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Some consequences of globalization for developing countries

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Working Paper No. 753

Some Consequences of Globalization
for Developing Countries

by
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Some Consequences of Globalization for Developing Countries

Abstract

Globalization improves the prospects for developing countries (DCs) to catch up economically with industrialized countries. Depending on economic policies with respect to openness and factor accumulation, globalization may increase capital and technology flows to DCs, thereby generating a higher rate of income growth than would be possible in a less integrated world economy. Nevertheless, many observers draw an overly pessimistic picture of the perspectives of DCs in the era of globalization, mainly for three reasons. First, DC membership in institutionalized regional integration schemes such as in Europe and North America is sometimes considered to be a necessary precondition for economic success. Second, a low level of interfirm technology cooperation between rich and poor countries is feared to delink DCs from technological progress. Third, a relatively high concentration of foreign direct investment flows on a few advanced DC hosts is said to limit the development prospects for the majority of DCs. The paper shows that such concerns are largely unfounded.

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I. Introduction

Globalization means a closer international integration of production and markets. The increasing interdependence of economies around the world is the result of growing trade and capital flows and rising interfirm technology cooperation. These trends reflect the liberalization of trade initiated by successive GATT rounds and, especially in the 1980s, the worldwide deregulation of financial markets and other business services such as banking and insurance. All this has led to more competition in the world economy, and to new profit opportunities for international investors. Developing countries (DCs) have to adjust to the changing international environment, if they want to participate in the ongoing globalization of production and markets.

Globalization is by no means an entirely new phenomenon. What has changed in the world economy during the last decade or so is that, thanks to the micro-electronics revolution, new communication technologies have evolved that allow for the international diffusion of new production and organization technologies at low cost. Transportation costs per unit of production are declining, since new technologies lead to economies of scale in transportation and tend to reduce the volume of international transport in raw materials necessary to produce one unit of final output.

The relatively new aspect that makes globalization different from previous advances in the international division of labor is the ability of producers to slice up the value chain (Krugman 1985), i.e., the possibility to achieve a geographically dispersed fragmentation of production. If firms place their production around the world, sourcing this component from one country and that component from another, it may still be easy to say where certain products have been assembled, but it will become increasingly difficult to say where they actually have been made. Therefore, complementary to slicing up the value chain, another new aspect of globalization is the emergence of large exports of *manufactured* goods from low-wage DCs to high-wage industrialized

countries, and the accompanying increase of foreign direct investment (FDI) flows to DCs.

The hypothesis raised in this paper is that globalization improves the prospects for DCs to catch up economically with industrialized countries. By contrast, many observers draw an overly pessimistic picture of the perspectives of DCs in the era of globalization, mainly for three reasons. First, DC membership in, or association with institutionalized regional integration schemes such as in Europe and North America is sometimes considered to be a necessary precondition for economic success. Second, a low level of interfirm technology cooperation between rich and poor countries is feared to delink DCs from technological progress. Third, a relatively high concentration of FDI flows on a few advanced DC hosts is said to limit the development prospects for the majority of DCs.

Such concerns are largely unfounded. It mainly depends on domestic economic policies whether DCs can successfully grasp the chances for catching up involved in globalization. Controlling for differences among DCs in the rates of physical and human capital accumulation, we find that open DCs may realize substantial GDP gains within a shorter period of time than closed economies. Depending on DC economic policies with respect to openness and factor accumulation, globalization tends to increase capital and technology flows to DCs that can generate a higher rate of income growth than would be possible in a less integrated world economy. This is why globalization should be seen as an opportunity for DCs rather than a threat, notwithstanding the implied restrictions for DC economic policies.

II. Developing Countries in the Global Economy: Major Issues

Stylized Facts

Globalization shapes the world economy in different ways. Most obviously, international trade and capital flows are affected. Over the last 30 years or so,

international trade has grown faster on average than production (GATT, var. iss.; see also Table 1). This implies a more integrated world economy. Closer integration brings about opportunities for specialization, and hence increases interdependencies. This is highlighted by recent changes in the structure of world trade.

First, world trade in manufactures has grown faster than total world trade (Table 1), which supports the notion that slicing up the value chain has become a new opportunity in the era of globalization. International sourcing, i.e., the purchase of intermediate inputs from foreign sources, has grown faster than domestic sourcing and now accounts for about half of all imports by major countries (OECD 1994). Second, intra-industry trade has risen significantly in almost all OECD countries, which share fairly similar factor endowments. However, it has also increased between Japan and its Asian neighbors even in physical and human capital intensive products, despite fairly different factor endowments (Nunnenkamp et al. 1994). Hence, the pattern of world trade changes, slowly but steadily, in favor of trade in manufactures. Trade in manufactures seems to be less dependent on *overall* relative factor endowments, but more on relative endowments with *immobile* factors of production. This is a consequence of the increased international mobility of capital, as indicated by the recent surge in FDI flows.

In contrast to relatively steady changes in the pattern of international trade, a dramatic increase in FDI flows has taken place during the last decade. FDI flows have grown even twice as fast as international trade since 1983 (Table 1). In addition to rising FDI flows, other forms of international investment cooperation such as licensing, joint ventures, offshore processing, minority participations, and so-called strategic alliances have become more important in recent years. As a rough approximation, the number of international interfirm cooperation agreements has doubled over the 1980s (OECD 1994).

Table 1 — Stylized Facts of Globalization

	World production ^a	World trade		World FDI ^d	Note:	
		Total ^b	Manu- factures ^c		DC trade share ^e	DC FDI share ^f
1983	100	100	100	100	13.1	24.2
1984	103.8	105.8	102.8	116.1	12.7	20.8
1985	107.5	106.2	102.8	119.0	12.0	23.6
1986	111.3	117.4	125.7	192.5	13.1	14.7
1987	113.8	137.8	153.3	298.0	14.7	11.6
1988	118.8	157.0	176.6	367.4	15.6	15.7
1989	122.5	170.3	188.5	470.6	18.2	14.7
1990	125.0	192.3	216.4	493.0	17.9	14.8
1991	123.8	197.5	223.5	392.9	19.6	26.5
1992	125.0	213.1	244.4	396.9	20.8	30.1
1993	127.5	212.5	246.7	460.7	23.8	36.0
1994	131.3	237.7	..	468.1	..	39.3

^aReal GDP index, 1983 = 100. — ^bAverage of world merchandise exports and imports plus world exports and imports of commercial services; 1983 = 100. — ^cWorld exports of manufactures (SITC 5+6+7+8-67-68); 1983 = 100. — ^dAverage of direct investment abroad and in the reporting economy; 1983 = 100. — ^eDeveloping countries' share in world exports of manufactures (percent). — ^fDeveloping countries' share in world inflows of foreign direct investment, excluding developing countries for which oil production is the dominant industry (percent).

Sources: GATT, International Trade, Trends and Statistics; IMF, Balance of Payments Statistics; UN, Monthly Bulletin of Statistics.

All three aspects of globalization – international trade, FDI, and international interfirm cooperation – are dominated by OECD countries so far. But the dynamic East and Southeast Asian economies are rapidly becoming involved, as are some countries in Latin America and in Central and Eastern Europe. Taken as a group, DCs strongly increased their share in world exports of manufactures between 1983 and 1993 (Table 1). Likewise, their share in recorded world FDI inflows rose steeply, especially since

the mid 1980s.¹ While these simple statistics confirm that the ongoing globalization of production and markets is not only an issue concerning developed countries, it may be open to question whether the closer integration of the world economy is due to regionalization rather than globalization, whether technology flows to DCs are severely limited, and whether FDI flows to DCs are concentrated on just a few fairly advanced hosts. We briefly discuss each of these issues in the following.

Globalization vs. Regionalization

Some authors claim that there is no general trend towards globalization involving DCs. They argue that a strong move towards regional production and sourcing networks will impair the chances of DCs to benefit from technology transfers and to make full use of their comparative cost advantages (Oman 1994). This would imply that DCs face the risk of being delinked from the growth dynamics of globalization, if they were excluded from major regional groupings, notably NAFTA and the EU.

This idea deserves second thoughts. It is definitely true that not all DCs have participated in globalization so far.² At present, economic dynamism is regionally concentrated, namely in Asia. In Asia, intra-regional trade flows have grown faster than extra-regional trade flows: The share of intra-Asian exports of manufactures has increased from 22 percent of total Asian exports in 1980 to 36 percent in 1993 (UN 1994). But these observations alone do not support the claim that regionalization, rather than globalization, is the rule of the game in the world economy.

¹ We are not aware of any systematic statistical information on the *change* of the share of DCs in international interfirm cooperation agreements. However, casual evidence suggests that FDI and non-equity interfirm cooperation agreements (NEC) are complements rather than substitutes (Gundlach, Nunnenkamp 1996), which is why FDI figures can confidently be assumed to reflect NEC developments as well. For a detailed assessment of the relation between FDI and NEC, see also Nunnenkamp et al. (1994).

² For a detailed assessment of the present state of globalization for various regional groups of DCs, see Nunnenkamp, Gundlach (1995).

Regional linkages, whether institutionalized or not, are just one among many other factors that may determine whether a country will participate successfully in globalization. Depending on the motivations of international investors, factors such as macroeconomic stability, a high rate of factor accumulation, a relatively undistorted trade regime and openness for international capital flows may be more important than any gains that could result from privileged access to a large market. Privileged market access *per se* is unlikely to advance the international competitiveness of new suppliers. That is, close ties with major regional integration schemes seem to be neither necessary nor sufficient for joining the globalization club.

To assess the empirical relevance of this hypothesis, we first compare EU import shares of manufactures for different groups of DCs. The EU is a large and relatively open market for manufactures, notwithstanding differential treatment of its external trading partners. For example, DCs from the African, Caribbean and Pacific region (ACP) rank well ahead of other DCs in the pyramid of EU trade preferences (Hiemenz et al. 1994). Therefore, one should expect that ACP countries display a better performance on EU markets than other DCs, if institutionalized linkages to regional integration schemes actually dominated the presumed trend towards globalization. Table 2 shows that this is not the case:

- ACP countries did not emerge as new suppliers on EU markets, despite their favorable market access. The share of EU imports of manufactures from ACP countries actually decreased. As it seems, this fall was mainly caused by a drastic reduction of EU imports of physical capital intensive chemicals from ACP countries, whereas the EU import shares of ACP countries in human capital intensive machinery and labor intensive textiles and clothing largely remained constant at a low level.

Table 2 — The Regional Structure of Extra-EU Imports of Manufactures, 1980 and 1993 (percent)

		Total	Machinery, transport equipment	Chemicals	Clothing and textiles
Extra-EU imports ^a	1980	37.2	35.8	28.8	45.0
	1993	40.8	40.1	29.5	36.3
thereof: ^b					
DCs	1980	16.5	7.7	10.5	45.2
	1993	22.1	19.3	11.3	41.8
thereof: ^c					
ACP	1980	5.8	3.1	39.3	2.0
	1993	4.1	3.3	7.7	2.5
Asian NIEs ^d	1980	47.9	59.1	4.5	46.3
	1993	41.5	56.8	21.3	14.3
ASEAN ^e	1980	6.7	8.8	2.0	6.4
	1993	18.8	18.7	5.3	18.1
China	1980	5.6	0.5	14.7	6.8
	1993	24.7	12.6	21.6	19.2
South Asia ^f	1980	10.2	1.5	2.4	15.6
	1993	10.9	1.4	8.2	40.0
Latin America	1980	11.4	14.3	22.9	7.6
	1993	8.4	8.7	21.9	5.8

^aIn percent of total EU imports. — ^bIn percent of extra-EU imports; DCs defined as Class 2 according to EU classification. — ^cIn percent of EU imports from DCs. — ^dHong Kong, Singapore, South Korea, Taiwan. — ^eExcluding Singapore and Brunei. — ^fBangladesh, India, Nepal, Pakistan, Sri Lanka.

Source: EUROSTAT (var. iss.).

– Asian DCs, especially China and ASEAN member countries, increased their EU import shares of manufactures considerably, despite missing trade privileges and geographical distance. Asian NIEs, which have almost achieved the status of industrialized countries, did not gain overall trade shares, but instead shifted their supply from labor intensive textiles and clothing to physical capital intensive chemicals. South Asia, which is more comparable to ACP countries in terms of per capita income, did not achieve much progress in overall trade shares. Nevertheless,

South Asia reports a strong increase in textiles and clothing, which obviously reflects its comparative advantage.

- Latin America records a relatively strong decline in EU import shares of human capital intensive machinery and transport equipment, but otherwise fairly stable EU import shares.

Recent changes in EU import shares of manufactures from different DC groups seem to be unrelated to trade preferences granted by the EU. To say the least, privileged DC groups did not gain market shares, and non-favored DCs did not suffer losses. Institutionalized ties with regional integration schemes such as the EU seem to matter less than DC economic policies when it comes to explaining success and failure in globalization.

Second, we refer to the distribution of worldwide FDI flows, in order to tentatively assess whether regionalization has dominated over globalization. If so, the formation of regional blocs should have resulted in FDI diversion away from non-member DCs. The deepening of EU integration in the aftermath of the internal market program of 1985 may provide a case in point. The EU indeed attracted substantially higher FDI inflows in 1989-1991 (US\$ 89.3 billion on an annual average) than in 1983-1988 (US\$ 27.4 billion) (UNCTAD 1995c). As a result, the EU's share in worldwide FDI flows increased from 30 to 47 percent. EU integration caused higher intra-EU FDI as European companies became more eurocentric, and EU integration also induced higher FDI inflows from Japan and the United States.³ However, this boom did not result in a proportional effect on EU FDI outflows to various regions, it mainly affected EU FDI outflows to the United States. EU investors neglected DCs only temporarily and largely because of home-made economic disturbances in Latin America. Likewise, European integration has not led US and Japanese investors to curtail their FDI in

³ For a more detailed analysis, see Agarwal et al. (1995).

DCs. Hence, the boom of FDI flows to the EU during the process of completing the internal market does not appear to have resulted in significant FDI diversion at the expense of DCs. Moreover, it was a rather short-term phenomenon. In 1992-1994, the EU's share in worldwide FDI flows went down to 37.6 percent. At the same time, all DCs taken together nearly doubled their share from 18.8 percent in 1989-1991 to 34.9 percent in 1992-1994 (UNCTAD 1995c). All this suggests that the recent revival of regional integration must not be interpreted as the dominant feature of the international division of labor.

Technology Flows to DCs

Another concern that DCs may be delinked from global trends is related to the marginal role of DCs in the generation of technological knowledge. As a matter of fact, strategic technology alliances are largely confined to OECD-based enterprises (Table 3). Especially joint R&D activities are almost exclusively pursued within the

Table 3 — Distribution of Strategic Technology Alliances, 1980–1989

	Number	Share of (percent):		
		Industrialized economies	Triad/NIEs	Triad/other DCs
Total	4192	95.7	2.3	1.5
thereof:				
Joint R&D	1752	99.1	0.5	0.4
R&D contracts, etc.	532	96.6	2.6	0.2
Joint ventures	1224	90.9	4.9	3.4

Source: Freeman, Hagedoorn (1994).

Triad of the EU, Japan and the US. The dominance of the Triad is somewhat weaker with respect to joint ventures not exclusively devoted to R&D activities, but the participation of DC companies is below 10 percent even in this category.

In contrast to a widespread belief, this observation does not imply that DCs are excluded from technological progress. Not surprisingly, technology motivated interfirm cooperation is largely a business between equally advanced partners operating at the forefront of technological progress. With few exceptions, DC companies do not provide the required match of partners in this field of interfirm cooperation. Factor endowments typically prevailing in DCs prevent a stronger role in the *generation* of technological innovations. Put differently, strategic technology alliances are an inappropriate means to integrate DCs into corporate globalization strategies. Nevertheless, DCs can derive benefits from transfers of technology. It is the *application* of internationally available technologies which matters most for DCs. Other instruments than strategic alliances, notably international trade in capital goods and FDI, are better suited for transferring technology to DCs.

The empirical evidence on trade and FDI supports the proposition of an enhanced integration of DCs into globalization strategies. Closer trade and investment linkages are observed for all DCs taken together: Their share in worldwide trade and FDI increased (see Table 1). Moreover, Table 4 shows that exports have grown faster than overall production in DCs (proxied by their GNP), and the growth of FDI flows to DCs still exceeded export growth.⁴

However, the average development for all DCs obscures remarkable differences between various country groups. Both indicators presented in Table 4 reveal that it is mainly East Asia which has become more integrated into the international division of

⁴ The temporary decline of the export-to-GNP ratio in the early 1980s is due to the drastic fall in oil prices after their 1980-peak. In 1987, nominal exports of oil exporting countries were less than half the 1980-value.

labor.⁵ By contrast, the export-to-GNP ratio of Sub-Saharan Africa did not change significantly since the mid 1980s, and FDI inflows remained at a low level in this region (as well as in South Asia). Obviously, Sub-Saharan Africa in particular has not benefited from the trend towards globalized production and marketing. Nevertheless, Table 4 contradicts the notion that only few DCs, notably Asian NIEs, are participating in globalization. The FDI-to-export ratio suggests that Latin America has restored its locational attractiveness after several countries in this region had implemented far-reaching economic reforms. At the same time, transition economies in Eastern Europe have emerged as new competitors for FDI.

Table 4 — The Integration of Selected DC Regions into the World Economy, 1980-1995

	Exports in percent of GNP					FDI inflows (net) in percent of exports				
	1980	1987	1990	1992	1995 ^a	1980	1987	1990	1992	1995 ^a
All DCs	30.3	20.5	20.6	21.4	25.1	0.7	2.1	2.7	4.7	6.6
East Asia and Pacific	23.2	26.5	28.1	29.9	34.8	1.3	2.7	4.3	6.5	9.5
South Asia	10.8	9.9	10.7	12.6	15.8	0.8	1.3	1.1	1.4	3.0
Latin America and Caribbean	18.1	17.5	16.2	15.5	15.6	4.8	4.6	4.6	7.9	7.5
Middle East and North Africa	50.7	25.4	34.9	31.6	29.4	-1.5	1.0	1.7	1.4	1.3
Sub-Saharan Africa	33.6	29.7	31.4	29.6	27.5	0.0	2.2	1.0	1.8	2.6
East Europe and Central Asia	— ^b	— ^b	13.9	17.2	13.7 ^c	0.0	0.0	0.2	3.1	7.4 ^c

^aPreliminary. — ^bNot reported because of unreliable GNP data. — ^c1994.

Source: World Bank (var. iss.).

⁵ The comparison of the export-to-GNP ratio across country groups is not meaningful because this ratio tends to be systematically lower for large economies. Hence, the interpretation of this indicator is restricted to its development over time.

Some observers fear that new manufacturing techniques will render it more difficult for DCs to attract foreign capital in the future, which would increase the risk of DCs falling further behind technologically advanced economies (Freeman, Hagedoorn 1994). By contrast, we maintain that the attractiveness of DCs for foreign capital is not determined by their role in producing new technologies. Rather, their attractiveness depends on their capabilities in *applying* existing technologies. In this respect, many DCs made substantial progress recently, not least supported by FDI and imports of capital goods.

Another question is whether DCs receive technologies that fit their factor endowments. What can be expected in a globalizing economy is that NIEs should receive a higher share of sophisticated technologies than less advanced DCs (LDCs). Table 5 provides some empirical evidence derived from the MERIT data base (Freeman, Hagedoorn 1994) with regard to the relative importance of so-called core technologies in international interfirm technology partnering. It is widely accepted that information technology, biotechnology, and new materials constitute the heart of many future technological developments affecting manufacturing, but also many services. Technology partnering among industrialized countries, and especially within the Triad, is dominated by these three core technologies. The share of core technologies in Triad-DC interfirm technology partnering is much lower. Core technologies only account for about half of all partnerships between Triad and NIE companies, while two thirds of all partnerships involving LDCs are in areas other than core technologies. This pattern supports the view that the focus of technological cooperation is related to factor endowments of partners. Hence, DCs appear to be best prepared to participate successfully in globalization and attract appropriate technologies, if they specialize according to their comparative advantages.

Table 5 —The Share of Core Technologies in International Interfirm Technology Partnering, 1980-1989 (percent)

	Share of core technologies ^a in:	
	Strategic technological alliances	Technology transfer agreements
Developed countries	73.0	60.9
Triad	73.5	61.4
Triad-NIEs	53.6	52.4
Triad-LDCs	23.4	38.5

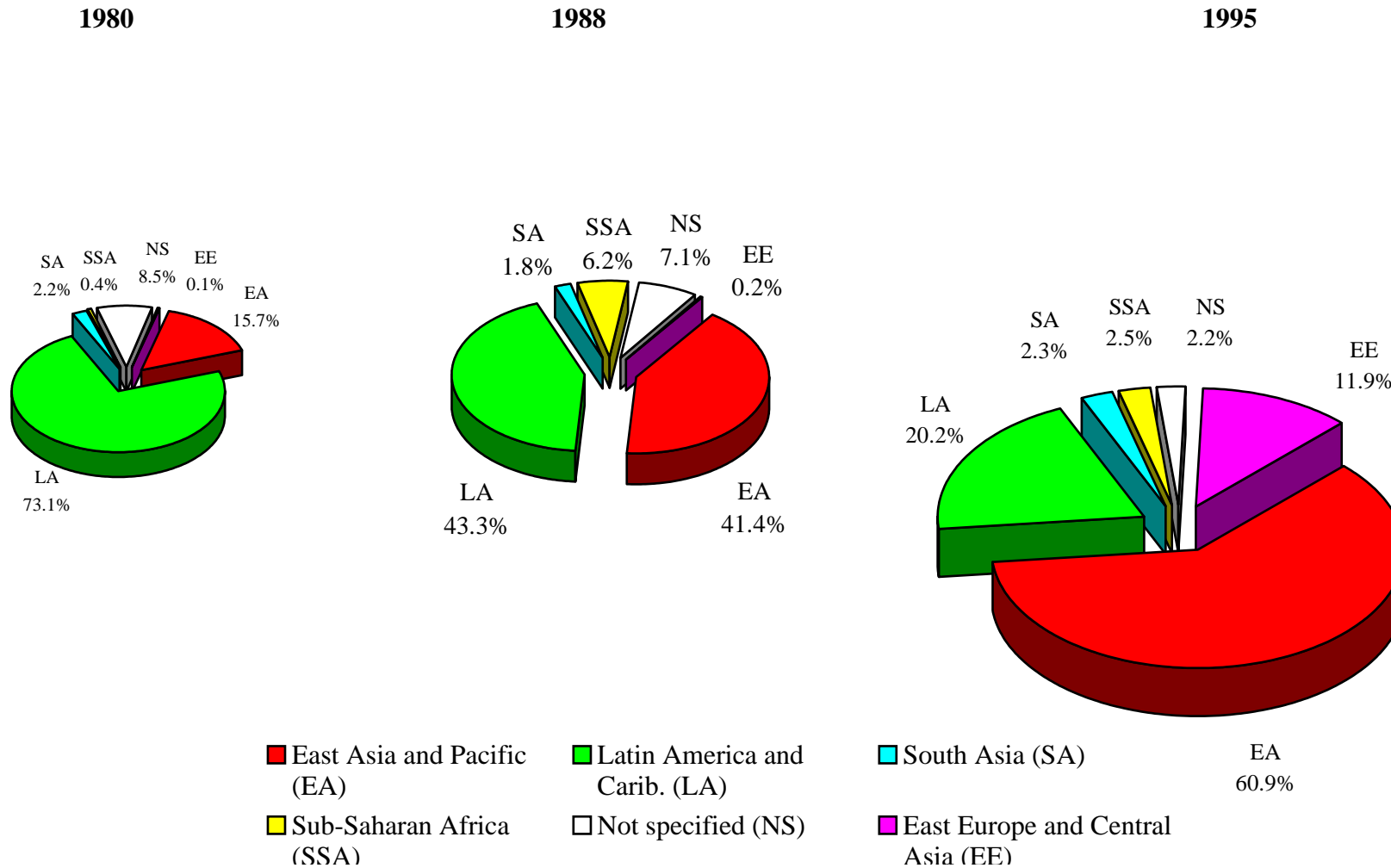
^aInformation technology, biotechnology, new materials.

Source: Freeman, Hagedoorn (1994).

FDI Concentration

The participation of DCs in the increasing division of labor would be severely restricted if FDI flows, which constitute a major channel of international technology transfers, were concentrated on a few advanced DC hosts. If, for whatever reason, such a pattern of FDI flows to DCs does not change over time, the majority of DCs would probably receive less capital and technology than would be necessary to benefit from the globalization of production and markets. As a consequence, these DCs could be caught in a poverty trap: Globalization would only support some advanced DCs that have a command of the relevant technologies, but would not induce economic development in less advanced DCs. However, the assumption of a more or less constant pattern of FDI flows to selected DCs is not compatible with changes in the regional distribution of FDI flows since 1980 (Figure 1):

Figure 1- Regional Distribution of FDI Flows to DCs,^a 1980-1995



^a Percentage share in FDI flows to DCs except Middle East and North Africa; this region is excluded because of negative (net) FDI flows in 1980. Data on Hong Kong, Singapore and Taiwan are not reported. Figures for 1995 are preliminary, and were estimated for East Europe and Central Asia.

Source: World Bank (var. iss.).

- East Asia's share in world FDI flows has nearly quadrupled since 1980. This region did not maintain close institutionalized ties with either the EU or NAFTA. Moreover, increasing FDI among Asian DCs can only partly explain the rising share of East Asia in world FDI flows.⁶ Hence, the dramatic shift of FDI to this region has to be attributed to globalization effects to a significant extent.
- The rise in East Asia's FDI share is largely due to China's emergence on world capital markets. FDI in China soared from virtually zero in 1980 to US\$ 33.8 billion in 1994 (World Bank, var. iss.). Asian NIEs benefited from Chinese liberalization and have become major investors in this country (UNCTAD 1995a). However, the rising attractiveness of China for foreign investors was not at the expense of other East Asian recipients. FDI flows to East Asian DCs other than China increased sevenfold from 1980 to 1994.
- Post-socialist countries in transition (notably those in Central Europe) represent the second group which increased its share in total FDI flows. This development is obviously related to the progress achieved in economic transformation, which encouraged the integration of transition economies into the international division of labor.
- Latin America, which traditionally was the preferred host region for FDI in the Third World, appears to be the main loser. However, the regional share in total FDI flows tends to obscure several factors relevant for assessing the position of Latin American economies in the context of globalization. First of all, FDI flows to Latin America have recovered significantly since the late 1980s. The preliminary figure of US\$ 17.8 billion for 1994 exceeded the inflows of 1988 by a

⁶ According to Wallraf (1996), FDI flows within the group of Asian NIEs, ASEAN countries, China and Viet Nam increased by US\$ 19.8 billion in 1989-1993. UNCTAD data (1995c) reveal that total FDI inflows to these countries increased by US\$ 32.7 billion during the same period.

factor of 2.2 (World Bank, var. iss.). Furthermore, several countries in this region (including Argentina, Chile, and Mexico) belonged to the best performers when average annual FDI inflows in 1993-1994 are compared with 1983-1988.⁷ Particularly the favorable position of Argentina and Mexico indicates that attractiveness for FDI may be regained in the aftermath of major economic crises, once consistent domestic policy reforms comprising macroeconomic stabilization and structural adjustment are implemented.⁸ The counterfactual is provided by Brazil, which was less reform-minded until recently. Brazil lost its top position with regard to FDI inflows ; FDI flows to Brazil in 1993 were only half the average figure for 1983-1988, and recovered only in 1994 (UNCTAD 1995c, Annex Table 1).

The evidence on FDI in DCs is difficult to reconcile with the widespread belief that only few DCs may benefit from globalization. Underlying this belief is the observation that between two thirds and three quarters of total FDI flows to DCs have persistently been absorbed by the ten largest host economies (e.g., UNCTAD 1995b). But the country composition of the group of best performers changes over time. The top ten of 1984 experienced a decline in their share in total FDI flows to DCs until 1994. This decline was rather modest (from 77 percent in 1984 to 73 percent in 1994), since China, which belonged to the largest hosts in 1984 already, experienced a steep increase in its share (from 15 to 42 percent); excluding China, the share of the remaining nine top performers of 1984 was cut half to 31 percent in 1994 (World Bank, var. iss.).⁹

⁷ FDI flows to Mexico more than doubled, while FDI flows to Chile and Argentina rose by factors of 3.9 and 7.3 (UNCTAD 1995c, Annex Table 1).

⁸ The peso-crisis of Mexico in December 1994 revealed, however, that remaining economic and political risks had been underestimated.

⁹ The share of the 25 best performers of 1984 in total FDI flows to all DCs declined from 92 to 78 percent if China is included, and from 77 to 36 percent if China is excluded.

More importantly though, the notion of highly concentrated FDI flows to a few DCs is mistaken since the chances of newcomers to enhance their locational attractiveness for foreign investors are determined by *per capita* FDI inflows. The frequently noted concentration is mainly because of a large country bias. In per capita terms, various small DCs proved more attractive for FDI than larger countries. FDI patterns in Latin America provide a case in point (Nunnenkamp 1996). Within a sample of 18 Latin American host countries, the three smallest economies (in terms of population in 1992) were indeed among the best performers in attracting foreign investors. For instance, per capita FDI inflows of Trinidad and Tobago in 1990-1994 (US\$ 216) were more than twice the figure for Argentina. In the same period, Costa Rica received higher per capita inflows (US\$ 60) than Mexico (US\$ 54), and Jamaica came very close to Mexico's per capita inflows.

Finally, the chances of newcomers to participate in globalization have further improved because some relatively advanced DCs became involved in *outward* FDI. The contribution of DCs to worldwide FDI outflows is still fairly low. But their share increased from an average of 5.8 percent in 1983-1988 to 14.8 percent in 1994 (UNCTAD 1995c, Annex Table 2). DC investors are playing a significant role in specific recipient countries. This applies especially to the Asian region, where NIEs have emerged as major foreign investors in ASEAN countries and China (UNCTAD 1995a; Riedel 1991). Taken all this evidence together, there is no empirical support for the claim that FDI flows are persistently concentrated on a small group of advanced DCs.

III. Policy Restrictions for DCs in the Era of Globalization

The previous sections demonstrated that exogenous factors cannot account for the different degree to which various DCs are participating in the globalization of production and markets. Neither the recent move towards regional integration, nor the

presumed delinking of many DCs from technology and FDI flows can explain why some DCs are catching up and why others are falling behind. This finding puts into perspective those DC economic policies that shape the international competitiveness of *immobile* factors of production. If they want to participate in globalization, DCs have to acknowledge that they are no longer free to pursue economic policies of their own liking. As it seems, there are no promising policy alternatives to striving for macroeconomic stability, encouraging investment in physical and human capital, and ensuring openness with regard to international trade and capital flows.

Macroeconomic Stability and Factor Accumulation

Macroeconomic stability, namely the absence of high and volatile rates of inflation, is the first indicator of a sound business environment. High rates of inflation render it difficult for consumers and producers to identify relative price changes. The reduced informational content of observed price changes results in higher investment risks, and in a misallocation of resources. Inflation safe, though less productive investments will be preferred. Although unexpected inflation may have a positive output effect in the short run by reducing real wages, money illusion is unlikely to prevail for long. Future wage demands will take into account the *expected* rate of inflation. Eventually, this process may end up in hyperinflation, output decline, soaring unemployment, and political instability. Among DCs, Latin America performed most unfavorably in this respect until recently, followed by Sub-Saharan Africa.¹⁰

Persistent inflation is generally home-made, since budget deficits of the government are its main reason. This is most obvious when deficits are financed by printing money. Alternatively, the higher the budget deficit, the higher have to be the taxes that producers and consumers have to pay. High business taxes impair the incentive to invest and, thereby, reduce productivity growth; high income taxes impair the

¹⁰ For details, see Gundlach, Nunnenkamp (1996, Figure 7).

incentive to work (except for work in the underground economy) and, thereby, further enforce the pressure to increase taxes. It follows that countries with large budget deficits and high rates of inflation are relatively unattractive locations for international investors, and cannot be expected to experience strong economic growth in the long run.

Macroeconomic stability appears to be a necessary precondition for participating in globalization. In a stable macroeconomic environment, investment can be expected to be higher because risks are reduced. More investment enlarges the stock of capital per worker, increases labor productivity, and produces higher incomes in the long run. With regard to physical capital accumulation, low-inflation East Asia displayed an outstanding performance among DCs.¹¹ Yet, the case of Central Europe indicates that high rates of investment do not guarantee successful economic development. In this region, centrally planned investment resulted in allocative distortions so that productivity growth remained sluggish until the regime shift. Moreover, physical capital accumulation is not all that matters. Human capital accumulation may be even more important as a driving force of economic growth. This is all the more so in the global economy, given that the diffusion of new technologies is advanced by declining information and transaction costs, and the application of such technologies depends on the availability of complementary local skills. Taking average years of schooling as proxy of the stock of human capital, this consideration is supported at least partly: Among DCs, East Asia is again the best performing region (Gundlach, Nunnenkamp 1996).

More systematic evidence for the hypothesis that factor accumulation in the form of investment in physical and human capital plays a leading role for an explanation of

¹¹ It should be noted that high investment rates usually reflect high domestic savings. This is so because the difference between investment and domestic savings equals the current account deficit, which rarely exceeds 5 percent of GDP over longer time periods.

economic success comes from empirical cross-country studies (Barro 1991; Mankiw et al. 1992; Gundlach 1995). These studies uniformly confirm that human capital formation is at least as important as physical capital formation for explaining the large differences in per capita income between industrialized countries and DCs. They also support theoretical models which predict that economic backwardness is not necessarily a permanent state of affairs. Low income countries have the chance to realize higher growth rates than rich countries, mainly because they can use existing technologies rather than having to invent them. Therefore, controlling for different rates of factor accumulation, one would expect a convergence of per capita income between poor and rich countries in the long run. But previous empirical studies concluded that the speed of convergence is fairly low, namely in the range of 2 percent per year or even less. Hence this "natural" catching-up process alone does not suffice to realize substantial improvements in the standard of living within reasonable periods of time. The East Asian example reveals, however, that there are ways to speed up convergence. Integration into the international division of labor appears to be crucially important in this respect.

Openness and Factor Accumulation

Openness in the form of largely unrestricted international trade and capital flows is of utmost importance for DCs to ease the necessary technology import, either through the import of investment goods or through FDI inflows and other forms of international investment cooperation. Openness promotes domestic competition and efficiency, and supports a closer integration into the world economy by shaping the production structure according to the respective comparative advantages of the economy. At the same time, a closer world market integration implies fewer degrees of freedom for domestic economic policies, unless one is prepared to run the danger of being delinked from world capital markets. Arguably, East Asian DCs successfully attracted FDI and became the economic powerhouse of the world economy just

because economic policies responded in a more appropriate way than in other DC regions to the adjustment needs resulting from progressing worldwide economic integration.

Openness is likely to be more important for DCs than for industrialized countries. To see why this is so, consider a neoclassical growth model for the open economy. Barro et al. (1995) show that an open economy described by the production function

$$Y_t = K_t^\alpha H_t^\beta (A_t L_t)^{1-\alpha-\beta}, \quad 0 < \alpha + \beta < 1,$$

where Y_t is output at time t , K is the stock of physical capital, H is the stock of human capital, A is the level of technology, and L is labor, converges to its steady state at rate λ , which is given by

$$\lambda_{open} = \left(1 - \frac{\beta}{1-\alpha}\right)(n + g + \delta),$$

where α and β are the shares of physical and human capital in factor income, n is the rate of labor force growth, g is the rate of technological progress, and δ is the depreciation rate of human and physical capital.

The central assumption of this model is that physical capital is internationally mobile, but human capital is not. By contrast, the convergence rate for the closed economy with internationally immobile physical and human capital is given by (Mankiw et al. 1992)

$$\lambda_{closed} = (1 - \alpha - \beta)(n + g + \delta).$$

The standard parameterization for the rate of technological progress is 2 percent and for the depreciation rate 5 percent (Barro et al. 1995). For industrialized countries, n was about 1 percent in 1980-1993 (World Bank 1995). The share of physical capital in factor income is about 30 percent for industrialized countries (Maddison 1987),

and the share of human capital in factor income is about 50 percent.¹² That is, for industrialized countries (IC), the two rates of convergence to the steady state are predicted to be fairly similar in the range of 2 percent for open and closed economies:

$$\lambda_{open}^{IC} = \left(1 - \frac{0.5}{1-0.3}\right) (0.01+0.02+0.05) = 0.023, \text{ and}$$

$$\lambda_{closed}^{IC} = (1-0.3-0.5) (0.01+0.02+0.05) = 0.016.$$

The story is different for DCs. Labor force growth in DCs was about 2 percent in 1980-1993 (World Bank 1995). Moreover, the share of physical capital in factor income is much larger in DCs than 30 percent as in industrialized countries. For a sample of DCs that report detailed National Accounts Statistics to the UN, this share is about 60 percent on average, and the average share of human capital in factor income is about 20 percent (Gundlach 1996). If so, openness seems to matter much more for DCs than for industrialized countries. The convergence rate for an open economy is now

$$\lambda_{open}^{DC} = \left(1 - \frac{0.2}{1-0.6}\right) (0.02 + 0.02 + 0.05) = 0.045,$$

and the convergence rate for a closed economy is

$$\lambda_{closed}^{DC} = (1 - 0.6 - 0.2) (0.02 + 0.02 + 0.05) = 0.018.$$

¹² The calculation of the share of human capital in factor income is somewhat tricky, because there is no National Accounts counterpart. One way to derive an estimate for the share of human capital in the *total wage bill* is to focus on the rate of return to education and average years of schooling, thereby assuming that investment in education is the same thing as an increase in the stock of human capital. For example, with a social rate of return to secondary education of about 13 percent and average school attendance of about 8 years, both figures representing worldwide averages (Psacharopoulos 1993), it follows that investment in education raises income by a factor of three ($e^{0.08 \cdot 13} \approx 3$). Hence, income is predicted to be three times higher with human capital than without. Accordingly, the share of human capital in the total wage bill should be about two thirds. Multiplying this figure with the share of labor in factor income gives an overall share of human capital in income of about 50 percent.

This difference is large. With a predicted convergence rate of 4.5 percent for the open economy, halfway to steady state is reached in about 16 years; with a predicted convergence rate of 1.8 percent for the closed economy, halfway to steady state is reached in about 39 years. Hence, the open economy DC is predicted to reach halfway to steady state almost one generation earlier than the closed economy.

If the model is correct, more open DCs should have experienced a better growth performance, i.e., a higher rate of convergence to the steady state. Whether a country is open or not can be measured by the degree of international capital mobility, as was first suggested by Feldstein and Horioka (1980). Montiel (1994) uses the Feldstein-Horioka approach in a time series context and finds a surprisingly high degree of capital mobility in his sample of DCs, although a large number of inconclusive cases remains. We select only those DCs from his sample which can be identified either as closed or open. Moreover, to control for data quality, we exclude DCs which do not report detailed National Accounts Statistics. Our resulting final sample consists of 13 open and nine closed DCs.¹³ We use this sample to calculate the rates of convergence for open and closed DCs.

Mankiw et al. (1982) show that based on the previously mentioned production function, the rate of convergence (λ) can be estimated by regressing the log difference of income per worker at time t and some initial date 0 on the determinants of the steady state and the initial level of income. Augmenting such an equation by a slope and an intercept dummy for openness, we get

¹³ According to the findings of Montiel (1995) for 1970-1990, Benin, Cameroon, Chile, Colombia, Costa Rica, Ecuador, Malaysia, Mauritius, Mexico, Paraguay, Peru, Sierra Leone and Uruguay can be classified as open, while Honduras, Kenya, Malawi, Nepal, Niger, Nigeria, the Philippines, Venezuela and Zimbabwe can be classified as closed.

$$\begin{aligned}
\ln(Y/L)_t - \ln(Y/L)_0 &= \text{CONSTANT} + (1 - e^{-\lambda t}) \frac{\alpha}{1 - \alpha - \beta} \ln(\Delta K/Y) \\
&+ (1 - e^{-\lambda t}) \frac{\beta}{1 - \alpha - \beta} \ln(\Delta H/Y) - (1 - e^{-\lambda t}) \frac{\alpha + \beta}{1 - \alpha - \beta} \ln(n + g + \delta) \\
&- (1 - e^{-\lambda t}) \ln(Y/L)_0 + \text{OPEN} - \gamma \text{SLOPEN},
\end{aligned}$$

where $\Delta K/Y$ is the share of physical capital investment in output, and $\Delta H/Y$ is the share of human capital investment in output.¹⁴ *OPEN* is an intercept dummy, which equals 1 for open DCs and 0 otherwise; *SLOPEN* is a slope dummy, which equals initial income for open DCs and 0 otherwise. All other variables and parameters are defined as before.

With only 22 observations at hand, a regression based on this convergence equation would result in a serious degrees of freedom problem. Therefore, we restrict the convergence equation according to the empirical results in Mankiw et al. (1992, Tab. VI, intermediate sample) as

$$\begin{aligned}
&\ln(Y/L)_t - \ln(Y/L)_0 - 0.506 [\ln(\Delta K/Y) - \ln(n + g + \delta)] - 0.266 [\ln(\Delta H/Y) - \ln(n + g + \delta)] \\
&= \text{CONSTANT} - (1 - e^{-\lambda t}) \ln(Y/L)_0 + \text{OPEN} - \gamma \text{SLOPEN}.
\end{aligned}$$

That is, our regression equation uses the conditional growth rate as the new dependent variable. Thereby, we control for differences among DCs in the two rates of factor accumulation and in the rate of labor force growth, which together determine the steady state. Using this approach, we estimate the following regression coefficients and the implied rates of convergence (standard errors in parentheses):

¹⁴ The share of human capital investment in output is measured as the percentage of the working age population in secondary schools, which is taken from Mankiw et al. (1992). All other variables are taken from Summers and Heston (1991). Time t is 1985, time 0 is 1960. For details, see Gundlach (1996).

$$\text{Conditional growth rate} = 2.53 + 3.62 \text{ OPEN} - 0.31 \ln(Y/L)_0 - 0.41 \text{ SLOPEN}$$

$$(0.73) \quad (1.09) \quad (0.09) \quad (0.13)$$

Number of observations: 22

$$\bar{R}^2 = 0.76 \quad \text{s.s.e.} = 0.22$$

$$\text{Implied } \lambda_{open}^{DC} : 0.051$$

$$(0.013)$$

$$\text{Implied } \lambda_{closed}^{DC} : 0.015$$

$$(0.006)$$

Our empirical findings for the two rates of convergence roughly confirm the difference between open and closed economies predicted by the neoclassical model of economic growth, assuming that the share of physical capital in factor income is about 60 percent and the share of human capital is about 20 percent in DCs. Open DCs converge at a much higher rate to their steady state than closed DCs. Put differently, openness shortens considerably the time period until the steady state is reached, although it does not change the steady state itself. Taking the point estimates of the two convergence rates literally, the open economy would reach halfway to steady state about 33 years earlier than the closed economy. It follows that openness along with factor accumulation matters for economic growth, especially in DCs.

IV. Summary

Our findings support the notion that globalization offers better chances for DCs to catch up economically with industrialized countries. Globalization is likely to ease the inflow of capital and technology, thus helping to increase the rate of factor accumulation beyond the level to be financed by domestic savings. But globalization also reduces the degrees of freedom of economic policy making in DCs. First of all, it requires openness on behalf of DCs. In addition, DCs characterized by pronounced macroeconomic instability are unlikely to achieve a high rate of domestic (physical

and human) capital accumulation, which is a precondition for economic success. Capital formation has largely to be financed by domestic savings. Hence, capital formation is impaired by high government deficits, which represent negative savings and are the main source of macroeconomic instability. It will definitely prove difficult for many DCs to pursue economic policies that successfully combine macroeconomic stabilization, a high rate of domestic savings, and a liberalization of external trade and capital flows. Yet there is no promising alternative in the era of globalization. Exogenous factors such as refused membership in major regional integration schemes and the lack of preferential trade agreements with such schemes, as well as the supposed concentration of FDI and international technology transfers on just a few DCs cannot be blamed for the failure of many DCs in the past to participate successfully in the international division of labor. Principal responsibility rests with DCs themselves.

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