community standpoint". Even "rescue and restructuring aid" may be allowed if there is "a Community interest in keeping the firm in business".

These guidelines follow statutory prescriptions. Art. 92 3 (c) reads that "aid to facilitate the development of certain economic activities or certain economic areas" may be considered compatible with the common market "where such aid does not adversely affect trading conditions to an extent contrary to the common interest". But since they incorporate cohesion and industrial policy objectives into the decision criteria they do not provide effective tools to curb state subsidies and to set a level playing field for EC competitors. The Treaty recognizes that the aid distorts the common market, but the failure to define "the common interest" may mean that aid will be disbursed to those interest groups with the more powerful pleas [46]. As an alternative, it would be more efficient to strictly eliminate sectoral aid and grant general purpose (training, infrastructure) support linked not only to the level of development but also to the evolution of indicators such as unemployment, which measure the extent of the local adverse impact of the process of integration.

In fact, the variety of statutory arguments for defending state aid has seriously hampered the efforts to curb state subsidies. The conditions to grant aid should be flexible with regards to general aid and very stringent at the sectoral level.

The Commission's view on aid granted to investment in R&D is also very lenient[47]. Some analysts consider that this lax competition policy is consistent to the extent that the internalization of externalities at the EC level may be forwarded by a coordinated subsidy policy. Sharp (1991) argues that there is a creative tension between the cooperation induced by R&D policies (i.e. in relaxing state aid) and the pro-competition deregulatory forces also set in motion by the internal and external competition that is predicated as a basis of EC industrial policy. A our discussion of trade policy reveals, however, the external pressures sometimes are not all that strong. Some authors want to go even further. N'guyen and Owen (1992) clearly favor a much more active EC policy in technology on the basis of the aforementioned externalities despite the fact that the theoretical basis for intervention on this issue are not very conclusive (see section I and Ulph (1991))

A related issue is the question of competition policy versus cooperation between firms in R&D intensive industries. It is possible to argue that the block exemption to art. 85 granted for pre-competitive R&D is undermining competition policy to the extent that is fostering product market coordination and not changing basically the incentives to invest in R&D of private firms. In fact, critics such as Tyson (op. cit.) have seen in this exemption a consistent policy of industrial promotion which uses R&D subsidies together with the instruments of trade and foreign direct investment policy.

Attempts to allow more coordination at the competitive stage on the grounds that Europe fails at adopting innovations should probably be resisted since this would substantially change the likelihood of diminished pressures in the product market given the EC practice on trade policy reviewed in III.2. That is, stronger coordination should

only be allowed if it were guaranteed that the full rigors of international competition would be felt.

CONCLUSIONS

EC Treaties restrict the use of EC policies to the achievement of a pre-established set of objectives and limit also the ability of the EC to act in some areas. Trade and competition policies have well defined priority objectives: the preservation and encouragement respectively of external and internal competition. But they have to fulfill other competing goals, notably in terms of cohesion and/or industrial competitiveness.

One could argue that these multiplicity of objectives is the result of the limited competences available to the Community. This could reflect a belief that the direct instruments available (structural and cohesion funds) are insufficient for the task assigned to them and that, as a consequence, policies aimed at securing a competitive and integrated market should be tempered by the contradictory goal of maintaining social cohesion. Alternatively, it could be that achieving one goal supports the attainment of the other. For example, the belief that industrial strength is better achieved through vigorous domestic competition and the full exposure to foreign competitors.

The nature of the conflict between trade/competition policies and cohesion policy is clear. Imposing the cohesion restriction might lead to the choice of non-optimal policies in trade and competition, protecting or subsidizing a particular industry on the grounds of cohesion. Nevertheless, the optimality of the free market adjustment can also be disputed. In the presence of market imperfections (for example, imperfect foresight) and/or externalities (geographically based pecuniary externalities), adjustment support could be justified on efficiency grounds, without having to resort to distributive considerations which are best left to strict redistribution (cohesion) policies.

However, the difficulty in assessing the extent of those market imperfections and externalities should lead to a cautious policy stance. One that grants support which is limited over time and on the basis of verifiable steps towards adjustment. The policy of

the EC on state aids shares in some cases this spirit, but this happens to a much lesser extent in trade policy.

The second main source of policy inconsistency arises between trade/competition policies and the industrial policy of Member States. Although the Community policy is based upon the central idea that the best industrial policy is the promotion of an environment of competition with a large internal market and external pressure, actual policy at the EC and the Member State level has departed from this rule. In some cases, economic theory itself has cast doubt on this principle. In others, policy practice has not followed the statutory objectives.

The theoretical results have influenced the relaxation of EC competition policy with regards to R&D subsidies and R&D cooperation. Even in mergers, policy practice has led to consideration of the efficiency defense. Arguably, this need not be the best policy for R&D. Softening competition policy need not be the optimal reaction to the externalities involved. A better alternative might be to adopt a policy mix that combines stricter competition control with some centralization of technology policies (along the lines of what is argued below for the rest of industrial policy).

Policy practice has departed from the statutory objective in the case of trade not as much as the result of inconclusive theory but of the political economy of EC trade and industrial policies. Indeed, there is a danger that strategic trade theory and other theoretical developments might be used to support protectionist positions. Since this theory is not very conclusive and its optimal implementation is contingent upon many unknown parameters, it seems convenient to design trade policy instruments to avoid its capture by the interested parties. An effort should be made to restrict trade instruments to their proper use under Treaty objectives, and not to use them as instruments of industrial policy. But then, this begs the question of how might these industrial policy objectives be achieved.

Industrial policy is in fact a conflictive area itself, quite apart from its interaction with other policies. Aside from the potential disagreements on the extent of intervention in a centralized nation-state, there is the question of the conflict not between policies at the EC level, but between the policies of different administrations. This is of course very much a political economy issue, tied to the question of subsidiarity and the decision-making process within the EC.

Two basic alternatives are available. The first is to strengthen significantly the decisions in the area of internal market (state subsidies, procurement, national quantitative restrictions). This would be consistent with competition and industrial policy. However, it would be strongly opposed by powerful Member States interest groups which could easily find cohesion arguments to support their case. The institutional process by which decisions are taken at the EC prevents at this time the successful adoption of this course of action.

Note, moreover, that further strengthening this integration process need not imply a deterioration of the relations with the rest of the world. Negotiations with third parties would continue on the basis of national treatment, but the EC could present a more homogeneous position. In fact with areas such as the non-EC countries of the OECD a more homogeneous EC policy could make it easier to proceed further, and advance into integration on the basis of EC-style mutual recognition.

The second alternative argues that more centralization is needed in industrial policy. In several industries (whether they are mature industries like automobiles or sunrise industries like telecommunications) Member States governments intervene (through public procurement, state aid, procrastinating in transposing legislation) to favor the national competitors. In mature industries we confront an exit game with a non-cooperative outcome which is significantly inefficient. In rising industries the subsidizing of entry leads often to a similar result.

Of course given the institutional nature of the EC and the fact that Member States retain most of their sovereignty and governments are responsible to national electorates, it is not reasonable to expect a non-intervention, free market outcome. And, arguably, the approximation of such an outcome by means of the strong integration policy advocated above need not be adequate. Simply curbing further state aid will not do the trick since state aid will be assigned mostly as a reaction to the pressure of interest groups and political constituencies.

A more centralized system of industrial policy (with an adequate assignment of competences and a proper design of voting system) is therefore justified in terms of efficiency. It could be the appropriate way to break the current deadlock, where Member States interference is leading to inefficient outcomes in many industrial markets, and promote the positive adjustment that -in principle- EC industrial policy attempts to achieve.

Of course favoring and focusing on the achievement of an efficient economic outcome might have its costs in terms of redistribution. To that extent such an industrial policy needs to be complemented by cohesion policy measures which should automatically compensate the losers (through infrastructure and training investment) depending upon the geographical impact of the rationalization that would take place.

Finally, note that centralization of this policy is clearly superior to coordination[48], given the lack of credibility of the cooperation and the imprecise nature of industrial policy, which makes it harder that the parties stick to the negotiated agreements. Moreover, undertaking a more active industrial policy would be consistent with the new emphasis given to industrial policy by the EU Treaty. The new article 3(l) recognizes that the activities of the Community shall include "the strengthening of Community industry", and the new Title on industry and its art. 130 provide that, with unanimity, the Council may decide "specific measures in support of action taken in the Member States" to

achieve the objectives of industrial policy, and among them, "speeding up the adjustment of industry to structural changes". The Community has therefore the instruments to act in a policy area which has thus far enjoyed an uncertain status, but which might be crucial to achieve a more efficient deployment of Community policies.

References

Anderson, J.E. (1994) "The Theory of Protection" in D. Greenaway and L. A. Winters (eds.) *Surveys in international trade* . London: Basil Blackwell.

Arrow, K. (1962) "Economic Welfare and the Allocation of Resources for Inventions" in *The Rate and Direction of Inventive Activity* , ed. R. Nelson. Princeton University Press.

d'Aspremont, C. and A. Jacquemin (1988) "Cooperative and Noncooperative R&D in Duopoly with Spillovers" *American Economic Review* 78, No. 5, December, pp. 1133-1137.

Barros, P. and L. Cabral (1994) "Merger Policy in Open Economies" *European Economic Review* 38, pp. 1041-1055.

Bhagwati, J. (1971) " The Generalized Theory of Distortions and Welfare" in *Trade, Balance of Payments and Growth: Papers in International Economics in Honor of Charles P. Kindleberger*, ed. by J. Bhagwati et al. North Holland Publishing Co.

Bourgeois, J.H.J. and P. Demaret (1994) "The working of the three common policies: a legal analysis", Paper presented at the conference: E.C. Policies on competition, industry and trade" Louvain-la Neuve, 27-28 October 1994.

Brander, J. and B. Spencer (1983) "International R&D Rivalry and Industrial Strategy" in *Review of Economic Studies*, 50, pp. 707-22.

Brander, J. and B. Spencer (1994) "Trade Adjustment Assistance" in *Journal of International Economics*, 36, pp. 239-61.

Brecher, R. (1974) "Optimal Commercial Policy for a Minimum-Wage Economy", *Journal of International Economics*, 4, pp. 139-49.

Brittan, L. (1994) *Europe. The Europe we need*. Hamish Hamilton, London.

Caves, R. (1987) "Industrial Policy and Trade Policy: The Connections" in Kierzkowski (ed.) *Protection and Competition in International Trade*, Basil Blackwell.

CEPR (1993) *Making sense of subsidiarity: How Much Centralization for Europe ?*, Monitoring European Integration 4, London.

Cohen, W. and R.Levin (1989) "Empirical Studies of Innovation and Market Structure" in Schmalensee and Willig, eds. *Handbook of Industrial Organization*, vol. 2. North Holland.

Commission of the EC (1990) "Industrial Policy in an Open and Competitive Environment" Com (90) 556, 16 November 1990.

Commission of the EC (1991) "The European Electronics and Information Technology Industry: State of play, issues at stake and Proposals for Action", 3 April 1991.

Commission of the EC (1993) " A concise overview of the EC Trade Policy" in The European Community as a World Trade Partner, *European Economy* 52.

Commission of the EC (1993b) *White Paper on Growth and Employment*. Luxembourg.

Commission of the EC (1994) "State aid control in the context of other community policies" *European Economy*, Supplement 4, Recent Economic Trends n°4 April.

Commission of the EC (1994b) "An Industrial Competitiveness Policy for the European Union" Communication from the European Commission to the Council, Com (94) 319 final, 14.09.94.

Diamond, P. A. (1982) "Protection, Trade Adjustment Assistance and Income Distribution" in J. Baghwati (ed.) *Import competition and response*, Chicago: University of Chicago Press.

Dixit, A. (1987) "Strategic Aspects of Trade Policy" in T. Bewley (ed.) *Advances in Economic Theory: Fifth World Congress* , New York: Cambridge Univ. Press, 329-62.

Dixit, A. and G. Grossman (1986) "Targeted Export Promotion with Several Oligopolistic Industries" *Journal of International Economics*, 21, pages 233:50.

Eaton, J. and G.M. Grossman (1985) "Tariff as insurance: optimal commercial policy when domestic markets are incomplete" in *Canadian Journal of Economics*, XVIII, no. 2 May. pp. 258-272.

Eaton, J. and G.M. Grossman (1986) "Optimal Trade and Industrial Policy under Oligopoly" *Quarterly Journal of Economics*, May (2) : 383-406.

Flam, H. (1994) "EC members fighting about surplus. VERs FDI and Japanese cars" in *Journal of International Economics* 36, pp. 117-31.

Geroski, Paul (1989) "European Industrial Policy and Industrial Policy in Europe" *Oxford Review of Economic Policy*.

Grossman, G. and E. Helpman (1993) "Protection for Sale" CEPR Discussion Paper No., 827. June.

Helpman, E. and P. Krugman (1985) *Market Structure and Foreign Trade*, Cambridge: MIT Press.

Helpman, E. and P. Krugman (1989) *Trade Policy and Market Structure*, Cambridge: MIT Press.

Hindley, B. (1988) "Dumping and Far East Trade of the EC" *The World Economy* , vol 11 (4) 445-463

Hoekman, B.M. and P.C. Mavroidis (1994) "Competition, competition policy and the GATT" *The World Economy*, vol.17, #2, march.

Hoekman, B.M. and P.C. Mavroidis (1994b) "Antitrust-based Remedies and Dumping in International Trade" Policy Research Working Paper 1347, World Bank, August.

Holmes, P and A. Smith (1994) "The coherence of EC policies in trade, competition and industry: Car industry case study", Paper presented at the conference: E.C. Policies on competition, industry and trade" Louvain-la Neuve, 27-28 October 1994.

Horstman, I. and J. Markusen (1986) "Up the average cost curve: inefficient entry and the new protectionism", *Journal of International Economics*, 20, pp.225-47.

Jackson, J. (1992) "Statement on Competition and Trade Policy" *Journal of World Trade*, 26 (October), 111-116.

Jacquemin, A. and A. Sapir (1991) " Competition and imports in the European market" in Winters and Venables, (eds.) *European Integration: Trade and Industry*, Cambridge U. Press, CEPR, London.

Jacquemin, A. and A. Sapir (1991b) " Europe post-1992: Internal and External Liberalization" in *American Economic Review, Papers and Proceedings*, vol 81, n° 2. pp. 166-170.

Jacquemin, A. (1993) "The International Dimension of European Competition Policy" *Journal of Common Market Studies*, vol 31, #1, March.

Jacquemin, A. et al. (1989) "Horizontal Mergers and Competition Policy in the European Community" in *European Economy* , vol. 40.

Jones, R. (1993) Comment to "Regionalism versus multilateralism: analytical notes" by P. Krugman in De Melo, J. and A. Panagariya (1993) (ed.) *New Dimensions in Regional Integration*, Cambridge U. P., CEPR, London.

Krishna, K. and M. Thursby (1991) " Optimal policies with strategic distortions" in *Journal of International Economics*, 31, pp. 291-308.

Krugman, P. (1990) *Rethinking International Trade*, Cambridge: MIT Press.

Krugman, P. and A. Smith (eds.) (1994) *Empirical Studies of Strategic Trade Policy*, NBER/CEPR Chicago U. Press.

Krugman, P. and M. Obstfeld (1992) *International Economics. Theory and practice*.

Laussel, D. and C. Montet (1994) "Strategic Trade Policies" in *Surveys in international trade* (ed.) D. Greenaway and L. A. Winters. London: Basil Blackwell.

Leahy, D. and J.P. Neary (1994) "Learning-by-doing, pre-commitment and infant industry protection" CEPR Discussion Paper No. 980, July.

Lehner,S and R.Meiklejohn (1991) "Fair competition in the internal market: Community State aid policy" in *European Economy* 48, September.

Lloyd, P. J. (1987) "Protection policy and the assignment rule" in Kierzkowski (ed.) *Protection and Competition in International Trade*, Basil Blackwell.

Maggi, G. (1993) "Strategic Trade Policies with Uncertainty about the Mode of Inter-firm Competition" CEPR Discussion Paper N° 359. August. Stanford University.

Melo, J. de and A. Panagariya (1993) (ed.) *New Dimensions in Regional Integration*, Cambridge U. P., CEPR, London.

Melo, J. de and P. Messerlin (1988) "Price, Quality and Welfare Effects of European VERs on Japanese Autos" in *European Economic Review*, 32, pp. 1527-46.

Messerlin, P. A. (1989) "The EC Anti-dumping regulations: A first economic appraisal 1980-1985" *Weltwirtschaftliches Archiv* 125; p. 563-587.

Messerlin, P.A. (1990) "Anti-dumping Regulations or Pro-Cartel Law ? The EC Chemical Cases" in *The World Economy*, pp. 465-492.

Motta, M. "Cooperative R&D and Vertical Product Differentiation" *International Journal of Industrial Organization*, 10, pp. 643-661.

Mussa, M. (1982) "Government Policies and the Adjustment Process" in J. Bhagwati (ed.) *Import competition and response*, Chicago: University of Chicago Press.

N'guyen, G.Dang and R.F. Owen (1992) "High-tech competition and industrial restructuring in light of the single market", *American Economic Review. Papers and Proceedings*, vol. 82. no. 2. pp. 93-97.

Neary, P. (1982) "Intersectorial capital mobility, wage stickiness and the case for adjustment assistance" in J. Baghwati (ed.) *Import competition and response*, Chicago: University of Chicago Press.

Neumann, M. (1988) "Industrial Policy and Competition Policy" in *European Economic Review*, 34, pp. 562-7.

Neven, D. (1992) " Regulatory reform in the European Community" *American Economic Review. Papers and Proceedings*, vol. 82. No. 2. pp. 98-103.

Neven, D. (1994) "The political economy of state aids in the European Community: Some econometric evidence" CEPR Discussion Paper 945. April.

Neven, D. and G. Siotis (1993) "Foreign Direct Investment in the EC: Some Policy Issues" CEPR Discussion Paper 798, June.

Neven, D. et al (1993) *Merger in Daylight. The Economics and Politics of European Merger Control*. CEPR, London

Nicolaides,P. and R. Van Wijngaarden (1993) "Reform of the Anti-dumping regulations: the Case of the EC" *Journal of World Trade* , vol. 27, No. 3 June. pp. 31-53.

O'Cleireacain, Seamus (1990) "Europe 1992 and Gaps in the EC's common comercial policy" *Journal of Common Market Studies* vol. 28, No. 3 March p. 201-217.

OECD (1984) *Competition and Trade Policies. Their Interaction*, Paris.

OECD (1988) *International Mergers and Competition Policy*, Paris.

Padoa-Schioppa, Tomasso et al. (1987) *Efficiency, Stability and Equity. A strategy for the evolution of the economic system of the European Community*. Oxford: OUP.

Schmalensee, R. (1989) " Inter-industry studies of structure and performance"in Schmalensee and Willig, eds. *Handbook of Industrial Organization*, vol. 2. North Holland.

Sharp, Margaret (1991) " The Single Market and European Policies for Advanced Technologies" in Cristopher Freeman, Margaret Sharp, and William Walker (eds.) *Technology and the Future of Europe: Competition and the Global Environment in the 1990s*, London: Pintner.

Sharp, Margaret and K. Pavitt (1993) "Technology Policy in the 1990s: Old trends and new realities", *Journal of Common Market Studies*, vol 31. No. 2, June pp. 129-151.

Smith, A. (1994) "Imperfect Competition in International Trade" in *Surveys in international trade*, (ed.) D. Greenaway and L. A. Winters. London: Basil Blackwell.

Smith, A. and A. Venables (1990) "Automobiles" in *Europe 1992: An American Perspective*, ed. by G. Hufbuaer. Washington, DC: Brookings Institution.

Spence, M. (1984) "Cost reduction, competition and industry performance" in *Econometrica*, 52, no. 1, January. pp. 101-121.

Suzumura, K. "Cooperative and Noncooperative R&D in an Oligopoly with Spillovers" *American Economic Review*, 82, No. 5, December, pp. 1307-1320.

Tirole, J. (1988) *The Theory of Industrial Organization* , MIT Press.

Tyson, L.A. (1992) *Who's bashing whom? Trade conflict in high-technology industries* , Institute for International Economics, Washington, DC.

Ulph, D. (1991) " Technology Policy in the completed European Market" in Winters and Venables (eds.) *European Integration: Trade and Industry*, CEPR, Cambridge U. Press.

Ulph, D. and L.A. Winters (1994) "Strategic Manpower Policy and International Trade" in Krugman and Smith (eds.) *Empirical Studies of Strategic Trade Policy*, NBER/CEPR Chicago U . Press.

Winters, L. Alan (1992) "Goals and own goals in European Trade Policy" in *World Economy* vol. 15, No. 5 September p. 557-74

Winters, L.A. (1992b) "Integration, trade policy and European footwear trade" in *Trade Flows and Trade Policy after 1992*, (ed. by Winters), Cambridge U.P. Cambridge.

Winters, L.Alan (1993) "The European Community: a case of successful integration ?" CEPR Discussion Paper n° 755. January. Published in De Melo and Panagariya (ed.) *New Dimensions in Regional Integration*, Cambridge U. P., CEPR, London.

Woolcock, S. (1993) " The European Acquis and multilateral trade rules: Are they compatible ?" *Journal of Common Market Studies*, vol. 31 (4) december p.539-558.

* Comments by P. Buigues, A. Jacquemin and A. Sapir are gratefully acknowledged. This paper was prepared for the Conference "EC Policies on Competition, Industry and Trade", Louvain la Neuve, 27-28 October 1994.

**From 16 September 1994 on leave at the European Commission. The views put forward in this paper are personal and do not reflect in any manner the opinion of the European Commission.

[1]See Krugman and Obstfeld, 1992, page 202.

[2]Procurement policies will be relevant in this paper and certainly should fall under the heading of trade policy to the extent that they involve discrimination between national and foreign providers of goods. Nonetheless, procurement policies within the EC are considered as part of industrial policy. See section II.4 below.

[3]See also Caves (1987) for a summary including more modern developments.

[4]Which itself equals the marginal rate of substitution in consumption if no other distortions are present.

[5]See for example Anderson (1994) or Laussel and Montet (1994).

[6]See also Dixit (1987). Note that both the static prisonner's dilemma and the repeated games usually assume that the two trading partners are symmetric.

[7]Note also that some measures of contingent protection have received justification in terms of insurance. Eaton and Grossman (1985) show that commercial policy can partially substitute for missing insurance markets. Contingent protection will be optimal for a small country when it faces uncertain terms of trade and some factors are immobile. However, as the authors themselves have pointed out, it must be reminded that trade policy is also second best in this case since the first best policy is to redistribute income directly without distorting consumer and producer prices.

[8]For details see Helpman and Krugman (1985) chapter 3 or Smith (1994).

[9]See Brecher (1974) and Neary (1982).

[10]See, for example, Laussel and Montet (op. cit.) or Krugman (1990, chapter 14).

[11]If the country faces a foreign oligopoly, the results are similar, but of course the number of firms in the foreign industry will matter. In fact the optimal tariff falls to zero as the number of firms of the foreign oligopoly grows to infinity.

[12]These authors also explore the case of a foreign monopoly facing a competitive domestic fringe. In that case the choice of optimal trade policy is substantially more complex since the demand facing the monopolist is kinked.

[13]We refer here to specific tariffs. The results are slightly different for "ad valorem" tariffs. See Helpman and Krugman (op. cit.) section 4. 8.

[14]Note, also, that quotas do usually worse than tariffs, since the rents cannot be collected by the government (although in this instance the results are not easily extended to a foreign oligopoly).

[15]For a complete treatment see, for example, Helpman and Krugman, (op. cit. ch. 5).

[16]The fact that the optimal policy changes so drastically with the type of competition has worried many discussants of strategic trade policy. Maggi (1993) has explored a model where the price-quantity decision is endogenized and depends on the importance of the capacity constraints. The government has incomplete information about this critical paramenter but can design incentive-compatible policies which induce the firms to reveal their information and which result in subsidies to increase productive capacity and increase the welfare of the home country.

[17]Additionally, we would have to consider the possibility of retaliation (see Helpman and Krugman, op. cit. section 5.6.).

[18]This is a situation which does not appear to be very realistic, see Helpman and Krugman (op. cit. page 153).

[19]If there are several domestic competitors, there is an additional terms of trade effect, since firms do not internalize the effect of their output decisions on the price faced by domestic firms. This terms of trade effect calls for a tax/subsidy on exports which has the opposite sign of the tax/subsidy used for the strategic distortion. For example, with Cournot competition the strategic effect requires a subsidy, but the terms of trade effect a tax, in order to avoid excessive competition among domestic firms. See Krishna and Thursby, (1991).

[20]Another set of theoretical work deals with industries where R&D competition is important and there are positive R&D externalities. Export subsidies may then be optimal (Brander and Spencer, 1983)

although the design of the policy requires in this instance detailed acknowledge of the impact of R&D effort on the competitive outcome and of the extent and scope of R&D spillovers. The discussion of this kind of policy intervention is related to the infant-industry argument which we take up below.

[21]See Dixit and Grossman (1986). Ulph and Winters (1994) have looked at the case where scientific manpower is internationally mobile. These authors show that the potential benefits of an R&D policy may then be quite large, although the result depends crucially on the degree of mobility of scientists.

[22]See Mussa (1982) and Neary (1982).

[23]See also Brander and Spencer (1994) and other papers in the same issue of the Journal of International Economics for more research on optimal trade adjustment assistance.

[24]Several detailed accounts are provided elsewhere. See for example Tirole (1988) ch. 10.

[25]Cohen and Levin (op. cit., page 1095). Note, though, that this result is not a direct test of the importance of the appropriability effect.

[26]Barros and Cabral (1994) analyze in detail the conflicts of interest that arise when national competition authorities are concerned solely by domestic welfare: consumer's surplus plus profits earned by domestic firms. See also OECD, 1988.

[27]See chapter 3 of Helpman and Krugman. (1989) for a summary of the cases and the basic intuitions.

[28]See Schmalensee (1989) for the general result, and Jacquemin and Sapir (1991) for the case of the Community.

[29]See chapter 1 of OECD (1984) and Hoekman and Mavroidis (1994).

[30]Alternatively, if R&D competition takes place in stages, R&D support in the early phases of competition may be required.

[31]See Leahy and Neary (1994).

[32]For a summary of these results see Tirole (1988) chapter 10.

[33]See Tirole (op. cit.) chapter 10 for the basic references.

[34]See d'Aspremont and Jacquemin (1988), Suzumura (1992) and Motta (1992).

[35]See, for example, Neumann (1988).

[36]As in Grossman and Helpman (op. cit.)

[37]The introduction of qualified majority voting by the European Single Act was clearly a move towards the adoption by the Community of a federation structure. However, the federal nature of the Community is rather limited. It is certainly true that the fact that some significant decisions do not require unanimity anymore means that some sovereignity of the Member States has been surrendered. But the institutional design of the Community (there is no clear separation between central and national authorities) and the design of the decision-making process mean that many of the decisions can still be "controlled" by Member States through the Council. A true federation arises when the Council has delegated powers to the Commission, as in some areas of competition and trade policy.

[38]This regulation allows, in principle, unrestricted market access. However, it includes exceptions that allow surveillance measures/quantitative restrictions; and does not cover agriculture, textiles and steel. (see CEC, 1993)

[39]This policy measure attempts a) to respond to any illicit commercial practices undertaken by trading partners; and b) to exercise the Community's rights by means of any commercial policy measure compatible with the international obligations of the Union.

[40]For example, a ruling by the European Court of Justice on 15 november 1994 determined that the European Commission and the Member States should share responsibilities for negotiation in certain trade areas, such as transport, services and intellectual property rights (see Financial Times, 16 november 1994).

[41]Note however, that the Court of Justice has recently ruled that international agreements on competition policy have to be signed by the Council which puts into question the agreement reached by the Comission with the United States of America in 1991.

[42]See Sharp and Pavitt, 1993.

[43]See also Neven and Siotis (1993) on the type of agreements between different authorities that can be reached and are more appropriate depending on the scope of externalities and the similarity of administrative procedures.

[44]See also Flam (1994) on this issue for the case of automobiles.

[45]Neven (1992) draws attention upon the fact that mutual recognition has interacted with competitive deregulation in fostering integration.

[46]Neven (1994) shows that the political economy determinants of state-aid explain a substantial amount of state aid in the European Community.

[47]See the Community framework for state aids for research and development (CEC, 1994).

[48]See CEPR, 1993, for a discussion of the arguments that favor centralization versus coordination.