

Modelling Inbound Tourism from Japan to Australia

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Abstract: International tourism exports became a leading source of foreign exchange earnings and employment creation for many countries in the 1990s. As an important example, government promotion of overseas travel in Japan had a favourable impact on the demand for leisure services and international travel in the 1990s. Japan was Australia's single largest source of international tourists until 1999, when New Zealand superseded Japan as Australia's highest ranking tourist source country. In terms of market share, Japan represented about 16 percent of international arrivals to Australia in 1999. This paper undertakes a statistical analysis of inbound tourism to Australia from Japan. In particular, time series econometric modelling will be used to analyse tourist arrivals using quarterly data. The expected outcome is the determination of a statistically optimal time series model of international tourism demand, which will provide a better understanding of the importance of the Japanese tourist market for Australia. Such knowledge will aid in tourism planning by the private and public sectors to achieve efficient development and management of tourism facilities and infrastructure.

Keywords: International travel; Institutional factors; Market trends; Nonstationary; ARIMA models

1. INTRODUCTION

Japan was Asia's leading tourist sending country in the 1980s. In a similar manner to the United States and West Germany, Japan became one of the world's top consumers of international tourism in the late 1980s. Economic prosperity, lifestyle changes among the Japanese caused by increasing disposable income, and a strong yen contributed to the higher demand for international travel and other leisure and recreation-related activities. In addition, the Japanese Government promoted overseas travel, through the introduction of the Ten Million People Program in 1987, to reduce the country's trade and Balance of Payments surpluses. In the same year, the governmental International Tourism Institute of Japan (ITIJ) was established to support the outbound travel promotional objectives. In addition, 1988 was 'The Year of Liberalization' for Japanese tourism, and emigration procedures on leaving Japan were simplified. Bilateral agreements (visa waiver) for short-stay visitors made overseas travel by Japanese tourists easier. The Japanese Ministry of Labour also promoted longer overseas vacations by reducing the number of working hours from 48 to 40 hours per week in 1988. Moreover, a 'Working Holiday System' was introduced to provide a short-term working visa for

young Japanese to visit Australia, New Zealand and Canada.

Progress has also been made in air transportation to increase the number of international flights to and from Japan's two major international airports, Narita (Tokyo) and Kansai (Osaka). Greater use of regional airports as international gateways and the introduction of charter flights have also been promoted to reduce congestion with scheduled flights at the two major international airports. Consequently, an awareness of overseas travel has been raised and the average Japanese tourist is now more knowledgeable about overseas destinations. Since the 1980s, opportunities for international trade and tourism have encouraged many Japanese multinational corporations to expand their property investment overseas to include extensive and diverse ventures in tourism-related industries, such as real estate, hotels and resorts, and golf courses [Murakami and Go, 1990; Nozawa, 1992]. By 1991, more than 60% of Hawaii's hotels were owned by Japanese, much of it having been purchased at inflated prices.

2. JAPANESE INBOUND TOURISM TO AUSTRALIA

Many countries have long been interested in the Japanese outbound market because of their high disposable income. Japanese tourists are the top tourism spenders in the Asia Pacific, and were ranked as the third highest international tourism spenders in the 1990s [World Tourism Organization, 1999]. In 1998, Australia was Japan's sixth most popular overseas holiday destination in the East Asia/Pacific region, with Korea the most popular destination for Japanese tourists. Japan is, therefore, one of Australia's major sources of international visitors. The average annual growth rate of short-term (namely, less than twelve months) tourist arrivals from Japan to Australia from 1976 to 1998 exceeded 16%. From 1986 to 1997, the number of short-term tourist arrivals increased almost six-fold from 136,570 to 813,900. Between 1990 and 1998, Japan was Australia's largest source of international tourists. More than one-third of Japanese tourists to Australia in the 1990s were young adults aged between 18 and 34 years. On average, the duration of stay among Japanese short-term tourists was 14 days, compared with 27 days on average for all short-term visitor arrivals. Before 1992, the share of Japanese male tourists to Australia generally outnumbered their female counterparts, but the reverse is true after 1992 (see Figure 1). The 'office lady' is the dominant group in the female category, which refers to single females with professional jobs and a sizable disposable and/or discretionary income to undertake overseas travel. Queensland is the most popular state in Australia visited by Japanese tourists, followed by New South Wales.

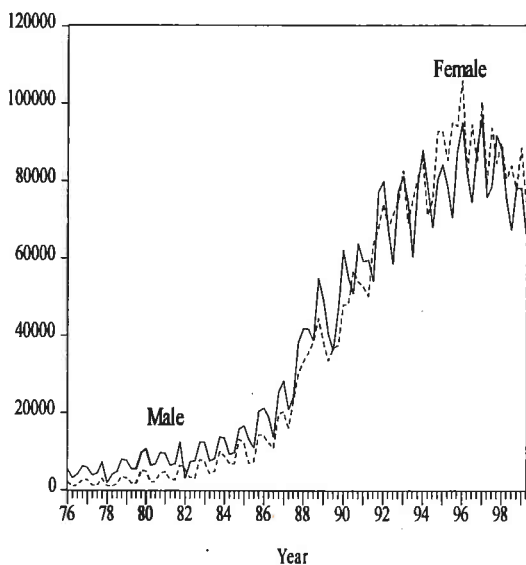


Figure 1. Short-term tourist arrivals from Japan to Australia by gender, 1976-1999.

Tourist arrivals from Japan started to decline after 1997 and were superseded by tourists from New Zealand in 1999 [Australian Bureau of Statistics]. The sharp decline in the Japanese outbound market in 1998 and 1999, caused by the Asian economic and financial crises, had arguably the greatest impact on international arrivals in many Asia Pacific destinations, including Australia. Continuing economic slowdown in the Japanese economy has adversely affected the demand for international travel in favour of either fewer holidays or cheap, close and short ('an-kin-tan') travel by the Japanese outbound market. However, in 2000 the Japanese market rebounded strongly, due mainly to the Sydney Olympic Games and Australia's successful marketing which targeted the Experienced Female Travellers (EFTs) and the New 50s (ageing 'baby-boomers'). Such EFTs include 'honeymooners', 'overseas weddings', and 'office ladies', who are between 20-34 years of age, single or married without children, and prefer to travel independently. Most EFTs prefer free-planned packaged tours (airfare, accommodation and transfer packages) to single destinations, whereas the sales of fully structured tour packages to multiple destinations purchased by the New 50s are increasing. Holiday is the main reason given by Japanese tourists for visiting Australia, followed by Business and Convention, and they are least likely to travel for purposes of Visiting Friends and Relatives (VFR) (Figure 2). Most Japanese tourists visit Australia in the first and fourth quarters, with February and November being the peak tourism months. According to a survey conducted by the Bureau of Tourism Research [1997], most (75%) Japanese tourists were first-time visitors to Australia.

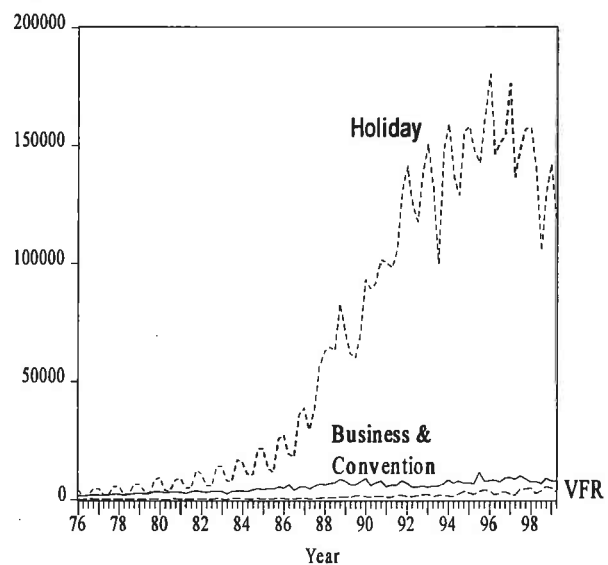


Figure 2. Short-term arrivals from Japan to Australia by purpose of journey, 1976-1999.

The largest Japan-based travel agencies, which handle a large percentage of total sales of outbound travel from Japan, include Japan Travel Bureau (JTB), Kinki Nippon Tourist (KNT), Nippon Travel Agency (NTA) and Tokyu Tourist (TT). Destination travel suppliers sell their products and services either by establishing tourism promotion offices and national tourism offices in Japan or by participating in international trade shows to sell their products to Japan-based travel agencies. The large travel agencies in Japan plan and negotiate all major elements of an outbound package tour, including itineraries, and airline and accommodation reservations, with their affiliated companies in major destinations. The latter organise the activities in the destinations, such as the type of restaurants which cater for tourist meals, sightseeing and various types of attractions. Familiarization tours for representatives from Japanese travel agencies are frequently conducted in Australia by the state tourism bodies and the Australian Tourism Commission.

After achieving the Ten Million People Program (with approximately 11 million Japanese travelling overseas in 1990), the Japanese Government introduced a new program in 1991, known as "Two-way Tourism 21", to promote inbound and outbound tourism. The emphasis has shifted from quantity to quality and educational travel, promoting intercultural understanding through tourism, safe overseas travel, better travel services in destinations, and reducing impediments to overseas travel. Over time, the motivation to undertake overseas travel has changed as most Japanese tourists have become experienced travellers, with specific travel objectives, destination choice and activities in mind. Although the proportion of independent Japanese tourists is rising, package tours are likely to remain a major form of travel among Japanese tourists in the foreseeable future. Nonetheless, they have become more sophisticated in their preferences and more selective of overseas travel products, including package tours. Given the language barrier, Japanese tourists tend to travel in package tours, using Japanese or Japanese-speaking tour guides, and staying mainly in Japanese-owned hotels. Consequently, their contact with the host community culture is limited, which the Two-Way Tourism 21 program is intended to redress.

It is imperative for destinations such as Australia to examine market trends, the characteristics of Japanese tourists, and the specific travel objectives and activities they wish to pursue. Many studies have examined the consumer behaviour characteristics unique to Japanese tourists, such as the custom of gift-exchanging, (*omiyage*), which explains their shopping patterns abroad, and their

concerns about safety [Ahmed and Krohn, 1992]. The Bureau of Tourism Research [1997] found that most Japanese tourists regarded Australia as a holiday destination and were mostly attracted to the nature, wildlife and beaches.

3. EMPIRICAL MODELLING OF JAPANESE TOURIST ARRIVALS TO AUSTRALIA

The purpose of this section is to examine international tourism demand by Japan for Australia, as measured by tourist arrivals from 1976 to 1999. A graphical analysis of the seasonally unadjusted quarterly data from 1976(1)-1999(2) suggests that the logarithm of tourist arrivals from Japan to Australia are likely to be nonstationary (see Figure 3). This result is supported by the correlogram, which displays the estimated autocorrelation and partial autocorrelation functions of the residuals. The procedure for testing stationarity and the order of integration of the variable using the augmented Dickey-Fuller (ADF) test is discussed, for example, in Lim and McAleer [2000]. The reported ADF statistic with a deterministic trend and intercept at lag length 4, 0.483, is greater than the critical value of -3.46 at the 5% significance level. As the null hypothesis of a unit root is not rejected, this implies that the series are nonstationary. Using first differences at lag length 3, the null hypothesis of a unit root is clearly rejected at the 5% level, with an ADF statistic of -4.232 compared with a critical value of -2.894 at the 5% significance level. Thus, the logarithmic tourist arrivals from Japan to Australia are integrated of order one, whereas the first differences of the logarithmic tourist arrival series are integrated of order zero, $I(0)$, and hence are stationary.

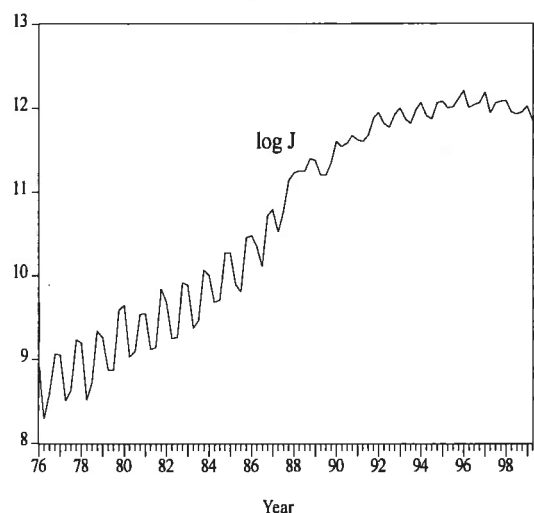


Figure 3. Logarithm of short-term tourist arrivals from Japan to Australia, 1976-1999.

Table 1. Estimated seasonal ARIMA models for tourist arrivals from Japan to Australia.

Variable	Coefficient	t-statistic	AIC/SBC	LM(SC)
AR(1)	-0.286	-2.81	AIC = -1.72	F = 0.66
AR(2)	-0.844	-14.5	SBC = -1.55	p = 0.52
AR(3)	-0.270	-2.81		
SAR(4)	0.862	27.9		
MA(2)	0.965	61.0		
SMA(4)	-0.598	-6.09		
AR(4)	0.276	2.56	AIC = -1.68	F = 0.70
SAR(4)	0.900	71.5	SBC = -1.56	p = 0.50
MA(1)	-0.230	-2.33		
SMA(4)	-0.939	-32.9		
AR(4)	0.663	4.44	AIC = -1.70	F = 1.33
SAR(4)	0.884	30.1	SBC = -1.56	p = 0.27
MA(1)	-0.210	-2.11		
MA(4)	-0.416	-2.29		
SMA(4)	-0.885	-15.4		
AR(2)	-0.849	-13.0	AIC = -1.69	F = 0.44
SAR(4)	0.861	22.9	SBC = -1.52	p = 0.64
MA(1)	-0.314	-2.98		
MA(2)	0.938	74.6		
MA(3)	-0.377	-3.63		
SMA(4)	-0.511	-4.56		

Note: AIC and SBC are the Akaike Information Criterion and Schwarz Bayesian Criterion, respectively. LM(SC) refers to the Lagrange multiplier test for serial correlation. p denotes probability-value.

A sensible strategy for estimating reasonably simple autoregressive integrated moving average (ARIMA p,q) models, with values for p and q from 0 to 4, is to start with small p and q and work upwards to larger values. Only models with statistically significant (at 5%) AR and MA coefficients are selected, ensuring that the estimated residuals do not have serial correlation at the 5% significance level. Thirteen appropriate ARIMA models have been selected for the logarithms of tourist arrivals from Japan to Australia. ARIMA(4,4) is the 'best' model selected, with the lowest Akaike Information Criterion (AIC) and Schwarz Bayesian Criterion (SBC), namely (with absolute t-ratios in parentheses):

$$(1 - 0.96L^4)(1 - L)\log J_t \quad (41.5)$$

$$= (1 + 0.23L + 0.53L^4) \hat{\epsilon}_t. \quad (2.61) \quad (6.15)$$

Given the systematic seasonal movements in the international tourist arrival series, seasonal autoregressive (SAR) and seasonal moving average (SMA) terms have been included in estimation and four models have been identified (see Table 1). Using AIC, ARIMA(3,1,2)(4,1,4) is preferred, while ARIMA(4,1,4)(4,1,4) and ARIMA(4,1,1)(4,1,4) are selected based on SBC. The correlograms of the estimated residuals show that the autocorrelations lie within the 95% confidence interval.

4. CONCLUSION

In this paper, the demographic characteristics (namely age and gender) of Japanese tourists to Australia have been discussed briefly. Univariate time series modelling using ARIMA processes has been used to explain the pattern of tourist arrivals from Japan to Australia. The augmented Dickey-Fuller test for unit roots was applied to the logarithms and first differences of tourist arrivals from Japan to Australia from 1976 to 1999. Visual inspection of the correlograms also suggested that

the series are nonstationary, which led to the use of first differences.

The role played by the Japanese Government in the late 1980s in promoting travel abroad provide an understanding of international tourism demand by Japanese tourists to Australia. After a lost decade of meandering economic policies and declining performance, the Japanese Government in 2001 is instilling optimism about purposeful reforms and is confident of steering the economy towards recovery. Given the importance of the Japanese tourist market for Australia, and the ageing Japanese population (with two-thirds of Japan's US\$11 trillion assets owned by people over the age of 60), Australia will benefit from the intended economic reforms of the Japanese Government in terms of future travel exports, given the discretionary nature of tourism spendings.

5. ACKNOWLEDGEMENT

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