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Modelling income effects on long and short haul international travel from Japan

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Abstract

International travel and tourism are among the most dynamic sectors in the modern economy. The phenomenal growth in international tourist arrivals has significantly outpaced global economic growth over the previous five decades, with particularly strong growth in the Asia and Pacific regions. Among other factors, changes in aircraft technology, economic prosperity and international air service liberalization in the late 1970s have contributed to the growth in the Japanese long haul outbound travel demand. The prolonged economic recession in Japan in the 1990s has changed Japanese outbound tourist preferences for travel to short haul destinations. Income in the origin country is arguably the most widely used explanatory variable in the extant empirical tourism demand literature. This paper examines the dynamic relationship between travel demand and real income in Japan using linear and nonlinear models in order to distinguish between travel demand to Taiwan and New Zealand, which are two short and long haul markets for Japan. The empirical findings that New Zealand has a higher income elasticity of demand as compared with Taiwan should be useful for tourism authorities in developing better informed policies and to manage tourism resources efficiently in destination marketing.

Keywords: Japanese travel demand; Income elasticity; Long and short haul markets; Linear and nonlinear models

1. Introduction

The significant growth of international travel demand is indicative of tourism as one of the most dynamic economic sectors and social activities of the past century. This is evident in the phenomenal growth of international arrivals, from 25 million tourists in 1950 to a record high of 808 million in 2005, which has significantly outpaced global economic growth, as measured by real Gross Domestic Product. During this period, tourism development and growth were particularly strong in the Asia and Pacific regions, which experienced 13% growth rate per annum, compared with an average annual growth rate of 6.5% worldwide (World Tourism Organization, 2006a).

International tourism rebounded strongly in 2004 and 2005, after two years of negative growth in 2001 and 2003 due to a depressed worldwide economy and SARS, respectively. Notwithstanding the downturn in international tourism in the recent past, international receipts still represented about 6% of total world exports and 30% of service exports in 2003 (World Tourism Organization, 2006b). The Japanese outbound travel market has experienced a similar pattern during the same period. In particular, the setbacks were related to fears of terrorism and diseases after the events of September 11, 2001 in the USA, and the SARS and bird flu outbreaks in 2003. These events have caused negative growth of 9% and 20% in 2001 and 2003, respectively, in Japanese international travel demand.

The global tourism industry continued to experience above average growth in 2006, despite concerns over

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political conflicts, terrorism, bird-flu pandemic and rising oil prices. Strong growth in Asia and Pacific regions has been boosted by emerging market such as India, as well the recovery of destinations like Thailand and the Maldives from the impact of the December 2004 tsunami in the Indian Ocean (Carlsen, 2006; Rittichainuwat, 2006). France has remained as the world's top tourist destination in 2006, attracting 78 million tourists, in spite of growing competition from other popular destination such as Spain.

Changes in aircraft technology, economic prosperity and international air service liberalization in the late 1970s, have contributed to the growth in the Japanese long haul travel demand for the USA, Australia and New Zealand. Moreover, the Japanese government removed all overseas travel restrictions in 1964 to coincide with the hosting of the Tokyo Olympic Games. Numerous major factors and socioeconomic reforms have subsequently contributed to the emergence of Japan as a leading tourist-generating country in the world since the 1980s. They include the lifting of foreign exchange controls, rapid population growth due to the postwar baby boom, a significant appreciation of the yen in the 1980s and early 1990s, strong economic growth, and lifestyle changes. Land and stock prices in Japan appreciated by between 70- and 100-fold from the mid-1950s to the late-1980s.

Japanese tourists have a reputation for being big spenders, and this has made Japan an attractive market for many destinations (Choy, 1998; Morris, 1991; Murphy & Williams, 1999; Nozawa, 1992). As Japan has been a dominant outbound market in international tourism in terms of tourist arrivals and expenditures, considerable research has been undertaken to examine the patterns of Japanese outbound travel (Lim & McAleer, 2005; Mak, Carlile, & Dai, 2005; Polunin, 1989; Sakai, Brown, & Mak, 2000; Tokuhisa, 1980; Wang & Lim, 2005), and the characteristics of Japanese travellers (Ahmed & Krohn, 1992; Balaz & Mitsutake, 1998; Cha, McCleary, & Uysal, 1995; Heung, Qu, & Chu, 2001; Holtzman, Murthy, & Gordon, 1991; Iverson, 1997a; Lang, O'Leary, & Morrison, 1993; March, 1997a; Pinhey & Iverson, 1994; Sage, 1985). Moreover, several studies have been undertaken to compare Japanese tourist behaviour with that of tourists from other nations (Chen, 2000; Dybka, 1988; Iverson, 1997b; March, 1997b; Mihalik, Uysal, & Pan, 1993).

Although Japan had been in a severe economic recession since the mid-1990s following three decades of prosperity, it was ranked fourth in the world on international tourism expenditures in 2003–2005, after Germany, USA and UK (World Tourism Organization, 2006c). The economic malaise in Japan has changed Japanese outbound tourist preferences in recent years for travel to short-haul destinations, which are closer to Japan, and hence cheaper. This has benefited countries in the Asia and Pacific regions, such as Taiwan.

The purpose of this paper is to use the ARMAX model to investigate the dynamic relationship between tourism demand and real income of Japan over time. We analyse Japan's international travel demand for New Zealand and Taiwan, which represent two of Japan's long- and short-haul markets, respectively. A basic goal of tourism demand modelling is to estimate income elasticity that can be used in developing more accurate, and hence better informed, policies. The focus of econometric studies is to determine the extent to which the data support a particular theory. More specifically, the ARMAX model, which embodies both econometric and time series analyses, will be used to test the economic theory that the demand for international travel is positively related to income in the origin market.

Japan has been the most important inbound market for Taiwan, and it is New Zealand's largest Asian tourist source market. Since 1980, the average annual tourist arrivals from Japan to New Zealand and Taiwan represent about 9% and 41% of total Japanese resident departures, respectively. Besides facing intense competition from many Asian destinations due to the entry of budget airlines and cheaper airfares since 2002, the increase in the strength of the New Zealand dollar, due primarily to high interest rates, has caused a continual decline in Japanese tourist arrivals to New Zealand (see Fig. 1). Since 2005, there has been a marked appreciation in the NZ dollar against most major currencies. Additionally, the exchange rate has caused lower tourist spending in New Zealand.

According to Lin (1990), geographical proximity, being the second closest neighbour after Korea, and similar cultural values have significant impacts on intra-regional travel demand by Japan for Taiwan. Taiwan was a former colony of Japan from 1895 to 1945 prior to the Kuo-Ming Ton (KMT) Party's flight to Taiwan from China to exercise its sovereignty. Since the 1990s, tourist flows from Japan have suffered several setbacks due to a series of political events, economic/financial and natural disasters (for instance, the 1995 economic recession in Japan, rising tension in cross-Straits relations between Taiwan and China in 1995/1996, and the Asian financial crisis in 1997/1998). However, it was the 1999 earthquake in Taiwan, and SARS outbreak in 2003, which had the most far-reaching consequences on Japanese inbound arrivals to Taiwan (see Fig. 2).

The plan of the remainder of the paper is as follows. Section 2 discusses the methodology to be adopted to analyse the time series data. Unit root tests for the tourism time series data and estimation of the optimal autoregressive moving average (ARMA) models are presented in Sections 3 and 4, respectively. In Section 5, the unit root test procedure is applied to the real GDP of Japan before estimating the ARMAX model. The rolling estimation approach is used to determine the long run income elasticity of travel demand in Section 6 and examine the stability of the parameter estimates over time. Some concluding remarks are given in Section 7, with suggestions for further application of this framework. The EViews