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Developing a European Carbon Trading Market: Will Permit Allocation Distort Competition and Lead to State Aid?

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1. Introduction

In March 2000 the European Commission presented a Green Paper on greenhouse gas (GHG) emissions trading within the European Union (EU) (COM, 2000a). The purpose of that document is to find out which design of a European carbon trading market is desirable and/or acceptable by stimulating a discussion among stakeholders, scientists and politicians. The Commission called GHG emissions trading an 'important element' as well as an 'integral and major part' of the Community's implementation strategy (COM, 2000a: 4, 7) to reach its emission reduction target of 8% below 1990 levels for the commitment period 2008 to 2012 agreed upon under the Kyoto Protocol of 1997.

In 1998, the EU decided to redistribute its target (or: assigned amount) among its Member States, such as 21% reduction for Germany, stabilization for France and 27% allowable emission growth for Portugal. Although this internal burden sharing arrangement will lower compliance costs, it is not fully efficient because it does not equalize marginal costs among the Member States (Eyckmans and Cornillie, 2000). In principle, marginal costs can be equalized to obtain efficiency if the EU allows for emissions trading among the governments of its Member States.

However, the disadvantage of intergovernmental emissions trading is that governments have incomplete information on the marginal abatement costs of domestic emitters. The higher this information deficit is, the higher the probability will be that the enacted emissions trading deals are not as cost-effective as would have been possible. Therefore, several economists argue that each government should redistribute its target among domestic emitters by allocating permits to private entities (e.g. Tietenberg, 1999; Zhang and Nentjes, 1999). In its Green Paper, the European Commission refers to permit trading among private entities as a 'unique opportunity' (COM, 2000a: 9) and it wants to establish an experimental EU-wide permit trading scheme by 2005.

If Member States connect their domestic permit trading schemes, firms can trade across national borders within the EU. This could reduce EU compliance costs by more than 30% (Capros *et al*., 2000). If the Parties to the Kyoto Protocol also allow private emissions trading under Article 17, European firms may also trade permits with firms in industrialized countries outside the EU, such as Norway or the United States. Because a larger market widens the scope for efficiency gains, the EU could then reach cost-savings of almost 50% (Capros *et al*., 2000).

To reap the economic benefits of permit trading within (and outside) the EU, several political barriers must be taken. One of these barriers is the issue of permit allocation which has both political, economic and legal aspects. In general, there are two ways to allocate permits: private entities have to buy the permits (auctioning) or they get them for free (grandfathering). It is possible that one Member State conducts an auction (for instance to generate revenues), while another uses grandfathering (for instance to generate support from the energy-intensive industry). The Commission fears that such a difference in the way Member States allocate permits to their private entities may distort competition and could lead to state aid (e.g. COM, 2000a: 5).

Consequently, the objective of this paper is to find out under which conditions European differences in domestic permit allocation procedures (a) lead to competitive distortions according to economic theory and (b) lead to state aid according to European Community (EC) law. The following (and second) section contains the economic analysis which largely builds upon an article by Woerdman (2000a).[1] The third section contains the legal analysis which explicitly considers the recently revised Community guidelines on state aid for environmental protection (OJ, 2001). The fourth section approaches the issues of competitive distortions and state aid from a political science perspective deemed necessary (but not performed) by Van der Laan and Nentjes (2001) to supplement a law and economics analysis of competitive distortions. The fifth section discusses some limitations of our analysis and sketches an agenda for possible future research. Finally, in the sixth section a conclusion is presented according to which differences among EU Member States in domestic permit allocation procedures can lead to competitive distortions and state aid depending on the perspective taken.

2. Economic Analysis of Permit Allocation and Competitive Distortions

Van der Laan and Nentjes (2001) note that there are two interpretations of the competitive distortion concept: as an inefficiency in allocation of resources and as an inequity of firms' starting conditions. The issue of permit allocation will be analyzed in relation to competitive

[1] In Woerdman (2000a) an economic discussion of the competitive distortion issue is presented which is largely similar to the analysis carried out here. However, in that particular article he applies the theoretical framework to the international issue of actionable subsidies under World Trade Organization (WTO) rules, whereas this paper specifically considers the European issue of state aid under EC law and politics.

distortions by using and specifying the efficiency approach (subsection 2.1) and the equity approach (subsection 2.2).

2.1 Competitive Distortions, Efficiency and Opportunity Costs

Following neoclassical welfare economics, the concept of competitive distortion can be interpreted as an inefficiency or price distortion. A competitive distortion is then defined as a measure which entails a price deviation from the welfare optimum under perfect competition, thereby reducing the efficiency of (inter)national trade. According to economic theory, international differences in domestic permit allocation procedures will not lead to competitive distortions. To follow the argument, it is crucial to understand the concept and effect of opportunity costs.

Not only auctioning, but also grandfathering entails costs for firms: grandfathered permits have an opportunity cost when they are used for covering the emissions of the permit owner (Nentjes *et al*., 1995). The opportunity cost, which is equal to the price for which the permit can be sold, must be included in the product price. Instead of using them, the firm could have sold the permits. The revenue foregone is a cost to the firm, comparable with the 'interest foregone' on own capital. Hence, grandfathered firms do not have a cost advantage over auctioned firms abroad (or over domestic new-comers), just because they received permits for free.

Although there are no price distortions when comparing grandfathering with auctioning, grandfathering does imply a transfer of wealth to firms, since they receive an input which has a certain market value. Therefore, grandfathering permits could be viewed as granting a subsidy to the firm. However, this subsidy is a capital gift to the firm with the character of a lump sum-subsidy (Jensen and Rasmussen, 1998). In efficiency terms, a lump sum-subsidy is not distorting in the product market, since it does not affect marginal emission reduction costs and it does not alter the output and price decisions of firms.

Some believe that grandfathering emission permits implies a competitive distortion because it would have the same distorting effect as granting tax exemptions to certain sectors or firms (e.g. energy-intensive sectors or the export industry). However, grandfathered permits are not the same as tax exemptions precisely because of the opportunity costs of the former. Indeed, a tax exemption is inefficient because it induces different prices per unit of GHG for different firms. This can be best explained by regarding GHG emissions as an input

in the production of a certain output. Different prices for the same input involve differences in marginal productivity and therefore entails an inefficient allocation of emissions among firms or sectors. Tax exemptions are not capital gifts and do not have opportunity costs, but rather imply that emissions are an input without a price. However, grandfathered permits have opportunity costs and therefore entail a price. Contrary to tax exemptions, efficiency is not distorted by using grandfathering.

The arguments presented above assume perfectly competitive markets. Imperfect competition is unlikely, because the direct participation of private entities in a European (and finally international) GHG emissions trading system is expected to create a thick market with many small traders. There are only a few exceptional cases of imperfect competition where a competitive distortion could arise. An example is a situation where a grandfathered firm starts a price war with an auctioned competitor abroad according to the so-called deep purse theory or theory of predatory pricing (Nentjes *et al*., 1995). The grandfathered firm can outlast the auctioned firm (or entrant) in a price war because of its larger capital reserve. However, predatory pricing is unlikely to occur in practice, not only because it is a risky and expensive strategy, but also because energy-intensive firms usually do not compete on monopolistic markets and the additional capital requirements to buy emission permits are a small part (no more than a few percentages) of the total capital requirements. Furthermore, a dominant firm which starts a price war to push aside its competitor abroad could be prosecuted by the EU authorities that enforce antitrust policy.

2.2 Competitive Distortions, Equity and Level Playing Field

Although the opportunity costs are the same under grandfathering and auctioning, European permit allocation differences will affect the financial position of firms. This aspect becomes relevant if the concept of competitive distortion is interpreted in terms of equity. A grandfathered firm does not have to buy its permits contrary to an auctioned competitor. A grandfathered firm only has to pay for its emission reductions and not for its emissions, so that it has a lower cash outflow than an identical firm which has to buy its permits. In other words, a grandfathered firm initially buys the permits from itself (opportunity costs), while an auctioned firm buys the permits from the government or the public (cash outflow). If a grandfathered firm receives its permits for free, it obtains a non-distortionary windfall profit (cf. Bohm, 1999; Romstad, 1998).

Since grandfathering implies a capital gift to the firm, a grandfathered firm has more financial resources, or own capital, than an auctioned firm, which (*ceteris paribus*) gives the former a stronger financial position than the latter. This can be seen as an inequitable or unfair distortion of competition. Not only the question of how they receive their permits, but also of how much permits they get then becomes relevant, because a firm which receives a generous emission budget is financially better off than an identical firm with a tight emission budget.

There is no single interpretation of the concept of equity or fairness, neither in philosophical theory nor in political practice. Nevertheless, it appears that an unfair competitive distortion in the context of permit allocation usually refers to a distortion of the 'level playing field' for firms, where the associated inequity is primarily defined or perceived in terms of an inequality or asymmetry (e.g. Jepma and Van der Gaast, 1999; Yamin and Lefevere, 2000). Woerdman (2000a) argues that the problem of international differences in permit allocation procedures is the inequality of the changes in firms' starting conditions resulting from the mere process of permit allocation. Furthermore, the inequity view does not so much think of competition being distorted because firms face different laws (as contended by Van der Laan and Nentjes, 2001), but rather because these different laws have different financial consequences for firms and their competitive relations. The level playing field then refers to the competitive relations between firms. This implies that an unfair competitive distortion would arise if the allocation of permits leads to unequal changes of firms' relative financial positions.

The level playing field approach does not object to the fact that the competitive positions of firms can be unequal because they have different market shares and that their relations may change, both before and after permit allocation, because of their economic activities and strategies. Rather, the level playing field or financial position approach contends that the competitive positions of firms are not allowed to change because of the political process of permit allocation itself (Woerdman, 2000a). Consequently, the level playing field is maintained if permit allocation leaves the financial positions of firms and their competitive relations unaltered.

Again, there are only a few exceptional cases in which imperfect competition could play a role. In an imperfect capital market, the findings of Koutstaal (1997) imply that a grandfathered firm has a competitive advantage if the auctioned competitor abroad needs to borrow money to buy the permits. The interest to borrow money could exceed the interest on own capital due to the imperfect capital market. The permit expenditures of the auctioned firm are then higher than the opportunity costs of the grandfathered firm due to the interest it has to

pay for its loans. However, the practical relevance of this argument is negligible, not only because the interest difference under consideration is small compared with total production costs, but also because the loans will be short-term in a liquid permit market and (contrary to the interest on own capital) the interest charges for loans are tax-deductible.

3. Legal Analysis of Permit Allocation and State Aid

The Member States of the EC face the question whether grandfathered permits should be interpreted as a form of state aid under EC Article 87 or not.[2] To find an answer to this question, we will analyze (1) EC Article 87 on state aid, (2) Commission (and Court) decisions and reports on state aid, and (3) the (revised) Community guidelines on State aid for environmental protection. In a similar vein as the WTO issue concerning actionable subsidies (Woerdman, 2000a), we will demonstrate that the EC issue of state aid largely depends on (a) whether EC competition law has defined and/or interpreted, and (b) whether the European Commission - or the European Court of Justice in case of a dispute - will regard (potential) state aid issues in terms of macro-level efficiency and opportunity costs or also in terms of micro-level financial effects on firms as well as fair competition and an equitable level playing field.[3]

In the discussion on permit allocation there are at least five similarities between EC law and WTO rules. Firstly, the debate whether permits are goods or services also plays a minor role in the context of EC law. Just as in the case of the WTO it seems to be the general opinion that permits are neither goods nor services (cf. Lefevere and Yamin, 1999; Werksman, 1999). Secondly, both EC law and WTO rules require non-discrimination when allocating permits. The national treatment principle and the most-favoured nation principle of the WTO as well as Article 12 (originally Article 6) of the EC Treaty and its interpretation by the Court prohibit (arbitrary) discrimination on the grounds of nationality. Thirdly, the crucial issue of allocating permits both in an EC and WTO context seems to be whether differences in permit allocation between states in general and whether grandfathering in particular could consitute a form of subsidization. Fourthly, as will be demonstrated below, the relevance of EC Article 87(1) on state aid, similar to the WTO Subsidies Agreement, mainly depends on

[2] The Treaty of Amsterdam entered into force on 1 May 1999 and amended the numbering of the Articles of the Treaty of Rome of 1957. The current Article 87 was originally numbered Article 92 under the Treaty of Rome.
[3] Although Hargrave *et al*. (1999) also point at the opportunity costs and wealth effects of grandfathered permits, they do not directly apply these economic concepts to the analysis of state aid in the context of permit allocation.

the distinction between efficiency (opportunity costs) and equity (financial positions). Fifthly, a WTO dispute panel as well as the Commission and the Court will decide upon this matter on a case-by-case basis, thereby considering not only the direct and actual effects, but also the indirect and potential effects of permit allocation and grandfathering.

EC Article 87 on state aid has been elaborated in various Commission documents and Court decisions. Recently, the Commission adopted the revised Community guidelines on State aid for environmental protection (OJ, 2001). Compared with the previous guidelines (OJ, 1994), the revised ones contain more explicit and detailed elaborations of definitions and rules, pay more attention to energy production, renewable energy and sustainable development, and place a stronger emphasis on cost internalisation in relation to economic or market instruments. The revised guidelines also mention the flexible instruments of the Kyoto Protocol, such as international emissions trading, but their potential effects on state aid are not yet elaborated. In general, the revised guidelines do not differ much from the old ones, but they do contain some new and more detailed instructions and exemptions.

The possible implications for permit allocation of these and other state aid provisions in the context of EC Article 87 will be dealt with below. After discussing the criteria for state aid (subsection 3.1), the conditions will be analyzed under which state aid is exempted from its prohibitory status (subsection 3.2).

3.1 Permit Allocation and State Aid Criteria

Article 87(1) on state aid as formulated in the EC Treaty determines that '(...) any aid granted by a Member State or through State resources in any form whatsoever which distorts or threatens to distort competition by favouring certain undertakings or the production of certain goods shall, in so far as it affects trade between Member States, be incompatible with the common market'. Two lines of reasoning can be applied following this legal text. According to the opportunity cost argument, as was shown in previous sections, grandfathered firms have no cost advantage over auctioned firms, which would imply that grandfathering is no aid at all or constitutes aid which does not distort efficiency, trade and competition between Member States. However, according to the financial position or level playing field argument, grandfathering should be regarded as state aid as well as a competitive distortion. The reason for this is that grandfathered firms receive a capital gift from a Member State, thereby financially advantaging or favouring those firms relative to their auctioned competitors

abroad. The definition of state aid is thus insufficient to decide whether grandfathering should be seen as state aid or not.

Although the EC Treaty does not give a full definition of state aid, the concept has been elaborated by the European Commission (e.g. COM, 1999b: 84) and the European Court of Justice (e.g. Case E/1/98 and E/2/98 of the Flemish region versus the Commission), who both describe state aid in terms of an 'advantage'. This could suggest that grandfathering should be regarded as state aid, since grandfathered permits are a capital gift which implies a financial advantage for firms. However, it could also be argued that grandfathered firms have no cost advantage over auctioned firms by following the opportunity cost argument. The European Commission (COM, 2000b) uses four criteria to determine whether or not a measure is to be regarded as state aid which is incompatible with the common market. A measure is considered to be state aid if it satisifies the criteria of both (a) state origin, (b) firm advantage, (c) specificity and (d) trade effect.

Firstly, with respect to the first criterion of state origin, the aid must be granted by the State or through state resources. It could be claimed that grandfathering (although it is a transfer of permits) is not a genuine or direct transfer of resources, since the permits are allocated for free by the State. Nevertheless, the opposite can well be defended by stressing that these permits have market value and that the capital gift induced by grandfathering is an (in)direct transfer of state resources. Furthermore, Jepma *et al*. (1999) indicate, on the basis of COM (1998), that the state origin criterion requires a transfer of resources from the State (or in the State) receiving, actually or potentially, less revenues in order for state aid to exist. It could be argued that the State will receive less revenues in the case of grandfathering compared to either (pre-existing) taxation or auctioning, because grandfathering can be interpreted as giving the (hypothetical) auction revenue to the polluters (Welch, 1983: 168).

Secondly, with respect to the other three criteria, grandfathering should be seen as an advantage which affects trade by favouring specific firms and thus distorts competition according to the level playing field approach, but not according to the reasoning of the opportunity cost approach. Interestingly, the Commission not only mentions the desirability of a level playing field, where firms are treated on an equal footing, in the context of state aid (e.g. COM, 1998: 79; OJ, 2001: 13), but it also describes the firm advantage criterion as a financial advantage which improves a firm's market position (e.g. COM, 1999b: 84). This view also seems to be reinforced by the interpretation of specificity by Jans (1995: 262) who describes this criterion in the context of state aid as benefits awarded to specific industries or undertakings, which have the effect of favouring their financial or competitive position in

comparison with their competitors. Furthermore, the Commission emphasizes that when the State confers even a limited advantage on an undertaking which is active in a sector characterized by competition, there is a distortion or risk of distortion of competition (COM, 2000b: 75), which could run counter to the Commission's goal to ensure the competitive functioning of markets (OJ, 2001: 5). However, it can also be argued that grandfathering does not distort efficiency or trade because its opportunity costs will be reflected in the product price. From this perspective, grandfathered permits internalise costs as much as auctioned permits do. This aspect would then imply that grandfathering is allowed, because cost internalisation is a priority objective in the Commission's policy on the control of state aid (OJ, 2001: 5).

We have seen that neither Article 87(1) on state aid nor its elaboration by the European Commission or the European Court of Justice seems to provide a decisive answer whether grandfathering should be regarded in terms of efficiency (opportunity costs) or equity (financial advantage). However, in a more broad perspective, it appears that European law not only contains instances of the inefficiency interpretation of competitive distortions, but also explicitly of its inequity interpretation (Van der Laan and Nentjes, 2001). The notion of competitive distortion is frequently defined as a distortion of either efficiency or free trade, for example in Article 130S of the Single European Act and in some directives, such as the Titanium Dioxide Directive 78/176/EEC. This would imply that grandfathering is legally allowed, since (although it affects the financial position of firms) it generally does not distort competition, in efficiency terms, in perfectly competitive markets. But the competitive distortion concept is also often formulated as a distortion of either equity or equality, unfair trading or an alteration of the distribution of burdens between firms. Such interpretations can be found, for instance, in the preamble of the Treaty of Rome ('fair competition'), in Article 81 (originally Article 85) of the EC Treaty ('distortion of competition (...) apply dissimilar conditions (...) placing them at a competitive disadvantage') as well as in the preambles of several environmental directives, such as the Drinking Water Directive 74/440/EEC ('a disparity between national legislation results in (...) a distortion of the competition') and the Sulphur Directive 80/779/EEC ('unequal conditions of competition'). This could imply that grandfathering is prohibited if the alteration of pre-allocative relative financial positions of firms induced by permit allocation is perceived as unfair.

3.2 Permit Allocation and State Aid Exemptions

However, not all state aid is prohibited under European competition law. Article 87(3) as well as the Community guidelines on State aid for environmental protection (OJ, 1994) which have been recently revised (OJ, 2001) provide the basis for the exceptions under which to regard state aid as compatible with the common market.[4] Shortly, state aid can be allowed if:
(1) the aid promotes the execution of an important project of common European interest;
(2) the aid remedies a serious disturbance in the economy of a Member State;
(3) the aid facilitates the development of certain economic activities or areas;
(4) the European Council decides that the aid is compatible with the common market.

Firstly, even if grandfathering should be seen as state aid, it can nevertheless be allowed on the basis of Article 87(3)(b) if the aid is used to promote the execution of an important project of common European interest. In 1987 the Court recognized (*Glaverbel* Case 62/87) that concerted action by a number of Member States to combat environmental pollution is an example of an important project of common European interest for the purposes of Article 87(3)(b). Opinions differ whether grandfathering literally 'promotes' climate change mitigation under the Kyoto Protocol as this section of the law would require. From an efficiency point of view, emissions trading not only reduces costs and thereby facilitates the implementation of and compliance with the Protocol, but the political acceptance of emissions trading is also increased by the wealth transfer grandfathering induces. From a compliance point of view, grandfathering makes compliance cheaper and thus easier, but (if seen as aid) it is not allowed if it merely helps firms to comply with Community regulation, unless it stimulates firms to pollute less than legally required (OJ, 2001: 6). From a political perspective, the issue of whether grandfathering promotes the acceptance of emissions trading depends on the political preferences and priorities of the government(s). In particular, Woerdman (2000b) demonstrated that grandfathering may be insufficient or even counterproductive to generate political support for permit trading, because it induces time-consuming allocation problems with conflicting interests between emitters about the basis of grandfathering (e.g. energy-efficiency versus historical emissions) and it does not raise revenues for the government(s) involved. From a polluter pays perspective, grandfathering does not promote climate change mitigation if the perception dominates that it distorts

competition or that polluters should not obtain the right to pollute for free and therefore must pay for it by purchasing the permits from society or the government (Grafton and Devlin, 1996). In addition, the Community guidelines require that the aid, in this case considering grandfathering, must be necessary for the adoption or continuation of the project (OJ, 2001: 6, 13), which may be difficult to defend unless the political acceptance of emissions trading exclusively hinges on grandfathering.

Secondly, Article 87(3)(b) also allows state aid if the aid is used to remedy a serious disturbance in the economy of a Member State. It is clear that auctioning (as well as taxation) entails a financial burden for polluters, but it is not evident that auctioning would thus create a 'disturbance' in the economy of a Member State which is 'serious' enough to allow for grandfathering as the remedy against it. Although several environmental economists argue that grandfathering facilitates the political acceptance of tradeable permits, they also recognize that internalizing the costs of pollution by means of emissions trading is not a disturbance, but rather a correction of the economy (cf. Bohm, 1999; Grubb *et al*., 1998). Nevertheless, some environmental economists argue that auctioning is more efficient than grandfathering, because the auction revenues can be recycled to lower distortionary taxes (e.g. Goulder *et al*., 1999). If grandfathering should be seen as aid, it may then still be allowed provided that it is seen as a temporary second-best solution (OJ, 2001: 5). In addition, because of its financial effects, grandfathering prevents that the competitiveness of firms – deemed important by the Commission (OJ, 2001: 5) – is reduced, as long as competitors abroad are not subject to an emission cap, but this argument becomes invalid if other Member States also establish trading schemes and allocate permits to similar sectors.

Thirdly, grandfathering may be exempted from the state aid prohibition on the basis of Article 87(3)(c), which provides that aid may be considered compatible with the common market if it facilitates the development of certain economic activities or of certain economic areas, where such aid does not adversely affect trading conditions to an extent contrary to the common interest. On the one hand, if the opportunity costs of using grandfathered permits imply that they do not affect efficiency and hence trading conditions, it could also be argued that they have the same effect as auctioned permits on the development of certain economic activities or areas precisely because they have no cost advantage. On the other hand, it could be defended that grandfathered permits do facilitate the development of certain economic

[4] The Community guidelines on State aid for environmental protection (OJ, 1994) entered into force in 1994 and expired (after two postponements) on 31 December 2000. The revised guidelines (OJ, 2001) became applicable in 2001 and will cease to be applicable on 31 December 2007.

activities or areas, because they are a capital gift giving the firm a stronger financial position than under auctioning. Furthermore, it could be argued that the 'conditions' of trading do not so much refer to the trading itself, but rather to the level playing field, the prerequisites for fair competition or the pre-allocative competitive relations between firms. This could suggest that permit allocation differences between Member States or grandfathering itself should be seen as harming the common interest by affecting the level playing field according to the inequity view of a competitive distortion. However, in practice, Article 87(3)(c) has already been used several times to allow for state aid, for instance in the case of the energy-intensive industries in the Netherlands and Denmark as well as Norway, Sweden and Finland, which were exempted from a tax on CO_2 emissions (Baron, 1997; Heller, 1998; Jans, 1995). Interestingly, these exemptions were introduced to accommodate competitiveness concerns of energy-intensive industries which argued that they would financially suffer from similar industries operating in countries without such taxation (OJ, 1994: 8; COM, 2000c: 27). Although some would make a comparison by claiming that grandfathering will be exempted from state aid because it resembles a tax exemption, it should be noted that tax exemptions distort efficiency because it induces different prices per unit of GHG for different firms, whereas grandfathered permits do not distort efficiency because they have opportunity costs and therefore entail a price (as explained in a previous section). Consequently, the opportunity cost argument would imply that if grandfathering is to be regarded as state aid, it will be exempted from the state aid prohibition rules even more easily than the aforementioned tax. Nevertheless, in the political arena grandfathering could perhaps be perceived as being even 'worse' than a tax exemption, because the former necessitates a new framework which formally gives an emitter the right to produce a limited amount of pollution, which is more visible and definitive than exempting an emitter (temporarily) from an arrangement in an existing scheme. Moreover, grandfathering may be considered problematic on the basis of Court Case 730/79 of *Philip Morris Holland BV* versus the Commission in which it was established that aid may have an effect on inter-state trade if it strengthens the financial position of one undertaking as compared to others within the Community (cf. Lefevere and Yamin, 1999).

Fourthly, if grandfathering would be state aid, it could be allowed, in principle, on the basis of Article 87(3)(e), which refers to the discretionary power of the European Council to decide by qualified majority – on the basis of a proposal by the Commission – that an aid measure is compatible with the common market. In itself, this provision does not help the judge the relevance of the opportunity cost argument and the financial position or level

playing field argument in EC law and politics. However, it underlines that the issue whether or not permit allocation differences between Member States are desirable and whether or not grandfathering should be seen as state aid could well be (and probably will be) decided upon, not so much solely on the basis of legal considerations, but rather on the basis of a political decision.

Grandfathering could be allowed if it is not regarded as state aid, but instead as a compensation or indemnity as in Directive 75/439 on the disposal of waste oils. This section of the law allows for financial indemnities only if, among other things, they do not cause any significant distortion of competition and they are in accordance with the polluter pays principle. The interpretation not only depends on whether a competitive distortion, but also on whether the polluter pays principle should be defined in terms of either opportunity costs or financial expenses. The polluter pays principle, which is one of the fundamentals of European environmental law with regard to competition policy, was already laid down in 1957 in Article 130r(2) of the Treaty of Rome and is now underlined in Article 174 of the EC Treaty. It requires that the costs of measures to deal with pollution should be borne by the polluter who causes the pollution (OJ, 2001: 3). According to Jans (1995), the principle demands that external costs are reflected in the product price, which means that a competitive distortion would occur when externalities are not (fully) reflected in these prices. This seems to suggest that permit allocation is not problematic, because external costs are reflected in the product price not only under auctioning due to the costs of buying the permits, but also under grandfathering due to the opportunity costs of using the permits. However, the European Commission (COM, 2000a) explicitly stated that auctioning applies the polluter pays principle, simply because polluters literally pay for their pollution by means of purchasing the permits from the government. It is thus not clear whether grandfathering will be seen as compatible with the polluter pays principle. On the one hand, although grandfathered polluters do not pay for their emissions, they do pay for their emission reductions (assuming it did not receive 'hot air' permits). On the other hand, grandfathering is a wealth transfer from the public to the polluters, which implies that the public pays by giving the polluters the auctioning revenues (cf. Grafton and Devlin, 1996; Welch, 1983). If grandfathering should thus be seen as state aid or as an indemnity which is incompatible with the polluter pays principle, it may even follow from the statements of the Commission that grandfathering is not allowed at all.[5]

[5] For more details see the *ADBHU* case and the *Cartiere del Garda* case as analyzed in Jans (1995: 256-261).

The Community guidelines on state aid for environmental protection could suggest that firms can only receive a part of their permits for free and that grandfathering is only allowed temporarily (OJ, 2001). When considering investment aid and operating aid (including tax exemptions) below, it is assumed that emission permits are a form of operating licences. This assumption seems reasonable, because without such permits a firm is not allowed to operate. Emission permits (grandfathered or auctioned) are legally required in an emissions trading scheme if firms want to produce a certain (limited) amount of pollution.

Firstly, in the context of investment aid, small or medium-sized enterprises (SME's) may receive aid no longer than three years and against no more than 15% gross of the eligible costs.[6] However, if firms improve on the Community standards, this percentage may be raised to 30% (or 40% for SME's). This percentage may be as high as 40% (or 50% for SME's) for investments in energy saving and 50% (or 60% for SME's) for investments in renewable energy to supply an entire community (such as a residential area). These percentages may be increased by 5 to 10% for regions which are eligible for national regional aid. The acquisition of operating licences may also qualify, provided that they are depreciable assets purchased on market terms which are used for at least five years. Emission permits should probably not be seen as depreciable assets, but as assets with market value (which will decrease or increase depending on supply and demand). If (grandfathered) permits would be depreciable assets, they could not be sold on the market during the first five years of their use, which would be inconsistent with their tradeable nature.

Secondly, in the context of operating aid, which is probably more relevant (provided that grandfathering should be seen as aid) because an emissions trading system legally requires firms to have emission permits to be allowed to operate, firms may receive the aid no longer than five years. If the level of aid decreases each year ('degressive aid'), which should be the general rule, the intensity may amount to 100% of the extra costs in the first year but must have fallen in a linear fashion to zero by the end of the fifth year. If the level of aid is the same during these years ('non-degressive aid'), a firm may receive no more than 50% of the extra costs necessary to meet the environmental objectives. Tax exemptions are also seen as operating aids and may only be granted, among other things (see above), for a limited period of time with a maximum of ten years (or five years in the case of energy-efficiency improvements). A temporary relief from environmental taxes may be authorized by the Commission with a view to the risks of a loss of international competitiveness. This could

[6] Eligible costs are defined as the extra investment costs necessary to meet the environmental objectives (OJ, 2001: 8).

imply that grandfathering, which could be introduced to accommodate similar competitiveness concerns, may also be deemed compatible with European law as long as it is a temporary transition (of possibly five or ten years) to an auctioned scheme.

The investment and operating provisions above could imply that firms may receive no more than a certain percentage (for instance 50%) of their permits for free during a limited period after which they have to buy their permits via an auction. Alternatively, if governments would agree upon a five year transition period, the implication could be that the annually (re)allocated permits are allowed to be grandfathered for 100% in the first year, 80% in the second year, 60% in the third year, 40% in the fourth year and 20% in the fifth year, so that all permits are auctioned (and thus 0% is grandfathered) in the sixth year when the transition period is over. However, the Community guidelines only allow firms to receive aid over their extra investment costs necessary to reduce emissions, so that it could be argued that they may not receive aid over their entire emissions. In efficiency terms, firms may thus not only be grandfathered, but they may also receive some aid (under the conditions specified above) for the costs they spend to reduce their emissions. In equity terms, grandfathering is seen as aid (as demonstrated in a previous section), but auctioned firms still seem to be allowed under the EC rules to receive some aid for their expenses on emission reductions. Furthermore, the observations above also suggest that the rejection or approval of (possibly temporary and/or partial) grandfathering not only rests, among other things, on the debate of whether gratis permits are state aid, but also on what type of aid it encompasses.

4. Political Analysis of Permit Allocation and Perceptions

From a law and economics perspective, it is ambiguous whether grandfathering, in the case of dissimilarities in permit allocation between EC Member States, satisfies each of the aforementioned four criteria for state aid to exist, and if it does, whether or not it will be exempted from the state aid injunction. It appears that, similar to the WTO issue on actionable subsidies (Woerdman, 2000a), the EC issue of state aid mainly depends on whether one is willing to accept the opportunity cost argument or the level playing field argument.

On the one hand, it could be maintained that grandfathering may be difficult to implement in Europe, because the EC rules and decisions on competition and state aid as discussed above refer more frequently and explicitly to financial effects and equity consequences (e.g. EC Article 81; COM, 2000a: 7, 12, 14, 15, 19; COM, 2000b: 75; COM,

1999b: 84; COM, 1998: 79) than the relevant provisions which define and specify an actionable subsidy under the WTO Subsidies Agreement (e.g. Articles 1 and 2) as discussed in Woerdman (2000a).[7] On the other hand, it could be argued that grandfathering may be easy to realize in Europe, because the exemptions to the state aid injunction in the EC are legion relative to comparable WTO provisions (such as the rather stringent Article 8.2(c) on non-actionable subsidies of the WTO Subsidies Agreement).

Without conducting such an analysis, Van der Laan and Nentjes (2001) adviced to analyze decision-making processes to increase our knowledge of whether the efficiency or the equity interpretation of competitive distortions prevails in European environmental politics. Therefore, this section extends and supplements the law and economics perspective, as performed above, with a political science perspective on competitive distortion and state aid issues by explaining the impact of perceptions on political behaviour in the context of competitiveness and permit allocation (subsection 4.1) and by analyzing the decision of the European Commission in the case of domestic carbon emissions trading in Denmark to approve the grandfathering of permits to Danish electricity producers (subsection 4.2).

4.1 Perceptions in Political Decisions on Permit Allocation

From a political science perspective, it does not so much matter in the political process whether international differences in domestic permit allocation can 'objectively' lead to competitive distortions according to some economic theory or equity principle. Rather, the agents involved act 'subjectively' on the basis of their perceptions of such issues. For instance, in the context of competitiveness, Golub ascertains: 'Regardless of whether the available evidence proves or disproves a conclusive relationship between economic performance and environmental regulation, the important point (...) is that the possible or perceived loss of competitiveness constitutes as much a political as an empirical matter, and figures prominently in industry's resistance (...)' (Golub, 1998: 8). Likewise, Rowlands (1998) suggests that the EU policy for ozone layer protection has been shaped to a large

[7] Yamin and Lefevere (2000: 30) argue: 'The aim of competition provisions of EC law is to secure a level playing field for competitors wherever they are located in the EC. This notion goes beyond the narrow conception of competitiveness which economists focus on'. Likewise, Van der Laan and Nentjes (2001: 148) find: 'The Treaty is not as one-dimensional as economists may believe or wish'. In a similar fashion, Cini and McGowan (1998: 158) conclude that, in practice, multiple policy objectives are 'fundamental in tempering the neo-liberal rhetoric of the state aid directorate'.

extent by a perceived negative relationship between economic competitiveness and environmental regulations.

The fact is that various actors have the perception that international permit allocation dissimilarities may lead to competitive distortions, which can be seen as a barrier to the international political acceptance of permit trading (Woerdman, 2000b). Not only interest groups will use the level playing field argument in their lobby for protection (Van der Laan and Nentjes, 2001), but concerns about competitive distortions with regard to emissions trading have actually been raised in the international negotiations, for instance by developing countries (e.g. SBSTA / SBI, 1999: 28) and the EU (e.g. COM, 1999a, 2000a). At the Fourth Conference of the Parties (CoP4) in 1998 the Parties drew up a work programme, the Buenos Aires Plan of Action, containing several controversies to be decided upon, such as the desirability of 'non-distortion of competition' in the context of international emissions trading (BAPA, 1998: Decision 7/CP.4, Article 17, issue 15). Permit allocation in relation to competitive distortions and state aid also appears on the internal political agenda of the EU given the Commission's reference to those issues (COM, 2000a). Hence, apart from its conditional - or arguably questionable - economic relevance, the competitive distortion issue has become politically relevant by playing a role in the European and international decision-making process.

The discretionary power of the European Council to decide – on the basis of a proposal by the Commission – that grandfathering is exempted from the state aid provisions means that a political decision will be pivotal to the issue of grandfathering, state aid and permit allocation differences between EC Member States. Financial and equity arguments are likely to play a role in such a decision, not only with a view to the historical relevance of the level playing field argument in European environmental legislation (Hargrave *et al*., 1999: 11) and state aid policy (Cini and McGowan, 1998: 158), but also considering the continuously recurring reference made by the Commission in its recent Green Paper on GHG emissions trading in the EC to 'fair competition' (pages 7 and 12), 'conditions for equal competition' (page 14) and a 'level playing field' (page 15) as well as to the relation between competitive distortions and financial (dis)advantages (page 19) for firms (COM, 2000a). This could imply that an EC Member State will not be left free to grandfather permits in the amount and to whom it likes, but rather that permit allocation rules will be harmonized across the EC to avoid unfair competitive distortions. However, the Green Paper does mention the concept of opportunity costs once (page 20) when discussing the issue of new entrants to the European carbon trading market (COM, 2000a).

Those who plead against harmonizing permit allocation procedures primarily use the opportunity cost argument (e.g. Hargrave *et al*., 1999; Zhang, 1999), whereas those who plead in favour of harmonization mainly use the level playing field argument (e.g. Jepma *et al*., 1998; Lefevere and Yamin, 1999). This does not mean that the latter authors want to centralize all permit allocation decisions, but rather that they prefer Member States to negotiate and formulate basic rules for domestic permit allocation, for instance whether or not (and on what basis) to grandfather to certain sectors (e.g. the electricity sector). Other authors steer a middle course by advancing weak or limited forms of harmonization. For instance, Kerr (1999) is against regulating the way in which EC Member States allocate permits by using the opportunity cost argument, but she uses the level playing field argument (similar to Yamin and Lefevere, 2000) to plead in favour of coordinating how much permits governments allocate to each sector. Another variant, also in the context of the EC, is provided by Lefevere and Yamin (1999) who mention the possibility of a 'shared competence scheme' in which efficiency and trade barrier issues are regulated at the central level (Community) while all other issues are left to individual governments (Member States). However, these alternative options still have to be worked out in detail.

Still, some claim that harmonization is undesirable or even impossible in the first place by argueing, among other things, that states are sovereign (e.g. Zhang, 1998b; Petsonk, 1999). Although the level of harmonization is indeed likely to be dependent on the extent in which Member States are willing to maintain their national sovereignty as it currently exists, we dismiss the idea that state sovereignty is violated in the case of harmonization. Rather, state sovereignty is maintained, arguably at a lower level, if these governments voluntarily accept international rules on domestic permit allocation. For instance, such rules could be made part of the eligibility criteria Member States must meet to join the European (or international) permit trading system.

Cini and McGowan (1998) have also drawn the conclusion that politics plays a role in the state aid decisions of the Commission, both in terms of political values and perceived national interests. The impact of values (cf. Van Deth and Scarbrough, 1995) suggests that not only efficiency, but also equity is likely to be considered in a decision on permit allocation, which – in itself – increases the chance that grandfathering will be seen as state aid. However, a Member State's perception of its national interests in relation to permit allocation and state aid will lie somewhere between two extremes, that is (a) the desire to protect the national sovereignty of being free to allocate the permits as domestically preferred and (b) the desire to protect the national economy and industry against Member States who are free to choose any

permit allocation they like which could result in a competitive advantage for the competitors abroad.[8]

Which (mixture of) desire(s) will finally be dominant in the Commission is uncertain. A political indication is provided by the report of the European Climate Change Programme (ECCP, 2001). This programme, in which many stakeholders were invited to participate, is initiated and intended by the Commission to prepare a proposal on climate change policy to be made to the Council and the European Parliament in the course of 2001. Without providing any reasons for their findings, the report not only warns against competitive distortions due to permit allocation and underlines the desirability of a level playing field, but also states that permit allocation differences do not necessarily give rise to distortions within the internal market and claims that distortions are likely to be temporary (ECCP, 2001: 8-10). The report concludes that 'Member States should be allowed to choose their own initial method of allocation, subject to obtaining any appropriate State Aid approvals' (ECCP, 2001: 9). From this it is not clear whether the equity interpretation or the efficiency interpretation prevails, not only because the report does not mention any reasons for these views, but also because it prefers a case-by-case assessment of potential state aid issues arising from permit allocation. However, the rejection of harmonizing allocation procedures, and thus the apparent preference for sovereignty, seems to run counter to the equity interpretation. Still, again without providing a foundation for the argument, the report expects a progressive evolution towards auctioning in the longer term (ECCP, 2001: 8). A legal indication of which desires and perceptions will finally be dominant in the Commission is provided by the Commission's decision on state aid in the Danish domestic carbon trading scheme, which will be treated in the following subsection.

4.2 The Political Precedent of Domestic Carbon Trading in Denmark

An important albeit limited 'test case' for the competitive distortion and state aid issues in an EU-wide carbon trading market is the political precedent of domestic carbon trading for the power sector in Denmark. The Danish case is important, not only because it is the first domestic and obligatory scheme in Europe which will already be operational before 2001

[8] Some claim (e.g. Petsonk, 1999; Zhang, 1999) that state sovereignty makes it undesirable – or even impossible – to set international rules for domestic permit allocation. However, national sovereignty is not violated if governments voluntarily accept such rules, for instance by making such rules part of eligibility criteria Member States must meet to join the European permit trading system.

(when the emission ceiling for electricity producers will come into effect), but also because the European Commission reached a decision on the Danish allocation of permits in the context of state aid (COM, 2000d).[9] This decision is bound to set a political precedent for future thinking about – and decisions on – (differences in) permit allocation in a European carbon trading market. However, the relevance of the Danish case is also limited, not only because its trading scheme will already end in 2003, but also because the European Commission clearly indicated that its decision in the particular case of Denmark does not necessarily set a legal precedent for future decisions on emissions trading schemes.

According to Act 376 of 2 June 1999 (originally Bill 235) of the Danish parliament, tradeable permits are grandfathered to electricity producers in Denmark – irrespective of whether they are Danish or foreign owned – based on their historical CO_2 emissions during the period 1994-1998 (Folketinget, 1999; COM, 2000d). The scheme runs from 2001 to 2003, but if any new entrants would arrive during this period (which is not expected), they will be allocated quotas 'on the same terms' as incumbents following objective and non-discriminatory criteria. The aforementioned Act will then be amended which will be notified again to the Commission. According to Haites *et al*. (2000), the reallocation of permits in the case of new entrants before 2003 implies that both new-comers and incumbents will receive grandfathered instead of auctioned permits. The emission ceilings for electricity producers have the effect that they – as a group – must reduce their emissions, but the combined heat and power plants have received less stringent (business-as-usual) emission ceilings because the latter have contributed more strongly to CO_2 savings in the past. The Danish parliament acknowledged that the bill had to be notified to the European Commission, among other things, on the basis of EC Article 88(3) concerning state aid. It also layed down that the bill would not come into effect before receipt of approval by the Commission. The Commission approved the scheme by means of a letter to the Danish government dated 12 April 2000 and reached two basic decisions (COM, 2000d).

Firstly, the Commission considers grandfathering in the Danish scheme to be state aid, because the tradeable permits have a market value and because the State foregoes revenue which could derive from auctioning the permits. Albeit limited to the Danish case, it does provide some support for one of our conjectures, namely that the Commission would see

[9] This contrasts with domestic emissions trading schemes which are being developed in some other Member States (e.g. the United Kingdom), which will not be operational before the implementation of the Danish scheme (e.g. the emission ceilings for individual companies in the voluntary trading scheme of the United Kingdom are not expected to become effective before 2002) and which have not (yet) been subject to a (state aid) decision by the Commission.

grandfathering as state aid based on the state origin criterion, translating grandfathering in terms of giving the (hypothetical) auction revenue to the polluters. The Commission has interpreted grandfathering as a wealth transfer without considering its opportunity costs and indicated that a company may use its profits from permit sales to improve its competitive position. It remains uncertain whether the Commission will also be inclined, in the future, to interpret differences in permit allocation between Member States in financial terms instead of opportunity costs.

Secondly, the Commission nevertheless decided to allow grandfathering following EC Article 87(3)(c) which exempts state aid to develop certain economic activities or areas. The fact that they see grandfathering as actually developing economic activities or areas implies that they acknowledge the financial advantage of grandfathering over auctioning as in the equity interpretation. If they would have used an efficiency perspective, grandfathering would not be seen as to have a cost advantage over auctioning because of its opportunity costs, in which view it does not develop economic activities or areas more or less than auctioning would. In short, the eight reasons for the Commission's exemption are that the Danish scheme (1) contributes to environmental protection and generates experience with emissions trading, (2) incorporates large emitters, (3) intends to participate in future international carbon trading, (4) represents emission reductions, (5) is limited to 2003, (6) does not restrict electricity imports or exports, (7) provides annual reports for transparency and (8) treats incumbents and new-comers equally (COM, 2000d: 6, 7). These reasons to accept grandfathering despite of its state aid character are not only environmental, legal and economic, but also political in nature. The Commission approved the state aid in Denmark, among other things, because of its desire to gain experience with and prepare for emissions trading (reason (1) and (3)). This provides some support for our conjecture that a Commission's state aid decision is at least partly based on political considerations and trade-offs. It also shows that there is broad room for interpreting the exemption rules which goes beyond a strict law and economics approach. Several reasons for the exemption of grandfathering have nothing to do with the allocation per se (grandfathering versus auctioning), but rather relate to the (other and more general) characteristics of the scheme itself.

The presence of political arguments and the absence of the opportunity cost argument in the economic analysis of grandfathering by the Commission can be interpreted in two ways. A pessimist might see them as another example of sometimes imperfect and incomplete case-by-case decisions by the state aid directorate (cf. Cini and McGowan, 1998: 143) or as another example of 'infant' economic analysis in the state aid directorate, which is more

legally oriented than the environment directorate, or in EC competition law itself (cf. Hildebrand, 1998: 413). An optimist might see them as an example of a Commission who is neither blind to international political developments (regarding the emerging international carbon trading market under the Kyoto Protocol) nor to national political preferences (of Denmark) and who is able to find a balance between costs and benefits and between risks and opportunities, indicating that: 'The Danish CO_2 quota system has to be assessed in the light of its merits' (COM, 2000d: 6).

It is important to observe that the equality principle played a role in the Commission's decision on the Danish scheme, because this principle is also part of the (unnoticed) level playing field argument. The Commission indicated to support the equal treatment of new-comers and incumbents in the Danish case in order to avoid competitive distortions (COM, 2000d: 5, 7), which apparently arise in the case of an unequal treatment, meaning that they interpret such distortions not in terms of efficiency, but in terms of fairness. If the Commission will draw the same conclusion in the case of EC-wide emissions trading, permits might have to be auctioned (at least partially) in each Member State – requiring some level of harmonization – to ensure a level playing field of equal treatment between incumbents and new-comers, unless the permits are (partially) grandfathered to new entrants from a reserve or, for instance, unless all grandfathered permits are reallocated every time a new-comer arrives similar to the Danish scheme.

The political (albeit not legal) precedent created by the Commission's decision in the Danish case could suggest that grandfathering in a European carbon trading scheme will not only be seen as state aid, but might also be exempted. However, this remains uncertain because of the difference of assessing domestic permit allocation in one (small) Member State versus the assessment of international permit allocation dissimilarities between several Member States.

5. Research Agenda and Limitations of the Analysis

Our analysis assumes that EU Member States have developed domestic permit trading schemes in which some have allocated the permits by means of grandfathering and others by means of auctioning. Besides the obvious remark that future EU documents, for instance from the Commission, have to be followed closely, because they may shed more light on the issue of permit allocation and state aid as a European emissions trading system matures, it is

perhaps also possible to extend and refine our analysis by linking the allocation issue with the potential role of the level of emission targets, by considering the practical differences in the way countries could organize their grandfathering or auctioning, by taking into account the possibility that some Member States may not (be eligible to) establish a domestic permit trading scheme and by further elaborating the normative question of property rights in relation to the legal state aid provisions.

Firstly, in this paper we primarily considered the way in which the permits are allocated to similar private entities in different Member States and not so much the level of their targets. However, competitive distortions and state aid issues could perhaps also arise if certain private entities in one Member State have much higher or lower emission targets than similar entities in another Member State. On the one hand, it could be argued that the targets, high or low, must be – and will be – considered as fixed to be able to systematically compare a situation of grandfathering with a situation of auctioning in a *ceteris paribus* fashion (as performed in this paper). On the other hand, in a political and/or legal decision whether grandfathering to private entities is state aid, the issue of permit allocation may be viewed by the actors as interlinked with the level of the targets of these entities. For instance, in the case of grandfathering, the government has to define the specific basis in which the permits are allocated for free, such as historical emissions or energy-efficiency. If several Member States grandfather their permits, it is possible that one Member State gives most permits to the most polluting emitters, while another wants to give most permits to emitters who have been most active in the past to reduce emissions. The consequence may be, for example, that the grandfathered, say, cement sector in one Member State receives much more permits than the grandfathered cement sector in another Member State. Another possibility is that a (grandfathered) firm receives 'hot air' permits, representing more allowances than it is likely to need to cover its projected emissions in the absence of mitigation efforts. Further research is thus required to find out whether the issue of how high the targets will be, is likely to be seen (or should be seen) as separate – in a state aid decision – from the issue of how the targets are allocated.

Secondly, these remarks also illustrate that a consideration of state aid may not only focus on grandfathering versus auctioning, but also on one particular scheme of grandfathering in a Member State (e.g. based on historical emissions) versus a different scheme of grandfathering in another Member State (e.g. based on energy-efficiency). Similarly, perhaps also international differences between domestic auctioned schemes could be relevant. There may be different effects in terms of efficiency and equity if, say, two

Member States auction their permits, but one of them uses the revenues to increase its general budget, while another recycles the revenues to a specific group (e.g. the industry). Also more practical differences in the way the auctions are organized, for instance who is (not) allowed to participate and what type of auction is chosen, could perhaps raise concerns in terms of state aid. Therefore, a further fine-tuning of our analysis is possible to investigate whether such intra-EU differences among either dissimilar domestic grandfathered schemes or auctioned schemes may also lead to competitive distortions and state aid.

Thirdly, in our analysis we compare different Member States which are assumed to have developed domestic permit trading schemes. However, it may also be possible that some particular Member States choose not to develop such a scheme at the national level in the first place and, instead, use emission standards or taxation to regulate their polluters. Moreover, even if they would all establish domestic permit trading schemes, it could be that some EU countries are not allowed to participate in private trading across national borders if they do not meet certain pre-defined eligibility criteria for Member States to join the European (or international) permit trading system. For example, it could be that, say, the cement sector in one Member State faces a (tradeable or non-tradeable) relative emission standard, while the cement sector in another Member State receives tradeable permits by means of grandfathering. The question is whether such differences entail competitive distortions and whether the gratis allocation of permits represents state aid in this case.

Fourthly, another point which could influence some of the findings in this paper, such as the treatment of state origin criterion or the polluter pays principle, is the philosophical question who has the initial right to (pollute) the environment. In some possible reasonings, for instance that the public (and not the polluter) pays under grandfathering by shifting the hypothetical auctioning revenues as a wealth transfer from the public to the polluters, it is assumed that society at large or the government representing society owns this original property right. However, it could also be claimed that firms and other private entities within society own this right initially if grandfathering should be seen as a method which simply codifies a right the polluters already had. Still, it might be the case that this does not change the analysis of state aid in our particular law and economics paper. Perhaps the state aid discussion goes beyond a normative consideration of initial rights, since the positive legal state aid criteria are framed in terms of state revenues and firm advantages instead of rights. Some additional research is necessary to find out whether a discussion of original property rights influences the distortion and subsidization analysis and, if so, whether it is likely to become relevant in a political and/or legal decision on grandfathering and state aid.

6. Conclusion

Do differences in the permit allocation procedures among Member States of the European Union (EU) lead to competitive distortions and state aid in a European carbon trading market? The answer to this question is that it depends on the perspective taken. In principle, the answer is 'no' from an efficiency perspective, but the answer is 'yes' from an equity perspective.

From an efficiency perspective, grandfathered firms do not have a cost advantage over auctioned firms in other Member States, because the former firms have to include the opportunity costs of holding the permits in the product price. This means that grandfathered firms are not advantaged, so that there is no state aid. In this view, there is also no need to harmonize permit allocation procedures.

However, grandfathered permits are a capital gift to the firm, inducing a windfall profit, so that an identical firm abroad who has to buy its permits has a higher cash outflow and hence less financial resources. Therefore, from an equity perspective, competition (or: the level playing field) is distorted and state aid occurs because the mere allocation of permits leads to unequal changes of the financial positions and competitive relations between firms across the EU. *Ceteris paribus*, a grandfathered firm in one Member State is then advantaged because it has more financial resources than its auctioned competitor in another Member State. In this view it is also desirable, or even necessary, to harmonize permit allocation procedures.

The Community guidelines on State aid for environmental protection revised in 2001 place a stronger emphasis on cost internalisation than the previous guidelines of 1994. This seems to support grandfathering because of its opportunity costs. However, the provisions for investment and operating aid suggest that firms may receive no more than a certain percentage (for instance 50%) of their permits for free during a limited period of time (for instance five years) as a transition phase towards an auctioned scheme.

In its decision of April 2000 on carbon trading in Denmark, the European Commission considered grandfathering to be state aid, but nevertheless exempted it by using both economic, legal and political arguments. Although it mentioned neither the impact of opportunity costs nor the desire for a level playing field, grandfathering was interpreted as a wealth transfer which could affect the equal treatment of firms. This sets a political (albeit not

legal) precedent in the EU to interpret grandfathering in terms of fairness. Nevertheless, recent discussions among stakeholders and the Commission in the European Climate Change Programme rather point in the direction of leaving Member States free to choose their own permit allocation methods, but they also acknowledge that this must be subject to obtaining any appropriate state aid approvals.

In the context of economic instruments for environmental policy, the Commission has to decide whether permit allocation differences among Member States are compatible with the rules (and exemptions) on state aid. If equity considerations play a role in this decision, the issues of competitive distortion and state aid become relevant in developing a European carbon trading market.

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