

Appendix

Table IA. Data description

Variable	Description	Source	Range
TARRIVAL	Number of total foreign tourist arrival in India. Seasonally adjusted and converted in logarithm.	Ministry of Tourism, Govt. of India	2006:M01 to 2018:M04
TEARN	Foreign exchange earnings from foreign tourist in INR. Seasonally adjusted and converted in logarithm.	Statistical Year Book India 2018, The Ministry of Statistics and Programme Implementation, Govt. of India (http://mospi.nic.in/publication/statistical-year-book-india)	2006:M01 to 2018:M04
WGDP	Index of World Gross Domestic Product. The original quarterly data is converted into monthly frequency using the “quadratic-match average” frequency conversion method. Seasonally adjusted and converted in logarithm.	International Financial Statistics (IFS) 2018 by International Monetary Fund	2006:M01 to 2018:M04
CPI	Consumer Price Index of India, All items, Index. Seasonally adjusted and converted in logarithm.	IFS 2018 by IMF	2006:M01 to 2018:M04
CPIR	Relative price index. India’s CPI divided by weighted average of CPI of 15 largest countries in terms of India’s tourist source, converted in index and seasonally adjusted and finally, converted in logarithm.	IFS 2018 by IMF	2006:M01 to 2018:M04
NEER	Nominal Effective Exchange Rate thirty six-country trade based weight converted in logarithm.	Handbook of Statistics, 2018 by Reserve Bank of India (RBI)	2006:M01 to 2018:M04
REER	Real Effective Exchange Rate (NEER); thirty six-country trade based weight, converted in logarithm.	Handbook of Statistics, 2018 by RBI	2006:M01 to 2018:M04
VNEER	Volatility in Nominal Effective Exchange Rate	Own estimate using GARCH based model (see Section 4)	2006:M01 to 2018:M04
VREER	Volatility in Real Effective Exchange Rate	Own estimate using GARCH based model (see Section 4)	2006:M01 to 2018:M04

Table 2A. Descriptive Statistics

[illegible]

Table 3A. Augmented Dickey–Fuller Statistics for testing for stationarity

Variables	At level	At first difference
TARRIVAL	-0.1445 (0.941)	-18.275** (0.000)
TEARN	-0.787 (0.814)	-10.006** (0.000)
WGDP	-0.317 (0.918)	-2.814* (0.058)
CPI	-2.462 (0.127)	-9.8714** (0.000)
CPIR	-1.6718 (0.443)	-10.3933** (0.000)
REER	-1.669 (0.444)	-10.438** (0.000)
NEER	-1.168 (0.687)	-10.0948** (0.000)
VREER	-20.446** (0.000)	
VNEER	-3.194** (0.022)	

Notes: 1. * and ** indicates statistical significance at 5 % and 10% level, respectively.

2. *p*-value in parentheses.

3. Optimal lags are decided by Akaike information criterion.

Table 4A. Criteria for model selection

Exchange rate	Models	AIC	BIC	RMSE	MAE	TIC
NEER	GARCH (1,1)	-7.08159	-6.95953	0.063090	0.05297	0.016068
	EGARCH (1,1) #	-6.98705	-6.83641	0.032978	0.026023	0.08519
	TGARCH(1,1)	-7.07303	-6.93063	0.047583	0.039136	0.012252
REER	GARCH (1,2)	-4.88421	-4.78251	0.024896	0.021156	0.006125
	EGARCH (1,2) #	-7.05229	-6.92313	0.018489	0.018489	0.056234
	TGARCH (1,2)	-7.00315	-6.8741	0.024806	0.019580	0.006863

Notes: 1. # denotes the choice of specification for volatility estimation. 2. Period 2006:01–2018:04. 5. AIC: Akaike information criterion, BIC: Bayesian information criterion, RMSE: root mean square error, MAE: mean absolute error, TIC: Theil inequality coefficient.

Table 5A. Results of BDS statistics of residuals

Variables	Models with TARRIVAL as dependent variable				Models with TEARN as dependent variable			
	VNEER with CPI	VNEER with CPIR	VREER with CPI	VREER with CPIR	VNEER with CPI	VNEER with CPIR	VREER with CPI	VREER with CPIR
2	0.0408**	0.0382**	0.0561**	0.0531**	0.1714**	0.1702**	0.1720**	0.1767**
3	0.0678**	0.0620**	0.0918**	0.0868**	0.2865**	0.2856**	0.2869**	0.2949**
4	0.0781**	0.0716**	0.1096**	0.1017**	0.3596**	0.3605**	0.3600**	0.3712**
5	0.0760**	0.0708**	0.1119**	0.1020**	0.4042**	0.4064**	0.4047**	0.4182**
6	0.0721**	0.0656**	0.1086**	0.0974**	0.4307**	0.4337**	0.4307**	0.4459**

Notes: 1. ** and * indicate statistical significance at 5% and 10% level, respectively.

2. Statistically significant BDS statistics indicate for a nonlinear dependency.

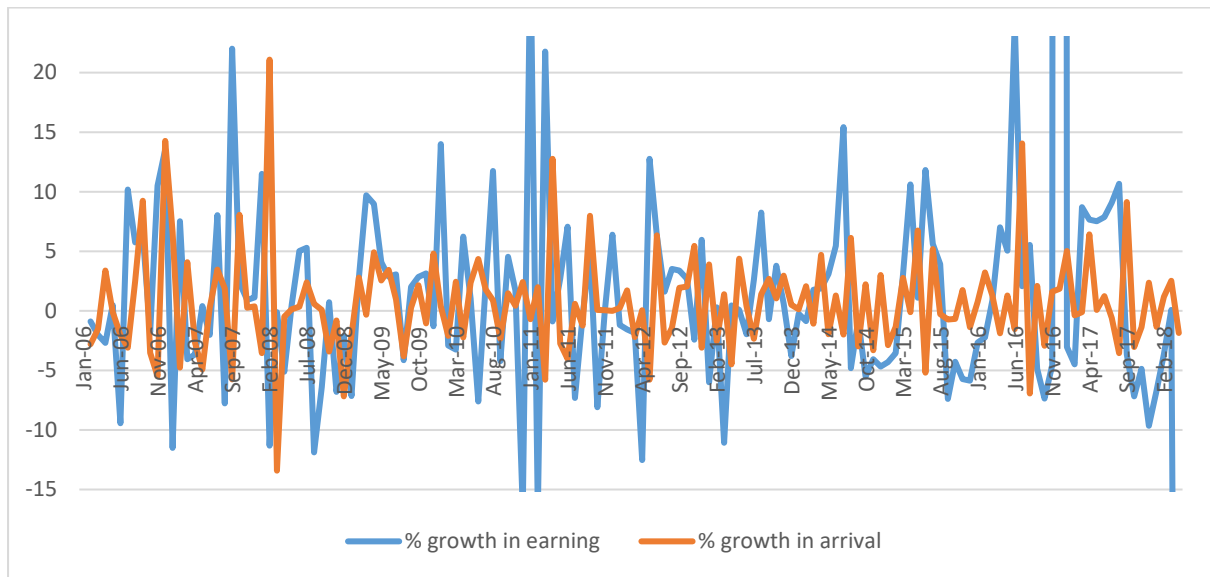
Table 6A. Bounds test for nonlinear cointegration

	F-Bounds Test Value	Significant level (5%) for I(1)	Decision
Foreign tourist arrival models			
NEER based model (with CPI)	5.3189**	3.94	Cointegration
REER based model (with CPI)	4.8978**	3.94	Cointegration
NEER based model (with CPIR)	4.8417**	3.94	Cointegration
REER based model (with CPIR)	5.3500**	3.94	Cointegration
Foreign tourist expenditure models			
NEER based model (with CPI)	6.1534**	3.94	Cointegration
REER based model (with CPI)	5.9126**	3.94	Cointegration
NEER based model (with CPIR)	3.9568**	3.94	Cointegration
REER based model (with CPIR)	3.9550**	3.94	Cointegration

Notes: 1. Null Hypothesis: No levels relationship

2. For calculating F-statistic values bounds testing of Pesaran et al. (2001) have been followed

Figure1A. Trend in foreign tourism demand in India



Note: Earning and arrival are foreign exchange earnings from foreign tourists in India and foreign tourist arrival in India, respectively. 2. Both series are seasonally adjusted using X-12 monthly seasonal adjustment method. 3. For source of data see Table 1A.