Debate

Strategic Factors in Economic Development: East Asian Industrialization 1950–2003

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ABSTRACT

East Asia's newly industrializing economies are the paragon of successful industrialization. This article investigates what lies behind this success by identifying seven 'stylized facts', which concern the contributions to industrialization and growth of structural change and technological change; and the role played by investment, savings and exports. Based on these stylized facts, the authors offer a new formulation of East Asian growth in terms of a cumulative-causation growth model. They discuss the impact on industrial diversification and upgrading of industrial and trade policies (including import substitution), and labour-market policies in the context of East Asia's authoritarian political regimes. Important specific factors are highlighted and the particular kinds of policies and institutions used in East Asia to finance accumulation are reviewed, before briefly considering the transferability of the East Asian growth regime.

INTRODUCTION

The importance of industrialization to long-term economic development lies in its potential for strong productivity and (real) income growth (Kaldor, 1967; UNCTAD, 2003). That potential derives, on the supply side, from a predisposition to scale economies, specialization and learning and, on the demand side, from favourable demand conditions. How significant this potential can be has been demonstrated by East Asia's newly industrializing economies (NIEs): their transformation, over a period of only forty years, from technologically backward and relatively poor to affluent and modern economies has been something of a miracle. Much ink has been spilt explaining why East Asia has done so much better than all other economies that had comparable productivity and income levels around 1960. This

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article reviews both East Asia's growth performance, providing new empirical estimates of important dimensions of (industrial) growth and structural change over the long period 1950–2003;[1] and the literature interpreting this performance. Although our review is long, we cannot do justice to all aspects of East Asian industrialization and are by necessity selective.[2] We concentrate on the experiences of the first-tier NIEs South Korea (henceforth Korea), Taiwan and Singapore, and the second-tier NIEs Indonesia, Malaysia and Thailand, as well as post-1978 China. We focus on *which* government policies made the difference, not on whether policy made a difference, or how much (Akyüz et al., 1998).

The article starts with a discussion of the major 'stylized facts' of East Asian industrialization. This is followed by an analysis of East Asian growth experience in terms of a Kaldorian model of cumulative growth and an evaluation of East Asia's industrialization strategy. We conclude by considering to what extent the East Asian experience is a useful one for other developing countries to follow. Before proceeding, we note that we will not deal with the East Asian financial crisis of 1997–98.[3] Our focus is explicitly long-term and, from this perspective, the crisis will prove to be a 'bubble', though a very significant and destructive one indeed, on a stream of steady East Asian enterprise.

STYLIZED FACTS

Any appraisal of East Asia's growth strategies must start from the following empirical facts.

1. *East Asia's growth has been unique in an international and historical perspective.*

Table 1 presents the ratios of per capita GDP at purchasing power parity in East Asia and various other world regions to the average per capita income

1. A complete listing of our data sources is given in Naastepad and Storm (2005).
2. Specifically, we do not offer a consistent analysis of (dis-)similarities between first- and second-tier NIEs (Aküyz et al., 1998). We also refrain from reviewing the large literature on the roles of large and small firms in late-industrialization (Amsden, 2001; Nolan, 1996; Nolan and Xiaoqiang, 1999) and of multinational firms (Amsden, 2001; Singh, 1998).
3. As a result of imprudent domestic financial deregulation and of the premature removal of restrictions on cross-border capital flows, the East Asian mode of regulation proved incompatible with liberalized capital flows in the context of unregulated and unstable international financial markets. We agree with Singh (1999) and Wade (2004) that openness of the capital account was the main factor behind the crisis, rather than domestic factors stressed by the IMF, like 'government-directed investment' or 'transparency' or 'soundness of financial sector regulation'. The 'Great Asian slump' was certainly not caused by deteriorating 'fundamentals' (Singh, 1999; Wade, 2004: xxxi). For useful analyses, see the special issue of *Cambridge Journal of Economics* (1998).

Table 1. Per Capita GDP in Selected Countries, as a Percentage of Per Capita GDP in Western Countries (1820–2000)

	1820	1870	1913	1950	1960	1970	1980	1990	2000
East Asia (8 countries):	50.3	27.2	16.9	10.8	12.8	14.7	16.1	19.7	23.5
China	49.9	25.8	13.8	7.0	7.9	6.5	7.0	9.9	15.1
Indonesia	50.8	31.9	22.7	13.3	12.0	10.0	12.3	13.4	14.1
Japan	55.6	36.0	34.8	30.5	46.9	81.1	88.0	100.0	92.7
South Korea	49.9	29.5	20.5	12.2	13.0	16.3	27.0	46.3	63.1
Thailand	53.7	34.7	21.1	13.0	12.7	14.1	16.7	24.6	27.9
Taiwan	41.5	26.8	18.7	14.7	17.6	24.9	38.5	52.6	73.2
Malaysia	50.1	32.3	22.6	24.8	18.0	17.4	24.0	27.3	34.6
Singapore	51.1	33.3	32.1	35.2	27.2	37.1	59.4	76.5	97.7
Other Asia (49 countries):	44.9	27.2	18.3	12.0	11.3	10.5	10.3	9.7	10.4
India	44.3	26.0	16.9	9.8	8.9	7.2	6.2	7.0	8.4
Turkey	53.4	40.2	30.4	25.8	26.5	25.7	26.3	29.0	29.0
Africa (57 countries)	34.9	24.4	16.0	14.2	12.5	11.3	10.1	7.7	6.4
Latin America (47 countries):	57.5	33.2	37.1	39.8	36.9	33.3	35.5	26.9	25.7
Brazil	53.7	34.8	20.3	26.5	27.5	25.5	34.1	26.2	24.4
Mexico	63.1	32.9	43.4	37.6	37.1	36.1	41.2	32.6	31.8
Eastern Europe (7 countries)	56.8	45.7	42.5	33.5	36.1	36.0	37.9	29.0	25.5
Russia/USSR	57.2	46.0	37.3	45.1	46.4	46.6	42.1	36.6	19.1
All countries except East Asia (161 countries)	48.3	29.8	22.0	17.9	18.2	18.0	17.8	16.8	16.4
Per capita GDP in Western Countries (US$)	1,204	2,051	3,989	6,298	8,495	11,974	15,257	18,780	22,732

Notes:
(1) The Western countries include Western Europe and Australia, Canada, New Zealand and the USA.
(2) Per capita GDP figures are in constant international dollars for 1990.
Sources: Calculated from Maddison (2005).

in the contemporary high-income countries of the West, during the period 1820–2000. The generally negative trend in the income ratios displayed by Table 1 is disheartening. Over the long period, relative per capita GDP for Latin America and Eastern Europe fell by more than 50 per cent. The proportional loss for Africa was even greater — its income ratio declined continuously from about 35 per cent in 1820 to 6.4 per cent in 2000. East Asia is the only region which experienced a reversal of the declining trend in relative per capita GDP and significantly narrowed the gap with the advanced countries. Japan caught up with the other advanced economies in the remarkably short period 1950–80. Korea, Singapore and Taiwan narrowed the income gap between themselves and the OECD countries

(including Japan) by more than 50 per cent after 1960. Likewise, the ratios for China (after 1980), Indonesia (after 1970), Thailand (after 1960), and Malaysia (after 1970) show somewhat slower, but uninterrupted increases from levels of about 10 per cent.

Compared with the other 171 developing countries, East Asia's performance is equally remarkable. For example, whereas in 1960 Korea's and Taiwan's per capita GDP was somewhat lower than the average per capita income in all developing countries (excluding East Asia), by 2000 it was more than four times as high. In this context, it must be emphasized, following Wade (2004: 85) and Amsden (2001), that both Korea and Taiwan were not at all typical underdeveloped countries in the 1940s and 1950s: under Japanese colonial rule, both had experienced more significant improvements in agricultural performance (Chakravarty, 1987) and considerably more industrialization and import substitution than other developing countries.[4] The importance to successful industrialization of accumulated manufacturing experience can hardly be exaggerated: as Amsden (2001: 99–121) has argued, pre-World War II manufacturing experience must be regarded as a necessary condition for post-war industrial expansion given that no successful latecomer country managed to industrialize without it. Successful industrialization, in other words, is path-dependent.

2. *Labour productivity growth has been the major source of East Asian per capita income growth.*

By definition, GDP (or output) is equal to the product of aggregate employment and (average) labour productivity, as follows:

$$(1) \qquad x \equiv e * \frac{x}{e} = e * \lambda,$$

where x is real GDP, e is aggregate employment (in persons), and $\lambda \equiv (x/e)$ is average labour productivity. Dividing both sides of (1) by population p and expressing in growth rates, we get (a $\hat{}$ denotes a growth rate):

$$(2) \qquad \hat{x}_{\mathrm{p}} = \left[\frac{\hat{x}}{p}\right] = \left[\frac{\hat{e}}{p}\right] + \hat{\lambda},$$

where x_{p} is per capita real GDP and (e/p) is the labour force participation rate. Equation (2) decomposes per capita GDP growth into the growth of the participation rate and labour productivity growth. Results of this decomposition of post-1950 East Asian per capita GDP growth appear in the first three columns of Table 2. For all countries and all sub-periods by

4. Korea and Taiwan's levels of socio-economic development and educational attainment around 1960 were well above the developing country average, even though their per capita incomes were below average. No other countries showed such a large discrepancy between high socio-economic development and low per capita income (Wade, 2004).

Table 2. Decomposition of East Asia's Per Capita GDP Growth

Country/Period	Average Annual Growth Rate of:			Percentage Share in GDP (Employment):				
	Per Capita GDP	Labour Force Particpation	Labour Productivity	Agriculture	Industry	Manufact.	Services	Year
China								
1952–70	2.1	0.8	1.3	58.0 (83.6)	23.0 (7.4)		19.0 (9.0)	1952
1970–80	3.1	0.3	2.9	46.8 (80.8)	31.2 (10.2)		22.0 (9.0)	1970
1980–2002	6.3	1.3	4.9	33.8 (68.7)	42.8 (18.2)	(13.9)	23.4 (13.1)	1980
1970–2002	4.1	0.9	3.2	13.1 (44.1)	60.0 (17.7)	(11.3)	27.0 (38.2)	2002
Indonesia								
1951–70	1.9	−0.2	2.0	55.6 (79.0)	12.1 (6.3)	8.7 (4.8)	32.3 (14.6)	1951
1970–80	4.6	−1.2	5.9	37.6 (66.3)	28.1 (10.3)	6.6 (7.7)	34.3 (23.4)	1970
1980–2002	2.8	0.9	1.8	25.5 (56.4)	35.8 (13.1)	12.1 (9.0)	38.7 (30.5)	1980
1951–2002	2.8	0.1	2.7	15.2 (44.3)	45.4 (18.8)	26.5 (13.2)	39.4 (36.9)	2002
Japan								
1953–73	8.0	0.4	7.5	21.7 (39.8)	31.3 (29.2)	23.8 (18.4)	47.0 (30.9)	1953
1973–2003	2.2	0.1	2.1	4.3 (13.4)	40.6 (43.7)	27.4 (27.5)	55.1 (42.8)	1973
Korea								
1950–63	3.4	−1.5	5.0	53.0 (76.9)	13.8 (6.4)	10.3 (4.4)	33.1 (16.7)	1950
1963–80	7.6	1.2	6.3	40.0 (63.2)	22.3 (11.5)	16.5 (7.9)	37.7 (25.3)	1963
1980–2003	6.0	1.1	4.9	14.2 (34.0)	35.8 (29.0)	23.1 (21.6)	50.0 (37.0)	1980
1950–2003	5.9	0.5	5.4	3.9 (8.8)	41.5 (27.6)	29.8 (19.0)	54.6 (63.6)	2003
Malaysia								
1960–80	4.5	0.2	4.2	40.7 (63.3)	17.9 (11.7)	8.7 (7.5)	41.5 (25.1)	1960
1980–2003	3.7	0.9	2.8	19.2 (37.2)	37.5 (24.1)	18.1 (16.1)	43.4 (38.7)	1980
1960–2003	4.1	0.6	3.5	7.5 (14.3)	44.8 (32.0)	28.4 (21.6)	47.7 (53.7)	2003
Singapore								
1950–80	4.8	0.8	4.0	6.1 (8.1)	13.3 (20.4)	9.0	80.7 (71.4)	1950
1980–2003	3.9	0.3	3.5	1.0 (1.3)	36.5 (35.7)	27.1 (29.2)	62.5 (63.0)	1980
1950–2003	4.4	0.6	3.8	0.1 (0.2)	31.2 (18.5)	23.5 (17.9)	68.7 (81.3)	2003

Table 2. (Continued)

Country/Period	Average Annual Growth Rate of:			Percentage Share in GDP (Employment):				
	Per Capita GDP	Labour Force Particpation	Labour Productivity	Agriculture	Industry	Manufact.	Services	Year
Taiwan								
1956–80	6.6	1.2	5.3	21.2 (56.0)	21.4 (16.8)	11.1 (12.2)	57.5 (27.3)	1956
1980–2003	5.3	0.6	4.7	6.8 (20.6)	41.5 (41.5)	31.4 (32.0)	51.7 (37.8)	1980
1956–2003	5.9	0.9	5.0	1.9 (7.3)	32.1 (34.8)	27.1 (27.1)	66.0 (57.9)	2003
Thailand								
1951–70	3.7	−0.3	4.0	37.9 (85.5)	16.7 (2.7)	13.6 (2.1)	45.4 (11.8)	1951
1970–2003	4.4	0.4	4.1	25.5 (79.8)	25.8 (6.0)	18.8 (5.0)	48.7 (14.2)	1970
1951–2003	4.2	0.1	4.1	10.2 (44.4)	45.8 (19.5)	37.9 (14.5)	44.0 (36.1)	2003

Source: Authors' calculations.

far the largest part (often 80 to 90 per cent) of per capita GDP growth can be attributed to labour productivity growth. In some countries in certain sub-periods, labour force participation growth is negative (that is, population growth exceeds labour force growth); as a result, labour productivity growth explains more than 100 per cent of per capita GDP growth, for instance, in Indonesia (1950–80), Korea (1951–63) and Thailand (1951–70).

3. *Labour productivity growth, in turn, was primarily the result of rapid industrialization. This shift to industry was preceded by significant increases in agricultural productivity. Industrial productivity was raised by a deliberate and sustained upgrading of manufacturing itself.*

As is shown by the right-hand panel of Table 2, the share of agriculture in GDP (and employment) declined drastically: for example, in Korea, it declined from about 53 (76.9) per cent in 1950 to 3.9 (8.8) per cent in 2003; in Taiwan, from 21.2 (56) per cent in 1956 to 1.9 (7.3) per cent in 2003; and in China, from 58 (83.6) in 1952 to 13.1 (44.1) per cent in 2002. While agriculture declined in importance, the industrial sector (manufacturing) expanded: in Korea, the share of manufacturing in GDP (employment) increased by 19.5 (14.4) percentage points during 1950–2003; in Taiwan, by 16 (14.9) percentage points during 1956–2003; and in China, the share of industry in GDP (employment) increased by as much as 37 (10.3) percentage points during 1952–2002.

To measure the effects of this structural change on aggregate labour productivity growth, we express the aggregate level of labour productivity, λ, as the weighted average of sectoral labour productivities λ_i — the weights being the sectoral employment shares ϵ_i:

$$\lambda = \sum_{i=1}^{n} \varepsilon_i \lambda_i \tag{3}$$

In terms of discrete changes, (3) becomes:

$$\Delta\lambda = \sum_{i=1}^{n} \left(\lambda_i^1 - \lambda_i^0\right) * \varepsilon_i^0 + \sum_{i=1}^{n} \left(\varepsilon_i^1 - \varepsilon_i^0\right) * \lambda_i^0 + \sum_{i=1}^{n} \left(\lambda_i^1 - \lambda_i^0\right) * \left(\varepsilon_i^1 - \varepsilon_i^0\right) \tag{4}$$

for a current year (1) and a base year (0). The first term on the right-hand side of (4) represents the sum of intra-sectoral productivity growth. The second and third terms combined represent the impact on aggregate labour productivity of structural change, that is, the total effect of the change in sectoral employment shares. Using (4), Table 3 shows that structural change, and particularly the rise in the industrial employment share, accounts for more than 50 per cent of aggregate labour productivity growth in China (1970–80), Indonesia (1951–2002), Malaysia (1960–80), and Thailand (1951–2003), and for about 40 per cent of productivity growth in Korea (1950–2003) and Taiwan (1956–2003).

Table 3. Decomposition of East Asia's Labour Productivity Growth (% Contributions)

	Intra-sectoral effect:				Sub-total	Effect of structural change:					
	AgriCulture (1)	Industry (2)	Mfg (2a)	Services (3)	(1) – (3)	Agriculture (4)	Industry (5)	Mfg (5a)	Services (6)	Sub-total (4) – (6)	Total Industry (2) + (5)
China											
1970–80	−18.4	2.1		−1.9	18.6	−24.0	76.1		29.3	81.4	78.2
1980–2002	13.2	71.8		1.6	86.6	−11.3	−2.6		27.3	13.4	69.2
1970–2002	15.8	35.8		0.8	52.4	−14.8	34.4		28.0	47.6	70.2
Indonesia											
1951–70	15.1	31.8	−8.5	−8.2	38.7	−26.9	40.2	9.4	48.0	61.3	72.0
1970–80	20.1	27.7	15.2	23.9	71.7	−10.3	18.0	4.0	20.6	28.3	45.7
1980–2002	6.9	23.6	30.4	20.0	50.5	−12.6	41.3	25.6	20.8	49.5	64.9
1951–2002	16.2	16.6	9.9	9.2	42.0	−16.5	41.6	23.5	32.9	58.0	58.2
Japan											
1953–73	9.9	25.9	16.7	37.6	73.4	−11.0	17.6	11.8	20.0	26.6	43.5
1973–2002	4.2	35.4	38.8	40.2	79.9	−6.2	−14.5	−21.2	40.9	20.1	20.9
Korea											
1950–63	43.8	10.8	7.9	15.5	70.1	−18.5	21.2	15.6	27.2	29.9	31.9
1963–80	18.9	9.8	4.1	32.3	61.0	−18.8	33.4	22.6	24.5	39.1	43.2
1980–2003	15.7	47.4	39.4	22.6	85.7	−16.9	−3.1	−6.1	34.3	14.3	44.3
1950–2003	33.1	9.3	6.7	13.1	55.5	−32.5	34.0	24.5	42.9	44.5	43.3
Malaysia											
1960–80	26.4	18.4	8.3	−1.4	43.4	−23.8	34.2	17.0	46.2	56.6	52.6
1980–2003	19.8	29.6	24.6	69.9	119.2	−25.6	23.6	15.5	−17.2	−19.2	53.1
1960–2003	30.8	15.9	10.3	16.5	63.2	−33.3	37.0	24.1	33.1	36.8	52.9

Table 3. (Continued)

	Intra-sectoral effect:				Sub-total	Effect of structural change:					
	AgriCulture (1)	**Industry (2)**	**Mfg (2a)**	**Services (3)**	**(1) – (3)**	**Agriculture (4)**	**Industry (5)**	**Mfg (5a)**	**Services (6)**	**Sub-total (4) – (6)**	**Total Industry (2) + (5)**
Singapore											
1960–80	5.8	29.0	18.7	62.9	97.6	−7.3	19.6	17.9	−9.9	2.4	48.6
1980–2002	−0.1	78.7	46.5	45.9	124.4	−0.6	−51.8	−26.0	28.0	−24.4	26.8
1960–2002	1.5	43.2	23.7	55.0	99.6	−2.5	−8.7	2.5	11.5	0.4	34.5
Taiwan											
1956–80	17.2	14.8	12.3	29.0	61.0	−16.4	35.0	27.5	20.4	39.0	49.8
1980–2003	4.7	36.6	32.3	38.4	79.7	−5.4	−9.5	−7.6	35.2	20.3	27.1
1956–2003	14.0	14.8	12.3	28.0	56.8	−14.3	18.6	16.6	38.9	43.2	33.4
Thailand											
1951–70	17.9	7.2	3.1	35.8	60.8	−3.5	26.8	20.3	15.8	39.2	34.0
1970–2003	15.6	9.8	10.9	5.7	31.1	−11.1	43.4	34.1	36.5	68.9	53.2
1951–2003	16.9	4.9	4.4	9.8	31.6	−10.8	45.2	37.0	34.0	68.4	50.1

Note:
Mfg = manufacturing.
Source: Authors' calculations.

Table 3 also shows that rapid industrialization was, in general, preceded by significant increases in agricultural labour productivity. This was so in Korea, where agricultural labour productivity growth contributed 43.8 per cent to aggregate productivity growth during 1950–63; similar increases in agricultural productivity also occurred in Malaysia (1960–80), Taiwan (1956–80), and Thailand (1951–70). In Korea and Taiwan, agricultural productivity increased due to hybridization, greater use of chemical fertilizers, irrigation, institutional change (in the form of farmers co-operatives, irrigation associations, and landlord–tenants associations to accelerate the spread of technical knowledge), and by the land reforms of the 1950s. Contrary to popular prescriptions for agricultural development, Korea and Taiwan did not use high producer prices to stimulate agriculture, but instead relied on technology policy, infrastructure investment and institutional reform, and heavily taxed the resulting agricultural surpluses for use in industrialization. This helped to keep the food price — and therefore also the real wage rate — down, allowing industry to have more internationally competitive costs than otherwise (Wade, 2004). Moreover, because of the presence of considerable disguised unemployment in agriculture, the shift of the labour force from agriculture to industry not only did not reduce agricultural output, but raised agricultural labour productivity by reducing employment (Kaldor, 1967). Likewise, post-1980 Chinese industrialization was aided by the sharp rise in agricultural productivity following the Dengist reforms after 1978.

Industrialization contributed to aggregate labour productivity growth in two ways: (a) by the rise in the level of industrial real value added per industrial worker (the intra-sectoral effect); and (b) by the rise in the share of industrial employment, which has an above-average labour productivity, in total employment (the structural change effect). Comparing the intra-sectoral and structural change effects appearing in Table 3, an interesting dynamic pattern emerges: industrial labour productivity becomes important as a source of aggregate labour productivity growth only *after* there has been a significant rise in industry's share in aggregate employment. For example, in China, the rise in the industrial employment share contributed 76.1 per cent to aggregate productivity growth during 1970–80; in the subsequent period, 1980–2002, intra-industry productivity growth contributed 71.8 per cent to aggregate productivity growth. In Korea, structural change towards industry (manufacturing) contributed 33.4 (22.6) per cent to aggregate productivity growth during 1963–80 and, subsequently, intra-industrial (manufacturing) productivity growth added 47.4 (39.4) per cent to aggregate productivity growth during 1980–2003. For all countries (except Thailand, where it is yet to emerge), the shaded areas in Table 3 highlight this dynamic pattern.

Underlying this pattern is a process of structural change *within* the manufacturing sector itself. Invariably, in the initial stage of East Asian industrialization, labour-intensive manufacturing, particularly textiles,

became the leading sector (Table 4). In these activities, local resources, including labour, could be quickly mobilized and domestic demand could be generated, and in most cases, labour-intensive manufactures became a major export item. Gaining experience through such labour-intensive manufacturing proved essential in building the manufacturing production capabilities, project execution skills, and business organizations necessary to compete in world markets. Efforts were made from an early date to diversify and upgrade the manufacturing base (Aküyz et al., 1998: 13–14). Thus, measures to promote investment were linked to the establishment of domestic capital and intermediate good industries and technological upgrading; this process was aided by import substitution policies (see below). As a result of these efforts, East Asia has gone through an extraordinarily rapid and intense structural change, away from resource-based and labour-intensive activities towards more technology-intensive, higher value-added activities. The structural change indicator used in Table 4, which has a minimum of 0 (no structural change) and a maximum of 100 (a complete reversal of industrial structure), has an average value of 48 (over four decades) for the six countries included in the table, which is very high (see Amsden, 2001). The share of those manufactures commonly associated with successful industrial upgrading (chemicals and machinery) grew particularly rapidly during 1970–2001, while there was a sharp decline in the share (in value added) of natural-resource based industries (wood, paper products, and non-metallic mineral products) and traditional labour-intensive industries (food and textiles).

It is noteworthy that between 1960 and 2000, a similar upgrading has taken place in East Asia's exports. As Table 5 shows, the degree of structural change has been even higher in exports than in production. Evidence from UNCTAD (2002, 2003) shows that among the major developing countries, *only* the East Asian NIEs have succeeded in simultaneously upgrading their (manufacturing) production and export structures towards technology-intensive, high-value-added activities; the other late-industrializing countries continue to specialize in exploitation of natural resources or in low-technology goods.

4. *Unlike other late-industrializing countries, East Asia managed to escape the trade-off between labour productivity growth and employment growth.*

Productivity growth leads to job losses, as firms, using new machinery, can produce the same output with fewer workers. At the same time, productivity growth leads to employment creation as well, since technology also creates new processes and products, which lead to the expansion of markets and hence higher output. If, at the aggregate level, the employment-displacing effect of productivity growth exceeds its employment-generating effect, this results in a productivity–employment–growth trade-off. Empirical research

Table 4. Structural Change in East Asian Manufacturing, 1960–2001 (% of Total Manufacturing Value Added)

	Indonesia				Japan			
	1958	**1975**	**1990**	**2001**	**1953**	**1975**	**1990**	**2001**
Food	38.0	33.4	20.1	22.3	9.6	10.0	8.9	12.0
Textiles	8.0	13.7	13.7	13.4	16.0	7.9	4.7	2.9
Wood & paper products	3.0	6.0	13.6	17.2	14.1	12.4	10.4	11.4
Chemicals	12.0	30.8	28.3	15.8	16.2	14.7	15.0	16.5
Non-metal. mineral prod.	4.0	4.3	2.6	0.0	5.5	5.1	4.3	4.0
Metals	11.0	3.8	11.7	7.5	36.0	15.3	13.8	11.8
Machinery		7.9	9.4	22.8		32.9	41.4	39.9
Other	24.0	0.2	0.5	1.1	2.5	1.7	1.5	1.6
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mfg. output/GDP	8.0	9.0	20.0	27.1			28.0	22.8
Structural change indicator	46.1				42.6			
	Korea					**Malaysia**		
	1958	**1975**	**1990**	**2001**	**1959**	**1975**	**1990**	**2000**
Food	21.0	17.8	11.3	8.1	36.6	27.0	15.6	8.0
Textiles	29.2	22.6	13.2	7.8		7.2	6.3	4.1
Wood & paper products	12.2	6.7	6.2	6.2	17.8	16.4	11.5	9.8
Chemicals	11.9	22.3	17.6	16.2	22.6	21.0	23.5	23.9
Non-metal. mineral prod.	8.9	5.7	4.6	4.2	6.3	4.2	6.4	4.7
Metals	14.7	8.9	12.8	10.6	4.5	6.7	7.6	6.0
Machinery		14.2	32.2	45.9	6.9	16.9	28.1	42.6
Other	2.2	1.9	2.1	0.9	5.2	0.6	1.0	0.9
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mfg. output/GDP	9.0	27.0	31.0	33.8	9.0	18.0	24.0	31.1
Structural change indicator	50.3				42.5			
	Taiwan				**Thailand**			
	1954	**1975**	**1990**	**2002**	**1963**	**1975**	**1990**	**2000**
Food	41.8	22.1	11.4	5.5	53.9	41.0	31.3	14.7
Textiles	16.3	17.4	12.5	6.5	9.5	15.4	25.5	16.3
Wood & paper products	9.7	5.3	6.7	3.4	11.1	7.4	5.3	8.4
Chemicals	12.7	18.7	21.7	23.2	5.6	14.4	10.5	20.6
Non-metal. mineral prod.	5.9	5.5	3.9	2.4	7.1	2.9	4.2	1.0
Metals	12.2	10.2	11.8	11.4	5.4	5.7	4.3	3.0
Machinery		18.2	22.5	45.5	6.2	9.6	11.8	36.0
Other	1.3	2.8	9.6	2.2	1.3	3.6	7.3	0.0
Total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Mfg. output/GDP	14.0	29.0	36.0	26.5	12.0	18.0	26.0	30.4
Structural change indicator	56.8				51.6			

Notes:
Food = food, beverages, tobacco; Textiles = textiles, wearing apparel, leather and fur products, footwear; Chemicals = industrial and other chemicals, petroleum refineries, coal and petroleum products, plastics and rubber products; Metals = iron and steel, nonferrous metals, metal products; Machinery = electrical and non-electrical machinery, transport equipment, professional and scientific equipment. The structural change indicator S (max. = 100) is defined as:

$$S = \left[\sum_{i=1}^{n} (S_{i2002} - S_{i1958})\right]/2, \qquad \text{where } s_i \text{ is the share of industry } i \text{ in total manufacturing value added.}$$

.

Sources: Data for the 1950s, 1963, 1975 and 1990: Amsden (2001: Table 5.2). Data for 2000–02: UNIDO Industrial Statistics. Data for Taiwan in 2002: DGBAS, Taiwan.

Table 5. Structural Change in East Asian Exports, 1960–2000 (% Shares in Total Non-oil Exports)

	China		Indonesia			Korea			Malaysia		
	1990	**2002**	**1960**	**1970**	**2002**	**1960**	**1970**	**2002**	**1960**	**1970**	**2001**
Primary commodities	20.4	6.0	96.2	93.1	18.3	85.5	21.7	3.4	94.9	81.7	5.5
Traditional labour-intensive goods	36.5	24.6	0.1	0.4	29.4	12.3	53.7	10.6	1.8	6.3	8.4
Of which:											
Textiles	30.4	16.5	0.0	0.0	13.9	7.7	36.0	8.7	0.4	1.1	3.9
Natural-resource processing goods	2.4	1.6	3.4	5.2	6.8	0.6	0.0	0.5	2.1	7.0	4.8
Goods with low technology intensity	5.9	4.5	0.0	0.0	1.8	0.0	1.9	11.5	0.1	0.6	2.0
Goods with medium technology intensity	13.7	12.2	0.1	0.5	7.9	0.3	6.5	26.2	0.5	2.4	27.1
Goods with high technology intensity	14.8	27.4	0.2	0.8	19.5	1.3	2.4	36.7	0.6	1.5	45.8
Other manufactures	6.3	7.1	0.0	0.0	2.2	0.0	13.7	2.3	0.0	0.5	2.5
Exports/GDP (%)	17.5	18.8	13.6	13.4	41.1	3.9	15.0	50.0	52.9	44.0	116.3
Structural change Indicator	21.7		70.9			79.6			87.4		

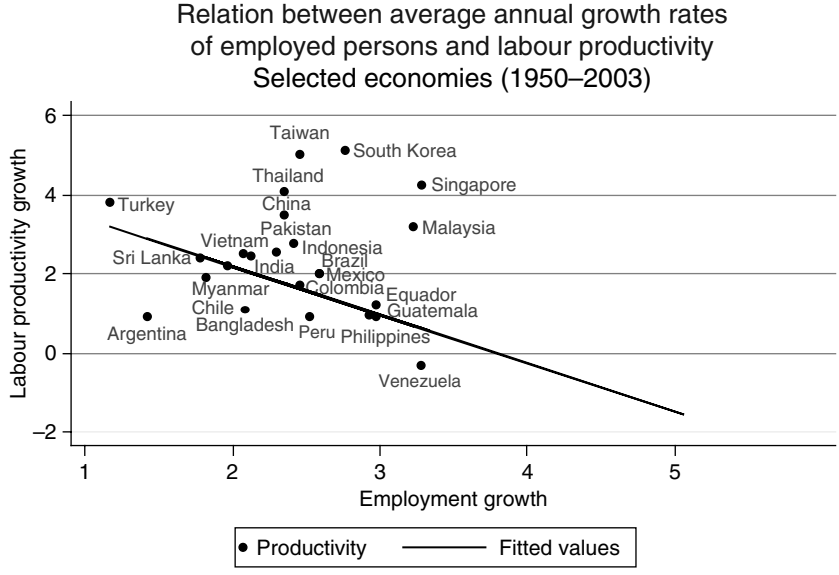
	Taiwan		Singapore			Thailand			All developing countries	
	1980	**2000**	**1960**	**1970**	**2002**	**1960**	**1970**	**2001**	**1980**	**1998**
Primary commodities	10.7	3.6	73.6	56.7	3.1	98.9	94.2	18.8	50.8	19.0
Traditional labour-intensive goods	38.7	13.5	15.1	16.1	4.0	0.9	4.5	13.7	21.8	23.2
Of which:										
Textiles			5.1	7.4	2.1	0.0	1.4	8.3		
Natural-resource processing goods	1.9	0.6	1.8	4.0	0.0	0.0	0.0	2.4		
Goods with low technology intensity	8.6	10.5	1.4	1.6	1.0	0.0	0.3	2.5	5.8	7.3
Goods with medium technology intensity	12.3	19.5	5.0	14.3	34.8	0.0	0.6	21.1	8.2	16.8
Goods with high technology intensity	18.6	48.2	3.1	4.6	51.2	0.1	0.4	28.9	11.6	31.0
Other manufactures	2.9	1.2	0.0	2.6	3.7	0.0	0.0	4.2		
Exports/GDP (%)	33.0	54.3				17.5	16.9	66.0		
Structural change Indicator	37.0		82.7			76.0				

Notes:
Primary products: food; non-ferrous metals; other primary commodities.
Traditional labour-intensive goods: textiles; clothing; footwear, leather and travel products; wood and paper products.
Natural resource processing goods: non-metallic mineral products.
Low-technology goods: iron and steel; fabricated metal products; simple transport equipment; ships and boats.
Medium-technology goods: rubber and plastic products; non-electrical machinery; electrical machinery (excl. semiconductors); road motor vehicles.
High-technology goods: chemicals; pharmaceuticals; computer and office equipment and semiconductors; aircraft; scientific instruments.
For the definition of the structural change indicator, see notes to Table 4.
Sources: Calculated from United Nations, *International Trade Statistics Yearbook*, various years; UNCTAD (2003: Table 5.8).

indicates that this trade-off applies to most late-industrializing countries — except the East Asian ones (ILO, 2005: 98).

Figure 1 provides an illustration of the long-term interaction between (average annual) employment and productivity growth in a sample of twenty-four late-industrializing countries from Asia and Latin America during 1950–2003. Although a weak negative relationship between employment and productivity growth can be distinguished, a cross-country regression for the twenty-four countries shows that this (negative) association is statistically not significant — see Table 6, column 1. A closer look at Figure 1 shows a clustering of East Asian countries (China, Malaysia, Singapore, South Korea, Taiwan and Thailand) in the 'high employment growth, high productivity growth' region. If we exclude these six countries from the

Figure 1. Relation between Average Annual Growth Rates of Employed Persons and Labour Productivity (Selected Economics, 1950–2003)



Notes:
(1) Employment is defined as the number of persons in civilian employment.
(2) Labour productivity is GDP (at constant prices) per person employed.
(3) Labour productivity and employment growth rates for India, Indonesia, Malaysia, Myanmar, Pakistan, Singapore, Korea, Sri Lanka, Taiwan, Thailand, and Vietnam are for 1960–2003; the figures for China are for 1953–2003.
(4) The regression line has been estimated for 18 countries, i.e. excluding China, Malaysia, Singapore, Korea, Taiwan and Thailand.
Source: Calculated on the basis of data from GGDC (2005).

Table 6. Regression Results: Labour Productivity Growth and Employment Growth (1950–2003), 24 and 18 Late-industrializing Countries

Dependent Variable: Average Annual Labour Productivity Growth (1950–2003)		
	(1)	**(2)**
Constant	2.78 (1.99)**	4.67 (5.98)***
Average annual employment growth (1950–2003)	−0.19 (–0.33)	−1.23 (−3.75)***
$\overline{R}^2$	0.00	0.36
F-statistic	0.11 (0.74)	14.10 (0.00)
No. of observations (degrees of freedom)	24 (23)	18 (16)

Notes:
(a) Column (1) reports the regression results for the complete sample of 24 countries; column (2) presents the results for only 18 countries (it excludes China, Korea, Malaysia, Singapore, Taiwan and Thailand).
(b) *, **, *** denote statistical significance at the 10%, 5% and 1% level, respectively. *t*-statistics adjusted for heteroscedasticity of unknown form are reported in parentheses.
(c) The reported results are not sensitive to variation in country coverage.
Source: Calculated on the basis of data from GGDC (2005).

sample, the association between employment and productivity growth in the remaining eighteen countries is statistically significant (at 1 per cent) and negative — see Table 6, column 2. This is indicated by the falling regression line in Figure 1. Hence, while in the East Asian economies, employment and productivity growth go hand-in-hand, this has not been the case in other Asian and Latin American developing economies, where the data point to a trade-off. In a cross-country perspective, therefore, the East Asian economies are clear 'outliers' in terms of employment and productivity growth.

5. *Capital accumulation holds the central place in East Asia's virtuous growth regime*.

Sustained productivity growth can only be achieved through high rates of investment in (the latest) plant and equipment and physical infrastructure, as well as in education and research and development. There is little doubting East Asian success in these respects (Akyüz et al., 1998; Amsden, 2001; Rodrik, 1995, 1999; UNCTAD, 2003; Wade, 2004), as can be seen from Table 7. In the first-tier NIEs, accelerating accumulation began in the 1950s — from about 10 per cent of GDP in Korea and 16 per cent in Taiwan — and rose continuously until the 1980s, reaching a level of more than 30 per cent of GDP. In Indonesia, Malaysia and Thailand the investment ratio began to rise significantly in the 1970s. Likewise, China managed to maintain a very high rate of accumulation over the past three decades, steadily raising its investment–GDP ratio from 25.1 per cent during 1970–75 to 35.4 during 1995–2000. In many other developing countries, gross fixed capital formation also increased in the 1960s and 1970s but, unlike their East Asian counterparts, these countries failed to maintain and further raise their rates

of investment during the 1980s and 1990s. In East Asia, there was a rise over time in the share of investment going to machinery and equipment, along with non-residential construction, whereas in other (Latin American) countries, the share of machinery and equipment did not rise significantly and, after the mid-1980s, a large portion of investment went into residential construction (UNCTAD, 2003).

East Asia's rapid capital accumulation also shows up in high growth rates of capital stock per worker (Table 8). It is generally agreed that such 'capital deepening' is a major cause of East Asia's high labour productivity growth, particularly in manufacturing. Empirical support is provided by a large number of growth-accounting studies, the most influential of which appear in Table 9. Most studies suggest a high contribution of capital intensity growth to labour productivity growth. From this, it follows within the growth-accounting framework that the contribution to East Asian labour productivity growth of total-factor-productivity (TFP) growth or neutral disembodied technological progress has been relatively small. For instance, according to Kim and Lau (1994), TFP growth's contribution to labour productivity growth was only 17 per cent in Korea, 33 per cent in Singapore, and 15 per cent in Taiwan. In a statistical sense, TFP growth in these countries has been essentially nil. Such findings, and particularly those by Young (1995), have been heavily debated in the literature (Felipe and McCombie, 2001; Rodrik, 1997), because they challenge findings by an influential World Bank (1993) study, on which the World Bank's interpretation of the East Asian growth miracle was based. Specifically, the World Bank argued that East Asia's superior economic performance was mainly caused by rapid technological progress or TFP growth; this was, in turn, attributed to a process of rapid technological catching-up ('assimilation') and an efficient use of available resources, both made possible by East Asia's supposedly 'market-friendly' policies, stimulating openness and free-market competition. The small, often negligible, estimates of TFP growth, displayed in Table 9, obviously undermine this argumentation.

However, the controversy over East Asia's TFP growth is not enlightening. First, because of often significant and fairly arbitrary differences in the data used, there is a large variation in estimates of TFP growth (Felipe and McCombie, 2001); this fragility of the empirical results should caution against drawing conclusions out of this literature. Second, and more importantly, there is a fundamental indeterminacy in TFP measurement: it is impossible to calculate TFP growth without making a priori assumptions on the form of the underlying production function and the nature of technological progress; and it is not possible to resolve this indeterminacy by econometric means (Felipe and McCombie, 2001; Rodrik, 1997). What this means is that the TFP growth estimates in Table 9 can in no way be interpreted as measures of disembodied technological progress and efficiency gains. However, even if we cannot identify the contribution of technological progress to growth, it is realistic to assume that labour-saving

Table 7. Sectoral Savings and Investment in East Asia (as % of GNP)

	Households		Business		Government		National economy			
	S_h	I_h	S_b	I_b	S_g	I_g	S_d	I_d	$S_{foreign}$	ΔStocks
China										
1982–1986	12.5	5.5	14.1	22.1	6.0	5.7	32.5	33.4	0.8	
Indonesia										
1961–70							4.9	10.4		
1971–80							24.6	22.7		
1981–90							25.1	28.3		
1991–94							26.9	29.7		
Japan										
1955–60	12.9	4.7	10.2	15.8	5.1	4.0	28.3	24.5	−0.1	3.7
1961–70	13.5	5.8	15.4	21.6	6.3	4.9	35.2	32.3	0.1	3.0
1971–80	18.4	7.9	11.7	18.5	4.4	6.4	34.5	32.8	−0.7	1.1
1981–90	14.5	4.7	13.0	18.8	4.7	5.9	32.2	29.4	−2.3	0.5
1991–2002	11.6	5.1	15.3	15.9	2.6	6.5	29.5	27.5	−1.8	0.2
Korea										
1951–60							3.3	10.0		
1961–70	1.4		7.3	13.0	6.3	4.7	14.9	17.7	3.3	1.7
1971–80	10.6	3.5	8.8	12.7	4.6	4.1	23.9	29.1	5.5	1.5
1981–90	13.8	6.7	13.0	20.3	6.7	4.4	33.4	31.4	−0.7	0.9
1991–2003	13.2	7.4	12.5	20.8	9.5	5.4	35.2	33.6	−1.3	−0.2
Malaysia										
1965–70							21.5	19.9		
1971–80							26.2	26.3		
1980;1985–86	19.7	2.9	9.1	16.3	−1.2	11.1	27.7	30.3	2.6	
1991–1994							30.0	36.1		
Taiwan										
1951–60	3.1		7.7 (2.8)	11.3 (4.7)	4.1	2.0	14.9	16.1	1.2	2.8
1961–70	8.6		9.7 (4.0)	16.0 (5.3)	2.8	2.3	21.1	21.9	0.8	3.5
1971–80	13.0		11.4 (4.1)	23.0 (8.9)	7.4	3.9	31.9	30.5	−1.4	3.5
1981–90	15.6		11.8 (4.7)	17.6 (5.6)	5.9	4.0	33.3	22.5	−10.8	0.9
1991–2003	12.1		12.3 (3.0)	16.2 (3.1)	2.4	5.7	26.7	22.3	−4.4	0.4
Thailand										
1957–60				11.4		3.3	14.6	16.2	−1.0	1.5
1961–70	7.7		5.9	12.6	5.5	6.0	19.3	20.4	1.2	1.8
1971–80	10.4		6.6	17.6	4.9	6.6	22.0	26.1	3.4	1.9
1981–90	12.1		8.5	23.0	6.0	7.2	26.6	31.1	4.1	0.8
1991–2002	7.1		11.5	22.2	12.5	8.2	31.1	30.8	−0.1	0.4
Memo item:										
9 developing countries (1980–84)	10.7	4.8	4.1	13.3	5.7	7.4	20.5	25.5	5.0	
of which:										
India (1970–82)	16.6	10.0	1.9	3.1	4.6	11.2	23.1	24.4	1.2	
Philippines (1983–85)	10.0	1.0	3.3	10.2	4.4	8.1	17.8	19.3	1.5	
Turkey (1971–81)	12.1	4.5	3.9	16.1	5.2	6.4	21.2	27.0	5.8	

Notes:
(1) S_h = household gross savings/GNP; I_h = household gross investment/GNP; etc. $S_d = S_h + S_b + S_g$; $I_d = I_h + I_b + I_g$; $S_{foreign} = I_d - S_d$; ΔStocks = increase in stocks.
(2) State enterprises are included in the business sector; for Taiwan, figures in parentheses indicate the share in GNP of savings and investment by state enterprises.
(3) The household sector includes private unincorporated enterprises.
Sources: Data for China, Malaysia (1980; 1985–86), India, Philippines, Turkey and six other developing countries are calculated from Honohan and Atiyas (1993). Data for Indonesia and Malaysia (1965–70), (1971–80) and (1990–94) are from Akyüz et al. (1998). Data sources for Japan, Korea, Taiwan, and Thailand are given in Naastepad and Storm (2005).

Table 8. Growth of Capital Stock Per Worker, East Asia and OECD

	Average annual growth rate (%)			Ratio of capital to labour as a proportion of capital intensity in Japan in 1980		
Country	**1960–80**	**1980–2003**	**1960–2003**	**1960**	**1980**	**2003**
China	4.28	6.18	5.29	0.01	0.03	0.13
Indonesia	8.99	5.26	6.98	0.01	0.05	0.15
Japan	9.80	2.17	5.65	0.15	1.00	1.64
Korea	9.63	6.09	7.72	0.05	0.31	1.20
Malaysia	6.78	4.51	5.56	0.06	0.21	0.57
Singapore	7.84	3.09	5.27	0.20	0.90	1.81
Taiwan	11.48	5.48	8.23	0.03	0.24	0.81
Thailand	8.81	5.20	6.87	0.02	0.13	0.42
Unweighted Average	8.45	4.75	6.45	0.07	0.36	0.84

Sources: Authors' calculations.

technological progress takes place in combination with and cannot be separated from capital deepening (that is, it is *embodied* in new equipment).

6. *The East Asian economies were able to maintain rapid capital accumulation without running into inflation and/or balance-of-payments problems, because they managed to raise the domestic savings rate to a level close to the investment rate in the long run.*

The increase in East Asia's savings rates, from the rather unremarkable levels of below 15 per cent in the 1950s to the extraordinary levels of 30–35 per cent or more in the 1990s, is no doubt an important part of the success story. Specifically, as Table 7 shows, East Asian countries have unusually high business saving rates, while their household savings and public savings (as a percentage of GNP) are comparable to those of the other countries (You, 1998). As a result, the external financing need of the business sector in East Asia has been significantly lower than in the other countries. Table 7 shows that East Asia's dependence on foreign savings has been low in comparative perspective, but public saving constituted an important source of investment finance. Taiwan is worth mentioning here: during 1971–80 and 1981–90, public savings amounted to 7.4 and 5.9 per cent of GNP, respectively; at the same time, savings by public enterprises amounted to 4.1 and 4.7 per cent of GNP. Taken together, between 31.8 and 36.1 per cent of domestic savings in Taiwan were directly generated within the public sector during 1971–90. Table 7 also shows the importance of public sector investment in Taiwan, which accounted for about 40 per cent of total investment during the 1970s, 1980s and 1990s. It is in this sense that Taiwan's industrialization has been state-led (Wade, 2004).

Table 9. Putative Sources of Growth in East Asia

Country/Study	Period	Labour productivity growth (% per year)	Contribution (annual % rate) of: Capital intensity growth	TFP growth	Other factors
China					
Woo (1998)	1979–93	5.3	3.5 (66.9)	1.8 (33.1)	
Wang and Yao (2001)	1978–99	7.0	3.4 (47.6)	2.3 (33.1)	1.3 (19.2)
Indonesia					
Collins and Bosworth (1996)	1960–94	3.4	2.1 (61.8)	0.8 (23.5)	0.5 (14.7)
Japan					
Kim and Lau (1994)	1957–90	6.5	3.1 (48.4)	3.4 (52.1)	0.0 (−0.5)
Korea					
Kim and Lau (1994)	1960–90	5.1	4.0 (78.2)	0.8 (16.6)	0.2 (5.2)
Young (1995)	1966–90	4.9	3.2 (64.7)	1.7 (35.3)	
Collins and Bosworth (1996)	1960–94	5.7	3.3 (57.9)	1.5 (26.3)	0.8 (14.0)
Felipe and McCombie (2001)	1966–96	3.9	1.3 (33.8)	2.6 (66.2)	
Hsieh (2002)	1966–90	4.9		1.9 (38.8)	
Malaysia					
Collins and Bosworth (1996)	1960–94	3.8	2.3 (60.5)	0.9 (23.7)	0.5 (13.2)
Singapore					
Kim and Lau (1994)	1964–90	4.5	2.6 (59.5)	1.5 (33.1)	0.3 (7.4)
Young (1995)	1966–90	4.2	4.0 (96.4)	0.2 (3.6)	
Collins and Bosworth (1996)	1960–94	5.4	3.4 (64.8)	1.5 (27.8)	0.4 (7.4)
Felipe and McCombie (2001)	1966–96	3.0	2.0 (67.7)	1.0 (32.3)	
Hsieh (2002)	1972–90	4.2		2.2 (52.4)	
Thailand					
Collins and Bosworth (1996)	1960–94	5.0	2.7 (56.0)	1.8 (36.0)	0.4 (8.0)
Taiwan					
Kim and Lau (1994)	1953–90	6.2	5.0 (81.1)	0.9 (15.2)	0.2 (3.7)
Young (1995)	1966–90	4.8	2.2 (45.9)	2.6 (54.1)	
Collins and Bosworth (1996)	1960–94	5.8	3.1 (53.4)	2.0 (34.5)	0.6 (10.3)
Felipe and McCombie (2001)	1966–96	4.5	1.1 (24.4)	3.4 (75.6)	
Hsieh (2002)	1966–90	4.3		3.4 (79.1)	

Notes:
(1) Capital intensity growth is the growth of capital stock (at constant prices) per unit of labour. In all studies except Kim and Lau (1994), employment is measured in number of persons employed; Kim and Lau measure employment in terms of numbers of hours worked.
(2) 'Other factors' include mainly human capital formation.
(3) Figures in parentheses give percentage shares in average annual labour productivity growth.

7. *East Asia's rapid growth cannot be ascribed to its export orientation.*

The standard account (World Bank, 1993) holds that East Asia's growth has been export-led. After an initial period of traditional import substitution policies, the argument goes, the East Asian countries adopted export-oriented policies.[5] As a consequence of these policies, exports took off in the mid-1960s, which led to specialization according to comparative advantage and the exploitation of economies of scale, resulting in a virtuous cycle of rising incomes, investment, savings and (TFP) productivity. But this standard account is misleading.

First, as argued by Rodrik (1995, 1999), the increase in the relative profitability of exports (around the mid-1960s) was only modest and cannot account for the sharp increase in the export–GDP ratio at that time, nor for the inexorable rise in this ratio. Second, since the export base was very small at first, export growth explains only a fraction of GDP growth (in a purely accounting sense). Third, it is not clear (and there is no convincing evidence) that technological spillovers and cumulative productivity benefits deriving from export growth could be so significant as to set a process of aggregate economic growth in motion.[6] Fourth, empirical evidence for forty-seven episodes of investment transitions indicates that export booms are generally preceded by a sharp rise in the investment–GDP ratio, sustained for at least five years (Rodrik, 1999); this, obviously, suggests that causality runs from (import-substituting) investment growth to export growth, not *vice versa* as in the standard account. Hence, a more plausible account of East Asian industrialization focuses on the investment boom. This is also the conclusion of Bradford and Chakwin (1993), whose econometric findings for Japan, Korea, Taiwan, Singapore and Hong Kong during 1969–89 show that 'investment is the causal variable explaining variations in output growth in the sample of countries', while export growth does 'not play any role in explaining output variation'.

This does not mean that export growth has been unimportant (Akyüz et al., 1998; Rodrik, 1995, 1999). In building up industrial capacity and competitive strength, all newly industrializing countries must import a large volume of capital goods and intermediates and, without adequate growth of

5. In Korea and Taiwan, these policies included the unification of exchange rates accompanied by devaluations, various other measures to stimulate exports (including duty-free access for exporters to imported inputs), higher interest rates, and some liberalization of the import regime; see Akyüz et al. (1998); Amsden (1989); Rodrik (1995); Wade (2004).
6. Exports, it is often claimed, are a source of learning and technological externalities for the home economy and allow domestic producers to learn from sophisticated markets abroad (World Bank, 1993). But correlations between export growth and TFP performance across firms or industries say nothing about the direction of causality, if any. The most plausible way to interpret such findings is that firms and industries that are successful (for other reasons) tend to self-select into exporting activities; see Rodrik (1999).

export earnings, the financing of these imports may pose a constraint on industrialization. Hence, export growth, initially of traditional labour-intensive, low-skill industries, has been critical in easing the balance-of-payments constraint on industrialization. But exports have not been the 'engine of growth', because export expansion itself depended on the creation of additional production capacity in industry as well as labour productivity growth, both of which were dependent upon new investment. Investment has also been equally crucial in East Asia's subsequent diversification into new generations of industries with a greater long-term potential for innovation, exporting and productivity growth.

EAST ASIAN GROWTH REGIMES

East Asia's extraordinary growth is the outcome of a 'virtuous cycle', initialized by a (government-led) step-up in investment. The investment drive led to higher growth and higher productivity (due to increasing returns to scale); this, in turn, made possible higher exports (because of lower production costs), which further augmented demand and output and raised profits, thereby leading to a new round of investment and productivity growth, and so on. Following Naastepad (2005), East Asia's virtuous growth regime can be described in terms of a cumulative growth model, inspired by Kaldor (1967), which distinguishes factors explaining labour productivity growth (the productivity regime) and the demand generating mechanism (the demand regime). The (macroeconomic) *productivity regime* (PR), given by equation (5), generalizes the so-called Kaldor–Verdoorn relationship between demand growth $\hat{x}$ and labour productivity growth $\hat{\lambda}$ (coefficient Θ being the Kaldor–Verdoorn elasticity) as follows:

$$\begin{aligned} &\hat{\lambda} = \text{constant} + \Theta\hat{x} + \alpha\hat{w} + \beta* \text{ catch-up variable} \\ &0 < \Theta < 1; \alpha, \beta > 0. \end{aligned} \tag{5}$$

The Kaldor–Verdoorn relation can be explained in various ways (Targetti, 2005): first, the growth of manufacturing output provides capital goods embodying technological advances for other sectors, thus raising overall productivity; second, productivity increases because of learning-by-doing, as output grows; and third, the expansion of demand and the consequent deepening of the division of labour lead to economies of scale. The Kaldor–Verdoorn relation is captured by the upward-sloping PR curve in Figure 2.

Two additional explanatory variables are included in (5): real wage growth $\hat{w}$, which may affect productivity growth through inducing labour-saving technological change and/or capital–labour substitution, and a 'Gerschenkronian' catch-up variable. This catch-up variable is defined as the ratio of labour productivity in country i and labour productivity in Japan; the larger the productivity gap, the larger the *potential* for followers

to speed up the process of technological progress by the importation of technology, imitation and learning; such convergence is not at all an automatic process, however, as it strongly depends on development policy (Amsden, 2001).

The estimated productivity regimes appear in Table 10. The Kaldor–Verdoorn coefficient is statistically significant (at 1 per cent) for all countries and has a value of 0.33–0.52. This implies that a rise in demand by 1 per cent is associated with an increase in productivity by 0.33 per cent (in Thailand) and 0.52 per cent (in Malaysia). These results confirm that the East Asian PR curve is upward-sloping as in Figure 2. We do not find a statistically significant association between real wage growth and productivity growth in China, Korea and Malaysia.[7] But in Singapore, Taiwan and Thailand, real wage growth is positively associated with productivity growth: a 1 per cent increase in real wage growth raises productivity growth by 0.19, 0.28 and 0.61 per cent, respectively, for these three countries. The catch-up variable is significant (at 1 per cent) for Korea, Malaysia, Singapore as well as China; due to problems of

Table 10. East Asian Productivity Regimes

	China	**Korea**	**Malaysia**	**Singapore**	**Taiwan**	**Thailand**
Constant	0.06 (0.06)	1.37 (1.34)	−0.07 (−0.11)	0.16 (0.16)	−0.53 (−0.69)	−0.94 (1.17)
Real wage growth	−0.04 (−0.94)	−0.03 (0.64)	0.05 (1.41)	0.19*** (3.37)	0.28*** (4.84)	0.61*** (9.82)
Real GDP growth	0.36*** (2.65)	0.45*** (5.77)	0.52*** (6.86)	0.38*** (4.79)	0.49*** (5.15)	0.33*** (3.01)
Catch-up variable	0.78*** (11.63)	0.56*** (6.82)	0.38*** (5.20)	0.48*** (4.64)		
$\overline{R}^2$	0.92	0.94	0.88	0.81	0.62	0.77
F-statistic	85.45 (0.000)	226.71 (0.000)	100.33 (0.000)	50.89 (0.000)	41.20 (0.000)	70.55 (0.000)
Number of observations (df)	22(18)	47(43)	41(37)	36(32)	51(48)	42(39)
Adjusted DW	1.85	2.22	2.17	1.95	2.10	1.95
Standard error	1.03	1.54	1.30	1.55	1.92	2.51
Period	1980–2003	1955–2002	1960–2003	1966–2002	1951–2002	1960–2003

Notes:
All estimates are based on the Cochrane-Orcutt AR(1) method; figures in parentheses are *t*-values. df = degrees of freedom. *, **, *** denote statistical significance at the 10%, 5% and 1% level of significance, respectively.
Source: Naastepad and Storm (2005).

7. This lack of association may be due to the fact that real wage restraint has been most pronounced in these countries: real wage growth was *deliberately* kept below productivity growth during prolonged periods of time — in China during 1979–93, in Korea during 1962–66 and 1971–76, and in Malaysia during 1968–80 and 1987–95.

multicollinearity, the catch-up variable was not included in the regressions for Taiwan and Thailand.

Demand growth thus promotes productivity growth. But change becomes progressive and propagates itself in a cumulative way only if labour productivity growth in turn induces an expansion of demand. Productivity growth affects demand, because it leads to a decline in the wage share and a rise in the profit share (keeping the real wage rate constant). This redistribution of income will have three effects on aggregate demand:

- *consumption demand declines* if the propensity to save out of wages (σ_w) is smaller than the savings propensity out of profits (σ_π); note that a decline in the wage share does not affect consumption if $\sigma_w = \sigma_\pi$;
- *private investment increases* if investors respond positively to the increased profit share;
- *exports rise* if foreign demand rises in response to the decline in unit labour costs (implied by the decline in the wage share).

Following Naastepad (2005), the demand regime is said to be profit-led if the *net effect on aggregate demand* of a rise in labour productivity is positive.[8] (If, in contrast, demand declines in response to a productivity increase, the DR is said to be wage-led.) This means that in a profit-led demand regime, the negative consumption demand effects of a rise in productivity are more than outweighed by the positive effects on (private) investment and exports. Equation (6) specifies a profit-led *demand regime* (DR):

$$(6) \qquad \hat{x} = f(\hat{\lambda}, \hat{w}, \text{other variables}) \qquad \frac{\partial f}{\partial \hat{\lambda}} > 0$$

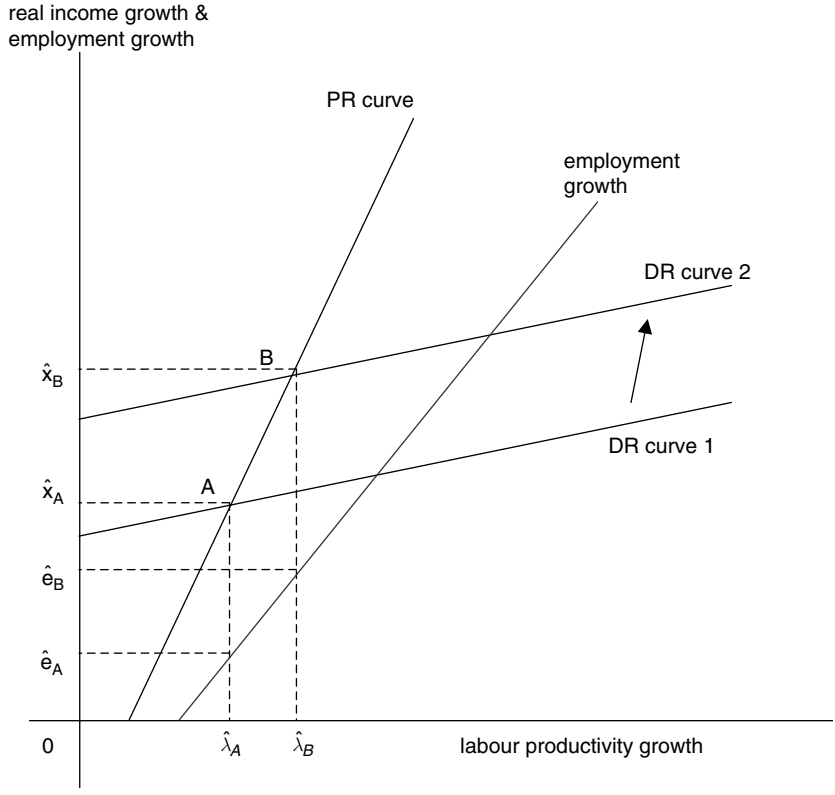
The profit-led demand regime is illustrated by the rising DR curve in Figure 2.

Table 11 presents the key parameters determining the response to productivity growth of the demand regime in China, Taiwan and Thailand.[9] First, we find that fixed capital formation responds strongly and positively to a rise in profitability; this means that (assuming constant real wages)

8. Note that in this case demand would *rise* in response to a *decline* in the real wage rate, which corresponds to Bhaduri and Marglin's (1990) definition of a profit-led demand regime. Note further that, if demand is profit-led, a real wage decline has two conflicting effects on productivity growth in equation (5). First, the rise in demand will increase productivity via the Kaldor–Verdoorn relation; but at the same time, the real wage decline will lower the pace of labour-saving technological progress, because the technology embodied in the new capital goods will become relatively less capital-intensive; this will have a negative effect on productivity growth.
9. For reasons of space, the results for Indonesia, Japan, Korea, Malaysia and Singapore are not reported. The three countries in Table 11 are representative of the other countries. For a detailed discussion of the estimation results, see Naastepad and Storm (2005).

productivity growth promotes investment, because it reduces (raises) the wage share (profit share). Second, only in Taiwan does productivity growth promote export growth (because it leads to a decline in unit labour costs); the export elasticities with respect to unit labour costs for China and Thailand are not statistically significant different from 0. Finally, we estimated the difference between σ_π and σ_w and found these to be rather small; this means that the negative impact on demand of productivity growth, operating through a redistribution of income toward profits (that is, a decline in the wage share), will also be small. When we combine the consumption, investment and export effects, we find that the net impact of labour productivity growth on demand and output growth in China, Taiwan and Thailand is significantly positive. The profit-led DR curve in Figure 2 thus represents the East Asian demand regime.

Figure 2. East Asia's Growth Regime



Note: The upward shift of the DR curve is due to a rise in public investment growth.

Table 11. Demand Regimes: China, Taiwan and Thailand

	China	Taiwan	Thailand
Period	1980–2002	1960–2002	1970–2002
Savings propensity out of wage income	0.35	0.12	0.25
Savings propensity out of profit income	0.43	0.45	0.25
Elasticity of investment with respect to profit share	0.55	0.73	2.03
Elasticity of exports with respect to wage costs	−0.10	−0.50	0.06
Profit-led demand regime: elasticity of aggregate demand with respect to labour productivity	0.82	0.38	0.80

Note:
The derivation of the reduced-form elasticity is given in Naastepad (2005).
Source: Naastepad and Storm (2005).

Theoretically, the intersection of the PR and DR curves in Figure 2 determines the economy's equilibrium rates of labour productivity growth $\hat{\lambda}_A$ and output growth $\hat{x}_A$ — as in point A. Employment growth is then determined as the difference between $\hat{x}_A$ and $\hat{\lambda}_A$, that is, $\hat{e}_A$. The important point is that the limit on growth is *not* to be found in some supply constraint (including the shortage of labour), but in demand constraints (Targetti, 2005). In other words, the long-run growth of output as well as productivity and employment is constrained by 'autonomous' demand factors including public investment. For example, a rise in public investment will shift the DR curve upward in Figure 2 and the economy will settle down in a new growth equilibrium, point B, in which output, productivity and employment growth are higher than in the old growth equilibrium A.

Naastepad and Storm (2005) estimate the shifts in long-run GDP, productivity and employment growth in the three countries under investigation, caused by a 1 percentage point rise in public investment growth (Table 12). The public investment drive leads to higher GDP and (via the Kaldor–Verdoorn relation) to higher productivity. Due to the productivity increase, the profit share rises (which raises private investment) and unit labour costs fall (which raises exports). Growth is cumulative, because increased investment and exports raise GDP further, leading to a further round of increases in productivity, profits, investment and exports. In effect, a 1 percentage point rise in public investment growth raises GDP growth by 1.8 percentage points in China, 0.49 percentage points in Taiwan and 1.3 percentage points in Thailand. Labour productivity growth in these countries increases by 0.6, 0.2 and 0.4 percentage points, respectively. Long-run employment growth also increases, because output growth rises more than productivity growth, indicating that there is no 'productivity-growth employment-growth' trade-off (cf. Figure 1). Thus, the equilibrium growth effects of a rise in public investment are all captured by Figure 2.

As the numbers indicate, the (cumulative) pay-offs of (autonomous) demand inducement, in terms of higher GDP, productivity and employment

Table 12. Elasticity of Equilibrium GDP, Productivity and Employment Growth to Changes in Public Investment Growth

	China	Taiwan	Thailand
Elasticity of GDP w.r.t. public investment	1.80	0.49	1.30
Elasticity of labour productivity w.r.t. public investment	0.65	0.24	0.43
Elasticity of employment w.r.t. public investment (1a–1b)	1.15	0.25	0.87

Source: Naastepad and Storm (2005).

growth, are very high. However, as we argue below, the virtuous process of *cumulative causation*, generating these pay-offs, did not start spontaneously under decentralized and unregulated market conditions, but was shaped, set in motion and conditioned by massive government intervention. In turn, rapid economic growth and the rise in mass prosperity legitimized the authoritarian political framework (Bhaduri, 2000).

INDUSTRIALIZATION STRATEGY

Market forces, either alone or helped by 'market-friendly' policies, cannot explain the structural change of East Asian economies towards manufacturing production, and, in particular, export-oriented manufacturing production, which underlies the process of cumulative growth. One major reason is that, because of (capital) market imperfections and given the fact that industrial activities are characterized by increasing returns to scale, the rate of return to individual investments is low, although the rate of return to *co-ordinated* industrial investments is high. Thus, industrialization requires a 'Big Push': the co-ordination (and financing) of complementary investments, in the presence of significant scale economies and capital market imperfections. East Asian governments were able to undertake the measures needed to override the co-ordination problem (Akyüz et al., 1998; Amsden, 2001; Rodrik, 1995; Wade, 2004). In fact, East Asian governments aggressively encouraged investment in the desired sectors by every available means, including the offer of tax concessions, subsidies, (temporary) trade protection, cheap credit and a lot of informal pressure. 'Forced investment', an expression used by Scitovsky (1985), aptly characterizes the investment regime.

The result of the investment drive was an excess of effective demand over available supply or, equivalently, an ex-ante excess of investment over savings. In contrast to other late-industrializing countries, equilibrium was restored, mostly by *raising supply*, not by *restricting demand*, by the following.

- A rise in the utilization of production capacity, which was helped by a relatively long working week (of more than 50 hours per week).
- An increase in household savings: luxury consumption was limited by severe restrictions on their imports and domestic production and by high taxation and restrictions on consumer credits. Financial institutions and schemes — such as postal savings, forced saving schemes for school children, and incentive measures for workers' savings — were created to maximize the mobilization of household savings (You, 1998).
- An increase in foreign savings, that is, an additional inflow of imports to meet the excess demand; although, in general, foreign savings played a minor role in financing East Asian investment (see Table 7).
- Most importantly, an increase in business savings. This was achieved in two ways. First, government intervention raised profits, business savings and investment by (a) *improving profitability*, particularly in the 'strategic' industries (by such means as low [real] interest rates, low import duties for investment goods, real wage restraint, and tax benefits); (b) the *socialization of investment risk*.[10] and (c) the active *co-ordination* of aggregate and sectoral investment plans.[11] Second, business savings were high because of an unusually high profit-retention rate which must be attributed to East Asia's corporate financing system (Singh, 1998). This system, with heavy reliance on (long-term) bank loans from state development banks (not private banks) and a relatively insignificant role for the stock market, with the controlling shares in the hands of other firms within the group or with close business relations, has allowed firms to retain a high proportion of their profits instead of paying dividends (Amsden, 1989; Singh, 1998; Wade, 2004).
- Finally, to the extent that the above sources of additional supply were insufficient to meet excess demand, the remaining excess demand raised domestic prices, thus reducing the real wage rate, and, by worsening the balance of payments, leading to a depreciation of the exchange rate, which augmented the real wage decline. The result was 'forced savings': inflation, by reducing the real wage, forced the public to reduce its real purchases and so released resources needed for investment.[12]

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10. This is of particular importance when the economy is diversifying into unknown activities in a process of industrial upgrading.
11. Such co-ordination implied 'managed competition', including the encouragement of mergers, the co-ordination of capacity expansion, restrictions on entry in specific industries, screening of technology acquisition, measures to facilitate local R&D, and the promotion of cartels for specific purposes such as standardization, specialization and exports; see Chang (1999) and Rodrik (2004).
12. Note that the inflation also contributed to low, often negative real interest rates, which reduced the attractiveness of savings, but raised investment.

It will be clear that the creation of extra business profits by the state carried direct implications for income distribution and led to distributional conflicts, which could have quite easily undermined a sustainable growth path — as has happened elsewhere. But East Asian states successfully managed the distributional conflict inherent in their investment plans: workers were made to accept real wage restraint in exchange for high employment growth in the labour-intensive export industries (You, 1998). As a result, real wage growth was kept from rising above the productivity growth rate — even in Korea and Taiwan after they passed the Lewis turning point and depleted the reserve of underemployed labour; and during critical (often prolonged) phases of the industrialization process, real wage growth was kept *below* labour productivity growth, thereby raising the profit share (Naastepad and Storm, 2005). What helped to maintain competitive wages was that in all countries (although with significant variation), the political voice of workers and lower-income groups was repressed under East Asia's right-wing authoritarian regimes (Haggard, 2004b). Specifically, East Asian countries lacked strong independent unions and powerful working-class politics (see You, 1995 for a detailed analysis). Authoritarian capital–labour relations thus provided the institutional basis for the hyper-growth of East Asia, which in turn helped legitimate the dominance of the state. But, in dialectical fashion, the very success of the model resulted in a strengthening of the social classes, notably the working class, slowly undermining the structural basis of the oppressive authoritarian political system and industrial relations.

In this context, it is often argued that the discretionary power of East Asia's authoritarian governments was circumscribed by the existence of partially representative 'deliberation councils', linking — and intermediating between — government and business (World Bank, 1993); this is what is meant by the 'embedded autonomy' of the East Asian state (Evans, 1998). But, as Haggard (2004b) makes clear, such 'embeddedness' was generally top-down in Korea and non-existent — or if it existed on paper, non-functional — in Taiwan, Malaysia, Thailand, Singapore and Indonesia. East Asia's dictatorial regimes sought co-operation from the private business sector on a selective basis. If necessary, however, they could use alternative sources of political support as well as the organizational resources of the state itself (including military and police power) to discipline business, force co-ordination on private sector actors and impose conditions on (state-created) profits.

While it is evident that, given the authoritarian nature of East Asia's political regimes, 'strong' developmental states had the capacity to implement growth-promoting policies, it remains a moot point *why* they did so.[13]

13. As Haggard (2004b) rightly observes, there are many examples of authoritarian regimes which led to growth 'debacles' and there is no convincing empirical evidence that authoritarian regimes outperform democratic ones.

Economic nationalism, undoubtedly, was both a major motivational factor and an organizing principle. As Bhaduri (2000: 6) argues, the 'more repressive and undemocratic a national government . . ., the more it needs some version of "nationalism" or patriotism for legitimizing its exercise of power over its people'. In East Asia, national economic growth became both the legitimizing ideology for the exercise of authority by the nation-state and the means to reconcile (as far as possible) the conflicting interests of capital and labour. The aim was to catch up with Japan in terms of per capita income, industrial diversification and level of technology: in this respect, Japan was East Asia's role model (Amsden, 2001; Evans, 1998; Wade, 2004). Broadly, the East Asian NIEs share two important similarities with Japan. First, political elites enjoyed a relatively large degree of political, organizational and economic independence from private sector actors in the early phases of growth (Haggard, 2004a). Second, 'East Asia's spectacular entry into world markets followed Japan's lead insofar as exporting was made a performance standard for import substituting industries to receive long-term subsidized capital' (Amsden, 2001: 188). Thus, the NIEs imported *ideas* about how to industrialize from Japan, and used their control over material and organizational resources to implement them.

East Asian developmental states distinguished themselves by their ability to translate high profit shares into high savings and investment rates, something many late-industrializing countries with high profit shares failed to do (UNCTAD, 2003; You, 1998). Effective 'guidance' of the private business sector has involved the following. First, East Asian governments established policy mechanisms and institutions to ensure that the state-created extra profits were only temporary and would eventually be withdrawn as the (infant) industry matured. Second, they imposed performance criteria on the recipients of the extra profits, in particular by using international competition as a disciplining device (through, for example, export targets), so as to ensure that those profits found outlets that would add to productive capacity, create employment, and help technological progress.

Specifically, East Asian governments used *industrial and financial sector policies* to carry through a high-investment industrial upgrading strategy. Through extensive ownership and operation of vital upstream (heavy) industries, as well as through numerous other measures, such as the co-ordination of competing investments, 'managed competition' (to minimize excess capacity by forcing mergers or recession cartels), entry requirements, domestic content requirements, R&D policies, and concessional credit, East Asian states influenced the private sector. These measures promoting industrial development were not intended — as is frequently argued — to 'pick winners in an uncertain technological race', but rather, to raise the aggregate propensity to invest and promote movements along existing learning curves (Amsden, 2001). In so doing, the East Asian states emulated the example set by Japan, which, according to Rosovsky (1972: 244) 'must be the only capitalist country in the world in which Government decides how

many firms should be in a given industry and sets out to arrange the desired number'. In Korea and Taiwan, the state was even more interventionist, as has been well documented (Amsden, 1989; Chang, 1999; Singh, 1998; Wade, 2004; You, 1998). In Korea, for example, 'every major shift in industrial diversification in the decades of the 1960s and 1970s was instigated by the state' (Amsden, 1989: 80). The Chinese government is currently following in Japan's and Korea's steps (Nolan, 1996; Nolan and Xiaoqiang, 1999).

However, the effectiveness of industrial policies is disputed.[14] Studies for East Asian NIEs by the World Bank (1993) and Noland and Pack (2003), for instance, find that the performance of sectors which received policy support was not generally superior to that of non-strategic sectors in terms of TFP growth, export growth or profitability. These studies have been criticized on various grounds, not least because of the problems inherent in the definition and measurement of TFP growth. Other limitations include the difficulty of measuring important spillover effects on other sectors, mistakes in the identification of 'promoted' versus 'non-promoted' sectors, and the failure to capture the full range of informal policies, as well as the role of industrial policy in signalling government commitment to private sector profitability and growth (Chang, 1999; Rodrik, 2004; Wade, 2004). But more important is that these studies — sceptical of the effectiveness of industrial policy — miss the main point, namely, the contribution of industrial regulation to structural change and industrial upgrading, which have been the major sources of East Asian labour productivity growth (see our Tables 3 to 5). Rather than looking for associations between industrial policy indicators and sectoral performance measures, we ought to be looking for associations between industrial policy and progressive structural change. For example, recent evidence by Klinger and Lederman (2004) shows that export diversification is positively associated with the height of entry barriers: the more stringent the government regulations pertaining to the number of firms in a given industry, the more diversified a country's exports become. As Rodrik (2004) explains, private sector initiatives to diversify and technologically upgrade production are stunted because of information and co-ordination externalities; both can be overcome by government regulation. Indeed, in East Asia, most significant instances of productive restructuring and diversification are the result of industrial policy (Amsden, 2001; Rodrik, 2004).

Much less controversial is the conclusion that directed credit programmes were effective in promoting exports and R&D; this is generally accepted, also by World Bank (1993), and a theoretical justification is given by

14. There are excellent theoretical reasons why industrial policy can be welfare-enhancing, including investment co-ordination problems (Chang, 1999; Rodrik, 1995), capital market imperfections (Hellman et al., 1997), underinvestment in innovation due to the incomplete appropriability of the benefits from R&D investment, imperfect information on technology and path-dependent learning processes (Amsden, 2001).

Hellman et al. (1997). In East Asia, investment resources were channelled to industrial sectors through a heavily regulated, often government-owned, financial sector, which was forced to keep (real) interest rates low (often negative), while the access of firms to bank credit and concessionary lending was controlled as a way to ensure private industry's detailed compliance with official plans (Singh, 1998).

East Asia's integration with the world economy was strategic, tailored to specific sectoral needs and their level of industrial and economic development, and sequenced accordingly (Singh, 1998). Strategic integration in trade has meant import substitution and export promotion policies. Import substitution is crucial to industrialization, because some form of protection against technologically advanced foreign competitors is necessary to initialize a national cumulative process of technological learning (Wade, 2004: 84–90; see also Amsden, 2001; Bruton, 1998). As World Bank (1993) evidence shows, due to import protection, the relative prices for Japan, Korea and Taiwan deviated more from international prices than those of well-known interventionists like India, Pakistan, Brazil and Mexico in the period 1976–85. In all East Asian countries, manufactured export growth would not have been possible without the industrialization effort which preceded it, as export growth was largely based on sectors established through import substitution industrialization (Amsden, 1989, 2001). Moreover, the managerial and technological expertise of import-substituting firms in Asia gained them a business reputation and contracts with OECD contractors of original equipment manufacturers in search of low wages and manufacturing experience — as happened in the 1960s in Korea, Singapore and Taiwan, in the 1970s and 1980s in Malaysia and Thailand, and in the 1990s in China. Importantly, in all countries, the shift to an export-oriented policy did not mean the discarding of import-substitution: protection from foreign competitors was *not* lifted (Amsden, 2001). Indeed, export expansion and import substitution were complementary; mid-technology industries in general remained heavily protected at least through the 1980s. Import substitution worked much better in East Asia than in the rest of the developing world, because governments tied the right to import or sell domestically to an obligation to export. In Korea, such reciprocity involved long-term subsidized lending by the (state-controlled) Korea Development Bank: the more a company exported, the more likely it was to receive cheap long-term loans (as well as tariff protection). If a targeted firm proved itself to be poor performer, it ceased to be subsidized (Amsden, 2001: 149); as Scitovsky (1985: 230) remarked, it did 'not take a Korean firm long to learn that it will "get along" best by "going along"'. Likewise, setting export targets in exchange for exporters being allowed access to cheap credit (or scarce foreign exchange) has been, and still is, common practice in Taiwan (Wade, 2004) as well as in China (Nolan, 1996).

Strategic integration was not confined to trade, but extended to technology transfer. In Japan, Korea and Taiwan, in sectors where foreign direct

investment (FDI) has played a significant role such as textiles and electronics, government policy has been highly restrictive, promoting joint ventures, screening imported technologies, and bargaining over local content agreements (Akyüz et al., 1998; You, 1998). However, integration with world markets has been less selective in the second-tier NIEs, Indonesia, Malaysia and Thailand, which have been more willing to allow in wholly-owned foreign subsidiairies and have imposed fewer restrictions on FDI. As Akyüz et al. (1998) observe, however, the long-run growth of these second-tier NIEs has lagged behind that of the first-tier NIEs (see Table 1) and their industrial upgrading has been much slower. Although China, Malaysia and Thailand, through their reliance on FDI, have succeeded in high technology exports, which in large part combine low-skill assembly activities with high-technology imported parts, they have yet to develop a diversified manufacturing base (UNCTAD, 2003).[15] Finally, strategic integration with world markets meant strict control over the balance of payments capital account. Control over cross-border capital flows allowed East Asia's governments to guide national economic development: 'foreign exchange controls are needed to intensify the cycle of investment and reinvestment within the national territory, with outflows only where they can be shown to meet national economic priorities' (Wade, 2004: 367). Without such controls, domestic interest rate regulation, credit allocation, investment regulation and regulation of FDI would not be possible. Without such controls, East Asia's developmentalist policies would not have been possible.

LESSONS

The economic rise of East Asia is strongly associated with its success in establishing a broad domestic industrial base with a strong potential for high productivity and income growth. East Asia's industrialization experience offers a large number of policy lessons to other late-industrializing countries, most of which have been reviewed in detail elsewhere.[16] Key prescriptions include: (1) maintain controls on cross-border capital flows so as to insulate the domestic economy from the world economy and to intensify 'the cycles of investment and reinvestment within the national territory' (Wade, 2004: 367); (2) achieve some extent of macroeconomic stability in terms of the exchange rate and the interest rate to prevent high inflation and (external) debt and to stimulate investment; (3) use national

15. That the participation in the labour-intensive segments of international production chains is not without problems and risks is explained by UNCTAD (2002). Specifically, it does not generally bring the technological spillover effects necessary to move up in the production chain.
16. See Aküyz et al. (1998); Amsden (2001); Chang (1999); Rodrik (2004); Wade (2004); You (1998).

policies to raise domestic investment and savings, and to channel more of these funds into industries whose growth is important for the economy's future growth; (4) use import protection and foreign exchange control to help create an internationally competitive set of industries; (5) if industrialization is heavily dependent on the imports of intermediates, capital goods and technology, give priority to export promotion industries; (6) implement proactive industrial policies to nurture new industries and new technologies and to diffuse innovations to established industries and, at the same time, use protective industrial policies to phase out declining sectors or to technologically upgrade them; (7) promote a bank-based (rather than capital market-based) financial sector under strict government regulation so as to channel (cheap) credit into strategic sectors and firms (Amsden, 2001; Singh, 1998; Wade, 2004); the basic purpose is to make private financial capital subordinate to industrial (productive) capital (Singh, 1998); (8) attract FDI, but tie the magnitude of FDI incentives to export performance and/or local content performance to build a national technology system; (9) improve the administrative and political capacity of the developmental state; and (10) maintain a degree of social cohesion and political stability, and keep unequalizing tendencies in check (Rodrik, 1999; You, 1998). Importantly, none of these policies is aimed at efficient allocation of resources in a pareto-optimum sense; instead, their aim is development and structural change.

Many of the policies used to good effect in East Asia have been implemented by other developing countries, but with very limited success. Hence, an important factor seems to be the manner of implementation and monitoring, rather than the policies themselves (Bruton, 1998). World Bank (1993) recognizes this point and concludes from it that Japan, Korea and Taiwan possess superior administrative and institutional capabilities that can rarely be found elsewhere; therefore, other developing countries should rely primarily on the market. But as is persuasively argued by Evans (1998), Haggard (2004b) and Chang (1999), such capabilities can be built, often rather quickly, because there is also 'learning-by-doing' in administration. Another issue related to the supposed non-transferability of the East Asian model is the fact that East Asian-type interventionist growth policy requires strong states which can over-ride sectional interests, and discipline and (coercively) guide the private sector. Because of East Asia's political history, strong states are often associated with authoritarian states, and the impression arises that East Asian-type growth regimes are incompatible with a democratic polity. However, this association is spurious (see footnote 13). In fact, one can go one step further and argue that, if there is a democratic consensus, growth-oriented policy can be even more effectively implemented, given that 'every policy requires for its long-term success some degree of consent by those who are going to be affected by it' (Chang, 1999: 33).

Finally, as argued above, economic nationalism has been an important motivational factor and organizing principle underlying successful

industrialization in East Asia. In order to catch up with the industrialized countries, political power had, in Wade's words, 'to focus the investment process on the national territory . . . by means of import restrictions, domestic content requirements, foreign exchange controls, conditions on the admission of foreign investment, export incentives, technology incentives and the like' (Wade, 2004: 351). This meant the creation, with ample state protection and support, of 'national industrial champions' (Amsden, 2001) to stimulate learning, scale economies and technological advance. The trading rules of the World Trade Organization (WTO), including TRIPS and TRIMS, significantly reduce national policy autonomy (UNDP, 2003); most of East Asia's developmental interventions violate WTO rulings. The room to experiment with national development strategies thus has become much more circumscribed than before. This leads to perhaps the most important lesson from East Asia's industrialization experience: the need to revise the rules of the international economic order so as to give late-industrializing countries more national policy space within a stable international economic environment.

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