



Economic influences on air transport in Vietnam 2006–2019[☆]

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ABSTRACT

Vietnam has emerged from a long and complex post-colonial experience as a fast-growing economy now embedded in the complex network of economic linkages in the Asia-Pacific region. Those linkages involve trade, foreign direct investment, and tourism. Their underlying geography is reflected in the geography of Vietnam's air transport linkages. An early set of air connections with ASEAN neighbours, especially Singapore and Malaysia, are still significant, though routes to South Korea and China are now more important. Within the country, the colonial structure of Hanoi as a political capital, and Saigon (now Ho Chi Minh City) as a trading city, provided the framework for domestic air transport linkages. Here too the geography has shifted to include a set of smaller cities, especially those with tourism activities. The Hanoi-Ho Chi Minh City corridor is still dominant, and now ranks as one of the busiest domestic routes within the Asia-Pacific. These outcomes confirm the effect of economic development on air transport in Vietnam.

1. Introduction

The post-colonial story of Vietnam mirrors that of many other countries in the Global South. It experienced a war against a colonial power, then a civil war, followed by shifts in political economy towards, then away from, communism. During most of this period Vietnam was isolated from the trade and foreign direct investment (FDI) flows between firms and countries that generated rapid economic development in the Asia-Pacific region from the 1950s onwards. A new political perspective adopted in the late 1980s opened the country up to these regional connections and rapid economic growth followed. The purpose of this paper is to show how the underlying influences on Vietnam's national economic development is reflected in its international and national air transport. This is positioned within an understanding of Asia Pacific development, which is followed by background on Vietnam. The analysis then explores the interdependence between changes in international air transport and international trade, FDI, and tourism at the national and provincial scale.

2. Transport systems and post-colonial economic development

Perhaps the most famous understanding of the way a nation's transport system responded to colonial and post-colonial economic development was that created by Taaffe et al. (1963). Outlining an "ideal-typical sequence," they showed initial contact involved multiple

coastal gateways, each with tentative road and/or rail links spreading into a hinterland. The second focus of the model was on the competition between the gateways, shaped by uneven infrastructure investment and variation in the productivity of each hinterland market so that urbanisation trends favoured just a few places. Often a dominant city emerged. These approaches spawned a diverse array of work on transport system development, especially in Africa (Hoyle, 1973). This research heritage points to the movement of agricultural and mineral products from hinterlands to port cities for transport to European markets as a major influence upon transport development.

Though colonial structures in Asia bore much resemblance to this model, the post-colonial experience of countries in the Asia-Pacific region including the British, French, Dutch, and American colonies (and the post-war occupation of Japan) unfolded in a very different context. Here, state-directed national economic development (as outlined in the case studies in White, 1988) was associated with manufacturing and focused upon a few metropolitan areas. In little more than 40 years, that development lifted a remote "Far East" colonial corner of the world into a major economic bloc that spanned a long corridor along the Pacific (Wade, 1990; World Bank, 1993). The development of the region's air transport was grounded in this experience.

Manufacturing played a key role here not only as a generator of local development but also as the focus of an organisational structure (subsequently labelled a global production system (Coe and Yeung, 2015)). This system dispersed product development, assembly, and

[☆] This paper is dedicated to the memory of Kathryn Ann O'Connor (MBBS (Hons)) who at 45 lost a five-year fight with ovarian cancer in November 2019. The last months of her life corresponded with work on the response to reviews of this paper. At that time she contributed comments based on her experience as a traveller in Vietnam and displayed her great skill as a writer and editor. She is sadly missed.

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marketing across a range of countries usually sorted in terms of the cost and skill of the local labour force. Japanese, Korean, and Taiwanese firms, particularly in electronics, led the growth of the system via investments in South East Asian production sites (Edgington and Hayter, 2000). Later these production systems incorporated China and then Vietnam. This system involved flows of FDI and fostered “network trade” in parts, components, and semi-finished goods within the Asia-Pacific region (Athukorala, 2011: 65).

The movement of goods within these production systems was influential in the growth of passenger air transport, as trade and investment flows are closely associated with air transport links (Poole, 2010; Cristea, 2011). Trade requires managerial and technical staff to travel from head offices to distant production locations and markets to manage and oversee negotiations and arrange purchase or delivery. The intensity of contact led to the establishment of regional headquarters in some cities (Ho, 1998). This business travel illustrated the “co-evolution of the geographies of air transportation and corporate networks” (Liu et al., 2013: 26), which is confirmed by the finding of Matsumoto et al. (2016). It suggested that the business linkages between Asian cities are the most powerful explanation of the intensity of their international air connections. FDI in high technology manufacturing also involved the re-location of technical staff. This was shown in the experience of a cluster of firms surrounding Samsung Electronics in Suzhou (Kim and O'Connor, 2019) and Hanoi (Kim, 2020). The expatriate communities that develop around staff and their families are likely to add to the demand for air travel as well through visitations between friends and relations in their home countries. Hence the particular form of manufacturing production that emerged in the development of the Asia-Pacific region created a strong impetus to the development of air transport.

Manufacturing also stimulated air transport as it was mostly located in metropolitan areas (McGee, 1995b; McGee, 1967). The early roles of these cities were in colonial trade and administration (Dick and Rimmer, 2003), and as a result, they became the focus of early air services (O'Connor, 2019). From that start, many of these cities were used as hubs as airlines developed additional services across the Asia-Pacific region (Bowen, 2000). In an overview of the recent character of this urbanisation process, Gipouloux (2011, 8) observed “investments are today realised in *nodes* (multi-functional ports and airports) more than in *links* (roads and canals)”, especially as the cities have shifted from their traditional entrepôt role to that of a “service integrator”. That integration function ranged across the technical complexity of the regional manufacturing production system to the activities involved in organising trade. This was, in turn, expressed in the regional management of investment, all of which stimulated air transport links.

Tourism provided an additional layer in the process. It grew rapidly as regional incomes rose, and jet aircraft entered regional and international services, so that “between 1970 and 1975 alone, Asia-Australasia doubled its share of world tourism receipts” (Wood, 1979: 275). This activity was influenced by FDI flows, initially from Japan (Sadi and Henderson, 2001), an effect that is still felt today (Salleh et al., 2011). The projects created by this investment were predominantly located in metropolitan areas (Mullins, 1999), and the result stimulated the mobility of people, much of which was within the region itself. As early as 1975, “tourists from other South East Asian countries constituted 56% of arrivals in Malaysia, 42% in Singapore, 32% in Thailand, and 25% in Hong Kong” (Wood, 1979: 278). Asian Development Bank (2019) data show that intra-regional tourism travel remains the dominant component of the industry. These attributes meant that tourism growth closely paralleled air transport growth. This association was made explicit by several countries in the region (such as Singapore and Malaysia) where airlines and tourism were seen as part of national economic development strategies (Raguraman, 1997).

Finally, the underlying geography of the Asia-Pacific region had a part to play. The region's manufacturing growth spread across countries at a time when long distance rail and road connections were non-

existent, and the vast land mass of China had to be bypassed. The participation of Taiwan, Japan, and Korea in these production arrangements necessitated sea crossings. To comprehend the influence of this geography it is important to realise that the distance from Tokyo to Singapore is about the same as that from London to New York. The mobility of people for business, tourism, and family ties across long distances such as this depended on air transport.

Hence the economic rise of the Asia-Pacific region is associated with a set of cities dotted along a thin corridor that stretches from Japan in the north to Australia and New Zealand in the south. Here, primate cities tend to dominate their surrounding countries and regions. That corridor widened to accommodate China after 1978, and then incorporated a previously bypassed Vietnam after 1986. The core idea of this paper is that the economic links within the region's manufacturing, commercial, and tourism links had a strong influence upon the changes in the geography of air transportation to and within Vietnam. The rest of the paper begins with insights on Vietnam and is followed by an analysis of the overlap between changes in international air transport and the strength of economic links expressed in international trade, FDI, and tourism, as well as provincial level changes. A final section reviews the results and explores their impact on the future for Vietnam, while also looking at ways to deepen the analysis in future studies.

3. Methodology and data

This research utilized data on the change in the airline seats available between Vietnam and international destinations, as well as at domestic city airports, for the period 2006–2019. Hierarchies were created of the countries involved in the international links and of city airports in domestic travel, based upon the share of seats available. This step established the relative importance of each country pair and city, and how that had changed over time. To provide insight on economic development, annual data on trade, FDI, and tourism were aggregated over the time period into a single figure for each country or city involved. This provided a comprehensive picture of the economic activity that had taken place in Vietnam over that period and allowed hierarchies of countries and of cities to be produced. The analysis then rested on a comparison air transport seats available and the country/city hierarchies. Two sets of bar charts focussed the comparison. The international analysis was simplified by grouping a number of countries with very small numbers of seats into regional groups; for the city analysis, the calculations were carried out on airports that accounted for at least 1% of the total number of seats available in both years.

Data on the number of seats available on direct commercial flights to, from, and within Vietnam were drawn from APEX (2019) at both country and city levels for the period 2006 to 2019. This underestimates the actual scale of some international connections, most obviously in the case of the U.S., as there are no direct flights from Vietnam to the U.S. The implications of that situation are considered in the conclusion of the paper. Data on trade were drawn from the World Bank *World Integrated Trade Solution* database for exports and imports available up to 2017. FDI data were obtained from the Foreign Investment Agency, Vietnam Ministry of Investment and Planning, also available up to 2017. International Tourism Statistics were drawn from the Vietnam National Administration of Tourism available from 2008 to 2019. Within Vietnam the focus shifted to provinces that surrounded the airports, and data on population and tourism were obtained from the General Statistics Office of Vietnam. The research struck a problem with provincial tourism data and had to rely upon data for a single year.

4. Vietnam: demography, development, and urbanisation

With a population in 2019 of 96.462 million (World Bank, 2019), Vietnam is among the twenty largest countries in the world, and among the most densely settled (World Population Review, 2018). It stretches 1650 km north-south in a mostly thin coastal strip. Its post-colonial

experience began with a war against the French in 1954, was followed by partition and a North-South war with the south supported by the U.S., which concluded in 1975 (Dacy, 1986). Further fighting continued in Cambodia in 1975 and along the border with China in 1979.

In the early years of the newly unified country, centralised state control was fundamental and rural development prioritised. Vietnam at this time looked to the COMECON group of countries rather than its Asia-Pacific neighbours for trade and political connections. Vanham (2018): 1) found that in 1975 “Viet Nam’s economy was one of the poorest in the world, and growth under the government’s subsequent five-year central plans was anaemic. By the mid-1980s, per capita GDP was stuck between \$200 and \$300.” Tri and Booth (1992) showed how policy evolved as the new national government settled into its role, deciding in 1986 to open Vietnam to market forces, in a policy package labelled *doi moi*. Among many changes, this provided a positive environment for trade and FDI. The effects of these changes were soon felt in a steadily expanding economy (Xuan and Xing, 2008; and Tan, 2010) and, in recent years, Vietnam emerged as one of the fastest growing economies in the world (Vanham, 2018).

Those economic changes were felt in growth in air transport, as can be seen in Fig. 1, which measures passengers carried on Vietnam’s own airlines. This data source is an underestimation of actual travel as it excludes foreign airlines, but it is not only an easily accessible source of data with a long time-horizon but it actually tracks the response of the Vietnamese airline industry. It shows that there was a lag in that response to the rise in GDP/Head that was felt in the early 1990s, as passenger numbers did not begin to expand until after 2007. Recent World Bank (2019: 55) analysis observed a “... a fourfold increase in the number of domestic traveller trips between 2008 and 2018” associated with the “rapidly growing middle class who have a strong appetite for travel”. The research outlined below explores the geographic character of trends over this period and their links to underlying economic development.

The trade, FDI, and tourism links discussed above stimulated production in cities and regions. The current urban settlement system of the country, which has deep connections with its colonial past, provided a framework for these effects. “The French colonial period from the early 19th century resulted in the development of an urban system created to serve the need of administration and trade. Thus, Hanoi became the administrative centre of French Indo-China while Saigon (former name of Ho Chi Minh City) grew into a major trading town in the south. The French established an urban transport system which is still the main part of the contemporary urban system in Vietnam” (McGee, 2008: 3). The colonial period had a tourism sector as well and cities and towns in hill and mountain locations developed as they provided a break from hot coastal cities (Peyvel and Lan, 2016). In an earlier work, McGee (1995a: 27) commented on the “inevitable

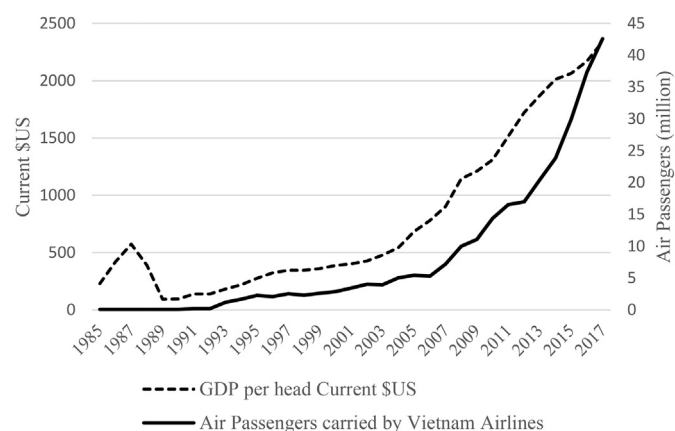


Fig. 1. Air Transportation and Economic Development Vietnam 1985–2017. (Source: Data derived from World Bank, *World Bank Open Data*)

urbanisation” associated with its early industrialisation and predicted the flows of FDI would stimulate the development of extended metropolitan regions around Ho Chi Minh City (HCMC) and Hanoi. Recent analysis of the HCMC and Southern Vietnam region (Harms, 2019) and the Red River Delta extending south east of Hanoi (Labbe, 2019) conform to that outcome. It is likely these two cities will figure prominently in the pattern of air transport.

5. Air Transport in Vietnam 2006–2019

5.1. The international context

This section investigates the international air links of Vietnam between 2006 and 2019 and compares them with indicators of its international economic engagement. The latter is measured by the aggregate value of trade and FDI flows between countries that had air connections with Vietnam over the period 2006–2017, along with the aggregate number of international tourists over the period 2008–2018. The aim is to compare two sets of figures to see the association between the change in air transport connections and the commercial underpinning of the country’s international engagement.

The underlying geography of the air connections between Vietnam and other countries in 2006 and 2019 is displayed in Fig. 2. As many of the air connections involved small numbers of seats (especially in 2006), those with less than 1% of the country’s total were merged into one of four aggregate groups: the other members of the Association of South East Asian Nations (ASEAN), labelled rest of ASEAN, the rest of the Asia-Pacific, Europe and the Middle East.

It is apparent that South Korea and China had emerged as Vietnam’s most important air destinations by 2019, both more than doubling their share of seats since 2006. That expansion has dampened the leading roles played by Thailand, a near neighbour, and Taiwan, a major manufacturing connection, in 2006. Japan, Singapore, and Hong Kong, countries that were important as Vietnam opened up to the Asia-Pacific region, also played a smaller role as the connections with South Korea and China expanded. The increased importance of China in the global economy matches its emergence as an economic influence upon Vietnam, facilitated in part as the two countries share a border. South Korea’s role is an outcome of a set of commercial and other connections that have developed between it and Vietnam over several decades (Kien et al., 2010). Europe maintains a steady but small share, mostly involving flights to France. Fig. 3 explores these economic connections in detail.

Fig. 3 displays the shares of the aggregate value of three measures of Vietnam’s economic connections. It shows that the prominence of South Korea and China in Vietnam’s international air transport rests upon twelve years of very strong connections in FDI and tourism with South Korea and trade and tourism with China. The smaller shares of air connections between Vietnam and other countries are associated with lower shares of trade and tourism over the recent past, although FDI connections remain significant for Taiwan, Japan, and Singapore. It is important to note that the large shares of South Korea and China in this analysis naturally depresses the shares registered for the other countries. It would be a mistake to see this figure as evidence of loss of connections with those countries, as the absolute scale of trade and tourism flows between Vietnam and Thailand, Taiwan, Japan, and Malaysia are still very important.

In Vietnam, just a few airports handle these international links. HCMC and Hanoi accounted for 75% of all the international seats available in 2019 although major tourism developments at Da Nang and Nha Trang have lifted their shares of international air traffic (Nguyen and Lo, 2017). Closer analysis shows the air transport links of these smaller cities are dispersed across a large number of destinations, whereas flights from HCMC and Hanoi tend to focus upon a few large cities. In overview, the international air links of Vietnam are concentrated in a narrow corridor of cities and countries to its north, and

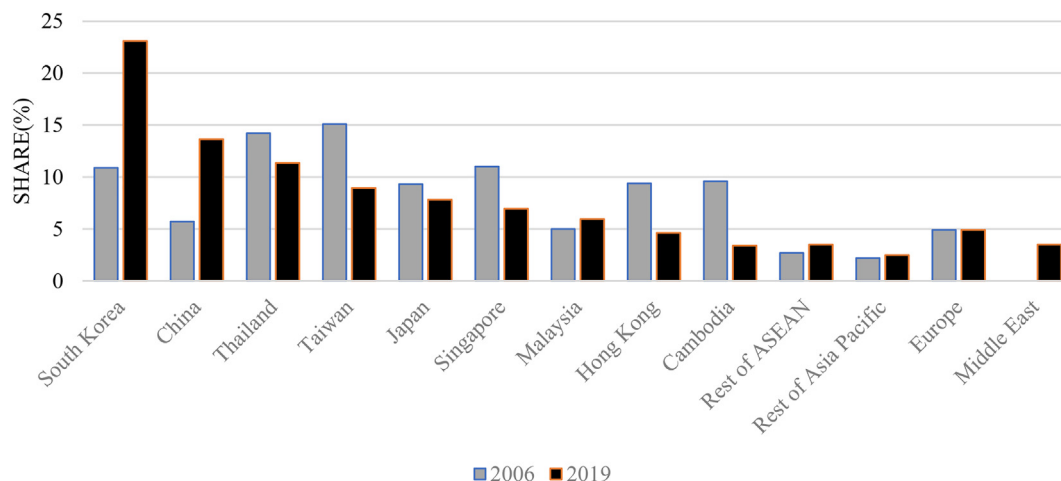


Fig. 2. Vietnam International Non-Stop Air Services Share by National Destination. Source: Data derived from APEX (2019)

across ASEAN countries.

5.2. The domestic context

The basic economic geography of recent domestic air transport is displayed in Fig. 4 that shows the share of the total domestic seats available at the fourteen cities that accounted for at least 1% of all seats in 2019. These fourteen cities accounted for 96% of all seats available on commercial airlines in 2019. It is obvious that HCMC and Hanoi are the dominant nodes in the country's domestic air transport. Their combined share of the total number of seats fell from 69% to 57% in 2019, as smaller cities expanded their roles. However, they remain fundamental to the national network, which can be seen in the fact that this route was recently ranked the 6th busiest domestic route in the world (Rosen, 2019) and the fourth most valuable route in Asia (based upon the income earned by the main airline on the route (Grant, 2019)).

Fig. 4 also shows that several smaller cities have recorded increased shares of the total number of seats, but still only three cities account for at least a 5% share of the total. Da Nang retains its position as the third most important airport, while Nha Trang is the only other airport with 5% or more of the country's seats.

Three dimensions of regional economic development in provinces

surrounding the cities are used to explore the link with the air transport data. These are population change 2006–2017 (indicating a response of the local population to economic opportunities), the aggregate value of FDI flow between 2006 and 2018 (indicating the links to international investment), and a measure of tourist numbers in 2016 (limited to a single year due to data access problems) providing a partial indicator of the development of the tourism sector. The numbers displayed in Fig. 5 are the share of national activity on each measure in the province surrounding each city; for HCMC and Hanoi the government definition of the metropolitan region was used. The major insight is the strength of the metropolitan regions of HCMC and Hanoi within the Vietnamese regional economy. They have accounted for around 50% of the country's population change, around 65% of its flow of FDI, and 45% of its tourists that, together, provide a firm foundation for the large shares of seats available on domestic air services shown earlier in Fig. 4. The HCMC metropolitan area is especially prominent as a focus for FDI, indicating the key role the region plays within the regional development of the Vietnamese economy. It is not surprising that it is Vietnam's busiest international as well as its major domestic airport.

A close study of Fig. 5 shows that for several of the smaller cities (Nha Trang, Haiphong, Dalat, and Thanh Hoa) the national share of tourist visitors is more prominent than their role in population change or FDI flows. Analysis of tourism development in Vietnam confirms

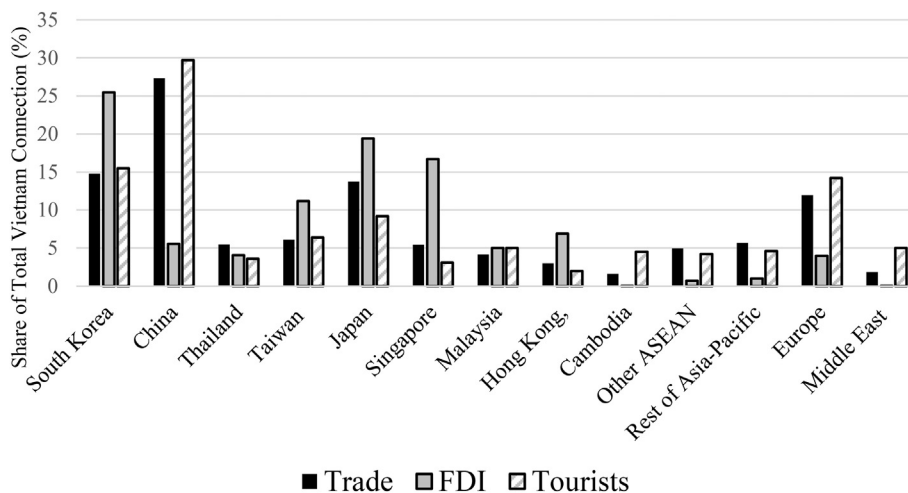


Fig. 3. Economic Connections with Vietnam 2006–2017. (Source: Data derived from: Trade: World Bank World Integrated Trade Solution; FDI: Foreign Investment Agency, Vietnam Ministry of Investment and Planning; Tourists: Vietnam National Administration of Tourism)

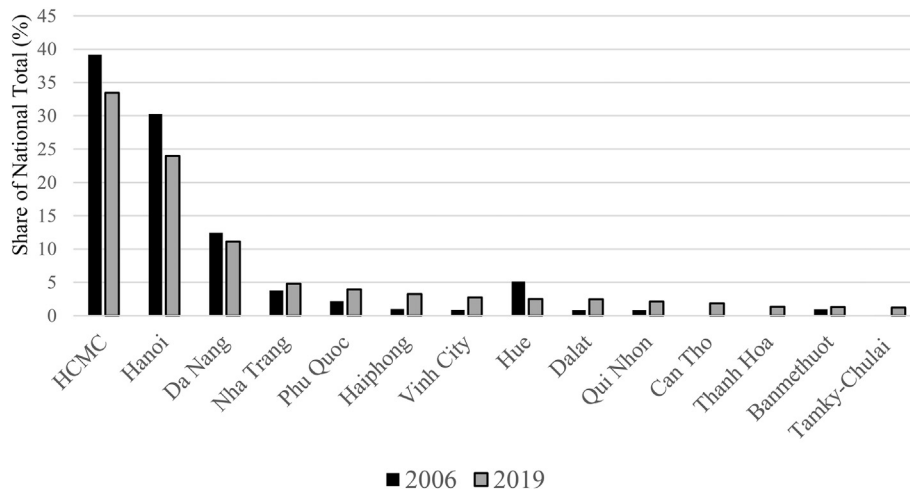


Fig. 4. Hierarchy of Domestic Air Services 2006–2019. Source: Data derived from APEX (2019)

these cities are important tourist centres (Ng, 2008). As noted earlier, Vietnam’s tourism industry has expanded rapidly in recent years, with international visitors increasing by 11 million and a four-fold increase in domestic tourism between 2008 and 2018 (World Bank, 2018). Peyvel and Lan (2016: 38) showed that this development has contributed “...to the strengthening of the Vietnamese urban hierarchy: its flows, infrastructures and revenues are more concentrated in the East than in the West of the country, that is to say the most urbanised part of the country”.

That “strengthening” effect can be seen in the geographic concentration of the airports in a narrow coastal corridor, which is apparent in Fig. 6. A World Bank (2018): 23) study showed that this broad region stands out as the wealthiest part of Vietnam, noting that “the Red River Delta and Southern regions comprise nearly 40 percent of the population but only 6 percent of the poor, while Midland, Central Highland and Northern Mountains comprise 20 percent of Vietnam’s total populationyet were home to 56 percent of the poor population”. Hence the early urban primacy observed by McGee (1995a) has molded the forces of economic development and, in turn, shaped the air transport system. In summary, the geography of Vietnam’s air transport reflects its engagement in Asian economic development, via manufacturing, FDI projects, and tourism, and how that engagement is expressed in regionally concentrated urban development. Although the

sheer scale of air travel has increased substantially since 2006, its international and national geography retains most of the features that were apparent in 2006.

6. Policy liberalisation as an influence on Vietnam’s air Transport development

The economic influences analysed above were shaped by the Vietnamese Government’s attitude to the regulation of the industry. Its policy drew upon Vietnam’s membership of ASEAN, which established and implemented an open skies policy among member nations (Henderson, 2014; Tan, 2010; Forsyth et al., 2006). This was finally ratified by all countries in 2016, although some countries had begun to implement the policy earlier (ASEAN Transport Ministers, 2016). The agreement at this stage means “carriers can fly between their home countries and any point in another ASEAN country” (Waldron, 2016). The ASEAN policy has, among other outcomes, stimulated the growth of low cost carriers (LCCs). In 2019, Asian airports accounted for seven of the world’s top ten most connected LCCs; five (Kuala Lumpur, Manila, Singapore, Bangkok, and Jakarta) are located within a short flying time to Vietnam’s cities and tourist destinations (Fulton, 2019). Proximity to this rapid expansion of LCC operations added breadth and depth to Vietnam’s international connections, especially influencing

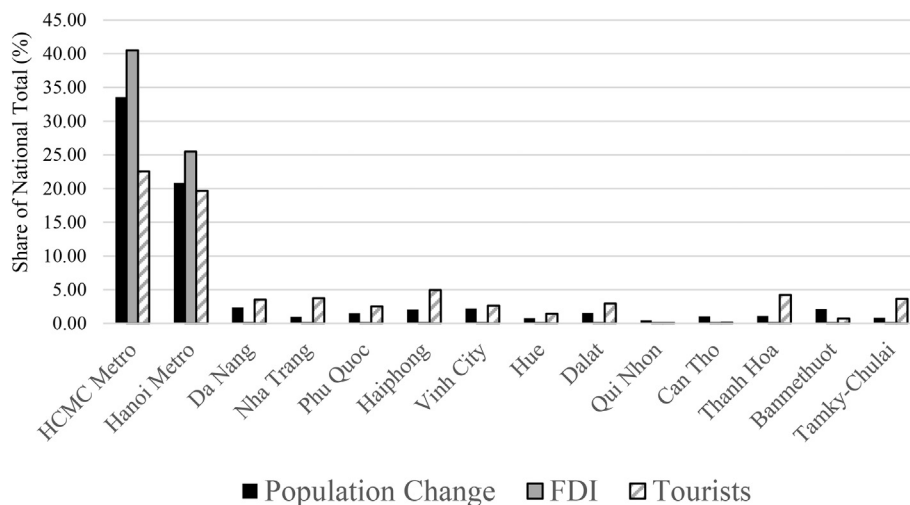


Fig. 5. Economic Change in Provinces Surrounding Vietnam Cities 2006–2017. Source: Data derived from: Population and Tourism: General Statistics Office, Vietnam; FDI as for Fig. 3.



Fig. 6. Vietnam Airports.
Source: Data derived from APEX (2019)

tourist demand (Forsyth, 2006). The international policy recently added a package of measures to facilitate the access for other new airlines, justified mainly in terms of bringing visitors to the nation's tourist industry (Vietnam Law and Legal Forum, 2019).

The Vietnam government also liberalised its domestic air transport industry. An initial step was an approval of a joint venture between Qantas and Vietnam Airlines to create an LCC, Jetstar Pacific, in 2006 (Centre for Asia-Pacific Aviation, 2015). Later an operations permit was granted to a new private airline, VietJet, to begin flying in 2011 (Fan et al., 2017). Both offered the market low cost fares. A third LCC, Bamboo Airlines, began operations in 2019. The introduction of this competition, especially the activity of VietJet, has changed the complexion of the domestic industry. As can be seen in Fig. 7, VietJet matched the domestic operations of the established national carrier Vietnam Airlines within the space of just seven years, even though Vietnam Airlines itself has doubled in size over this period. These changes provided the additional aircraft capacity to accommodate very rapid growth on the main corridor of the country, as well as additional services to some of the smaller cities identified earlier.

The changes are well illustrated in the experience of Da Nang, the

third ranked airport in Vietnam, and a major tourist centre. As can be seen in Table 1, this city had mainly domestic services in 2006, served by Vietnamese Airlines. Since 2006 the size and character of the Da Nang air service has changed completely. Vietnam Airlines retains the largest market share but that has fallen to less than one third, while two Vietnamese and two South Korean LCCs now account for over 40% of the market. Added to that, some 28 airlines (drawn from across Asia and parts of Europe) share another third of the market. A very broad array of airlines now connects Da Nang to 38 international destinations. This outcome illustrates that regulatory change has facilitated the response to the economic development influences that were analysed earlier.

7. Conclusions and future research

Two international bodies have predicted that growth in Vietnam's passenger demand (IATA, 2016) and airport traffic (Airports Council International, 2018) will be among the fastest in the world in the next 10–15 years. As shown above, the achievement of those predictions will depend in large part on Vietnam's international economic linkages and the pattern of its urban development. Whether the growth maintains the concentration displayed above, or expands to engage with a wider geography, will depend on these economic development forces and policy on the regulation of the industry. The ASEAN region is likely to remain important here as incomes in those countries continue to expand and LCCs mature. One observer has suggested this growth will be felt in "...burgeoning demand between Tier Two cities. Air traffic between these cities is expected to grow at a compound average growth rate of 5.7 percent, growing their share of total ASEAN traffic from 25 percent in 2016 to an anticipated 32.8 percent in 2036" (PWC Growth Markets Centre, 2018: 6). If this prediction is correct, the cities currently in the middle rank in the Vietnamese hierarchy shown in Fig. 4 may record significant gains in air traffic.

Indeed, as the research progressed it was apparent that a significant number of new connections are emerging between smaller Vietnamese cities and smaller cities elsewhere in the Asia-Pacific region, as well as in Russia. Carefully focussed case studies of the airlines involved, the frequencies of services, and the mix of economic activities in origin and destination cities will provide new perspectives on the way the broad forces analysed thus far play out locally. In that sense the current paper can be seen as the first step into an interesting research agenda.

Whether South Korea maintains its recent role in investment and trade could be important here. Perhaps the linkages that are generated from China will become more important? These links could develop rapidly as firms in Vietnam become more engaged with Chinese companies, and also as China looks to Vietnam as an investment outlet. The latter could be associated with the Belt and Road Initiative. Current discussions in that policy centre on north-south highway construction, among other projects. Vietnam's Government seems to be proceeding cautiously in these negotiations (Hiep, 2018).

The analysis was constrained by its focus upon direct flights. More research in this area could explore the scale of indirect connections, perhaps by starting with some very detailed tourist nationality data, and trade data, as a guide to connections. This would provide a way to estimate U.S. airline activity. That may have some special relevance as the U.S. authorities recently gave approval for Vietnam's airlines to operate in the U.S. market (FAA, 2019). This could provide an opportunity for Vietnam Airlines to utilise its Boeing 787 aircraft on non-stop routes to the U.S. west coast, and possibly open up a market for non-stop services by U.S. airlines.

Another interesting issue for further investigation is the individual importance of trade, FDI, and tourism as influences upon air transport. Here they were assumed to be of equal importance, although at the level of the cities there was a hint that tourism, for example, was more important than, say, FDI flows for the smaller cities. Much more detailed data, and many more data points, would be needed to explore

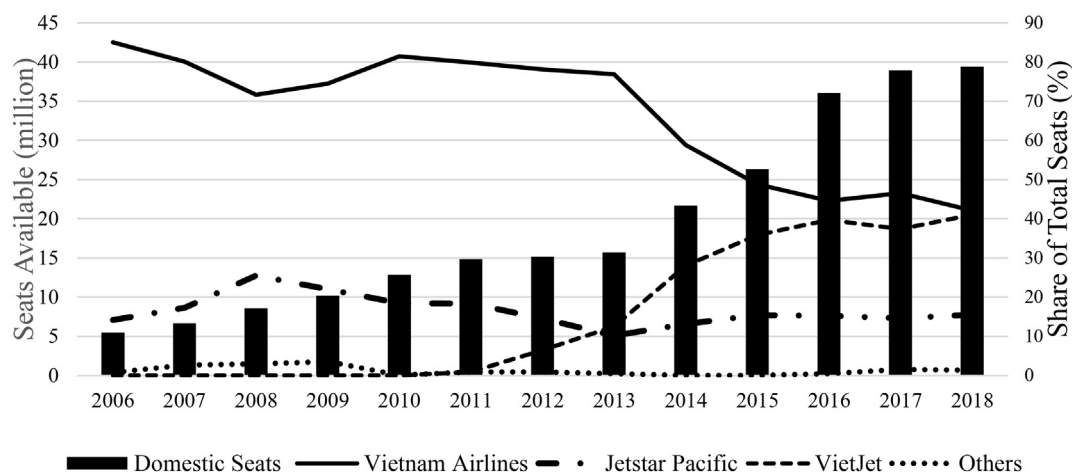


Fig. 7. Vietnamese Domestic Airlines.

Source: APEX (2019)

Table 1
Share of Da Nang Airport Seats Available 2006 and 2019.

Airline	2006 (%)	Airline	2019 (%)
By Airline and Destination.			
Vietnam Airlines	82	Vietnam Airlines	29
Jetstar Pacific	13	VietJet Air	26
SilkAir	3	Jetstar Pacific	9
		Jin Air	4
		Jeju Air	4
Other 2 Airlines (1 LCC)	2	Other 28 Airlines (19 LCCs)	29
	100		100
Destinations Served			
Total	Number	Number	
Domestic	10	50	
International	8	12	
	2	38	
Total Seats Available (thousand)	722	9224	

Source: APEX (2019)

this issue, drawing upon a large number of cities across many countries. A related issue is whether there are other influences that deserve consideration. One could be previous migration flows, a factor that may be relevant to the air links of Vietnam with France, Australia, and the U.S. where many Vietnamese settled after the Vietnam-U.S. war. However, it is not clear that it would be a factor in many other city connections.

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