



Impact of Openness and Indigenous Factors on Growth among World Economies

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The Globalization Definition

- ❖ Fischer (2003): globalization consists of “the ongoing process of greater interdependence among countries and their citizens, and noted that the globalization process is “complex and multifaceted” because “globalization is much more than an economic phenomenon”.

Globalization Debate

- ❖ Pro-globalization: free trade approach, emphasized on the gains from trade, gains from FDI and external contact.
- ❖ Anti-globalization: protectionism approach, emphasized on the imbalance from the process, and that social cost exceeds economic benefit.

Other Debates

- ❖ On growth:
- ❖ Exogenous factors: capital, labor, FDI
- ❖ Endogenous factors: education, culture, etc.
- ❖ On Asia: debate on factor productivity. Question of factor quantity vs quality.
- ❖ On development:
- ❖ Economism paradigm argues sustainable development depended on effective performance of indigenous factors; eg fiscal, pro-growth govt. dynamic comparative advantages, etc.

Objective of Paper

- ❖ Examines the impact of both openness factors and indigenous factors on growth.
- ❖ 62 world economies for period 1998-2002.
- ❖ Construct the OFI based on 17 external economic openness factors, and the IFI based on 17 indigenous factors.

Openness Factors

1. Economic integration: Total trade flows; Foreign direct investment; Portfolio capital flows; & Investment income.
2. Inter-industry trade: Revealed comparative advantage.
3. Intra-industry trade: Export and import of same product.
4. Technology connectivity: Internet users; Internet hosts; & Secure servers.
5. Personal contact: International travel & tourism; International telephone traffic; Remittances; & Personal transfers.
6. International engagement: Membership in international organizations; Government transfer; International treaties ratified; & Personnel and financial contribution to United Nations Security Council missions.

Indigenous Factors

1. Institutional establishment: Patent applications; Corruption Perception Index; Voice and accountability; Political stability; Government effectiveness; Regulatory quality; Rule of law; Control of corruption; Property right protection; & Regulatory scores.
2. Education and health: Public spending on education; Primary school pupil-teacher ratio; Total health expenditure; Physicians per thousand people; & Primary school enrolment.
3. Quality of labor force: Youth unemployment; & Labor force, children 10-14.

Methodology

- ❖ Use Principal Component Analysis (PCA),
- ❖ Due to likely correlation, PCA can reduce to fewer variables that capture the max variation of the original indicators.
- ❖ PCA provides data-driven weights to the indicators.
- ❖ Applying PCA to each individual year instead of applying 1 PCA to all years. This avoids a sudden change in any year.

Latent Variable Model

- ❖ Postulates that the OFI, or IFI, is linearly dependent on a set of observable factors and an error term. A number of principal components are computed using successive eigenvectors elements corresponding to the largest eigenvalues of the factor correlation matrix.
- ❖ The 1st PC of the linear combination with maximal variance becomes the OFI.

Average Performance of Some APEC Members, 1998-2002

- ❖ OFI: US 2
- ❖ Singapore 7
- ❖ Canada 11
- ❖ New Zealand 12
- ❖ Australia 13
- ❖ Hong Kong SAR 17
- ❖ Japan 26
- ❖ Malaysia 27
- ❖ Korea 31
- ❖ Chile 34
- ❖ Philippine 35
- ❖ Thailand 38
- ❖ Mexico 39
- ❖ China 40
- ❖ Indonesia 44
- ❖ Peru 50
- ❖ IFI: US 5
- ❖ Canada 7
- ❖ Singapore 9
- ❖ New Zealand 11
- ❖ Australia 14
- ❖ Japan 18
- ❖ Hong Kong SAR 20
- ❖ Malaysia 26
- ❖ Chile 27
- ❖ Korea 32
- ❖ Thailand 39
- ❖ Peru 46
- ❖ Mexico 47
- ❖ Philippine 51
- ❖ China 54
- ❖ Indonesia 55

Hypothesis

- ❖ Use OFI & IFI: economies with strong IFI do enjoy a higher rate per capita GDP growth at different level of OFI.
- ❖ Divide IFI into portions using percentiles, and a dummy to each of the other portions.

Model Equation

$$\ln y_{it} = \alpha + \beta_1 \ln OFI_{it} + \beta_2 \ln OFI_{it} * D_{2,it} + \dots + \beta_k \ln OFI_{it} * D_{k,it} + \varepsilon_{it},$$

Better IFI

- ❖ If a better indigenous environment has a positive impact of openness on growth, we expect to see $\beta_1 < \beta_1 + \beta_2 < \beta_1 + \beta_3 < \dots < \beta_1 + \beta_k$, suggesting that a strong performance in an economy's ranking of the indigenous factors could enable an economy to benefit more from openness.
- ❖ Pooled-GLS method is used to estimate.

Table 2 Pooled-GLS Estimates of 62 World Economies, 1998-2002

Coefficients	$k = 3$	$k = 4$	$k = 8$	$k = 10$
α	7.5159 (0.0722)*	7.3161 (0.0861)*	7.5144 (0.0967)*	7.5269 (0.0956)*
β_1	0.2904 (0.0270)*	0.3591 (0.0360)*	-0.0324 (0.0911)	-0.0868 (0.0920)
β_2	0.3036 (0.0073)*	0.2260 (0.0163)*	0.3593 (0.0729)*	0.3916 (0.0739)*
β_3	0.3690 (0.0097)*	0.3472 (0.0174)*	0.4956 (0.0730)*	0.5224 (0.0731)*
β_4		0.3421 (0.0188)*	0.5961 (0.0750)*	0.5561 (0.0749)*
β_5			0.6334 (0.0762)*	0.6447 (0.0759)*
β_6			0.7027 (0.0766)*	0.6757 (0.0770)*
β_7			0.6847 (0.0777)*	0.7346 (0.0771)*
β_8			0.6894 (0.0779)*	0.7523 (0.0782)*
β_9				0.7342 (0.0787)*
β_{10}				0.7427 (0.0788)*
F-test [†]	0.0000	0.0000	0.0000	0.0000
Adj. R ²	0.999704	0.999624	0.999670	0.999745
Wald Test [†]	0.0000	0.0000	0.0000	0.0000

Notes: Figures in parentheses are standard errors.

* = significance at 1% level.

† = significance at 5% level

Estimates

- ❖ When $k = 3$ and 4 , ($B1$ +ve) marginal effect of IF on globalization and economic growth may not be obvious.
- ❖ When k is large, ($B1$ -ve) means that economic growth in an economy with low performance in IF is adversely affected by globalization.
- ❖ Improvement in the performance of IF can improve the marginal effect of globalization on growth.

Optimal Performance in IF

- ❖ Use simulation (based on $k = 10$) to work out the optimal level of IF.
- ❖ Hypothesis: given 2 economies with same OFI, different performance in IFI produce different growth results.
- ❖ Given homogeneity in the performance of IFI, economies with higher OFI will result in higher economic growth.

Figure 1 The Effect of Economic Openness on Growth

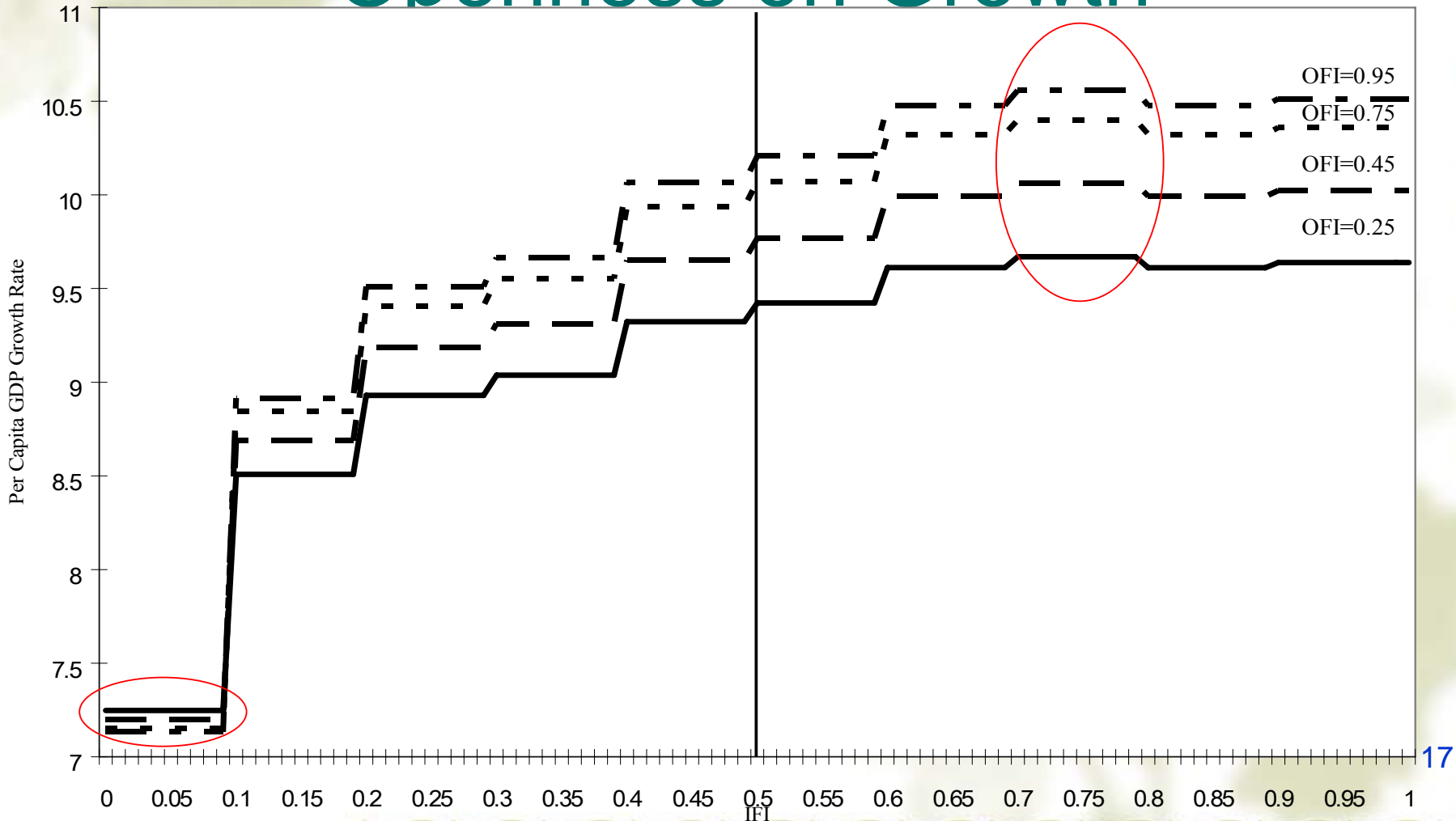


Figure 3

The Effect of a Change in OFI

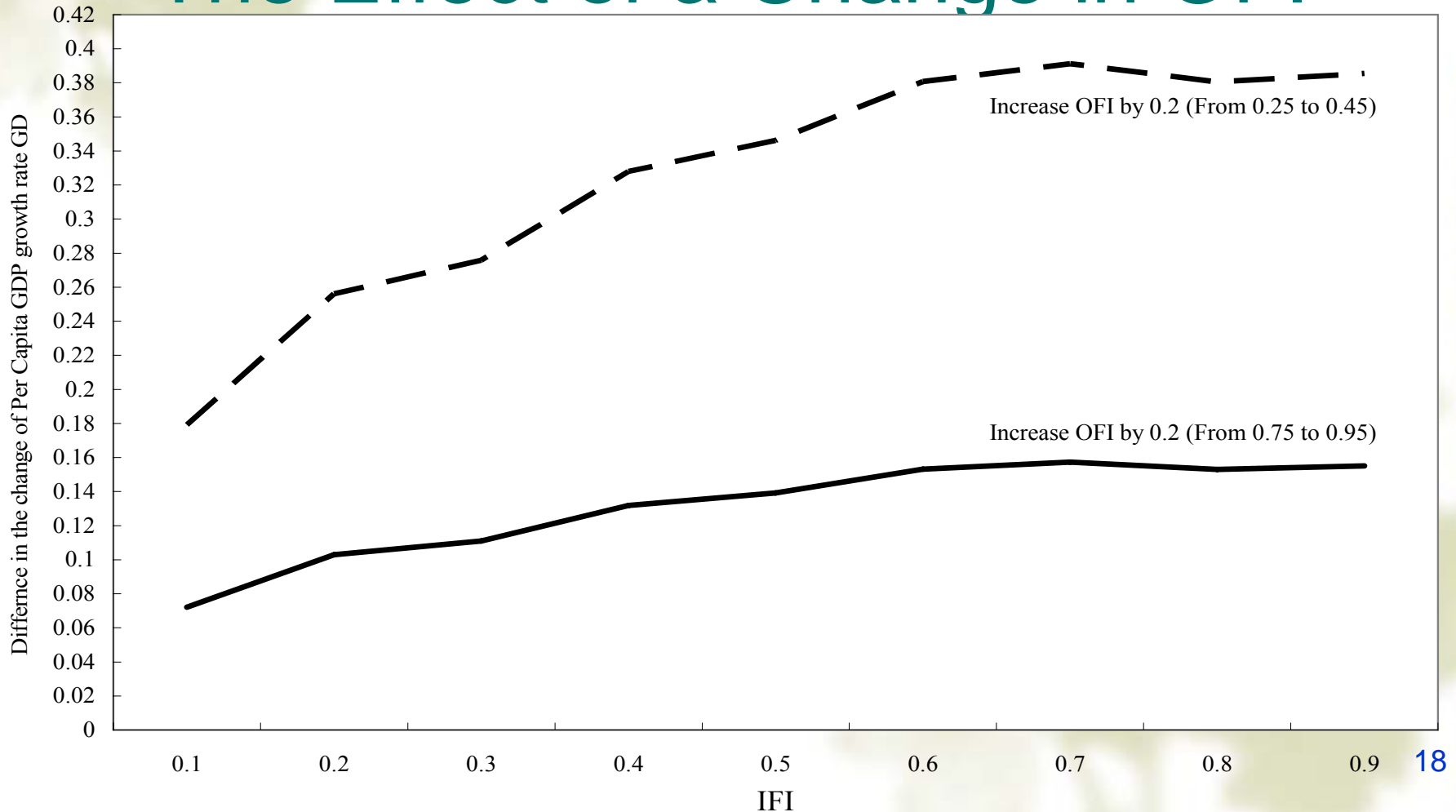
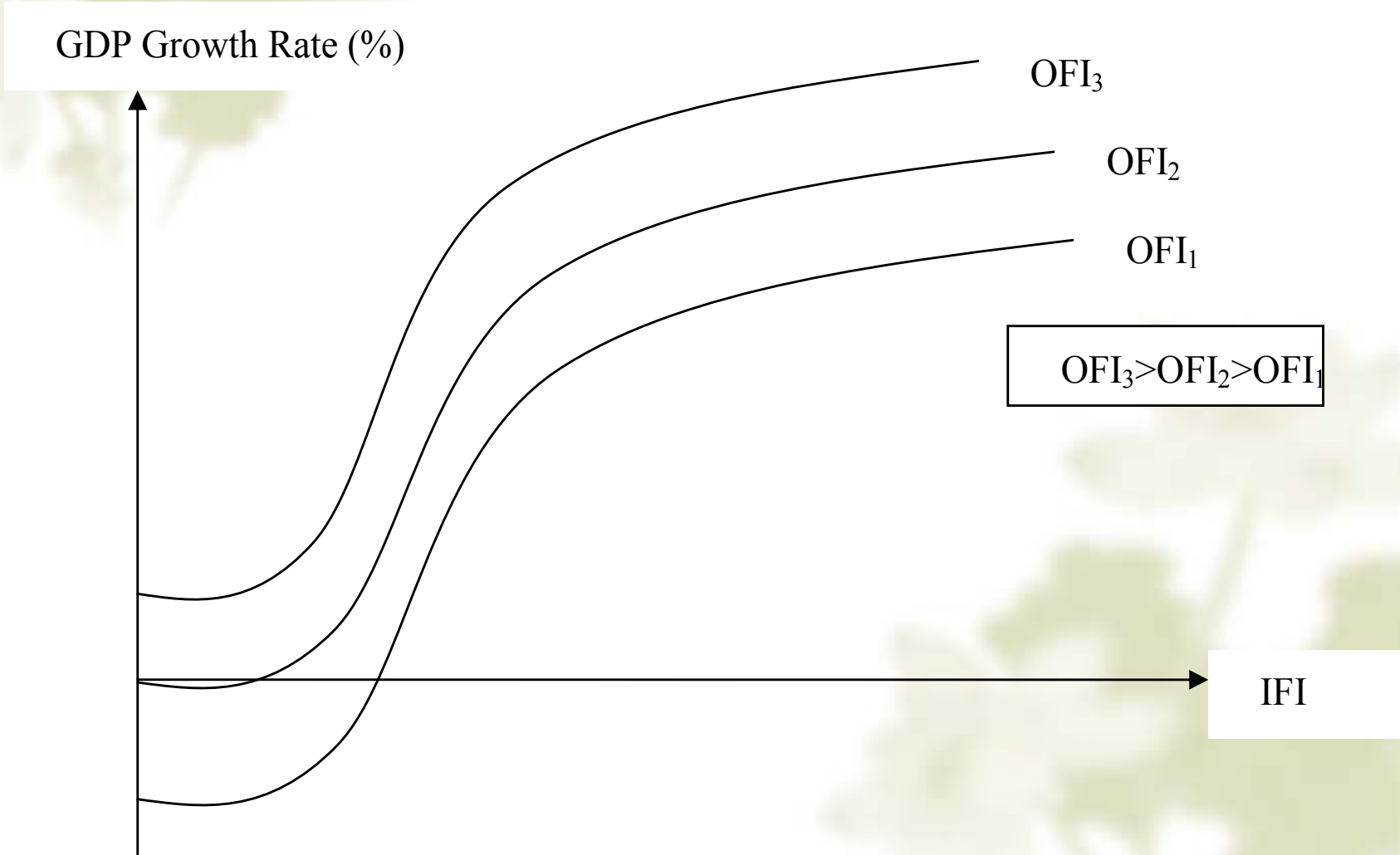


Figure 4 The Relationship between Growth, Openness and Indigenous Factors



How Economies Perform?

- ❖ Table 3 maps out the sample period average in different ranges of OFI and IFI for individual economies.
- ❖ Finding is in line with hypothesis, suggests that the performance of IF is the more fundamental constraint in the globalization process. It would be appropriate for economies to improve their IF before they can gain from OF and globalization.

Table 4 The OFI – IFI Matrix of World Economies, 1998-2002 Average

Range		Indigenous Factors Indicator (<i>IFI</i>)					
		0.00 - 0.20	0.21 - 0.40		0.41 - 0.60	0.61 - 0.80	0.81 - 1.00
Openness Factors Indicator (<i>OFI</i>)	0.00 - 0.20	Uganda (4.049) Bangladesh (3.025)* Senegal (2.322) Nigeria (1.575)* Indonesia (1.408) Pakistan (1.398) Kenya (-1.343)	China (6.749) Russian Fed. (6.381) Ukraine (5.692) India (3.287) Romania (3.071) Egypt (2.932) Iran (2.786) Sri Lanka (1.928)	Philippines (1.239) Brazil (1.229) S. Africa (1.227) Mexico (1.001) Peru (0.768) Turkey (-0.096) Colombia (-0.807) Venezuela (-3.697)	Botswana (8.615) Tunisia (3.198) Thailand (2.911) Chile (1.072) Morocco (0.720) Saudi Arab. (-0.938) Argentina (-5.887)		
	0.21 - 0.40		Croatia (3.654)		Korea (5.957) Greece (4.207) Slovak Rep. (3.341) Poland (2.981) Malaysia (2.945) Panama (0.661)	Hungary (3.869) Slovenia (3.858) Czech Rep. (3.354) Spain (2.671) Portugal (1.945) Italy (1.590) Japan (0.477) Israel (-0.096)	
	0.41 - 0.60					Hong Kong (3.346) France (2.201)	New Zealand (3.150) Canada (2.829) Australia (1.821) Norway (1.374) Germany (1.175)
	0.61 - 0.80						Singapore (4.082) Sweden (2.500) Finland (2.161) U.K. (2.102) Denmark (1.788) Austria (1.723) Netherlands (1.617) USA (1.455) Switzerland (1.095)
	0.81 - 1.00					Ireland (9.737)	

Note: Figures in parenthesis are the percentage growth rates of the average 1999-2002 GDP per capita (purchasing power parity in constant 2000 price).

*Countries with *IFI*<0.1

<http://www.cityu.edu.hk/apec>

*Globalization and Indigenous Indicators:
The 2005 Report
with Policy Recommendation*

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