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Tourism Economics, 2013, 19 (4), 823–834 doi: 10.5367/te.2013.0226

The impact of wage rate growth on tourism competitiveness

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This study tests whether national labour costs affect international competitiveness in the tourism industry. Using a fixed effect model design and two-stage least squares (2SLS) estimation, a set of 40 countries is examined during the period 1990–2010. The study reveals that labour costs may be an important supply-side determinant of tourism expenditures, and supports the hypothesis of a negative relationship between these two variables. Implications of the reported findings for industry and for government macroeconomic policy are provided. Potential extensions of these findings to the tourism area life cycle model are also discussed.

Keywords: tourism competitiveness; wages; labour costs; instrumental variable; visitor expenditures

Tourism is a common driver of economic and societal change. As countries evolve into more wealthy and developed nations, tourism and economic growth typically coincide with increases in wage rates. Wages and labour costs have been noted to be effective measures of international competitiveness in other sectors (Turner and Golub, 1997; Turner and Van't dack, 1993), but little research has explored how labour costs affect tourism industry competitiveness. To date, it has remained empirically untested whether increasing wages in these developing and transitional countries have affected the ability of their tourism sectors to compete effectively with less developed nations, where labour costs remain low. As a nation improves its welfare, in part through development of the tourism sector; does the corresponding increase in labour market wages affect the ability for that sector to remain competitive with other jurisdictions?

In this study, a discussion of the critical determinants considered when tourists select a destination is followed by a dialogue regarding the evolution

of a tourism destination, and a review of how business costs, like labour, impact destination competition. A macroeconomic panel data set of predominantly European countries from 1990 to 2010 is then tested, estimating the impact of employee wage growth on countries' tourism industry. A fixed effect model design with 2SLS estimates is used to correct for potential model endogeneity. The article then concludes with a discussion of the findings, and potential extensions of the model.

Literature review

Destination life cycle theory

When examining tourism sector competitiveness, it is helpful to understand the life cycle of a tourism destination. Butler (1980) proposed the tourism area life cycle model (TALC), which is an often cited description of the evolution of a tourist area. Butler's TALC model is depicted by an s-shaped curve including the following stages: exploration, involvement, development, consolidation, stagnation, rejuvenation and decline (Butler, 1980). The model explains that a destination moves from one stage to the next based on a variety of variables including accessibility, political support, resource availability, competition and visitor preference. Butler suggests that the development stage might include growth leading a destination to import labour to complete tourism-related work, suggesting that labour demands increase as a destination grows in popularity; however, it does not discuss how this increase would impact the destinations competitiveness. Similarly, Butler (1980) defines the decline stage as a period where the destination will not be able to compete as the attractiveness of the destination decreases; yet, there is little economic discussion of the reasons a location may enter the decline stage.

Getz (1992) suggests that the status of the economic market in the destination area may be an important impact related indicator of a destination's designation in one of the TALC stages. Prideaux (2000) describes several challenges of the TALC model as an analytical tool, including the lack of consideration in the model for significant economic factors. Identifying specific economic indicators, like wage rate growth, can continue to advance the TALC model by including more tangible variables.

Determinants of destination choice

Several items are often considered when tourists decide country destinations. Destinations often are analysed on qualitative factors like image, quality of tourist services, and destination marketing as well as service factors like the cost of transport services and ground content, which includes accommodations, food and beverage, and entertainment (Dwyer *et al*, 2000). Price has repeatedly been identified as a critical factor for tourists when selecting a destination (Crouch, 1992; Crouch, 1995; Crouch and Ritchie, 1999). Low cost destinations may lure travellers to visit while higher cost locations may drive potential tourists away, given similar destination characteristics.

As rational consumer decision making would suggest, given all other attractiveness features for a trip with the same characteristics, a tourist will select to visit a country in which the personal expenditure will be lower (Dwyer

et al, 2000; Haroutunian and Pashardes, 2005; Mangion *et al*, 2005; Papatheodorou, 2002; Zhang and Jensen, 2007; Azzoni and de Menezes, 2009). Crouch (1992) suggests that for international tourism as a product, the cost of goods and services are a major portion of the total price. Factors that cause prices to increase need to be identified and examined to determine how those variables impact tourism competitiveness. This study examines one supplier cost factor: employee wages.

Labour cost impact on destination competitiveness

Tourism destinations compete for visitors. Researchers indicate that visitors often substitute one destination for another. Bornhorst *et al* (2010) suggest that substitution among destinations is persistent and that destinations need to effectively control all components of the tourism system in order to maintain a competitive advantage.

Enright and Newton (2004) find that business-related factors as well as more conventional attractiveness factors, like price, should be included in studies of tourism competiveness. Based on the 'evidence of price sensitivity on the demand for travel, destinations need to monitor their price competitiveness relative to alternate locations' (Dwyer *et al*, 2000, p 21). Edwards (1995) investigated the cost competitiveness of chosen countries in the Asia Pacific area. He suggests that an increase in costs can be associated with a decrease in travel market share from every origin country. He further suggests that decreases in destination comparative costs are linked to an increase in market share.

This idea is demonstrated by several specific countries or areas, which have been the focus of investigation. A case study of the British Channel Island of Jersey states that increases in labour costs 'inevitably undermine the island's competitiveness' (Hampton and Christensen, 2007, p 1004). Further, they suggest that Jersey has been 'crowded-out by high labour costs relative to comparable destinations' (Hampton and Christensen, 2007, p 1004). Similarly, a study that investigated the competitiveness of Slovenian tourism found that prices were considered to be too high, specifically stating that 'Slovenian tourism is uncompetitive in human resource management' (Gomezelj and Mihalic, 2008, p 296). Similarly, Keane's (1997) investigation of quality and pricing in tourism destinations uses the examples of Bermuda and Belize to demonstrate the impact of price on competitiveness. Keane describes Bermuda as having taken on features of a high-cost destination, including high labour costs. These factors contributed to intensifying competition in Bermuda, whereas Belize had not experienced similar competitive threats due in part to its small scale, flexible operations and lack of labour market problems.

Wages and industry competitiveness

Under the conditions of a perfectly competitive labour market, workers can expect to receive a wage that is equal to their opportunity cost. That is, firms will offer a wage that leads to a level of utility equal to that which could be received from the next best alternative in the labour market (including leisure). If skills are not entirely industry specific, the wage will therefore reflect the wage that could be obtained in an alternative industry. This supposition is

supported by the findings of Kambourov and Manovskii (2009), who find that wage inequality and occupational mobility are highly interrelated. This does not suggest that labour markets will demonstrate wage parity; indeed large inter-industry wage differentials have been found in the USA that cannot be attributed to unobserved differences in ability or to compensating differentials for working condition (Krueger and Summers, 1988). However, the result suggests that the labour component of a firm's cost structure may be influenced in part by the wages offered in other industries where their human capital may be productive. As a proxy for the opportunity cost of tourism workers, national wage rates are proposed in this study.

Other industries have previously been the focus of studies that explore the effect of rising wages on international competitiveness. Increasing wages in the manufacturing sector have been identified as affecting the ability to compete with countries whose comparative advantage did not erode (Kreinin, 1984). Some researchers distinguish the importance of comparative advantages as being determined by the wage difference between high-skilled workers and low-skilled workers (Sachs *et al*, 1994). More recently, studies have examined China's competitive advantage in the manufactured goods sector, as economic prosperity has led to increased labour costs, which must be balanced against increases in labour productivity (Ceglowski and Golub, 2007; Houjun and Danli, 2011).

Assuming that the supply of tourism is not perfectly inelastic to labour costs, an increase in the wage rate will cause an upward shift in the supply curve, and reduce consumption in a competitive international market. Dwyer *et al* (2010) have described the tourism market as competitive, but not perfectly competitive due to product differentiation and inseparability of production and consumption. To measure the extent of tourism consumption decreases that result from an increase in the national wage rate, this study examines tourism expenditures by foreign visitors.

Methodology

Data

Through econometric causal modelling, the primary determinants of tourism demand have been noted in a handful of meta-studies. Generally, these have been noted as price (Crouch, 1995; Witt and Witt, 1995; Lim, 1999), income (Crouch, 1995; Witt and Witt, 1995; Lim, 1999), exchange rates (Crouch, 1995; Witt and Witt, 1995; Uysal and El Roubi, 1999), transportation cost (Crouch, 1995; Lim, 1999), marketing expenditures (Crouch, 1995; Witt and Witt, 1995), population size (Witt and Witt, 1995) and time (Crouch, 1995; Witt and Witt, 1995). Some support for non-economic determinants has also been noted (Cho, 2010). Qualitative effects, such as 'one-off' events like a health pandemic or terrorism attack have also been noted to have effects on tourism demand (Witt and Witt, 1995; Pizam and Smith, 2000; Goodrich, 2002; Eisendrath *et al*, 2008; Pine and McKercher, 2004).

Since it is not possible to compile all of these determinants for each country over the period of study, traditional ordinary least squares (OLS) estimation methods would lead to biased coefficient estimates in the final model. Therefore, a panel data method with 2SLS is used to provide cross-sectional and

temporal variation, and to account for gaps in reported information for respective countries. The data set examines 40 countries in the period from 1990 to 2010. The estimation model summary statistics are provided in the Appendix.

The dependent variable, tourism expenditures within the country by foreign visitors, was obtained from the United Nations World Tourism Organization (2011). The variable of interest – gross average monthly wages – was obtained from the United Nations Economic Commission for Europe (2011). The instrumental variable – years of school life expectancy from primary to tertiary education – was obtained from the UNESCO Institute for Statistics (2011). The other explanatory variables that could be controlled in this study were compiled from several sources (ERS International Macroeconomic Data Set, 2010; International Monetary Fund, 2010; International Labour Organization, 2011; World Travel and Tourism Council, 2011). The selection of these variables was influenced by the findings noted in the literature review. Among the possible control variables were several permutations of exchange rates, population size, gross domestic product (GDP), hotel and restaurant employment, and an ease of doing business proxy – average the number of days required to start a business. The final model specification is discussed further below.

Estimation framework

This study uses a fixed effect model design with 2SLS estimates to address potential endogeneity in the variable of interest, the wage rate. The fixed effect model design allows for the removal of potential inter-country endogenous error that is constant over time. Fixed-effect models are commonly used in panel data sets when there is an immeasurable unobserved effect in each section (Wooldridge, 2006). In this model, the fixed effects design is used to account for stable country-specific factors such as climate, historical visitor attractions, language, and time invariant attitude or image components. As opposed to estimating the parameter coefficients over a pooled sample, fixed-effect regression instead looks at variation across time, within each country to eliminate bias.

That is, the proposed model for each country *'i'* may be similar to:

$$y_{it} = \mathbf{x}_{it}\beta + v_i + \varepsilon_{it},\ t = 1,2,...,T,$$

where $\mathbf{x}_{it}$ denotes the explanatory variables that can be thought of in the same manner as in a typical OLS regression model, the y_{it} term denotes the dependent variable, and the v_i term contains the stable characteristics that are unique to each country. If the average of this equation is taken over time, and subtracted from the equation above, the time demeaned equation that can be estimated by pooled OLS (or 2SLS) is defined by:

$$y_{it} - \bar{y}_i = (\mathbf{x}_{it} - \bar{\mathbf{x}}_i)\beta + v_i - v_i + \varepsilon_{it} - \bar{\varepsilon}_i,\ t = 1,2,...,T$$

or

$$\ddot{y}_{it} = \ddot{\mathbf{x}}_{it}\beta + \ddot{\varepsilon}_{it},\ t = 1,2,...,T.$$

In order to account for other potential endogeneity in the wage term, this study also implements a 2SLS instrumental variable approach. Since there may be non-constant factors in the model error term that affect both tourism expenditures and wages (for example, popularity of the destination, political stability or public infrastructure), OLS estimates of wage impacts on tourism expenditures may produce biased coefficient estimates. The 2SLS estimator consistently estimates the wage regression parameter by using an instrument to purge out the correlation between the explanatory variable and the model error term. Two-stage least squares estimation produces a consistent coefficient estimate through the use of an exogenous instrumental variable, education (Wooldridge, 2006).

In instrumental variable estimation, two conditions need to be satisfied by the instrument. The first condition is a correlation of zero between the instrument and the structural model error term. In this model, that would be characterized by $Cov(Education_{it}, \varepsilon_{it}) = 0$. Second, it must be the case that the instrument and the endogenous variable be correlated, $Cov(Education_{it}, Wages_{it}) \neq 0$.

The first condition is not empirically testable in this model, though it seems intuitively plausible that education will not provide any additional explanatory power to tourism expenditures beyond what is already addressed by the model through the wage, the control and the fixed effect variables. For example, if the presence of a well-established higher education system encourages visitation to a country's universities, the fixed effect variables would likely capture most, if not all, of this variation.

The second condition of a non-zero correlation between education and wages has been empirically established in labour economics literature (Ashenfelter and Krueger, 1994; Card, 2001; Klein and Vella, 2009). The assumption is also tested for this particular set of data in the subsequent results section. The reduced form (first stage) model consists of all of the exogenous variables in the second stage model and the instrumental variable, education. The estimates from this first stage model are then used to replace the potentially endogenous wage variable in the second stage model. The first stage model equation can be expressed as follows:

$$Wages_{it} = \Pi_0 + \Pi_1 \cdot Education_{it} + \Pi_2 \cdot Jobs_{it} + \Pi_3 \cdot Population_{it} + \Pi_4 \cdot GDP_{it} + \Pi_5 \cdot MarketSize_t + v_i + \mu_{it},$$

where $Wages_{it}$ = gross average monthly wages, in USD; $Education_{it}$ = school life expectancy from primary to tertiary education, in years; $Jobs_{it}$ = total hotel and restaurant employment; $Population_{it}$ = national population, in millions; GDP_{it} = the natural log of real gross domestic product per capita, in IMF international dollars; $MarketSize_t$ = the world leisure and business travel & tourism spending, in billions of real USD; v_i = fixed structural characteristics that are unique to each country; μ_{it} = the model error term.

The structural model, which uses the estimate of wages from the first stage model as an exogenous independent variable, can be expressed as follows:

$$Tourism_{it} = \Pi_0 + \beta_1 \cdot Wages_{it} + \beta_2 \cdot Jobs_{it} + \beta_3 \cdot Population_{it} + \beta_4 \cdot GDP_{it} + \beta_5 \cdot MarketSize_t + v_i + \varepsilon_{it},$$

where $Tourism_{it}$ = tourism expenditure in the country, in millions of USD; $Wages_{it}$ = the first stage estimate of gross monthly wages, in USD; $Jobs_{it}$ = total hotel and restaurant employment; $Population_{it}$ = national population, in millions; GDP_{it} = the natural log of real gross domestic product per capita, in IMF international dollars; $MarketSize_t$ = the world leisure and business travel & tourism spending, in billions of real USD; v_i = fixed structural characteristics that are unique to each country; ε_{it} = the model error term.

After the fixed effect adjustment, the variables in the equation above can be replaced with time-demeaned variables and the v_i term is dropped. Although other model specifications were estimated based on variables identified in the literature, the specification outlined above provided the highest adjusted R^2 value and eliminated any non-significant variables from the model specification. Some alternative model specifications are provided in the results section to illustrate the robustness of the findings.

Results

First stage tests

As shown in Table 1, education is a statistically significant predictor of the market wage rate; $t_{(232)} = 3.10$, $p = 0.002$. The F-stat value for the instrumental variable was $F_{(1, 232)} = 9.61$, $p = 0.002$, indicating that education is a reasonable instrument for the wage rate, and satisfies the $Cov(Education_{it}, Wages_{it}) \neq 0$ condition.

The structural model findings are provided in Table 2. Standard errors robust to any arbitrary forms of heteroscedasticity were estimated using the robust procedure in Stata (StataCorp LP, 2009). The structural model revealed that labour costs may be an important determinant of tourism expenditures, and supports the theory of a negative relationship between these two variables. In the final model identified in Table 2, a US$1 increase in gross monthly wages is estimated to decrease annual tourism expenditures by US$188,000.

Table 1. Reduced form full model summary.

N	$F_{(5, 232)}$	Centred R^2	Uncentred R^2
276	3.91	0.17	0.17

Coefficients – dependent variable: wages

	B	Standard error	*t*-stat	*p*-value
Education	2,815.34	908.04	3.10	0.002
Jobs	–5.83	8.07	–0.72	0.471
Population	–675.90	550.93	–1.23	0.221
GDP	988.93	258.17	3.83	<0.001
Market size	15.57	3.97	3.92	<0.001

Table 2. Structural model summary.

N	$F_{(5, 232)}$	Centred R^2	Uncentred R^2
276	74.36	0.65	0.65

Coefficients – dependent variable: tourism expenditures

	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Final Model 7
Fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Monthly wages	–	–0.473*	–0.380**	–0.244*	–0.280**	–0.238**	–0.188**
		(–2.53)	(–2.65)	(–2.42)	(–2.78)	(–2.89)	(–2.81)
Jobs	–	–	57.996**	–	46.706**	45.716**	46.412**
			(8.98)		(7.49)	(7.70)	(7.97)
Population	–	–	–	3,556.817**	1,094.028*	1,139.499**	1,157.764**
				(9.98)	(2.38)	(2.69)	(2.93)
GDP	–	–	–	–	383.751**	350.732**	293.690**
					(3.55)	(3.69)	(3.64)
Market size	–	–	–	–	–	4.289*	6.355**
						(2.26)	(4.69)
Time	601.400**	1230.192**	685.682**	739.028**	635.268**	262.099	–
	(3.63)	(4.78)	(3.45)	(4.78)	(4.09)	(1.51)	

Notes: *Significant at the 0.05 level; **significant at the 0.01 level. Models 2–7 are estimated using two-stage procedures; *z*-statistics are in parentheses.

Not surprisingly, GDP per capita and market size are both found to have positive effects on tourism expenditures – as people become more wealthy and as an increasing amount of income is spent on the travel and tourism industry, the higher the tourism expenditures are observed in our sample. Population also is noted to have an impact on tourism expenditures. The positive coefficient may reflect a larger national infrastructure to serve foreign visitors. The finding of hotel and restaurant job variable significance likely reflects the importance of those hospitality-related sectors to the tourism industry. For example, in the UK, hotels and restaurants comprise 46% of the tourism satellite account employment (Eurostat, 2009).

Conclusion

These results suggest that increases in labour costs might be an important consideration in the tourism levels of a country. This finding seems to be a novel factor previously held but not empirically tested as a negative force to tourism. The findings of this study have multiple practical implications for both policymakers and business operators.

Policymakers should utilize these findings to evaluate the labour market in their respective countries. Estimation of the labour market size and expected levels of compensation could provide assistance in the country's tourism marketing strategy. For instance, a country with a tight labour market (or

anticipated labour shortage) might find itself unable to compete on price for the marginal leisure traveller due to increases in wage rates. This country may need to re-evaluate its marketing strategy to focus on less price-sensitive travellers, such as business tourists or high-end vacationers (Garin-Munoz, 2006). In addition, countries experiencing wage rate growth at particularly high levels may consider increasing the amount of labour available to control wage rate growth. Governments could provide training for indigenous residents to increase labour supply or encourage immigrant workers through increased work permits or visa offerings.

Operators' investment decisions may also change as a result of a higher cost structure due to wage rate growth. Tourism industry operators seeking expansion destinations may look to lesser developed markets with lower relative wage rates as opposed to markets where wage rate growth has occurred or is expected to occur. Companies choosing to develop or operate in new destinations may want to examine the history of wage changes in the market and develop strategic compensation and human resource strategies in an effort to offset wage rate growth. Long-term forecasting and investment decisions can also be impacted by recognizing changes in labour costs through national statistics. Tourism providers like tour operators, airlines, and other leisure service organizations will be able to anticipate changes in tourist spending levels, and focus marketing efforts on other low cost destinations.

A final implication of this study is the addition of the variable of labour cost to the classic model of tourism development; the TALC. TALC claims to predict that as tourism increases, so do its associated impacts (Butler, 1980; Butler, 2009). Butler also describes a final step in the development stage where negative impacts surpass the positive, which leads to a decline in the tourism market. Negative forces discussed by Butler include environmental factors, changing socio-demographics of the world's population, and increasing fuel costs. The inclusion of increased labour costs could also be considered as a negative force to those previously posed in the life cycle model. Similarly, the increase in labour costs could be contributing to the stagnation or decline phases described by Prideaux (2000) and Prideaux (2004) in the resort development spectrum (RDS). Those phases are noted to occur after the international tourism phase, and may partially reflect a wage-related reduction in international competitiveness.

It is important to point out that this study does not address what impacted the wage rate growth. Future investigations could be conducted to determine how increases in wages reflect productivity levels, increases in skill, and number of jobs in tourism destinations. This macro-level test does not fully capture changes in worker productivity, which is also important in determining international competitiveness. As noted by Smeral (2003, p 81), '… highly developed countries and regions can still achieve relatively high tourism growth rates and productivity increases by focusing investment on human capital'. Similarly, additional studies of the impact of union development, minimum wage levels, or other labour market regulations might be relevant variables of interest to consider. For example, exogenous changes in the wage rate from collective bargaining negotiation or government policy changes in minimum wages may affect the national wage rate differently. This study also only examined one aspect of tourism output, total foreign expenditures. Extensions

of this analysis could be made with visitor levels, average spend per visitor, and with competitiveness for domestic tourist spending.

This study finds wage rate growth affects destination competitiveness and suggests how policy-makers and organizations could utilize this information to alter development, marketing, and labour supply decisions. While wage rate growth is one factor, it is important to note there are many alternative and complex factors that impact destination competitiveness that should also be considered. Further investigation, which identifies items that impact a destination's ability to compete, will provide insightful information in decision making. Empirical investigations of this nature will also help researchers to further validate and expand theoretical models of tourism visitation, such as the TALC and the RDS. Although this study used a macro level secondary data analysis approach, researchers could consider examining the same problem using an experimental or survey design at a more micro level. This would allow researchers to determine the extent to which the impacts discussed in this study are considered by managers and policy-makers.

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Appendix

Estimation model summary statistics.

	Mean	SD	Min	Max
Tourism expenditures	9,387.50	19,436.99	9.60	145,231.00
Monthly wages	14,793.73	38,868.86	36.90	264,028.20
Jobs	390.71	1,258.55	2.00	9,582.00
Population	20.57	44.22	0.27	301.90
GDP	24.03	2.20	20.63	32.06
Market size	3,369.57	201.10	3,081.61	3,724.01
Education	14.64	1.91	10.61	19.14