

IMPACTS OF TRANSPORT INFRASTRUCTURE ON LIVEABILITY: EVIDENCE FROM SELECTED ASIAN COUNTRIES

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Introduction

- Transport infrastructure has significant impact on individual, society and to the whole economy.
- Reports suggest that Asian countries need at least US\$ 1.3 trillion for efficient and quality transport system.
- To what extent it has improved the living standard remains ambiguous and inconclusive.

Methodology

We consider a panel data model as follows;

$$\text{Livability}_{it} = \alpha_0 + \beta_1 \text{LnTransport}_{it} + \beta_2 \text{LnGDPPC}_{it} + \beta_3 \text{Inflation}_{it} + \beta_4 \text{Education}_{it} + \varepsilon_{it}$$

Where subscripts i represents a country and t is the respective time period or year. ε_{it} is the error term in the model.

Livability is multidimensional, hence, to capture livability, we have considered a series of dependent variables, such as cost of living index, safety index, healthcare index, price to income ratio, pollution index and traffic index.

Data & Technique

- Data are collected from Numbeo, Asian Development Bank and the World Bank.
- The panel dataset includes 9 Asian countries for the period of 2012-2017.
- We have used Ordinary Least Squares (OLS) and Random Effect Model (REM) to estimate the parameters of selected variables.
- No multicollinearity were detected among independent variables.
- Robust standard errors are estimated to overcome the issue of autocorrelation and heteroscedasticity issue.

Results and discussion

	Model-(1)	Model-(2)	Model-(3)	Model-(4)	Model-(5)	Model-(6)	Model-(7)	Model-(8)
	QualityoflifeIndex		PurchasingpowerIndex		SafetyIndex		HealthcareIndex	
	OLS	REM	OLS	REM	OLS	REM	OLS	REM
Lntransport	-1.42 (4.79)	2.27 (4.12)	2.52 (1.65)	1.85 (1.38)	1.95^{**} (0.80)	1.56 (1.61)	-4.23^{***} (1.17)	-1.65 (1.06)
Lngdppc	29.00 ^{***} (4.69)	32.13 ^{***} (9.96)	17.95 ^{***} (2.48)	17.51 ^{***} (3.88)	14.27 ^{***} (2.47)	11.50 ^{***} (2.63)	2.56 ^{**} (1.10)	3.95 ^{**} (1.78)
Inflation	-5.21 ^{**} (2.42)	-4.66 ^{***} (1.48)	0.12 (1.43)	-1.42 [*] (0.74)	0.01 (1.39)	0.16 (0.33)	-2.15 ^{***} (0.66)	-0.61 (0.95)
Education	3.27 (2.58)	1.42 (4.13)	-2.01 (1.42)	-2.62 (1.96)	5.59 ^{***} (1.69)	3.43 (2.38)	3.95 ^{***} (0.62)	4.16 ^{***} (0.94)
_cons	-213.77 ^{***} (55.34)	-234.11 ^{**} (101.34)	-92.34 ^{***} (29.42)	-77.67 ^{**} (37.72)	-120.58 ^{***} (34.99)	-74.65 ^{**} (36.78)	26.89 ^{**} (12.12)	3.26 (16.27)
N	40	40	40	40	40	40	40	40
F	12.28 ^{***}		22.12 ^{***}		14.66 ^{***}		12.70 ^{***}	
chi2		24.23 ^{***}		172.38 ^{***}		22.38 ^{***}		39.06 ^{***}
r2	0.53		0.65		0.71		0.52	
r2_a	0.48		0.61		0.68		0.47	

	Model-(9)	Model-(10)	Model- (11)	Model- (12)	Model- (13)	Model- (14)	Model- (15)	Model- (16)
	CostoflivingIndex		Propertypricetoincomeratio		TrafficcommuteIndex		PollutionIndex	
	OLS	REM	OLS	REM	OLS	REM	OLS	REM
Lntransportort	0.12 (0.85)	-0.76 (2.29)	1.15 (0.77)	-0.30 (0.67)	-2.26*** (0.81)	-1.68** (0.66)	3.75** (1.65)	3.75** (1.60)
Lngdppc	17.72*** (2.02)	9.89** (4.63)	3.28** (1.29)	2.46 (2.16)	0.01 (1.21)	0.21 (2.55)	-9.28*** (1.65)	-9.28*** (1.16)
Inflation	1.20 (1.21)	1.36 (1.07)	0.18 (0.63)	-1.17** (0.51)	2.06** (0.91)	1.45 (1.25)	2.85** (1.08)	2.85** (1.37)
Education	0.91 (1.34)	-0.42 (1.93)	1.88** (0.71)	1.19 (1.15)	0.19 (0.66)	-0.72 (1.42)	0.55 (1.33)	0.55 (1.02)
_cons	-114.33*** (26.98)	-28.83 (33.19)	-29.99* (16.60)	-10.18 (25.54)	40.24*** (14.02)	46.56* (27.16)	140.75*** (19.69)	140.75*** (12.47)
N	40	40	40	40	40	40	40	40
F	29.13***		2.88**		3.19**		11.13***	
chi2		8.86*		7.68		21.90***		78.24***
r2	0.79		0.29		0.29		0.55	
r2_a	0.77		0.21		0.21		0.50	