I. Preface

Regulation is a widely debated concept, which can vary depending on intensity degree and purposes, so that even deregulation is only a particular interpretation and application of the same principle. It is generally accepted that regulation results from a double loss, which is the failure of both State and market, so it serves as a means to find a new more balanced settlement between public and private interests.

Historically, in the European Community the role of the State has evolved from a managerial approach to a regulatory one. Within the public intervention on economy, in sectors which are characterized by lack of resources (as airports slots and spectrum, whose technical and territorial features bar the simultaneous exploitation of the resource by all applicants), States regulate the related activities carried out by private parties applying instruments as concessions or licences as barriers to entry into the market. The same tools can be used by public authority in other cases, producing this way an artificial lack of certain resources: this can occur for several reasons, e.g. for the purpose of stimulating investments ensuring an adequate return (as in the case of intellectual property rights), or for occupational policy or for guaranteeing a minimum income to definite categories of people (for example, in the cases of milk quotas and taxi licences).

While a concession system has a contractual and bilateral nature (because in change of the entitlement to carry out an activity the concessionaire undertakes to remunerate -directly or indirectly- the State), licence and authorization are unilateral acts which permit the development of the activity. Generally, the concession system allows the State to maintain the ownership of the title and let private bodies to operate for a certain period of time, while the licensing system makes the private parties holders of the title itself. In both cases there is an administrative creation of

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secondary rights, whose content and conditions differ depending on the public choice about these allocation mechanisms.

As seen above, this phenomenon regards many relevant sectors in the EU common market and the result of such public intervention is the creation of a new type of rights, that are akin to property rights but, as they stem from regulatory activities purposive to safeguard public interests, cannot fall into the traditional category of property, which would often be in contrast with those interests.

It is necessary to notice that States do not allot a specific good, but something which does not exist in itself in nature, i.e. an intangible, which falls under the category of the so-called new properties: in general such administrative-created rights can be better defined as entitlements, which entrust a person the right to prevail against others in case of conflict of interests on a resource2.

This is properly the case of spectrum, which Coase defined as a tunnel without boundaries3 and consists in technical characteristics regulated by the law. The same applies to the slots, which do not lie in a geographical tangible piece of land, and to milk quotas and taxi licenses too. They all are allocated by States to an economic operator giving him the right to practise a business activity and confer access to a restricted market, so that concessions and licenses have a great economic value4.

In order to better understand the fundamental problems of the regulation of scarce administrative-created rights, it can be helpful to remind the economic theory of property governance, i.e. the tragedies of commons, anticommons and semicommons. Nearly forty years ago in a famous paper Hardin named the destiny of resources freely available as the tragedy of the commons5: those resources are exposed to the risk of overuse because everyone has an incentive to take as much of that resource as he wants, even though the collective result may be the destruction of the resource itself. If “freedom in a commons brings ruin to all”, society as a whole would be better off restraining consumption and preserving the resource.

Speculatively in the nineties Michael Heller developed the theory of the tragedy of the anticommons, i.e. a property regime in which multiple owners hold effective rights of exclusion in a scarce resource6. In this case, the coexistence of multiple exclusion rights creates conditions for suboptimal use of the common resource: if the common resource is subject to multiple exclusion rights held by two or more individuals, each co-owner will have incentives to withhold resources from other users to an inefficient level. Hence it seems that private property can be at the same time the solution to a tragedy and the cause of another one.

A recent proposal imagines a sort of third way, illustrating the existence of a semicommons where property rights are not only a mix of common and private

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5 Hardin G., The Tragedy of the Commons, (1968) 162 Science 1243.
rights but both are significant and can interact: in a semicommons a resource is owned and used in common for one major purpose but with respect to some other major purpose individual economic units have property rights to separate pieces of the commons. This new model seems to be suitable in particular for new generation resources, as spectrum, databases, internet7.

The main problem which arises is that a process of defining exhaustively the administrative-created rights mentioned above has not developed. Yet the need to define them is similar to that of property rights, which is an important pre-requisite for the market in general. Without clear property rights, uncertainty over value introduces significant risk for buyers and sellers, which may inhibit efficient trades. Indeed, as Coase argued, lack of clear definition of property rights (and mechanism for enforcing them) is considered having a detrimental effect on developing economies.

The regulation held by administrative authorities affects many aspects, for example access to the market, price fixing, entitlement. Resources allocation may be based on two main parameters, economic efficiency –which is concerned with the amount of wealth that can be generated by a given resource– and equity –which deals with the fairness of distribution of the total wealth among the society sectors and individuals. Generally, as we will show in the next pages, allocation by governments has usually not achieved economic efficiency. So the question is: may these scarce entitlements be handled as other goods in a market framework?

The implementation of a secondary trading is a possible consequence of the administrative creation of these ‘property rights’. Secondary trading is distinguished from the primary vertical allocation or reallocation by any Member State or by the Commission or any other competition authority: by primary allocation administrative authorities decide first how to allocate these rights and then how to attribute them (there are several procedures, which the authority may apply). The expression secondary trading may represent the second step after primary allocation and refers to horizontal transfer between persons (or firms) allocated, or entitled to hold such rights, by agreement between them, accompanied, if the parties wish and if the law allows, by payment of monetary or other valuable consideration from one to the other in respect of such transfer. The introduction of rights’ trading devolves decisions over assignment to the market, which will determine who has access to them over time.

As Member States are free to decide which kind of allocation of these rights to adopt, there is no single solution to the problem in the Community. At international level, the most relevant example of secondary trading probably regards emission rights, one of the instruments provided by the Kyoto Treaty. At EU level the United Kingdom seems to be the country that applies the secondary trading solution as a rule to many industries, while in the other Member States the role of the public

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authority as formal holder/owner remains. EU authorities pay attention to this issue, as demonstrated by the recent studies commissioned by the Commission on use of spectrum and slots allocation. Moreover, for a long time it has been discussed which kind of measures are to be taken to make the taxi sector more efficient; the same question arises about milk quotas, whereas the model of a formal secondary trading between private parties is applied by countries as Italy and UK, while in France the quotas market is created by the public authority.

This paper constitutes a preliminary treatment of some aspects belonging a more exhaustive and broad research whose aim is to analyze the different schemes of public choice in many sectors (slot, taxi, spectrum, milk quotas, water, etc.): starting from the existing EC and national regulations on the industries selected, the analysis will consider the different nature of the markets and compare the impact of the formal introduction of secondary trading to alternative forms of transfer, assessing which solution would be more efficient. In particular, a relevant aspect that will be examined regards the potential distortions of competition that might arise (for example, the problems inherent the access to the markets by newcomers and the risk of market pre-emption by incumbents). Finally, the research will focus on different ways of applying secondary trading by rights’ holders (bilateral bargaining, auctioning, buying/selling from intermediaries, brokered trades, exchange-based trades) and different types of transfer that can be allowed.

In this paper three cases will be examined, i.e. airport slots, spectrum rights and milk quotas.

II. Sectors examined:

i) Airport slots

“Slot” is defined by the EC Regulation 793/2004 (Article 2(a)) as “the permission given by a coordinator … to use the full range of airport infrastructure necessary to operate an air service at a coordinated airport on a specific date and time for the purpose of landing or take-off as allocated by a coordinator in accordance with this Regulation”\(^8\).

In the recent years one of the most discussed problems which affects major European airports regards the lack of runway slots to satisfy all demand by airlines; furthermore data suggest that probably the number of airports involved will increase.

The EC Commission is aware of this phenomenon since a long time: after the European single aviation market came into force and the Council Regulation 95/93 was adopted, it commissioned studies by sector experts, as provided by the Regulation itself\(^9\). To mention some of the steps taken by reform initiatives in time, in

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\(^8\) The IATA Worldwide Scheduling Guidelines (§5.3) define slot as “the scheduled time of arrival or departure available for allocation by, or as allocated by, a coordinator for an aircraft movement on a specified date at a coordinated airport. An allocated slot will take account of all the coordination parameters at the airport, e.g. runways, aprons, terminals, etc.” So there’s no conflict between the EC and the IATA definition.

\(^9\) A first study was commissioned in 1995 (Coopers&Lybrand, *The Application and Possible Modification of Council Regulation 95/93 on Common Rules for the Allocation of Slots at Community Airports*); in 2000, a new
2001 the Commission made some proposals for amending Regulation 95/93 and in 2002 it called for tenders for a study to assess the effect of different slot allocation systems. It has to be noted that EC Regulation follows the main principles of IATA Guidelines.

While Regulation 793/2004, amending Regulation 95/93, has left the rules on slot allocation unchanged, two important Reports focus on this issue – still on the agenda of the Commission, which recognizes the current EC rules as unable to remedy the conditions of congested airports: the first one is made by NERA in 2003 and concerns slot allocation schemes, the second is the result of Mott MacDonald’s study presented in 2006 and its purpose is to assess the likely effects of introducing secondary trading of slots.

On the basis of the Airports Council International Europe (ACI) and airlines data, experts have demonstrated the excess demand for slots at certain European airports. Whereas in most industries supply generally grows against excess demand, in aviation market sufficient increases in airports capacity and runway supply are prevented by many factors, which can be summarized as: a lack of sufficient suitable land to construct additional runways; a lack of alternative locations for new airports; the planning lead times to construct new runways where it is possible; the pressure by environmental groups that obstructs political initiatives leaning to construct new runways (local noise levels, air pollution, etc.); the

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10 It can be mentioned that in 2000 the vice-president responsible for transport and energy Loyola de Palacio sought to introduce new proposals allowing for partial auctioning of slots and secondary trading of slots, but his initiative was effectively vetoed by Member States and by a lobbying campaign adopted by European flag carriers who enjoyed grandfathering rights at congested airports. It was agreed that the Commission should work on an interim revision of the EU slot directive, which would take account of developments within the airline industry.

11 The International Air Transport Association developed guidelines for the allocation of slots on a worldwide basis: even if they have not force of law, they are an important reference point. These Guidelines, that currently have reached the 12th edition in December 2005, are known as IATA Worldwide Scheduling Guidelines and cover procedures for both ‘facilitated’ and ‘co-ordinated’ airports. Twice a year, in June and September, the IATA Scheduled Conference takes place: it is a forum where, inter alia, it is discussed the allocation of slots at coordinated airports.

12 European Commission, Study to assess the effects of different slot allocation schemes, Report by NERA, January 2004, available on line at www.nera.com


14 See Airports Council International Europe, ACI Europe Position on Allocation of Slots, 22 June 2007, available on line at www.aci-europe.org. It is necessary to explain briefly how airports are classified. IATA Guidelines distinguish between: a) non coordinated airports, whose capacities are adequate to meet users’ demand; b) facilitated airports, where there is potential for congestion at some periods of the day, week or scheduling period, so that a more formal level of co-operation is required to avoid reaching an over-capacity situation; c) coordinated airports, where demand exceeds capacity during the relevant period and it is impossible to resolve the congestion through voluntary co-operation between airlines neither in the short term, so that formal procedures need to be implemented. This international terminology has been reached by Regulation 793/2004, which specifies that the expression ‘coordinated airport’ refers to “any airport where, in order to land or take off, it is necessary for an air carrier or any other aircraft operator to have been allocated a slot by a coordinator, with the exception of State flights, emergency landings and humanitarian flights” (Article 1.2, b, g).
substantial capital cost of providing additional capacity. In addition, most of European airports are still public controlled utilities, so that political issues and budget restrictions occur\textsuperscript{15}.

It is generally accepted that an efficient allocation of the existing scarce capacity, and consequently of slots, could be a means to manage demand and try to remedy its mismatch with supply\textsuperscript{16}. Recently the topic of slot mobility is highly debated and there are a lot of proposals concerning new allocation procedures, but the concept of slot and rights which are related to it are not definitely clear yet.

The current EC Regulation provides that slots are to be assigned to air carriers on an administrative basis (and not by payment), specifically the primary allocation is made from the slot pool by the airport coordinator\textsuperscript{17} subject to the principle of historical precedence, i.e. grandfather rule, combined with the ‘use it or lose it’ mechanism: according to these principles, once an air carrier has been allocated a slot or a series of slots (which is the hypothesis encouraged by Regulation “in the interest of stability of operations”\textsuperscript{18}) and has used them regularly during a season\textsuperscript{19}, that airline has the right to be allocated the same slots for the next equivalent season and not return them to the slot pool. This mechanism can continue indefinitely\textsuperscript{20}. Grandfather rights’ application is controlled by the coordinator, as many other aspects, including slot mobility.

The Council Regulation contains a list of procedures allowed for slot mobility, distinguishing between transfers and exchanges. While exchanges are permitted only ‘one for one’, there are different cases in which slots can be transferred, as Article 8a rules: by an air carrier from one route or type of service to another route or type of service operated by the same air carrier; or i) between parent and subsidiary companies, and between subsidiaries of the same company, ii) as part of the acquisition of control over the capital of an air carrier, iii) in the case of a total or partial take-over when the slots are directly related to the air carrier taken over\textsuperscript{21}.

As it can be noted, there is no reference to monetary consideration in EC Regulation and this has led to consider sales of slots forbidden. In the same way, the definition of property rights relating slots at congested airports is uncertain yet, because the question has never been fully handled by legislators. As a result, three


\textsuperscript{17} Article 1, §4, defines the roles and competences of the scheduled facilitator and the coordinator. In particular, at §4 - 5, states that the coordinator is the sole responsible for the allocation of slots.

\textsuperscript{18} See whereas 9.

\textsuperscript{19} Article 8, §2, provides that air carriers must demonstrate that the series of slots in question has been operated by it for at least 80% of the time during the scheduling period for which it has been allocated.

\textsuperscript{20} Article 10 regulates the pool set up by coordinator which contains all the slots not allocated on the basis of Article 8 (2) and 8(4):it also states (§6) that slots placed in the pool shall be distributed among applicant air carriers (50% of these slots shall first be allocated to new entrants unless requests by new entrants are less than 50%).

\textsuperscript{21} Article 8, §3 contains rules for new entrants, stating that slots allocated to them cannot be transferred for a period of two scheduling seasons except in the cases expressly provided in the same paragraph.
parties claim for these property rights, that are States, airport operators and airlines, everyone pretending to be the legitimate owner. In this context, where slots in congested airports are allocated by administrative procedures and there is no market for them, the problem of assessing who is the ‘owner’ seems to remain subordinate to the resolution of another issue, i.e. the possibility of trading slots between air carriers.

In the ambiguity of Regulation, which does not mention monetary consideration neither contains an explicit ban, a ‘grey market’ has developed in Europe. Airlines have used to exchange slots by trades at coordinated airports, where in substance it was not allowed, adopting an elusive scheme like that: Airline A exchanges slots with Airline B but, by way of such exchange, receives from B slots for which it has no requirement or at uncommercial times, purely for the purpose of returning them to the pool after the exchange (these are often named as ‘junk’ slots). In these cases, it can be argued that monetary compensation occurs.

A debate about this phenomenon arose under the provision of Article 8.4 of Council Regulation 95/93, which was highly ambiguous stating that “slots may be freely exchanged between air carriers or transferred by an air carrier from one route, or type of route, to another by mutual agreement or as a result of total or partial takeover or unilaterally”: in particular, it was contested as unclear the use of the word ‘unilaterally’ and the expression ‘freely exchanged’. If it is true that Regulation 95/93 opened the door for private transactions between air carriers, it is also true that it did not clarify whether payment of money was permitted or not.

The UK High Court, in an important decision of March 1999 (Guernsey case), recognized the existence of a secondary market in slots and interpreted the Regulation 95/93 approving the right of airlines to exchange scarce slots for money. This interpretation, which constitutes a precedent in English system but was not shared by other national judges neither by European Court of Justice, has lead UK to develop a ‘grey’ secondary market for slots.

It is necessary to briefly mention that the US system operates in a wholly different manner and a secondary trading for slots operates from 1986, when the FAA (Federal Aviation Administration, a sub-department of the US Department of Transportation - DoT) adopted a buy/sell rule at the most congested airports.

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22 Boyfield K., Who owns airport slots? A market solution to a deepening dilemma, in Boyfield (ed.) – Starkie – Bass – Humphreys, A Market in Airport Slots, (supra note 13), p.29. The Author affirms that there is a “pressing need” for new legislations to define property rights related to slots (p.39).
24 High Court of Justice, Queen’s Bench Division, 25 March 1999. In this case, a KLM’s subsidiary, Air UK, used eight daily slots to operate a scheduled service between Guernsey and Heathrow. The State of Guernsey Transport Board challenged in the British High Court KLM’s right to sell slots it held at Heathrow to BA. As it was affirmed by the claimant on the basis of information published in KLM’s annual report, the airline would have received financial compensation for the transfer of these slots.
25 For more details, see Report by Mott MacDonald, supra note 12, chapter 5, p.7-33. To solve the problem of congestion in 1969 the Congress introduced a new legislation, the High Density Rule, which set a limit on the total number of flights into and out of five highly congested airports during specified times of the day. In the mid 1980s demand for air travel increased, particularly at those airports. So the FAA adopted a buy/sell rule in 1986. Under this buy/sell rule, slots were initially allocated to the carriers that were already using them, thereby maintaining their ‘grandfathering rights’ and airlines did not have to pay for them. However, as soon as the
which has been amended in the next years. The operativeness of secondary trading has been circumscribed by the Air 21 Act (2000), which provides a new category of slots, exempted from the High Density Rule applied from 1969 to most congested airports: in order to encourage services to smaller communities and services by new entrants, air carriers have been allocated these slots for free; moreover, the Air 21 Act specifically states that none of these may be bought, sold, leased or otherwise transferred by the carrier to which it is granted. Moreover, it has to be stressed that secondary trading for slots in the US generally concerns the domestic market (and not the international flights).

To summarize, there are many aspects apart from EC model, as they have permitted the development of a secondary trading in the US: among them, there is no regulatory authority allocating specific slots to air carriers, while the movement is generally carried out on the basis of the capacity of runways declared by US airports assuming Visual Meteorological Conditions and Visual Flight Rules. Moreover, the US DoT and its sub-department FAA claim that under the 1958 Air Transport Act, slots are theirs to withdraw and reallocate at any time they consider necessary. Furthermore, it should be underlined that in the US individuals or entities other than carriers are permitted to hold slots.

To conclude, secondary trading in the US seems to have increased slot mobility. It has been widespread at the most congested airports and generally it takes the form of leasing, as opposed to outright sale: this form enables carriers to retain ownership of these valuable assets, while generating a stream of revenue if they

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27 Evidently, by the Air 21 Act provisions, the total number of potential slots available for secondary trading has decreased. Sector experts affirm that the deregulation introduced by Air 21 Act led to acute congestion.

28 In those cases where political initiatives decided to regulate congestion, a distinction has been drawn between domestic and international slots, showing more consideration towards the second according to the view that access to airports must always be made available to air carriers designated by other contracting states.

29 Report by Mott MacDonald, supra note 12, 5-8: air carriers can plan their activities with the help of the Official Airline Guide (OAG) and other sources of information. Specifically, airlines schedule their own services into and out of specific airports, following a general rule of ‘queueing up’—with the exception of the most congested airports—and accepting the risk of substantial delays if they designate busy times or if weather conditions are adverse. While in the EC, in order to operate services, air carriers need to be allocated specific slots and this allocation made by a coordinator at an airport implies the access to a runway at a specified time along with all the other necessary infrastructure services, in US the onus is on individual airlines, not airport coordinators, to arrange the daily schedule of services to and from a specific airport and facilities mentioned above are subject to separate negotiations.

30 Ibid. Generally, this is a way for DoT and FAA to persuade air carriers to reduce operations in case of congestion. On the contrary, in the EC Member States have duties to perform, but the Regulation provides no legal basis for them to claim the property of slots, although they are permitted to reserve slots for public service obligation routes: as a consequence, air carriers holding slots at Community airports do not recognise that any government or regulator has a general right to withdraw slots. However, in certain specific circumstances, airport coordinators are permitted to withdraw slots if they can demonstrate ‘slot abuse’ by an airline; slots may also be withdrawn as part of an explicit remedy solution agreed with regulators responsible for the implementation of competition law.
choose not to operate the slots themselves. Trading is often conducted for monetary consideration, but other forms of commercial benefit can occur too.

**i.a) A market approach?**

As it has been highlighted at the beginning of our dissertation, according to the studies commissioned by the Commission, experts agree that the administrative procedures, in particular the grandfathering of slots, and the rules regarding the allocation of pool slots are one important cause of inefficiency in EC aviation market. Moreover, it can be affirmed that there is a discrimination between new entrants and long established incumbents and there is a lack of clarity about overall policy objectives. In this context, the adoption of market mechanisms can perform transparency and efficiency\(^{31}\).

From an economic point of view, efficiency implies two different concepts, allocative efficiency and productive efficiency. The first one requires that slots must be used for the most requested and highly considered by customers; the second one requests the maximization of the number of slots at each airport, in other words that each slot has to be used to move the maximum amount of passengers possible or to produce the maximum number of revenue passengers kilometres\(^{32}\).

According to NERA Report, the main cause of inefficiency is the inertia: grandfathers’ rights allow airlines to operate without feeling in danger of losing their historical slots\(^{33}\). This causes a great lack of slot mobility: it becomes very difficult to obtain a series of slots with which enter into the market or expand, and at congested airports pool slots available regard unattractive times or they are not available as a series. This situation clearly creates barriers to entry, which primarily affect new entrants and competitors to incumbent airlines, but can obstruct the improvement of network and services by incumbents too.

Therefore it is clear the reason why incumbents are reluctant to relinquish slots even if they make a financial loss on some services: they maintain the expectation they will be able to use the slot profitably again within a short time but, above all, they are interested in preventing the entrance of new competitors. In the meantime, the services that operate are inefficient, and in some cases a proportion of such flights will be cancelled in order for the airlines to reduce costs, and so scarce capacity is wasted\(^{34}\). In addition, airlines which have been allocated slots from the

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\(^{32}\) Report by Mott MacDonald, *supra* n. 12, 2-5.

\(^{33}\) In NERA Report, *supra* note 11, it is explained that “as with all goods and services, existing airport capacity can be allocated efficiently if charges to airlines are set to equal the marginal social cost of the service using the airport. Marginal social cost includes both the marginal operating cost of the airport owner, and the cost of delay to passengers and airlines. Delay etc. costs tend to increase as the airport operates close to its physical capacity. Once the physical capacity is reached, marginal social cost reflects the opportunity cost, or willingness-to-pay of services that cannot be accommodated, given the capacity constraint. In practice, charges to airlines are not set according to these principles, and this divergence from marginal cost results in inefficiencies” (p.49).

\(^{34}\) Report by NERA, *supra* note 11, p.51.
pool do not usually return them in good time: the same problem occurs regarding slots which are not used by the airline allocated, as there is no sanction associated to the deadline provided in these cases by IATA Guidelines neither by Council Regulation.

From the competition law point of view, grandfather rights at congested airports constitute the principal barrier to entry to air transport market. On the basis of the administrative method in force, coordinators and public authorities cannot exclude airlines from slot allocation and their possible discriminatory behaviour can configure illegitimate conduct, while the mere possession of slots by airlines does not represent itself an abuse of a dominant position.

Two aspects of the current allocation system are problematic in the light of the risk of market pre-emption. Firstly, the number of slots present in the pool, even if reserved to new entrants, is not sufficient to program high frequency flights. Secondly, the grandfathering system and the absence of a regulated secondary market makes it difficult to clearly detect cases in which slots are maintained -even if on not profitable routes- for the purpose of an anticompetitive behaviour (i.e. avoiding slots to end up in rivals’ hands) or for legitimate economic strategies (for example, an airline who knows that it will be difficult to obtain again the slots once given to the pool, may decide to maintain them programming loss-making flights in perspective of profiting from them in the future); at the same time, as recently Italian Antitrust Authority (AGCM) affirmed\textsuperscript{35}, it is not easy to identify airlines which are allocated a great number of slots at an airport and usually hamper the allocation of these slots to certain concurrent firms.

It is worth to note that at the present in the European Community no judicial cases of abuse of dominant position relating to anticompetitive slot allocation have been decided\textsuperscript{36}, while there are numerous cases of strategic alliances which have been authorized by the Commission under the condition of transfer of slots at congested airports\textsuperscript{37}: generally the assignment of slots is linked to the obligation of not increasing flights on the routes involved (frequency freeze) for the starting period of newcomers’ activity, so that their entry into the market is not hampered; sometimes if the number of flights programmed by the newcomer is lower than those involved into the block, parties undertake to conclude an agreement providing a fixed number of seats as reserved to each of them (blocked space agreement).

\textsuperscript{36} Nevertheless recently the AGCM (see notice AS254, 20 February 2003) reported to the Ministry of Infrastructures an infringement of Ministerial Decree 5 January 2001 by Assoclearance, the Italian agency for airport coordination, which considers each firm member of the same group as a single one in order to allocate slots, favouring at Linate airport airlines forming groups (in particular, Alitalia and Volare). But judges of TAR Lazio (judgment 27 February 2003, n. 4267) did not agree with AGCM, acquiting Assoclearance and stating that the coordinator, once he has verified that the airline is entitled to operate, fairly has to activate allocation procedures complying with EC rules, while he cannot previously verify business relationships existing between carriers, neither he cannot deny slot allocation at this stage. The same reasoning has been adopted by AGCM in the case Alitalia/Volare (decision 10 July 2003, n. 12/185): the Authority has affirmed that the current system leads to barriers to entry favouring slot allocation to airlines forming groups, which succeed in achieving more bands than they could if they were considered uti singulae.  
\textsuperscript{37} In the case Air France/Klm (Commission, 11 February 2004, case M.3280) parties have undertaken to make a certain number of daily slots available to newcomers indefinitely.
In order to assess which allocation scheme has to be applied, it is necessary to bear in mind that any system for allocating scarce capacity will create gainers and losers\(^\text{38}\). In the current system, it can be argued that there are some undisputed gainers (incumbent airlines which have allocated slots at busy airports) and several losers: first of all, new entrants, who cannot operate on the scale they need or, in some cases, at all; but also users of thin services, as regional ones, which airlines tend to replace with more profitable routes, and in general users of routes where more head-to-head competition would stimulate new or better products or lower fares\(^\text{39}\).

It is affirmed that market mechanisms have the potential to improve efficiency, because, compared with administrative or other non-market allocation mechanisms, they can more highly ensure that slots are allocated to those airlines which value them the most. Of course, an airline’s willingness to pay for a slot is not a perfect indicator of its value to society, which results by a comparison with other factors as pollution, noise and other external effects. But, according to NERA Report, these factors are to be taken into account of outside of slot allocation procedure (for example through taxes and subsidies for regional services that airlines value less). At the same time, airlines may be willing to pay for particular slots for reasons that not correspond value to society (for example, airlines might pay more for slots at particular airports, because they wish to maintain a presence at that airport for reasons of corporate or national prestige, even if they make a financial loss on those services; or airlines might pay high prices for particular slots in order to prevent a potential competitor from entering the market)\(^\text{40}\).

Market mechanisms can operate in two ways: under primary trading, through auctions or higher posted prices airlines should pay for their slots, so that slots would be allocated to the airlines that value them the most; or under secondary trading, where airlines would be free to sell and buy (the holders of existing slots do not have to pay for their slots and they nevertheless face an opportunity cost in the form of revenues they forego if they carry on using a slot that could be sold instead to another airline)\(^\text{41}\). Evidently, primary trading regards the initial allocation, while secondary trading is not consistent with it because it can operate only once a first allocation of slots has been determined. Assuming that primary allocation remains the current administrative procedure, NERA purposes four types of market mechanisms\(^\text{42}\): secondary trading; higher posted prices\(^\text{43}\); higher posted prices and secondary trading; auction of pool slots and secondary trading\(^\text{44}\); auction of 10 per cent of slots and secondary trading.


\(^{39}\) Bass, *supra*, p.84.


\(^{41}\) Report by NERA, *supra* note 11, p.67.

\(^{42}\) Report by NERA, *supra* note 11, p.III-VI.

\(^{43}\) By this mechanisms, prices could be increased in order to reduce the extent of excess demand and ensure that highly requested slots are not allocated to low value services. This can be a chancy solution, because in order to reduce the risk of setting prices too high and slots remaining unsold, prices should be fixed deliberately on the low side: but this means that prices might still fail to clear the market and therefore it could still lead to an excess demand.

\(^{44}\) Report by NERA, *supra* note 11, p.V: “While auctions have been used to allocate telecommunications and other licences in recent years, the fact that airport slots at different times may not be good substitutes for each


**ii) Spectrum rights**

Radio spectrum is an essential high valuable resource nowadays, because of its irreplaceability as key input not only into many communication services, which have emerged as mass-market consumer products (such as broadcasting and mobile telephony), but also in other economic sectors (for example, radio is used by maritime and aeronautical services for communications, navigation and surveillance functions; taxi firms utilize particular private radio systems).

Technically radio spectrum is defined as the part of the electromagnetic spectrum that lies between frequencies 9kHz and 3000GHz, although with present technology it is only practical to exploit spectrum below 100GHz \(^{45}\). It has been divided on an international basis into a number of blocks (frequency bands) which are identified by their possible use for one or more services\(^ {46}\); furthermore, the suitability of spectrum for different uses depends on the availability of equipment too, which in turn can be influenced by regulatory decisions specifying requirements for particular frequencies.

Being a public resource that cannot be assigned to anyone who claims it neither shared by users indiscriminately, the amount of spectrum suitable is limited and there is excess demand over supply. The typical problem related to scarcity of spectrum regards the avoidance of harmful interferences: briefly, economic scarcity occurs whenever demand for a good would exceed available supply if the good were freely available; interference affects radio communications system when the receivers are unable to sufficiently discriminate the signal they are supposed to receive from other radio communications transmissions and it may happen, for example, when different users use the same or similar frequency, are located within the same geographical area or transmit at the same point in time\(^ {47}\). Traditionally, in order to impede harmful interferences, spectrum managers have created from engineering calculations specific rules for each frequency band specifying an amount of spectrum

\(^{45}\) This is the definition adopted by the Radio Spectrum Decision 676/2002/EC, 7 March 2002, **OJ** 108, 24.4.2002, 1-6. See European Commission, *Study on conditions and options in introducing secondary trading of radio spectrum in the European Community*, Final Report by Analysys Consulting Ltd, DotEcon Ltd and Hogan&Harson LLP, May 2004, available online at ec.europa.eu/information_society/policy/radio_spectrum/docs/ref_docs/secondtrad_study/secondtrad_final.pdf (p. 13). Generally, lower-frequency signals travel long distances and can penetrate dense materials—as walls-, so that they are most suitable for covering large areas (such as television and radio broadcast transmissions). Higher frequencies signals travel shorter distances, which means that the frequency can be re-utilised more.

\(^{46}\) Report by Analysys & partners, *supra* note 44. Spectrum can be classified into four categories, applicable in EU: i) below 1GHz – above 30 MHz: broadcasting, defence, private mobile radio, mobile telephony); ii) between 1-3GHz: defence, civil aviation, broadcasting, telecom operators’ fixed links, satellite communications, mobile telephony; iii) between 3-30 GHz: defence, fixed links, satellite communications; iv) above 30 GHz: short-range communications as fixed links.

\(^{47}\) Report by Analysys & partners, *supra* note 44, p.15. Furthermore, the receiver also has to distinguish the wanted communications signal from the noise existing between frequency bands. Interferences are determined jointly by the characteristics of transmitters and receivers, which can use a low manufacturing equipment.
rules (guard band) that should lie idle between two users: by the use of guard bands, spectrum management authorities (SMAs) can immediately observe eventual frequency problems, but this mechanism leads to leave a large amount of spectrum unused\textsuperscript{48}.

As it has been highlighted above, frequencies are considered a public resource: this implies that governments should provide for the distribution of the access to spectrum rights and create regulatory policies turned to solve the problem of managing interferences.

It has been affirmed that spectrum “is a tremendous natural resource, but, if not used properly, also has the possibility of acting as a ‘bottleneck’ inhibiting innovation and growth”\textsuperscript{49}. An important point to remember is that no one, including regulatory bodies, can be expected to guess which technologies will have a major impact and which will not. As innovation is occurring very rapidly, today, more than in the past, there’s a great hunger for spectrum and consequently a pressing need for good policy for spectrum management\textsuperscript{50}.

European Member States have adopted similar administrative approaches. In the last decade, at the instigation of EU authorities, it has been developed a reflection for an efficient reform of spectrum regulation and there has been considerable debate in the literature over this issue: like in the other sectors analyzed, it has been considered the adoption of a market approach, involving secondary trading too.

\textit{ii.a) Legal framework}

Since many years EU authorities pay a great attention to the issue of spectrum management. To summarize the most relevant recent steps on EU initiatives of the matter, in 2004 it has been published by Analysys Consulting Ltd, DotEcon Ltd and Hogan&Harson LLP a Report on secondary trading of radio spectrum undertaken for the Radio Spectrum Policy Unit of the Information Society Directorate-General of the European Commission. In 2005 the Commission has confirmed the need for a ‘gradual but systematic liberalisation of radio spectrum use’\textsuperscript{51} and presented a strategy for advancing a single market for radio spectrum use in Europe\textsuperscript{52}. In 2006, as part of the annual review of the Regulatory Framework for Electronic Communications, the Commission has shown the intention to adopt legally binding instruments to develop a common framework for spectrum trading in the EU and to establish a committee process to identify selected bands for use under general

\textsuperscript{48} As the Report by Analysys & partners (\textit{supra} note 44) explains, “spectrum allocation is closely tied to existing technologies” and “existing management systems tend to be inflexible towards technological change” (p.16). So incumbents are favoured because they are protected by interferences and they are not incentivized to introduce costly but more spectrally efficient technologies: as a result, this reduces incentives for equipment manufacturers to improve more efficient technologies, as they prefer to maintain the status quo.

\textsuperscript{49} Nolan D., \textit{Spectrum Policy: Regulation and Markets}, October 2005, available on line at \texttt{www.itu.int}.


\textsuperscript{52} European Commission, 29 September 2005, “Commission proposes advancing single market for radio spectrum use”, IP/05/1199.


Starting from the Framework Directive, its declared aim is to establish a harmonised framework for the regulation of electronic communications networks and services, first of all encouraging efficient use and effective management of radio frequencies with allocation and attribution based on objective, transparent, non-discriminatory and proportionate criteria\footnote{Whereas 19.}. Articles 8 and 9 provide that the management of the radio frequencies is devolved to national regulatory authorities, containing a list of ‘obligations’ and principles which must govern their activity: between these principles, it is affirmed that Member States may make provision for undertakings to transfer rights to use radio frequencies with other undertakings, notifying the intention to the national regulatory authority responsible for spectrum assignment (Article 9, § 3-4)\footnote{Furthermore, §4 provides that any transfer takes place in accordance with procedures laid down by the national regulatory authority and is made public.}.

This provision is important because grants Member States discretion to create rules for the transfer of usage rights, allowing secondary trading: of course, there is no obligation for Member States to introduce provisions on trading of rights, but if
Member States do, they have to specify when rights are granted, whether the rights can be transferred and under what conditions.

Other relevant provisions are contained into the Authorisation Directive, which defines when rights of use of spectrum should be granted, introducing a system based on general authorisation\textsuperscript{62}: in particular, Article 5 states that whenever it is possible and where the risk of harmful interference is negligible, Member States should allow networks and services providers to rely on general authorisations rather than require those undertaking to obtain individual rights of use. Moreover, it is affirmed that Member States have to grant rights of use of spectrum through open, transparent and non-discriminatory procedures, also specifying whether those rights can be transferred at the initiative of the right holder, and under which conditions; where Member States grant rights of use for a limited period of time, the duration shall be appropriate for the service concerned and they can only amend these rights in ‘objectively justifies cases’, giving notice and opportunity for comment\textsuperscript{63}. Then Article 7 regulates the procedure that a Member State must adopt in the case of necessity of limiting the number of rights of use to be granted for radio frequencies.

The Radio Spectrum Decision clarifies that EU authorities are aware of the fact that spectrum policy cannot be based only on technical parameters but also needs to take into account economic, political, cultural, health and social considerations: indeed it is affirmed that the ever increasing demand for the finite supply of available radio spectrum will lead to conflicting pressures to accommodate the various groups of users in sectors such as telecommunications, broadcasting, transport, law enforcement, military and the scientific community\textsuperscript{64}. The aim of the Decision is to create a regulatory framework that ensures the coordination of policy approaches and, where appropriate, harmonised conditions in order to allow the development of a EU radio spectrum policy in all sectors where needed for the establishment and functioning of the internal market: to achieve this goal, the Decision establishes procedures and provides that the Commission has to be assisted in its activity by a specific committee (the Radio Spectrum Committee)\textsuperscript{65}.

\textit{ii.b) Spectrum management models}

Traditionally, it has been distinguished between allocation and assignment of spectrum. Even if, according to some experts’ opinion, this distinction has no

\textsuperscript{62} See whereas 8.

\textsuperscript{63} See whereas 33: this provision regards the cases when Member States need to amend rights, conditions, procedures, charges and fees relating to general authorisations and rights of use.

\textsuperscript{64} Whereas 8.

\textsuperscript{65} Articles 3 –4. The Radio Spectrum Decision covers spectrum use outside communications too and empowers European Commission to mandate the European Conference of Postal and Telecommunications Administrations (CEPT) to develop technical solutions for harmonizing spectrum use to give effect to EU policies. After the Radio Spectrum Decision, two entities have been established: i) the Radio Spectrum Committee (RSC) -chaired by the Commission and composed of representatives of the Member States- which assists the Commission in developing decisions regarding technical implementation measures; ii) the Radio Spectrum Policy Group (RSPG) –composed oh high-level representatives from EU Member States and the Director General of DG Information Society- which advises the Commission on issues of a broad policy scope. Under the Radio Spectrum Decision, the Commission can also act to ensure the co-ordinated and timely provision of information concerning the allocation, availability and use of radio spectrum in the EU.
economic rationale\textsuperscript{66}, it is currently adopted, making reference to spectrum ‘allocation’ as the division of the spectrum into bands for particular services (such as fixed links, mobile communications and broadcasting) and to ‘assignment’ as the authorisation given to an individual user to use a specific frequency or frequencies under specified conditions: hence, once decisions on how to allocate spectrum in a particular band to specific uses are made, the next step is to determine how to assign usage rights for that spectrum to particular users.

The mainstream model for spectrum management is named command-and-control: under this mechanism, government institutions (typically SMAs) are responsible for both allocation and assignment, while users do not have a formal role in decisions on the use of particular spectrum blocks, but can have a substantial influence acting together with stakeholders (lobbying). The model provides that subjects who want to use specific frequency bands must obtain licence or right of use from SMAs. If it is true that this model is very effective to prevent harmful interferences, nevertheless it responds more slowly to developments and market needs so that it often delivers inefficient allocations and assignments, in addition to placing a big responsibility on authorities to pick appropriate uses, technologies and users\textsuperscript{67}.

The market model is presented as the direct alternative to command-and-control: it is based on state’s responsibility only for the initial attribution and not for decisions over allocation, which are devolved to the market indeed\textsuperscript{68}. This model normally involves the award of exclusive rights –similar to property rights- through a market mechanism, such as an auction\textsuperscript{69}.

An alternative model is known as commons model (open access or unlicensed spectrum model), which devolves on state to decide only the type of use (allocation) while there are no restrictions on who can use the spectrum for specified technologies or services (assignment). Consequently, an unlimited number of users coexist sharing access to spectrum and they are not required to have a licence: they have not a right to be protected from interferences but they are protected by technical standards established by governments and committees and by etiquettes (for instance the assumption that users will abstain from unnecessary use of the spectrum shared). This model is typically used for services with small non-commercial users and where the cost of interferences is considered small relating to the cost of

\textsuperscript{66} Valletti – Prat, supra note 49, p.567.

\textsuperscript{67} See Report by Analysys & partners, supra note 44, p.24-25.

\textsuperscript{68} OECD, Secondary markets for spectrum: policy issues, Working Party on Telecommunication and Information Services Policies, Report, 20 April 2005, available at www.oecd.org. In the Report (at p.11) it is explained that an exclusive usage rights approach usually has the following characteristics: i) the band for a service is divided into blocks with exclusive usage rights for a given area and block of frequencies; ii) the SMA determines the initial number of blocks and their assignment to users through titles of ownership or licenses; iii) the SMA specifies maximum acceptable interference levels and enforces these levels by a combination of technical specifications and spectral separation between the signals of different service providers. For a spectrum band of fixed size, the maximum acceptable interference level determines the maximum number of firms that can enter the market.

\textsuperscript{69} Report by Analysys & partners, supra note 44, p.26: technical rules governing emissions are necessary to avoid harmful interferences, so that these rules, together with obligations imposed for public policy reasons, may constrain autonomy in decisions over usage.
exclusive rights (for instance, maritime radio, amateur radio)\textsuperscript{70}. Currently the demand for unlicensed spectrum has increased because of the development of short range devices, which can be used for commercial and non-commercial activities (such as broadband access and wireless networking)\textsuperscript{71}.

There has been a heated debate in literature about the need for an appropriate approach to spectrum reform. In addition to those – a minority current of opinion-who still affirm the advantage of the traditional command-and-control approach (at least in some restricted public service areas), while on one side are the supporters of open spectrum commons, contending that it would increase spectrum utilisation and stimulate innovation by facilitating entry of sophisticated devices based on new advanced technology, on the other hand are proponents of the market model, arguing that only an ‘exclusive’ spectrum usage rights approach which implies the use of market force would grant faster, flexible and efficient access and utilisation of spectrum\textsuperscript{72}.

As it can be observed, the main issue of this debate seems to regard property governance: the criticism towards the unlicensed spectrum model predicts the ‘tragedy of the commons’, i.e. the inefficient overuse of scarce resources that are held in common; but, from the other side, the reply claims the risk of inefficient underuse due to increase and fragmentation of exclusive rights (i.e. the symmetric tragedy of the anticommons)\textsuperscript{73}.

A study conducted by OECD suggests an ‘optimal mix’ of the two approaches in consideration of the transaction costs related to each of them\textsuperscript{74} and proposes an intermediate point between exclusive use and commons, known as the ‘easement approach’, which grants the licensee a restricted interest in the spectrum band and geographic area for which it holds a license: the licensee could have priority of use at all times, but when he is not using the spectrum, a third party may use it, having priority in use over other third parties; upon entry of the licensee, the occupying party must evacuate.

To conclude, practically the main approaches adopted by governments to allocate spectrum are two: the administrative approach, implying SMAs to decide what specific frequency blocks will be used for, with both command-and-control and commons model; the service/technological neutral approach (i.e. market model),

\textsuperscript{70} \textit{Ibid.} This model coexists with the command-and-control. The process of allocation, which is made by the state, is subject to heavy lobbying activity.

\textsuperscript{71} In addition to these three models, in the Report by Analysys & partners (\textit{supra} note 44) it is mentioned another one, the unrestricted usage model: it is a ‘non-management’ model (considered as the ‘true’ commons model), as the state is not involved either in allocation and assignment. This model is impractical as it cannot protect from harmful interferences, but the experts affirm that the development of low-power and polite technologies increases the possibility that the commons model will in the future look more like this (p.27).

\textsuperscript{72} The details of this debate are explained into OECD Report, \textit{supra} note 67, p.8-9.


\textsuperscript{74} Faulhaber G.R. – Farber D., \textit{Spectrum Management: Property Rights, Markets and the Commons}, Paper presented at the 14n Biennial Conference of the International Telecommunications Society, August 18-21, 2002 Seoul, Korea, available on line at rider.wharton.upenn.edu/~faulhaber/SPECTRUM_MANAGEMENTv51.pdf . “The structure and magnitude of transaction costs determine the boundary between efficient regimes. If transactions costs of a property rights regime are quite high, then the costs of the tragedy of the commons must be quite high indeed to justify using a market regime. If the costs of a property rights regime are relatively low, then it is likely more efficient than a commons regime even at low levels of contention costs”.

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where users decide how to use spectrum, subject to the obligation of not generating interferences.

It has to be noted that although the new EU Framework supports a move to greater service/technology neutrality, in practice the SMAs have significant discretion to mandate particular services or technologies on grounds of concerns over harmful interferences or national policy objectives: hence, the majority of allocations and licence assignments are still service-dependent, but the UK, Sweden and Netherlands have declared the goal of making usage rights more service independent75.

Spectrum assignment can be done on the basis of the commons model (unlicensed spectrum) or command-and-control and market models (spectrum rights): while the commons model is based on the inexistence of spectrum rights and on the unlicensed use, the command-and-control and the market models imply the creation of usage rights, the first by requiring a licence, the second establishing exclusive use. It has to be briefly mentioned that once spectrum rights have been created, there are three main mechanisms for assignment: first-come-first-served, which can be used when there is no scarcity of resources; comparative selection, which is the traditional means applied in many European countries (Finland, France, Iceland, Ireland, Luxembourg, Malta, Portugal, Spain) and allows governments flexibility to evaluate bids on the basis of wide-ranging public-policy criteria and not just the applicant’s willingness to pay76; auctioning, which is increasing in many European countries for assignment of spectrum for commercial uses (for example, the UK, Germany, Netherlands, Italy, Austria and Denmark have adopted this mechanism for 3G licences) and can be economically efficient because ensures the award of licenses to those bids who value them the most, and, compared to comparative selection model, can be faster and more transparent77.

The growing use of auctions has increased the number of spectrum rights subject to market-based pricing, although even in case of its absence currently governments are used to set prices at market levels. Where auctions are not considered appropriate, a method of setting market-based prices is administrative incentive pricing (AIP). Pioneered in the UK, this mechanism implies that SMAs have to set prices for usage rights reflecting the opportunity cost of spectrum use, considering the marginal value of the spectrum itself. The advantage of this model is that if prices are set correctly, excess demand should be blocked because only efficient users will take up available spectrum; moreover it should encourage existing inefficient users to give back spectrum. However, the problem with AIP is that setting prices calculating opportunity cost is very difficult.

The following step after primary assignment regards the mobility of the spectrum usage rights and the possibility of their transfer.

75 Report by Analysys & partners, supra note 44, p.29.
76 Report by Analysys & partners, supra note 44, p.31: this method can be justified when applicant’s willingness to pay is not valued as a sufficiently good proxy for the social value of the spectrum. Moreover, this model allows governments to fix fees.
77 For more details, see Report by Analysys & partners, supra note 44, p.32-33.
iii) Milk quotas

A key phenomenon of the Common Agricultural Policy of the European Communities has been its ability to generate tradable assets in form of quotas78. The concept of production quotas or supply management in agriculture dates back to the early 20th century: it belongs to a protective policy applied by the Community to several sectors. A quota is a licence to sell milk at a supported price and generally it configures a limit imposed on the quantity produced: its purpose can be to assure the minimum required production level where under-production might be penalised, but typically in many countries it is not so, as its main character is to control the growth of surplus production and budget expenditure, to maintain market price support, and to provide price stability for dairy farmers. So it can be said that this system has been introduced to restrict production and is combined with penalties for exceeding the quota limit established79.

The past decades have been a period of worldwide overproduction of milk, depressed world markets for dairy products and high cost of dairy price support programs. Currently more than half of all world milk production is governed by quotas, but each quota system implemented in a country has its own special features80. In particular, the European Community opted for a mandatory milk supply quota system, whereas the US chose decline price supports along with voluntary supply-reducing programs81. The introduction of quota system in the European Community took place in 198482 and initially was provided for a limited period of five years: Regulation 865/84 provided that Member States could choose between two options, i.e. if to apply the levy to each single producer or to buyers. The first model has been largely preferred and it implies that a quota of maximum milk production is assigned to each Member State, which has to distribute it to national producers complying with the purpose of not exceeding the limits of total production imposed. After 1984, EC legislation has been amended by many regulations, but principally by Regulations 3950/9283 and 563/9384, then by Regulations 1256/9985, 1392/200186 and 1788/200387, the latter finally extending the

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80 See, inter alia, Gehrke H., The implementation of the EC Milk Quota Regulations in British, French and German law, 1994 San Domenico, Florence.
82 Regulation n. 865/84, (1984) OJ L 90/25. Adopting the dairy quota regime, the Community has effectively chosen a very administrative and restrictive instrument to achieve the necessary goal of sustaining producer prices while controlling production and expenditure. However, despite the expected difficulties with its introduction, at the time a quota policy was considered “the most effective method, and the one having the least dramatic effect on the income of producers” (see Fourth recital of the Regulation) because it allowed the existing price support guarantees to be maintained.
duration of the quota system until 2015. More recently other modifications have been implemented by Regulations 595/2004\textsuperscript{88} and 1468/2006\textsuperscript{89}. In these months Community authorities are discussing about the possibility of speeding up the abolition of quota system.

The quotas typically are implemented where the reduction of total milk supply might be organised over a period of time progressively or regressively: the system usually provides for a mechanism of adjusting the quota amount in order to accommodate the evolution in internal and external markets and these adjustments might be conducted on a monthly or an annual basis, or might be subject to discretionary changes by legislation as they are considered appropriate.

In combination with subsidised exports and import protection, total quota aims to keep supply on the domestic market short in relation to the total (unsubsidised and subsidised) internal demand; thus quotas allow support and market prices to be maintained in the EC above the market clearance price level, without accumulating public intervention stocks. Nevertheless, a strong incentive to produce follows from relatively high and guaranteed intervention prices when there is no supply limitation through quotas: as it is not possible to increase exports and/or domestic consumption through subsidies without limit, consequently public intervention stocks pile up. If, in addition, intervention price guarantees are reduced or abandoned, increased production leads to price reductions, which stimulate demand and make production less profitable, until at a certain point a balance between internal demand and supply is reached\textsuperscript{90}. The Commission has affirmed that, according to estimates, the price level at which such a balance could be expected in the EC would be significantly below the support price levels of today: at this level, only the economically most efficient producers would supply the market and buyers of milk and dairy products would benefit from much lower prices\textsuperscript{91}.

Given that the quota regime, together with the price support, helps to keep prices at relatively high levels, this policy can be seen as providing an economic rent to producers for the milk they produce and sell under quota: the ‘quota rent’ can be estimated for the sector as a whole and thus gives a rough indication of the effect of the quota regime\textsuperscript{92}.

On the basis of all these considerations, it can also be argued that quotas contribute to making EC dairy products less competitive on both the internal market and on the export market. However, at this point, it is important to note in this context that not all the high price of EC milk is due to the quota regime. Firstly, even under liberalised market conditions, there is always a gap between the theoretical gain in efficiency and that realised on the ground. Indeed it is demonstrated that

\textsuperscript{91} European Commission, \textit{supra} note 89, p.11.
\textsuperscript{92} European Commission, \textit{supra} note 89, p.13. More precisely, in economic terms, the “producer rent under quotas”, that is the so-called “quota rent”, is defined as the difference, in €/kg, between the current market price under quota and the estimated “cost price” or "shadow price" of milk. The “shadow price of milk” is equivalent to the extra variable cost of producing one more kg of milk, in a particular production area operating under quota.
many potential efficiencies are not achieved by producers, in practice, because they do not manage to extend their production at low cost\textsuperscript{93}: modern dairy farming requires management know-how, long-term investment in buildings, equipment and livestock, high levels of business sense, besides an adequate land area on which to grow cheap and high-quality inputs. All these factors weigh on the efficiency of EC milk production, especially in the short and medium term\textsuperscript{94}.

It has to be also considered that a so strict regulation on milk production can have effects opposite to the result purposed: indeed increasingly planning rules affects producers’ business decisions and the growing economic costs of meeting EC standards for milk hygiene, food safety and animal welfare requirements, at present being met under the capacity limitations of quota, could constrain more cost-efficient milk producers in the EC in the future\textsuperscript{95}.

Given that quota system has significant repercussions on all aspects of the dairy industry, it remains to be examined how it has been implemented to achieve its principal goal, i.e. to control supply. The primary challenge has been the effective implementation of the superlevy mechanism. For a quota system to be effective, compliance with the quota is a significant factor: non-compliance is always penalised, although the magnitude of penalties and stringency of enforcement differ across systems. However, it is evident that the milk quota policy, implemented through discouraging the producer from overproducing, is bound to be troublesome to apply when the overall benefit of the quota system to producers across the Community is not immediately evident to the producer concerned.

All these observations demonstrate that the objective behind EC milk policy is inherently complex to achieve.

\textit{iii.a) Quotas management}

The crucial feature of quota system is its management. The EC authorities were aware that the establishment of a common set of rules for the distribution of rights to produce milk, creating a new economic value, would require the implementation of rules containing a degree of flexibility, in order to adapt to the varied structural and regional differences within the Member States: such flexible approach has created a complex body of EC and national legislation, in order to permit the fair distribution of milk quotas between producers\textsuperscript{96}. Indeed in some

\textsuperscript{93} European Commission, \textit{supra} note 89, p.14. For example, efficient production in one region may well be limited by some other fixed production factors (such as land, farm infrastructure or equipment) and opportunities for low-cost expansion in another region may be held back by inertia in the farming system, such as a lack of entrepreneurial spirit or a failure of “market signals” to be communicated to potentially efficient producers.

\textsuperscript{94} \textit{Ibid.} Moreover Commission notes that, linked to the idea that the longer-term economic viability of dairy farms depends on adequate land area, in many Member States, and specific regions with their territory – especially those in what are currently the most economically cost-efficient production of the EC-, the application of European environmental legislation means that there are increasing environmental constraints (e.g. manure loading), which could limit expansion in milk production; equally, however, there would also be the risk of a greater concentration of dairy cows in other Member States or regions as farmers replace other systems of production with dairying, thus increasing environmental pressure.

\textsuperscript{95} \textit{Ibid.}

\textsuperscript{96} European Commission, \textit{supra} note 89, p.15-16.
states quotas are allowed to be freely marketed while in others they are administered by the state itself or have been subject to auctions, either at national or regional level.

In particular, in France quotas are not managed on a commercial basis but by administrative decision, based on priority criteria such as, for instance, the support of farmers with the lowest quota or new entrants. Hence, the administrative form of management attempts to keep down farm set-up and structural costs, as farmers do not have to bear the quota management costs they would incur in a commercial system. Moreover, under the French quota administration, it is not possible to sell quota independently from land and the levy charged for transfers leading to an increase in farm size allows the quota concentration to be limited and maintains the medium size of farm holdings.

However the prevailing system adopted is the marketable quota system, allowed by EC rules, which has become a very large and profitable phenomenon. Indeed although implemented in essence as a means of production control, milk quotas are now frequently regarded as enjoying an independent existence and they have acquired a significant economic value.

It would seem clear that the Community institutions never intended to develop a broad trade, as the Commission and the European Court of Justice have affirmed that quotas should not become the subjects of speculative operations.

At this point, two main questions arise on milk quotas’ nature: first, whether quotas form a separate asset distinct from the holding or not; secondly, if they may be considered as similar to property despite their existence depends entirely upon continued authorisation in Community law.

The general principle applicable to milk quotas has been that they are linked to the holding, as it is affirmed in the Preamble of Regulation 3950/92 and 1788/2003 and confirmed by ECJ. The scheme introduced in 1984 provided that when a farm is sold, leased or transferred by inheritance, the corresponding reference quantity is transferred to the purchaser tenant or heir together with the relevant land: the following Regulations have considered not appropriate to alter this original

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97 OECD, *An Analysis of Dairy Policy Reform and Trade Liberalisation – Trade and Economic Effects of Milk Quota System*, Report, 2004, p.7, available on line at [www.oecd.org](http://www.oecd.org). The administrative form of management contributes to a territorial development policy and is aimed at (i) preventing the abandonment of dairy farmland and maintaining dairy farming and its related services throughout the country, and (ii) limiting the regional concentration of farms. The administrative management of quota tries to avoid the social externalities resulting from concentration of production at farm level and in specific areas that might ensue if profitability was the sole criterion; it thus tries to preserve the regional production spread, to maintain dairy farming in remote parts of the country and to slow down the drift away from traditional farming systems. Nevertheless in certain regions a concentration of dairy farming still exists to smaller producers’ disadvantage; further, there is evidence of increased intensification due to the fact that fixed quotas are capitalised into land prices.

98 Cardwell, *supra* note 77, p.168. See also OECD, *supra* n. 96, p. 4. Quota value reflects the difference between an underlying cost of production and a milk price and is incorporated into the cost structure of dairy farms with time: hence while initially a quota system is often seen as a politically feasible tool, the vested interests and inefficient cost structures that are inherent to a quota may hinder reforms on price support later on.


principle\textsuperscript{101}, but relevant exceptions have been introduced in time\textsuperscript{102}. Firstly, quota leasing without any requirement for a land transaction has been officially introduced in 1987; then permanent transfers without land were authorized from 1993 by Article 8 of Council Regulation 3950/92 and Council Regulation 1256/99 has stated at whereas 6, \textit{inter alia}, that member States should have the right to organise the transfer of reference quantities in a different way than by the means of individual transactions between producers. Furthermore, it has to be considered that milk quota is not immutably attached to individual parcels of the land within the holding of the producer, but it is widely accepted that it can be associated from one part of the holding to another according to the areas from time to time used for milk production\textsuperscript{103}.

The link between quotas and holdings is an indubitable obstacle to the development of an efficient allocation mechanism: in a market so strongly regulated by EC rules which impose limits on production, further restrictions on complete liberalisation of quotas trading represent an unjustified obstruction to competition\textsuperscript{104}.

The ‘independence’ of milk quotas is a considerable point to assess their own nature. In particular it is debated if quota constitutes a positive right or a negative restriction. In the case \textit{Wachauf v. Bundesant für Ernährung und Forstwirtschaft}\textsuperscript{105} the Commission and the UK government argued that quotas are merely means of market management, so that they cannot be considered as a form of intangible asset, but on the contrary the Advocate General affirmed that from the point of view of the producer, quota amounts to ‘a form of licence to produce a given quantity of a commodity (milk) at a more or less guaranteed price without incurring a penalty (the additional levy)’. This definition comply with the notion of quota as a tradable asset, but there’s no doubt that a producer faces no requirement for a licence to produce milk: in theory it is legally possible for him to produce milk sufficient to fill his quota many times over, but in practice such production does not occur owing to the potential liability to levy on the excess. As positive force, quota means that producers staying within its limits can be certain of escaping the levy.\textsuperscript{106}

Another important feature of the quota system is its duration as given in the enabling legislation. Quota programmes may be of finite duration, with or without the renewal option, or of indefinite duration. As quota values become incorporated into the farm cost structure with time, the duration of the quota programme might itself influence the feasibility of programme termination or continuation.

\textsuperscript{101}See Regulation 1788/2003 whereas 17-18, and also Council Regulation 3950/92 whereas 15-16.

\textsuperscript{102}See Regulation 1788/2003 whereas 17: ‘…However, national provisions to safeguard the legitimate interests of the parties should be implemented in all cases of transfer where the parties are not in agreement.’ See mainly whereas 18: ‘In order to continue the restructuring of milk production and improve the environment, some exceptions should be made to the principle that reference quantities are tied to farms, and the Member States should be authorised to keep open the option to implement national or regional restructuring programmes. Member States should also be entitled to organise the transfer of reference quantities in other ways than through individual transactions between producers’.

\textsuperscript{103}Cardwell, \textit{supra} note 77, p.170.

\textsuperscript{104}See, for example, AGCM, \textit{Disposizioni relative al trasferimento delle quote latte senza cessione dell’azienda}, notice, (2006) 37 \textit{Bollettino}, available on line at www.agcm.it.

\textsuperscript{105}Case 5/88, (1989) \textit{ECR} 2609.

\textsuperscript{106}Cardwell, \textit{supra} note 77, p.172-173.
III. Secondary trading

As it has been said before, secondary trading may represent the second step after primary allocation and refers to horizontal transfer between persons/firms allocated, or entitled to hold such ‘rights’, by agreement between them, accompanied, if the parties wish and if the law allows, by payment of monetary or other valuable consideration from one to the other in respect of such transfer.

i) slots

As it can be easily noted from what it has been said above, the introduction of a secondary trading for slots is the solution more supported by experts. From an economic perspective, experts agree considering the implementation of a secondary trading as a means to increase both productive and allocative efficiency, because it can permit the maximization of the value to society from the existing resources of aviation industries, which are relevant given the difficulties to construct additional airports capacity, as seen above\textsuperscript{107}. Allocative efficiency can be encouraged by a market for slots by creating price signals relating their value: in this way, operators (buyers and sellers) with different valuations can trade, while in the current administrative allocation system an airline holding a slot which is valued more highly has a little incentive to trade it for another slot.

Productive efficiency can increase too, fostering the full use of slots by airlines, either as a result of paying directly for a slot, or of becoming aware of how valuable a slot is from the market price. Obviously, experts, highlighting that both airports and airlines have interest in achieving these efficiencies, warn that the introduction of a secondary trading cannot increase the number of slot, as only technological progress, political choices and investments can do. On the contrary, it could affect fare levels: at congested airports, airlines with slots charge consumers above marginal cost for their seats; as marginal costs increase (as a direct result of airlines buying slots), it is unlikely that airlines will pass this additional cost through to consumers, unless costs rise substantially to a point where price equals marginal cost and there is no excess demand\textsuperscript{108}.

From a legal point of view, by secondary trading the existing rights and obligations associated with the slot will simply transfer to the buyer airline: if the existing administrative primary allocation and the legal framework remain unchanged, then the current entitlement will transfer to the purchaser, including the grandfather rights associated with the slot. It is necessary to remind that rights constituting a slot are not formal property rights, but they can be better named as ‘entitlement’\textsuperscript{109}. In addition, the buyer will also be subject to the obligations

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\item[\textsuperscript{107}] Report by Mott MacDonald, \textit{supra} note 12, 2-6.
\item[\textsuperscript{108}] \textit{Ibid}.
\item[\textsuperscript{109}] Report by NERA, \textit{supra} note 11, p.130: “The introduction of a new slot trading regime would require an amendment to the existing slot regulation (95/93). Apart from this new regulation, there are no other aspects of the existing legal framework that are likely to prevent the implementation of slot trading altogether. In addition, it may be possible to amend other aspects of the legal framework in order to improve the effectiveness of slot trading. The most obvious change would be to formalise the usage rights enjoyed by airlines. One option would be to clarify the formal property rights associated with slots. Alternatively, the notion of ‘entitlement’ could be
\end{itemize}
\end{footnotesize}
associated with the slots: this means that it will have to deal with the ‘use it or lose it rule’, which potentially could discourage airlines, or other parties involved, from acquiring slots for non-operational reasons\[10\].

The simplest way of introducing secondary trading would be setting airlines free to buy and sell slots by bilateral negotiations, but other approaches are possible too, including the establishment of a formal marketplace where slots can be negotiated, perhaps on an anonymous basis\[11\].

In Europe the only example of secondary trading exists in UK, where it is carried on by air carriers, while the coordinator has to approve for each trade once it is demonstrated that it does not infringe airport’s operational parameters\[12\]. Airlines are not required to publish their willingness to trade, so the trades are not necessarily transparent in advance\[13\]: afterwards ACL (Airport Coordination Limited, which is the coordinator for the major UK airports) has to publish data about sellers and buyers of the slots negotiated (these informations do not necessarily regard monetary compensation, if it occurs, and its amount or any other conditions of the trade)\[14\].

Practically, slot transactions can assume several forms. To summarize, trade can result from an outright sale or a lease of slots on commercial terms, or it can be a part of the transfer of a route from one carrier to another or a part of the restructuring of a bankrupt air carrier; other slot transactions can be made to redeploy slots within an airline alliance or other group of carriers, or to temporarily babysit surplus slots\[15\].

\[\text{ii) spectrum rights}\]

Experts indicate two policies of mobility of spectrum: trading, i.e. the transfer of usage rights between parties in a secondary market, which devolves decisions over assignment of usage rights to actual users, allowing the market to determine who has access to spectrum over time; liberalisation, i.e. the relaxation of restrictions retained, but the new slot regulation could clarify the meaning of this term and thereby allow a common standard to be adopted throughout the Community. Even if such changes are not possible, however, we do not believe this would prevent slot trading from taking place. Indeed, trading already takes place in the current grey market, and trading also occurs in the US despite the fact that airlines do not enjoy property rights and there is even an explicit acknowledgement that slots could be withdrawn”.

\[\text{110 Report by NERA, supra note 11, p.128.}\]
\[\text{111 Report by NERA, supra note 11, p.69.}\]
\[\text{112 It is interesting to note that recently (September 2007) Alitalia is considering the possibility of supporting its crisis by resorting to slot trading at London Heathrow.}\]
\[\text{113 Civil Aviation Authority (CAA), The Implementation of Secondary Slot Trading, London, 2001, p.33, available on line at https://www.caa.co.uk/docs/5/ergdocs/slotsnov01.pdf. Potential sellers and buyers are identified and privately sought out as opposed to any public notice of intended sale or purchase which is likely to deny all interested parties an opportunity to participate. This factor, along with the lack of transparency which makes it difficult for buyers and sellers to establish a market price for slots, is likely to suggest that transaction costs are high.}\]
\[\text{114 Report by NERA, supra note 11, p.68. Such slot trading is often documented in formal written agreements (confidential to the parties), so that they may provide for a re-exchange of slots in the future. It is therefore not always possible for the coordinator and others to know whether such transfers are permanent (slot sales) or for a limited period (slot leasing or slot lending).}\]
\[\text{115 Report by Mott MacDonald, supra note 12, 5-35.}\]
on services and technologies associated with spectrum usage rights, which devolves decisions over allocation of spectrum to users, allowing the market determine how to use spectrum over time\textsuperscript{116}.

Secondary markets play an important allocative role in many sectors, redistributing resources between different users and uses. Experts affirm that secondary trading in spectrum would help to promote efficient allocation, assignment and use of spectrum\textsuperscript{117}.

Spectrum trading has been implemented by a small number of countries, including Australia, New Zealand, Guatemala, Canada and the United States, while in EU it formally was not permitted before the new Framework Directive, even if there were cases of de facto trading. Indeed experts have demonstrated that most European countries have permitted transfers of usage rights in the case of a change of corporate ownership: as rights could not be generally traded between users, in order to circumvent this ban SMAs have used to withdraw rights from the initial user and reassign them on request from both the initial and new users\textsuperscript{118}. At present, also in Europe many countries are considering the introduction of liberalization and/or secondary trading: first of all the UK has started the implementation of spectrum trading following OFCOM’s consultations\textsuperscript{119}.

Spectrum trading can be characterized by mode, duration, extent and flexibility. Principally, it can involve solely change of ownership of a licence\textsuperscript{120} or entail more invasive operations, such as a reconfiguration\textsuperscript{121} (i.e. partition or aggregation of spectrum assignments) or a change of use\textsuperscript{122}. As for the duration, the

\begin{itemize}
  \item \textsuperscript{116} Report by Analysys & partners, supra note 44, p.36: the potential benefits deriving from these solutions are closely related. On the contrary, Report by OECD, supra note 67, p.4: spectrum trading and liberalisation are separate developments.
  \item \textsuperscript{117} The Report presented by OECD, supra note 67, p.17-18, contains a list of potential benefits of introducing spectrum trading, such as: more efficient use of spectrum; more flexibility in spectrum management, including removal of rigidities in primary assignment; ability to evaluate spectrum licences, and gain knowledge of market value of spectrum; facilitating market entry; encouragement of innovation, enabling new technologies and market development; speedier process, with better and faster decision-making by those with information; reduction in administrative workload, and so on.
  \item \textsuperscript{118} Report by Analysys & partners, supra note 44, p.55: an example is the case of 3G spectrum, where many buyers established as holding vehicles for the usage rights new companies, which then can be bought and sold.
  \item \textsuperscript{120} OECD, supra note 67, p.15-22. This procedure has been adopted in countries as New Zealand and Australia. Licensees are free to operate whatever type of communications service they choose, and are able to change that service in response to technical improvements or changes in consumer demand. They can negotiate to buy and sell spectrum space, or authorise third parties to use it. Spectrum licences can be combined or sub-divided to form new licences. A spectrum licence can be traded in whole or in part by geography, by bandwidth or by both. Licences may also be leased in whole or in part to third parties. A licensee can extend the geographic coverage and/or bandwidth of their licence by acquiring an adjacent spectrum licence from another licensee.
  \item \textsuperscript{121} OECD, supra note 67, p.15. Spectrum partition permits users to purchase or retain what they require over time and give incentives to use spectrum more efficiently; spectrum aggregation facilitates the introduction of wider networks that may be of greater value than isolated systems.
  \item \textsuperscript{122} Ibid. Change of spectrum use increases flexibility and its exposure to market forces: it can be allowed in several cases and can depend on the geographic situation of the country, international obligations and so on.
\end{itemize}
efficient use of spectrum requires arrangements as flexible as possible to allow for variants such as short-term leases, long-term leases, sale and buy back, as well as outright sale for the remainder of the licence term. Transfers can involve all rights and obligations associated to spectrum use or shared by parties. Finally flexibility in the use of spectrum may take different forms of change, which may affects technology, or market, or service type, or applicable technical rules.

The implementation of secondary trading requires as essential condition the legal certainty over rights and obligations related to spectrum. In the past the process of defining those rights and obligations was mainly focused on the goal of protecting users from harmful interferences, as a result currently they are not clearly defined, as a market approach requires. As underlined above, the issue of defining usage rights is similar to the case of property rights, whose uncertainty is considered having a detrimental effect on developing economies.

The difficulty of assessing rights associated with spectrum use is connected to the quality of spectrum as public good: nevertheless experts advise that it is possible to create tradable usage rights with clear rights and obligations without defining spectrum as a private property\(^{123}\).

Rights, whether distributed under a command-and-control system or the market model, can be defined on the basis of different general parameters: geographical area; duration and time of access; spectrum endowment (e.g. the frequency bandwidth to which access is granted); protection from interference. In addition, SMAs generally apply other rights and obligations, which normally include services and technologies that can be used\(^{124}\), but currently this prerogative is limited by the implementation of the Authorisation Directive. The provision of such additional rights and obligations can be efficient if the buyer intends to use particular spectrum bands over the long term and if there are valid reasons for the government to intervene to guide market outcome; nevertheless, in some cases it can effectively bar the access to a portion of tradable spectrum or distort the costs of deploying particular services or technologies. However the Framework Directive provides that all trades must be monitored by SMAs\(^{125}\).

Regulators have generally preferred placing expiry dates on usage rights in order to allow periodic reassignment of spectrum in response to changing circumstances and the ‘deadline’ can vary very widely. Actually the Authorisation Directive, as seen before, at Article 5 regulates duration of usage rights, stating that, if a limited period of time is set up, it shall be appropriate for the service concerned, not indicating a determined minimum or maximum time. Obviously, if secondary trading is implemented the scope of imposing expiry dates falls away, so that, except

\(^{123}\) Report by Analysys & partners, supra note 44, p.64. Moreover experts affirm that the distinction between property rights and usage rights is not very meaningful.

\(^{124}\) Report by Analysys & partners, supra note 44, p.66. Sometimes these rights and obligations are more invasive on activity in downstream markets – for ex., 3G licences define targets for base station roll-out and coverage.

\(^{125}\) Report by Analysys & partners, supra note 44, p.66-67: a solution could be the provision of such obligation by SMAs on a case-by-case basis.
in case of market failure, negotiations between users can facilitate efficient reallocation and reassignment without the need of regulatory intervention\textsuperscript{126}.

Transfers may take place in different forms. In addition to the simple sale, where the ‘ownership’ of the usage right is transferred from one party to another, negotiations can also be concluded as a buy-back (the usage right is sold to another party with an agreement that the seller will buy back it at a fixed point in the future) or as a lease (the right to exploit the usage right traded is transferred to another party for a defined period of time but the ownership remains with the original holder, which may be able to have the right to exercise control over the lessor)\textsuperscript{127}. These are the most common types used in countries where spectrum trading has been introduced, but further forms are available: an example, utilized in Guatemala and New Zealand, is the mortgage transfer, where the usage right is used as a collateral for a loan, so that the ownership of the usage right moves to the new party if certain contractually defined situations occur (for example, default). But more complex types are possible too, as those which contain options and futures, i.e. financial payments related to spectrum rights that can be used to reallocate risk between contracting parties (for example, the provision of a right to buy/sell spectrum under contractually defined conditions, as at a pre-agreed price on a future date)\textsuperscript{128}.

In order to implement secondary trading, it is necessary to ensure some conditions, first of all the availability of information about existing usage rights, previous trades, identity of holders and so on: it does not surprise that experts suggest the creation of a specific register\textsuperscript{129}.

\textsuperscript{126} Report by Analysys & partners, supra note 44, p.83-84: the alternative to setting expiry dates is to grant usage rights in perpetuity, but this solution limits the possibility of government intervention on spectrum allocation in future. Experts suggest as a compromise solution that governments can allow perpetual usage rights maintaining certain prerogatives to reclalm rights under specific circumstances, as market failure or public policy issues.

\textsuperscript{127} See OECD, supra note 67, p.22. About spectrum leasing, in the US there is a particular situation that it is interesting to mention. In May 2003 the Federal Communications Commission (FCC) adopted an important order allowing authorised most wireless radio licensees with exclusive rights to enter into spectrum leasing arrangements, so that licensees in certain services are permitted to lease some or all of their spectrum usage rights to third parties for any amount of spectrum and in any geographic area encompassed by the licence, and for any time within the term of the licence. The order also creates two different mechanisms for spectrum leasing depending on the scope and responsibilities to be assumed by the lessee. The first one is the “spectrum manager” leasing, which lets parties use leasing scheme without obtaining prior FCC approval so long as the licensee retains both \textit{de jure} control of the license and \textit{de facto} control over the leased spectrum: the licensee must maintain an oversight role to ensure lessee compliance with the Communications Act and all spectrum related FCC rules. The second option is the \textit{de facto} transfer leasing, which allows parties to enter into leasing arrangements with prior approval of the FCC, whereby the licensee retains \textit{de jure} control of the license while \textit{de facto} control is transferred to the lessee for the term of the lease: in this case lessees are directly and primarily responsible for ensuring compliance with all FCC rules, while responsibility of licensees will occur only if they have constructive knowledge of the lessee’s failure to comply or violation. The FCC released in September 2004 additional rules regarding secondary markets for spectrum, expanding the availability of spectrum leasing to more wireless services and devices, further optimizing the processing of spectrum lease applications and notifications, and clarifying certain aspects of the original spectrum leasing rules. The FCC also established a “private commons” option for licensees who wish to provide spectrum access to individuals or groups using advanced devices.

\textsuperscript{128} Report by Analysys & partners, supra note 44, p.68: transfers of this type have to be distinguished from purely financial contracts (as derivatives) that may also emerge in a spectrum secondary trading.

\textsuperscript{129} Report by Analysys & partners, supra note 44, p.88-91.
It is also necessary to identify the appropriate mechanisms through which secondary trading can take place. The basic arrangement is bilateral negotiation, where a buyer/seller approaches another party and a mutually agreeable trade is concluded. Another available process can be made by auctioning, where a buyer/seller invites offers on spectrum. Further approaches are brokerage (buyers and sellers use the service of a broker to identify each other) and exchanges (multiple buyers and sellers come together in a single market)\textsuperscript{130}.

It is controversial which disadvantages can derive from the implementation of secondary trading: some authors affirm that the existence of many markets for spectrum –at least one market for every MHz- leads to a series of potential market failures of technical and economic nature, such as externalities related to interferences, so that it is impracticable to leave all aspects to market forces, but regulators are required to arrange appropriate intervention\textsuperscript{131}.

Two aspects need to be preserved by regulators, interference management and competition issues. Firstly, experts relate that stakeholders have expressed concern at the possibility that secondary trading can increase the complexity of interference management. But, according to experts’ opinion, this does not mean that the number of harmful interference cases may increase, as the experience of countries that have introduced secondary trading shows: to solve the problem, experts propose that ultimate responsibility on interference management remains with national SMAs or that users are allowed to manage interference directly\textsuperscript{132}.

With regards to the second issue, so far competition has been protected by primary assignment processes, which allow policymakers to distribute spectrum to a certain number of licences; on the contrary, a reform leading to secondary trading would imply that the number of suppliers of a service will not be fixed at the time of initial assignment, but can change in time. Experts admit potential anticompetitive effects of spectrum trading, as it can reduce competition in the supply of services to end-users: this might occur either through concentration (for example, consolidation of two previously assigned usage rights) or through incumbents blocking potential competing new services by buying the spectrum necessary for such services. If it is true that spectrum trading can incentivize concentration, it is also true that competition law including mergers regulation provide efficient and strong measures against anticompetitive behaviours\textsuperscript{133}.

Anticompetitive behaviours can result from defence by incumbents of their market power and from attempts to acquire market power. The main characteristic of spectrum is that it differs from other inputs for being typically essential to the services derived from it and irreplaceable: if one operator purchases the entirety of a specific spectrum in a specific band, he can eliminate his competitor reducing competition in the downstream market for services and rising prices. So one of the most dangerous behaviour to block is spectrum hoarding, by which incumbents try to acquire spectrum only to take it away from potential competitors. According to an

\textsuperscript{130}Report by Analysys & partners, \textit{supra} note 44, p.91.
\textsuperscript{131}Valletti – Prat, \textit{supra} note 49, p.579.
\textsuperscript{132}Report by Analysys & partners, \textit{supra} note 44, p.75-79.
\textsuperscript{133}Report by Analysys & partners, \textit{supra} note 44, p.96-99.
experts’ opinion, spectrum trading can have likely effects in this case too, since an incumbent would have to hoard much more spectrum in order to exclude rivals from all bands that could potentially be used to provide a substitute service\textsuperscript{134}.

To conclude, there are good reasons to expect secondary trading reducing barriers to entry and facilitating a better use of under-utilised spectrum and an efficient distribution, so that spectrum will be utilized by those who are willing to pay the most for it\textsuperscript{135}.

\textit{iii) Milk quotas}

As seen before, the tradability of milk quotas between private parties is unquestionable: it only depends on the choice of each Member State between a marketable system or an administrative-management system. It remains to be examined in which ways it is possible to trade quotas under the marketable system: in this case each producer’s right to produce is limited but he may be prepared to pay for additional rights from other producers if he still expects sufficient profit; thus other producers who make much lower profits in their dairy activity or who want to reduce or cease it for other reasons may be interested in selling or leasing their quota, thus making additional income\textsuperscript{136}.

Two main instruments are available, i.e. leasing or buying/selling. The first is suitable for temporary transfers and can concern the additional quota, permitting a producer to avoid the possibility of penalty for over the quota production; furthermore, it can be more profitable for a relatively less efficient producer to lease quota out to more efficient competitors than by producing within quota. Permanent transfers are made by selling or buying instead, frequently when quota is transferred between producers and it must be accompanied by farm assets such as land. However in many countries national legislation provide restrictions sectioning total into regional amounts that limit leasing and trading possibilities\textsuperscript{137}.

Currently Regulation 1788/2003 establishes rules governing transfers, distinguishing between temporary transfers (Article 16) and transfers of reference quantities together with land. Then Article 18 provides for special transfer measures, enforceable if necessary to restructure milk production or to improve the environment: in particular, it is stated that Member States may grant compensation to producers who undertake to abandon permanently all or part of their milk


\textsuperscript{135} Report by Analysys & partners, \textit{supra} note 44, p.103-104. See also Valletti, \textit{supra} note 132: “the ‘old’ model of spectrum management, that makes a drastic distinction between spectrum allocation and spectrum assignment, is highly inefficient (…). Individuals or companies that have a need for spectrum are different economic agents with different willingness-to-pay (…).Since the point about a market system is to create an environment in which scarce resources end up in the ownership of the agents that value them most highly, it is important that we introduce the price mechanism in the market for spectrum in the most flexible way. This can be achieved by replacing the old system of spectrum management with one based on spectrum trading.”

\textsuperscript{136} European Commission, \textit{supra} note 89, p.12.

\textsuperscript{137} OECD, \textit{supra} note 96, p.6: in some systems, producers can transfer so-called used quota which the buyer can only use in the following marketing year, or so-called unused quota which can be utilised in the current marketing year; the difference in price of used and unused quota would be likely equal to the prevailing lease price.
production\textsuperscript{138}, determine on the basis of objective criteria the conditions on which producers may obtain, in return for payment, at the beginning of a twelve-month period, the re-allocation by the competent authority (or a body designated by that authority) of individual reference quantities released definitively at the end of the preceding twelve-month period by other producers in return for compensation in one or more annual instalments equal to the above mentioned payment. Further, Article 18 establishes measures regulating transfers of reference quantities without land, stating that Member States may centralise and supervise them; in addition, States can provide, in the case of land transferred in order to improve the environment, for the individual reference quantity concerned to be allocated to a producer giving up the land but wishing to continue milk production; determine, on the basis of objective criteria, the areas within which the permanent transfer of reference quantities without transfer of the corresponding land is authorised, with the aim of improving the structure of milk production; authorise, upon application by a producer to the competent authority or a body designated by that authority, the definitive transfer of reference quantities without transfer of the corresponding land, or vice versa, with the aim of improving the structure of milk production at the level of the holding or allowing the growth of production.

In those Member States which adopt the marketable system, the concept of leasing and buying quota has spread: quotas represent, when quota is leased, higher and tangible variable costs (which depend on the milk price, the degree of expectation that the national quota will be exceeded in a given Member State, and the fluidity of the quota transfer system arrangements)\textsuperscript{139}; or, when quota is purchased, higher fixed costs (which reflect the medium and long term business strategy of producers and have thus begun to be treated as investment costs, so that they can be variously depreciated)\textsuperscript{140}. Hence facilitation of quota transfers through leasing and buying can be expected to progressively lead the economically more efficient producers to increase their production and less efficient producers to reduce or abandon it.

Relating to the concept of quota rent, while it is not recognizable when trading is not permitted, the individual transactions as leasing and buying/selling make part of it visible -even if it regards the sector as a whole- as the cost to a producer of borrowing extra quota or, vice versa, the rent or income that a holder of quota lending out quota may receive. Otherwise, in the case of quota being purchased from a quota-holder who is not actively involved in milk production or has withdrawn from it, it can be deduced that a portion of the sector’s quota rent has been or is draining out of the milk economy\textsuperscript{141}: in this connection, new rules have been introduced in 1999, preventing inactive quota holders from renting out quotas\textsuperscript{142}.

\textsuperscript{138} In this case, Article 17 provides that the individual reference quantities released must be placed in the national reserve.
\textsuperscript{139} European Commission, \textit{supra} note 89, p.13. Such circumstances mean that the price paid for leased quota can vary appreciably from year to year.
\textsuperscript{140} Such depreciation can depend primarily on expectations regarding the duration of the current quota price and quota regime and the fiscal provisions of the Member State in question.
\textsuperscript{141} European Commission, \textit{supra} note 89, p.13.
\textsuperscript{142} See Council Regulation 1256/99, Article 1, §6.
IV. Conclusions

The majority of secondary trading examples are relatively recent, so advantages and disadvantages of its introduction have not been undertaken at all, nevertheless our previous pages suggest some generalities. As a matter of fact, the introduction of market mechanisms like secondary trading is a solution highly supported by experts. From an economic point of view it is broadly accepted that secondary trading can be a means to increase both productive and allocative efficiency, permitting the maximization of the value of the scarce resources redistributing them among different operators, whereas administrative models have proved themselves largely inefficient so far. Moreover, it is demonstrated that the downside of strict regulatory policies sometimes is the development of lobbying and rent seeking. On the contrary, market mechanisms should incentivize the full use of resources, removing barriers to entry imposed by administrative allocations and making operators—who must necessarily pay directly for them—aware of their value, so that they will be allocated only to those who value them the most.

While it is widely shared that secondary trading may improve economic efficiency, contrariwise it is controversial whether it can generate potential anticompetitive effects too. Experts affirm that as a collateral effect market mechanisms can facilitate the acquisition and extension of large firms’ market power, but really this might occur through several anticompetitive conducts, like concentration or market pre-emption behaviours, independently of the introduction of secondary trading, and current competition law provides sufficiently strong measures against these conducts.

From a legal perspective, many aspects of the implementation of secondary trading are problematic. The upstream administrative creation of entitlements/rights raises queries about the justification of their marketability: in other words, it is difficult to legitimate a right formerly freely allocated to a private person from public authorities to be traded by payment between operators. Another problem arises regarding the possibility that those administrative-created rights are ‘dated’ as their existence depends entirely on public authorities which can cancel them if it is considered convenient: probably this is the case of milk quotas, which will be dismantled at least in 2015.

It is proper to warn that all these general considerations do not fit all cases, as it is well-known that practice does not always agree with theory. However, there is no doubt that it is necessary to achieve a new balancing between regulatory functions of public authorities and market forces, minimising administrative overhead. In case of implementation of secondary trading, regulatory policies should provide for an adequate framework, which presumably will need continuing performances on a wide range of tasks, as establishing clear and detailed rules for secondary trading, with clearly defined rights and obligations for all parties involved and controlling that negotiations are conducted in a transparent and non-discriminatory manner.
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