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Abstract:

In the tourism demand literature, much of the research focuses on income and price variables as demand determinants for travel. Nevertheless, the literature has neglected other possible indicators such as consumers' perceptions of the future course of the economy, household debt and the number of hours worked in paid jobs. In fact, several studies found that these indicators could influence consumers in making decisions to travel. In this paper, we intend to examine whether there are other indicators that can influence future Australian domestic tourism demand.

The research employs panel data with a total of 252 observations. For the dependent variables, the disaggregated data for domestic visitor nights will be used, namely the visitor nights by holiday-makers (HOL), business travellers (BUS) and visitors who visited friends and relatives (VFR). In terms of the independent variables, we employ the following proxy variables for this research: (1) the consumer sentiment index; (2) business confidence index; (3) interest repayments for household debt; and (4) average actual worked hours in paid jobs. The econometric model used in this study is a panel three-stage least square (3SLS) model.

The empirical results reveal several points. First, it is found that the consumer sentiment index has significant impacts on VFR but not on holiday tourism. Furthermore, the business confidence index has no influence on business tourism demand. The study also finds that an increase in household debt could encourage more Australians to travel domestically, indicating that Australians may consider increasing debt as their confidence to spend increases. Lastly, working hours have a statistically significant effect in the case of holiday tourism data.

Keywords: Consumers sentiment index, inflation expectations, household debt, working hours, Australian domestic tourism demand.

1. INTRODUCTION

Leading economic indicators have been widely employed in the economic literature for the purpose of forecasting business activities. The usefulness of leading indicators is that it enables researchers to determine and predict turning points in the cyclical movements of an activity of interest (Jones and Chu Te, 1995). In the tourism demand literature, it is well acknowledged that income and tourism prices are the leading demand determinants in tourism demand analyses. According to the literature reviewed by Lim (2006), out of 124 published papers, income variables were employed in 105 empirical papers. The author also found that 94% of the papers used relative prices whereas 52% used transportation costs.

In addition, other leading indicators have been considered in the literature. For instance, Cho (2001) and Turner et al. (1997) employed macroeconomic variables, such as money supply, gross domestic products, unemployment rate, imports and exports, to examine tourist arrivals to Hong Kong and Australia, respectively. Rossello-Nadal (2001) examined monthly tourist growth in Balearic Islands using the number of constructions, industrial production, foreign trade and exchange rates.

However, there are several indicators which already exist in the economic literature but are largely neglected in tourism demand research, namely consumers' expectations of the future economy, hours worked in a paid job and household debt. Given this, the current paper intends to examine whether these indicators (apart from income and tourism price variables) can influence tourism demand.

1.1. Consumers' expectations of future economy

Consumers' expectations of the future economy play an important role in the decision-making process. According to Katona (1974), a consumer's discretionary expenditure not only depends on the ability to buy, but also on his/her willingness to buy. Moreover, changes in the latter are associated with the consumer's attitudes and expectations. This is because the consumer develops anticipations about his/her likely future economy and circumstances, and this becomes a piece of additional information used to decide whether he/she should spend or save now. Accordingly, consumers with optimistic expectations tend to spend more on discretionary goods and services and save less, whereas consumers with pessimistic expectations tend to spend less and save more (van Raaij, 1991). In conclusion, Kotana (1975) and van Raaij (1991) argued that the expectation of a household's personal financial progress and economic situation influences buying decisions, especially for durable goods, vacations and recreation, as well as saving decisions.

To incorporate consumers' expectations in determining and forecasting economic growth, Kotana (1975) suggested using a consumer sentiment index (CSI). According to Gelper et al. (2007), the basic idea of the CSI is that if consumers are confident about their actual and future economic and financial situations, they would be more willing to increase their consumption. In the economic literature, several empirical studies have concluded that the CSI has considerable predictive power. For instance, Gelper et al. (2007) discovered that the CSI can predict US consumers' spending on services better than durables or non-durables in the long-run. Similarly, Easaw and Heravi (2004) revealed that the CSI has some predictive powers in forecasting durable, non-durable and service consumptions the UK.

Similarly, in the cases of business persons or firms, both are more willing to spend on their business activities depending on their views of a country's likely future economic course. In the international tourism literature, Swarbrooke and Horner (2001) argued that the level of economic development and state of the economy can influence the demand for business travel and tourism. Accordingly, a high level of economic development and a strong economy increase demand and vice versa. Similarly, Njegovan (2005) asserted that business expectations can be one of the leading indicators that influence the demand for business air travel. The underlying reason is that firms are more likely to authorize travel for conference and business purposes when they feel more confident about the business environment. In conclusion, while the consumer expectations could affect households' demand for vacations, the level of business confidence could influence individual firms' demand for business travel.

1.2. Hours worked in paid jobs

In economic literature, Gratton and Taylor (2004) stressed that the allocation of time between work and leisure is driven by individuals' decision-making. As time is considered as a limited resource, individuals make decision about whether to spend their time on paid-work or on leisure.

Three empirical papers have examined the relationship between working hours and tourism demand in the tourism literature. Cai and Knutson (1998) found that the reduction of weekly working hours in China has provided Chinese families with extra time for domestic pleasure trips and vacations. Similarly, Hultkrantz (1995) studied the demand for recreational travel by the Swedish residents and discovered that the working time and demand for leisure is negatively correlated. Kim and Qu (2002) investigated the factors that affect domestic Korean tourist expenditure per person and found that the coefficient for the number of working hours is negative. Therefore, these studies concluded that an increase in working hours will lead to a decline in domestic tourism demand. Nevertheless, in the Australian tourism literature, the effect of increasing working time on Australian domestic tourism demand has not been examined yet.

1.3. Household debt

Rising expenditure on other household products, particularly household debt, may have effects on the demand for domestic tourism in Australia. The underlying rationale is that Australian consumers have a strong tendency to trade off their discretionary income for repaying debt, rather than for travel. Crouch et al. (2007) discovered that most Australian households used 45% of their discretionary income for household debt repayments. Similarly, Dolnicar et al. (2008) argued that 53% of the survey respondents in Australia preferred allocating their disposable income to paying off debt, while only 16% of the respondents chose to spend on vacations. Hence, if Australian households have an increasing accumulation of debt, this could lead to a reduction of disposable income available to spend on leisure.

Conversely, Athanasopoulos and Hyndman (2008) found that an increase in household debt would not lead to a decline in domestic holiday and business travel in Australia. In fact, the elasticities of one-quarter-lagged debt variables for domestic holiday and business tourism demand were 4.41 and 5.91, respectively. They argued that, as the variable can be considered as a proxy for consumer confidence, an increase in borrowing rate in previous quarter will result in a rise in domestic travel demand.

1.4. Motivation of this research

This study assesses whether three economic indicators (i.e. the consumer expectations of the future economy, hours worked in paid jobs and household debt) can influence tourism demand for a destination. Based on the literature above, the following assumptions are made: (1) An increase in consumers' optimism about the future economic outlook may lead to a growth in the demand for tourism; (2) The more hours they put into work, the more leisure time will be foregone; (3) For the effects of household debt growth on domestic tourism demand, the expected sign is undetermined as the literature shows an inconsistency. Hence, this research re-examines this issue and attempts to validate the study which was conducted by Athanasopoulos and Hyndman (2008).

2. MODEL, ESTIMATION PROCEDURE AND DATA

This paper investigates the existence of the relationships between domestic tourism demand and the above-mentioned indicators. With respect to this, a model of domestic tourism demand is constructed as follows:

$$TD_{jt} = f(Y_{jt}, TP_{jt}, DUM_{jt}, ConExp_{jt}, DEBT_{jt}, WOR_{jt}) \qquad (1)$$

where Y = domestic household income, TP = tourism prices, DUM = dummy variable for one-off events (such as Bali bombings in 2005 and Sydney Olympic Games in 2000) and seasonality. The model is developed for three purposes. First, we can estimate the income and tourism price elasticities, and determine whether one-off events and seasonality have impacts on the demand. Second, the model can be used to examine whether the consumers' perceptions, household debt and number of worked hours in paid jobs influence Australian domestic tourism demand. Lastly, it is of interest to assess whether these three variables should be included in or excluded out from equation 1.

With regard to estimation, a panel data approach is employed in this chapter. The underlying reason is that the time-series sample size is small, which ranges from quarter one of 1999 to quarter four of 2007 (approximately 36 time-series observations). Therefore, using panel data models is advantageous because such data gives more information, more variablility, less collinearity amongst the variables, more degrees of freedom and more efficiency [Baltagi (2001)].

This study uses a dynamic panel model. The benefit of such model is that it contains a lagged dependent variable which can be used to measure tourists' habit persistency. To illustrate the point, the panel data with serial correlation model is as follows:

$$y_{jt} = v'_{jt}\delta + \alpha_j + \varepsilon_{jt}, \qquad (2)$$

$\varepsilon_{jt} = \rho\varepsilon_{j,t-1} + \eta_{jt}$, $|\rho| < 1$ and η_{jt} are independent and identically distributed.

where:

y_{jt} = demand for domestic tourism in State j

c = a common constant term

v = a vector of explanatory variables.

t = time subscript.

α_j = individual-specific effect of each State j

δ = a coefficient matrix

ε = error term.

Equation (1) can be re-written as shown below.

$$y_{jt} = \rho y_{jt-1} + (v_{jt} - \rho v_{jt-1})'\delta + \alpha_j(1-\rho) + \eta_{jt} \qquad (3)$$

Or

$$y_{jt} = \rho y_{jt-1} + v_{jt}^{*'}\delta + \alpha_j^* + \eta_{jt}, \text{ where } v_{jt}^* = v_{jt} - \rho v_{jt-1} \text{ and } \alpha_j^* = \alpha_j(1-\rho)$$

All coefficients in equation (3) have become more consistent and efficient. Nevertheless, estimating equation (3) using least squares is problematic because the lagged dependent variable is correlated with the disturbance, even if η_{jt} is not serially correlated. Hence, to overcome this issue, the most appropriate estimation method is to employ the instrumental variables techniques. Nevertheless, the necessary condition is that the instrumental variables (denoted as Z_{jt}) must be strictly exogenous, E(η_{jt}/Z_{jt}) = 0 for all t.

For this paper, a panel 3SLS model is considered. The advantage of using this model is that it takes accounts both of heteroscedasticity and contemporary correlation in the residuals when some of the right-hand side variables are correlated with the error terms. To put it differently, the 3SLS model is the two-stage least squares version of the seemingly unrelated (SUR) method [Ledesma-Rodriguez et al. (2001)].

For dependent variables, we use three types of data on Australian domestic tourism demand, namely the numbers of visitor nights by holiday-makers (HOL), business visitor nights (BUS), and visitors of friends and relatives (VFR). For independent variables, three types of proxy variables are used for household income variable, namely disposable income (DI), gross domestic products (GDP), gross domestic product per capita (GDPP). As for tourism prices, the CPI of domestic travel (DT) is used as the proxy. This study also uses consumer sentiment index (CSI) to evaluate the impacts of consumers' perceptions of future economy on HOL and VFR tourism demand, as well as business confidence index (BCI) for business tourism demand analysis. For household debt proxy, the ratio of interest repayment-to-disposable income is considered. Lastly, for working hours, the proxy variable is the average actual worked hours in Australia. This data is quarterly data from 1999 to 2007. Furthermore, first differenced data is used in this study. According to Garin-Munoz (2007), by differencing data and removing the problem of non-stationarity, panel data analysis will give us confidence in the reported coefficients and standard errors. Furthermore, for instrumental

variables, two- and three-lagged dependent variables are used. The above variables can be obtained from the Australian Bureau of Statistics, the Reserve Bank of Australia and Tourism Research Australia.

3. EMPIRICAL RESULTS

When modelling the impacts of consumers' future economy expectations on domestic tourism demand, this study finds that the CSI coefficient for the VFR data is statistically significant at a 5% level (Table 1) but not for the holiday data. This implies that VFR visitors are sensitive to changes in Australia's economic outlook whilst holiday tourists are not. For the case of business tourism demand, the coefficient for BCI is found to be insignificant.

In addition, the impacts of household debt on holiday and VFR visitors are evident. Accordingly, the estimated elasticities for both groups of visitors are 2.39 and 2.90, respectively, implying that an increase in debt does not lead to a fall in demand for domestic holiday and VFR trips. The underlying reason is that Australians may incur more personal debt (such as credit cards and personal loans) to finance their domestic trips.

The results also reveal that WOR coefficients do not have strong influence on Australian domestic tourism demand, except for holiday tourism. However, the coefficient sign is positive[1] which is not consistent with the prior expectation. A possible reason is that, given the availability of modern technologies (such as laptops, wireless internet and 3G mobile network), Australians may able to spend time on domestic holidays and work at the same time (if required).

Income and tourism price variables have significant impacts on Australian domestic tourism demand. In fact, the coefficient signs for these variables are consistent with the prior expectations. The only exception is the disposable income estimate for VFR tourism demand (-2.01). This may indicate that, as the disposable income increases, Australians would tend to forego domestic trips and choose to travel overseas.

Furthermore, the coefficients for lagged dependent variables are statistically significant at the 1% level. However, the sign of the estimates is negative, which may indicate that Australians travel domestically on a periodic basis. One difficulty with our data is that it is the result of periodic samples and the travellers involved are representative, but not the same individuals. The data does not inform us about the travel history of individual travellers.

Similarly, the seasonal dummy variables are found to be statistically significant for HOL and VFR tourism data. This implies that domestic holiday tourists tend to travel by seasons, particularly during school holidays in January and July.

In terms of model specification, the F-statistics reject the null hypothesis that all coefficients are jointly zero, indicating that the significance of the model. Furthermore, the Harris and Tzavalis (1999) test reject the null hypothesis of unit root in dynamic panel ($\rho=1$), proving that $Y_{j,t-1}$ follows a stationary autoregressive process.

4. CONCLUDING REMARKS

This paper investigated the existence of relationships between domestic tourism demand and other related factors (namely, household debt, consumers' expectations of the future economy and working hours). Using a panel data dynamic model, the empirical results revealed that these factors do have impacts on the demand. Furthermore, the signs of the coefficients are consistent with the prior expectations except for the working hour variable (WOR) in the case of holiday tourism. The rationale is not obvious, perhaps, that Australians may tend to work while holidaying in Australia or they are more inclined to take their holiday entitlements. Nevertheless, the current findings need more empirical investigation in the future. In fact, it might be worthwhile to conduct a survey of how working people in Australia allocate their time in paid jobs and in leisure. Is there any overlapping between time for works and time for leisure?

Overall, the income and tourism price variables are still the important determinants of Australian domestic tourism demand. However, to a certain extent, other variables such as consumer sentiment index, household

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[1] We also found that the correlation between working hour and holiday data is 0.328.

debt and working hours can play an important role in influencing Australians' decisions to travel domestically.

Table 1. Empirical results

Variables	HOL	BUS	VFR
DI			-2.012 (0.567)***
GDP		4.916 (1.303)***	
GDPP (-1)		7.381 (2.760)***	
DT(-1)	-0.962 (0.654)	-1.386 (0.511)***	
DT(-2)	-4.044 (0.425)***		-2.417 (0.576)***
Bali	0.178 (0.047)***		0.115 (0.066)*
S1	0.943 (0.145)***		-0.217 (0.096)**
S2	0.143 (0.076)*		0.308 (0.156)*
CSI	0.066 (0.224)		0.357 (0.169)**
BCI		0.012 (0.016)	
Debt	2.393 (0.771)***	-1.625 (0.674)	
Debt (-1)			2.899 (0.875)***
WOR	5.756 (2.009)***	-2.310 (3.070)	2.362 (1.440)
$Y_{j,t-1}$	-0.416 (0.047)***	-0.569***	-0.548 (0.054)***
$W(\delta_1=\delta_2=\ldots=\delta_j=0)$	12.273***	0.384***	11.820***
$t(\rho=1)$	-30.455	-32.035	-28.503

All variables are expressed in logarithm form. Dependent variables: The numbers of night stayed by holiday-makers (HOL), business travellers (BUS), and visitors who visit friends and relatives (VFR). Independent variables: Disposable income (DI), gross domestic products (GDP), one-quarter lagged GDP per capita [GDPP(-1)], one-quarter lagged CPI for domestic travel [DT(-1)], two-quarters lagged CPI for domestic travel [DT(-2)], Bali bombing incidents (Bali), seasonal dummy for January – March (S1), seasonal dummy for April – June (S2), consumer sentiment index (CSI), business confidence index (BCI), household debt (Debt), one-quarter lagged debt [Debt (-1)], working hours (WOR), and lagged dependent variable ($Y_{j,t-1}$). Figures in brackets are White cross-section standard errors. ***, ** and * denotes significance at the 1%, 5% and 10% levels. $F(\delta_1=\delta_2=\ldots=\delta_j=0)$ represents an F-test on the null hypothesis of jointly significance of the parameters. $t(\rho=1)$ is the t-values for testing $\rho=1$ to test the existence of unit roots in the dynamic panel model [See Harris and Tzavalis (1999) for more details]. The normalized coefficients for the Harris and Tzavalis test of $\rho=1$ are -13.713, -9.475 and -10.058.

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