
Original Article

Extent and determinants of voluntary disclosure for regulatory purposes in the Italian airport industry

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Federico Rotondo

is PhD and Assistant Professor of Business administration in the Department of Humanities and Social Sciences at the University of Sassari (Italy). He has spent several months as a visiting PhD student at the Ryerson University of Toronto (Ontario, CA). He has published books and articles in refereed journals and he has many conference presentations. His research interests focus on corporate governance, performance measurement and public management.

Ludovico Marinò

is PhD and Professor of Business Administration in the Department of Economics and Business at the University of Sassari (Italy). He is currently Director of the Department of Economics and Business. He has published books and articles in refereed journals and he has many conference presentations. His research interests include financial reporting, public management, health care management.

ABSTRACT In addition to enhancing financial markets and corporate governance effectiveness, voluntary disclosure can serve the purpose of regulation through the balancing of powers among the actors of the market. Lack of transparency has been viewed as one of the main barriers to the effectiveness of traditional ex-ante regulation frames in regulated markets and, in particular, as a potential threat in relation to the general rethinking of airport regulation approach based on the pillars of free negotiation, periodical consultation between stakeholders and monitoring activity by an independent authority. The central theme is whether airports, as significant examples of regulated monopolies and in contexts where regulation is changing, such as Europe with Directive 2009/12/CE, are liable to voluntarily offer stakeholders information they had to give, as mandatory requirements, to regulatory authority. Transparency, in fact, becomes a powerful tool to increase the effectiveness of regulation and disclosure level should be adequately considered by governments to assess the maturity of regulated industries and so identify the best way to implement non-formal regulation systems. This study examines the extent and the determinants of voluntary disclosure by Italian airports. The key findings are that disclosure behaviour related to regulatory purposes is moderate and quite similar as regards financial and general information and that financial disclosure is influenced by the form of concession and the origin of traffic, while the general disclosure is impacted by the number of passengers and the form of concession. The findings provide airport managers with the awareness about the unsystematic nature of disclosure practices and contribute to sensitize them on the necessity to abandon compliance-driven approach, as a higher level of voluntary disclosure could be an important way to reinforce airport competitiveness. Major practical implications are also related to the evolution of the approach to regulation in the international context. In this regard, the central takeaways from the results imply that specific policies should be developed to enhance and constantly monitor the level of disclosure

Correspondence: Federico Rotondo, Department of Humanities and Social Sciences, University of Sassari, via Roma 151, 07100 Sassari, Italy
E-mail: frotondo@uniss.it

in regulated industries, and that the implementation of an indistinct ex-post regulation model for all company categories is highly risky for improving market efficiency, as structural and operational features of companies should be considered in advance.

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INTRODUCTION

The topic of voluntary disclosure has gained increasing attention in corporate governance and corporate finance research literatures since the early nineties (Lang and Lundholm, 1993), as the decision to increase transparency through the flow of information has been alternatively viewed as a powerful tool to improve the performance of firms and the efficiency of markets.

In relation to the content of the information provided, voluntary disclosure can serve many purposes. On the one hand, it may enhance corporate governance as it potentially reduces the information gaps and balances the power between firm insiders, such as controlling shareholders, executive directors and top-managers, and outsiders (Whittington, 1993). On the other hand, it appears to be critical for the functioning of the capital market as it fosters the efficient allocation of resources by mitigating conflicting interests between firms and investors (Core, 2001). Whatever the motivation, the key benefits of disclosure lie in the reduction of information asymmetry and agency conflicts arising between the firm and a number of actors strongly interested in its activity (Healy and Palepu, 2001). In this regard, voluntary disclosure also plays a significant role in regulated markets, as it reduces the distances between regulator, firms under regulation and users of services thus increasing the protection of stakeholders from abuse of power (OECD, 2009).

The airport industry has traditionally been affected by economic regulation issues as airports have usually been viewed as typical examples of natural monopolies and essential facilities, as well as ports, rail lines and so forth,

above the general laws of competition. In particular, ex-ante regulation, aimed at incentivizing competition for and not in the market, has been adopted all over the world to defend social welfare from the dominance of monopolists (Tirole, 1988), including airports (Starkie, 1994; Forsyth, 2006). Regardless of the model of regulation, most of industries still seem to be affected by problems of efficiency and quality of services, while many actors demand more transparency in regulatory frameworks (Scherer and Ross, 1990) and especially, as regards airports, in setting charges. Though the advantage which airports have regarding information cannot be completely removed, giving additional information, both financial and technical, on their activities as well as on company profiles, represents an important solution for restoring credibility, efficiency and stability in air transport markets. Furthermore, in recent years an increasing number of scholars has highlighted that remarkable changes have occurred in the air transport market. Above all, the new relationships between airports and airlines have made the economic regulation systems adopted up to now obsolete and in particular have shown that ex-ante regulation should be replaced by a new approach based on specificity, flexibility and simplicity (Tretheway, 2001; Starkie, 2012). Following international experiences, this kind of approach seems to characterize the air transport strategy of the European Union for the future, as Directive 2009/12/CE defines a new set of criteria that the member states must adopt in the process of setting airport charges. Free negotiation and periodical consultation



between stakeholders, that are the airport and the users of their services such as airlines, as well as monitoring activity by an independent authority, are the pillars of this new framework.

This trend towards non-formal price regulation systems further enhances the validity of information disclosure by airport companies. Transparency is not only a pillar of good corporate governance, but also an additional control mechanism, thereby fostering trust and sharing knowledge between the subjects involved in negotiation. Second, the level of disclosure by airports proves to be useful for governments and regulatory authorities, as it testifies the maturity of the airport industries and their aptitude to successfully adopt the principles of free market competition.

Nevertheless, in regulated markets and in particular in air transport management literature the contribution of information disclosure for the purpose of economic regulation has still not been adequately considered. This article aims first to measure the extent of voluntary disclosure on the main items required by economic regulation by Italian airport companies, in order to evaluate their maturity level from the perspective of transparency and so the aptitude of such a regulated industry to evolve towards self-regulation systems. Second, it aims at identifying the determinants of voluntary disclosure. The hypothesis is that structural and operational features as well as the performance of airport companies have an impact on disclosure levels, so they should be considered by policy makers in advance while the implementation of an indistinct ex-post regulation model for all company categories should be avoided.

ECONOMIC REGULATION OF AIRPORTS AND THE CONTRIBUTION OF VOLUNTARY DISCLOSURE

Economists have traditionally included airports among the cases of natural monopoly, as they are supposed to serve a captive market through

a set of indivisible facilities, as any other monopolistic bottleneck, such as runways and terminals. Airports have also been considered essential facilities, as they provide primary services for the population (Niemeier, 2002).

Both these factors, together with the strong strategic value of the industry, have always justified a tight control of the activity of airports by the States, for instance through the direct ownership of airports by national or local governments.

Similarly to what happened with other natural monopolies, in order to cope with the hard task of preventing monopolists from abuse of power in the airport industry, public centralization was gradually replaced by the idea that incentivizing competition for the market was the best solution for ensuring efficiency. As expected, privatization processes, which started in the late 1980s in Europe with the privatization of some important airports in the United Kingdom, led to a structural change in the industry and stressed even more the importance of regulation (Graham, 2004). Control, in fact, had to be strengthened in order to reduce the negative effect on society of privatized airports pursuing profit maximization (Morrell, 2010).

In any event, in line with the theory of contestable markets (Baumol *et al*, 1982), regulation has basically been aimed at artificially creating a threat of competition by giving an airport the right to serve the market in return for respecting certain structural and operational conditions. Governments and regulatory authorities all around the world have usually developed ex-ante regulation systems following the principle that the contract deadline and the threat of substitution with new management companies represent sufficient mechanisms to discourage opportunistic behaviour and promote market efficiency.

As regards the economic regulation on the access to airport services, price setting methodology has varied from country to country within a range of solutions, which has as extremities cost-plus regulations on the one hand, and price-cap regulations on the other.

As accurately highlighted in literature, the different forms of regulation set a range of incentives and have specific implications for airport behaviour (Oum *et al*, 2004). The traditional cost-plus or rate-of-return approach, the most common in Europe, is characterized by the coherence between costs and profits, as the airport is expected to achieve financial break-even, which includes an appropriate rate of return on the capital invested. If the method complies with the International Civil Aviation Organization (ICAO) principle of costs orientation in setting prices (ICAO, 2009), it substantially mortifies any incentive to reduce costs and recover efficiency, and in addition leads to inefficient capital investments as airports are pushed to over-expand their capacity (Doganis, 1992). Greece, the Netherlands and Poland, among others, have traditionally followed a cost-plus approach, which has also been the reference frame for Germany where, nevertheless, different regulatory frameworks have been developed in relation to each federal state and where preliminary approval of charges must be sought by the airports from their relevant authority (Littlechild, 2012a).

Conversely, under price-cap regulation, adopted as the UK model and then copied by a number of other European States (Beesley, 1999), prices are set in advance while airport companies have to control costs autonomously. It is viewed as a high-powered scheme as it provides better incentives for productive efficiency, while the main limits lie in the difficulty of determining the base price, in the inability of guaranteeing high quality standards and in the lack of incentives for new structural investments (Niemeier, 2003). Furthermore, a price-cap approach can be 'pure' when prices are set without considering costs at all, but it is worth noting that no European regulatory authority has followed this approach, or it can be 'hybrid' in the opposite case, therefore being less arbitrary and more future-oriented.

The choice regarding the services subject to regulation is very important too, and in this regard regulation models alternatively follow the

dual-till principle rather than the single-till one. In the first case, regulation affects only the aviation side, letting airports free to determine prices of non-aviation activities such as retails, bars and restaurants and parking, while in the second case all airport activities are under regulation, as commercial revenues are also considered when setting aeronautical charges. Some authors assert that the dual-till approach is conducive to more efficient capacity utilization, especially for airports with scarce airside capacity (Starkie, 2008), and in the meantime it promotes the development of commercial revenue as airports aim to maximize total profits (Graham, 2008). However, a single-till approach, in addition to meeting the favour of airlines for lower aeronautical charges, is supposed to produce a sort of cross-subsidization between airport charges and commercial revenues (Starkie and Yarrow, 2000). Actually, even if at theoretical level it has been clearly illustrated that the activities to be regulated should be all those for which airports hold a potentially dangerous power for market competition (OECD, 2009), the supremacy of one of the two approaches is far from being proved and certainly constitutes one of the most controversial issues in air transport management literature (Oum *et al*, 2004; Evangelinos *et al*, 2011).

Apart from the technical forms of regulation, several studies have seen lack of transparency as one of the main barriers to the effectiveness of ex-ante regulation frames (Starkie, 2012). Basically, the advantage of airports concerning information can never be completely removed. A regulator, for instance, suffers from the lack of information about demand, cost function and real commitment to improve productivity, all of which are essential elements in the design of effective contracts and incentives for regulated airports. Consequently, users of airport services and particularly airlines, as noticed by Littlechild (2012a) with reference to the consultation process in his analysis on the evolution of German airports' setting of charges, are directly affected by the insufficient transparency of the procedure, mainly because of their scarce



know-how, the difficulty of clarifying the allocation of airport costs and that of comparing airports. In Italy airport users had been paying, and in many cases are still paying, very heterogeneous charges for services provided by quite similar airports in terms of technical or traffic features. This has been ascribed to both the extreme complexity and variability of the regulatory framework and the low value of the financial and technical information provided by airports, which have not permitted the assessment of the content and cost-orientation of the charges (CERTeT, 2006).

Furthermore, regulatory risks emerging from information opacity do not seem to decrease in relation to the 'new view on airport regulation' that has been gaining increasing attention in international debates since the beginning of 2000s (Gillen *et al*, 2001; Tretheway, 2001). In line with several studies that have shown how competition is incessantly growing in airport industry (Müller-Rostin *et al*, 2010) and following the experience of New Zealand and Australia (Forsyth, 2002; Littlechild, 2012b), more and more governments are turning to ex-post regulation models mainly based on consultation processes and monitoring activity by an independent authority. This is, for instance, the logic adopted by the European Union with Directive 2009/12/CE currently in course of implementation in several member countries.

The privatization process that has made airports even more equal to any other business-oriented organization, the appearance of low-cost carriers and in general the increased buying power of airlines, the major role of ancillary revenue to complement aviation revenue, the maturity of passengers and the advent of information technology have been widely viewed as the main factors responsible for the gradual decline of airport market power and the increase of competition in the industry (Starkie, 2001; Starkie, 2002; Zhang and Zhang, 2003). In the past 20 years, the concurrence of such factors has led scholars to raise doubts about the persistence itself of airports being natural monopolies and therefore about the necessity to maintain traditional

regulation (Gillen *et al*, 2001; Tretheway, 2001). A recent analysis commissioned by Airports Council International on competition in the European airport industry, although not disregarding the importance of preventing airports from abusing their market power, concludes that the current approach to regulation 'looks more appropriate to the 1980s or early 1990s' (Copenhagen Economics, 2012). For the future, the findings also suggest avoiding economic regulation of airports in areas where competition is already effective, whereas regulation should be rethought, in order to be more specific and flexible, where competition has yet to develop.

The current situation makes the issue of disclosure even more crucial for airport market efficiency. First of all, some studies have highlighted that the vertical relationships in the air transport industry, including the strategic alliances between airport and airlines and especially when cooperation involves low-cost carriers (Gillen and Lall, 2004), may reveal significant asymmetry in value appropriation (Button and McDougall, 2006) and also raise anti-competitive concerns (Fu *et al*, 2011). Furthermore, the intensification of consultation processes and ex-post monitoring in the regulatory frameworks all around the world enhances the importance of being able to evaluate the voluntary disclosure of airports, for instance about cost functions as well as economic, technical and quality performance, for fair negotiation and control. As said by Gillen and Niemeier (2006), 'Still there is room for improvement as in most consultation processes the airports do not provide the necessary information to make a decision on airport charges transparent or plausible to the airlines'.

The central theme is whether airports, in particular in contexts where regulation is changing, are liable to voluntarily offer stakeholders information they had to give, as mandatory requirements, to regulatory authority. For this purpose, for instance in Europe, disclosure level should be adequately considered by governments and regulatory authorities to assess the

current maturity of the airport industry and so identify the best way to implement the new approach. Definitely, the topic may deserve even more attention in relation to a possible future scenario when regulation will be the exception rather than the rule.

In general, numerous benefits are related to the openness of the information flow of a firm. First of all, an organization's reporting attitude is highly interrelated to corporate governance, as it directly reduces information asymmetry and promotes the balance of powers and the sharing of knowledge between insiders such as controlling shareholders, executive directors and top-managers, and outsiders (Cadbury, 1999; Mallin, 2002). In his review of the empirical voluntary disclosure literature, Core (2001) assumes that disclosure policies of firms are endogenously determined, as well as their governance structures and management incentives, in order to maximize their value, in line with corporate finance theory (Verrecchia, 1983). In particular, Healy and Palepu (2001), in their review of the topic with reference to the effect of disclosure on capital markets, highlight that financial reporting and disclosure are potentially important means for management to communicate performance and governance to outside investors, therefore contributing to the working and efficiency of the capital market.

Even if researchers have identified many different forces that affect disclosure decisions taken by managers (Myers and Majluf, 1984; Healy and Palepu, 1995), the demand for voluntary disclosure basically arises from the agency problem, and consequently from the information asymmetry between the firm and the multitude of actors, such as regulators, investors, savers, insiders or users of services, all of whom have an interest in the firm's activity but no easy access to internal information (Jensen and Meckling, 1976).

A crucial role in mitigating resource misallocation in the capital market is played by the credibility of the information being disclosed, which in regulated markets can be enhanced by the intervention of a regulator. Other than

credibility, a problem emerges when considering the quality of disclosure, as the usual assumption that the quantity of information has an implication in determining its quality lacks sufficient empirical evidence (Beretta and Bozzolan, 2008). Finally, several studies have focused on the identification of the variables, mainly related to the characteristics of a firm such as size and economic performance, which can influence the level of information diffusion through traditional channels (Lang and Lundholm, 1993) or using corporate websites (Samaha and Abdallah, 2012; Mendes-Da-Silva and Massaro Onusic, 2014).

THE REGULATORY FRAMEWORK IN ITALIAN AIRPORTS

In the past 20 years, the Italian airport industry has been affected by deep changes in the wake of a legislative process oriented by the international trends of promoting free access and competition as well as recovering efficiency in the market. Law n. 537/1993 was the first to introduce a new managerial model for national airports inspired by the concepts of privatization, liberalization and innovativeness, as up to then airports had basically been managed, directly or indirectly, by the public sector, frequently following a sort of welfarism. In particular, the norm provided the formation of companies to manage airports in order to attract new funds and modernize infrastructures, thereby recognizing the importance of private capital. With the aims of enhancing the business orientation of airports and contrasting the inefficiency provoked by the direct management of the State, all airport activities were entrusted a single entity for a maximum period of 40 years, through the so-called 'total concession agreement'. It was conceived to replace the previous 'partial concession agreements', lasting 20 years, through which the State continued to manage the air-side infrastructures after granting the concession and, in precarious cases, that



is in absence of a contract signed with the airport company, to collect aeronautical revenues as well.

A subsequent set of norms permitted the gradual implementation of the reform regarding entry into the airport market, such as Law n. 135/1997, which repealed the obligation of public majority share in the company and Ministerial Decree n. 521/1997, which disciplined the formation of new companies in charge of 'developing, projecting, building, investing in and managing all airport facilities and services' (art. 4). As regards handling, Decree n. 18/1999 extended this kind of services to free competition rules by recognizing community directive n. 67/1996. Today the step to total concession agreement has been basically completed for the main airports of the Italian network, while some partial concession agreements remain in relation to smaller and secondary airports.

The slowness of the reform has been ascribed to both the confusion of the regulatory framework and the issue, never solved in the Italian context, of the aeronautical charges setting process (Sebastiani, 2009). This has caused the stratification of heterogeneous situations not only in relation to the right of entry into the market of airport management, but also to the right to use the airport facilities and provide services. Actually, the consequent step to a total concession agreement, that is the drafting of the Program Contract with the State in which the airport charges model and the objectives of productivity, efficiency, quality and development of airports had to be defined, has been mostly ignored. As a consequence, after 20 years, the Italian airport industry continues to suffer from the lack of competitive pressure, private funds and efficiency.

The first significant provision concerning the regulation model was Deliberation n. 86/2000 of Comitato Interministeriale per la Programmazione Economica (CIPE), a government body that intervenes in economic and financial affairs, which introduced a *hybrid price-cap* model, following the *dual-till* principle, for setting airport

charges during the 5 years of the concession. This obliged airports to correlate the remuneration of aviation activities to costs while letting them free to decide about the prices of non-aviation activities. Since then, Italian airport economic regulation has been characterized by a *hybrid price-cap model plus rate-of-return*. Airport companies were also asked to separate the accountancy of aviation and non-aviation activities and to determine the cost of each service through cost accounting, whose results had to be reported to the regulatory authority through specific procedures called 'regulatory accounting system'. Nevertheless, airport companies fiercely hindered the provision that they considered to be too complex, undifferentiated and not aligned to European standards. Subsequently, certain processes to conclude the Program Contract were suspended by the new Law n. 248/2005, which had a retroactive effect. In particular, it ratified the *price-cap model* but also turned to the *single-till* principle, actually just partially adopted as it was decided that 'at least 50 per cent of the profit gained from non-aviation activities should be written off aeronautical charges'. The following CIPE Deliberations n. 38/2007 and n. 51/2007, and especially the guidelines developed by the National Institute for Civil Aviation (ENAC) in September 2007, enabled the implementation of the new framework by determining the services to be subjected to regulation, the criteria for the cost accounting system and the objectives in charge of the regulated airports, viewed as essential requirements for the new 4-year Program Contracts between the regulation authority, that is ENAC, and the airport companies. In particular, within 30 days from the approval of the annual financial statement, airport companies are required by law to draw up and submit to ENAC the cost accounting information regarding regulated services, non-regulated services and excluded activities. Meanwhile, those companies that drafted the Program Contract with the State are obliged to provide ENAC with detailed information on the items used to set the level of charges. This is the content of the 'regulatory accounting system'.

In short, it is important to quote some of main elements of the Italian regulation model, as explained by the ENAC's guidelines, starting from the *net invested capital* (CIN). This represents the basis for the calculation of the remuneration owing to the airport company, and must be determined for each single regulated service as well as for all non-regulated ones. In fact, the cost of capital is calculated in relation to the CIN, through the usual *weighted average capital cost/capital asset pricing model* (WACC/CAPM). Then, the cost of capital is included in the aeronautical charges set for the multitude of services under regulation together with the operational costs related to each service, and it is also considered in the calculation of the profit gained from commercial activities. In this latter case, the cost of capital must be written off the 'commercial profit', which in turn is detracted from the aeronautical charges. This mechanism shows the indirect nature of the airport company remuneration. Another important element regards the calculation of aeronautical charges, which integrates into the operational costs for every service a set of parameters related to the traffic and the investment programme of the airport as well as to the quality, environmental and productivity objectives as defined in the Program Contract.

Actually, the major regulatory risk perceived by the airport companies and the remarkable complexity of the new model, which obliged the adoption of elaborate cost accounting and regulatory accounting systems, led to the conclusion of a very small number of Program Contracts, and to the scarce enforcement of the regulation frame. Consequently, airport charges did not change from 2001 to 2008 and charge setting processes continued to be characterized by discretionality, lack of transparency and disregard to costs (Assaeroporti, 2006).

Because of the persistent regulation uncertainty, and with the aim of facing the urgent need to promote the structural modernization of the airport network, special measures have since been taken by the Italian government, such as Decree n. 78/2009, art. 17, comma 34-bis,

which allowed airports with more than 10 million annual passengers to introduce long-term charge systems in line with European standards as a dispensation to the previous rule (Parlamento Italiano, 2010). In the meanwhile, with Community Directive 2009/12/CE, Europe proposed a homogeneous framework to be adopted by March 2011, requiring airports with more than 5 million annual passengers to set their charges by consulting users and appealing to an independent authority in case of disagreement. The EU Directive was acknowledged with Decree n. 1/2012, and then with Law n. 27/2012, which also extended the provision to all Italian airports without considering traffic limits, thereby demonstrating the will to replace the previous ex-ante regulation model with a new one inspired by free market competition principles. Actually, the new framework will be implemented gradually as both the current Program Contracts and the procedures underway to sign them will be maintained till their expiration.

The theme of voluntary disclosure appears to be topical in the airport industry, as the essential information concerning economic regulation, and especially setting charges, has compulsorily been given, through annual cost accounting and regulatory accounting systems, only to the regulatory authority up to now. In fact, in contexts moving towards non formal price regulation system, such as the Italian airport industry, voluntarily disclosing information on costs and revenues of regulated and non-regulated services, as well as on all the items used to set the charges, is a powerful tool to reduce information asymmetry and balance the powers of the parties involved in the free negotiation: airports and the users of their services. In particular, the Italian case deserves particular analysis in relation to the structural features of the industry, such as the limited number of listed airport companies, their average small size and the relevant public presence in the ownership, which make it difficult to pass from a mandatory to a voluntary framework to disseminate information to the market.



Italian airports have often been studied in relation to concession models and ownership structures. For instance, Curi *et al* (2010) analysed the impact of the normative framework on the technical efficiency of 36 national airports, showing the higher efficiency of airports under total concession agreement and public ownership. Scotti *et al* (2012) reached similar conclusions when inquiring into the relationship between competition intensity and efficiency, which they found to be negative through a stochastic frontier model, while Barros and Dieke (2007) evaluated the performance of 31 Italian airports, under a technical and financial point of view, by employing four different DEA models. They noticed that the best performers were airports with higher dimension and traffics, as well as the privately owned ones. Efficiency conditions and strategic opportunities of Italian airport companies for the period 2000–2005 were evaluated by Abrate and Erbetta (2010), who provided significant evidence supporting outsourcing of handling services as a valid managerial strategy. Finally, Rotondo (2012) analysed the relationship of Italian airport companies' corporate governance and their performance, again measured through DEA methodology.

METHODOLOGY

Sample

This study focuses on all Italian airport companies that manage airports, public or private, open to commercial aviation. Starting from a total of 48 airports, 45 owned by the public sector and three by the private one, three airports (Biella, Lampedusa and Pantelleria) were eliminated because of the absence of the ENAC certification, while two others (Oristano and Tortoli) were excluded as they no longer operated flights. Therefore, the total sample is made up of 37 airport companies managing 43 airports responsible for 99.78 per cent of the total passengers and 99.45 per cent of the total aircraft movements in commercial

aviation in 2011. In essence, the Italian airport industry is characterized by two intercontinental hubs, that is Rome Fiumicino and Milan Malpensa, with passenger traffic well beyond 10-million units, and only six 'national airports' with a volume of annual passengers comprised between 5 and 10-million units. Then there are 15 'big regional airports' moving between 1 and 5 million passengers a year, which shows why the Italian system was defined as both 'wide-spread' in the territory and 'concentrated' in traffic (Parlamento Italiano, 2010). As shown in the summary statistics of Table 1, nearly all the main airports of the sample are managed through a total concession agreement, while only 10 of them have signed the Program Contract with ENAC. Furthermore, there are five cases of airport systems where a group of airports is strategically managed, directly or indirectly, by a holding company or by shareholding control, and just four cases of companies listed on the stock exchange.

Data collection and analysis

In relation to the objectives of this research, the extent of airport disclosure has been measured following a quantitative approach by using disclosure indices that, in spite of some intrinsic limits such as subjectivity that may sometimes occur, are valid and well-established means to indirectly assess disclosure level in voluntary disclosure and accounting research literatures (Lang and Lundholm, 1993; Gray *et al*, 1995).

With the aim of evaluating the contribution of voluntary disclosure to airport economic regulation, two specific indices were constructed by selecting the main items required by Italian legislation concerning airport regulation: Decree n. 18/1999, Law n. 248/2005, CIPE Deliberations n. 38/2007 and n. 51/2007 and the consequent ENAC guidelines.

In particular, the first index is called *financial disclosure index* (FD), as it concentrates on the financial information related to regulatory purposes provided by airports. This kind of information flow, in fact, represents the basis for

Table 1: Characteristics of sample airport companies

<i>Airport company</i>	<i>Airport(s)</i>	<i>Traffic (millions)</i>	<i>Airport systems</i>	<i>Concession agreement</i>	<i>Program contract</i>	<i>Majority shareholders</i>	<i>Listed on stock exchange</i>
1 Sogeaal	Alghero	1<pax≤5	—	Total	—	Public	—
2 Aerdorica	Ancona	0.5<pax≤1	—	Total	—	Public	—
3 AVDA	Aosta	pax≤0.1	—	Private ^a	—	Private	—
	Bari	1<pax≤5	S	Total	PC	Public	—
4 Aeroporti di Puglia	Brindisi	1<pax≤5			PC		—
	Foggia	pax≤0.1			—		—
	Taranto	pax≤0.1			—		—
5 Sacbo	Bergamo	5<pax≤10	—	Total	—	Public	—
6 SAB	Bologna	5<pax≤10	—	Total	PC	Public	—
7 ABD Airport	Bolzano	pax≤0.1	—	Partial	—	Public	—
8 Aeroporto Gabriele D'Annunzio	Brescia	pax≤0.1	S	Total	—	Public	—
9 Aeroporto Valerio Catullo Villafranca	Verona	1<pax≤5		Total	—	Public	—
10 Sogaer	Cagliari	1<pax≤5	—	Total	—	Public	—
11 SAC	Catania	5<pax≤10	—	Total	PC	Public	—
12 Aeroporto Sant'Anna	Crotone	0.1<pax≤0.5	—	Partial	—	Public	—
13 Geac	Cuneo	0.1<pax≤0.5	—	Partial	—	Public	—
14 AdF	Firenze	1<pax≤5	—	Total	—	Private	L
15 Seaf	Forli	0.1<pax≤0.5	—	Partial	—	Public	—
16 Aeroporto di Genova	Genova	1<pax≤5	—	Total	—	Public	—
17 Seam	Grosseto	pax≤0.1	—	Partial	—	Public	—
18 Sacal	Lamezia	1<pax≤5	—	Total	—	Public	—
19 Alatoscana	Marina di Campo	pax≤0.1	—	Private ^a	—	Public	—
20 Sea	Milano Malpensa	pax>10	S	Total	PC	Public	—
	Milano Linate	5<pax≤10		Total			—
21 Gesac	Napoli	5<pax≤10	—	Total	PC	Private	—
22 Geasar	Olbia	1<pax≤5	—	Total	—	Private	—
23 Gesap	Palermo	1<pax≤5	—	Total	PC	Public	—
24 Sogeaop	Parma	0.1<pax≤0.5	—	Partial	—	Private	—
25 Sase	Perugia	0.1<pax≤0.5	—	Partial	—	Public	—
26 Saga	Pescara	0.5<pax≤1	—	Total	—	Public	—
27 Sat	Pisa	1<pax≤5	—	Total	PC	Public	L
28 Sogas	Reggio Calabria	0.5<pax≤1	—	Partial	—	Public	—
29 Aeradria	Rimini	0.5<pax≤1	—	Partial	—	Public	—
30 AdR	Roma Fiumicino	pax>10	S	Total	PC	Private	L
	Roma Ciampino	1<pax≤5		Total			
31 Costa D'Amalfi	Salerno	pax≤0.1	—	Partial	—	Public	—

Table 1 *continued*

<i>Airport company</i>	<i>Airport(s)</i>	<i>Traffic (millions)</i>	<i>Airport systems</i>	<i>Concession agreement</i>	<i>Program contract</i>	<i>Majority shareholders</i>	<i>Listed on stock exchange</i>
32 Aeroporto di Siena	Siena	pax≤0.1	—	Partial	—	Private	—
33 Sagat	Torino	1<pax≤5	—	Total	—	Public	—
34 Airgest	Trapani	1<pax≤5	—	Total	—	Public	—
35 Aeroporto Friuli Venezia Giulia	Trieste	0.5<pax≤1	—	Total	—	Public	—
36 Save Group	Venezia	5<pax≤10	S	Total	PC	Private	L
	Treviso	1<pax≤5	—	Total	—	—	—
37 Aeroporto di Villanova d'Albenga	Villanova d'Albenga	pax≤0.1	—	Partial	—	Public	—

^aPrivate airport operating commercial flights: No concession agreement.

setting charges, and specifically for the calculation of the CIN, the costs of aeronautical services and the non-aeronautical profit. In this regard, whether or not the relevant items were displayed in the airport company's annual report was considered, as this is usually the most comprehensive document as well as the main disclosure vehicle for financial information (Marston and Shivres, 1991; Bassett *et al*, 2007). In fact, being publicly available to stakeholders, the annual report is an effective tool to voluntarily compensate for the lack of information on charge structure, which is usually only displayed in the cost accounting and regulatory accounting systems given to ENAC. Actually, as the selected items do not represent separate items in the balance sheet and profit and loss account of the financial statement, whose form and content is strictly regulated by the Italian Civil Code, the investigation mainly focused on the notes to the accounts and the further information voluntarily provided by the company in the annual report.

The second index is called *general disclosure index* (GD) and it accounts for all the other aspects integrating financial information for the purpose of setting charges, as required by law. In this case consideration was given to whether or not the items or documents basically related

to operational and performance information about traffic, productivity, quality, environment and investments were displayed on the airport company's internet site, a supposedly powerful tool to voluntarily communicate this kind of information (Healy and Palepu, 2001) and in general non-financial disclosures (Evangelinos and Skouloudis, 2014), in addition to the use for financial reporting (Pendley and Rai, 2009).

Both indices are made up of nine items that are shown in Table 2, together with the motivation and the legislative requirement, which guided their selection. According to literature, a double version of both indices, weighted and unweighted, was calculated in order to reduce subjectivity by comparing results (Chow and Wong-Boren, 1987; Melis and Carta, 2010). In particular, while weighted indices score each item equally, unweighted ones do not as they recognize the different importance of items in relation to certain criteria, such as public availability of the information, the degree of the company's discretionality in providing it and the relevance of the information being disclosed (Buzby, 1975; Botosan, 1997).

With reference to the FD, items were assigned three different weights in relation to

Table 2: Weighted and unweighted disclosure indices motivation and scoring

<i>Financial disclosure index (FD)</i>		<i>Motivation (references)</i>	<i>Score</i>	
<i>N</i>	<i>Item</i>		<i>Unweighted</i>	<i>Weighted</i>
1	Composition of share capital (CAP)	ENAC guidelines for transparency	1/9	1/23
2	Handling costs (HC)	Transparency on handling (Decree n. 18/1999)	1/9	2/23
3	Handling revenue (HR)	Transparency on handling (Decree n. 18/1999)	1/9	2/23
4	Subdivision between aeronautical and non-aeronautical revenue (REV)	Calculation of commercial profit (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	3/23
5	Subdivision between aeronautical and non-aeronautical costs (CO)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	3/23
6	Subdivision of aeronautical costs between the different services (ACO)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	3/23
7	Subdivision between aeronautical and non-aeronautical capital assets (ASS)	Calculation of CIN (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	3/23
8	Subdivision of capital assets between self-funded ones and funded by public sector ones (AFU)	Calculation of CIN (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	3/23
9	Subdivision of accounts payable and receivable between aeronautical and non-aeronautical side (ACC)	Calculation of CIN (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	3/23
<i>General disclosure index (GD)</i>		<i>Motivation (references)</i>	<i>Score</i>	
<i>N</i>	<i>Item</i>		<i>Unweighted</i>	<i>Weighted</i>
1	Financial statements (FS)	Transparency on economic performance (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	1/13
2	Traffic volumes (TR)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	1/13
3	List of handlers (HAN)	Transparency on handling (Decree n. 18/1999)	1/9	1/13
4	Charter of services (CS)	Transparency on quality (Italian Code of Navigation)	1/9	1/13
5	Airport technical regulations (TC)	Transparency on quality and security (ENAC regulation APT 19, 26th/10/2005)	1/9	1/13
6	Volume of airport activities (ACT)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	2/13



Table 2 continued

General disclosure index (GD)		Motivation (references)	Score	
N	Item		Unweighted	Weighted
7	Historical productivity (PRO)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	2/13
8	Plan of development or investments (DEV)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	2/13
9	Environmental objectives and performance (ENV)	Calculation of aeronautical charges (Law n. 248/2005; CIPE Deliberations n. 38/2007 and n. 51/2007; ENAC guidelines)	1/9	2/13

the relevance of the corresponding information for regulation purposes, while in reference to the GD a two-level scale of values was used in relation to whether the information was publicly available or not.

Therefore, the two unweighted indices were calculated in the following way:

$$FD_j(\text{or } GD_j) = \frac{1}{9} + \sum_{i=1}^m d_i$$

where FD_j (or GD_j) is the financial disclosure (or general disclosure) score for company j , d_i is 1 if item i is disclosed and 0 otherwise, and m is the maximum number of items, which amount to 9 for each unweighted index in this study.

Weighted indices, on the other hand, were calculated, respectively, as follows:

$$FD_j = \frac{1}{23} CAP + \frac{2}{23} (HC + HR) + \frac{3}{23} (REV + CO + ACO + ASS + AFU + ACC)$$

$$GD_j = \frac{1}{13} (FS + TR + HAN + CS + TC) + \frac{2}{13} (ACT + PRO + DEV + ENV)$$

Then, in order to meet the second research objective, which was to identify the determinants of voluntary disclosure of Italian airport companies, the FD and GD, in both the

unweighted and weighted versions, were alternatively considered as dependent variables in a stepwise multiple linear regression analysis. Among the statistical methods useful to assess the relative contribution of each predictor variable, the stepwise is the most sophisticated as well as the most parsimonious model as it selects the minimum number of variables needed to predict the criterion variable. For this purpose ten independent variables were theoretically selected, divided over the four categories of company profile, concession agreement, activity and economic performance.

As shown in Table 3, which accounts for meaning and score of independent variables, five dummy variables were developed in order to transform non-metrically measured variables into metric ones. Data used for both the dependent and independent variables refer to 2011, as during the research period, which lasted from April 2013 to December 2013, the latest official information sources dated back to that fiscal year. As commonly occurs when considering economic measures, for the calculation of EBITDA the average value referred to the last two fiscal years (2010/2011) was used in order to reduce possible short-term effects. AIDA database and ENAC Statistical Yearbook 2011 were used to gather, respectively, financial and operational data about Italian airports.

Table 3: Independent variables scoring

<i>Independent variables</i>		<i>Score</i>
<i>a Company profile</i>		
1	Ownership (OWN)	% Private capital
2	Airport system (SYS)	Yes = 1 / No = 0
3	Listed on a stock exchange (LIS)	Yes = 1 / No = 0
<i>b Concession agreement</i>		
4	Form of concession (CON)	Total = 1 / Other = 0
5	Program Contract (PC)	Signed = 1 / Not signed = 0
<i>c Activity</i>		
6	Traffic volume (TVOL)	Total passengers
7	Traffic nature (TN)	% Low-cost passengers
8	Traffic origin (TO)	% National passengers
<i>d Economic performance</i>		
8	Profitability (PROF)	EBITDA
10	Liquidation (LIQ)	Liquidation = 1 / Not in liquidation = 0

RESULTS

In order to evaluate, on a quantitative basis, the extent of voluntary disclosure of Italian airport companies, some interesting results emerge at first glance from the descriptive statistics of Table 4. First of all, the value of all four disclosure indices is below 50 per cent of the potential score they can achieve and, considering both unweighted and weighted measures, airports tend to disclose slightly more financial information than general information.

Before identifying the determinants of voluntary disclosure, it also seems to be opportune to meditate on the correlations existing between each of the variables, both dependent and independent, proposed in the model and

also shown in Table 4. Starting from the dependent variables, while the financial disclosure indices show the most statistically significant correlations with the form of concession, the general disclosure indices are notably affected by the form of concession, the Program Contract, the volume of traffic, profitability and the presence of an airport system. All these correlations are positive.

As regards the correlation among the independent variables, results led to some interesting considerations. The higher values are observed between the profitability of the companies, measured by EBITDA, and both the volume of traffic and the presence of an airport system. Airport systems and traffic are characterized by a strong correlation too, as well as traffic and the agreement on the Program Contract with the State. Definitely, the economic performance seems to be strictly linked to size and operational scale in the Italian airport industry. The constitution of systems usually involves the bigger airports in terms of passengers, and these are also the more likely to sign the Program Contract with the ENAC. Then, a remarkable relationship between the signing of the Program Contract and the economic performance of airports emerges, as well as between the former and the form of concession acknowledged to the company, because of the fact that the Program Contract should naturally follow the total concession agreement. Understandably, larger airports are also the more frequently listed on the stock exchange, while being listed is positively correlated to private ownership and economic performance as well.

These considerations are particularly important to understand the relationships among variables and shed light on the Italian network trends, while they are not supposed to be appropriate for selecting independent variables. This is not only because just the correlation coefficient between traffic and EBITDA showed a very high value but also because, in general, it could be dangerous to remove independent variables that were theoretically identified and that account for different and

Table 4: Descriptive statistics and Pearson correlations

Variable	N	Mean	SD	1	2	3	4	5	6	7	8	9	10	11	12	13	14
1 FD unweighted	37	0.399	0.175	1													
2 FD weighted	37	0.365	0.175	0.977**	1												
3 GD unweighted	37	0.312	0.204	0.512**	0.489**	1											
4 GD weighted	37	0.237	0.182	0.531**	0.507**	0.984**	1										
5 OWN	37	0.265	0.300	0.066	0.009	0.244	0.251	1									
6 SYS	37	0.162	0.374	0.399*	0.399*	0.491**	0.486**	0.106	1								
7 LIS	37	0.108	0.315	0.260	0.228	0.324	0.286	0.515**	0.319	1							
8 CON	37	0.622	0.492	0.407*	0.432**	0.625**	0.575**	0.141	0.343*	0.272	1						
9 PC	37	0.270	0.450	0.317	0.337*	0.668**	0.655**	0.118	0.393*	0.376*	0.475**	1					
10 TVOL	37	3 990 562.324	8 156 337.426	0.219	0.192	0.684**	0.710**	0.372*	0.594**	0.456**	0.369*	0.585**	1				
11 TN	37	0.432	0.313	-0.008	0.062	0.051	0.023	0.015	-0.101	-0.035	0.126	0.044	-0.062	1			
12 TO	37	0.524	0.268	-0.356*	-0.358*	-0.128	-0.170	-0.160	-0.287	-0.335*	-0.119	-0.001	-0.177	-0.399*	1		
13 PROF	37	17 920 253.741	53 265 554.498	0.174	0.131	0.613**	0.638**	0.427**	0.598**	0.514**	0.286	0.499**	0.981**	-0.107	-0.206	1	
14 LIQ	37	0.081	0.277	0.013	-0.030	-0.242	-0.222	-0.004	-0.131	-0.103	-0.381*	-0.181	-0.142	0.049	0.015	-0.116	1

* $P < 0.05$; ** $P < 0.01$ (two-tailed).

relevant aspects of airport companies. On the other hand, correlation analysis is viewed as a valid support to interpret the results coming from the multivariate examinations performed by means of stepwise regression analysis in order to assess the contribution of each of the independent variables to explain the variance of each of the disclosure variables. In any event, possible collinearity problems are checked in regression analysis.

As reported in Table 5, the stepwise regression analysis of the financial disclosure indices revealed the significant contribution of the form of concession and the origin of the traffic to the explained variance. In particular, the models highlighted a primary positive impact of having signed the total concession agreement with ENAC on voluntary disclosure of financial

measures, while a slightly lower negative effect of the national origin of the airport's traffic on such disclosure. This means that the greater the number of international passengers, the larger the extent of financial disclosure by airport companies.

Furthermore, the strong similarity between the results for the unweighted and weighted indices counterbalances the lack of objectivity, which could affect the choice of the weight given to each item, in line with the findings of several studies in literature on the extent of disclosure (Choi, 1973; Chow and Wong-Boren, 1987; Melis and Carta, 2010).

On the other hand, in relation to general disclosure, three independent variables showed to significantly contribute to the explained variance, that is traffic volume, the form of

Table 5: Stepwise regression of independent variables on voluntary disclosure indices

Dependent variable	Financial disclosure					
	Unweighted (u)			Weighted (w)		
Index	Beta	t	P	Beta	t	P
Predictor variables						
Form of concession	0.370	2.493	P=0.018	0.395	2.695	P=0.011
Traffic origin	-0.312	-2.099	P=0.043	-0.311	-2.125	P=0.041
—		—			—	
No of obs.		37			37	
F (u: 2, 34; w- 2, 34)		6.022			6.669	
P		P=0.006			P=0.004	
R ²		0.262			0.282	
Adj R ²		0.218			0.240	
Dependent variable	General disclosure					
Index	unweighted (u)			weighted (w)		
Predictor variables	Beta	t	P	Beta	t	P
Traffic volume	0.398	3.209	P=0.003	0.577	5.059	P=0.003
Form of concession	0.351	3.070	P=0.004	0.362	3.177	P<0.0005
Program Contract	0.268	2.046	P=0.049	—	—	—
No of obs.		37			37	
F (u: 3, 33; w- 2, 34)		22.445			27.500	
P		P<0.0005			P<0.0005	
R ²		0.671			0.618	
Adj R ²		0.641			0.596	



concession and the Program Contract. In this case both the final models for the unweighted and weighted indices appeared to be more significant and stronger than those related to financial disclosure. The impact of the first two predictor variables on the criterion variable was found to be larger for the models related to general disclosure than to financial disclosure as well, while the third predictor variable for general disclosure revealed a borderline value. Therefore, various reasons motivated the decision to maintain the first two determinants and to exclude, at least until further analysis, the signing of the Program Contract from the predictor variables of general disclosure. First of all, the results of the model developed for the weighted GD did not include the Program Contract among the statistically significant predictor variables. This evidence highlights probable problems of subjectivity related to the weighing process. Second, the previous correlation analysis supported the decision as it showed quite significant correlations between the Program Contract and both the traffic volume and the form of concession. Collinearity diagnostics confirmed the absence of problems with multicollinearity. However, these results must be cautiously interpreted considering the number of variables and the number of observations in the model.

Conclusively, voluntary disclosure of general information supposed to be powerful for regulation purpose was positively influenced by the number of passengers moved and the total concession agreement obtained by the airports. As regards these predictor variables, as in the previous case, the weighing of items did not affect the homogeneity of results between the two indices.

CONCLUSION

Finally, some general comments are useful to interpret the results and identify possible implications for managers, policy makers, regulators and users of regulated services. As regards the airport industry, full managerial autonomy and

economic responsibility on all airport activities, at the core of the total concession agreement between the airport company and the State, are directly related to superior information transparency. This is true when considering disclosure behaviour under both financial and general perspectives. Therefore, airport companies engaged in managing both air-side and land-side activities pay more attention to account for the items used to build the charges for services, in order to establish more trustworthy relationships with present users, be more attractive for potential ones and finally improve their performance. This also means that the goal of balancing the roles of airport players, usually viewed as a way to enhance the quality of services, the satisfaction of actors and the functioning of the airport industry on the whole, appears to be related to the independence of airport companies from an operational and economic point of view. Actually, this seems to be in line with airports increasingly acquiring the business orientation of private firms and their compliance with the competition rules. After all the airport industry the world over has taken such a direction since the beginning of privatization and liberalization processes that determined the gradual moving away of the public sector from the management of airports. Nevertheless, public ownership itself does not seem to affect airport behaviour as regards openness, as shown by the fact that the percentage of private capital is not a significant driver of voluntary disclosure. Similarly, it is worth noting that neither being listed on the stock exchange nor having high low-cost passenger traffic revealed to have a significant impact on the disclosure behaviour of airports, at least with reference to regulatory purposes.

Furthermore, in relation to financial disclosure, facing an international market, and so keeping in contact with players operating beyond national borders, also enhances the attitude of airports towards transparency in order to reduce the information asymmetry with users of airport services. It probably proves the major importance that the issue of transparency has gained internationally in

business relationships. Quite surprisingly, economic performance has no effect on financial disclosure. Otherwise, as regards extra-financial information items contributing to setting up the charges of airport services, their disclosure is primarily influenced by the passenger traffic volume. This confirms that size parameter considerably affects airport companies' information openness. Actually, this analysis reveals that, on average, not much attention is paid to disclosure practice and that its extent is quite similar for both financial and general information. The findings provide airport managers with the awareness about the unsystematic nature of disclosure practices and contribute to sensitize them on the necessity to abandon compliance-driven approach focused only on regulatory authority's requirements, as a higher level of voluntary disclosure could be an important way to reinforce airport competitiveness. In wider terms, with reference to regulated monopolies, the study emphasizes the role of voluntary disclosure as a powerful tool to increase the effectiveness of regulation. The level of information openness of the companies, in fact, is a good measure of the maturity of a regulated industry and in the meantime assesses its attitude to evolve towards self-regulation or ex-post regulation models. In fact, it is an effective way to reduce information asymmetry and balance the powers of the parties involved in the free negotiation. In the case under consideration, voluntary disclosures on the main items used to set the level of charges strengthen the role of the users of airport services, mainly the airlines, improving fairness in negotiation, resource allocation and service quality.

Major practical implications coming from the analysis are related to the evolution of the airport regulation approach in the international context. In fact, with reference to the trends that have emerged on some important markets around the world, such as the new framework recently proposed in Europe for airports, a central takeaway from the results is that specific policies should be developed by regulators and policy makers to enhance and

constantly monitor the level of disclosure in regulated industries. Second, they highlight that the implementation of an indistinct ex-post regulation model for all company categories is highly risky for improving market efficiency and, as hypothesized, it would be better to consider structural and operational features of companies in advance. For instance, in Italy, in the airport industry the higher risk categories involve airports managed by companies without full responsibility for the whole of the airport's activity, those scarcely integrated into an international network and the smaller ones, but such an evaluation should be made on an industry as well as an international case-by-case basis. Nonetheless, the need for more attention to the smaller airports becomes a central point in the discussion. In fact, studies have noticed that as the smaller airports are traditionally affected by the stronger competition, they would not basically need any kind of ex-ante regulation (Sebastiani, 2009). This orientation has been followed by several European countries such as Italy that, in acknowledging Directive 2009/12 establishing a negotiation procedure for setting charges only for airports moving more than 5 million passengers a year, decided to extend its principles to all airport classes.

Definitively, the consultation process between the airport company and the users of its services is still far from relying on a sound, transparent and publicly available base of information able to lessen the existing asymmetry among the parts. In general, this suggests that during the implementation stage of new regulation models, policy makers should develop correctives to improve the extent and the quality of the reporting of the less transparent categories of companies.

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