

Migration and Tourism Demand

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Abstract. *This study considers the relationship between immigration and Portuguese tourism demand for the period 1995-2008, using a dynamic panel data approach. The findings indicate that Portuguese tourism increased significantly during the period in accordance with the values expected for a developed country. The regression results show that income, shock of immigration, population, and geographical distance between Portugal and countries of origin are the main determinants of Portuguese tourism.*

Keywords: tourism demand; panel data; immigration and Portugal.

JEL Codes: F0, F2, F22.

REL Codes: 10G, 14F.

1. Introduction

Portugal is located in the South of Europe and we are seeing an increase in immigration. The process of immigration in Portugal is relatively recent.

The relationship between tourism and immigration in Portugal has not been investigated till yet. Immigration and tourism have a complex and dynamic nature. One reason for this descriptive relation is associated with the reasons for the visit, in the case of immigration (foreign population in the country) involves family and friends (Jackson, 2003, Yuan et al., 1995). The studies by Dwyer et al. (1992), Oigenblick and Kirschenbaum (2002), and Fischer (2007) show that immigration promotes tourism. In other words, immigrants are key drivers of the host country. Both immigration and tourism have increased in recent decades.

The empirical studies of the tourism demand (Eilat, Einav, 2004, Vogt, 2008, Fischer, 2007) confirms the importance of relative price, geographical distance and bilateral trade. The inclusion of the variable immigration - stock of immigrants is not as usual in empirical studies. The studies by Dwyer et al. (1992), and Oigenblick and Kirschenbaum (2002) pointed out that immigration has a positive impact on tourism demand in host countries.

This paper uses a panel data for international tourist flows to Portugal, from 16 countries, for the period 1995-2008. The structure of the paper is as follows. Section 2 presents the literature review and empirical studies. In section 3, we present the methodological approach and model specification. Section 4 shows the empirical results. The final section provides conclusions.

2. Literature review and empirical studies

The studies of tourism and migration have been developed independently of one another up to second half of the twentieth century (Bell, Ward, 2000). Tourism as a form of temporary international migration can, like other types of movement, shift in the distribution of population.

Williams and Hall (2000) referred that interdisciplinary exists between tourism and immigration.

Clarke (2004) referred that there is a convergence between immigration and leisure activities in the host country. In turn, the link between tourism and immigration involves family and friends (Jackson, 1990, 2003, Yuan et al., 1995). More recently, Lew and Wong (2002) demonstrated the importance of the internationalization of migration associated with the labour market (opportunities) and other forms of migration, the networks (family and friends, VFR). Tourism can be explained by international migratory movements.

Tourism as a form of temporary international migration can be explained by the movements and structural changes in the distribution of the population.

Oigenblick and Kirschenbaum (2002) admitted that tourism is a facilitator of immigration.

In recent decades, the phenomenon of migration, trade and tourism has gained many adherents in academia as Eilat and Einav (2004), Phakdisoth and Kim (2007), Mervar and Payne (2007), Vogt (2008), and Fischer (2007). These studies showed that immigration and international trade seem to promote tourism.

A substantial attention has been given to the relationship between migrations, which has a significant influence on tourism arrivals. The questions from here to: Is international migrations sustaining VFR?

Ledesma-Rodriguez et al. (2001) applied the panel data to analyze the short and long-run elasticities for visitors of Tenerife. The study of Naude and Saayman (2005) used a panel data for the period 1996-2000. The authors identified the determinants of tourism arrivals (VFR) in 43 African countries. Roget and Gonzalez (2006) studied the determinants for rural tourism demand in Galicia.

Maloney and Rojas (2005) used a dynamic panel data to analyse Caribbean destinations.

Garínz- Muñoz and Montero-Martin (2007) applied a GMM-DIF proposed by Arellano and Bond (1991) to evaluate inbound Germany tourism in Spanish destination for the period 1991-2003.

Recently, Mervar and Payne, (2007) used dynamic estimates to explain the determinants of tourism demand, i.e. the lagged dependent variable. Also Phadisoth and Kim (2007) specify a panel of static data and dynamic (GMM-DIF) applied to the demand for tourism in Laos. Brida and Risso (2009) used a dynamic panel data study of the Germany demand for tourism in South Tyrol. The dynamic panel approach analyses the short and long-run effects. Brida and Risso (2009) concluded that the cost of travel and the relative price have a negative and significant impact on tourism demand. The authors also showed that the lagged dependent variable (tourism demand, VFR) has a positive and relevant effect on actual demand, reflecting, according to the authors, the loyalty of Germany tourists.

3. Methodological approach and model specification

A gravity model will be used in estimating the relationship between immigration and international tourism to and from Portugal.

This study uses a dynamic panel data (GMM-System). This estimator permits the researchers to solve the problems of serial correlation,

heteroskedasticity and endogeneity for some explanatory variables. These econometric problems were resolved by Arellano and Bond (1991), Arellano and Bover (1995) and Blundell and Bond (1998, 2000), who developed the first differenced GMM (GMM-DIF) estimator and the GMM system (GMM-SYS) estimator. The GMM-SYS estimator is an alternative to the standard first differenced GMM estimator. To estimate the dynamic model, we applied the methodology of Blundell and Bond (1998, 2000), and Windmeijer (2005) to small sample correction to correct the standard errors of Blundell and Bond (1998, 2000). The GMM system estimator is consistent if there is no second-order serial correlation in the residuals (m2 statistics). The dynamic panel data model is valid if the estimator is consistent and the instruments are valid.

3.1. Econometric model: explanatory variables and data

For the researchers, the visiting friends and relatives (VFR) are the most common variable used in creating econometric models of VFR, beside the total duration of visiting friends and relatives thousands of night per year. In this study, the regression of VFR in Portugal is from 16 different countries⁽¹⁾ between the years 1995 and 2008. The data used to create the total number of visits, as dependent variable, are annually collected from INE- National Institute of Statistics. Our panel data is unbalanced.

Hypothesis 1: There is a positive impact on the visiting friends and relatives in the long run.

Phakdisoth and Kim (2007), Brida and Risso (2009) defended the idea that lagged tourism demand (VFR_{t-1}) has a positive impact on the economy.

Hypothesis 2: Tourism demand will be influenced by income of the tourist from countries of origin.

GDP, is the gross domestic product per capita in the country of origin of tourist, expressed in constant 2000 US\$, was collected from the World Bank. According to the literature, we expect that the number of foreign tourist arrivals to increase in Portugal as the income in tourists' origin country increase.

Hypothesis 3: Immigration flows play an important role in sustaining tourism.

The stock of immigration collected from the Border Services "Serviço de Fronteiras" (Ministry of Internal Affairs) corresponds to legal immigrants in Portugal.

According to previous studies, Dwyer et al. (1993), Oigenblick and Kirschenbaum (2002), and Fischer (2007) tourism and immigration are correlated i.e. tourism encourages migration.

Hypothesis 4: Population changes in a country could positively sustain tourism flows.

According to the literature (Witt, Witt, 1995, Oigenlick, Kirschenbaum, 2002) we expect a positive sign. The population data has been collected from World Bank.

Hypothesis 5: Tourism increases if transportation cost decreases.

DIST is the geographical distance between Portugal and the tourist generating countries. According to the literature we expect a negative sign for this variable.

3.2. Model specification

$$VFR_{it} = VFR_{it-1} + \beta_0 + \beta_1 \times X_{it} - \rho \times \beta_1 \times X_{it-1} + \delta t + \eta_i + \varepsilon_{it}$$

Where *VFR it* is the total number visits by foreign nationality to Portugal, *X* is a set of explanatory variables. All variables are in the logarithm form; η_i is the unobserved time-invariant specific effects; δt captures a common deterministic trend; ε_{it} is a random disturbance assumed to be normal, and identical distributed (IID) with $E(\varepsilon_{it})=0$; $Var(\varepsilon_{it})=\sigma^2 > 0$.

4. Empirical results

This section presents the estimation using GMM-System estimator proposed by Arellano and Bover (1995) and Blundell and Bond (1998, 2000). We used STATA econometric software to estimate the model. The model presents consistent estimates, with no serial correlation the Arellano and Bond test for M_2 . The specification Sargan test shows that there are no problems with the validity of instruments used. The GMM system estimator is consistent if there is no second-order serial correlation in the residuals (M_2 statistics). The dynamic panel data are valid. The Windmeijer (2005) finite sample correction is used. In the Table 1 we can observe the relationship between tourism demand and immigration. All explanatory variables are significant (LogGDP, LogIMI,

LogPOP, and LogDIST at 1% level); the coefficient (LogVFR_{t-1}) is significant at 5% level.

For Lagged dependent variable (LogVFR_{t-1}), the expected sign is positive confirmed by the results. So we can infer that this variable has a positive impact on Portuguese economy. Brida and Risso (2009) found a positive sign for lagged dependent variable. As expected, the variable LogGDP has a significant and positive effect on tourism demand. Phakdisoth and Kim (2007), and Brisa and Risso (2009) also found this result.

Table 1

GMM-System		
Variables	Coefficient	Expected Sign
LogVFR _{t-1}	0.101 (2.26)**	(+)
LogGDP	1.41 (5.67)***	(+)
LogIMI	0.49 (9.27)***	(+)
LogPOP	0.15 (5.05)***	(+)
LogDIST	-1.05(-5.98)***	(-)
C	13.50 (9.25)***	
M1	-1.43 [0.153]	
M2	0.97 [0.32]	
Sargan test	15.91 [1.00]	
N	125	

The null hypothesis that each coefficient is equal to zero is tested using one-step robust standard error. T-statistics (heteroskedasticity corrected) are in round brackets. P-values are in square brackets; ***/** - statistically significant at the 1 per cent, 5 per cent levels. M_1 and M_2 are tests for first-order and second-order serial correlation in the first-differenced residuals, asymptotically distributed as $N(0,1)$ under the null hypothesis of no serial correlation (based on the efficient two-step GMM estimator). The Sargan test addresses the over-identifying restrictions, asymptotically distributed χ^2 under the null of the instruments' validity (with the two-step estimator).

The variable the migrant stock (LogIMI) is positively related to the dependent variable. Oigenblick and Kirschenbaum (2002) and Fischer (2007) showed that the level of tourism depends not only on the population of origin country, but also on the migration flows.

The variable population (LogPOP) finds a positive sign, as we expected. A 1% increase in population of the origin country would increase 0.15% foreign tourist arrivals to Portugal.

The coefficient of LogDIST (Distance) validates the hypothesis 5. This result confirms the importance of the neighbourhood. Following Phakdisoth and

Kim (2007), we can conclude that international tourism demand is directly influenced by the distance from the countries of origin of tourists and tourism destination country.

5. Conclusions

In this paper we analyzed the relationship between VFR visits and immigration using dynamic panel data in case of Portugal. The GMM –system has rarely been applied to tourism analysis. Our results supported the hypothesis that there is a positive correlation between immigration and tourism demand. This result is in line with in existing literature such Dwyer et al. (1993), Oigenblick and Kirschenbaum (2002), Fischer (2007). The econometric models showed that GDP per capita, and population which determines the ability to travel, are explanatory variables which have a positive impact on VFR visit. For geographical distance, the results indicated that it has a negative influence on inflows, as expected. Finally, although the use of more recent econometrical techniques should at least be compared, and it would be dangerous to generalize from this empirical study, it may be preferable to use the GMM approach in empirical visiting friends and relatives (VFR) or tourism demand, rather than static panel data (pooled OLS, fixed effects, and random effects).

Appendix

Table 2

Correlation matrix					
	LogVFR	LogGDP	LogIMI	LogPOP	LogDIST
LogVFR	1.00				
LogGDP	-0.06	1.00			
LogIMI	0.57	0.03	1.00		
LogPOP	0.13	0.16	0.30	1.00	
LogDIST	0.06	0.14	0.16	0.20	1.00
N	130				

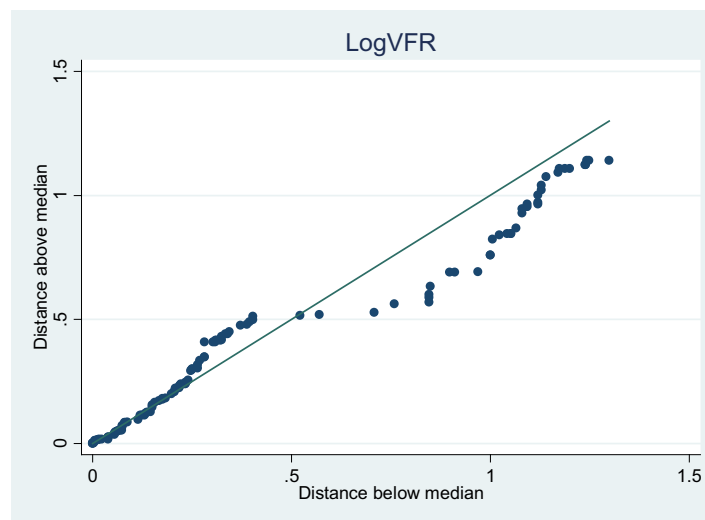


Figure 1. Distribution of VFR

Note

- ⁽¹⁾ The countries selected are Austria, Belgium, Brazil, Canada, Czech Republic, Denmark, France, Finland, Hungary, Italy, Luxembourg, Spain, Sweden, Netherlands, United Kingdom and USA.

References

- Arellano, M., Bond, S., "Some tests of specification for panel data: Monte Carlo evidence and an application to employment equations", *The Review of Economic Studies*, 58, 1991, pp. 277-297
- Arellano, M., Bover, O., "Another look at the instrumental variable estimation of error-components models", *Journal of Econometrics*, 68(1), 1995, pp. 29-51
- Bell, M., Ward, G., "Comparing temporary mobility with permanent migration", *Tourism Geographies*, 2(1), 2000, pp. 87-107
- Blundell, R., Bond, S., "Initial conditions and moment restrictions in dynamic panel data models", *Journal of Econometrics*, 87(1), 1998, pp. 115-143
- Blundell, R., Bond, S., "GMM estimation with persistent panel data: an application to production functions", *Econometric Reviews*, 19(3), 2000, pp. 321-340
- Brida, J.G., Risso, W.A., "Tourism as a factor of long-run economic growth: An empirical analysis for Chile", *European Journal of Tourism Research*, 2(2), 2009, pp. 178-185
- Clarke, N., "Mobility, fixity, agency: Australia's working holiday programme," *Population, Space and Place*, 10(5), 2004, pp. 411-420
- Crouch, G.I., "The study of international tourism demand: a survey of practice", *Journal of Travel Research*, 32 (4), 1994, pp. 41-55
- Dougan, J., "Analysis of Japanese tourism demand to Guam", *Asia Pacific Journal of Tourism Research*, 12 (2), 2007, pp. 79-88
- Dwyer, L., Burnley, I., Murphy, P., Forsyth, P., "Tourism – Immigration interrelations", *Report Prepared for Bureau of Immigration Research*, 1993
- Eilat, Y., Einav, L., "Determinants of international tourism: A three-dimension panel data analysis", *Applied Economics*, 36-12, 2004, pp. 1315-1327
- Fischer, A.M., "Measuring income elasticity for Swiss money demand: what do the cantons say about financial innovation", *European Economic Review*, 51(7), 2007, pp. 1641-1660
- Garín-Muñoz, T., Montero-Martin, L.F., "Tourism in the Balearic islands: a dynamic model for international demand using panel data", *Tourism Management*, 28(5), 2007, pp. 1224-1235
- Jackson, R.T., "VFR tourism: Is it underestimated?", *Journal of Tourism Studies*, 1 (2), 1990, pp. 10-18
- Jackson, R.T., "VFR tourism: is it underestimated?", *The Journal of Tourism Studies*, 14 (1), 2003, pp. 17-24
- Khadaroo, J., Seetanah, B., "Transport infrastructure and tourism development", *Annals of Tourism Research*, 34(4), 2007, pp. 1021-1032
- Ledesma-Rodriguez, F. J., Navarro-Ibanez, M., Perez-Rodriguez, J. V., "Panel data and tourism: A case study of Tenerife", *Tourism Economics*, 7, 2001, pp. 75-88
- Lew, A. A., Wong, A., "Tourism and the Chinese diaspora". In C.M. Hall and A.M. Williams, eds., *Tourism and Migration: New Relationships Between Production and Consumption*, 2002, pp. 205-219
- Lim, C., "Review of international tourism demand models", *Annals of Tourism Research*, 24, 1997, pp. 835-849
- Maloney, W.F., Rojas, G.M., "How elastic are sea, sand and sun? Dynamic panel estimates of the demand for tourism?", *Applied Economics Letters*, 12, 2005, pp. 277-280

- Mervar, A. Payne, J., "An analysis of foreign tourism demand for Croatian destination: Long-run elasticity estimates", *Working Paper*, 2007, pp. 1-20
- Naudé, W., Saayman, A., "Determinants of tourists arrivals in Africa: A panel data regression analysis", *Tourism Economics*, 11(3), 2005, pp. 365-391
- Oigenblick, L., Kirschenbaum, A., "Tourism and immigration: Comparing alternative approaches", *Annals of Tourism Research*, 29(4), 2002, pp. 1086-1100
- Phakdisoth, L., Kim, D., "The determinants of inbound tourism in Laos", *ASEAN Economic Bulletin*, 24 (2), 2007, pp. 225-237
- Roget, F.M., Gonzalez, X.A.R., "Rural tourism demand in Galicia, Spain", *Tourism Economics*, 12, 2006, pp. 21-31
- Vogt, M., "Determinants of the demand for US exports and imports tourism", *Applied Economics*, 40 (6), 2008, pp. 667-672
- Williams, A.M., Hall, C.M., "Tourism and migration: new relationships between production and consumption", *Tourism Geographies*, 2(1), 2000, pp. 5-27
- Windmeijer, F., "A finite sample correction for the variance of linear efficient two-step GMM estimators", *Journal of Econometrics*, 126 (1), 2005, pp. 25-51
- Witt, S. F., Witt, C. A., "Forecasting tourism demand: A review of empirical research", *International Journal Forecasting*, 11, 1995, pp. 447-475
- Yuan, T., Fridgen, J.D., Hsieh, S., O'Leary, J.T., "Visiting friends and relatives travel market: The Dutch case", *Journal of Tourism Studies*, 6 (1), 1995, pp. 19-26