〈Research Article〉

Japanese airports and the decentralization of international visits: current circumstances and future potential

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Abstract

In 2016 the Japanese government launched the *New Tourism Strategy to Invigorate the Japanese Economy* with the dual aim of promoting regional development while making Japan's hinterlands as new places of discovery for foreign visitors. However since the majority of international visitors arrive at the core international air gateways in Tokyo and Osaka, decentralization of visits to the hinterlands is limited. One way to assist visitor decentralization, which this paper proposes, is the enhanced internationalization of Japan's regional airports. After tracing the historical precedents particular to airport development in Japan, the paper examines the current international profiles of Japan's regional airports, and considers their existing infrastructure. Figures indicate that with the will and cooperation of the localities, regional airports can be used as a strategy to boost local economies and reduce tourism stresses elsewhere.

Keywords: inbound tourism, Japanese regional airports, regional development, visitor decentralization

1. Introduction

Tourist demand to experience the less visited hinterlands of destinations is an important feature of modern international tourism. Tourists, once satisfied to *see* locations and well-known sights, now demand to have a "real" existential experience at destinations they visit (McCannell, 2011). Until recently, due to the relatively low international visitor numbers to Japan, even heavily populated cities such as Tokyo or Kyoto could offer such "real" experiences. However, with the dramatic rise in tourist numbers since the Great Eastern Japan Earthquake (2011), the country's key attractions are now witnessing overcrowding with consequent effects on the transport system (Straits Times, 2018), the accommodation sector (SGE, 2014), and the destination as a whole; even "over-tourism" is being warned against (Palmqvist, 2017).

In response to such problems, and as a means to move inbound tourism beyond the so-called "Golden Route" of Tokyo-Mt. Fuji-Kyoto, the Japanese government now proactively promotes

Japan's regions as focal points of its international tourism policy under the *New Tourism Strategy to Invigorate the Japanese Economy* (Ministry of Land, Infrastructure, Transport and Tourism (MLIT), 2016). This initiative encourages not only the promotion, but also the opening up and development of Japan's less well-known, geographically peripheral, tourism resources (Japan Travel Agency, 2018). To enable this, emphasis is now placed on tourism's strategic role in regional revitalization, international competitiveness and the overall tourist experience. For example, the *Enjoy my Japan* campaign - launched in 2018 - reflects this new approach by enticing international visitors to sample a "richer and more personal" experience in Japan's lesser-known regions. This effort to create a new spatial distribution of visitors is essential since the country targets 60 million international visits by 2030 – more than twice the 2017 figure of 28.7 million (JNTO, 2018).

One factor hindering a spatial redistribution of visits to Japan is the existing concentration of international visitors' journeys that begin and/or end in Tokyo or Osaka – the two principal gateways to Japan. This is emphasized by the 48% of all visitor nights in Japan that are taken in just three cities, Tokyo, Osaka and Kyoto (McKinsey Research Group, 2016), and by MLIT statistics which indicate some 77% of all arriving passengers to Japan doing so at one of just *three* airports [Tokyo Haneda (HND), Tokyo Narita (NRT) and Osaka Kansai (KIX)] (MLIT, 2018). This leaves visits to the regional hinterlands dependent on visitors utilizing domestic land or air transport. Should the 2030 target of 60 million visitors be realized, and should Tokyo and/or Osaka continue to be the principal entry points, it is likely that Japan's globally recognized reputation for transport efficiency and punctuality will be compromised. As demand to access off-the-beaten track destinations grows, so an expansion of international entry points to Japan becomes an increasing necessity.

To date Japan has tended to take a 'business as usual' approach to solve this issue, i.e. it has simply increased the supply of domestic ground transportation from both Tokyo and Osaka, but in doing so it has not solved the root problem of agglomeration of arrivals in the two cities. Thus although *shinkansen* bullet trains linking southern Kyushu to Osaka in 2011, and Tokyo to the Hokuriku region in 2015 made previously less visited regions more accessible, from the viewpoint of aviation this approach has tended to promote the HND, NRT and KIX hubs: a more aviation-focused strategy would be to offer point-to-point international air services directly to a regional airport. In similar fashion to high-speed rail, overnight highway buses have also expanded services to regional cities but have mostly targeted the 20-35 age demographic (JR Bus 2018), leaving other demographics uncatered for. Despite this increase in the supply of ground transport, an increase in visits to tourism hinterlands has not always followed. The steady *decrease* in domestic patronage of Japan's rail network over the last 20 years (Thomas, 2016) being evidence to suggest that rail is not as attractive to travellers wanting to make journeys within Japan as it was in the past.

2. Purpose and scope of study

As an alternative to handling increased visitor numbers through increased domestic transport supply, the current essay proposes greater utilization of Japan's regional airport network as international gateways. By doing so regional tourism resources can become more accessible, and the regional imbalance in visitors can be addressed. To examine this the current essay employs open source MLIT statistics (MLIT, 2018b) for the 10-year period 2007 to 2016 and narrates the evolution, characteristics and contemporary international usage of Japan's airport infrastructure. In doing this it is hoped the potential of Japan's regional airports to welcome international flights can be presented.

3. Japan's Airport Infrastructure

Japan currently boasts a nationwide network of 97 civilian airports incorporating some of the most modern and sophisticated facilities in the world (Yamaguchi, 2013). In 2007 under Japanese Aeronautical Law these facilities were categorized into 4 classes: "Hub", "Regional", "Local" and "Joint-use", with hub airports (5 locations) the most important in terms of size, passenger traffic, cargo and revenue earned. A further 24 regional airports and 15 joint-use facilities were designated as additional international gateways, making a total of 44 international entry points. The remaining 53 local airports were categorized as suitable for domestic operations only. At the same time, a total of 66 of the 97 airports were deemed able to accept jet aircraft, and thus should be considered as *de facto* international operations facilities. Other arguments notwithstanding, this suggests a surplus of at least 22 potential locations for international arrivals/departures (Table 1).

Table 1: Airports in Japan by type

Airport category	Role of airport	Number of Locations	Jet aircraft enabled	Example Airports
Class 1 "Hub"	Mainly International operations	5	5	Narita, Kansai
Class 2 "Regional"	Domestic and some int'l operations	24	23	Hiroshima, Sendai
Class 3 "Local"	Domestic operations	53	32	Saga, Toyama
Class 4 "Joint-use"	Shared with JSDF. Civilian domestic use with limited int'l operations	15	6	Omitama, Chitose
	Total =	97	66	

Source: MLIT Airports in Japan (2007).

Although Japan has successfully built up an extensive nationwide network of airport infrastructure in the years since the end of World War 2, by global standards this infrastructure is surprisingly sparse. According to the World by Map database (2018) in terms of "airport density" (i.e. airports per million population), Japan ranks internationally in the lower 15% with just 1.4 airports per million inhabitants. This compares unfavorably with similarly developed nations such as France or the UK which each have an equivalent figure of 7.3. This low-density of airports suggests air connectivity in Japan is less well-developed than might be imagined.

4. A narrative of airport development in Japan

The low density of airport infrastructure in Japan can be explained by a range of historical and policy imperatives. Firstly, under the terms of surrender at the end of World War 2, the development of civil aviation in Japan was severely restricted. Thus while countries such as the UK and United States expanded their civil aviation capability, Japan was unable to do so until 1951. This delay was compounded by the Korean War and strict Japanese government controls imposed on aviation for more than 3 decades after the war. Moreover, not only did central government own and operate the airports during this time but it also controlled the rights to, and allocation of, international and domestic routes. Since airports were run as state entities, infrastructure development policies for new facilities tended to be time-consuming, costly, and inflexible, and upon completion were often outdated (Yamaguchi, 2013). These circumstances contrast starkly with those of the UK, which even before the end of World War II, had positioned itself to become the *de facto* center of global aviation. London's Heathrow Airport was, for example, already operational in 1946, and by 1953 Britain as a whole handled 200,000 civilian aircraft movements per year – more than Japan in 2007 (Rutherford, 2011).

In addition to issues connected with public ownership and management, airport infrastructure projects in Japan have often been in response to public controversy. For example, the decisions to develop NRT and KIX in the 1960s and 1970s were made in reaction to lawsuits filed by citizens concerning noise at the existing HND and Itami (ITM) airports respectively. NRT's development was then hampered further by vocal public disputes over land ownership. Today, even 40 years after its inauguration, NRT continues to be plagued by the same disputes begun two generations ago. This malaise is not helped by a general public impression of undemocratic decision-making and government high-handedness in matters concerning aviation (Shibata, 1999). Thus airports - and their development - have been negatively stigmatized by the public while at the same time, operations have been bureaucratically stymied. As Shibata (1999, p.134) suggests, "the supply and demand balance [at Japanese airports] is politically maintained".

Meanwhile at the juncture of the mid-1980s, two important changes occurred which had a

significant effect on the role of international airports: firstly, the depreciation of the dollar against the yen after the Plaza Accord; and secondly, the privatization of the state carrier, Japan Airlines. These changes paved the way for increased outbound travel and a more competitive aviation market environment. As a result, in the period 1989 to 2009, 12 new airports were planned, developed and built around Japan including large-scale hub facilities at KIX (1994) and NGO, Chubu Airport (2005).

This increase in new airport capacity was later supported by the emergence of budget airlines such as Peach and JetStar (2012) and the ASEAN Open Skies Agreement (2015), both of which encouraged international travel while providing passengers with greater choice and value. However, it is the *Airport Operation Private Utilization* (AOPU) *Act* passed by the Diet in 2013 which is perhaps the most significant development in recent years. The act lifted strict central government control and allowed 28 former publically owned airports to tender operations to private operators, and in doing so join hub airports already operating under similar agreements (Nikkei, 2013). In freeing up all aspects of operations to private enterprise, regional Japanese airports can now work more closely with local government and other entities and "realize their full potential" (MLIT, 2013). As Smith (2018) shows such change can contribute considerably to the internationalization of regional airports.

The key strategic aim of the AOPU however is not just to "realize potential" but also to "shift the emphasis of Japan's airports from development to operation". Thus in place of building (i.e. "development") new infrastructure it proposes more efficient *utilization* (i.e. "operation") of current infrastructure. This policy shift is significant since airport "development" has been the status quo in Japan for over 50 years. This change in thinking is based on the belief that sustained growth of domestic aviation demand cannot be "anticipated" (MLIT, 2013) and with an ageing and declining population aviation demand is most likely to fall in the future (Kato et al, 2011). However, with an additional 30 million foreign visitors expected annually by 2030 there is good reason for greater optimism. This can be possible by directing inbound demand to regional airports capable of international operations. In this way, utilization rates can advance and the *Airport Operation Utilization Act* (2013) can be strategically dovetailed onto components of regional policy in the 2016 *New Tourism Strategy to Invigorate the Japanese Economy.*

5. Current international use of Japan's airports

As a country with almost 210 million domestic air passengers (MLIT, 2018b), and as home to three of the world's busiest domestic routes (HND/CTS, HND/FUK, and HND/OKA), Japan can be considered as a global domestic aviation leader (Adams, 2018). By contrast, as a result of its poorly performing outbound tourism sector (+2.4% in the 20 years to 2016 (Williams, 2018)), and a historically small inbound market the country's international aviation profile is somewhat less prominent: Narita airport for example is modestly ranked as the world's 18th busiest hub.

In the 7 years since 2011 however the circumstances of the inbound market have changed dramatically. Although outbound tourism growth remains relatively sluggish, annual inbound tourism growth rates *averaging* 30% between 2011 and 2016 mean Japan is currently the 15th most visited country in the world. Given this new context for Japan's tourism, Table 2 describes international passenger growth and the number of flights at Japan's top 20 international airports for a 10-year period which includes this dynamic growth cycle.

Table 2: Top 20 international airports in Japan in 2007 and 2016 (passenger /aircraft movements)

Airport Name	Passenger numbers (x1000)		Passenger growth (%)	Number of flights (per year)		Growth in number of flights (%)
	2016	2007	2007/2016	2016	2007	2007/2016
Narita (NRT)	29574	31104	-5%	96275	90169	7%
Kansai (KIX)	18654	10848	72%	64628	38985	66%
Haneda (HND)	15175	1829	730%	39377	3900	910%
Chubu (NGO)	5185	5339	-3%	19584	20737	-6%
Fukuoka (FUK)	4991	2260	121%	16383	8214	100%
Naha (OKA)	2928	292	903%	10396	1370	659%
Chitose (CTS)	2580	802	222%	7170	2842	152%
Hiroshima (HIJ)	318	359	-11%	1583	1844	-14%
Shizuoka (FSZ)*	278	115	142%	1325	547	142%
Takamatsu (TAK)	202	39	418%	773	194	298%
Hakodate (HKD)	201	130	55%	775	674	15%
Kagoshima (KOJ)	193	91	112%	853	426	100%
Okayama (OKJ)	193	218	-11%	931	961	-3%
Sendai (SDJ)	187	352	-47%	808	1335	-39%
Komatsu (KMQ)	187	88	113%	964	558	73%
Omitama(IBR)**	165	59	180%	578	218	165%
Asahikawa (AKJ)	152	88	73%	548	344	59%
Niigata (KIJ)	115	231	-50%	583	1118	-48%
Toyama (TOY)	112	136	-18%	546	849	-36%
Miyazaki (KMI)	95	73	30%	411	311	32%
Japan Top 5	73579	51380	+43%	236247	162005	+46%
All Others	478	408	17%	2223	2001	1%
Total	**81963**	**54861**	**49%**	**266714**	**177597**	**50%**

* Shizuoka Airport began full operations in 2009. Figures for 2007 are from 2009.

** Omitama began civilian operations in 2010. Figures for 2007 are from 2011.

Table 2 clearly shows the impressive growth in the number of both international passengers and international flights in the 10-year period to 2016. During this time the former grew by 49% to 81.96 million, and the later increased from just under 178,000 in 2007 to almost 267,000 in 2016 (+50%). This overall pattern has not however been witnessed across all regions or localities; some airports have seen exceptional expansion in the number of international flights/passengers handled, while others have seen contraction. Table 2 also highlights the dominance of Japan's 5 main hubs (NRT, HND, KIX, NGO, FUK) which together account for around 90% of all international flights/passengers.

Those airports that have enjoyed significant growth in flights include, Haneda (+910%), Naha (+659%), New Chitose (+152%), Omitama (+165%), Takamatsu (+298%) and Fukuoka (100%). Some local airports such as Saga (+700%) have also grown rapidly, thus examples of international growth can be seen at all four classes of airport. The rise of low cost carriers (LCC) since 2012 is one factor in this growth, as is the liberalization of air traffic in Asia through the Open Skies agreement. In both cases however it is the supply of inbound tourists rather than outbound demand which is the key driver.

A second important conclusion to draw from Table 2 is the dominance of four airports in increasing the number of passengers. Excluding figures for NGO and NRT (which both experienced declines in passenger numbers), it is apparent that HND, KIX, FUK and CTS accounted for 95% of the increase in international passenger numbers and 83% of the increase in international flights between 2007 and 2016. At the same time non-hub airports were responsible for the remaining 17% increase in international flights but only 5% of international *passengers*. Aircraft size and other infrastructural restrictions may explain some of this discrepancy, but it tends to emphasize the fact that the number of gateways available to international passengers remains limited. The potential for hitherto relatively unused regional airports to act as international gateways would therefore seem to be considerable.

To contrast those Japanese airports experiencing international expansion, several leading airports have struggled to maintain their international flight profiles. This includes Niigata (-48% decline in flights over 10 years), Sendai (-39%), Toyama (-36%), Hiroshima (-14%) and Chubu (-6%). Even NRT – Japan's leading international gateway – has seen a decline in international passenger traffic of 5%. This lattermost example is largely due to the 2010 re-internationalization of HND which encouraged foreign legacy carriers such as Lufthansa, British Airways and Delta to relocate routes (and thus passengers) to the city airport.

The decline of Toyama and Niigata are also ironically tied to HND's re-internationalization. The two cities have had close economic ties - and hence air routes - with the Siberian cities of Vladivostok and Khabarovsk spanning more than 30 years, but when flight "slots" became available at NRT in the wake of airline relocations to HND, former Siberian carrier Vladivostok Airlines ceased scheduled operations at Niigata and Toyama in favor of expansion at NRT. At the same time the completion of

the Hokuriku *shinkansen* in 2015 added to the decline in the number of international flight charters originating from Toyama. Instead of flying internationally from the city, Hokuriku citizens can now use the new bullet train link to Tokyo and fly from a global hub. Meanwhile, to compensate for the loss of Russia bound flights Niigata has, since 2012, offered a daily flight to NRT timed to connect passengers to a range of international destinations, including Russia. Positive passenger numbers on the 250km route during the first five years of operation suggest the strategy has been a resounding success (Niigata Prefecture, 2016).

It is however Tohoku's four main international gateways (Aomori, Akita, Sendai and Fukushima) that have experienced the most significant declines in international patronage (Table 3). On average the four facilities saw a reduction of 60% with Fukushima (-94%) experiencing an almost complete withdrawal of international operations. The principal cause of this decline was the loss in visitor confidence after the 2011 Great East Japan Earthquake, which temporarily affected all international flights to Japan, but had a much longer lasting impact on Tohoku, particularly Fukushima which has found it difficult to shake off the international stigma associated with its name (BBC, 2018). This may be changing however as both Vietnam Airlines and Far East Air Transport (Taiwan) offered charter flights from Fukushima in their winter 2018/2019 schedules (Fukushima Airport, 2018) indicating that the city is finally beginning to re-establish itself as a regional international entry point.

Table 3: Airports experiencing international flight attrition 2007/2016 (flights/year)

Airport	International flights per year		Growth in flights
	2016	2007	2007/2016
Fukushima	22	342	-94%
Akita	58	174	-83%
Nagasaki	178	358	-50%
Niigata	583	1118	-48%
Sendai	808	1335	-39%
Toyama	546	849	-36%
Aomori	190	272	-30%
Matsuyama	225	288	-22%
Hiroshima	3166	3688	-14%
Chubu (Nagoya)	19584	20737	-6%
All Airports	266714	177597	+50%

MLIT (2018b)

Note: Table 3 shows those airports averaging no less than one international flight per week in 2007.

Matsuyama (-22%) highlights another problem for Japan's regional airports: weak local demand for international flights. In 2011 Matsuyama airport (MYJ) offered one scheduled international service (to Seoul Incheon (ICN)) and was the main international entry point to Shikoku. Although the city was not directly affected by the 2011 Great East Japan Earthquake, the airport saw a decline in international patronage, and when an LCC-operated Takamatsu/Seoul route was inaugurated in 2014, weak local demand led to the MYJ/ICN route being periodically discontinued. A new scheduled MYJ/ICN service has since been reestablished, but this is largely a result of inbound supply. This lack of elasticity in local demand for international air services is a pattern repeated in other regions of Japan with top-heavy demographic profiles such as Sanin and northwest Tohoku.

On Kyushu, Nagasaki (NGS) is a curious case of a city airport struggling to develop its international profile. Despite the advantages of having an internationally recognizable name and being in an ideal geographic location close to Japan's key source markets, between 2007 and 2016 international flights declined 50% (Table 3). At the same time the airport ironically turned a profit (MLIT, 2017) – an experience repeated at Nagasaki's sister city, Hiroshima (HIJ). Might it be that hosting international flights is a financial liability for some regional airports, and that it is better to allow a nearby hub to handle them instead? With the Nagasaki branch of the bullet train due for completion in 2023, it seems NGS will need to innovate if it is to attract and sustain direct international flights in the future.

In addition to the airports described in Tables 2 and 3, there were no fewer than 18 other less well-known local airports nationwide that offered international flights in the 2007-2016 period. For example, Ishigaki (144 international flights in 2016) and Oita (200 flights from locations in East Asia) both have burgeoning international operations, while others such as Kitakyushu have seen flight numbers fluctuate (850 flights in 2013, but 230 three years later). As we have already seen in Nagasaki and Hiroshima, proximity to well-known tourist resources is also no guarantee of securing direct international routes. The two Hokkaido regional airports at Obihiro and Mamonbetsu for example have offered fewer than 30 international flights per year. Similar trends can also be found at Hanamaki, Matsumoto and Nankai Shirahama, which have offered no more than 5 international flights each per year.

The current circumstances described here demonstrate both the successes and failures of regional Japanese airports to globalize their operations. Despite some negative outcomes the strategies employed can form a body of experience to push the internationalization process forward on a larger scale. There are however, first, some challenges particular to the Japanese aviation environment that need to be overcome.

6. Challenges

Over the period 2007-2016 Fifty-seven different Japanese airports operated international passenger flights (MLIT, 2018b). However, as we have seen the majority of these airports play a minor role, with just 20 facilities accounting for 99% of all international movements (Table 1). Currently (December 2018), 37 airports nationwide offer international flights (Flyteam, 2018) suggesting that there are no fewer than an additional 20 facilities capable of handling international flights and passengers (i.e. they have customs, immigration and quarantine [CIQ] facilities). Given the current throughput of 266,714 flights (Table 2), there appears to be considerable latent potential for future growth.

This potential however is not easily measured. It is a function of both tangible factors relating to physical airport infrastructure such as runways (longer runways tend to allow more movements), aprons (wider aprons facilitate faster throughput of aircraft), and terminals (including gates and their usage), and less tangible factors such as regulatory constraints on air traffic, or the conditions of passenger ground transportation to/from an airport (Mirkovic and Tosic, 2014). Moreover - though not the focus of the current paper – foreign awareness of a region a given airport serves, the region's destination marketing organizations' (DMO) activity abroad, and the regions' ability to welcome foreign visitors all influence the potential an airport has to receive international flights (Andonian et al, 2016).

6. 1 Runways

The prevalence of sufficient runway-apron facilities is a key factor in an airport's ability to offer direct international flights (Mirkovic and Tosic, 2014). In Japan however, as 2/3 of airport facilities have runways of 2000 metres or longer, i.e. they are capable of handling medium sized jet aircraft (150-200 passengers) which typically ply routes to Japan's key tourism source markets, this factor does not present a major constraint to international expansion. A more pressing problem for Japan in expanding regional airports international capability is the airport gate.

6. 2 Gates – "single use" and "common use"

With the exception of gates from which passengers are bussed to the terminal (i.e. "remote" gates), one airport terminal gate may appear very similar to any other at any other airport. However, on closer inspection we can find gates have important usage differences determined by the size and number of aircraft they can handle and operational constraints according to airline affiliation.

With regard to gate size it is important to emphasize that not all gates can accommodate all aircraft: some gate types may only be suitable for a certain aircraft size while others may be able to handle several aircraft types. Thus an airport with gates that can only accommodate small aircraft will be unable to expand beyond a given capacity, while one with a surplus of gates for larger aircraft may

find it difficult to develop new low demand or “thin” routes. To achieve full potential it is clear a flexible mixture of gate sizes is preferable.

In addition to gate size, “gate usage policy” is a key concept in understanding the potential passenger throughput of an airport. There are two principal approaches to gate usage: “single use” and “common use”. The former describes gates designated for the exclusive use of a particular airline or airline alliance, a particular destination, or those dedicated for international or domestic operations only. On the other hand, “common use” gates, as the name suggests, allow usage by any airline (or alliance), or to any destination. The “common use” gate is thus a more flexible and efficient means to maximize throughput of aircraft and thus passengers. Despite the flexibility offered by a “common use” approach, Japan’s regional airports tend towards “single use” gates according to aircraft type and/or airline operator. To add to this, since many Japanese regional airports have dedicated “single use” international gate(s) - but limited international traffic – considerable underutilization and inefficiency can result.

To illustrate the issue of gates in determining airport capacity potential, lets consider the case of Miyazaki. Miyazaki airport is equipped with 10 boarding gates, seven of which are connected to the terminal by a passenger boarding bridge (PBB) and, three of which are “remote” gates. Of the seven gates connected to the terminal, five are designated for large aircraft (250 seats or more), and two are for medium sized aircraft (100-200 seats); the three remote gates are for the use of smaller aircraft of 60-80 seats. Thus if an operator proposes a new route for a medium sized aircraft at a time when the two gates designed for medium sized aircraft are in use, the operator will have to either: operate a larger aircraft type - and thus risk lower load factors and profits; alter the flight schedule to ensure gate/aircraft compatibility; or rethink its proposal completely – possibly operating the service from a local rival (such as, Kagoshima) instead. Single use international gates exacerbate this situation even further.

On the other hand, if an airport operates a “common use” gate policy (such as Okayama) it will offer greater flexibility. Although Okayama has just 7 gates - only 3 of which are connected to the terminal - all gates can accommodate all aircraft types and are not carrier specific. There is also no dedicated international gate and this has allowed international routes to develop more easily.

If local airports are to expand their international profiles, adaptive changes to promote a “common gate” policy are thus necessary. This needs to be supported by development to terminal infrastructure such as the provision of CIQ facilities, and consideration of airside and landside separation. After the changes in legislation brought about by the 2013 AOPU regarding airport operations ownership, it is expected that such adaptations will be simpler to implement, and will even allow for foreign investment in Japanese airports. Many regional airports in the UK are run by non-UK operators and there is evidence Japan is monitoring the success of such ventures closely (MLIT, 2013).

6. 3 Other challenges

In addition to the condition of the physical airport infrastructure, two further non-infrastructural factors are vital in assessing the scope for the expansion of international flights from Japan's regional gateways.

First, is the constraint presented by Japanese regional airports' operating hours. Officially, Japan has eight airports capable of 24-hour operations and although these eight offer a limited number of cargo flights through the night, only HND and KIX can be considered as offering a bona fide 24-hour passenger service (MLIT, 2018b). On the other hand, the majority of Japanese airports operate 12 to 14 hours per day, typically from 07:30am or 08:00am to 21:00 or 21:30. These limited hours of operation reduce the potential for international flights a fact that is particularly significant in the era of LCC operations since such carriers strategically utilize off-peak hours to maximize fleet utilization and profit. Thus a major regional gateway such as Sendai, which opens at 07:30am, is unable to facilitate the first 'wave' of LCC flights, which typically use departure slots between 06:00am and 07:00am. Similar limited hours of operation also constrain Hokkaido's regional airports and make it difficult to attract non-domestic LCC business originating in cities such as Hong Kong or Taipei. This leaves international visitors needing to connect through a hub such as HND or CTS slowing the internationalization potential of regional airports.

A second constraint is the restrictive rules governing the use of airspace around Japan. This is particularly evident at HND where proximity to the US military base at Yokota affects the flight paths of departures and arrivals to the civilian airport. Although changes are planned to make better use of the airspace (MLIT, 2018a), some restrictions will likely remain in place to placate local residents' concerns over aircraft noise. Any remaining restrictions could however offer an opportunity for regional airports located relatively near major hubs to expand their own international operations. International expansion of Shizuoka or Matsumoto might be an effective way to reduce congestion at HND, alleviate noise concerns and, by default, redistribute foreign visits to Japan. The announcement of new scheduled international flights to Kobe (MLIT, 2018c) in 2020 suggests such a process to facilitate this outside the Kanto region may already be underway.

7. The international potential of regional airports

Gate policy, aircraft size and airport operating hours are central to the widely adopted United States Federal Aviation Authority (FAA) graphical method for estimating potential throughput of aircraft – and hence passengers – at airports (Mirkovic and Tosic, 2014). This method is based on the formula: N x G x S = hourly capacity, where N is the number of gates, G is the number of aircraft a gate can handle per hour, and S is the gate capability ratio (based on aircraft size). Thus, it follows that the

length of time a gate is occupied will have a strong bearing on potential airport throughput.

Using MLIT figures but excluding Japan's five leading international hubs (NRT, KIX, HND, NGO, FUK) there were 52 regional, local and joint-use airports nationwide with sufficient runway, CIQ and other international facilities that accepted international flights in one or more years between 2007 and 2016. In 2016 these 52 locations accepted 23,297 international passenger flights. At the same time, proxy figures from the Flyteam airport database (2018) indicate the mean number of international flights at Japan's 5 leading airports was between 3 and 6 flights per gate per day (mean = 4.1 flights /gate/day). If we assume the lower value of 3 flights per day as a realistic baseline for the remaining 52 airports and that each airport has one gate for international operations, based on the FAA method, we can expect the potential annual number of international flights in Japan to be 1 (gate) x 3 (flights) x 7 (days) x 52 (weeks) x 52 (airports) = 56,784 flights. This is more than twice the recorded value for 2016 (23,297). Regional airports, it would seem are operating considerably below their potential.

For a number of reasons, this resultant figure of 56,784 flights may however be a cautious *under*estimate. For example, not only do Sendai (5 international flights per day), Hiroshima (5), Kitakyushu (4), and Kagoshima (4.5) already exceed the 3 flights/day benchmark, but Shin Chitose and Naha with 54 and 29 international flights/day respectively have profiles more similar to one of Japan's leading gateways than to their non-hub status (Flyteam, 2018) In addition to this there is a process of bringing international flights to new airport locations such as Kobe and since many regional airports are set up to serve medium sized aircraft (up to 200 seats) such as those in LCC operator fleets, this will offer even greater potential. Takamatsu and Saga are two such airports already taking advantage of expanded LCC operations for example. With greater adoption of extended operating hours it does not seem unreasonable to suggest that regional airports might be able to sustain as many as 100,000 flights per annum in the near future.

This optimistic estimate does not of course take into account the international *demand* for flights *to* Japan's regions. For such demand to be realized the inbound tourism advertising and publicity strategies of individual regions need to be active internationally. Japan's regional tourism resources are poorly recognized outside Japan (Andonian et al, 2016), and without raising awareness of their existence among overseas markets regional airports' will remain underutilized. In addition, the will and desire of a region and its people to embrace the inbound tourism economy are vital to ensure any such recognition is translated into repeat visits (Mainichi, 2016), and an economically sustainable tourism strategy.

Inbound demand to Japan is highly buoyant and JNTO (2018) is already indicating the number of international visitors in 2018 will reach 30 million for the first time. Even outbound tourism from Japan, which contracted by 200,000 in the 10-year period to 2016, has grown 5% per year since 2016 and in 2018 is likely to attain a new high of more than 18.5 million travellers. These figures suggest

that a greater familiarity with inbound tourism and a greater propensity towards outbound travel is beginning to take hold throughout Japan, which can only add to the attractiveness of regional airports as new gateways to the country.

8. Conclusion

Rather than outlining the potential of Japanese regional airports to host international flights according to economic measures or marketing strategies, the current paper focused on how existing regional airport infrastructure and the new political circumstances surrounding tourism may help establish a new component of Japan's buoyant tourism economy: the internationalization of Japan's regional airports. Other important factors such as security, airspace restrictions and rights affecting passage between nations such as Open Skies agreements were considered beyond the scope of the current study but would be very worthy of inclusion in any similar future assessment.

From the discussion presented here, we can see the contribution made by the majority of Japan's regional airports towards the country's international flight profile has been limited. There is however no reason why the experience to date cannot be used as the foundation for a strategy to manage the expected increase in visitor numbers in the near future. If more regional airports play a role in inbound tourism, the regions they serve can develop their own tourism economies while alleviating visitor pressure in major cities and their respective hub airports. Based on the FAA calculation we can see a doubling in size of the contribution made by regional airports in receiving inbound tourists is within reach, and often without major infrastructural changes. If this potential can be harnessed, the regions and the national tourism economy can benefit.

In addition to improvements to terminal infrastructure, rethinking on gate usage, extended operational hours and greater flexibility are key. Investment in new CIQ facilities is also a vital part of any such strategy. Under the provisions of the 2013 AOPU Act, regional airports can now actively seek private funding and this should ensure adaptations are easier to implement than before. Moreover, as regional airports can now look beyond Japan's shores for investment and innovation, they will be able to take on a more global outlook, influence a broader public, and thus enhance international recognition and civic pride.

Such developments will not however be realized without challenges. The upgrading of regional airports to international gateways needs to be made in tandem with the establishment of better regional Destination Marketing Organizations that have a global appeal, and which understand source markets' needs (Pike, 2004). By inserting new energy into Japan's regional economies, regional airports can take a leading role in ameliorating growing tourism stresses in Japan's tourism centers, while spatially distributing the benefits of the tourism economy. Finally, these changes can only be

realized if the will, cooperation and understanding of regional populations are secured. If this can be achieved, regional airports can be the stimulus for a better-distributed and a better-balanced tourism development nationwide that can benefit all stakeholders.

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