

Do expectations of future wealth increase outbound tourism? Evidence from Korea

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ABSTRACT

As international tourism is generally considered a luxury good, models to date have shared an understanding that demand is dependent on discretionary income. However, consumption theories predict that a shift in demand can be induced without changes in actual earnings when expectations for future income are adjusted. This presumes demand for international tourism can be influenced by “wealth effects” from real estate and financial assets. This study tested for the wealth effect on Korean outbound travelers during the 20 years between 1989 and 2009. Korea is a unique place to examine in that Korean households possess housing assets and financial assets that are traded actively in markets. The results of this study favored the possibility of a significant wealth effect from housing on outbound travel demand, but not from financial assets. This may be explained by data sensitivity and the relative importance of financial assets in the Korean people's wealth portfolios. Implications and suggestions for future research are provided along with the findings of the study.

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1. Introduction

Literature on international tourism demand often shares an explicit assumption that demand is a function of real discretionary income. Although it is unrealistic to think that expenditures on overseas travel could precede day-to-day necessities, the assumption in the literature directly follows a syllogism based on two fundamental premises. First, it is widely acknowledged that international tourism is considered a luxury good rather than a normal good (Lim, 1997), in that tourists must commit significant expenditures on costly goods such as airfare and hotels (Bakkal & Scaperlanda, 1991). Second, since it is a luxury good, demand should be dependent on the discretionary income of consumers (Crouch, 1992), which is the proportion of real earnings after normal expenses (i.e. food, living, medical) are deducted.

Accordingly, the concept that international tourism has a higher sensitivity to income than a normal good (income

elasticity higher than unity) has been thoroughly tested by academics (Lanza, Temple, & Urga, 2003; Smeral, 2003). These studies commonly found that the income elasticity of international tourism is greater than unity. Concurrent with evidence that international tourism is indeed a luxury good, a number of studies have advocated using real discretionary or disposable income in tourism demand models whenever it is available rather than crude income per capita variants, such as Gross Domestic Product or Gross National Income (Durberry and Sinclair, 2003; Lim, 1997; Song, Romilly, & Liu, 2000).

However, while real disposable income may be the best income variable for determining international tourism demand, it is not sufficient proof that demand for international tourism is *solely dependent* on residual income after living expenses are deducted from total earnings. Despite the high significance and compelling results (Crouch, 1996) of said income variables, it is still possible that other income-related factors play a role in determining international tourism demand. Certainly, the absolute availability of cash flows is likely to place a strict upper limit on tourism demand. If an individual or household does not have the wealth to purchase luxury goods, without doubt there will be less consumption. Yet, we cannot safely extend this logic to suggest that demand will consistently lead to the consumption of tourism goods or travel by using a constant proportion of discretionary income.

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Meanwhile, a stream of studies in the consumption literature has argued that consumer spending behaviors cannot be explained by current earnings alone, if at all. When consumer spending is not guided by extremes of myopia and liquidity constraints (Shea, 1995a), the distribution of wealth consumption across various stages of a consumer's life depends not only on current earnings but also on their beliefs regarding their future earnings and permanent income. Although movements in real discretionary income will undoubtedly increase international tourism demand, demand may also shift based on adjustments in adaptive expectations for future earnings or total wealth regardless of whether the potential gain is actually realized.

In this light, the two popularly cited assets that guide expectations on future earnings of aggregate demand are housing and financial assets. The way in which changes in the value of these two prominent asset classes impact consumption is popularly known as the 'wealth effect.' The "wealth effect" has been examined numerous times since the seminal work done by Ando and Modigliani (1963) and has been empirically validated to some extent (Case, Quigley, & Shiller, 2005). Nevertheless, there have been mixed results (Attanasio, Blow, Hamilton, & Leicester, 2009), as well as ongoing discussions and efforts by researchers to scrutinize the relationship between consumption and unrealized wealth.

Modigliani (1971) suggested that, holding labor income fixed, a wealth gain of a dollar increases consumer spending by five cents roughly. Carroll (2004) affirmed the wealth effect of both housing and wealth on consumption, with housing (non-financial) wealth having a greater influence on consumption. Case et al. (2005) concluded that there was a significant increase in consumption explained by gains in housing and financial wealth in the US. However, contradicting results have also been reported. Elliott (1980) concluded that only financial assets affect consumption, while both Skinner (1989) and Levin (1998) argued against the wealth effect from housing. Lettau and Ludvigson (2004) contended that most changes in asset values are "transitory and unrelated" to aggregate consumption. Differences were also found across countries. Case et al. (2005) found a significant housing wealth effect for a panel of 14 developed countries, but an insignificant financial wealth effect. Likewise, Campbell and Cocco (2007) observed a relatively large housing wealth effect using micro data in the UK.

The persistent debates and discussion stem from a few inevitable challenges in verifying this relationship at the aggregate level, as the wealth of consumers may respond differently to a directional movement of asset prices. For example, an increase in housing prices may lead to enhanced expectations of future wealth (or in some cases an actual gain should the house be sold) for home owners. At the same time, housing costs such as rent would generally increase along with housing prices. Consequently, an increase in housing prices would imply a net negative wealth effect for those who do not own their homes. This part of demand may decrease consumption based on unfavorable expectations regarding future income and costs. Another example can be drawn from Ogawa, Kitasaka, Yamaoka, and Iwata (1996), who found that the liquidity of unrealized wealth is also an important determinant of consumption. Even if the asset appreciates the owners may not view it as a capital gain due to illiquidity of the asset, a lack of information on reference prices, or consumption needs such as continued residence.

Furthermore, even when asset appreciation is perceived as a net gain in wealth, the influence of the wealth effect on the propensity to consume may differ for individuals and households of various wealth levels. Based on a 1997 Michigan survey, Starr-McCluer (1998) reported that only those who own a considerable amount of equity investments were significantly affected by movements in

capital asset prices. This is intuitive as the amount of investment is likely to determine the potential income or return, and therefore govern expectations for future income. Also, Poterba (2000) posited that "wealth elasticities" may differ by product type, arguing that household consumption affected by wealth gains from the stock market mainly consisted of luxury goods. With the exception of households in significant need, there is certainly no need to consume more inferior or normal goods under the expectation that future income will increase.

In effect, testing the wealth effect on aggregate consumption is complicated and difficult due to the sizable number of criteria to be met. In order to evenly distribute the wealth effect of price gains across individuals or households, various income classes must hold approximately equal proportions of non-financial and financial assets. A significant absolute amount of wealth should also be invested in these assets, even by low income households. Further, the asset's value should remain relatively stable over time and be traded constantly while price information needs to be consistently disseminated. In order to ensure that owners actively respond to the wealth effect by changing consumption patterns, the effect on luxury goods should be tested rather than normal or inferior goods. Although participation in international tourism is likely to be regarded as a luxury good for the most part, it is difficult to presume that on average those individuals and households who engage in international tourism have considerable investments in similar assets that are consistently traded in the market.

To this end, the current study proposes that Korean outbound travelers constitute a unique sample for testing the wealth effect on international tourism demand. The Korean residential market is dominated by a unique housing type referred to as 'apartments,' which are analogous to condominiums in the US (Ham & Lee, 2010). Consistent price increases have led Korean apartments to become an actively traded asset in the wealth portfolios of middle-class households. Information on prices and rents are readily available (Hwang, Quigley, & Son, 2006). According to the National Statistics Office of Korea, in 2006 the wealth of Korean households was deeply concentrated in real estate (76.8%) and financial assets (20.4%), while other assets accounted for only 2.7 percent. In essence, the wealth of the Korean people is concentrated in just two asset types, which are broadly held and actively traded with accurate and immediate dissemination of price information.

Therefore, the current study purports to investigate the wealth effect of housing and financial assets on Korean outbound travel demand. It is crucial to examine this causal relationship in order to improve our understanding of deterministic tourism demand models (Song & Li, 2008). Although the wealth effect may not be universal or present in every economy, in cases where tourism demand is significantly affected by not only current earnings but also expectations on future earnings, estimation of tourism consumption behavior based on contemporaneous income may be erroneous. In turn, misunderstanding consumption behaviors implies ineffective and misguided pricing and marketing strategies for tourism products and targeting of demand segments. Moreover, by identifying another driver of tourism efficiency in demand forecasting and modeling may be improved. Implications and suggestions are presented along with the findings of the study.

2. Related literature and hypotheses

The housing market in Korea is dominated by multi-family residential buildings referred to as 'apartments,' (Kim, Yang, Yeo, & Kim, 2005). Nearly 81 percent of all new housing in the country between 1995 and 2000 were apartments, while as of 2005 they accounted for more than half of the housing stock in Korea (Ham & Lee, 2010). Apartments are highly standardized in terms of

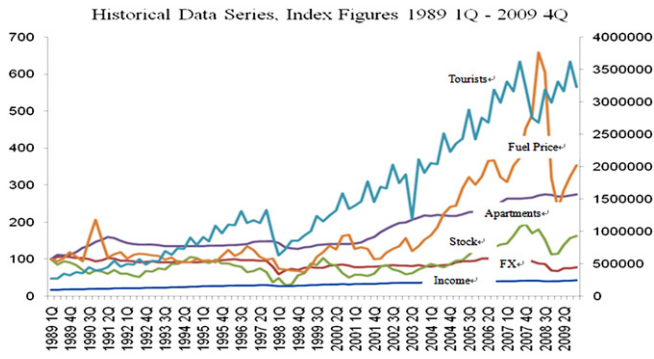


Fig. 1. Historical movements of data.

amenities, floor plans, and building materials. The housing market shares similar expectations when information on an apartment's location, size, and year built are provided. Homogeneous expectations combined with low transaction costs have led to easy trading and rental of apartments among individuals. As a result, the Korean apartment market is deeper and more active than most other housing markets (Hwang et al., 2006). This high volume of active trading and ease of comparability facilitate the construction and dissemination of reliable reference prices. Such information is usually offered free of cost and flows instantaneously as brokers are located in most neighborhoods and provide daily information on price movements. Thus, individuals have a very accurate estimate of housing prices.

An active market, consistent and stable price inflation, a lack of permanent rental accommodations in Korea, and a high desire to own real estate (Park, 2008) have all contributed to making apartments an important consumption asset. Apartments are also considered a crucial investment in the wealth portfolios of the Korean people. Moreover, the proportion of real estate in wealth portfolios for various income groups in Korea is consistent. According to the Korea Statistical Office, in 2007 the highest income group (top 20 percent) reported that 77.9% of their wealth was in real estate whereas the bottom 20% reported 79.4% in real estate assets.

Given the unique characteristic of Korean apartments being actively traded investment assets, the efficiency of the Korean housing market, and the broad ownership of apartments throughout various income classes, the appreciation of apartments is likely to be perceived as permanent wealth gains by the Korean people. Consequently, outbound tourism, a luxury good, may be consumed to a greater extent by aggregate demand when expectations of permanent increases in wealth are pervasive. Thus, we developed the following hypothesis:

Hypothesis 1. Appreciation of apartments will increase demand for outbound travel in Korea.

Meanwhile, a similar effect can be anticipated from the Korean stock market. Although much smaller than the equity markets of

developed countries, the Korean Stock Exchange is fairly sizable in terms of market capitalization and is the 14th largest stock exchange in the world (Kim, Baek, Noh, & Kim, 2007). The equity market involves frequent trading and is as liquid as the stock markets of many developed countries, such as the US, England, Germany, and Japan. The Korea Statistical Office reported in 2007 that financial assets are consistently held by different income groups; the proportion of household wealth invested in the financial market is practically the same across society, with 19.0% for the highest income group and 19.1% for the lowest income group.

The high volatility of the Korean stock market has been noted (Fratzscher & Oh, 2002) and investments in the equity market by Korean households are considerably lower than in the housing market. It is possible, however, that increases in financial wealth can also stimulate the consumption of outbound tourism if stock price increases are perceived as permanent wealth gains and consumption is adjusted according to the adaptive expectations of future earnings. Therefore, the second hypothesis was developed based on the wealth effect from the stock market:

Hypothesis 2. Appreciation of stocks will increase demand for outbound travel in Korea.

3. Data and methods

3.1. Sample and data

In order to examine the wealth effect from apartments and the stock market on Korean outbound tourism demand, quarterly time-series data from the first quarter of 1989 through the fourth quarter of 2009 ($N = 83$) was obtained from the following sources: number of outbound tourists from the Korea Tourism Organization (KTO), average household incomes and apartment sales price index from the Bank of Korea, real effective exchange rates from the Bank for International Settlements, composite Korean stock price index from Korea Stock Exchange, and Singapore Kerosene-Type Jet Fuel spot price from the U.S. Energy Information Administration. Average household income and apartment sales price index were initially obtained as monthly data and were aggregated into quarterly observations for consistency. The Singapore Kerosene-Type Jet Fuel spot price is the Mean of Platts Singapore (MOPS), used as the jet fuel price index by most airlines in Asia. The sample period starts in 1989, which is the first year the Korean government relaxed restrictions on international travel.

Fig. 1 illustrates the trends of data series. Summary statistics and Pearson correlations of the data are provided in Tables 1 and 2, respectively. All the variables tend to be highly correlated, as they are collectively subject to greater movements of the economy and common causality. There are two noteworthy observations to be made based on the data in the figure and tables. Price appreciation, and, therefore, cumulative returns on apartments, were greater

Table 1
Summary statistics of data ($N = 83$).

Variable	Definition	Mean	Std. Dev.	Min	Max
TOURIST	Number of outbound tourists	1,514,809.00	984,259.80	270,331.00	3,621,712.00
INCOME	Average household income index	173,041.80	44,214.93	92,180.60	246,164.30
EX	Real effective exchange rate	89.24	10.47	59.38	106.70
KOSPI	Korea stock exchange index	89.26	35.54	29.69	193.79
APT	Apartment sales price index	174.47	51.77	100.00	274.14
FUEL	Fuel price index	176.66	121.54	64.15	658.74

Data sources: TOURIST – Korea Tourism Organization; INCOME and APT – Bank of Korea; EX – Bank for International Settlements; KOSPI – Korea Stock Exchange; FUEL – US Energy Information Administration.

Table 2
Correlation matrix of variables.

	FUEL	APT	KOSPI	EX	INCOME
TOURIST	0.8042***	0.9403***	0.7399***	-0.1334	0.9473***
INCOME	0.7084***	0.8809***	0.6071***	-0.3111***	
EX	0.1232	-0.0942	0.2753**		
KOSPI	0.8281***	0.7381***			
APT	0.8515***				

Superscripts denote: *** – $p < 0.01$; ** – $p < 0.05$.

than stocks during the sample period, while at the same time the movements were less volatile. In effect, it is possible that the appreciation of apartments is more likely to be perceived as a permanent gain in wealth than stock appreciation. It should also be noted that incomes and the prices of apartments and stocks are highly and significantly correlated. When the wealth effect is significant, omitting asset variables and including only income as an explanatory variable is likely to cause a misspecification bias, which would result in overestimation of the income elasticity of demand.

3.2. Model specification

A log-linear specification, or elasticity model, tests for the wealth effects from apartment and stock market appreciation on outbound travel demand in South Korea:

$$\begin{aligned} \ln(\text{TOURIST}_t) = & \alpha + \beta_1 \ln(\text{INCOME}_t) + \beta_2 \ln(\text{EX}_t) + \beta_3 \ln(\text{KOSPI}_t) \\ & + \beta_4 \ln(\text{APT}_t) + \beta_5 \ln(\text{FUEL}_t) + \beta_6 \sim \beta_8 \sum Q_{1 \sim 3} \\ & + \beta_9 \text{AFC}_{\text{DUMMY}} + \beta_{10} 9/11_{\text{DUMMY}} + \beta_{11} \text{SARS}_{\text{DUMMY}} \\ & + \varepsilon_t \end{aligned} \quad (1)$$

where TOURIST is the number of outbound travelers departing from South Korea, INCOME is the average household income index, EX is the real effective exchange rate that accounts for changes in relative purchasing power parity in both prices and currency valuation, KOSPI is the index value of the Korean stock market, APT is the aggregate sales price index of apartments in Korea, FUEL is jet fuel price proxying for airfare, $\sum Q_{1 \sim 3}$ are the quarter dummies, the AFC_{DUMMY} (1 if 1997:Q3–1998:Q2, 0 elsewhere) for the Asian Financial Crisis, 9/11_{DUMMY} for the September 11th Attack (1 if 2001:Q4, 0 elsewhere), and the SARS_{DUMMY} (1 if 2003: Q2, 0 elsewhere) are dummy variables taking on the value of unity upon the occurrence of a macro event and zero if not, and t is the time subscript denoting the pertaining quarter.

Following a popular approach, the number of outbound tourist departures was used to measure tourism demand. Income and purchasing power parities were expected to be significant in the model (Song & Li, 2008). The hypotheses regarding the wealth effect from financial and housing assets were tested by coefficients on KOSPI and APT, $\hat{\beta}_3$ and $\hat{\beta}_4$, respectively. Following Wang's (2009) approach, jet fuel price was used as a proxy for airfare while binary variables controlled for the effects of macro socioeconomic events on tourism demand, namely the Asian Financial Crisis, the September 11th Attack, and spread of the Severe Acute Respiratory Syndrome (SARS). The use of a log-linear model allows easy interpretation of the results as the elasticity of demand where the units of data for the current study are difficult to interpret (Wang, 2009), while the log-linear form is also widely advocated for its robustness against heteroscedasticity (Wang, 1995).

Before estimation, heteroscedasticity and multicollinearity were examined using the Breusch–Pagan test and the variation inflation factor (VIF). The Breusch–Pagan test did not reject the null at p -value of 0.486, supporting the homoscedasticity assumption. In

addition, no variable had a VIF exceeding the potential problematic level of 10. We inferred that much of the collinearity expected from Table 2 is alleviated after the logarithmic transformation (Buongiorno, 1977; Grime & Smith, 1982). Also, in order to address the concerns of endogeneity from omitted-variable bias we identified the factors that influence housing prices in Asia as: construction costs, household income, household formation, housing supply, stock prices, and monetary supply (Chen & Patel, 1998). Among these factors, those that may have an effect on tourism demand (income and stock prices) entered the regression equation as explanatory variables as $\ln(\text{INCOME}_t)$ and $\ln(\text{KOSPI}_t)$, relieving concerns of endogeneity.

As autocorrelation of the dependent variables is expected, even using quarterly data, many studies employ a lagged dependent variable as an explanatory variable (Witt & Witt, 1995). Although including the lagged dependent variable does not create a bias in the coefficients, it is expected to underestimate the variance of the estimator in the presence of positive autocorrelation, thereby overstating the significance of the coefficients (Wooldridge, 2002). In order to conduct an efficient estimation and obtain reliable results, the current study implemented two different estimation techniques: Prais–Winsten and ordinary least squares (OLS) with Newey–West standard errors. Estimators and statistics from the Prais–Winsten procedure are asymptotically efficient and valid for autoregressive models of the first-order, while the Newey–West procedure provides a robust inference of serial correlations of a higher-order (Traub & Jayne, 2004). More specifically, if the model to be estimated includes a first-order autoregressive disturbance term, the Prais–Winsten method transforms the error vector that yields serially uncorrelated classical disturbances (Baltagi, Song, Jung, & Koh, 2007). In the presence of higher-order lags, the Newey–West method allows for the robust inference of standard errors on the coefficients (Ferson, Sarkissian, & Simin, 2003) and is standard in the economics literature (Greene, 2008).

For the Prais–Winsten estimation, a Cochrane–Orcutt transformation was done on (1) after estimation of the autocorrelation parameter, ρ . For data quarters t and $t-1$ this can be written as:

$$\begin{aligned} \ln(\text{TOURIST}_{t-1}) &= \alpha + \sum \beta_i x_{i,t-1} + \varepsilon_{t-1} \\ \ln(\text{TOURIST}_t) &= \alpha + \sum \beta_i x_{i,t} + \varepsilon_t \end{aligned} \quad (2)$$

where $x_{1 \sim 11}$ are all independent variables on the right-hand side of (1). By expressing the first-order autocorrelation in the error term as ρ , the error term can be expressed as a Markov scheme of an autoregressive and random component:

$$\varepsilon_t = \rho \varepsilon_{t-1} + v_t \quad (3)$$

where v_t is serially independent random disturbances. Substituting (3) into (2), the equation can be rewritten as an equivalent system:

$$\begin{aligned} \ln(\text{TOURIST}_t)^* &= (1 - \rho)\alpha + \sum \beta_i x_{i,t}^* + v_t \\ \ln(\text{TOURIST}_t)^* &= \ln(\text{TOURIST}_t) - \rho \cdot \ln(\text{TOURIST}_{t-1}) \\ \sum \beta_i x_{i,t}^* &= \sum x_i - \rho \sum x_i \end{aligned} \quad (4)$$

An estimation of (4) using the Generalized Least Squares (GLS) method yields coefficients and a variance structure unaffected by autocorrelation parameter ρ .

4. Results and discussion

Results of estimation by both Prais–Winsten and Newey–West procedures are displayed in Table 3. The results are similar in general, representing the reliability of the model, although there are some differences in significance and magnitude of the coefficients for variables EX, APT and dummy variables, as noted. The

Table 3
Estimation results.

Variable	Prais–Winsten FGLS			OLS with Newey–West errors		
	Parameter estimates	Standard error	t-statistic	Parameter estimates	Standard error	t-statistic
ln(INCOME)	1.5036***	0.0914	16.46	1.4315***	0.0567	25.24
ln(EX)	0.6531***	0.1344	4.86	0.3892**	0.1487	2.62
ln(KOSPI)	-0.0281	0.0465	-0.60	0.0695	0.0528	1.32
ln(APT)	0.3866**	0.1509	2.56	0.2586**	0.1330	1.94
ln(FUEL)	0.0078	0.0483	0.16	0.0498	0.0756	0.66
Q1	0.0053	0.0154	0.34	0.0197	0.0302	0.65
Q2	0.0370**	0.0178	2.07	0.0469	0.0301	1.56
Q3	0.1160***	0.0151	7.67	0.1300***	0.0238	5.46
AFC _{DUMMY}	-0.1051**	0.0502	-2.10	-0.2039***	0.0690	-2.96
9/11 _{DUMMY}	-0.0726	0.0553	-1.31	0.0097	0.0378	0.26
SARS _{DUMMY}	-0.4191***	0.0552	-7.59	-0.3608***	0.0369	-9.77
Intercept	-12.8050***	1.2842	-9.97	-10.552***	1.0730	-9.83
ρ	0.6846					
DW	2.1787					

Superscripts denote: *** – $p < 0.01$; ** – $p < 0.05$; * – $p < 0.1$.

Abbreviation denotes: DW–Durbin–Watson statistic.

Prais–Winsten: R^2 : 0.9443; Adj. R^2 : 0.9357 F -statistic: 109.51***, Convergence reached in 9 iterations.

Newey–West: R^2 : 0.9869 Adj. R^2 : 0.9849 F -statistic: 287.17***.

Base category of the quarter dummies is the 4th quarter (Q4).

adjusted R^2 of the model is considerably high at approximately 0.936, while the model is highly significant, even at $p < 0.001$. The first-order autocorrelation parameter ρ is estimated at 0.6846, while the resulting Durbin–Watson statistic of 2.179 indicates that after the Cochrane–Orcutt transformation autocorrelation was not present in the residuals.

Since the Newey–West procedure is only expected to outperform the Prais–Winsten method in the presence of higher-order autocorrelation, inferences were subsequently made based on the results from the Prais–Winsten estimation method. The coefficients of income and real effective exchange rates were the greatest in size and highly significant, consistent with the results of preceding studies (Lim, 1997). A one percent increase in average household income caused 1.5 percent increase approximately, in the number of quarterly outbound travelers. The effect from purchasing parity changes was relatively smaller at 0.65 percent. As hypothesized, the income elasticity greater than unity confirmed that outbound travel is considered as a luxury good by the Korean people. Accordingly, the consumption of international travel increased at a rate greater than that of income.

The coefficient of APT was significant and stable across both models. A one percent increase in apartment prices in Korea caused an approximately 0.39 percent increase in the number of outbound travelers per quarter. Although the magnitude of the effect on aggregate demand was less than one third of that from income, the results nevertheless serve as evidence of the effect of adjusted expectations of wealth on consumption patterns. Korean demand for outbound tourism seems to not only rely on actual income, but also on expected future earnings based on housing price gains during the sample period. As a result, Hypothesis 1 was supported and the current study found that housing assets had a significant wealth effect on Korean demand for outbound tourism.

On the other hand, Hypothesis 2 was rejected in both models with a low probability. A number of potential factors may have contributed to this finding. One possibility is that the high volatility of stock prices might prevent owners from viewing the appreciation as a permanent gain. The insignificant results could also be attributed to inefficient estimation; quarterly data may have insufficient sensitivity as stock prices are highly volatile in nature, as seen in Fig. 1. Yet another possibility is that the wealth effect from financial assets could be insignificant at the aggregate level. This may be due to a comparably low allocation of relative wealth in the

stock market, which accounts for less than 20% of total household wealth, whereas housing assets account for more than 75%. The smaller amount of total investments in equity stocks, which resulted in a trivial absolute increase in expected wealth, may also account for the result (Cho, 2006).

Among the quarter dummies, the third quarter, which includes the Korean summer vacation season, was the most sizable and significant. The dummy variables for macro events, except for the September 11 dummy, were significant. The Asian Financial Crisis, the net effect of depressed income and purchasing parity, decreased outbound travel demand by roughly 1 percent. Severe Acute Respiratory Syndrome (SARS) decreased outbound travel demand by approximately 4 percent. A possible explanation for the insignificant coefficient of the 9/11_{DUMMY} variable is the effect of substitution to other destinations. Although trips to the US from Korea significantly declined immediately after the 9/11 attack, total outbound demand may have been sustained by substituting other nearby destinations, such as Southeast Asia or Oceania, that had a relatively lower perceived risk of terrorism (Lim, 2004).

As observed, the effect of unrealized wealth, the net of income and purchasing power parity changes, seems to influence the outbound travel of the Korean people. Although the effect is rather small compared to the two most important variables that govern international travel, we nevertheless found a significant causal relationship between expectations of wealth and the decision to travel internationally.

Consequently, distinguishing wealth and income in travel demand may be an important task based on analytic results. Even though the wealth effect may only be conditionally present for certain economies and asset types, Korean economy tourism demand can be partly explained by appreciation in housing assets. For example, tourist surveys often utilize the income levels of tourists to explain tourism demand or expenditure (Jang, Bai, Hong, & O'Leary, 2004; Jang, Ismail, & Ham, 2002). However, in order to produce more efficient estimates of income and/or price effects on tourism goods, changes in net assets and the relative location of a person in the society's wealth distribution curve can be taken into account. Income and wealth variables are likely to be correlated with one another since they are both subject to the greater movements of the national economy. This suggests that efficiency of conventional tourism demand models can be enhanced and their accuracy improved by utilizing important wealth variables.

5. Conclusion

Ando and Modigliani's (1963) Life Cycle Hypotheses (LCH) predicts that a shift in demand can be induced without an actual change in income, but instead based solely on a change in expectations for future income. Based on LCH, the current study hypothesized that consumption of international tourism is also subject to changes in unrealized, expected wealth tied to the prices of housing and financial assets. Since examining the relationship at the aggregate level requires liquidity, active trading, an efficient market, and broad ownership of assets throughout demand segments, the Korean housing and financial markets, which fulfill these conditions, were used to investigate the recursive relationship with outbound travel demand.

Estimating the constant elasticity model using time-series data with Prais–Winsten and Newey–West procedures, it was found that the appreciation of apartments, the dominant type of housing in Korea, significantly increased outbound travel demand from 1989 to 2009. Conversely, the appreciation of stocks was found to have no effect on outbound travel demand. Rather than naively interpreting these results as proof that the financial wealth effect is invalid, it should be noted that low data sensitivity, the relatively lower importance of financial assets in household wealth portfolios, and high price volatility may have led to the insignificant empirical results for financial assets.

By identifying unrealized wealth or adaptive expectations based on future income, as a potential determinant of tourism demand the current study makes a significant contribution to the contemporary tourism literature. The deterministic system of travel demand will be better understood by taking the consumption behavior and wealth portfolios of tourism demand into consideration. Wealth effects may appear insignificant and vary depending on the characteristics of the demand, product, and asset, and caution should be employed when drawing on the effect of unrealized wealth. However, the possibility of its presence should be considered to achieve better results in the analysis of tourism demand.

Managerial implications for the industry are straightforward. When the wealth effect is significant, forecasting systems can make use of new asset variables to improve efficiency and predictability. Developing better tourism forecasting models requires identifying new variables and integrating quantitative and qualitative forecasting approaches (Song & Li, 2008). In this regard, micro and qualitative data on demand characteristics, including demand elasticities, destination preferences, and the propensity to travel, may enter the econometric equations to improve model fit and forecasting accuracy. Such efforts are not new and have been gaining attention in relatively new demand models (Stepchenkova & Eales, 2011). Although the current study operationalizes two assets suitable for the Korean economy – housing and stocks – demand models for other groups, countries, or economies will benefit from testing and utilizing other potentially relevant asset variables, such as cultural beliefs (Guiso, Sapienza, & Zingales, 2006) or hopes regarding future economic conditions (Canina & Carvell, 2005).

Consequently, organizations promoting tourism, such as destination marketing organizations and conventions and visitors bureaus, can better allocate limited resources and coordinate marketing and sales efforts in order to respond to expected demand fluctuations from changes in the consumption behaviors of potential visitors that do not result from realized income.

For example, instead of relying on crude forecasts based solely on gross domestic product, consumer price index, and travel costs, analysts may use market-specific data on destination preferences of sending countries regarding respective receiving countries and

income elasticity to those destinations. This approach may be further augmented by connecting spending behaviors with cultural beliefs and expectations regarding future economic conditions.

Despite its relevance, this study has several limitations in terms of generalizing and extending the results to other settings. The Korean economy and travel demand are a unique case among the numerous countries constituting the global economy and the demand for international tourism. As such, there is no guarantee that the wealth effect is universal or common across a number of economies, as it is jointly dependent on the nature of the economy, the asset type in question, and characteristics of the demand. It should also be noted that incorporating the effect of wealth in demand modeling or marketing strategies when it is insignificant could also sacrifice efficiency and reliability. Furthermore, inflation and volatility of housing and stock prices differ greatly case by case, while adaptive expectations based on future income resulting from price changes are also likely to be inconsistent or distinctive on the part of the consumers. The initial wealth of sending countries and destination price levels are expected to play a significant role as well. For example, in an extreme situation the wealth-elasticity of high income demand for low cost tourism destinations may be negative, as wealthier travelers will shift toward more prestigious and costly alternatives.

Although the current study utilized Korean data to overcome the limitations originating from the 'aggregation economy,' the theory of wealth effect on consumption has been supported and empirically validated to a significant extent, especially by studies using micro data (Poterba, 1988). Accordingly, the effect might be universal, despite the limited testability with macroeconomic data.

Indeed, it would not be easy to find a similar developed economy where a considerable mass of wealth is concentrated in one or two asset classes. Failing to satisfy these two conditions – namely the concentration of wealth into a few assets and the liquidity of these assets – creates noise in attempts to find the significant effects of wealth on consumption. As shown, the current study could not find a significant wealth effect from financial assets, even though almost 20% of total household wealth in Korea is concentrated in them. A potential explanation for the results could be that financial assets in the Korean economy may not generate a sufficient wealth effect for the people, presumably due to the volatility of stock prices.

Myopia, liquidity and credit constraints (Rosenzweig & Wolpin, 1993; Shea, 1995b; Zeldes, 1989), the main factors that also govern spending, vary greatly even for people of comparable net wealth. Thus, the direction of the wealth effect may also differ for social and income classes. Some may readjust their total wealth higher when housing price soars. Others may face reductions in future discretionary spending. In this regard, collecting refined income and tourism spending data, segmented by income and wealth level, would be invaluable in examining the marginal sensitivity of the wealth effect and provide a base of comparison across cultures and societies.

As such, further research efforts on this topic should focus on the behavior and response of travel demand to economic cycles. In this regard, refining estimation techniques and examining psychological and cultural differences are viable options to pursue. Considering other potentially influential factors on demand such as liquidity, savings, credit constraints, and myopic behavior are also warranted. Although the controversy around the effect of wealth on consumption is unlikely to be resolved conclusively (Poterba, 1988) in the near future, untangling the complex dynamics among income, wealth, and consumption will be central in the future enhancement of forecasting techniques and models for travel demand.

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References

- Ando, A., & Modigliani, F. (1963). The 'Life Cycle' hypothesis of saving: aggregate implications and tests. *American Economic Review*, 53, 55–84.
- Attanasio, O. P., Blow, L., Hamilton, R., & Leicester, A. (2009). Booms and busts: consumption, house prices and expectations. *Economica*, 76(301), 20–50.
- Bakkal, I., & Scaperlanda, A. (1991). Characteristics of U.S. demand for European tourism: a translog approach. *Review of World Economics*, 127(1), 119–137.
- Baltagi, B. H., Song, S. H., Jung, B. C., & Koh, W. (2007). Testing for serial correlation, spatial autocorrelation and random effects using panel data. *Journal of Econometrics*, 140, 5–51.
- Buongiorno, J. (1977). Long-term forecasting of major forest products consumption in developed and developing economies. *Forest Science*, 23(1), 13–25.
- Campbell, J. Y., & Cocco, J. F. (2007). How do house prices affect consumption? Evidence from micro data. *Journal of Monetary Economics*, 54(3), 591–621.
- Canina, L., & Carvell, S. (2005). Lodging demand for urban hotels in major metropolitan markets. *Journal of Hospitality and Tourism Research*, 29(3), 291–311.
- Carroll, C. D. (2004). Housing wealth and consumption expenditure. In: *Paper prepared for the academic consultants meeting of the board of governors of the federal reserve system*, January 2004. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.143.6891&rep=rep1&type=pdf> Accessed September 2010.
- Case, K. E., Quigley, J. M., & Shiller, R. J. (2005). Comparing wealth effects: the stock market versus the housing market. *Advances in Macroeconomics*, 5, 1–20.
- Chen, M.-C., & Patel, K. (1998). House price dynamics and Granger causality. *Journal of the Asian Real Estate Society*, 1(1), 101–126.
- Cho, S. (2006). Evidence of a stock market wealth effect using household level data. *Economic Letters*, 90(3), 402–406.
- Crouch, G. I. (1992). Effect of income and price on international tourism. *Annals of Tourism Research*, 19(4), 643–664.
- Crouch, G. I. (1996). Demand elasticities in international marketing: a meta-analytical application to tourism. *Journal of Business Research*, 36(2), 117–136.
- Durbarry, R., & Sinclair, M. T. (2003). Market shares analysis: the case of French tourism demand. *Annals of Tourism Research*, 30(4), 927–941.
- Elliot, J. W. (1980). Wealth and wealth proxies in a permanent income model. *The Quarterly Journal of Economics*, 95(3), 509–535.
- Ferson, W. E., Sarkissian, S., & Simin, T. T. (2003). Spurious regressions in financial economics? *The Journal of Finance*, 58(4), 1393–1414.
- Fratzscher, O., & Oh, N. Y. (2002). *Why are Korean markets so volatile?*. FASP background papers World Bank. <http://siteresources.worldbank.org/EXTBANKING/Resources/Korea-Volatility.pdf> Accessed August 2010.
- Greene, W. H. (2008). *Econometric analysis* (6th ed.). Englewood Cliffs, NJ: Prentice Hall.
- Grime, E. K., & Smith, A. G. (1982). Mortgage allocation in Salford and Manchester. *Area*, 14(4), 305–312.
- Guiso, L., Sapienza, P., & Zingales, L. (2006). Does culture affect economic outcomes? *Journal of Economic Perspectives*, 20(2), 23–48.
- Ham, S., & Lee, G. (2010). A quantitative analysis of the apartment unit types in South Korea. *International Journal for Housing and Its Applications*, 34(1), 47–55.
- Hwang, M., Quigley, J. M., & Son, J. (2006). The dividend pricing model: new evidence from the Korean housing market. *Journal of Real Estate Finance and Economics*, 32(3), 205–228.
- Jang, S., Bai, B., Hong, G.-S., & O'Leary, J. T. (2004). Understanding travel expenditure patterns: a study of Japanese pleasure travelers to the United States by income level. *Tourism Management*, 25(3), 331–341.
- Jang, S., Ismail, J. A., & Ham, S. (2002). Heavy spenders, medium spenders, and light spenders of Japanese outbound pleasure travelers. *Journal of Hospitality and Leisure Marketing*, 9(3/4), 83–106.
- Kim, In J., Baek, I.-S., Noh, J., & Kim, S. (2007). The role of stochastic volatility and return jumps: reproducing volatility and higher moments in the KOSPI 200 returns dynamics. *Review of Quantitative Finance and Accounting*, 29(1), 69–110.
- Kim, S.-S., Yang, I.-H., Yeo, M.-S., & Kim, K.-W. (2005). Development of a housing performance evaluation model for multi-family residential buildings in Korea. *Building and Environment*, 40(8), 1103–1116.
- Lanza, A., Temple, P., & Urga, G. (2003). The implications of tourism specialization in the long run: an econometric analysis for 13 OECD economies. *Tourism Management*, 24(3), 315–321.
- Lettau, M., & Ludvigson, S. C. (2004). Understanding trend and cycle in asset values: reevaluating the wealth effect on consumption. *American Economic Review*, 94(1), 276–299.
- Levin, L. (1998). Are assets fungible? Testing the behavioral theory of life-cycle savings. *Journal of Economic Behavior & Organization*, 36(1), 59–83.
- Lim, C. (1997). Review of international tourism demand models. *Annals of Tourism Research*, 24(4), 835–849.
- Lim, C. (2004). The major determinants of Korean outbound travel to Australia. *Mathematics and Computers in Simulation*, 64(3–4), 477–485.
- Modigliani, F. (1971). Monetary policy and consumption. In *Consumer spending and monetary policy: The linkages*. Boston: Federal Reserve Bank of Boston, Conference Series No. 5.
- Ogawa, K., Kitasaka, S., Yamaoka, H., & Iwata, Y. (1996). An empirical re-evaluation of wealth effect in Japanese household behavior. *Japan and the World Economy*, 8, 423–442.
- Park, D. B. (2008). *2010 Migration of wealth*. Seoul: 21st Century Books.
- Poterba, J. M. (1988). Are consumers forward looking? Evidence from fiscal experiments. *American Economic Review*, 78(2), 413–418.
- Poterba, J. M. (2000). Stock market wealth and consumption. *Journal of Economic Perspectives*, 14(2), 99–118.
- Rosenzweig, M. R., & Wolpin, K. I. (1993). Credit market constraints, consumption smoothing, and the accumulation of durable production assets in low-income countries: investments in bullocks in India. *The Journal of Political Economy*, 101(2), 223–244.
- Shea, J. (1995a). Union contracts and the life cycle-permanent income hypothesis. *American Economic Review*, 85(1), 186–200.
- Shea, J. (1995b). Myopia, liquidity constraints, and aggregate consumption: a simple test. *Journal of Money, Credit and Banking*, 27(3), 798–805.
- Skinner, J. (1989). Housing wealth and aggregate saving. *Regional Science and Urban Economics*, 19(2), 305–324.
- Smeral, E. (2003). A structural view of tourism growth. *Tourism Economics*, 9(1), 77–93.
- Song, H., & Li, G. (2008). Tourism demand modeling and forecasting – a review of recent research. *Tourism Management*, 29(2), 203–220.
- Song, H., Romilly, P., & Liu, X. (2000). An empirical study of outbound tourism demand in the UK. *Applied Economics*, 32(5), 611–624.
- Starr-McCluer, M. (1998). Stock market wealth and consumer spending. *Finance and Economics Discussion Series*. <http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.159.8251&rep=rep1&type=pdf> Accessed September 2010.
- Stepchenkova, S., & Eales, J. S. (2011). Destination image as quantified media messages: the effect of news on tourism demand. *Journal of Travel Research*, 50(2), 198–212.
- Traub, L. N., & Jayne, T. S. (2004). The effects of market reform on maize marketing margins in South Africa: an empirical study. *MSU International Development Working Paper Number*, 83.
- Wang, P. (1995). Joint test for functional forms and heteroscedasticity with property sales and valuation data. *Applied Stochastic Models and Data Analysis*, 11(4), 315–321.
- Wang, Y.-S. (2009). The impact of crisis events and macroeconomic activity on Taiwan's international inbound tourism demand. *Tourism Management*, 30(1), 75–82.
- Witt, S. F., & Witt, C. A. (1995). Forecasting tourism demand: a review of empirical research. *International Journal of Forecasting*, 11(3), 447–475.
- Wooldridge, J. M. (2002). *Econometric analysis of cross section and panel data*. Cambridge: MIT Press.
- Zeldes, S. P. (1989). Consumption and liquidity constraints: an empirical investigation. *The Journal of Political Economy*, 97(2), 305–346.