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Modelling substitution between domestic and outbound tourism in Australia: A system-of-equations approach

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HIGHLIGHTS

- Substitution relationships between Australian domestic and outbound tourism are found.
- A dynamic almost ideal demand system model is employed.
- Short-run demand elasticities are calculated.
- A new price variable based on purchasing power parity index is developed.
- Further promotion of Australian domestic tourism is recommended.

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ABSTRACT

This study uses a system-of-equations approach to model the substitution relationship between Australian domestic and outbound tourism demand. A new price variable based on relative ratios of purchasing power parity index is developed for the substitution analysis. Short-run demand elasticities are calculated based on the estimated error correction almost ideal demand systems. The empirical results reveal significant substitution relationships between Australian domestic tourism and outbound travel to Asia, the UK and the US. This study provides scientific support for necessary policy considerations to promote domestic tourism further.

1. Introduction

In the tourism economics literature, research on the demand for international tourism is predominant, while little attention has been paid to the demand for domestic tourism. The reasons are related to international tourism's greater visibility and economic significance, as well as better data availability and quality (Pearce, 1987; Stabler, Papatheodorou, & Sinclair, 2010). Even fewer studies have brought international tourism and domestic tourism together in an empirical setting.

International tourism is regarded as a special sort of international trade, and its economic significance is often discussed in relation to national balance of payments accounts. Inbound tourism is regarded as an export, an injection to the national economic output, recorded as a credit in the current account. On the contrary, outbound tourism is viewed as an import, which is a leakage of a national economy and appears as a debit entry into the current account (Seetaram, 2012; Smeral & Witt, 1996; Tribe, 2011). Therefore, a higher level of tourism receipts from inbound tourists, along with a lower level of tourism expenditure by outbound tourists, would contribute to the improvement of a country's balance of payments (Baretje, 1982; Sugiyarto, Blake, & Sinclair, 2003). On the other hand, faster growing outbound tourism than inbound tourism would lead to greater balance of payments deficit. Given the nature of outbound tourism in balance of payments accounts, a government attempts to encourage more domestic tourism in substitution of outbound tourism (Pearce, 1989).

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The substitution relationship between outbound tourism and domestic tourism has been particularly evident in Australia in recent years. In a report by Tourism Research Australia in June, 2011, a widening tourism trade deficit (calculated as the difference between total inbound revenue and total outbound expenditure) has been identified. A peak surplus of $AU 3.6 billion in 1999–2000 has turned into a deficit of $AU 5 billion in 2009–2010 (Tourism Research Australia, 2011). The high value of the Australian dollar was said to be one of the key factors in contributing to the deficit. For the financial year ending June 2011 international inbound tourism consumption was estimated to be $AU23.6 billion while domestic tourism consumption was estimated at $AU71.9 billion, three times the size of the international inbound market. The tourism consumption of Australian residents overseas was estimated to be $AU37.9 (Australian Bureau of Statistics, 2011). Fig. 1 shows domestic tourism consumption as a percentage of household final consumption expenditure declined from just over 12% in 2003 to just below 9.5% in 2011. Over the same period, outbound tourism consumption as a percentage of household final consumption expenditure increased from just over 3.5% to just under 5%. The ratio of domestic to outbound as a percentage of household consumption has fallen from over 4:1 to below 2:1.

An initial warning of the decline in demand for the domestic market was first issued by Athanasopoulos and Hyndman (2008). Since then a few other academic studies have followed on the domestic market (see for example Allen, Yap, & Shareef, 2009; Deng & Athanasopoulos, 2011; Divisekera, 2010; Yap & Allen, 2011). However, despite the common belief among Australian tourism stakeholders, no study (academic or otherwise) to date has attempted to explicitly model and quantify the possible substitution between domestic and outbound tourism demand. This study therefore aims to fill the gap in the literature by investigating the potential substitution relationship between Australians' demand for domestic tourism and for international outbound tourism, based on a theoretically sound system-of-equations model: the almost ideal demand system (AIDS) model.

2. Literature review

There has been extensive research on the demand for international tourism. For example, in a review article Li, Song, and Witt (2005) identified 80 empirical studies on econometric modelling and forecasting of international tourism demand published between 1980 and 2004. Song and Li (2008) further reviewed 121 econometric and time-series analyses of international tourism demand during the period 2000–2007. However, very few publications are found to exclusively focus on domestic tourism demand. The exceptions include Coenen and van Eekeren (2003), Kim and Ngo (2001), Pyo, Uysal, and McLellan (1991), and Witt, Newbould, and Watkins (1992). More recently, some research attention has been paid particularly to the Australian domestic tourism market. For example, Huybers (2003) applied the discrete choice modelling method to investigate the determining factors underlying the short-break holiday destination choices of Melbourne residents. Athanasopoulos and Hyndman (2008) used innovations state space models to forecast the domestic tourism demand. Allen et al. (2009) investigated the short-run and long-run causal relationships between economic factors and interstate tourism demand. Divisekera (2010) applied the AIDS model to analyse the demand for different tourism products distinguished by the motives of leisure and non-leisure tourism. Yap and Allen (2011) explored alternative leading indicators influencing domestic tourism demand. Despite some increasing interest in domestic tourism analysis, overall the tourism demand literature is still dominated by international tourism demand analysis. The reasons are related to international tourism's greater visibility and economic significance, as well as better data availability and quality (Pearce, 1987; Stabler et al., 2010).

2.1. Substitution between international tourism and domestic tourism

With respect to the demand for domestic tourism, it forms the "proving grounds" for the tourism industry and contributes significantly to a destination's tourism competitiveness. As Crouch and Ritchie (1999, p. 141) noted, "a high domestic demand confers static efficiencies and encourages improvement and innovation… Foreign demand thrives more readily when domestic tourism is well established." In many tourist destinations, domestic tourism contributes much more to the revenue of the tourism industry than inbound tourism does. For example, Australian domestic tourist expenditure has generally been four to five times higher than the inbound tourist spending (Huybers, 2003). Although the ratio dropped to two times in 2011, the dominance of domestic tourism is still clearly evident. In the context of Turkey, Seckelmann (2002)

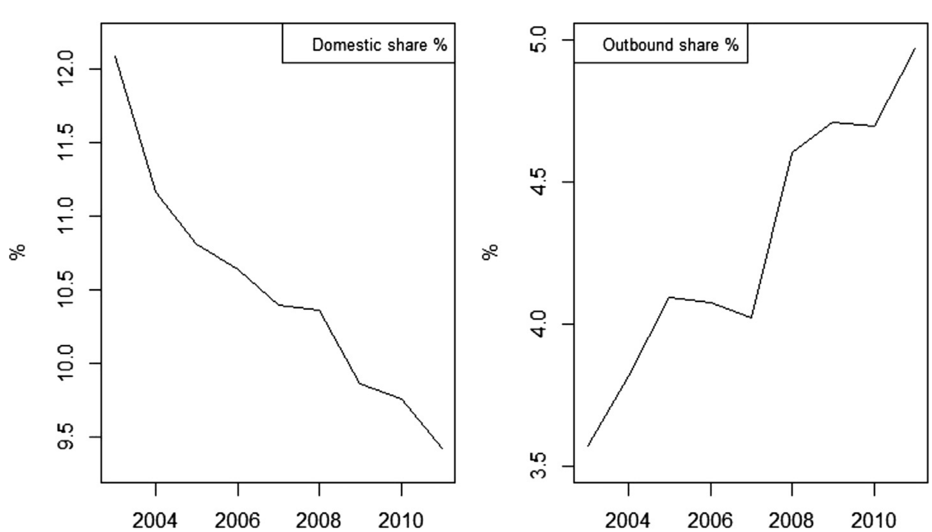

Fig. 1. Domestic and outbound tourism consumption of Australians as a percentage of household final consumption expenditure.
Sources: Australian Bureau of Statistics, Catalogue number 5249.0 – Australian National Accounts: Tourism Satellite Account, 2010–11 and Australian Bureau of Statistics, Catalogue number 5206.0 – Australian National Accounts: National Income, Expenditure and Product, Mar 2012