POLICY OPTIONS AND CHALLENGES
FOR DEVELOPING ASIA—
PERSPECTIVES FROM THE IMF AND ASIA
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TRADE POLICY OPENNESS AND ECONOMIC PERFORMANCE: CROSS-COUNTRY EVIDENCE

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Trade Policy Openness and Economic Performance: Cross-country Evidence

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Objective of the Study

To test the relationship between trade policy openness and economic performance using a cross-country data set for 91 industrial and developing countries

Empirical Evidence

- Empirical evidence was not robust due to problems associated with:
  - the measurement of trade policy openness
  - inconsistent estimates of total factor productivity growth (TFPG) in cross-country studies in literature

Rodrik and Francisco (1999) critically reviews earlier findings...

In many cases, the indicators of "openness" used by researchers are poor measures of trade barriers or are highly correlated with other sources of bad economic performance. In other cases, the methods used to ascertain the link between trade policy and growth have serious shortcomings... We find little evidence that open trade policies—in the sense of lower tariff and non-tariff barriers to trade—are significantly associated with economic growth.

Measurement of Trade Policy Openness

Price Impact Measures

- Import weighted tariff averages
- Import weighted NTBs

- Indirect Indicators of Openness
  - Black Market Premium of the Exchange Rate
  - Sachs Warner Index
  - Real Exchange Rate Indices (David Dollar (1988))

A New Direct and Simple Measure of Trade Policy Openness

- A new index based on the concept called anti-export bias introduced by Bhagwati (1978) and Krueger (1978)

Trade Bias Index (TBI)

$$1 + TBI = \frac{1 - t_x}{1 + t_m}$$

- t_m - Ratio of collection of import duties to total imports
- t_x - Ratio of collection of export taxes to total exports

Proxy measures of trade restrictions

- t_m - Ratio of collection of import duties to total imports
- t_x - Ratio of collection of export taxes to total exports

- This measure along with other available measures are used to test the relationship

Measurement of TFP Growth

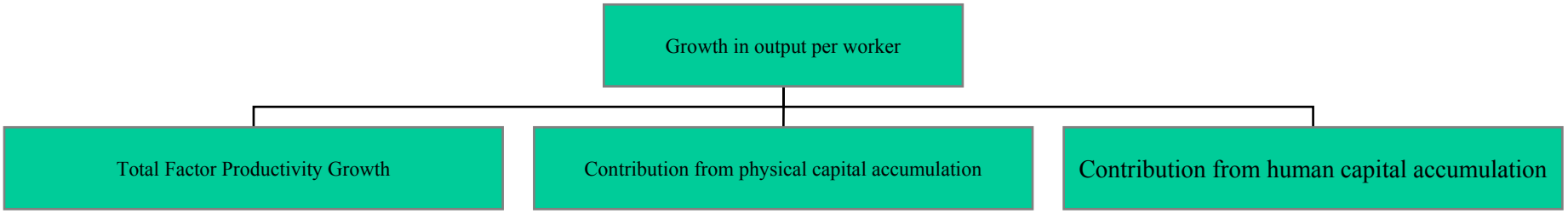
- There are discrepancies in the measurement of TFP growth among countries.
- For example, Edwards (1998) and Bosworth and Collins (1996) find different results using similar indicators of trade openness due to discrepancies in TFP growth estimates

Discrepancies in TFP Growth estimates

- Weerasinghe and Fane (2005) examine this discrepancies and argue that Bosworth and Collins (1996) and Weerasinghe (1999) estimates are better available comparable estimates of TFPG estimates for a large group of countries

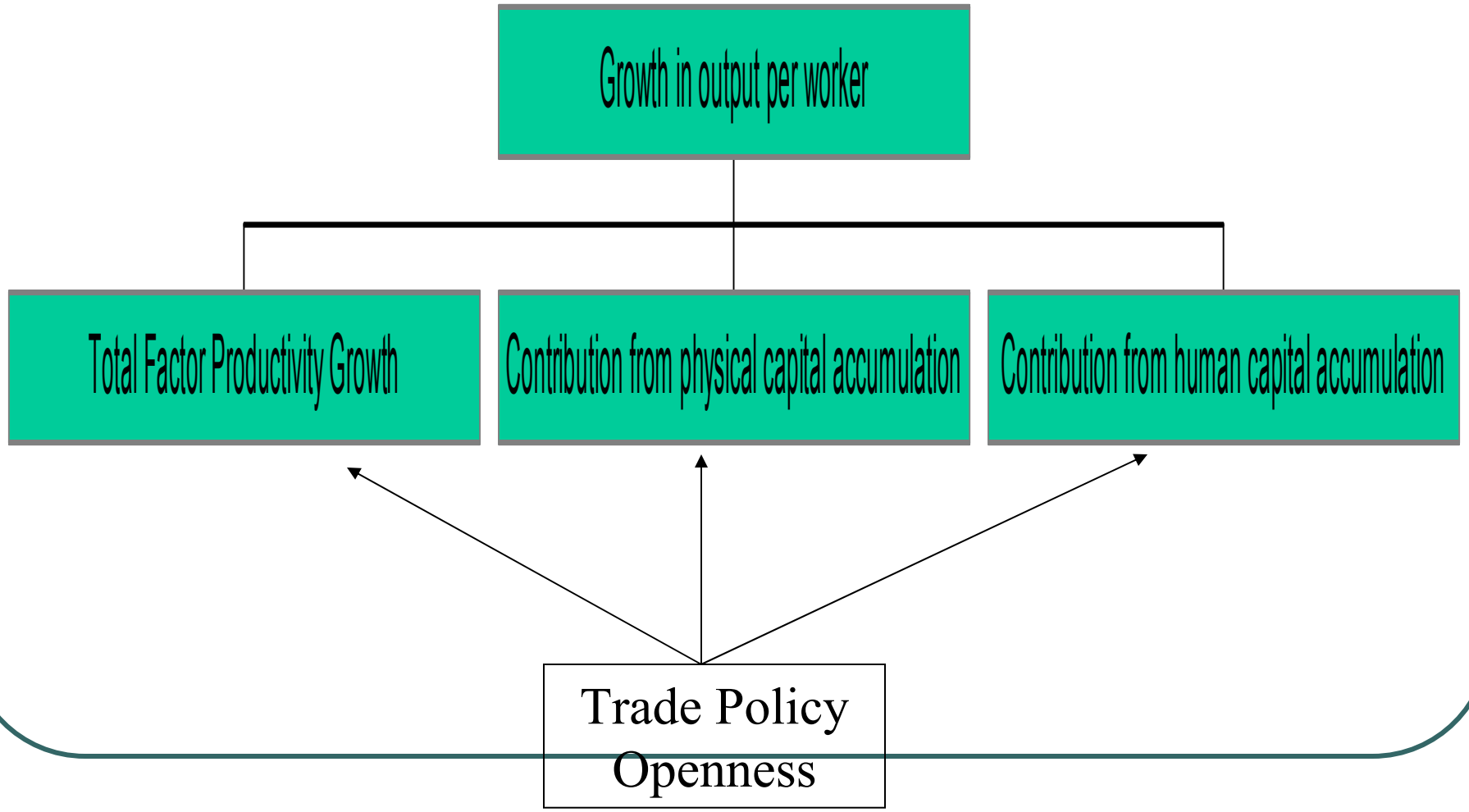
- On that basis, this paper uses TFPG estimates from Weerasinghe (1999)

Decomposition of Growth



$$\{d\log(Y_t) - d\log(N_t)\} = \theta\, d\log(A_t) + S_K \{ d\log(K_t) - d\log(N_t) \} + S_L\, d\log\{g(H_t)\}$$

Major Sources of Growth



Methodology

- Decomposed growth rates are used to examine the effectiveness through different channels of growth

- Relationship is tested in short-term, medium-term and long-term growth regressions

Regression Model

$$y_{A_i} = \lambda + \varphi OPEN_i + \gamma\left[\frac{Y_I^{\max}}{Y_I}\right]_i + \mu\left[\frac{H_I^{\max}}{H_I}\right]_i + u_i$$

y_A - *Average rate of TFP growth over the period for country* i

$OPEN_i$ - A measure of trade openness averaged over the period

Y_I - Real GDP per capita in the initial year

H_I - Average years of schooling per person in the initial year

$Y_I^{\max}, H_I^{\max}$ - maximum values of Y_I and H_I respectively

Results- Long Term Growth Regressions

Table 1 - Long term TFP growth regressions: Average annual percentage growth rates

	(1) 70-90	(2) 60-90	(3) 60-90
H_i^{max}/H_i	-0.147 (-1.30)	-0.107*** (-3.66)	-0.067** (-2.21)
Y_i^{max}/Y_i	0.117*** (2.82)	0.019 (1.35)	0.050*** (2.72)
TBI	0.331* (1.83)		
INV-BMP		0.395*** (3.24)	
SWI			0.635*** (4.57)
Constant	-0.717 (-1.92)	0.651*** (3.43)	0.181 (0.90)
R-square	0.10	0.35	0.34
N	37	68	75

Notes:

1. *t-ratios of regression coefficients are given in parentheses and statistical significance of coefficients is denoted as: ***1%, **5%., *10%*
2. *N – number of observations*
3. *TBI,INV-BMP and SWI have been scaled so that all have zero mean and unit standard deviations. Mean values of non-scaled TBI, INV-BMP and SWI are -12,-35 and 41 and standard deviations are 9, 62 and 45 percentages respectively.*

Interpretation of Results

- An increase in one SD of TBI would raise TFP growth by 0.33.An increase in one SD of TBI would raise TFP growth by 0.33 percentage points

- This means an increase in non-scaled TBI by 10 percentage points increases TFPG by 0.36 percentage points

Table 2 - Medium term TFP growth regressions: Average annual percentage growth rates

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
H_i^{ave}/H_i	-0.255**	-0.038	0.006	-0.357**	-0.357	-0.160	-0.125	0.024	-0.946	0.151	-0.209
	(-2.15)	(-0.61)	(0.14)	(-2.05)	-(-2.06)	(-0.79)	(-0.61)	(0.23)	(-1.66)	(0.31)	(-1.44)
Y_i^{ave}/Y_i	0.174***	0.020	0.031	0.069	0.071	0.119**	0.097	-0.040	0.107	-0.136	0.098
	(3.25)	(0.73)	(1.08)	(1.22)	(1.26)	(2.20)	(1.57)	(-0.70)	(1.00)	(-0.79)	(1.34)
TBI	0.516**										
	(2.13)										
INV-BMP		0.600**									
		(2.29)									
SWI			0.782***								
			(4.39)								
INV-OWTI				-0.054							
				(-0.16)							
INV-OWQI					-0.003						
					(-0.00)						
INV-AVGT						-0.366					
						(-1.17)					
INV-NTB							-0.323				
							(-0.69)				
INV-MTAX								0.035			
								(0.17)			
INV-TRI									-0.990		
									(-1.69)		
LEAMER										0.226	
										(0.83)	
INV-DOLLAR											0.352
											(1.35)
Constant	-0.530*	0.229	-0.036	0.061	0.042	-1.43**	-1.350*	0.697***	1.201	0.044	-0.350
	(-2.14)	(0.69)	(-0.13)	(0.11)	(0.075)	(-2.11)	(-1.91)	(2.65)	(1.00)	(0.06)	(-0.92)
R-square	0.05	0.12	0.09	0.05	0.06	0.14	0.13	0.03	0.18	0.06	0.06
N	70	221	228	74	73	46	46	69	23	35	66

Notes: Same as first two notes in Table 1. Some statistics of openness measures are reported in the text.

Table 8 - Comparison of the impact of openness through different compmonents of growth

Openness	Y_A (TFPG) (1)	Y_K (2)	Y_H (3)	Y (4)	Y(10%) (5)	Std-dev of openness (%)
TBI	0.331*	0.149	0.071	0.551	0.612	9
	(1.83)	(0.81)	(1.46)			
INV-BMP	0.395***	0.289***	0.029	0.713	0.118	60
	(3.24)	(2.76)	(0.89)			
SWI	0.635***	0.459***	-0.012	1.082	0.240	45
	(4.57)	(4.02)	(-0.33)			

Notes:

1. *t-ratios of regression coefficients are given in parentheses and statistical significance of coefficients is denoted as: ***1%, **5%., *10%.*
2. *The results in the first four columns are based on openness measured in units of standard deviations.*
3. *The result in the fifth column indicates the change in output per worker in response to a ten percent increase in each non-scaled openness measure.*
4. *The last column indicates the standard deviation of each non-scaled openness measure. These numbers were used to scale openness measures to be measured in units of std-deviations.*

Findings

- Relationship between trade openness and TFP growth is not robust to all alternative indicators of trade openness due to weaknesses in some measurements of trade policy openness

- The relationship is robust if openness is measured in terms of Trade Bias Index which is a direct measure of trade policy openness.

Findings....

- Indirect measures of trade policy openness, namely BMP and the Sachs-Warner index, have also shown a strong positive association with productivity improvements
- In terms of these indicators, trade restrictions appear to retard the accumulation of physical capital and thereby output growth, but to a lesser extent than through productivity improvements

Findings....

- The study provides evidence that the major channel of effectiveness of openness operates through TFPG

- It is also found that the relationship is positive and significant both in the short and long term.

Recent Findings in the literature

- Rutherford and Tarr (2002) finds that
  - Reducing uniform 20% tariff to 10 % increases the underlying steady-state growth rate of 2% p.a to 2.6% p.a. over first decade

Recent Findings in the literature

- Alan Winters (2004) surveys the recent literature on trade liberalization and growth and finds that
  - Liberalization generally induces a temporary (but possibly long-lived) increase in growth.
  - A major component of this is an increase in productivity

Thank You