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Germany’s changing airport infrastructure: the prospects for ‘newcomer’ airports attempting market entry

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Abstract

Despite fluctuations for economic or political reasons, the number of passengers and volume of cargo carried by air is growing quickly, leading to a shortage of airport capacity in some European regions with few slots available at some hubs. This problem has accelerated the trend towards an increase in airport capacity for larger aircraft everywhere, a process which started in the UK and is now continuing throughout Europe, especially in Germany. Apart from development at the hubs, however, many small airports have also been enlarged, former military airbases have been converted to civilian use, and new runways are to be built in areas away from centres of population. These changes have occurred within a short period of time. In Germany, the number of available airports with runways over 1800m will have doubled in a period of 10–15 years.

Keywords: Germany; Airport capacity; Military conversion; Sustainability

1. Introduction

At present, air transport is a booming business despite certain fluctuations in demand caused by international events such as 9/11, Severe Acute Respiratory Syndrome (SARS) and the conflicts in Afghanistan and Iraq. In Germany, in particular, traffic is increasing substantially, and between 1997 and 2015 passenger services are predicted to double (Table 1). This would mean an increase in air transport’s share of the passenger transport market from 4% to 7% (Table 2). Such levels of actual and predicted growth have led to numerous enlargements of the infrastructure on the ground. Not only are measures to increase the capacities of airports in German conurbations being taken: the number of airports that can be used by larger jets (more than 100 passengers) will increase significantly across the country. This fact underlines the competitive nature of airport infrastructure provision.

A few ‘new’ airports have already opened up in recent decades. On the one hand, existing small airfields have been extended step by step, facilitating eventual conversion into regional or even international airports with scheduled traffic or charter flights. Dortmund, Friedrichshafen and, after unification in 1990, Erfurt are examples of this type of airport expansion in Germany. On the other hand, completely new airports have been built in regions which previously had no such facility (e.g. Münster/Osnabrück and Paderborn/Lippstadt). In the last few years, many other airfields and airports have been trying to establish themselves, at such a rate that it is necessary to consider whether this ‘predict and provide’ approach is sustainable (Graham and Guyer, 2000).

This paper aims to document and analyse the process of German airport capacity expansion for the first time. The paper begins by defining and identifying those airports which are attempting market entry. This is followed by an examination of their potential for successful market entry, and an assessment of their future role in Germany’s airport system. The paper focuses mainly on impacts with regard to sustainability.

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and regional economic development. The final question to be addressed is whether the process of airport capacity expansion should be regulated, and, if so, whether the federal government should increase its influence on national airport planning by means of a far-reaching legislative amendment.

2. ‘Newcomer’ airports

The spatial concentration of demand for air transport is less distinctive in Germany than it is in either France (Thompson, 2002) or in the UK (Graham and Guyer, 2000), the airport system being polycentric and well-developed. Frankfurt is the main hub—with 48 million passengers in 2003—and Munich, handling 24 million passengers, functions as a secondary hub, but nearly every region also has good access to air transport. None the less, the boom of the low-cost airlines, which “constitute one of the most obvious repercussions of EU air transport liberalization” (Graham, 2000, p. 75), is causing not only a ‘revolution in the skies’ (Calder, 2002) but also, especially in Germany, a ‘revolution on the ground’. There will be a twofold increase in the number of airports with longer runways within the next 10–15 years, but at present the growth of airport capacities is disorganized. The main problem in Germany is that no real national coordination of airport capacity planning takes place. For statutory reasons, the airports have been under the authority of the separate federal states since 1961. There is also an absence of national debate about sustainable aviation, in contrast to countries such as Switzerland and the UK.

In order to analyse the growth of airport capacity a system of classification is necessary, although no generally accepted nomenclature exists. To define the airports in an appropriate manner, the terms ‘newcomer’ airport (i.e. one which opened in 1990 or thereafter) and its antonym ‘established’ airport are used here. A newcomer airport can be further defined as one that has been newly set up or is an enlarged airfield or a converted airbase which tries to compete with established airports. The features newcomer airports have in common are the development of their infrastructure (e.g. runway extensions or new terminals) and their attempts to exploit a regional or functional niche, to a greater or lesser extent. In contrast to alternative or overlapping terms such as ‘regional airport’, ‘secondary airport’ or ‘satellite airport’, ‘newcomer airport’ is a phenomenological and process-orientated phrase, whereas Thompson’s (2002, p. 274) “threefold classification based on multiple criteria” would be appropriate for a status-quo analysis.

According to the above definitions, Germany has 26 established airports of various sizes and 17 newcomer airports which have already come into operation (partly on a temporary basis). Another nine airports are making an obvious effort to become established (Fig. 1).

2.1. Features

The operation of regular air transport with larger aircraft requires specific technical equipment, but the main indicator is the runway length. Since many newcomer airports are converted airbases, they have the military standard runway length of approximately 2500m. This is long enough for unlimited operations—i.e., no weather or payload restrictions—with medium-range jets such as the Boeing 737 or Airbus A320 (Table 3). It is apparent that many airports are planning to reach this threshold.

In contrast to the UK (Humphreys and Francis, 2002), the number of airports which have changed hands in Germany since the 1980s is low. The ownership of newcomer airports in particular is, however, often different from that of the established airports, which are traditionally owned by the local authorities and often also by the federal states. Only in Frankfurt, Hamburg and Düsseldorf do private investors hold shares. Three newcomer airports are privately owned or operated, all by foreign investors (Lahr and Schwerin/Parchim by -PlaneStation Group plc/UK and Niederrhein by Airport Network BV/NL). In three cases, established airports have shares in neighbouring airports which they are trying to develop: Frankfurt and Hahn (called Frankfurt–Hahn), Düsseldorf and Mönchengladbach (called Düsseldorf–Mönchengladbach) and Stuttgart and Karlsruhe/Baden-Baden. The disadvantage of this for the smaller airports is their role as a dependent satellite airport, although they do benefit from better funding and support with know-how and second-hand equipment. Another very new type of ownership is the public–private partnership (e.g. Nordholz and Bitburg).

Due to the high airport density in Germany, every airport which aspires to market entry has to find its niche. Four different corporate strategies were identified,
Table 3
Runway lengths at different airport types in Germany

| Runway length (approx.) | Suitability                                           | Established airports | Newcomer airports | Potential Newcomer airports |
|------------------------|------------------------------------------------------|----------------------|-------------------|----------------------------|
| 3800m                  | Unlimited operations (cargo)                        | 5                    | 1                 | 1                          |
| 3600m                  | Unlimited intercontinental operations (pax)          | 3                    | 0                 | 0                          |
| 2500m                  | Unlimited operations with medium-range jets (e.g. Boeing 737, Airbus 320) | 7                    | 9                 | 5                          |
| 1800m                  | Minimum for medium-range jets                       | 8                    | 6                 | 2                          |
| 1100m                  | Minimum for scheduled operations with STOL-aircraft  | 3                    | 1                 | 1                          |
often to be found in combination. The first type is the satellite airport, which alleviates the capacity problems of a nearby larger airport (e.g. Mönchengladbach). The second type is the 24-hour cargo airport (e.g. Nordholz and Lahr), which is located away from centres of population and offers unrestricted access for all aircraft (especially for noisy air freighters at night). The third type is what Cidell (2003) termed aeroplex, that is an airport or airfield in a rural area in combination with an industrial park (e.g. Zweibrücken or Memmingen). The last, but the most favoured, type is the low-cost hub (e.g. Hahn or Niederrhein).

Most of the newcomer airports are supported with substantial subsidies and, as such, it is important to question their success. The most recent data show that only Hahn is frequently used, with 2.4 million passengers and 22,000t of cargo (without trucking) in 2003. Niederrhein Airport, situated between Dutch and West German conurbations, will possibly develop in a similar way. All the other aspiring airports have problems with attracting airlines, however. An extreme example is the former Soviet airbase at Cochstedt, which has already been closed, in spite of federal state and local authority investment to the tune of €45 million. Here, the ‘job-machine’ failed, and other airports are likely to go the same way.

Three examples illustrate specific problems regarding location. The first is Kassel-Calden, located almost in the centre of Germany. At the moment there is one runway of only 1500m, and combined with the difficult topographical situation this limits the operation of larger aircraft. In 2002, a Boeing 737–700 (to Majorca) was only able to operate with payload restrictions, i.e. a reduced number of passengers. The airport operator, owned by the local authorities and the federal state of Hesse, is therefore planning to build a completely new 2500m runway by 2008. The problem is that there are four nearby competitors: Paderborn/Lippstadt and Erfurt, and Frankfurt and Hannover, which both can be reached by high speed train (ICE) in 1.5h. Nevertheless, Kassel-Calden is being promoted by the government of Hesse because Frankfurt, which is located in the same state, has increasing capacity problems.

The second example is in the federal state of Mecklenburg-Western Pomerania in north-eastern Germany. Four converted airbases, which all have relatively long runways, are trying to become established: Schwerin/Parchim (3000m), Rostock-Laage (2500m), Heringsdorf (2305m) and Neubrandenburg (2292m). The problem in this case is that Mecklenburg-Western Pomerania has only 1.8 million inhabitants, and neither local industry nor coastal tourism generate sufficient demand for air transport. The only two scheduled connections from Rostock-Laage and Neubrandenburg to Munich are both subsidised. Rumours that Ryanair will shift its Berlin flights to Neubrandenburg and that EUjet will fly from Schwerin/Parchim to London-Manston cannot be substantiated.

The third example is Altenburg-Nobitz (2095m) in Thuringia, which has only airfield status. This means that the airspace is less controlled than at airports. Since 2003, there has been a Ryanair connection to London Stansted. The problem in this case is that the airfield lies only 50km to the south of Leipzig/Halle Airport (which has two runways of 3600m and 2500m) in Saxony, which has recently been enlarged and has spare capacity. This has resulted in a conflict between the two federal states, because Leipzig/Halle is trying to promote a daily turboprop-flight to London City (with a subsidy of €1 million per year), which might have to be discontinued due to an occupancy rate of only 40% in 2003.

2.2. The role of military conversion

Conversion is a main push factor of the airport capacity expansion process described here. The situation in Germany is unique, as seven different air forces (and NATO) have given up redundant airbases since the end of the Cold War: US Air Force, Royal Air Force, Armée de l’Air (France), Canadian Air Force, Soviet/Russian Air Force, Luftwaffe (German Air Force) and Nationale Volksarmee (East German Air Force). As a result, there has been a sharp decline in the number of airbases. In 1990, 72 airbases with longer runways were still in operation, whereas today there are only 32 (Table 4). In addition, permanent civil operations are also allowed on a few German Air Force airbases (Bundeswehr, 2003). Twenty-nine airbases were converted for civil and general aviation and only 15 were closed, to be used for other kinds of development. Some of them were built over with industrial estates, but alternative use often poses problems for local authorities: they might be advised to look at the solutions in the UK, which has had much more experience in this sector (Gallent et al., 2000). A special problem, not only in the former GDR, is the neglected deposits of toxic waste (including ammunition), which is an obstacle to the re-use of airbases.

Military airbases are normally situated in more sparsely populated areas. Many communities came to terms with the negative aspects of airbases and benefited for decades from the advantages they offered, especially in West Germany. The closure of the sites in the 1990s thus came as a shock to them: “the loss of the revenue source

| Airbase still in operation | Airbase with civil operations | Converted for civil aviation | Converted for general aviation | Closed |
|---------------------------|--------------------------------|-----------------------------|-------------------------------|-------|
| 28 (37%)                  | 4 (5%)                         | 12 (16%)                    | 17 (22%)                      | 15 (20%) |


was seen as disastrous” (Cidell, 2003, p. 93). In the following years, local authorities made great efforts to stimulate the local economy. One of the first ideas was to convert the airbases into airfields or airports for civilian use, but in most cases the regional authorities overestimated the potential for this, tending to disregard the disadvantages of the airbases’ location. As Cidell (2003) notes, the bases were originally sited for reasons of military strategy rather than for the needs of civil aviation. Cidell also ascertained that in the United States many bases which had been converted to another kind of use, but still contained runways, later took up the idea of a civilian airport again. In Germany the situation is exactly the same. At many former airbases which were converted to uses other than civil aviation, the option for a developing airport still exists and could be revived.

2.3. Acceptance and political conditions

In most cases, the newcomer airports receive general support from local politicians—especially when the local authorities hold shares—whereas the respective federal state governments often support them selectively (e.g. Kiel rather than Lübeck, Rostock-Laage rather than Schwerin/Parchim or Karlsruhe/Baden-Baden rather than Lahr). How far the local population supports the airports depends on their location. While converted airbases, which are situated more peripherally, usually gain acceptance, plans to extend already existing smaller airports in conurbations are likely to be met with vehement disapproval.

Apart from the local authorities and the federal states, higher authorities are now also becoming involved in the issue of airport capacity expansion. The current Federal Government’s clear aim, for example, is to coordinate air transport more efficiently than hitherto. For this reason, an airport concept was submitted in 2000 (Federal Ministry of Transport, Building and Housing, 2000). It recommends enlarging satellite airports and integrating them into the regional transport system. Additionally, it suggests that international airports should give financial aid to the satellite airports in their region. Since these airports lie within the responsibility of the federal states, however, these objectives are not included in the latest national transport plan (Federal Ministry of Transport, Building and Housing, 2003). For this reason, and due to coalition agreements between the Social Democratic Party and the Green Party, the Federal Government’s statements remain fairly vague and inconsistent. On the one hand, they emphasise that the substitution of air transport by rail transport is necessary, while, on the other hand, they call for the extension of already existing airports as far as local and environmental conditions will allow. Whether or not this relates only to the 18 international airports or also to the enlargement of smaller airports is not clear.

The European Commission is also concerned with the shortage of airport capacities. It acknowledges that it is hard to gain public support for the construction of new airports but has come to the conclusion that “policy-makers will not be able to find a way out of building new runways or new airports” (European Commission, 2001, p. 38). It also demands better air traffic management at hubs and the use of bigger aircraft. In contrast, the European Parliament is more moderate. It supports legislation in favour of citizens suffering from aircraft noise, though EU legislation plays an important role in the support of newcomer airports. The Council Regulation 2408/92 can promote such facilities with the ‘airport system’ instrument, which allows the organisational linking of airports, if they are “grouped together as serving the same city or conurbation.” The intention is to facilitate the distribution of traffic and the free management of aircraft movements. At present, nine airport systems are defined: London (3 airports), Paris (3), Berlin (3), Milan (3), Lyon (2), Stockholm (2), Copenhagen (2), Rome (2) and Venice (2). Frankfurt (together with Hahn) may be the next, but regional action groups at Hahn fear that the airport will acquire all the unwanted noisy and night flights from Frankfurt.

2.4. Potential

The potential for market entry as regards different modes of air transport varies significantly. Regarding scheduled flights, the regional authorities have many arguments in favour of newcomer airports. First of all, they claim that an airport with ‘traditional’ scheduled services to German or European conurbations would support domestic industry. This is often true, but the chances of attracting scheduled flights to a domestic hub like Frankfurt or Munich are very poor, since the established airports are strong competitors in this field and the ICE high speed train network is displacing more and more domestic flights. Hannover Airport is a good example: in 1992, eight domestic destinations were offered; in 2004 only three remained. Many domestic connections from small airports were also discontinued in the last few years, most of them to Berlin (from Kiel, Karlsruhe/Baden-Baden, Siegerland, Augsburg and Hahn). Small airports in Germany usually require subsidies to promote traditional scheduled flights. The minimum amount for a twice-daily service with a small turboprop aircraft seating up to 30 passengers is about €1 million a year.

It also appears to be characteristic of policy makers in all countries that they fail to see that, despite the existence of various stakeholders, it is the airlines that are the decision-makers. Humphreys and Francis (2002, p. 253) noted this in the UK, but it applies to Germany,
too. A particular problem for German airports which impedes the acquisition of new airlines and destinations is the dominating role of Lufthansa. Nearly every German carrier which owns aircraft suitable for scheduled flights to smaller airports (18–70 passengers) depends on the former flag carrier. Either they belong to the Lufthansa group (like Eurowings) or they are a franchise partner (Lufthansa Regional, formerly Team Lufthansa), or they are at least partners in the Lufthansa mileage programme. According to these criteria, only two small carriers are fully independent. Because other domestic or foreign carriers are normally not interested in operating regional aircraft, some airports have asked local business aviation carriers to offer scheduled flights (e.g. in Kiel, Neubrandenburg, Kassel and Siegerland), but they have had only limited success, due to the small and uncomfortable planes (e.g. Beech 1900, Metroliner or King Air 200) and size-related marketing problems.

In terms of charter flights, while many newcomer airports aim to attract them, the long-term prospects are also poor. In recent years, nearly every small airport had several seasonal flights to Majorca or to other Mediterranean destinations, but that was a temporary boom. On account of the small catchment areas, the off-season demand was too low. It was often impossible to fill an aircraft with a seating capacity of over 100. This entailed expensive triangle flights, and in some cases positioning flights from the carriers’ home bases were also necessary. Sometimes the planes were chartered by local travel agents who were unable to cope with the difficult circumstances, and this resulted in many flights being cancelled at short notice. In 2003, the main tour operators TUI and Thomas Cook also decided to withdraw from small airports, and to concentrate on flights from the airports in conurbations. Six newcomer airports lost all their charter flights.

Many aspiring airports have tried to attract cargo flights, but in most cases their chances are slim. Some of them occasionally have flights with special cargo (e.g. two underground train sets from Schwerin/Parchim to Guangzhou/China) operated with impressive wide-body freighters such as Antonov 124s, but many airports simply overestimated the need of local industry for air cargo. The demand for industrial estates near the airport is therefore also low. Many remote airports had the unrealistic dream of filling several air freighters every week, forgetting that even at the hubs most of the freight is carried as additional cargo on passenger jets. The newcomer airports are also often less successful than the data indicate, since most of the air cargo is only trucked to the next cargo hub (for example, at Hahn the figure is approximately 80%). Hopes of attracting integrators were also disappointed. These companies have already chosen their hubs in Europe (UPS in Cologne, FedEx in Paris, DHL in Brussels or TNT in Liège), but airports with free capacity might have the prospect of developing as a secondary hub, especially in the case of integrators having to relocate due to night flight or noise restrictions.

Finally in this section, there are low-cost flights to consider. A main pull-factor for newcomer airports throughout Europe is the low-cost boom—the newcomers have seen the success of London Stansted and wish to emulate it. Stansted is the fourth busiest airport in the UK (with a passenger throughput of more than 18 million in 2003), and is Europe’s fastest growing major airport (+17% in the same year). Seven different low-cost airlines offer more than half a million seats every week, but 64 of the 105 destinations are served by Ryanair. From Hahn, its primary hub in Germany, the Irish market leader flies to 19 European destinations: the Stansted route in particular is very successful, now being the fourth busiest of the 31 routes from German airports to London. Related to this, it is significant that 22 German airports are connected with London-area airports, but fewer than 20 offer flights to Munich (19 domestic destinations), the Berlin area airports (18) and Frankfurt (17).

Hahn, a former US Air Force airbase, is (for its part) the model for other smaller German airports hoping to gain impetus from their first scheduled low-cost traffic. In contrast to seasonal charter flights, the daily services with larger aircraft would ensure a number of year-round jobs. Compared with traditional scheduled flights, low-cost airline passengers make lower demands with regard to comfort and service at the airport. Another positive fact is the variety of passenger types: this was confirmed by a survey of low-cost passengers at newcomer airports carried out by the author (Table 5). A further advantage is that the low-cost market segment is less influenced by external crises such as wars, which brought about the bankruptcies of Sabena and Swissair, while Ryanair or easyJet have expanded, ordering hundreds of jets.

Despite the advantages mentioned and concrete offers from low-cost airlines (especially Ryanair), a number of smaller airports do not wish to accommodate them. The main problem is that they demand subsidies, which Ryanair’s CEO freely admits: “It is an open fact that some airports pay us to fly there…” (Parliament of Ireland, 2003). Such financial aid (more than €100,000 per year for one destination) is not normally allowed in the European Union, but it is defined as a ‘marketing grant’. Additionally, the airlines demand lower landing fees.

| Job-related | Holiday | Visit | Other reasons |
|-------------|---------|-------|---------------|
| 35%         | 39%     | 25%   | 1%            |

Source: Survey of low-cost passengers in Lübeck Airport and Niederrhein Airport (n = 1600), Institute of Geography, University of Hannover, 2004.
Full-service carriers have meanwhile taken airports to court on this issue. The European Commission also reviewed the legality of subsidies, and the following recent decisions may decelerate the success of the low-cost airlines:

- **Charleroi.** In February 2004, the European Commission “took a major decision of significance for the future of air transport” (European Commission, 2004a). It curtailed the advantages granted to Ryanair by Brussels South Charleroi Airport (BSCA) and the Walloon Region. Ryanair has four aircraft based in Charleroi, serving about 12 million passengers a year with 12 destinations. It has to pay back illegal subsidies amounting to more than €3 million. The Commission has not issued a general ban on agreements between regional airports and low-cost airlines, but decided that the following forms of aid could not be authorised: reduced airport charges, reduced ground handling fees, aid provided for existing routes and one-shot incentives provided for the opening of new routes which do not take account of the actual costs. In the future, subsidies for point-to-point European routes are only allowed for a five-year period: they must correspond to a ‘maximum intensity’ of 50% and, crucially, must be available to any airline.

- **Strasbourg.** In September 2003, the French appeals court at Nancy barred subsidies being paid to Ryanair by the Bas-Rhin Chamber of Commerce and Industry. The subsidies amounted to €1.4 million to set up two daily roundtrip flights between Strasbourg and London Stansted. In the suit lodged by Air France, the court ruled that this was illegal state aid and an improper use of public funds.

- **Airport names.** Many low-cost airlines renamed small airports to convey that they were less remote. In December 2003, the German appeals court at Cologne prohibited misleading advertising and denied Ryanair the right to call Niederrhein Airport ‘Niederrhein (Düsseldorf)’, but the prohibition applied only to this case and not to ‘Hamburg–Lübeck’ or ‘Leipzig–Altenburg’.

- **Price transparency.** In September 2003, the German district court at Hannover ruled that low-cost airlines may not promote flights at dumping prices if they offer fewer than 10% of all seats at this price.

- **Air passengers’ rights.** In January 2004, the Council and the European Parliament adopted the proposal of a new regulation to protect the rights of air passengers (European Commission, 2004b). If a flight is cancelled or overbooked, the airlines “have to pay compensation at a dissuasive level” (€250 for flights of under 1500km, meals, refreshments and hotel accommodation). The European Low Fares Airline Association (ELFAA) then decided to sue the EU.

Another problem is that some low-cost airlines with a small budget cannot start to operate their scheduled flights or have to cancel them after a few weeks. In some cases, non-existent airlines tried to fool airports by demanding subsidies in advance. Dependence on only one airline is often another disregarded risk (e.g. in Lübeck). Further disadvantages a small airport has to consider if it wants to run low-cost flights are: extremely short turnarounds (under 25min), late arrivals due to the high utilisation of the planes (up to eight flights per day) and the need for sufficient public transport, taxi capacities and car parks. Since 2003, the chances of newcomer airports attracting low-cost airlines have been reduced, because the new German low-cost carriers Germanwings (Lufthansa group), Hapag Lloyd Express (TUI group) and Gexx decided to fly from established airports like Cologne, Hannover or Stuttgart. Additionally, easyJet is introducing services from Berlin–Schönefeld, Dortmund and Cologne in 2004.

3. **Effects**

Having discussed the prospects and problems of developing newcomer airports, the paper now turns to consider the impacts such facilities might have if they are actually built. This section focuses in particular on sustainability and economic development impacts, since these are especially relevant in terms of airport capacity planning.

3.1. **Sustainability issues**

Assessing the sustainability of transport and, in particular, of aviation constitutes a new field of research (Graham and Guyer, 1999). Most existing studies analyse the transport sector as a whole (Black, 1998). In recent years, several catalogues of indicators have been developed, especially in Switzerland (Swiss Confederation, 2001), but they are difficult to apply if only a small element of the transport system is to be analysed. In checking the sustainability of newcomer airports, modified objectives (written below in italics) are required. A rough survey yields the following results:

- **Low-cost flights from newcomer airports do nothing to reduce traffic, emissions and noise.** They encourage growth in mobility (Graham and Guyer, 1999). Several recent but non-representative samples from universities or consultants show that a major part of the low-cost traffic is additional traffic, since approximately 40% of the passengers only travel because of the low price.

- **Travel distances and travelling time are increasing.** Due to the low-cost boom, more and more passengers choose the cheapest rather than the nearest airport.
The assessment of sustainability also seems to be significant, but it is difficult to assess the degree to which sustainability is a central element in achieving airport development objectives (Thomas and Lever, 2003, p. 208). Although many action groups against noise at the established airports are disappointed, these airports often have much better communication with local residents than the smaller ones. The most comprehensive participation programme in Germany was the ‘mediation’ on the expansion of Frankfurt Airport from 1998 to 2000.

It should not be forgotten that airports in peripheral regions could be an instrument for ensuring social equity. They improve accessibility and contribute to addressing the concern of the EU “that geographical location should not be the primary determinant of the life chances” (Graham and Guyer, 1999, p. 166).

It is essential to consider that sustainability “also invokes a concern with long-term economic development” (Graham, 2000, p. 77). The reduction of market distortions is therefore a main goal of economic sustainability. To avert high-cost but unused airport infrastructure, a realistic economic assessment of all investments and subsidies is required. In Germany, the state intervenes in many ways. It provides public funds for airport infrastructure and staff, ‘marketing grants’ for low-cost airlines, and financial support for scheduled flights to regional airports (in conformity with EU-law). It also provides the surface access, levies no taxes on jet fuel, and does not charge VAT on tickets for international flights. The next section expands on this economic development point.

3.2. Regional economic development

The influence of airports on the regional economy seems to be significant, but it is difficult to assess the details of these effects. The interconnections between the expansion of an airport and wider economic development are complex, since it is not a “self-contained cause-effect process” (Graham, 2003a). Airports may, however, induce at least three impacts (Graham and Guyer, 2000).

The first of these is employment. A rule-of-thumb investigation based on data from the 17 biggest German airports shows that 100,000 passengers (for example, one daily 737–800 flight) generate approximately 110 jobs at an airport (airport operators 20; authorities 10; airlines 40; other: 40), with about 130–200 additional jobs also being created outside the airport. Whether aspiring smaller airports will generate the same number of jobs cannot yet be ascertained, as hardly any research has been done on this subject to date: it is indeed questionable whether they can provide jobs to the same extent (Graham and Guyer, 2000). At many German newcomer airports, part-time jobs predominate, often held by students or retired military personnel. Besides this, low-cost airlines usually employ fewer people than full-service carriers.

The second impact is on-site economic activities. The ‘aeroplex’ concept (see above) may be the ideal case for combining aviation-related activities, but many small airports have problems developing their on-site business parks. This is especially true of conversion airports which have large, but built-up premises (e.g. at Karlsruhe/Baden-Baden or Lahr). If an airport could establish an innovative cluster of aviation-related companies and institutions, however, it could generate positive external effects as regards employment and trade and industry (for example, at the ‘research airport’ in Braunschweig) (Hübl et al., 2000).

Thirdly, airports can have the following fundamental effects as regional economic multipliers (Cezanne and Mayer, 2003): direct effects (employment and added value depending directly on the airport); indirect effects (derived demand); induced effects (income effects); and catalytic effects (airport as a location factor for business and industry). Yet an airport is only one of many location factors. Airports can contribute to economic development and their prestige value is high, but they do not guarantee the economic prosperity of a region. It is therefore questionable whether a newcomer airport in a disadvantaged region could be successful (Cezanne and Mayer, 2003). In Germany, only the small airports in regions with well-developed economic structure—such as Dortmund or Mannheim—have prospered. In most cases, small airports are not economically viable—the regional authorities have to compensate for their losses permanently (Hübl et al., 2000)—but in the long-run although such airports are not lucrative profit centres, they can stimulate the regional economy.

Newcomer airports may also play a key role in competition, which is why the European Commission “encourages any initiative which enables better use to be made of airport infrastructure which is under-used”
(European Commission, 2004a). These airports will give citizens a “greater choice when it comes to flying.”

Although air transport within the EU has been liberalised to a great extent, the Council Regulation 2408/92 Access for Community air carriers to intra-Community air routes (European Community, 1992) allows member states to subsidise routes to smaller airports. A member state “may impose a public service obligation” (continuity, regularity, capacity and pricing) in respect of particular scheduled air services. It must either be a route to an airport in a “peripheral or development region” or a “thin route to any regional airport.” However, such routes must be “considered vital for the economic development of the region” (European Community, 1992, Article 4, 1 (a)). If a scheduled service complies with these requirements, the member state may pay a reimbursement to the air carrier. The rules are widely interpretable and nonspecific. For instance, except for 35 ‘category I airports’, every EU airport is a ‘regional airport’. Whereas other member states mainly subsidise routes to remote regions or to islands (Sicily, Sardinia, Azores, Hebrides), Germany (i.e. the federal states) supports air transport to regions with reasonable rail access, so criticism of the high subsidies for scheduled connections (e.g. Rostock–Munich) may appear justified. That said, the access of disadvantaged areas (like Mecklenburg-Western Pomerania) to wider networks is a basic social equity objective (Graham, 2003b).

4. Conclusions

The main reason for the uncoordinated process of airport capacity expansion in Germany is that the responsibility for aviation lies in the hands of the federal states. They do not normally dovetail their airport planning, and no detailed nationwide concept for air transport exists (in contrast to surface transport). It would seem, however, that some kind of airport development planning by the federal government is imperative. This would require a far-reaching legislative amendment, but a national strategy would be able to develop airport capacities more efficiently and could prevent the above-mentioned process. The main goal should be a comprehensive geographical approach instead of spatially limited federal state planning. No parallel development of neighbouring ‘newcomer airports’ should be allowed if none of them will have sufficient demand. In addition to the environmental impact assessment which is regulated by European and national law, assessments of the wider sustainability and economic development impacts of each airport should be made compulsory. State intervention and subsidies of any kind ought to be reduced. There does not appear to be a necessity to create more airport capacity outside the urbanised European core regions. Due to the fact that a “substantial number of airports . . . have adequate capacity for the foreseeable future” (Graham and Guyer, 1999, p. 169), in many countries “enough airport capacity exists but not where the airlines want it” (Humphreys and Francis, 2002, p. 249). Like several NGOs, however, the state should also question whether new airports and runways are really required, and consider whether the forecasted demand for air travel is artificial due to the subsidised ticket prices. Airport capacity planning should always be demand-orientated, so aspiring airports should grow step by step in a suitable modular way. All this could reduce prestige-driven and ineffectual investments, land consumption and other non-sustainable impacts.

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