Airports and ageing passengers: A study of the UK

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Abstract

Globally, improved standards of living, nutrition and medical treatment are extending human life expectancy and enhancing quality of life with the result that an increasing number of ageing passengers are using airports. This ‘grey boom’ presents both challenges and opportunities for airports as older travellers exhibit distinct and different travel characteristics concerning their propensity to fly, their travel purpose, trip duration, destination, surface access preferences, dwell time, retail habits, familiarity with airport automation and self-service technologies, and use of terminal facilities such as airport information desks, adaptive and assistive technologies and special assistance support. The aim of this paper is to use publicly available data to undertake an exploratory investigation into the use of UK airports by older travellers and make recommendations for future policy and practice. Overall, the study finds that the impact of this observed demographic change varies by individual airport and thus future policy and management of an ageing passenger profile needs to reflect the operational challenges on a location-by-location basis.

Keywords: air travel, ageing, airports, passengers, UK.

1. Introduction

In common with many other economically developed nations, improvements in standards of living, nutrition and medical treatment are extending UK life expectancy and enabling growing numbers of UK residents to enjoy a longer and healthier old age. Between 1996 and 2046, the proportion of the UK population aged 65 and over is predicted to increase from 15.9% to 24.7% (ONS, 2017). Currently, 18% of the UK population are aged 65 or over and 2.4% are over 85 years old (ONS, 2017). Projections of the UK population age profile through to 2050 are representative of the demographic changes forecast in many significant and mature aviation markets. For example, between 2015 and 2050 the proportion of the total population aged 65 and over is forecast to increase from 21.1% to 30.7% in Germany, 14.6% to 22.1% in the United States and 15.0% to 22.5% in Australia (UN, 2017).

The growing total number and proportion of healthy older adults in the UK, many of whom are retired with access to pensions and financial security and some with second homes overseas, are resulting in an increasing number of older passengers using UK airports. It is estimated that, in addition to the over 65 seasonal tourist traffic, there are around 247,000 British citizens aged 65 and over living in other EU countries (excluding the Republic of Ireland) and 85,000 people aged 65 and over from other EU nations (excluding Ireland) living in the UK (ONS, 2017). Of the 65 years and older British citizens living abroad, approximately 121,000 live in Spain and 70,000 in France with smaller, but still significant, numbers in Germany, Portugal, Italy, the Netherlands, Sweden and Poland (Ibid, 2017).

In addition to these British citizens living permanently abroad, the number of UK-resident households with a second home abroad grew consistently until 1997 and then more than doubled between 1997/98 and 2007/08 to 270,000 (UNECE, 2012). By the time of the 2011 UK census, 820,814 people (1.5% of the normal resident population of England and Wales) reported a second address overseas (ONS, 2012) with many of the 362,000 individual overseas properties owned by British citizens being registered to, or routinely occupied by, people aged 65 and over who routinely accessed their second homes by air. Indeed, the relationship between EU freedom of movement, the spread of foreign home ownership and the growth in low cost airline routes across Europe following liberalisation is well known with many second home owners and British ex-pats relying on frequent cheap flights within the EU single aviation market to access spatially dispersed properties (Eames, 2008) located in more desirable or cheaper overseas locations (Pitkänen, 2011) or participate in the ‘fly to let’ property phenomenon.

UK residents are certainly not alone in purchasing second homes overseas. A well-known example of this are the ‘snowbirds’ from parts of northern and north western Europe who migrate to warmer and sunnier climes in other countries during the northern hemisphere winter (Pitkänen, 2011). Examples include not only the British but also Dutch, German and Swedish residents purchasing second homes in rural France and Southern Spain (see Muller, 2002). Extant studies of second home ownership, however, have tended to focus on the motivation on behalf of the purchases as well as the challenges of them integrating into the receiving communities and the effect on social cohesion and property prices (Pitkänen, 2011). Relatively little research, however, has focused on the transport modes these second home owners use to access their overseas properties.

The growth in the number of older air travellers - the so-called ‘grey boom’ (Burghouwt et al, 2006) - has resulted in a number of important commercial and operational implications for airlines, airports and national regulators. Airlines have long recognised that older travellers represent an important revenue source and many have targeted this lucrative passenger segment with special ‘Senior’ or over 65 fares as well as dedicated services tailored to the needs of older travellers such as telephone reservations lines, airport assistance and smaller in-flight meal options. In the United States, the Transportation Security Administration (TSA) (2019) has introduced special security screening protocols for passengers aged 75 and over which negates the need for older travellers to divest of shoes and clothing during the security search.

Older passengers also place particular demands on airport operators. These relate to delivering appropriate surface access modes, F&B (food and beverage) and retail concessions, but also to ensuring the different surface access needs, wayfinding challenges, and mobility requirements of these passengers are met. Within the UK, ensuring equality of access has been a legal requirement under EU law but there is also a commercial imperative for airports operating in a highly competitive environment to deliver a positive passenger experience for older travellers to capture and retain the revenue gains and market share of this growing traveller segment.

Given the growing importance of the ageing traveller and the relative paucity of research that focuses on ageing and aviation, the aim of this paper is to undertake an exploratory analysis of ageing passengers at UK airports. The UK has been chosen as a representative market as the ageing demographics of the UK population are akin to that of other developed and mature aviation markets and the overall regulatory environment for ageing passengers with disabilities is the same for other European countries while the UK remains a full EU Member State[1].

The next section of the paper reviews relevant literature related to ageing, air travel and airports. This is followed by Section 3 that presents the findings of the UK case study. The paper is concluded in Section 4 with recommendations for airport operators and national policy makers, as well as suggestions for future research.

2. Literature review

There is a popular misconception that the ageing traveller market consists of frail old people in wheelchairs or with walking sticks. This is incorrect, especially as these travellers make up a number of diverse and heterogeneous consumer groups (Nielsen 2014; Alén et al., 2016). Nevertheless, within Europe, ageing traveller trips do share some common characteristics. They are less likely to occur in the school holiday peak of July and August; they may have a longer than average duration; and older travellers are more likely to be staying in non-rented accommodation, such as owned holiday homes (Eurostat, 2019). However published research concerning different aspects of ageing tourists and ageing tourist behaviour is scarce (for exceptions see Tretheway and Doris, 2006 and Tung and Brent Ritchie, 2011). The ageing process of this specific market must be considered as these groups may face particular challenges when it comes to accessing transport and their needs may not be always fully recognised or met. Indeed, much of the extant literature on transport and ageing focuses on driving cessation, public transport use and the role of active travel in supporting healthy older age (see, among others, Musselwhite and Shergold, 2013: Currie and Delbosc, 2010) while the impacts of ageing on air travel are hitherto comparatively unexplored.

One difficulty in conducting such research is that the chronological age at which an individual is described as ‘old’ or ‘elderly’ is poorly defined and varies not only by country and cultural context but also by personal perception (Schwall, 2012). As such, the ageing process is multidimensional and researchers have identified three subcategories of how individuals age beyond chronology. These are defined as biological, social and psychological ageing (Mathur and Moschis, 2005). The biological process of ageing is heterogeneous (see Orimo et al, 2006) and depends on complex interactions between an individual’s genetic composition, their social and lifestyle factors and environmental exposure. Such variations notwithstanding, the process of ageing is, however, generally characterised by a number of progressive physiological and neurological changes that result in increased physical frailty and

[1] Note: This paper was written and revised in the period March-Oct 2019 when negotiations concerning the UK’s withdrawal from the EU were ongoing and the outcome uncertain.

greater susceptibility to certain chronic and acute conditions of the musculoskeletal, cardio-respiratory, neurological, sensory and immune systems. Age-related hearing and sight loss, as well as mobility and cognitive impairments, can create challenges associated with navigating new environments and negotiating the procedural logic of air travel, while advances in airport automation may generate anxiety and confusion among an older generation who have not grown up with the technologies and who are consequently not familiar with their purpose and operation. The social and psychological determinants of ageing, meanwhile, are often linked with social constructions of people's changing role in society as they age and their ability, or otherwise, to participate in the workforce, perform domestic activities or make an active contribution to society. These factors, of course, vary over time and according to geographical location and cultural context.

Irrespective, there is a growing need for airports to specifically consider: the particular needs and mobility requirements of older passengers (Chang and Chen, 2012a); their airport access mode choice (Chang, 2013); and the relative merits of employing alternative level of service (LOS) standards that reflect the ageing profile (Kim at al., 2017). Moreover, at each airport there will be different factors that will affect the share of older passengers including: the demographics of the airport catchment; whether the traffic is dominated by inbound or outbound traffic with different levels of ageing populations; whether the main purpose of travel is for business or leisure; or whether the flight is a short-haul or long-haul one - yet the published research in this area is sparse. Clearly the business strategy of the airlines that operate from the airports is another variable to consider, but again only limited evidence exists. For example, Cho and Min (2018) discovered passengers flying with low cost operators in the US in 2015 were older than those flying on legacy full service operators, whilst in Europe charter flights and package tours have traditionally been associated with older passengers (Castillo-Manzano and Lopez-Valpuesta, 2015; Major and McLeay, 2013).

While many older travellers may be disabled due to the consequences of ageing, there are also many disabled passengers that are of a younger age. Of course, it is not always possible to differentiate the needs of older or elderly travellers from disabled ones and, in some cases, the challenges these passengers face when using airports, such as a lack of seating, the need to be accompanied by a carer or personal assistant, and the physical distance between check in areas and departure gates, may be closely aligned.

Disabled travellers of any age who require help at airports are described as PRMs (Persons with Reduced Mobility). Owing to an ageing yet active population combined with an increasing propensity among disabled travellers to fly, PRMs represent one of the fastest growing demographics for aviation worldwide. Annual growth in PRM numbers six times higher than the overall rate of passenger growth at some airports (International Airport Review, 2017). The European Commission defines a PRM as '*any person whose mobility when using transport is reduced due to any physical disability (sensory or locomotor, permanent or temporary), intellectual disability or impairment, or any other cause of disability'.* PRMs will often require specialist services and adaptations to be made to the physical environment and/or their

journey through it, to enable them to access the full range of services that are available to other passengers. The infrastructural, architectural, operational or procedural adaptations for mobility or sensory impaired passengers (who may also, but not necessarily, be old) may include, but are not limited to, the provision of step free access, dedicated lavatories and washrooms, specialist sensory facilities and priority boarding and disembarkation from the aircraft (ACI, 2018).

Within the European Union, all passengers with a disability (whether physical, cognitive or communicative) or reduced mobility (irrespective of age) are legally entitled to support or 'Special Assistance' whilst travelling by land, water and air. EC Regulation 1107/2006 states that all EU airports handling over 150,000 passengers a year must provide, free of charge, help and assistance to wheelchair users, older and elderly travellers, and those with communication, social interaction and 'hidden' disabilities including autism and dementia. This right to Special Assistance is enshrined in EU law and applies whenever a person travels by air (irrespective of their airline's country of origin) from an EU airport or travels on an EU registered airline to an EU airport. Assistance must be available from the moment a passenger arrives at an airport and may cover areas such as surface access, travelling through the departure terminal (including check in and security), boarding the aircraft, during flight, disembarking, transferring between flights (if required) and navigating through the destination airport on arrival. The Regulation requires airports to deliver Special Assistance free at the point of use, but airports are permitted to levy a charge on all passengers to fund PRM provision. This charge is applied to all passengers, irrespective of whether they access the service or not, and is incorporated within their air fare (Castiglioni, 2014; Ancell and Graham, 2016).

Although this paper has restricted its consideration of an ageing passenger demographic to airport operations, it is important to consider that the journey through an airport is but one stage in a passenger's journey by air. Equally important is the interaction and handover of responsibility of passengers with additional needs and/or who require special assistance from the airports and their appointed ground handling providers to the airlines and their onboard crew where different, but connected, operational challenges (such as the width of the aircraft aisle and available turning spaces in the cabin) exist (Ancell, 2017; Davies and Christie, 2017; Poria et al., 2010).

3. The UK situation

An analysis is now undertaken of the UK situation, which is considered to be representative of other developed and mature aviation markets. Data has been gathered from a number of published sources (including individual airport websites, national statistical datasets and official Government reports). The use of secondary data inevitably poses challenges and a number of gaps and shortcomings in these datasets exist. One of these challenges is the lack of consistency in the age range categories that are used in different surveys to capture passenger data. Given the lack of an agreed and uncontroversial definition of stages of the ageing process and the variety of descriptions used in the medical and social sciences literature to describe the over 65 and over 75-year old populations (Orimo et al, 2006), this is

perhaps not surprising. Various descriptors, including ‘early elderly’ and ‘late elderly’, ‘young elderly’ and ‘older elderly’, and ‘younger old’ and ‘older old’, have been used. This distinction between ‘younger’ and ‘older’ older people is significant, for as Chang and Chen (2012b) explained, the needs of 65-74-year-old air passengers can differ quite markedly from those aged 75 and over (see also Burghouwt et al, 2006). In recognition of this, we have defined ‘older’ travellers as passengers aged 65 and over (an arbitrary threshold marked by the average pensionable age in the UK) and ‘elderly’ travellers, as those aged 75 and over. The overall over 65s group is defined as the ‘senior’ market. While we appreciate that chronological age and biological age are not necessarily synonymous, the distinction remains commonplace and these arbitrary age ranges are used for data capture purposes in the surveys we have consulted.

As a starting point for our paper, air travel patterns of the UK resident senior market have been examined. The first challenge was that, with the exception of the UK Government’s public experiences and attitudes of air travel survey, very limited publicly available data exists and the most recent data is from 2014. The key findings are shown in Table 1. The table demonstrates that senior passengers who are resident in the UK take fewer flights than the overall UK average and over half (52%) of all over 65s have never flown. This increases to 82% of the >74 passenger segement.

Table 1: Air trips taken (*) by UK senior passengers 2014

Age	None (%)	One (%)	Two (%)	Three or more (%)	Total (%)
All ages (65+)	52	22	11	15	100
65-74	60	21	9	10	100
>74	82	12	5	1	100

(*) In the 12 months before interviews in 2014

Source: Derived from Department for Transport (2014)

Further insight can be gained by looking at a sample of UK airports. The data is derived from publicly accessible annual published CAA airport statistics and survey findings over the period 2008-2017 inclusive. One significant limitation of this data source was that information on the age profiles of passengers was not captured for every airport in every year in the sample. Indeed, of the 22 airports included in the CAA data, only five (Heathrow, Gatwick, Stansted, Luton and Manchester) had age data available for every year from 2008-2017 inclusive. A further eight had data for a number of years within this time period and so it is these 13 airports that form the basis of the subsequent discussion.

These 13 facilities ranked among the top 15 busiest passenger airports in the country (see Table 2 - only Bristol and Belfast International airports within this group had to be excluded due to insufficient data) and collectively handled around 290 million passengers in 2018 (89% of the UK total). They have a wide geographic coverage taking in the densely populated southeast region of England (Heathrow, Gatwick, Stansted, Luton, London City), the Midlands (Birmingham and East

Midlands), the northwest (Manchester, Liverpool, Leeds, Bradford, Newcastle) and Scotland (Edinburgh, Glasgow). They also support a diverse portfolio of routes and airline business models from predominately short haul business destinations at London City to long-haul full-service intercontinental routes at Heathrow and low cost and charter operations at East Midlands.

Table 2: The relative size, ranking and service portfolio of the UK airports in the sample, 2018

Airport	Passenger numbers (2018) rounded to nearest million	Rank	Principal nature of operation
Heathrow	80	1	Full-service scheduled. Long, medium and short haul.
Gatwick	46	2	Full-service and low-cost scheduled plus charter. Long, medium and short haul.
Manchester	28	3	Full-service and low-cost scheduled plus charter. Long, medium and short haul.
Stansted	26	4	Predominantly short haul low-cost, some charter flights.
Luton	17	5	Predominantly short haul low-cost, some charter flights.
Edinburgh	14	6	Full-service and low-cost scheduled plus charter. Long, medium and short haul.
Birmingham	13	7	Full-service and low-cost scheduled plus charter. Long, medium and short haul.
Glasgow	10	8	Full-service and low-cost scheduled plus charter. Long, medium and short haul.
Newcastle	5	11	Full-service and low-cost scheduled plus charter. Medium and short haul.
Liverpool	5	12	Predominately low-cost, short haul.
East Midlands	5	13	Predominately low-cost short haul and charter flights.
London City	5	14	Predominantly short haul full service business flights.
Leeds Bradford	4	15	Predominately low-cost, short haul.

Source: Data derived from CAA (2018)

Table 3 shows the percentage share of total passengers at the sample airports in relation to older (65-74) and elderly (>74) passengers. The share of elderly passengers is greatest at Newcastle and Leeds Bradford and lowest at Stansted. The average age of passengers is greatest at Newcastle (49.1 years) and lowest at Stansted (38.3 years).

Table 3: Age and traffic characteristics of the sample UK airports 2018

	Passengers aged 65-74 (%)	Passengers aged >74 (%)	Passengers aged > 65 (%)	Mean age of passenger	UK resident passeng	Leisure passengers (%)

				s (yrs)	ers (%)	
Birmingham (BHX)	9.0	3.0	12.0	42.1	76.9	83.2
Edinburgh (EDI)	7.1	1.5	8.6	41.2	69.3	78.5
East Midlands (EMA)	13.6	4.4	18.0	45.3	90.0	94.4
Glasgow (GLA)	10.5	3.0	13.5	45.2	81.7	77.9
Leeds Bradford(*) (LBA)	14.7	5.1	19.8	45.4	76.3	93.1
London City (LCY)	5.9	2.3	8.2	43.4	58.1	50.0
London Gatwick (LGW)	9.9	2.6	12.4	42.8	70.4	85.9
London Heathrow (LHR)	8.2	2.1	10.4	42.5	39.6	74.5
Liverpool (*) (LPL)	8.5	1.6	10.1	40.8	74.4	91.0
London Luton (LTN)	10.0	1.9	12.0	40.7	69.9	88.2
Manchester (MAN)	9.3	2.0	11.3	43.7	79.4	84.2
Newcastle (*) (NCL)	16.7	4.4	21.1	49.1	82.4	85.7
London Stansted (STN)	5.7	1.5	7.1	38.3	65.4	87.6

(*) 2017 data

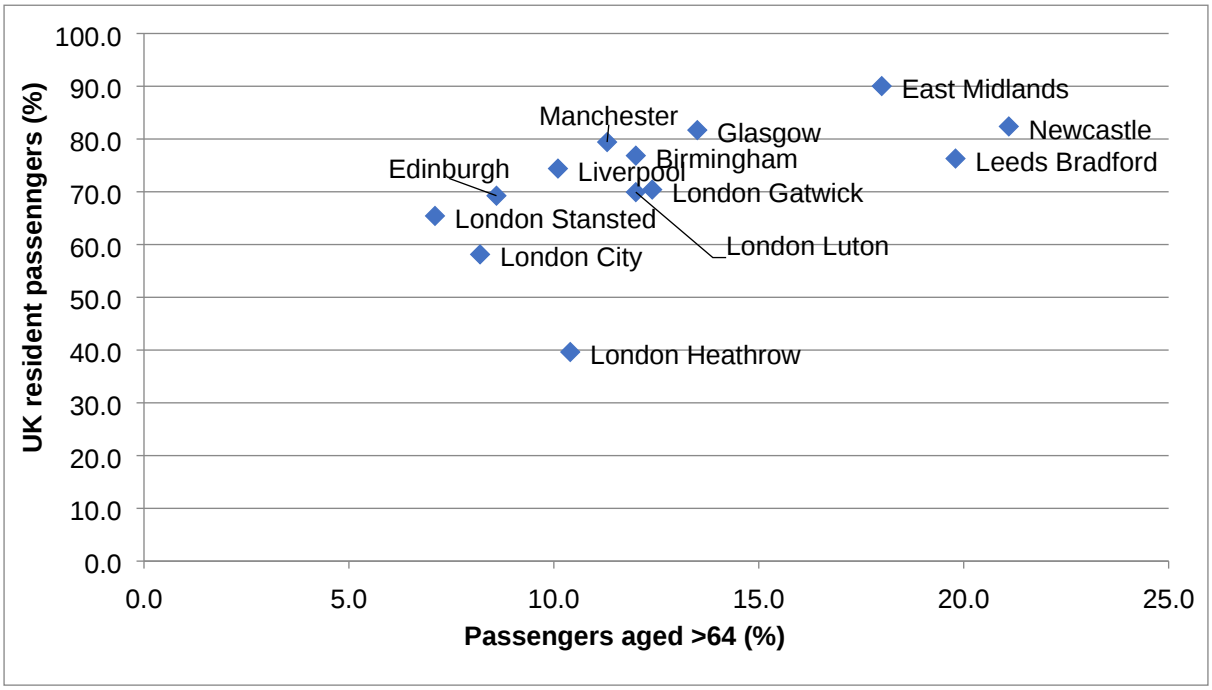
Source: Derived from CAA passenger survey reports (2018 and 2017)

Whilst the sample size is too small to undertake any quantitative analysis of the key drivers of these varying statistics, it is possible to make some suggestions. Firstly,

one influencing factor may be the mix of UK residents versus foreign residents. For example, Heathrow is unusual in that it is used by more foreign residents than UK ones. Many of the long-haul foreign residents may be from emerging economies where an ageing population and increase in ageing passengers may not be a significant issue. Indeed, Heathrow has one of the lowest shares of older/elderly passengers whereas East Midlands (where 90% of its passengers UK residents) has the highest share.

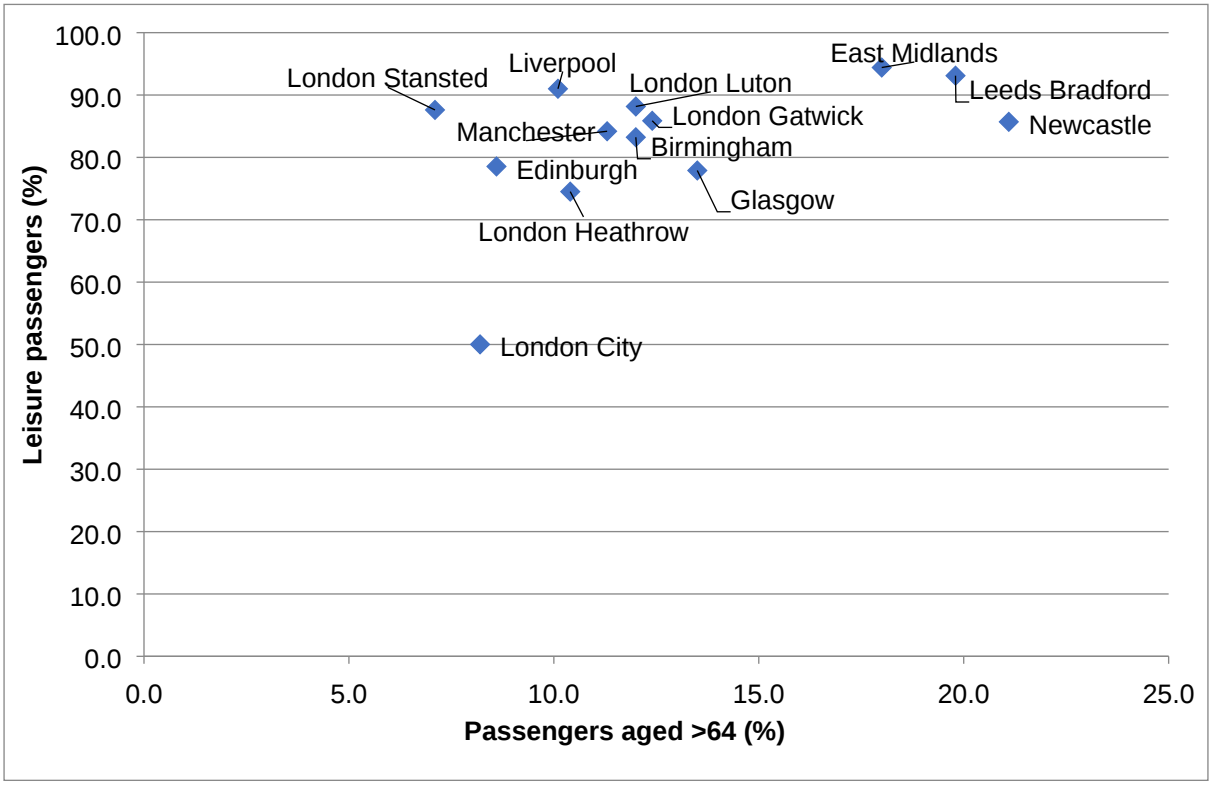
Another factor which is likely to play a role is the mix of leisure and business passengers. Clearly as many passengers are likely to retire from work in their mid-60s, it is logical to assume that the share of older/elderly passengers which are represented by business passenger will be relatively small. Table 2 appears to confirm this with London City, where 50% passengers are on business, having a small share of older/elderly passengers. However, interestingly Stansted (and Luton to a slighter lesser extent) have a high share of leisure passenger but also a comparatively low share of senior passengers. This may well be because nearly all the flights are offered by low-cost scheduled carriers that might not be so attractive to senior passengers, but also this may reflect the general demographic characteristics of London residents and visitors. Overall the correlation coefficient between the share of senior passengers and the share of UK residents in 2017/18 was 58% and the share of leisure passengers was 47% - indicating that there is some positive relation here as shown in the scatter plots below (Figure 1 and 2). The outlier with Figure 1 is Heathrow with the lower UK resident share and with Figure 2 it is London City with the lower leisure share.

Figure 1: Relationship between share of passengers >64 years and share of UK resident passengers at UK airports in 2017/18



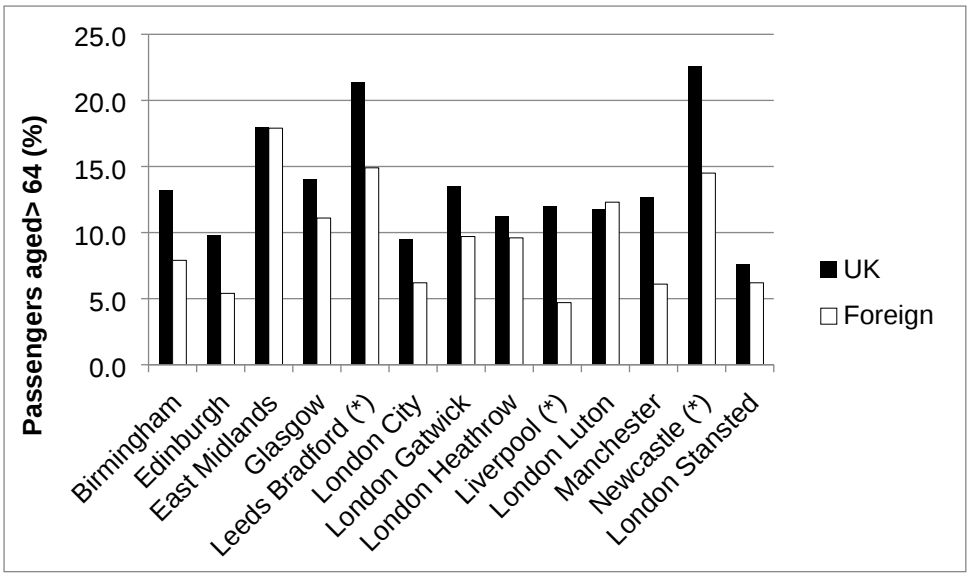
Source: Derived from CAA passenger survey reports (2018 and 2017)

Figure 2: Relationship between share of passengers >64 years and share of UK charter passengers at UK airports in 2017/18



Further detail can be obtained by looking at the senior passengers according to these traffic characteristics (Figures 3 and 4). Whilst there is considerable variation, for all airports except Luton the share of senior passengers is greater amongst UK residents. The share is also much greater for leisure passengers at all airports.

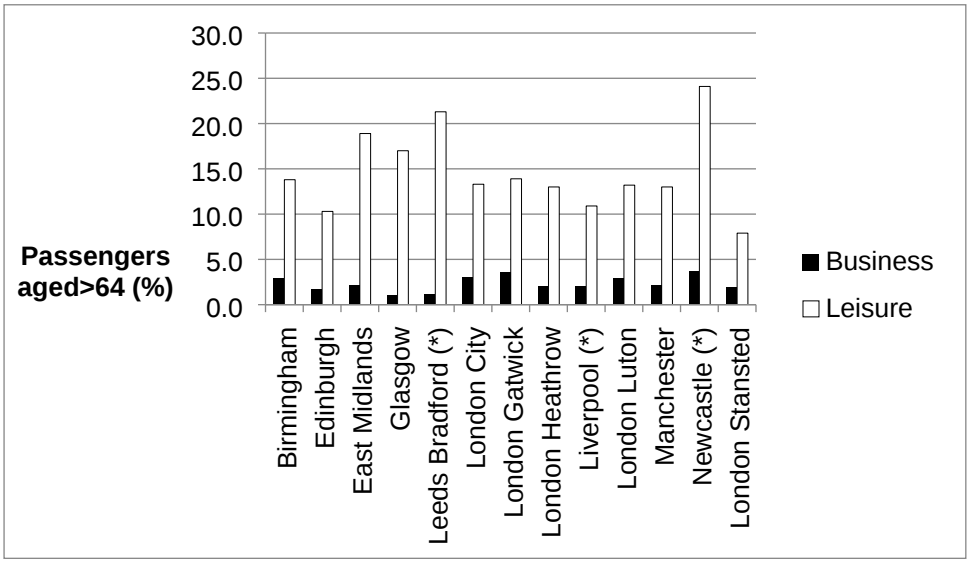
Figure 3: Share of >64 passengers at UK airports by residency 2018



(*) 2017 data

Source: Derived from CAA passenger survey reports (2018 and 2017)

Figure 4: Share of >64 passengers at UK airports by purpose of travel 2018

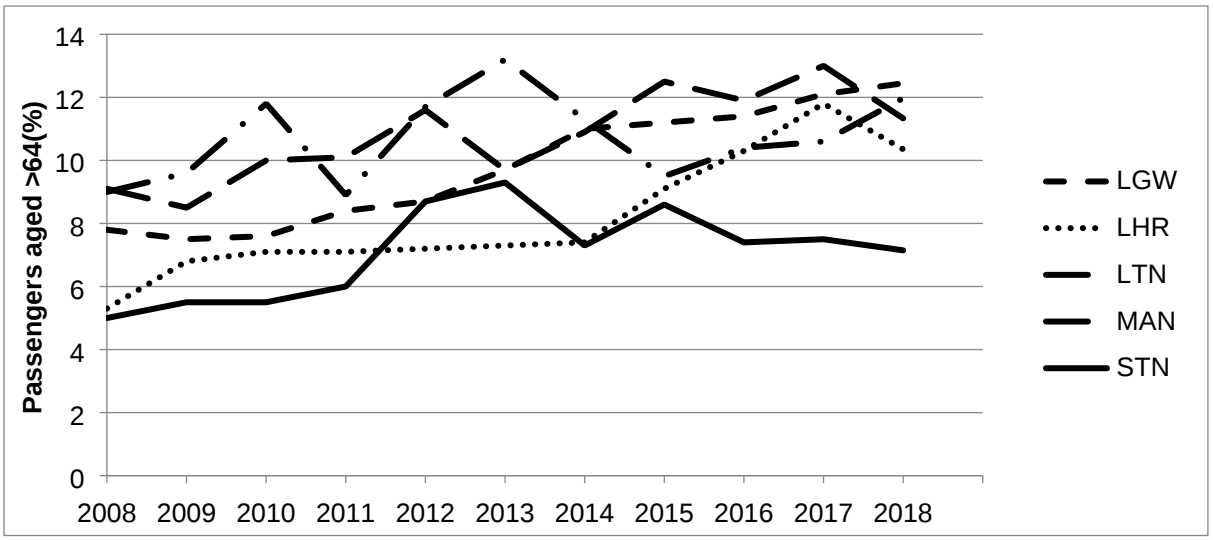


(*) 2017 data

Source: Derived from CAA passenger survey reports (2018 and 2017)

The only complete time series for the period 2008-2018 is for the London airports (Gatwick, Heathrow, Luton, Stansted) plus Manchester. Whilst this sample may not be representative of the whole country, it does show that in all cases the share of senior passengers has increased – albeit with observed variance year by year (Figure 5).

Figure 5: Share of >64 passengers at UK airports 2008-2018

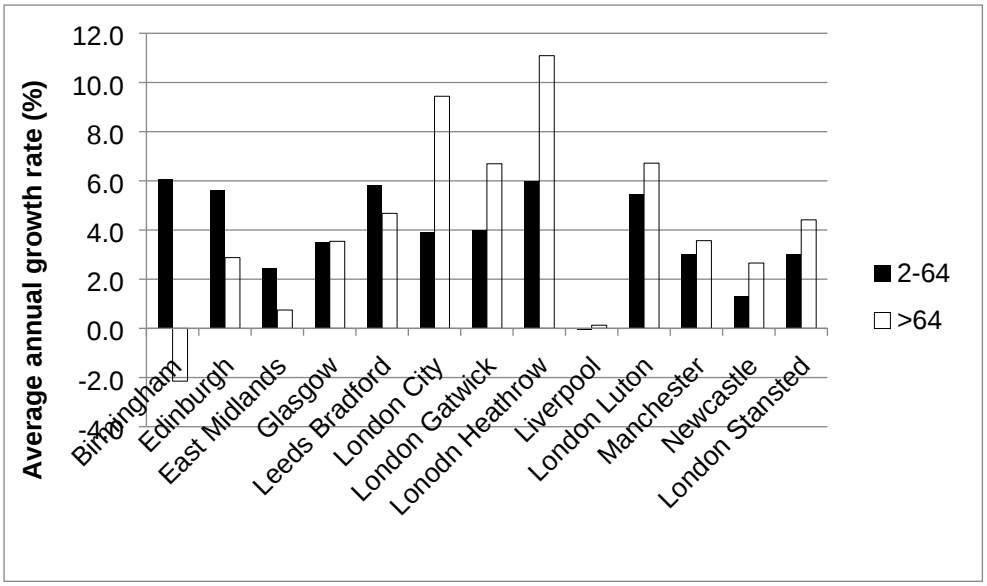


Source: Derived from CAA passenger survey reports (2008-2018)

However just focusing on percentage share data may not give the total picture, as an increase over time may reflect a greater than average growth of this market segment or alternatively a decline in growth of another age segment. This is overcome by looking at the average annual passenger growth of the senior market, compared to other ages (Figure 6). Due to data availability limitations this is not always related to the entire time series period but nevertheless still gives insight into the comparative situation over time at all the airports (even though the growth rates may vary especially with the base years being positioned at different stages in the last economic recession).

Overall the majority of airports have experienced a higher than average growth in the senior market (albeit that at Glasgow it was just 3.54% compared to 3.52%) although three airports have experienced a lower growth rate (Edinburgh, East Midlands, Leeds Bradford) and Birmingham declined. Without further investigation, it is difficult to identify the factors driving these changes at individual airports although the situation at Glasgow and Edinburgh may well reflect the different type of traffic that the airports now handle given that the competitive situation has intensified since common ownership of the two airports ceased in 2012. Likewise, Birmingham's decline could have been because during this period the airport reconfigured its service offering, increasing the number of medium haul full-service flights (with Emirates in particular expanding its daily services to Dubai) and low-cost flights at the expense of charter operations which have traditionally been associated with older passengers.

Figure 6: Average annual growth rate of passengers by age at UK airports



Note: Time periods considered are 2008-2018 (LCY, LGW, LHR, LTN, MAN, STN); 2009-2018 (EDI, GLA); 2010-2018 (BHX, EMA); 2009-2017 (NCL); 2010-2017 (LBA; LPL)

Source: Derived from CAA passenger survey reports (2008-2018)

Although separate information was not generally available for senior PRMs, it was considered worthwhile to investigate the whole UK PRM market to give an indication of the situation at different airports. Overall 3.7 million passengers were assisted at 31 UK airports between 1 April 2018 and 31 March 2019. Since 2014 the number of passengers assisted increased by 49% while overall passenger numbers increased by 25% (CAA, 2019a). The latest CAA tracker consumer survey found that 43% of the passengers who requested assistance on their last trip did so for the first time (CAA, 2019b). This survey found that 76% of those receiving assistance were very satisfied or fairly satisfied with services at the UK airport on departure, and 69% on their arrival back, but satisfaction with the overall flying experience for those with disabilities had decreased from 82% in 2016 to 77% in 2019 (compared to 90% to 81% for the total market).

However, this hides variation between airports and the total number of PRM requests varies by location with the busiest facilities handling the greatest number of requests. According to the individual airport websites, in 2017, the UK's busiest passenger airport at London Heathrow assisted 1.2 million PRMs (out of a total passenger throughput of 78 million), of whom nearly 10% required non-mobility support. In any given month the airport can handle over 140,000 requests. London Gatwick, the UK's second busiest airport, assisted over 56,000 PRMs in August 2018 alone, while that same month saw Manchester (the UK's 3rd busiest airport) aid 35,573 travellers, Stansted 9,933 and Glasgow 3,842.

Further data related to PRMs at individual airports is limited. However, one area where some insight can be gained is from the CAA airport accessibility reports that consider 31 UK airports including those in this research sample. These have been

produced since 2015/16 with three criteria used to evaluate the airports: performance against waiting times, user satisfaction, and effectiveness of consultation with their local disability community.

Whilst the CAA have used different categories in different years (e.g. 'taking steps' vs 'needs improving') it is possible to make yearly comparisons by ranking the airports as to whether they appear in the first, second, third or fourth position (Table 4). Newcastle and Glasgow perform consistently well, being either in the first or second place. Less consistently, Manchester is in the lowest position for the last three years, having been in the top position the year before and Edinburgh is in the bottom position once and the top position twice. These reports provide further qualitative information to support the rankings.

Table 4: CAA's assessment of UK airport accessibility

Relative Rank	2015/16	2016/17	2017/18	2018/9
Top Ranking	*(Very Good)* MAN, NCL	*(Very Good)* BHX, GLA	*(Very Good)* EDI, LPL	*(Very Good)* EDI, GLA
2nd Ranking	*(Good)* BHX, EMA, GLA, LGW, LPL, STN	*(Good)* EDI, LBA, LCY, LGW, LPL, LTN, NCL, STN	*(Good)* EMA, GLA, LBA, LCY, LHR, LPL, LTN, NCL	*(Good)* BHX, EMA, LBA, LCY, LGW, LHR, LPL, LTN, NCL, STN
3rd Ranking	*(Taking Steps)* LBA, LCY, LHR, LTN	*(Poor)* EMA, LHR, MAN	*(Needs Improvements)* BHX, LGW, STN	*(Needs Improvements)* MAN
Bottom Ranking	*(Poor)* EDI	Only three categories	*(Poor)* MAN	*(Poor)* No airports

Source: Derived from CAA airport accessibility reports (2015/16-2018/9)

While the UK was a member of the EU there was a legal requirement under EC Regulation 1107/2006 and, it could be argued, a moral and commercial imperative for airports to respond to the needs of PRM travellers and there is evidence that individual airports are beginning to identify and address the diverse needs of their customers. Heathrow airport, for example, has invested £23 million in a smartphone app to help the 6,000 visually impaired passengers who use the airport each year enhance their independence while London Gatwick opened the first sensory room in a UK airport for travellers (especially children) who may benefit from accessing a more calming environment (IAR 2018). There have also been suggestions that airports could market the 'patience' and understanding of their customer service staff towards older travellers as a product or as part of their dedicated service offering (see Burghouwt et al, 2006).

However, despite these and many other initiatives at individual airports, media stories detailing the negative (and in some cases dangerous or degrading) experiences of PRM and senior travellers at UK airports continue to make headline news with allegations of pre-booked assistance failing to meet user needs, inappropriate equipment, inadequate staffing levels and poor customer service standards often reported (Buckley, 2017). One key difficulty is the 'hidden' nature of

many disabilities. This was certainly the experience for 57% of disabled respondents in the 2019 CAA consumer survey (CAA, 2019b). In addition, it has been estimated that 7% of UK citizens (some 4 million people) avoid flying because of a non-physical 'hidden' impairment such as dementia or anxiety (Berry, 2018). In response, some airports are seeking to become 'Dementia Friends' by providing staff with additional training and providing lanyards to allow customers self-identity if they think they would benefit from additional support. Although often associated with the younger demographic, in time, growing numbers of passengers with autism, Asperger's and other different communication requirements will be travelling through airports.

4. Conclusions

This examination reveals that in the UK, although senior passengers generally take fewer flights than the rest of the population, at most airports the share and volume of senior passengers is increasing. It also reveals that the age profiles of passengers vary by airport and by location. Whilst data limitations have meant that the factors driving these differences could not be rigorously identified, there are some indications that factors such as the mix of inbound and outbound traffic as well as the mix of business and leisure traffic, could play a significant role. Other factors, such as the airline model (especially low cost airlines), type of flight (especially short-haul vs long-haul since long-haul travel may be more challenging even though the senior market may have more time to undertake it) and airport catchment area characteristics need to be investigated to provide further insight. Splitting the leisure market between holiday and visiting friends and relatives (VFR) which are very distinct markets may also aid understanding.

The study has also revealed a need for further research into ageing passengers' use of, and experience in, airports. An important area for future work would include in-depth qualitative studies of senior passengers' experiences of using airports. This would provide both much needed and valuable insight into their needs and a greater understanding of the behaviour of this passenger segment. In addition, capturing quantitative passenger data for the airports every year, while expensive and time consuming to achieve, would give a more robust dataset from which trends could be identified and suitable policy devised. Being alert to the differences and the resulting differing age profiles is important not only for the airports (and airlines) themselves but also for national policy makers as it is arguable that a 'one size fits all' approach to policy-making is masking the very real and important differences in the age profile and service needs of customers at different airports. In short, future relevant policies should ensure that they fully consider the unique site and situation of individual airports.

The growth in senior passengers will increase the likely demand for Special Assistance and associated operational challenges. The evidence to date as to whether the UK airports are satisfying the needs of PRMs is mixed but in the future the Department for Transport is planning a passenger charter to improve the situation. It is proposed that the Charter would be supported by an improved performance framework and expanded enforcement powers for the CAA

(Department for Transport, 2019). More demanding performance standards are also being introduced from 2020 by the CAA (2019a).

Clearly the footloose nature of airlines with respect to airport choice means that a change in airport use over time can lead to PRM planning issues with some sites experiencing under provision of facilities while others have over provision. The dynamic nature of the market can thus create difficulties. Further research in this area needs to examine the different PRM segments (seniors being just one) and the effects that unique geographic catchments and customer profiles of individual airports have on demand for Special Assistance. Further comparative research could also usefully investigate, in relation to senior PRMs, the nature of assistance required and provided at individual airports, the companies involved in providing Special Assistance, and the costs and funding mechanisms levied on passengers for providing these services.

In conclusion, this research has provided an invaluable and insightful contribution to the knowledge concerning ageing passengers at airports. In choosing the UK as a case study, it is assumed that it is representative of developed and mature aviation markets and hence the key findings here could be generalised for other relevant countries. In addition to the further research already recommended, it would also be useful to undertake comparisons with other countries in order to gauge whether these similarities exist, or whether there are unique factors explaining the findings for the UK case that need further investigation.

Acknowledgements

We would like to thank the editors and the two reviewers for their detailed comments which have enabled us to improve the paper.

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