MONASH University
Business and Economics

Immigration and Tourism Flow to Australia (1991-2007)

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Outline

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- **Australia in Figures : Demography**
- **Australia in Figures : Tourism**
- **Tourism and Immigration Linkages**
- **Methodology**
- **Results**
- **Improvement of the Model/Estimation Technique**

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Australia in Figures : Demography

- **Population 20.9 million. (2.6 /km^2)**

- **Immigration (net overseas migration) 134,600**
  - Skilled workers : 45 %
  - Reuniting with families : 26 %
  - Humanitarian ground. : 19%

- **Population Growth**
  - Net Natural Increase : 49 %
  - Net Overseas Migration : 51 %

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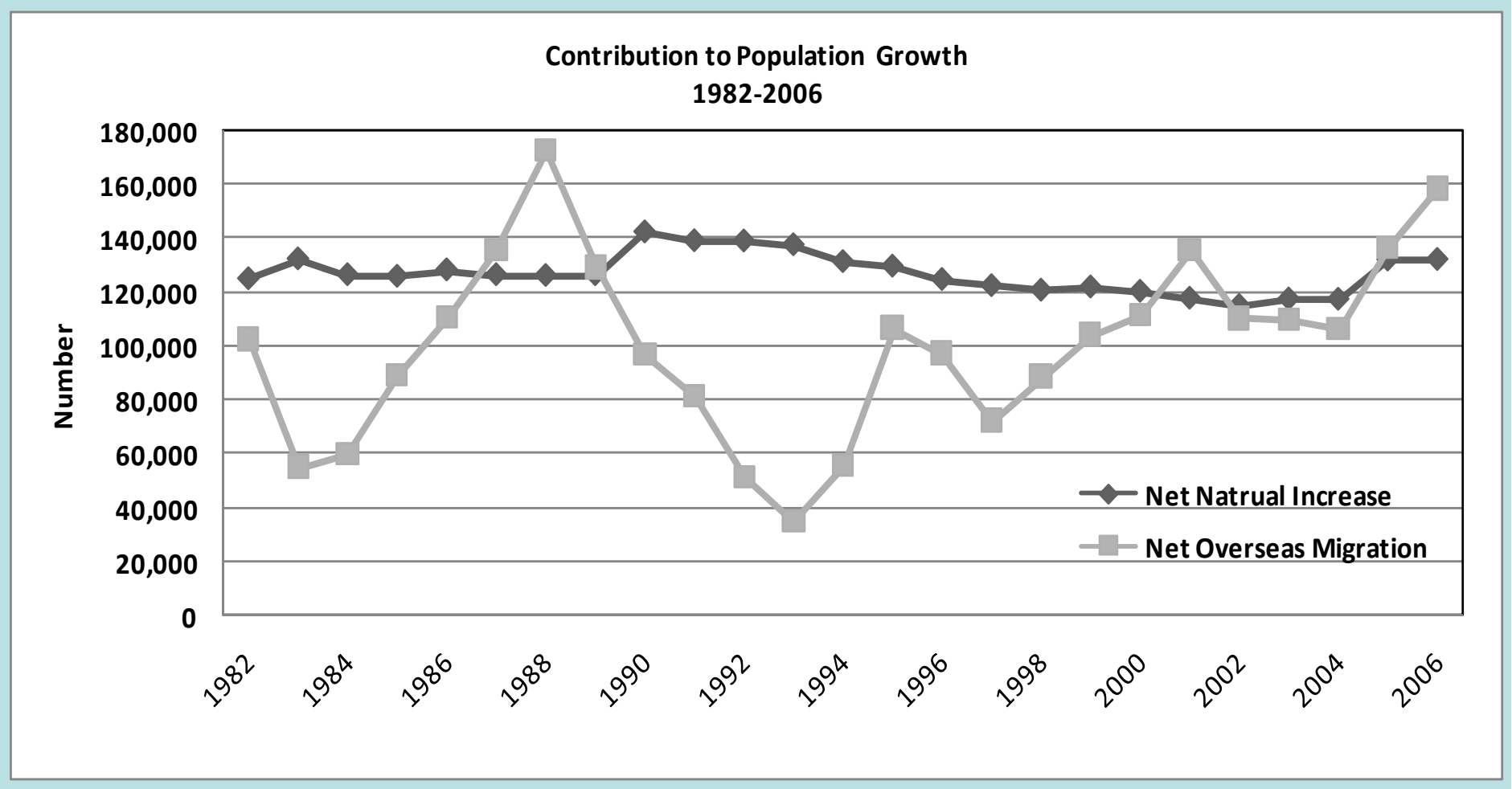
Australia in Figures : Demography



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Estimated Resident Population

Countries	*1996*	*2004*
Australia	***23.3***	***23.6***
Belgium	9.8	13.0
Canada	17.4	18.9
Denmark	5.1	6.3
Finland	2.1	3.2
Hungary	2.8	3.2
Ireland	6.9	11.0
Luxembourg	31.5	33.1
Netherlands	9.2	10.6
New Zealand	16.2	18.8
Norway	5.6	7.8
Portugal	5.4	6.7
Sweden	10.7	12.2
Switzerland	21.3	23.5
UK	7.1	9.3
USA	10.1	12.2

Source: OECD, 2006

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Impacts of Migration:

- **GDP**
- **Aggregate Demand**
- **Fiscal Implications**
- **Labour Market**
- **Welfare – Social Security Implications**

(Borjas, Freeman and Katz, 1992; Borjas 1995; Borjas 2005)

- **Trade Creation**

Ethier (1986), Gould (1994), Rauch (1999, 2002), Head and Ries (2002), Mundra (2005).

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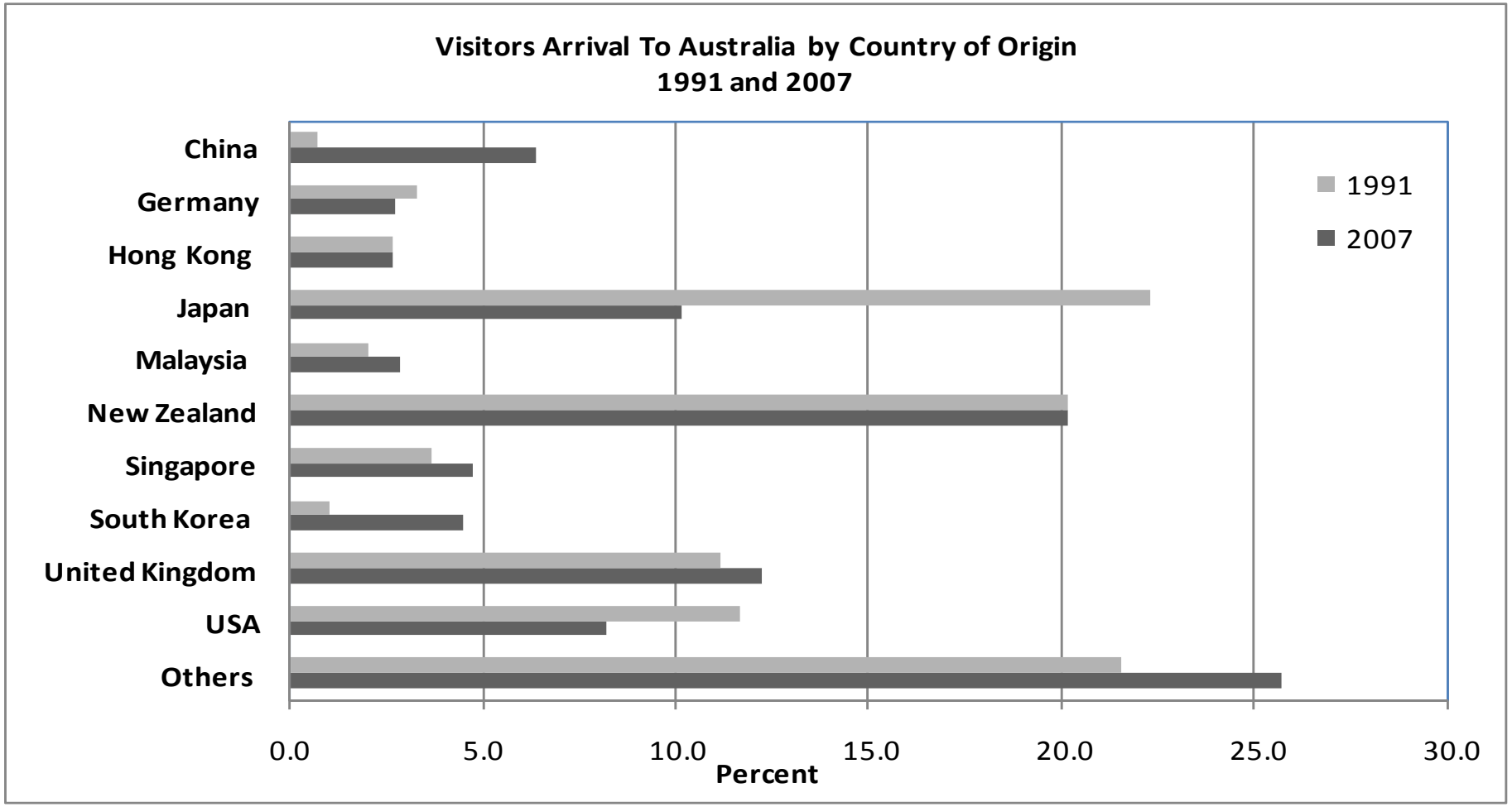
Tourism in Australia



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Permanent Arrivals to Australia

Permanent Arrivals	1975-76		2005-2006		Difference (75/76 – 05/06)	
	No	%	No.	%	No	%
China	639	1.2	10,581	8.0	9.942	6.87
Germany	954	1.8	953	0.7	-1	(1.1)*
Hong Kong	897	1.7	1,031	0.8	134	(0.9)
Japan	89	0.2	755	0.6	666	0.4
Malaysia	1,201	2.3	2,967	2.3	1,766	0
New Zealand	2,921	5.5	19,033	14.5	16,112	9
Singapore	620	1.2	2,685	2.0	2,065	0.8
South Korea	95	0.2	2,117	1.6	2,022	1.4
UK	16,687	31.6	23,290	17.7	6,603	(13.9)
USA	1,432	2.7	1,555	1.2	123	(1.5)
Others	27,217	51.6	66,626	50.6	39,409	(1)
All Countries	52,752	100.0	131,593	100.0	78,841	-

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Objective

- **Develop a model of immigration-led inbound international tourism.**
- **Estimate the model using the dynamic panel data techniques.**
- **Compute the relevant elasticities with respect to changes in arrivals by motivation for travel.**

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Immigration and Tourism Linkages

- **<u>VFR (Visiting Friends and Relatives)</u>**
  Reduction in cost of staying at the destination

- **<u>Business</u>**
  Increase bilateral trade

- **<u>Leisure</u>**
  Improvement in the tourism capital of the destination

- **<u>Total</u>**

(Hollander 1982; Dwyer and Forsyth et al,1992; Qui and Zhang; 1995)

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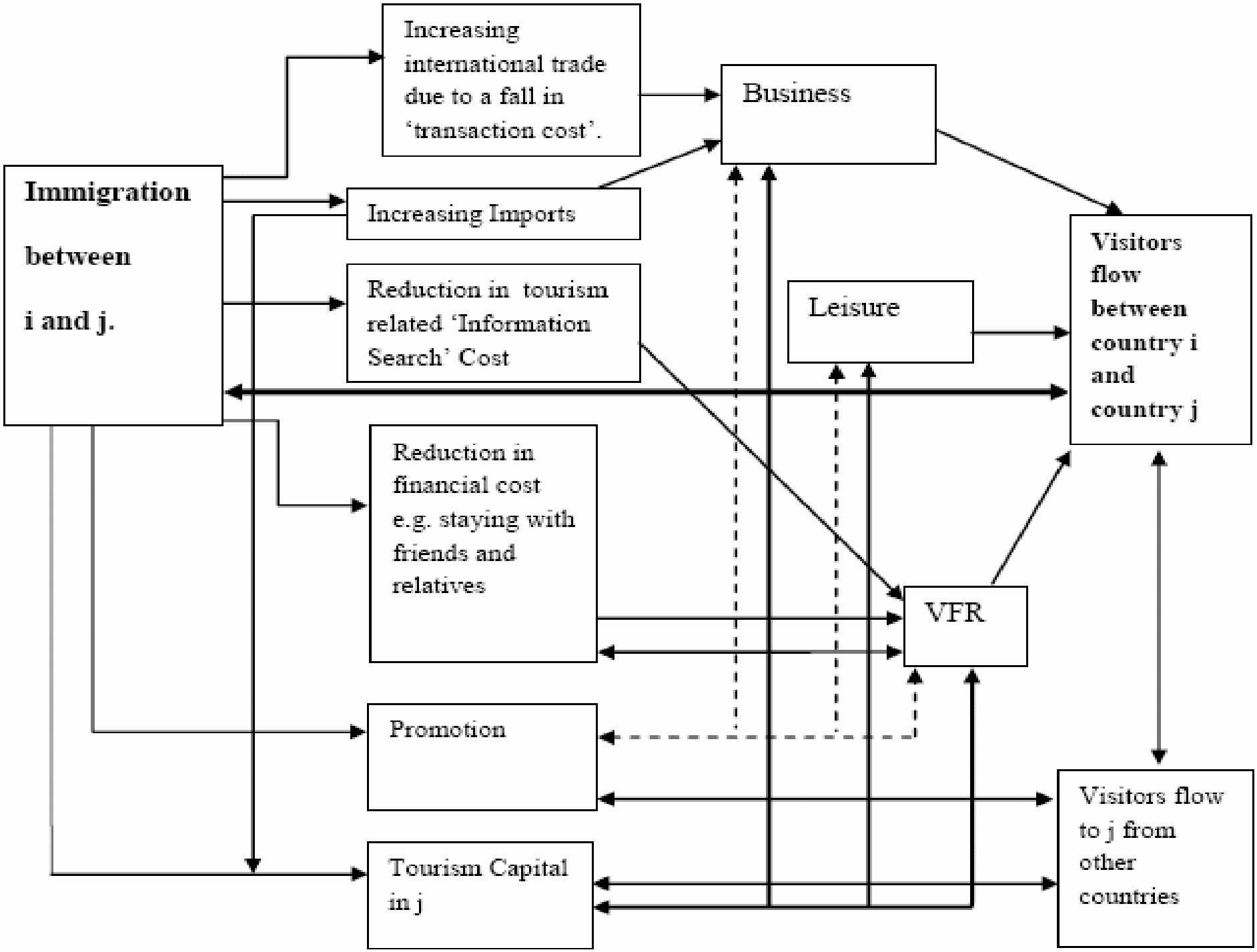
Increasing international trade due to a fall in 'transaction cost'.
Business
Immigration between i and j.
Increasing Imports
Reduction in tourism related 'Information Search' Cost
Leisure
Visitors flow between country i and country j
Reduction in financial cost e.g. staying with friends and relatives
VFR
Promotion
Visitors flow to j from other countries
Tourism Capital in j

Theoretical Model

$$V_{ij} = s_{ij} V(Y) \quad \longrightarrow \quad (1)$$

Where s_{ij} :

$$S_{ij} = \frac{A}{F_{ij}^{\alpha_1} \cdot C_{ij}^{\alpha_2} \cdot Z_{ij}}$$

Z is an unobservable variable representing part of the cost of the holiday through which the migration effect take place.

$$\frac{\partial Z_{ij}}{\partial M_{ij}} < 0 \quad ; \quad \frac{\partial^2 Z_{ij}}{\partial M_{ij}^2} > 0$$

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Theoretical Model

- **Assume that Z and V take the following functional form:**

$$Z_{ij} = A_1 e^{-\rho(m_{ij})}$$

$$V_i = \gamma Y^{\alpha 0}$$

Theoretical Model

- **Replacing Z and V in Eq (1):**

$$V_{ij} = \frac{A\gamma Y^{\alpha_0}}{F_{ij}^{\alpha_1} \cdot C_{ij}^{\alpha_2} \cdot A_1 e^{-\rho(m_{ij})}}$$

- **Applying logarithmic transformation:**

$$lnV_{ij} = \beta_0 + \alpha_0 \, lnY_i - \alpha_1 \, F_{ij} - \alpha_2 \, lnC_{ij} + \rho(m_{ij})$$

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Empirical Model

$$lnV_{it,k} = \beta_{0k} + \alpha_{0k}\, lnY_{it} - \alpha_{1k}\, lnF_{it,k} - \alpha_{2k}\, lnC_{it} + \rho_k(m_{it}) + \beta_{1k}\, lnV_{i,t-1k} + \tilde{U}_{it,k} \rightarrow (9)$$

Data: Top 10 Sources of Visitors Arrivals from 1991-2007. (10x17)

Generalised Methods of Moment (GMM) procedure (DIFF)– One Step for Dynamic Panel Data.

Long run elasticities were computed by dividing the respective α_k by $(1-B_{1k})$.

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Results

Explanatory Variables	Dependent Variables (Total)	(VFR)	(Holiday)	(Business)
Y	0.391	0.753	0.181	0.356
	(4.13)	(4.42)	(2.32)	(3.22)
C	-0.372	-0.130	-0.173	-0.198
	(-4.13)	(-0.86)	(-2.35)	(-1.91)
F	0.780	-0.117	-0.099	-0.144
	(1.090)	(-1.06)	(1.86)	(1.85)
M	0.455	0.085	0.175	0.777
	(2.96)	(2.61)	(2.07)	(0.09)
$\mathbf{V_{t-1}}$	0.585	0.529	0.770	0.697
	(11.18)	(7.54)	(22.47)	(15.5)
Wald (χ^2= 5)	1039	1365	1392	1241
Sargan (χ^2)	126.754	136.309	148.347	107.597
	Long Run Elasticities			
Y	0.94	1.60	0.79	1.17
F	1.88	-0.25	-0.43	-0.48
C	-0.90	-0.28	-0.75	-0.65

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Results : Income

	Dependent Variables			
	Total	**VFR**	**Holiday**	**Business**
Y	0.391	0.753	0.181	0.356
	(4.13)	(4.42)	(2.32)	(3.22)
Long Run Elasticity				
Y	0.94	1.60	0.79	1.17

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Results : Price

	Dependent Variables			
	Total	**VFR**	**Holiday**	**Business**
C	-0.372	-0.130	-0.173	-0.198
	(-4.13)	(-0.86)	(-2.35)	(-1.91)
Long Run Elasticity				
C	-0.90	-0.28	-0.75	-0.65

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Results: Airfare

	Dependent Variables			
	Total	**VFR**	**Holiday**	**Business**
F	0.780	-0.117	-0.099	-0.144
	(1.090)	(-1.06)	(1.86)	(1.85)
Long Run Elasticity				
F	1.88	-0.25	-0.43	-0.48

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Results: Lagged Dependent Variable

	Dependent Variables			
	Total	**VFR**	**Holiday**	**Business**
V_{t-1}	0.585	0.529	0.770	0.697
	(11.18)	(7.54)	(22.47)	(15.5)

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Migration

	Dependent Variables			
	Total	**VFR**	**Holiday**	**Business**
M	0.455	0.085	0.175	0.777
	(2.96)	(2.61)	(2.07)	(0.09)

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Model Improvement

- **Better proxy for price...expenditure per day.**
- **Use a different estimation technique: Seemingly Unrelated Equations - (Maximum likelihood or Zellner) to get country specific effect.**
- **Airfare.**
- **Endogeniety.**

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Thank you

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