

The objectives and outcomes of airport privatisation

Anne Graham*

University of Westminster, 35 Marylebone Road, London, NW1 5LS, United Kingdom

ARTICLE INFO

Article history:

Received 4 March 2011

Received in revised form 24 May 2011

Accepted 24 May 2011

Available online 29 June 2011

Keywords:

Airport
Privatisation
Efficiency
Investment

ABSTRACT

Airport privatisation is a controversial yet growing trend that has been accompanied by an expanding quantity of related research. However there has been very little attempt to synthesise this research and identify overarching findings that single studies do not produce. Hence it is the aim here to apply a systematic review of all the results in the academic literature. Both the objectives and outcomes of privatisation are considered although the literature appears surprisingly lacking in assessing whether these are closely aligned. A need for improvements in efficiency, coupled with a requirement for greater investment, appear to be the key drivers of privatisation but the evidence, as to whether there are actually performance benefits, is inconclusive. Improvements need to be made to the methods used, but given that the range of airport privatisation models has now become so diverse, more focus on governance and institutional structures may also yield useful conclusions.

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1. Introduction

Airport privatisation is a controversial, yet increasingly important, theme in government policy throughout the world. The first major privatisation occurred in the UK in 1987 and since then a number of other countries, both in developed and developing regions, have seen it become a significant political force. In a global study of 459 airports in 2007 it was found that 24% of airports had full or partial private ownership (International Civil Aviation Organisation, 2008). A similar situation existed specifically within Europe in 2008 where 13% of the airports were owned by public-private shareholders and 9% were fully privatised. However these partial or total privately owned airports handled proportionally more European passenger traffic (48%), since private operators are predominantly found at larger airports (ACI-Europe, 2010). Meanwhile in developing countries between 1990 and 2005, 38 low and middle-income countries entered into short and long-term airport privatisation transactions that attracted investment commitments of more than US\$18 billion (Andrew and Dochia, 2006). Such developments have transformed the structure of the global airport industry and have led to the emergence of multi-airport international companies (Forsyth et al., 2011).

There is a growing quantity of academic literature that considers the experience of airport privatisation but as yet there has been very little attempt to synthesise all this research and identify overarching findings that the single studies do not produce. Hence it is the overall aim of this paper to fill this gap by breaking new ground in applying a systematic review of all the research results and by providing a

comprehensive assessment of the objectives and outcomes of airport privatisation. The timing is ideal as the majority of privatisations occurred in the late 1990s and early 2000s and so the initial outcomes of airport privatisation are now ready to be evaluated on a cross-sectional basis. Therefore this research has three key objectives. Firstly to compare the objectives of airport privatisation; secondly to compare the outcomes or experiences of airport privatisation; and thirdly to assess the extent to which the objectives and outcomes of airport privatisation have been closely aligned.

Whilst it is acknowledged that privatisation is an important general trend of recent years, a range of actual definitions of privatisation exist that can be rather confusing. For example in the UK, it refers to the selling of shares on the stock exchange of publicly owned utility, transport and telecommunication operations, which was a popular government policy in the 1980s. Elsewhere in the 1990s a wave of privatisation occurred in Russia and Eastern Europe after the fall of Communism, which involved former government run organisations passing over to private management control. Then in the United States where there are fewer state owned enterprises, privatisation commonly relates to the contracting out or leasing of assets. Private-Public Partnerships (PPPs) are a type of privatisation, popular in both developing and developed regions, where typically there is private capital for, and management of, some major new infrastructure project, along with eventual public ownership. Overall, whilst the experiences of all these types of privatisations may well be very different, they can all loosely be interpreted as the transfer of economic activity from the public sector to the private sector.

There has emerged a wealth of well established literature related to this general privatisation movement of the last three decades that debates the general case for and against privatisation and tests the relevance of theory to practice (e.g. Bishop et al., 1994; Parker and

* Tel.: +44 20 7911 5000; fax: +44 20 7911 5171.

E-mail address: graham@westminster.ac.uk.

Saal, 2003; Vickers and Yarrow, 1988). It is frequently argued that privatisation policies are inspired by the belief that private firms will have greater incentives to perform well by increasing economic efficiency, and by introducing commercially focused management that may have a greater ability to be innovative or to go down the path of diversification. Price competition may be able to be introduced into a previously publicly controlled monopoly. Moreover risk and financial burden may be transferred from the public to private sectors, with the reduction of public indebtedness, and at the same time privatised firms may be provided with access to capital markets. Governments may gain financially from converting fixed public assets into cash and subjecting the privatised firms to paying company taxes. Overall government and political involvement and control may be reduced and in addition certain forms of privatisation may lead to employee and wider public share ownership. The benefits may also include other political aims such as curbing public sector union power.

On the other hand, it has also been argued that privatisation may merely convert a public monopoly into a private one that may overcharge and deliver poor standards of service. Profit maximisation objectives may lead to inadequate investment and insufficient consideration given to externalities such as controlling environmental impacts and maintaining social justice. Working conditions for employees may also be less favourable and compromises may be made with health and safety. Many studies have investigated these disparate arguments with empirical evidence but have reached very mixed and sometimes quite conflicting conclusions (e.g. D'Souza and Megginson, 1999; Marsh, 1991; Megginson and Netter, 2001; Vickers and Yarrow, 1991; Willner and Parker, 2007). This specialist study of the airport case will add a new dimension to this rich literature collection.

This paper has the following structure. The second section sets the scene by describing the origins and growth of airport privatisation. The following section then introduces the literature that has been reviewed for this paper and explains how it was selected. The next two sections present the findings of the research, firstly by assessing the objectives for privatisation and secondly by exploring the outcomes of this process. The last section discusses the implications of the findings and draws conclusions.

2. The origins and growth of airport privatisation

The first airport privatisation occurred in the United Kingdom in 1987 with the 100% share flotation of the state run organisation British Airports Authority, which at that time owned the London airports of Heathrow, Gatwick and Stansted and the Scottish airports of Glasgow, Prestwick, Edinburgh and Aberdeen (Doganis, 1992). This policy very much reflected the overall aim of the pro-privatisation conservative Thatcher government of the time to privatise nationalised industries. Airports were generally viewed as having a high degree of predictability of cash flow and above average growth. This privatisation experiment was considered to be successful by many in the airport industry because of improvements in financial performance and rising share prices, and hence this consequently fuelled the debate as to whether further airports should be privatised. Indeed in the next few years some regional UK airports and Vienna and Copenhagen in continental Europe were partially or totally privatised although it was not until around 1996 that airport privatisation really became a significant political force.

Between 1996 and 2001 airport privatisation occurred at a number of European destinations (e.g. Dusseldorf, Naples, Rome, Birmingham and Bristol), Australia and New Zealand, Malaysia, South Africa and some South and Central American countries (e.g. Argentina, Bolivia and Mexico). Then this first wave of airport privatisation almost came to a total halt in the early 2000s as a result of the industry crisis caused by 9/11, subsequent wars in Afghanistan and Iraq, and the outbreak of Severe Acute Respiratory Syndrome (SARS) along with less favourable

general economic and financial conditions. However by 2004 privatisation was back on the agenda for a number of airports, albeit with much more cautious investors than in the past, and in the next couple of years it occurred at locations as diverse as Brussels, Cyprus (Larnaca and Paphos), Paris, and India (Delhi, Mumbai, Bangalore and Hyderabad) (Centre for Asia Pacific Aviation, 2007). This second burst of privatisation activity was again virtually brought to an end primarily by the onset of the 'credit crunch' and the global economic recession in 2009 which saw active privatisation projects, for airports such as Prague and Chicago Midway, postponed or cancelled (Bentley, 2010). In spite of these economic difficulties privatisation is likely to continue to be an important future trend, both in terms of new but also secondary sales, particularly as in the short term it may be seen as a way to restore some health to struggling public sector finances.

Overall these developments have meant that there are now a range of governance options available to airports. These have emerged in order to meet the various legal, cultural, developmental and strategic requirements of different countries and airports and they also very much reflect the national political and economic systems that are in place. ACI-Europe (2010) used five categories to explain this situation; namely public airport operator as part of the administration; corporatised public airport operator; public sector owning a majority share in the airport operator; private sector owning a majority share in the airport operator; and fully privatised airport operator. Meanwhile Ashford and Moore (1999) described the range of privatisation options as being placement of entire shareholding; management buyout; flotation; partial flotation; sales by public tender; privately negotiated sale; joint venture by injection of finance; granting of management contracts; granting of leases; and many methods of project finance which are often referred to by the generic term 'Build-Operate-Transfer' (BOT). Graham (2008) used a simpler definition that distinguished between share flotation; trade sale; concession; project finance privatisation; and management contract. Overall it is certainly true that as the privatisation movement has evolved, more varied and innovative models have been introduced.

Although there is a lack of uniform definition of governance options, all the classifications highlight the degree of government control that exists, which is often the key element influencing the government's choice of method. In some cases, for example with a share flotation, airports face little in the way of continuing state governance conditions other than those faced by any commercial company. By contrast with other models, for example airport concessions or leases, a significant amount of public sector influence remains as in these cases only operation and not actually ownership is transferred to the private sector. These types of privatisations are popular in developing countries where there tends to be a strong need for major expansion and modernisation but lack of government resources. Alternatively governments can choose to only partially privatise the airports – again stopping them from relinquishing all control to the private operators. It is evident from Graham (2008) that only a minority of privatisations have involved total ownership being handed over to the private sector. In most cases, and particularly in continental Europe, partial privatisation has been the more popular option (ACI-Europe, 2010). Meanwhile in North America, there has been a reluctance to move away from the status quo with local public ownership remaining the norm in the United States (with only a very limited experiment of an Airport Privatization Pilot Program) and with a 'not-for-profit' governance model in Canada rather than more conventional privatisation (Federal Aviation Authority, 2010; Transport Canada, 2010). However a notable feature of the US system is that there has always been considerable reliance on the capital markets and bonds as a source of funding that is not a common situation for most publicly owned airports elsewhere.

There are two key air transport issues that appear to have strengthened the general case for airport privatisation. Firstly, in spite of some uncertainties related to traffic growth in recent years,

long-term growth is still expected and most airports do not have the capacity to cope with this. New infrastructure needs to be financed and there seems to be ever increasing pressure on public sector funding which was the traditional main source of funding. Secondly many airports have proved over the years that they are quite capable of being operated as commercial, self-sufficient businesses, particularly in response to a more demanding, deregulated and competitive airline industry. Thus the public service paradigm that views an airport as a public utility to satisfy the needs of airlines and passengers has been replaced with a commercial paradigm that views an airport as a business enterprise. So this 'commercialisation' of airports has further weakened the case for continued government support for airports.

3. Methodology and the airport privatisation literature

This research has involved carrying out a comprehensive synthesis of the expanding literature on airport privatisation. This type of research, that can identify overarching trends or tease out findings that single studies do not produce, is comparatively rare in air transport whilst being much more common with the physical sciences. It has been undertaken here by applying a systematic review of the findings, rather than using more precisely defined meta-analytical techniques that are not suitable given the nature and lack of comparability of the airport research. An extensive range of different publications, such as newspapers and journals, textbooks, government documents, conference papers and theses, industry and other stakeholder policy statements, have considered airport privatisation. However an assessment of the findings and viewpoints of all of these would be overwhelming and lacking in rigour and so the analysis here focused on academic journals. The justification for this was primarily because of the assurance of quality that is guaranteed because of the refereeing process undertaken for the vast majority of the papers. Moreover most of these papers were widely available (usually in electronic format) and the content could easily be searched through an examination of the key word and abstract sections.

The journal papers were selected by undertaking a search through Elsevier's Scopus database and the electronic databases of JSTOR, ScienceDirect, Business Source Complete and SwetsWise. Articles were accepted for consideration if there was mention of airport/air transport and privatx, ownerx and governance (where x was a wildcard) in the article title, abstract and key words. 61 papers were selected. Added to this were an additional four papers that did not mention these search words but were clearly related to the topic area. In addition a review of edited books was undertaken and it was decided to include selected papers from 'Aviation Infrastructure Performance' by *Winston and de Rus (2008)* as these were also refereed and were highly relevant. In total this resulted in 71 papers being considered for this analysis (See *Appendix A*). Whilst the database search ensured that international papers that conventionally tend to be written in English were identified, a potential drawback was that papers in other languages may have been omitted which in turn may have influenced the geographical coverage of the papers.

A start date of 1980 was chosen for the search, seven years before the first ever privatisation in the UK, to take account of any papers produced in the preparation stages of this privatisation. The end date was November 2010 — although papers 'in press' and to be published later than this were also included (The exception here was with the JSTOR database that does not cover recently published articles). Within this time period the number of selected papers increased significantly coinciding with the growth of airport privatisation worldwide. Before 1996, only one paper was identified. Between 1996 and 2000 there was an annual average of 1.2 relevant papers. This increased to 3.8 in 2001–2005 and 8.4 in 2006–2010.

Fig. 1 shows the geographical spread of the coverage of the papers. The region that has received the most attention is Europe followed by

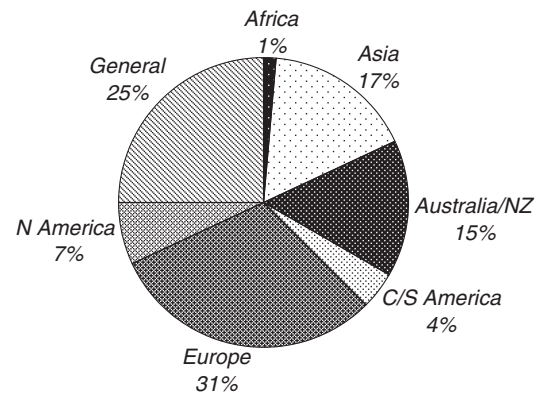


Fig. 1. Geographical coverage of the privatisation literature.

Asia and Australia/New Zealand. Around a quarter of all papers had a broader or non-specific geographical focus.

Fig. 2 presents the research approaches that were adopted by the papers or the main approach used when more than one had been selected. The majority of the studies used secondary information (and in a few cases personal professional experience) to review the strategy and policy implications of privatisation. Around a quarter of the other papers contained some statistical analysis of data ranging from simple ratio or trend analysis to more complex statistical tools such as data envelopment analysis (DEA) or total factor productivity (TFP). The remaining few papers presented theoretical models or discussed primary research findings.

The papers were evaluated with the assistance of the software package NVivo 8 which is designed to analyse qualitative information such as written text. Specifically the 'Text Search' and 'Word Frequency' query features, which identify sources for particular text and its frequency of use, were employed at the initial stages of the analysis to help identify key themes and concepts that were then further investigated.

4. The objectives of airport privatisation

4.1. The general case

41 papers (59% of the total number) discussed the general objectives and reasons for privatisation within the airport section. The most popular objective, cited by 33 of the papers, was concerned with a desire to increase efficiency and improve financial performance (*Fig. 3*). Some studies adopted a more theoretical approach than others and made a definite distinction between productive efficiency (i.e. associated with the lowest possible resource costs) and the

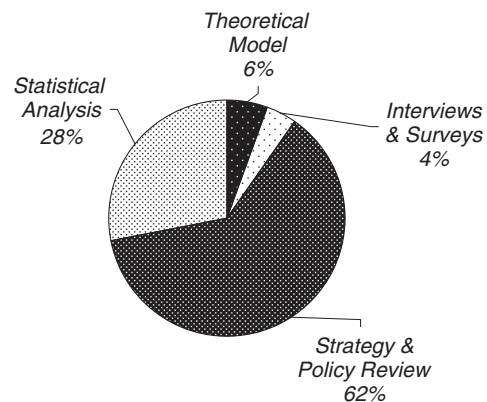


Fig. 2. Main approach used in the privatisation literature.

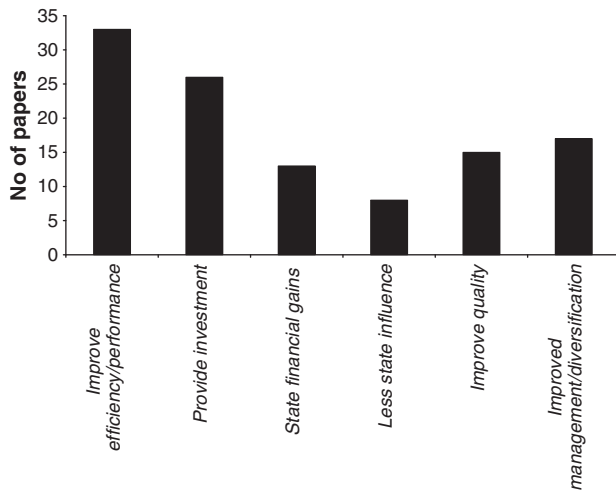


Fig. 3. General objectives of airport privatisation identified in the privatisation literature.

financial measure of profitability that can be influenced not only by efficiency gains but also, for example, by the specific framework of competition and regulation (Domney et al., 2005). Some others were less clear as to what specific aspect of performance was being discussed. There were also some references to allocative efficiency (i.e. associated with making best use of resources) and the extent to which private airports would be able to achieve this by charging 'efficient' congestion prices and responding to market signals (Basso, 2008). A number of the papers (e.g. Martin and Socorro, 2009; Zhang and Zhang, 2003) emphasised the dissimilarity between theoretical private sector objectives (i.e. profit maximisation) and public sector objectives (i.e. social welfare maximisation) with Abeyratne (2001, 223) adding that public airports *'tend to focus on job creation, supporting national identity and pride and stimulating tourism, all of which could have a stultifying effect on profit making and efficiency'*.

The second most common objective (26 papers) for privatisation was the need to provide a new and necessary source for investment and to gain access to domestic and international capital markets in countries, such as the UK, where this is restricted for public organisations. In most cases the key reason for this was the underlining long-term growth patterns of air transport and the inability or unwillingness of the public sector to provide the required funding. Another popular reason for airport privatisation (13 papers) was to bring financial gains to the government owners, either in terms of enabling them to benefit from the proceeds of the sale or from concession/lease payments and/or removing the government's financial burden of operating the airport (Foster, 1984; Stiller, 2010; Burton, 2007). Eight papers also discussed the possible advantages of removing state control and interference by the transference of responsibility and risk to the private sector. For example Costas-Centivany (1999, 221) stated that *'Privatisation removes investment and pricing decisions from the hands of politicians and bureaucrats who in the short-term view expanding or building of airports as a panacea for economic ills of a region or nation'* whilst Abeyratne (2001, 223) referred to the *'cumbersome bureaucracy'* of the public sector. Janecke (2010) went further by stating that privatisation may not only be needed to curb excessive bureaucracy but also to remove corrupt practices. He concluded (2010, 10) *'In countries where the government does not trust its own public operator, privatisation is an option'*.

15 papers identified the possible benefits to the users, such as improved quality of service, with, for example, Morrison and Winston (2008) arguing that privatisation was needed in the United States to improve efficiency and, in particular, reduce the substantial delays that existed. Improvements to management structure and the use of new skills (including technology) were also discussed in 14 papers.

Specifically Assaf (2010) debated how privatisation can encourage new management styles, marketing skills and better investment decisions whilst Mew (2000), Humphreys (1999) and Vogel (2006b), discussed how it can bring consumer oriented business competencies and skills. Carney and Mew (2003) argued that governance reform (including privatisation) can lead to new technology and act as a catalyst for innovation. Within this context, Vasign and Haririan (1996, 90) stated how *'the private sector is more flexible and could mobilize resources with greater speed in order to design, build and operate airports'* whilst Niemeier (2002, 46) talked of the *'influx of know-how'* brought by privatisation and Ohta (1999, 229) of the *'promotion of entrepreneurship'*. Risk may be reduced since airports may draw on a specialised set of management skills (Freestone et al., 2006) or they may be less likely to undertake unprofitable projects (Vasign and Gorjidoz, 2006). Indeed with reference to Asia, Booth (2007, 217) stated that *'privatisation is driven as much from technology and skill transfer from western countries as it is by transferring investment and management to the private sector'*. Janecke (2010, 10) added *'Whereas there may be ideological motives in the West, governments in developing countries are driven by more practical issues: the lack of investment resources and/or the lack of management know-how'*. In addition it was argued that privatisation and new management will encourage diversification and the development of non-aeronautical revenues and new business fields (Freestone et al., 2006; Gerber, 2002; Kramer, 2004).

Whilst these are the most popular reasons cited for airport privatisation, a few papers identified others, for example Freestone et al. (2006) and Humphreys (1999) mentioned wider share ownership and Kramer and Morrison/Winston discussed greater airline competition. With reference to US airports, Kramer (2004) argued that the current need of airports to sign long-term agreements with airlines to assure a revenue stream to pay off bonds, which can encourage anti-competitive practices (e.g. with the allocation of gates), would not be necessary with privatisation. Morrison and Winston (2006, 29) added that in the US *'airline competition will increase if airports are forced to compete with each other'* as the result of airport privatisation. Lastly a key driver of privatisation may just have been due to airports being included in some broader economic and political reform movement (covering not only privatisation but also deregulation reforms) that occurred in countries as diverse as the UK in the 1980s and Argentina in the 1990s (Humphreys, 1999; Lipovich, 2008).

4.2. Objectives of airport privatisation case studies

In addition 23 of the papers under review considered the stated objectives of actual privatisation case studies in specific locations (Table 1). As in the general case (Fig. 3), providing investment and improving efficiency/performance were the two most popular cited reasons. Similarly improvements in quality, financial benefits to the state and the encouragement of better management and diversification were also mentioned to a lesser extent. The absence of less state interference or control as a stated objective is not surprising given that this is not an issue that the government itself would normally identify.

A number of more individual and specific objectives were also highlighted. For example, Hooper (2000, 196) commented that in Australia some key objectives of privatisation were to *'ensure that air service operators enjoy competitive access to airports on reasonable commercial terms'* and to promote *'economic development consistent with sound environmental management and the interests of users'*. Park et al. (2011) stated that privatisation at Incheon was to *'enhance the airport's role as a major hub'* whilst Janecke (2010, 12) stated that in Congo *'the main objective ... was to ensure proper maintenance in order to protect the Government's investments and increase the level of safety, security and service quality to international standards'*. Elsewhere Burton (2007, 11)

Table 1
Objectives of airport privatisation case studies identified in the privatisation literature.

Paper	Location	Privatisation objectives				
		Provide investment	Improve efficiency and/or performance	Improve quality	Encourage better management and/or diversification	Provide financial benefits to the state
Assaf (2010)	Australia	X		X	X	
Brunner (2007)	India (Bangalore)	X				
Burton (2007)	US (Chicago Midway)	X	X	X		
Button (2008)	Developing Countries	X				
Forsyth (2008)	Australia and New Zealand		X		X	X
Freestone et al. (2006)	Australia		X			X
Fung (2008)	China		X			
Graham (2008)	UK		X			X
Hooper (2002)	Asia	X				
Hooper et al. (2002)	Australia	X		X	X	X
Humphreys (1999)	UK	X				
Janecke (2010)	Congo			X		
Lipovich (2008)	Argentina	X				
Niemeier (2002)	Germany (Hamburg)					X
Ohri (in press)	India	X		X		
Ohta (1999)	Japan	X				
Park et al. (In press)	South Korea (Incheon)	X	X		X	
Raghunath (2010)	India	X				
Rico (2008)	Mexico	X				
Vasignand Haririan (2003)	US and UK	X	X	X		
Yang et al. (2008)	China	X				
Yuen and Zhang (2009)	China	X	X			
Zhang and Yuen (2008)	China	X	X			
Total		17	9	6	4	5

identified the all encompassing objectives of the privatisation of Chicago Midway 'as devising a new rate-setting methodology, increasing operating efficiency, maintaining high safety and security requirements, providing for future capital improvements, providing economic benefits to the city, protecting employees, maintaining high noise and environmental standards, and ensuring public use and competition'.

4.3. Drawbacks of airport privatisation

65% of the papers discussed the drawbacks or problems related to privatisation. By far the most common issue, mentioned by 31 of the papers, was the possible abuse of market power and the fear that privatisation would merely transform a public monopoly to a private one that would not always act within the best interests of the airport users. Some of these further discussed how this might lead to a hike in airline charges, reductions in service quality and under-investment. In response to these concerns, there was some fierce debate as to whether this made it necessary to introduce some form of economic regulation. Gillen (2010) highlighted divergences of opinion such as in continental Europe, where the view tends to be that airports do have market power and hence need to be regulated, compared to the situation in Australia and New Zealand where a more light handed approach has been adopted. Basso (2008) also questioned whether regulation was really necessary arguing that since price elasticities were low and because potential collaboration between airlines and airports – or, alternatively, airlines countervailing power – would put downward pressure on market power. Quite a few of the papers, for example, Parker (1999) and Humphreys et al (2007) also commented on how regulation itself could distort investment decisions and have a detrimental effect on efficiency.

Another issue, when a group of airports were being considered for privatisation, was whether it was best to privatise them individually or together as a network. The best example here was in the UK when BAA was privatised and Foster (1984), in particular, explored the issues related to group ownership (e.g. co-ordinated investment, economies of scale, cheaper financing costs and higher sale price) compared with the potential opportunity for competition with

individual and more focused ownership. This later point also linked to discussions concerning the merits of local ownership, rather than national ownership, and decentralised decision-making which was explored as a new governance model within the context of Asia, and in particularly China (Hooper, 2002; Yang et al., 2008).

A number of other financial shortcomings of privatisation were identified. Carney and Mew (2003) and Costas-Centivany (1999) mentioned how governance reform (including privatisation) may focus too much on the state's financial gains and Vasign and Gorjidoz (2006), Vasign and Haririan (1996) and Mew (2000) identified the potential problem of airport profits needed for investment being diverted away from the airport. Elsewhere Burton (2007) argued that the private operator could become overly concerned with the share price and Abeyratne (2001, 224) stated that privatisation could lead to 'quick profit making and a short term mentality that would effectively preclude the essential act of reinvesting of profits for infrastructure development'. Some papers also discussed how basic standards might be compromised when private operators take over and pursue profit maximisation goals. De Bruijne (2006) looked in detail at the safety implications – an issue that was also mentioned by Gerber (2002) and Mew (2000). Zakrzewski and Juchau (2006) expressed similar disquiet related to security services.

Finally there were a cluster of issues raised that were broadly related to the perceived loss of control of a public asset that was considered to be of regional or national significance and the wider consequences of privatisation on society and the environment. Humphreys (1999) and Parker (1999) both mentioned the 'golden share' that the UK government used to possess that gave it the power to intervene in the national interest whilst Burton (2007) discussed the security concerns in the US related to foreign ownership. Humphreys et al. (2007) and Stratford and Wells (2009) discussed how airport privatisation could disrupt the workings of the planning system whilst Freestone et al. (2006) identified possible tension between environmental strategies and non-aeronautical development of privatised airports. Mew (2000) and Ohri (2009) also mentioned the environmental considerations whilst the possible lack of public accountability was discussed by Abeyratne (2001) Zakrzewski and Juchau (2006) and Ohri (2009).

5. Outcomes of privatisation

Having considered the objectives of privatisation, this paper now moves on to assess the outcomes. At this point, it should be noted that the selection process for the papers has meant that although they all mentioned airport privatisation, for some this was just one of a number of themes that were explored, or alternatively just one of a number of explanatory variables that were considered in a statistical model. Since the focus of this paper is purely on privatisation, it is only the findings concerning privatisation, irrespective of whether they accounted for a large or small part of the overall discussion, that are considered here.

5.1. Efficiency and investment issues

Since improvements in efficiency and providing investment were the most frequently cited objectives of privatisation, these are the first issues to be considered. Coverage of efficiency was indeed popular and a total of 21 papers used ratio analysis or other more sophisticated statistical tool to investigate this. All but five of these were published in last five years (2006–2010) which reflected not only the growing interest in airport privatisation but also in airport efficiency studies. Some of these analysed operational measures related to runways, gates and terminals, whilst others relied more on financial measures associated with revenue generation and cost control. Some made a clear distinction between ‘efficiency’ and ‘profitability’ whereas for others the meanings were more blurred and indeed confusing in a few places. Overall the results were mixed and somewhat conflicting, with no clear consensus of the actual impacts or outcomes (Table 2).

Some of the papers considered partial measures of performance by using operational or financial ratios and found some link with privatisation. At the most simplest level, ratio analysis was used to demonstrate that there had been growth in traffic and improvement in financial performance since Mexican airport privatisation (Rico, 2008). Similarly Zakrzewski and Juchau (2006) used ratio analysis to show that there had been an increase in commercial revenues and a reduction in costs since privatisation of Sydney airport. Ohri (2009) used a broader range of financial and operational ratios to compare the performance of Indian airports (prior to any privatisation) with BAA, Zurich, Vienna and Brussels airports (which are all partially or total private). He observed that Indian airports performed particularly badly in areas such as non-aeronautical revenue generation and labour productivity and that these were areas that privatisation could potentially improve. However all these results are limited because of the lack of any attempt to test the statistical relationship between performance and privatisation. Therefore some papers went one step further by undertaking such checks. For example, Vasign and Haririan (2003) used ratio analysis to compare the performance of the privatised BAA airports with eight publicly owned US airports and then used t tests to show that there were significantly different values for these two sets of airports. The US airports were shown to have greater operational efficiency and the UK airports to have better financial performance, but of course with such a diverse sample this could have well been related to other distinctive characteristics of UK and US airports.

Vogel (2006a; 2006b) also considered the impact of privatisation through the adoption of financial ratio analysis using a data base of 35 European airports over the decade 1990 to 2000. He again revealed statistically significant differences between publicly owned and privatised airports for the majority of measures with fully private or

Table 2
Main conclusions reached concerning privatisation and efficiency/financial performance in the privatisation literature.

Paper	Main conclusions	Location	Method
Assaf (2010)	Privatisation may be one factor that contributed to improvements in cost efficiency.	Australia	Panel stochastic frontier model
Barros and Dieke (2007)	Private airports are more efficient than public airports.	Italy	Data envelopment analysis (DEA)
Domney et al (2005)	Privatisation was negatively associated with profitability and not statistically significantly associated with efficiency.	Australia and New Zealand	DEA
Fung et al. (2008)	Publicly listed airports were more efficient than non-listed airports.	China	DEA and Malmquist index
Holvad and Graham (2004)	Ownership has no effect on efficiency.	UK	DEA
Martin and Roman (2001)	Different levels of efficiency existed for Spanish airports than have policy implications for any future privatisation process.	Spain	DEA
Ohri (2009)	Improvements could be made to commercial revenue generation and labour productivity with future privatisation.	India	Ratio analysis
Oum et al. (2003)	Ownership has no effect on efficiency	Asia Pacific, Europe and N. America	Index number total factor productivity (TFP)
Oum et al. (2006)	Airports with majority private ownership were more efficient than those with minority ownership but there was no significant difference with fully publicly owned airports. Airports with majority private ownership had higher operating profit margins.	Asia Pacific, Europe and N. America	Index number variable factor productivity (VFP) and analysis of variance (ANOVA)
Oum et al. (2008)	Airports with majority private ownership (and also autonomous public corporations and independent airport authorities) were more efficient. There was a 80% probability that majority private ownership was more efficient than minority ownership.	Asia Pacific, Europe and N. America	Panel stochastic frontier model
Pacheco (2006)	Financial performance improved with management changes before any privatisation process.	Brazil	DEA
Parker (1999)	Privatisation had no effect on efficiency.	UK (BAA)	DEA
Rico (2008)	Traffic and profitability increased since privatisation.	Mexico	Traffic and financial ratios analysis
Vasign and Gorjidoz (2006)	Ownership has no effect on efficiency.	US and Europe	Total factor productivity (TFP)
Vasign and Haririan (2003)	Public airports had higher operating efficiency. Private airports had higher financial efficiency.	US and UK	Ratio and regression analysis
Vogel (2006a)	Partial and fully privatised airports are more efficient.	Europe	Ratio analysis and DEA
Vogel (2006b)	Partial and fully privatised airports are more efficient.	Europe	Ratio analysis and DEA
Vogel and Graham (2006)	Partial and fully privatised airports are more efficient.	Europe	Ratio analysis and DEA
Yuen and Zhang (2009)	Publicly listed airports were more efficient than non-listed airports.	China	DEA and Malmquist index
Zakrzewski and Juchau (2006)	Commercial revenues increased and costs decreased since privatisation.	Australia (Sydney)	Ratio analysis
Zhang and Yuen (2008)	Listed airports were more efficient than non-listed airports but public listing did not have a significant impact on improvements in efficiency.	China	Regression analysis of Fung et al. (2008) study using DEA and Malmquist index

partially private airports performing better. A comparison of sample airports before and after partial or full privatisation also confirmed the results in terms of improved financial performance with privatised airports. He also used the linear programming frontier efficiency technique data envelopment analysis (DEA) and verified that privatised airports appeared more efficient. He explained these results by focusing on what he defined as the key drivers of financial performance, namely operating efficiency, asset utilisation and capital structure. Two other papers used DEA to assess airport performance before any actual privatisation had taken place. Martin and Roman (2001) studied Spanish airports and found that there were different levels of efficiency amongst the airports that would have important policy implications for any future privatisation process. The country of Brazil has also been considering privatisation and here Pacheco (2006) used DEA to assess the effect of resultant management changes before any such developments and concluded that these had made the airports more efficient. Elsewhere Barros and Dieke (2007) used DEA and found that private Italian airports were more efficient than public Italian airports. Similarly both Fung et al. (2008) and Yuen and Zhang (2009) used DEA (combined with the Malmquist index) and observed that airports that had been publicly listed in China were more efficient than non listed ones. However Zhang and Yuen (2008) questioned whether this was more to do with the specific inherent characteristics of the listed airports and by applying regression analysis to the DEA findings of Fung et al. actually found that efficiency had not improved since the airports had been listed.

By contrast, a number of other DEA studies found no link between privatisation and performance. Some of the earliest research was undertaken by Parker (1999) who examined the efficiency of BAA before and after privatisation but did not find any significant statistical differences. However it was acknowledged that it was conceivable that the figures for aggregate performance within BAA masked substantial differences within the various operating divisions. Later Holvad and Graham (2004) undertook a DEA analysis of the whole UK airport industry but again did not find any significant relationship between efficiency and privatisation. Also for Australian and New Zealand airports, Domney et al. (2005) used DEA to conclude that privatisation was actually negatively associated with profitability and that there was no statistically significant association with efficiency. Other papers used either parametric, or non-parametric, total factor productivity (TFP) frontier models to investigate the link between efficiency and privatisation. Vasnig and Gorjidoz (2006) adopted the non-parametric index approach and concluded that ownership had no effect on efficiency. Likewise Oum et al. (2003) used a similar method on a cross-sectional, time-series dataset for the major Asia-Pacific, European and North American airports and again found that ownership had no significant impact.

However using a comparable database Oum et al. (2006) reached some different conclusions. In this case variable factor productivity (VFP) rather than TFP was used, which excluded the capital cost input because of the unreliability of this measure. Also more detailed options of ownership were considered. In this case it was concluded that airports with government majority ownership were significantly less efficient than airports with a private majority ownership although there was still no statistically significant evidence that fully state owned airports were less efficient. It was also concluded that private majority airports achieved significantly higher operating profit margins than other airports and derived a much higher proportion of the total revenue from non-aeronautical sources. With similar data Oum et al. (2008) used a parametric measure, namely a stochastic frontier translog model, and concluded that there was an 80% probability that airports owned/operated by a majority private firm achieved higher efficiency than those owned/operated by a mixed enterprise with government majority ownership. Both these studies, therefore, suggested that minority private sector participation should be avoided in favour of even 100% state ownership – maybe due to

the conflicting objectives that may occur with such private-public partnerships. Finally Assaf (2010) used a similar stochastic frontier model with Australian airports and again found significant improvements in efficiency but did not test whether these were specifically due to privatisation.

The discussion related to investment was less extensive. Specifically in his consideration of developments in Asian countries such as China, India and Malaysia, Hooper (2002) argued that the most important reason for privatisation in practice had been to mobilise a new source of finance. Moreover, whilst the governments had sometimes stated that the efficiency objective was important, he concluded that their real intentions were different with little attention being given to this (often through lack of good information) and that, although some governments were also concerned about abuse of market powers, there was a lack of appropriate institutional frameworks to regulate effectively. Moreover in every case the governments had retained majority control which meant that perhaps the governments had risked losing the efficiency benefits or privatisation – particularly if Oum et al.'s (2006; 2008) conclusion about minority private ownership models being the least effective hold true. Hooper's general remarks were broadly confirmed by individual case studies. For example Ohta (1999) described how the introduction of joint-stock corporations (a type of privatisation) with Japanese airports brought more investment but no improvements in efficiency. Raghunath (2010) also described how there had been many progressive steps to engage the power of private capital to build the airport infrastructure in India but many pivotal regulatory factors remained undefined. Likewise Ohri (in press) argued that in order to realise the potential privatisation benefits of efficiency and profitability improvements in India, the government would have to be ready to tackle complex matters like the timeliness and efficacy of regulation, conflicts of interest, and safety and environmental issues. Similarly, in describing the situation in China, Yang et al. (2008) highlighted the fact that there was a continuing lack of concrete and transparent performance assessment to gauge policy successes or failures that was hampering this reform process of China's aviation industry.

A number of these issues were also raised in a more general paper about airports in developing countries where Button (2008) argued that the most popular privatisation methods tended to be the less radical concession option which maintain state ownership – which is a point again identified by Ohri (in press). The lack of analysis of appropriate information and data that Hooper identified for some Asian countries appeared to be a common problem in a number of other developing countries such as Congo (Janecke, 2010). Lipovich (2008) also described how the Argentine government accepted an unrealistic concessionary bid without adequate analysis of the financial implications when the airports were first privatised.

5.2. Pricing and the impact on users

When it comes to considering the impact on users, some of the literature focused on the experiences and impacts of regulation which clearly reflects one of the major areas of concern of privatisation. A broad study of 100 European airports by Bell and Fageda (2010) used a statistical analysis to conclude that non regulated private airports had higher charges than public or regulated airports. More detailed evidence from different regions and countries was discussed, for example for Europe (Reinhold et al., 2010; Gillen and Niemeier; 2008), Germany (Niemeier, 2002; Gerber, 2002), the UK (Francis and Humphreys, 2001) and Australia and New Zealand (Forsyth, 2002; 2003; Schuster, 2009), with most of the arguments focusing on whether there was actually a need for regulation and, if so, what was the most appropriate type. The views were varied and complex but deviated somewhat from the key privatisation theme of this paper and so are not discussed here – particularly as they are only a small

selection of a much broader literature source that covers airport economic regulation as a subject in its own right.

There were some more theoretical papers that focused on pricing and investment decisions made by airports with different objectives, namely profit maximisation versus social welfare maximisation. This can be viewed within the context that private airports would implement more efficient congestion pricing and would have better incentives to invest in capacity. An early paper by Vasign and Haririan (1996) concluded that if privatisation could generate a positive change in social welfare then it should take place regardless of its complexity or political consensus. Zhang and Zhang (2003) compared the cases of a profit maximising private airport, a social welfare maximising public airport and a budget constrained public airport which they considered to be a more realistic case of a public airport. In comparison to both these public airport examples, private airports were shown to have higher prices and to invest later. However this paper did not take into account any possible distorting effects of economic regulation. This was overcome by Basso (2008) who used a model of vertical relations, between airports with different objectives and airlines, to examine how airport deregulation might affect airport prices and capacities and whether in fact regulation was needed. The paper concluded that the unregulated profit-maximising airports (i.e. the private airports) would overcharge for the congestion externality and these airports would induce comparatively large allocative inefficiencies. Martin and Socorro (2009) also compared prices of profit-maximising private airports and social welfare maximising public airports and questioned the need for regulation. They used game theory which considered three key different stages, namely the regulator defining the level of capacity, the airport operator setting the charges, and the airline choosing the number of flights taking into account the airport capacity and charges. It was shown that there was a level of capacity when private and social objectives coincided when price regulation was no longer needed and so in practical terms this could be used to determine which investments yielded regulation unnecessary.

A broader, more practical assessment of the possible impacts of privatisation at Incheon Seoul airport was made by Park et al. (2010) using a Delphi analysis. 50 experts were contacted to assess six possible scenarios that looked at airport strategy and planning, financial affairs, operations and approach facilities, and user fees. A key conclusion was that that privatisation would increase the costs to the airlines and passengers using the airport. Meanwhile in one of the few papers to explicitly explore service quality and privatisation, Advani and Borins (2001) investigated how managerial market orientation (a measure considered to reflect quality standards) was affected by ownership status, anticipated privatisation, competition, performance-related pay and managerial contracts for non-aeronautical activities. The data was obtained from a questionnaire survey of 201 airports around the world and regression analysis was used to test the statistical significance of these possible contributing factors. The study found that market orientation was significantly higher for privately owned airports than for government owned airports and also that anticipated privatisation in the future increased market orientation. Related to this, Lyon and Francis (2006) also discussed how privatisation had influenced how airports in New Zealand had coped with commercialisation challenges, such as changing airport–airline relationships, the growth of the low cost carriers (LCCs) and the need to exploit non-aero revenues. Meanwhile Pitt (2001) explored airline changes that were occurring such as increased airline competition and the development of the LCC sector and looked at the response of both private and public airports. He determined that changes in strategic direction were needed to cope with these changes, since the airport management structures were inhibiting, but concluded that this was regardless of whether ownership was with public or private sectors.

A relatively under-researched area related to airport users is the effects of airport privatisation on safety. De Bruijne et al. (2006)

acknowledged that little empirical evidence existed and so instead used a worse–case scenario analysis to assess the potential effects of privatisation with specific reference to Amsterdam airport. Semi-structured interviews and secondary literature were used to compare the situation at Amsterdam with the safety regulatory systems at the privatised London Heathrow airport and partially privatised Frankfurt airport. It was concluded that privatisation had not affected safety although it was found that the safety regulation system had become less robust. Francis and Humphreys (2001) also commented on how an increase in commercial pressures following airport privatisation of BAA had raised concerns regarding the potential safety implications.

5.3. Societal and environmental impacts

A number of the other papers looked more broadly at the impacts that privatisation had had on the economy, the environment and society. The common assumption here was that the private airports would have the overriding objective of profit-maximisation which would not necessarily coincide with broader societal, economic and environmental interests as exemplified by Humphreys et al. (2007, 343) who stated *'The future development of UK airports is seen as crucial to the economic well-being of the UK, yet this future is primarily in the hands of private and commercialized airport operators who need to make a profit'*. But sometimes this seems to oversimplify the situation somewhat by not taking into account the characteristics of the actual owners and in some cases the remaining partial ownership by government even after privatisation. For example, Forsyth (2008, 94) wrote about Australian and New Zealand privatisation where *'ownership of these airports may be spread over several different entities, with conflicting objectives, and local or regional shareholders may have substantial shareholdings. Thus the airports need not behave as traditional profit-maximising firms'*.

Consideration of the boarder aspects of privatisation led to a number of papers evaluating privatisation within the context of other policies. For example, Graham (2008) described how following UK privatisation, the government had only planning and regulation remaining as aviation policy levers. Also within a UK context, Humphreys et al. (2007, 343) acknowledged that control was lost through ownership and stated that *'careful consideration needs to be given as to how the government can best use its regulatory, fiscal and planning levers to encourage the investment it wants'*.

Although the traditional view of profit maximisation for the private sector tends to encourage views that this will be at the expense of the needs of society and the environment, there was an interesting observation made by Zakrzewski and Juchau (2006). In the case of the Sydney airport, they found that the volume of corporate social disclosure and reporting, such as information about charitable donations, community involvement and the airport's sustainability agenda had significantly increased since privatisation. It may well be that Sydney airport was just following a general trend of greater social responsibility reporting but nevertheless this did give some insight into how private operators respond to such concerns in the way that they inform their stakeholders.

Another unusual paper was that of Kramer (2004) which took a different viewpoint of the airport noise issue and considered how noise and privatisation can effect economic development. In this paper Kramer concluded that residents were not deterred by airport noise when they receive noticeable benefits, such as extra amenities being located near an airport. However if the surrounding area is unattractive, he argued that it is difficult to convince people that the advantages of being close to an airport outweigh the negative life-style impacts associated with airport noise. He then concluded that if privatisation can increase the quality of surrounding amenities, for example through diversification or non-aeronautical development which is often a goal of privatisation, then the opposition to the noise nuisance could decline.

Indeed the issue of diversification as a result of airport privatisation was a controversial area for debate for various reasons. Francis and Humphreys (2001) argued that the development of non-core airport activities by a privatised airport operator (in this case BAA) could potentially harm the core airport business and so could be detrimental for the main users of the airports. Another point made by Freestone et al. (2006) concerned non-aeronautical revenue generation schemes and their relationship to planning policies. Specifically the paper described how in Australia the privatised airport companies had moved to commodify uncommitted land assets for diverse commercial developments which raised important policy issues related to property markets, infrastructure provision, traffic and the environment. Moreover Stratford and Wells (2009) discussed how airport privatisation and diversification in Australia had disrupted local place attachments, social and economic activities, and planning regimes. They reflected on such matters with reference to a proposal for a major commercial development at Hobart International Airport in Tasmania.

5.4. Management implications

Finally there were a cluster of papers that focused on how the privatisation experience can inform airport management decisions. For example Booth (2008) identified new privatisation and investment opportunities whilst Bradley et al. (2006) assessed opportunities for airport development in the future. Feldman (2006) presented some guidelines of best practice for making private airport consortia succeed and Janecke (2010) identified the problems encountered and the success factors (such as good professional relationships and flexibility) related to privatisation. Vasign et al. (2003) used privatisation experience together with a theoretical model to determine the value of three Korean airports if they were to be privatised. Meersman et al. (2008) built scenarios for the future of ownership patterns of the air transport industry and generally concluded that airport privatisation may be strengthening whilst Stiller (2010) looked more specifically at the future of private concession agreements and argued that such privatisation would continue but with a more conservative investment and financial approach than in the past and with more balanced concession agreements.

Meanwhile Donnet et al. (in press) analysed a sample of 18 airports at different stages of the privatisation process and with various privatisation models. They provided a framework for mapping the privatisation of airports against expectations set by airport management and the general governance literature and suggested that this could be used in future decisions for the selection of privatisation strategies for airports. Carney and Mew (2003) also explored various types of governance or privatisation models and the stakeholder outcomes that were achieved. They concluded that not all privatisation approaches can realise the full range of potential benefits as this will depend on the institutional context and the willingness of the state to devolve autonomy. Gillen (2011) also emphasised the importance of the institutional setting in influencing airport ownership and governance.

The US is an interesting case where the role of the institutional and legal environment, as well as the established aviation framework, was specifically discussed. The Privatisation Pilot Program made provision for a small number of airports to be exempted from a number of legal and regulatory requirements that were considered to be impeding the sale of airports to the private sector. To date the impact of this programme has been limited but Burton suggested that the Chicago Midway airport privatisation (which is yet to happen because of financing issues) would be an ideal case study to test this type of airport privatisation and would encourage the US airport industry to catch up with other countries. However Reimer (2008, 68–69) appeared less convinced and indeed questioned the suitability of

the programme by commenting '*The very limited interest in privatisation, even after the Government removed certain legal barriers and created a mechanism by which to remove others, suggests its own conclusion. The impediments to privatisation appear to be deeply-rooted and not merely reflective of the particular experience at individual airports or the limits of the privatisation pilot programme*' He continued '*Without renewed efforts to identify and overcome the true impediments, the privatisation of US airports is likely to remain an exceedingly rare occurrence*'. Mew (2000) also identified the lack of success of the pilot programme as being due to inherent characteristics of the US aviation environment, such as the strong airline opposition to privatisation and the established advantages to the airlines of the present airport financial system.

6. Discussion and conclusions

Airport privatisation has and always will be a controversial and emotive issue as demonstrated by the latest editorial heading of an airport journal: '*Privatising the UK's hub airports has been an abject failure*' (Campbell, 2011, 100–101). To gain new and deeper insight into this topic, this paper has taken a unique and long journey through the rich collection of academic literature that exists. This has resulted in a study that has had a very wide scope because it had to capture privatisation developments that have taken place in most regions of the world and it had to assess the wide ranging objectives and outcomes that have been identified. In the end, this has made it harder than expected and extremely difficult to generalise – given the nuances of the privatisation reforms in the individual countries and the broader economic, political and air transport environment characteristics that exist. Hence meaningful conclusive evidence to outright support or oppose the case for airport privatisation cannot be realistically provided but nevertheless some interesting findings related to the objectives and outcomes of privatisation and their alignment have been obtained.

Overall the objectives of airport privatisation tend to mirror those in the general privatisation literature with improvements in efficiency and performance, coupled with a need for greater investment, appearing to be the key drivers of this movement. Other popular objectives include improvements in quality, financial benefits to the government, less state interference and the encouragement of better management or diversification. It has also been argued that whereas in developed countries such as the UK, privatisation may have been viewed in more ideological terms such as reducing state control and inducing greater efficiency, in less developed countries it is the practical considerations, such as the need for investment or management expertise, that appear to be more dominant. A major concern of privatisation is confirmed as being the potential abuse of market power and the possible need for some type of regulation.

The papers under consideration have used a range of different methods to investigate the outcomes of privatisation. Qualitative strategy and policy reviews were the most popular, particularly when considering the broader impacts of privatisation on society and the environment, and when identifying specific challenges that individual countries, as diverse as the US, China, India, Congo and Argentina, have faced in privatising or preparing their airports for privatisation. This method will continue to be valid and, as the number of privatisations and subsequent papers grow, this will provide an invaluable comprehensive source of reference for all stakeholders involved in the privatisation process. By contrast, the least popular approach adopted was the use of primary research, but these studies provided some invaluable and real in-depth insight into stakeholders' views of privatisation that was not present in the other papers. More research of this nature needs to be encouraged in the future.

The papers that were the easiest to compare directly were those that contained some type of ratio or more advanced statistical technique. However the empirical results were mixed and conflicting

in places, even when similar databases were used, which makes it very difficult to draw any conclusions, particularly as to whether privatisation has led to improvements in efficiency. Clearly one of the major problems here is with the range and level of sophistication of the different methods that by itself may be responsible for distorting the comparative results. Moreover as well as the adoption of varying methodologies, different measures of inputs and outputs were used. The quality of data also varied, being particularly poor from more developing regions, and a major problem area is the accurate measure of capital costs which in one case, for example, encouraged the use of VFP rather than TFP measures.

It is also very difficult to prove the causal link between privatisation and performance. A few of the papers made no attempt to do this and instead merely observed the performance changes that privatisation may or may not have initiated. Others attempted to isolate certain factors in the statistical analysis, such as privatisation, that could have been responsible for performance changes. However in such cases it was very difficult to disentangle the separate effects of ownership, competition and regulation. Moreover with a cross-sectional approach there is the problem of the choice of airports. It could well be that the airports that have been privatised had significantly different financial or operational characteristics which were the actual reason for their privatisation in the first place. In these cases it would be wrong to identify the process of privatisation as being the driver of superior performance. Hence a 'before' and 'after' privatisation case is likely to yield more reliable findings but even here the findings may be distorted by improving performance before privatisation at the preparation stages and a lag in changes afterwards with the new governance model taking time to settle. In addition since there has been an underlying trend towards commercialisation within the airport industry which has in many cases had a positive impact on performance, it is difficult to determine if it is actually commercialisation or privatisation that is the key driving force and whether the observed changes would have taken place anyway without the privatisation.

A striking observation of the papers as a whole is that very few of these attempted to match up the stated objectives with actual outcomes to assess whether these were closely aligned. Many of them focused on just objectives or outcomes or the actual privatisation process itself. Of course, there may well be much more specific detail in government and other policy documents which were beyond the scope of this review, but within the academic literature very little consideration to this was given. Clearly this is important as the criteria for assessing the successfulness of any privatisation must be based on whether the actual objectives, specific to the airport under consideration, are achieved. Humphreys (1999) is one rare case that stated that privatisation in the UK had *'achieved what it set out to do, to transfer the economic burden of airports from the public sector to the private sector and to make airports financially self-sufficient'* and Yang et al. (2008, 243) is another uncommon example that stated that the reforms in China *'have transformed some airports from loss-making entities reliant on large public subsidies into profitable, customer-orientated businesses. Airports have been able to diversify and to put more emphasis on expanding non-aeronautical activities. The reforms, therefore, have realised many of their objectives'*. Of course it may be that such linking between objectives and outcomes is unachievable as privatisation is yet to occur (e.g. Pacheco, 2006; Martin and Roman, 2001) or is too recent to be assessed (Hooper et al., 2002). In many cases, particularly in less developed areas, it may well be that a lack of sufficient relevant data and information has hindered attempts to measure the success, or otherwise, of the specific privatisation process.

Overall the findings suggest that there is still a long way to go in producing definitive and evidence supported conclusions related to the process of airport privatisation. A potential source of bias with the literature could have been if unwelcome outcomes were concealed by

interested parties or massaged into misleading findings – although the rigorous selection process of journal papers should have ensured that this issue was considered. Moreover, whilst there are clearly some major drawbacks with the literature sample that was chosen here, such as the focus on academic articles and inclusion of only English language texts, it is not likely that a broader sample would overcome all of these problems. Therefore this leads to a number of key recommendations. Firstly more attention could be made to considering the impacts of privatisation within the context of the specific privatisation objectives. Each stated objective could be clearly identified and then the outcomes analysed in turn to assess to what extent the objectives have been achieved. Secondly with any statistical analysis there needs to be a greater understanding of what is actually being assessed, for example whether financial or operational performance is of most interest, and a clearer distinction made between terms such as 'efficiency' and 'profitability'. Better attempts could also be made to separate the linked effects of privatisation, regulation, competition and other factors and greater use of longitudinal studies of performance would be useful to avoid potentially misleading findings from cross-sectional studies of biased airport samples. In order to understand 'why', in addition to 'if' performance was affected by privatisation, more supportive qualitative analysis of stakeholders views, for example through the use of surveys or interviews, would be invaluable.

A final comment relates to the actual focus of the research, namely airport privatisation. It has been demonstrated that the structure of the airport industry is becoming increasingly more complex with a diverse range of different ownership and regulatory environments and varying expectations of stakeholders. Therefore it seems somewhat simplistic to define all these options solely as being 'privatisation' developments. For example can the performance of a concession model in an emerging region where the government retains ownership really be compared with a share flotation, or can the objectives of an airport that has a minor private interest be compared with one that is totally in private ownership? A more meaningful and potentially more useful approach for policy makers might be to place greater focus on the different governance models, the institutional and financing framework that exists and the degree of managerial autonomy that is present, which is an area that is covered by far too few papers. For example, to what extent does the existence of bond finance for US airports weaken the case for privatisation? In the end the actual ownership structure may be not the key issue – A view famously expressed by Giovanni Bisignani, Director General of IATA, the world's airline organisation: *'Quite frankly, I do not care who owns the airports. It is the cost and service level that matters'* (International Air Transport Association, 2005, 3).

Appendix A. The sample papers

1. Abeyratne, R., 2001. Revenue and investment management of privatized airports and air navigation services – A regulatory perspective. *Journal of Air Transport Management*, 7(4), 217–230.
2. Advani, A., Borins, S., 2001. Managing airports: A test of the new public management. *International Public Management Journal*, 4(1), 91–107.
3. Assaf, A., 2010. The cost efficiency of Australian airports post privatisation. *Tourism Management* 31(2), 267–273.
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5. Basso, L.J., 2008. Airport deregulation: Effects on pricing and capacity. *International Journal of Industrial Organization*, 26(4), 1015–1031.
6. Bell, G., Fageda, X., 2010. Privatisation regulation and airport pricing: An empirical analysis for Europe, *Journal of Regulatory Economics*, 37(2), 142–161

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9. Brunner, A., 2007. Bangalore International Airport: India's largest private sector greenfield airport. *Journal of Airport Management*, 1(3), 226–231.
10. Burton, C., 2007. An analysis of the proposed privatization of Chicago's Midway airport. *Journal of Air Law and Commerce*, 72(3), 597–630.
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12. Carney, M., Mew, K., 2003. Airport governance reform: A strategic management perspective. *Journal of Air Transport Management*, 9(4), 221–232.
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19. Forsyth, P., 2002. Privatisation and regulation of Australian and New Zealand airports. *Journal of Air Transport Management*, 8(1), 19–28.
20. Forsyth, P., 2003. Regulation under stress: Developments in Australian airport policy. *Journal of Air Transport Management* 9(1), 25–35.
21. Forsyth, P., 2003. Airport policy in Australia and New Zealand: Privatization, light-handed regulation and performance. In Winston, C., de Rus, G., (Eds), *Aviation infrastructure performance*, Brookings Institution Press, Washington, 65–99.
22. Foster, C., 1984. Privatising British airports: What's to be gained. *Public Money*, 3(4), 19–23.
23. Francis, G., Humphreys, I., 2001. Airport regulation: Reflecting on the lessons of BAA plc. *Public Money and Management*, 21(1), 49–52.
24. Freestone, R., Williams, P., Bowden, A., 2006. Fly Buy Cities: Some planning aspects of airport privatisation in Australia. *Urban Policy and Research*, 24(4), 491–508.
25. Fung, M., Wan, K., Hui, Y., Law, J., 2008. Productivity changes in Chinese airports 1995–2004. *Transportation Research E*, 44(3), 521–542.
26. Rico, O., 2008. The privatisation of Mexican airports. *Journal of Air Transport Management*, 14(6), 320–323.
27. Gerber, P., 2002. Success factors for the privatisation of airports – An airline perspective. *Journal of Air Transport Management*, 8(1), 29–36.
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35. Humphreys, I., Ison, S., Francis, G., 2007. UK Airport Policy: Does the Government have any influence. *Public Money and Management*, 27(5), 339–343.
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