UNITED NATIONS CONFERENCE ON TRADE AND DEVELOPMENT

G-24 Discussion Paper Series

Reinventing Industrial Strategy: The Role of Government Policy in Building Industrial Competitiveness

Sanjaya Lall

No. 28, April 2004

UNITED NATIONS

UNITED NATIONS CONFERENCE
ON TRADE AND DEVELOPMENT

INTERGOVERNMENTAL
GROUP OF TWENTY-FOUR

G-24 Discussion Paper Series

Research papers for the Intergovernmental Group of Twenty-Four on International Monetary Affairs

UNITED NATIONS
New York and Geneva, April 2004

Note

Symbols of United Nations documents are composed of capital letters combined with figures. Mention of such a symbol indicates a reference to a United Nations document.

*

* *

The views expressed in this Series are those of the authors and do not necessarily reflect the views of the UNCTAD secretariat. The designations employed and the presentation of the material do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city or area, or of its authorities, or concerning the delimitation of its frontiers or boundaries.

*

* *

UNITED NATIONS PUBLICATION

UNCTAD/GDS/MDPB/G24/2004/4

PREFACE

The *G-24 Discussion Paper Series* is a collection of research papers prepared under the UNCTAD Project of Technical Support to the Intergovernmental Group of Twenty-Four on International Monetary Affairs (G-24). The G-24 was established in 1971 with a view to increasing the analytical capacity and the negotiating strength of the developing countries in discussions and negotiations in the international financial institutions. The G-24 is the only formal developing-country grouping within the IMF and the World Bank. Its meetings are open to all developing countries.

The G-24 Project, which is administered by UNCTAD's Division on Globalization and Development Strategies, aims at enhancing the understanding of policy makers in developing countries of the complex issues in the international monetary and financial system, and at raising awareness outside developing countries of the need to introduce a development dimension into the discussion of international financial and institutional reform.

The research papers are discussed among experts and policy makers at the meetings of the G-24 Technical Group, and provide inputs to the meetings of the G-24 Ministers and Deputies in their preparations for negotiations and discussions in the framework of the IMF's International Monetary and Financial Committee (formerly Interim Committee) and the Joint IMF/IBRD Development Committee, as well as in other forums.

The Project of Technical Support to the G-24 receives generous financial support from the International Development Research Centre of Canada and contributions from the countries participating in the meetings of the G-24.

REINVENTING INDUSTRIAL STRATEGY: THE ROLE OF GOVERNMENT POLICY IN BUILDING INDUSTRIAL COMPETITIVENESS

Sanjaya Lall

University of Oxford
International Development Centre, Queen Elizabeth House

G-24 Discussion Paper No. 28

April 2004

Abstract

As liberalization and globalization gather pace, some developing countries cope well but the majority do not. Diverging industrial competitiveness is one of the causes of the growing disparities in income: the potential that globalization offers for industrial growth is being tapped by a relatively small number of countries, while liberalization is driving the wedge between them and laggards deeper. This paper examines two approaches to this problem: neoliberal and structuralist. The neoliberal approach is that the best strategy for all countries and in all situations is to liberalize. Integration into the international economy, with resource allocation driven by free markets, will let them realise their 'natural' comparative advantage, optimize dynamic advantage and yield the maximum attainable growth. No government intervention can improve upon this but will only reduce welfare. The structuralist approach puts less faith in free markets and more in the ability of governments to mount interventions effectively. It questions the theoretical and empirical basis for the argument that untrammelled market forces account for the industrial success of the East Asian Tigers (or the presently rich countries). Accepting the mistakes of past strategies and the need for greater openness, it argues that greater reliance on markets also needs a more proactive role for the government.

The paper reviews the nature of current globalization and evidence on the growing divergence in competitive performance in the developing world. It goes on to consider the case for industrial policy, arguing that interventions are necessary to overcome market failures in building the capabilities required for industrial development. The approach adopted draws on evolutionary theories of technical change as applied to development in the technological capability approach. The paper then describes the strategies adopted by the Asian Tigers to build industrial competitiveness, pointing out the pervasiveness of selective interventions and significant strategic differences between them. The paper concludes with lessons for other developing countries: the kinds of industrial policy needed in the current international setting are clearly different from the traditional forms of inward-looking industrialisation strategies of the early post-war era, but globalization and technical change do not eliminate the need for intervention. On the contrary, given path dependence, cumulativeness and agglomeration economies, they increase the need. There is therefore a compelling need to reconsider the rules of the game constraining the exercise of industrial policy, and for international assistance in designing and implementing appropriate policies.

Table of contents

List of boxes

List of figures

List of tables

REINVENTING INDUSTRIAL STRATEGY: THE ROLE OF GOVERNMENT POLICY IN BUILDING INDUSTRIAL COMPETITIVENESS

Sanjaya Lall

I. Introduction

As liberalization and globalization gather pace, concern with industrial competitiveness is growing, not just in developing countries but also in mature industrial ones. But it is the former that face the most intense competitive pressures: many find that their enterprises are unable to cope with rigours of open markets – in exporting and in competing with imports – as they open their economies. Some countries are doing very well; the problem is that many are not. Diverging industrial competitiveness in the developing world is one of the basic causes of the growing disparities in income that are now a pervasive feature of the world scene. The immense potential that globalization offers for industrial growth is being tapped by a relatively small number of countries, while liberalization is driving the wedge deeper.

Much of this is widely known. The Millennium Development Goals of the United Nations were conceived to deal with just such concerns. However, there is little consensus yet on what can be done to deal with them, particularly in the industrial sphere. What *can* poor countries do to strengthen their industrial competitiveness in the international economic setting? Should they persist with liberalization and hope that free market forces will stimulate growth and bring about greater convergence? Or is there a need to look again at national and international policy? What, in sum, is the correct role of government in stimulating industrialization and using it as an engine for growth and structural transformation?

There are essentially two approaches to the issue of policy: *neoliberal* and *structuralist*. The *neoliberal* approach is that the best strategy for all countries and in all situations is to liberalize – and not do much else. Integration into the international economy, with resource allocation driven by free markets, will let them realise their "natural" comparative advantage. This will in turn optimize dynamic advantage and so yield the highest rate of sustainable growth attainable – no government in-

* I am grateful to Larry Westphal for discussions and detailed comments on an earlier draft, to Robert Wade for sending me pre-publication copies of papers on the issues addressed here and to Manuel Albaladejo for help in collecting the data.

tervention can improve upon this but will only serve to reduce welfare. In this approach, the only legitimate role for the state is to provide a stable macroeconomy with clear rules of the game, open the economy fully to international product and factor flows, give a lead role to private enterprise, and furnish essential public goods like basic human capital and infrastructure. This approach has the backing of the industrialized countries and the Bretton Woods institutions (which is why it is also referred to as the "Washington consensus"). It has become enshrined in the new rules of the game being formulated and implemented by the WTO.

The neoliberal approach has strong theoretical premises: markets are "efficient", the institutions needed to make markets work exist and are effective, and if there are deviations from optimality they cannot be remedied effectively by governments. The premises are a mixture of theoretical, empirical and political assumptions. Their theoretical core relies, among other things, on a restrictive view of the technological basis of competitiveness. The empirical one relies on a particular interpretation of the experience of the most successful industrializing economies, the "Tigers" of East Asia. The political element – that governments are necessarily and universally less efficient than markets – has less to do with economics than with ideology.

The *structuralist* view puts less faith in free markets as the driver of dynamic competitiveness and more in the ability of Governments to mount interventions effectively. It questions the theoretical and empirical basis for the argument that untrammelled market forces account for the industrial success of the East Asian Tigers (or, indeed, of the earlier industrialization of the presently rich countries). Accepting the mistakes of past industrialization strategies and the need for greater openness, it argues that greater reliance on markets does not pre-empt a proactive role for the Government. Markets are powerful forces but they are not perfect; the institutions needed to make them work efficiently are often weak or absent. Government interventions are needed to improve on market outcomes.

Structuralists also accept that some industrialization policies have not worked well in the past. To the neoliberals this is a reason for denying any role for proactive policy both in past success and in future strategy: if there are market failures, the costs are always less than those of government failures. The structuralists, on the other hand, see a vital role for policy in industrial success. For them, therefore, past policy failure is not a reason for passive reliance on deficient markets but for improving government capabilities. They note that many poor regions that have implemented neoliberal policies recently have not experienced the industrial growth or export success that characterized more interventionist economies. To them, a projection of current trends suggests that persisting with passive liberalization in the context of globalization will exacerbate rather than reverse divergence.

The growing unease with the consequences of neoliberalism led the Zedillo Commission, in its "Report of the High-Level Panel on Financing for Development" to the Monterrey Conference on Financing for Development in 2002, to phrase the issue in diplomatic terms. Noting that "Sadly, increasing polarization between the haves and have-nots has become a feature of our world" it said the following on infant industry protection (a policy tool banned under the new rules):

> However misguided the old model of blanket protection intended to nurture import substitute industries, it would be a mistake to go to the other extreme and deny developing countries the opportunity of actively nurturing the development of an industrial sector. (Zedillo Commission, 2001, Executive Summary: 9–10)[1]

The controversy on industrial policy, of course, is not new; it goes back decades and, in earlier guises, centuries (Reinert, 1995; Chang, 2002). Despite the frequent assertion one hears that the debate is now dead and the efficacy of free markets established beyond doubt, this is not the case. This paper shows why this is the case and suggests that the case for policy remains strong, and is in fact becoming stronger with technical change and globalization. However, the kinds of intervention needed are changing; as a structural force, globalization reduces the feasibility of some strategies while increasing that of others.

Structural changes are supported by new "rules of the game" on participation in the international system. Some rules are necessary to facilitate the changes, but they must take account of the fact that the field has players of very different strengths. Imposing a level field can lead to an uneven distribution of benefits between the strong and the weak. They can constrain the ability of poorer countries to build

the capabilities they need for industrialization, banning policies used with spectacular success by several countries, including the advanced ones. Before coming to the new rules and the legitimate role of policy, let us review briefly the main features of recent industrialization.

II. The new dimensions of industrial competitiveness

A. Structural features

Competitiveness has always mattered for industrial growth, but its nature has evolved. Rapid technical change, shrinking economic distance, new forms of industrial organization, tighter links between national value chains and widespread policy liberalization, are altering radically the nature of environment facing enterprises. Competition now arises with great intensity from practically anywhere in the world, based on a bewildering array of new technologies, advanced skills and sophisticated supply-chain and distribution techniques. To survive it, all producers must use new technologies at or near "best practice". It is organized in complex systems spanning many countries, tapping differences in costs, skills, resources and tastes to optimize the efficiency of the entire system (Radosevic, 1999). It is supported by international brands and networks with the capacity to deliver vast amounts of information at negligible cost. Manufacturing is becoming more information-intensive: larger parts of value added consist of "weightless" activities like research, design, marketing and networking.

Technical change is shifting industrial and trade structures towards more complex, technology-based activities. Table 1 shows the growth of manufacturing value added (MVA) for three technological sets of activities: resource based (RB), low technology (LT) and medium and high technology (MHT).[2] For exports the data allow us to show high technology products separately. Over the past two decades exports have grown faster than production, and complex activities have grown faster than other branches of manufacturing. Developing countries have done better in all branches than industrialized economies.

Table 1

GROWTH OF MANUFACTURING VALUE ADDED AND MANUFACTURED EXPORTS BY TECHNOLOGY

(Percentage per annum, 1980–2000)

Activity	*World*	*Industrialized countries*	*Developing countries*
		Manufacturing value added	
Total MVA	2.6	2.3	5.4
RB MVA	2.3	1.8	4.5
LT MVA	1.7	1.4	3.5
MHT MVA	3.1	2.6	6.8
		Manufactured exports	
Total manufactured exports	7.6	6.6	12.0
RB manufactured exports	5.6	5.2	6.7
LT manufactured exports	7.4	8.4	11.4
MHT manufactured exports	8.4	7.3	16.5
o/w Hi-tech exports	11.5	9.9	20.2

***Source*:** Calculated from UNIDO and Comtrade data.

Organizational structures and the location of production are changing in response to technical change. Industrial firms are becoming less vertically integrated and more specialized by technology. Under competitive pressure, they are scouring the world for more economical locations. Technical progress in transport and communications is shrinking economic space and allowing firms to locate processes and functions in far-flung parts of the globe. Some facilities are under the control of transnationals from the industrialized countries but others are independent local firms, interwoven with the leaders in intricate webs of contractual and non-contractual relations. This "fragmentation" of production is rewriting the geography of industrial activity.[3]

New technologies change the institutional and policy structures needed for competitiveness. For instance, countries require new skills to manage technical change, and so the institutional ability to upgrade skills (Narula, 2003). They need good technical support agencies in standards, metrology, quality, testing, R&D, productivity and SME extension. They need advanced infrastructure in information and communication technologies (ICTs). They need new rules, legal systems and agencies to encourage enterprises to build competitive capabilities and allow knowledge to flow across national boundaries. And they need to cushion the impact of new technologies on declining activities and disadvantaged groups. It is not easy to meet such demands, even in advanced countries – this is why most governments mount competitiveness strategies (Lall, 2001b).

Globalization also leads to greater transfer of productive factors across economies. However, though capital, technology, information and skills are more mobile they do not spread evenly over low wage locations. They go only to places where competitive production is possible, to locations that can supply the inputs and institutions needed to complement the mobile factors. It requires, in brief, the development of new industrial capabilities (Best, 2001). Cheap unskilled labour or raw natural resources are no longer sufficient to sustain industrial growth: it is strong local capabilities that determine competitive success. Even "simple" entry-level industrial activities like clothing, footwear or food processing require sophisticated capabilities if they are to face global competition.

However, industrial capabilities develop slowly, in a cumulative and path-dependent manner subject to agglomeration economies. Thus, those economies that launch on to a virtuous circle of growth, competitiveness and investment in new capabilities can carry on doing better than those that are stuck in a "low level equilibrium" and cannot muster the resources to break out. Industrial performance can diverge across countries and continue diverging over time, with no inbuilt forces to return them towards greater convergence. Reversing these trends is not easy. It calls for concerted policy action to shift economies from one growth (or rather, low growth) and technological trajectory to another.

B. Rules of the game

Liberalization in the developing world has been partly voluntary, partly driven by persuasion and pressures and partly enforced by changes to the rules of international economic relations. The changes have essentially been to free trade and capital flows from government interventions, strengthen private property rights and level the playing field for all economic agents. Supporting these new rules are a number of such domestic policy "reforms" as liberalization of financial markets and privatization of public enterprises. Some of these changes were initiated by developing countries disillusioned with early import-substitution industrialization strategies. Some were initiated by developed countries, the Bretton Woods agencies, and various bilateral, regional and international agreements. And some were negotiated at the international level, as in the Uruguay Round of GATT (now WTO).

One effect of these changes has been to constrict policies used to promote industrial development. The most affected are: *protection of infant industries,*[4] *performance requirements on foreign investors, export targeting and incentives and other subsidies affecting trade,*[5] *slack IPRs (intellectual property rights) protection to promote copying and reverse engineering* and *local content rules.*[6]

The rules are too complex to be analyzed here at length and their precise content is not germane to the discussion, but some general points may be noted. First, the rules on trade allow for exceptions, particularly for the least developed countries. However, the grace period allowed is coming to an end for many exceptions. Second, the rules carry the threat of sanctions: interventions that affect trade can lead

trading partners to impose compensatory tariff or other measures. Third, more important than the specific measures undertaken until now is the underlying *long-term trend towards greater liberalization*. The scope and coverage of the rules are steadily increasing, and pressures for removal of policy controls are coming in many forms. It would be reasonable to project a trade regime for developing countries very similar to that obtaining within the OECD.

Policies on FDI and technology imports have undergone rapid liberalization, to a greater extent than those on trade and domestic credit. Most liberalization has occurred over the past decade or so, particularly for FDI in the industrial sector, with the pace accelerating in the 1990s. Many of the latest changes are under international commitments under the Uruguay Round; however, the trend reflects a change of attitude on the part of host countries. There are practically no policy controls left on technology transfer, in contrast to the 1970s when there were extensive interventions by governments on licensing.

Some of the main issues in the multilateral agreements are as follows:[7]

- *Services:* The General Agreement on Trade in Services (GATS) covers the supply of markets by foreign firms present in those markets under WTO. Its general principles are transparency and most-favoured-nation (MFN) treatment (i.e. non-discrimination between firms of different origins). The GATS allows a "positive list" of permitted investments, allowing host countries freedom to exclude activities not in the list.

- *Performance requirements on TNCs*: This is treated under the Agreement on Trade-Related Investment Measures (TRIMs). TRIMs affect trade in goods and are important in that they prohibit tools traditionally widely used to extract greater benefits from FDI: local content requirements, trade balancing (extremely effective in promoting the restructuring of the Latin American automobile industry), technology transfer, local employment and R&D, and so on.

- *Intellectual property rights (IPRs)*: The protection of IPRs has moved in effect from the World Intellectual Property Organization to WTO, under the TRIPS (Trade-Related Aspects of Intellectual Property Rights) Agreement. It specifies rules on standards for protecting IPRs, domestic enforcement and international dispute settlement (UNCTAD, 1996). The most important point about the shift from WIPO to WTO is that trade sanctions can now be applied to countries deemed to be deficient protecting IPRs.[8] The implications for the developing world are worrying (Lall, 2003). While stronger IPRs may benefit the leading innovators in the developed countries, they can inhibit technological development in developing ones. They can raise the cost of formal technology transfers, by allowing technology sellers to impose stricter restrictions and by preventing copying and "reverse engineering", the source of much technological learning in newly industrialising countries.

C. *Trends in industrial competitiveness in the developing world*

This section uses two indicators: world market shares in *manufacturing value added* (MVA) and in *manufactured exports*. Developing regions are as follows: "East Asia" or EA includes China and all countries in South-East Asia apart from Japan, while EA2 excludes China. Latin America and the Caribbean "LAC" includes Mexico, and LAC2 excludes it. South Asia includes the five main countries in that region. Middle East and North Africa "MENA" includes Turkey but not Israel (an industrialized country). Sub-Saharan Africa "SSA" includes South Africa except in SSA2.

MVA: The developing world performed well in 1980–2000. Its share of global MVA rose by 10 percentage points (from 14 per cent to 24 per cent) and its annual rate of growth (5.4 per cent) was over twice the 2.3 per cent recorded by the industrialized world. Since this was a period of trade expansion, globalized production and liberalization, it may seem that globalisation and liberalization were conducive to development. This is not so. Success in the developing world was very concentrated (figure 1). East Asia dominated, raising its world share from around 4 per cent to nearly 14 per cent – exactly the 10 point rise for the developing world as a whole. It came from behind LAC in 1980 to account for over two and a half times its share by 2000 (figure 2). Note that EA, while strongly export-oriented, was not "lib-

Figure 1

DEVELOPING REGIONS' SHARES OF GLOBAL MANUFACTURING VALUE ADDED (MVA)

(Percentage)

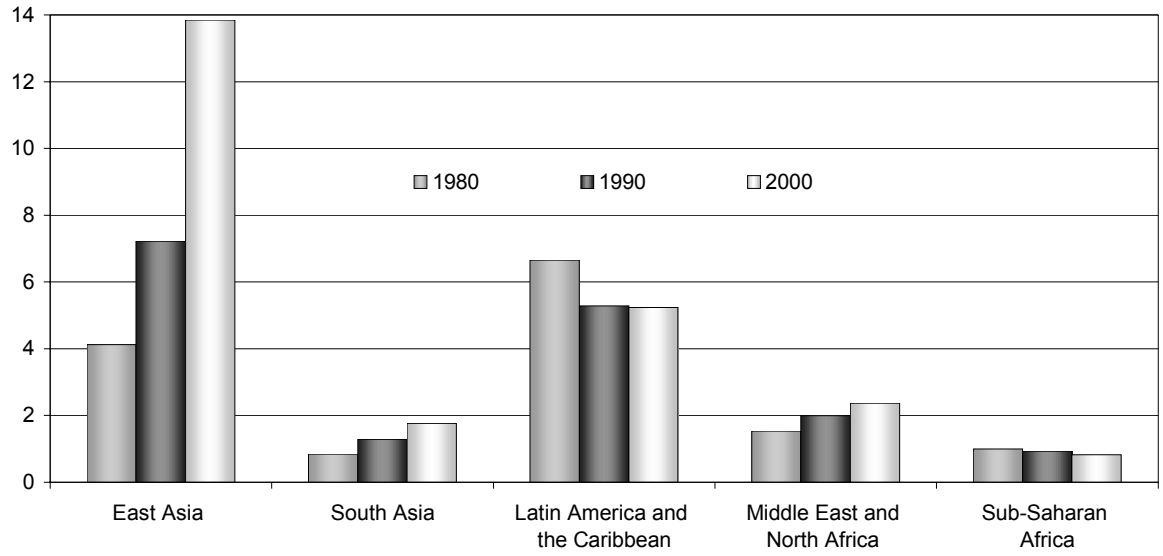


Figure 2

CHANGES IN SHARES OF GLOBAL MVA

(Percentage points)

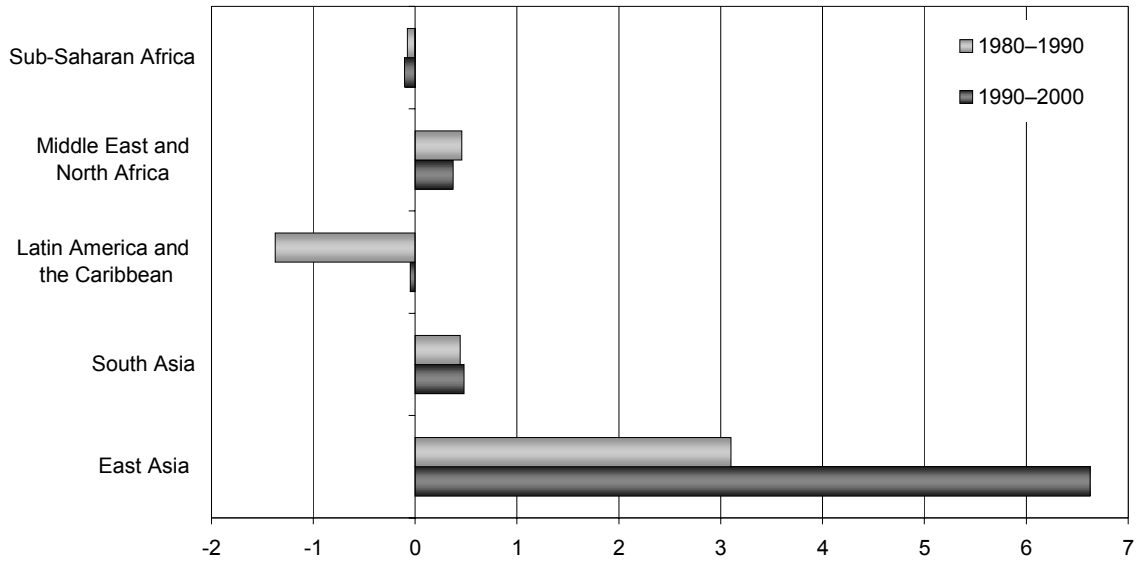
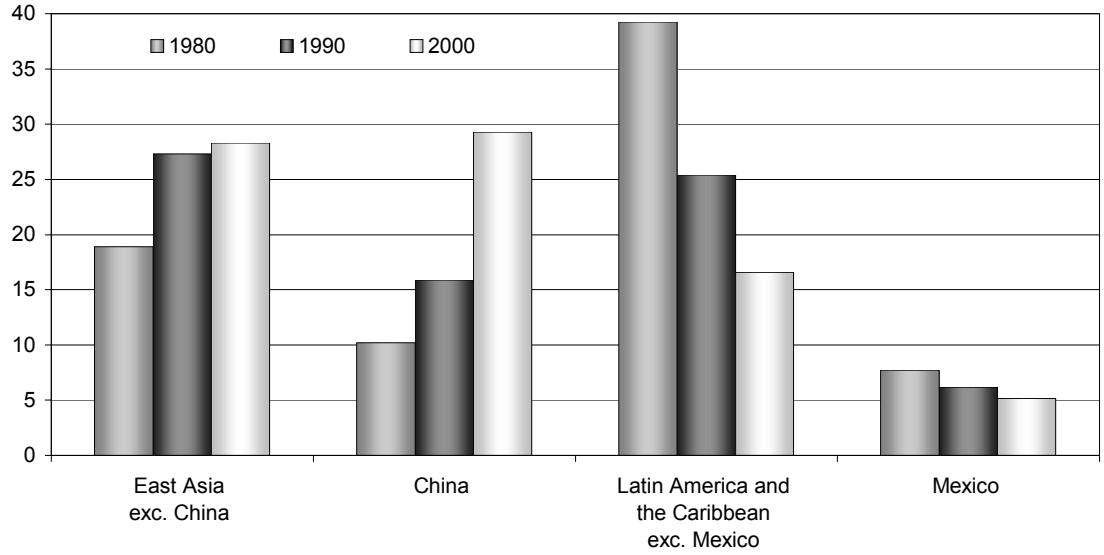


Figure 3

EAST ASIA AND LAC, SHARES OF DEVELOPING WORLD MVA

(Percentage)



eral" in the Washington consensus sense.[9] LAC, the region that liberalized the most, the earliest and the fastest, was the worst performer.

LAC and East Asia illustrate the central issues of this paper nicely. The regions had very different approaches to industrialization, initially to develop industry[10] and later to liberalize it[11] – EA has had much more strategic industrial policy than LAC. The resulting differences in outcomes are interesting, as the next two charts show. The charts separate China in EA and Mexico in LAC, both regional outliers, China because of its size, competitiveness and strong state role, Mexico because of its location and privileged access to the United States market. Both have done very well in manufactured exports with a strong role for FDI, but their differences are also of interest. For instance, the link between export and MVA growth is far stronger in China than in Mexico: China is far less exposed to import competition and has used industrial policy to induce greater local content in its export activity.[12] Figure 3 shows MVA market shares *within the developing world* for EA without China, China, LAC without Mexico, and Mexico.

Figure 4 shows changes in these market shares over 1980–1990 and 1990–2000. In 1980, LAC accounted for 47 per cent of developing world MVA and East Asia for 29 per cent; two decades later, the shares were 22 per cent and 58 per cent respectively. The main surge in MVA growth in EA2 (excluding China) was in the 1980s, with a slowing down in the 1990s because of the financial crisis and the global recession. In China the trends are reversed, with the more rapid growth in the 1990s, making its share of developing world MVA higher than the rest of East Asia together. LAC2, excluding Mexico, loses MVA shares more rapidly than Mexico, with the 1980s (the "lost decade" after the debt crisis) being much worse than the 1990s.

The 1990s are illuminating for LAC industrial growth. It started the decade with considerable slack engendered by the lost decade, which favourable macro and policy conditions should have allowed it to exploit for high production and export growth. There was better macro management, widespread privatization and lowering of trade barriers. Despite these neoliberal policies, the region continued to perform poorly: LAC2 had MVA growth of only

Figure 4

EAST ASIA AND LAC, CHANGES IN SHARES OF DEVELOPING WORLD MVA

(Percentage)

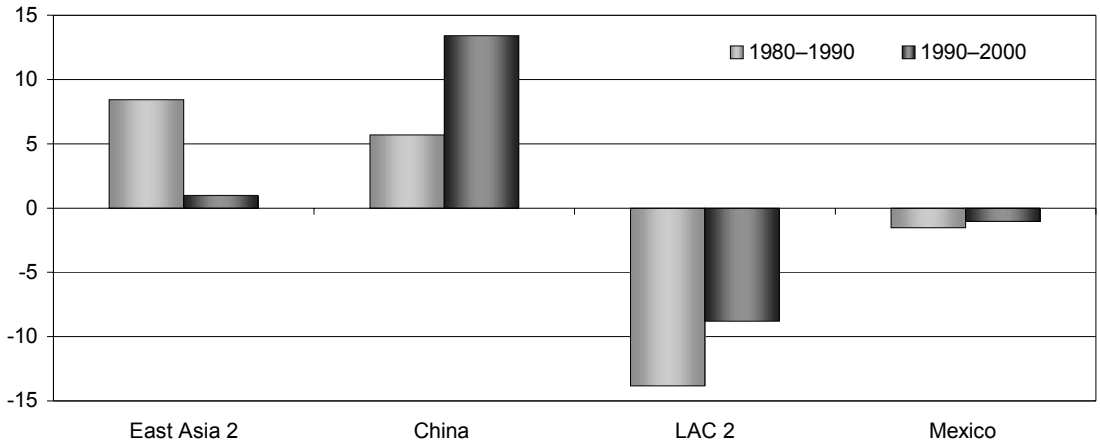


Figure 5

WORLD MARKET SHARES FOR MANUFACTURED PRODUCTS IN 1981 AND 2000, AND VALUES OF MANUFACTURED EXPORTS IN 2000

(Billions of dollars)

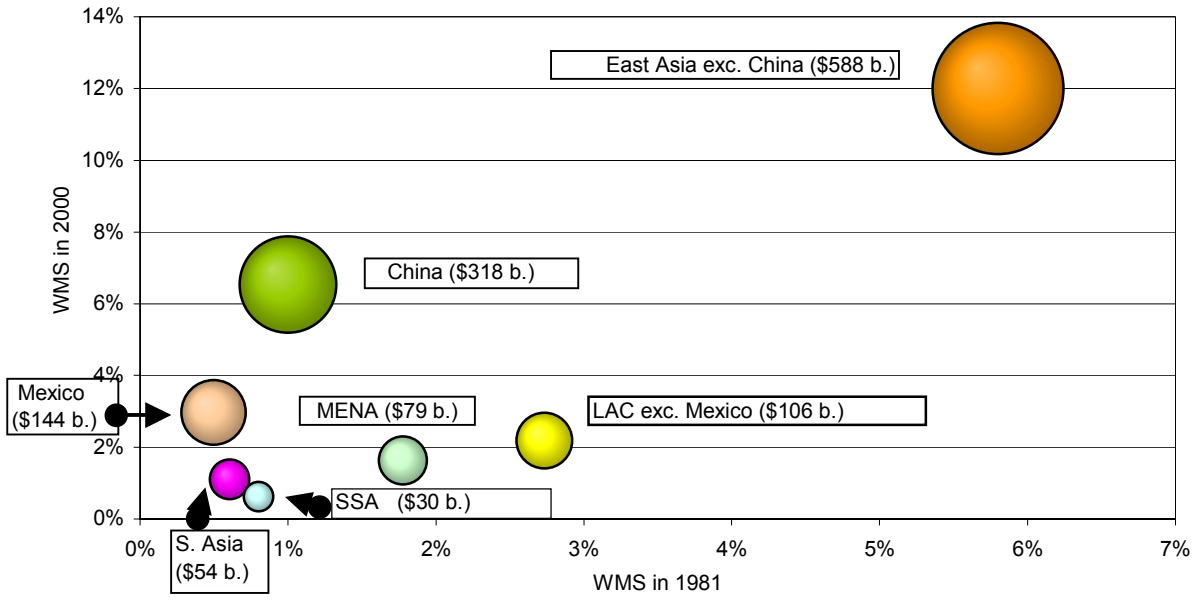
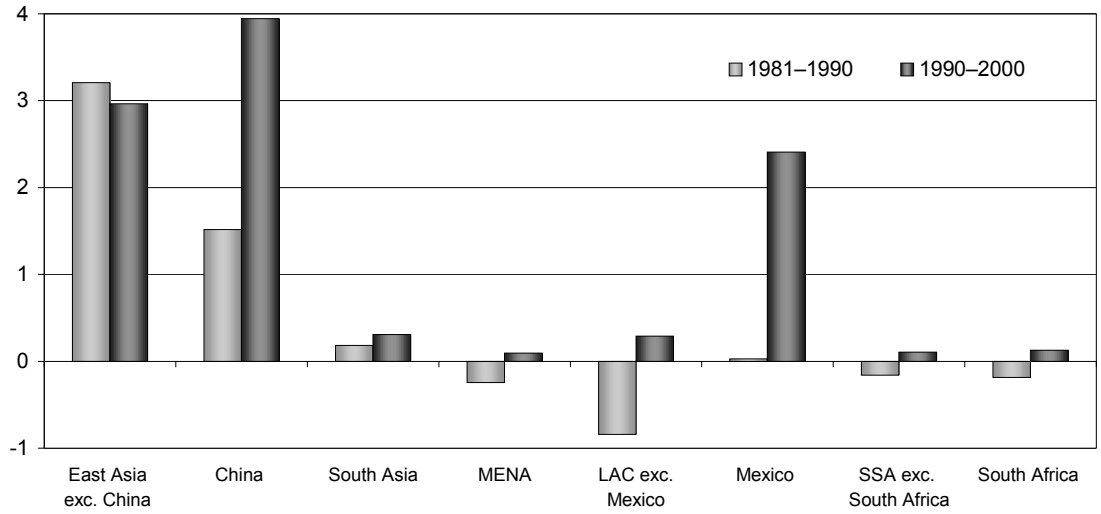


Figure 6

CHANGES IN WORLD MARKET SHARES FOR MANUFACTURES

(Percentage points)



1.9 per cent per annum, much lower than developing countries as a whole (6.4 per cent) or East Asia (9.5 per cent). It under performed relative to South Asia and MENA, both highly interventionist regions. Mexico's more robust growth of 4.4 per cent was largely a consequence of trade privileges over other developing regions under NAFTA – hardly a neoliberal recipe. In any case it did not match EA2 (6.7 per cent) or China (13.1 per cent), and this despite the fact that the 1990s were a bad period for EA2, reeling from the effects of the 1997 financial crisis.

Export performance: figure 5 shows world market shares for manufactured exports for 1981–2000 and the value of such exports in 2000, separating China from East Asia 2 and Mexico from LAC2.

East Asia as a whole accounted for 18.4 per cent of world manufactured exports in 2000, up from 6.8 per cent in 1981. Within it, EA2 raised its share from 5.8 per cent to 12.0 per cent and China from 1.0 per cent to 6.5 per cent. China has a much higher share of regional MVA than exports – its industry, perhaps not surprisingly in view of the size of the economy and its late entry to export markets, is less export-oriented than its neighbours'. LAC lost world market share in 1981–1990 (from 3.2 per cent to 2.4 per cent) then raised it over the next decade to 5.1 per cent. The initial fall was due entirely to LAC2 (from 2.7 per cent to 1.9 per cent), with Mexico holding steady at a 0.5 per cent share. Over 1990–2000, LAC2 raised its share marginally while Mexico had a dramatic six-fold increase to 2.9 per cent. As figure 6 shows, other regions were relatively stagnant, though each did better in the 1990s than in the 1980s.

What may we conclude from these data?

- MVA performance is broadly correlated with manufactured export performance, though the fit is not perfect. EA2 and Mexico fare better in exports than in MVA in the 1990s, while the opposite is true of South Asia and MENA.

- Neither MVA nor export growth is strongly related to liberalization in the Washington consensus sense. China, in particular, is hardly a neoliberal paradigm.

- Industrial success remains concentrated. Liberalization is not leading to convergence, contradicting the neoliberal premise that liberalization *per se* would promote industrial growth and competitiveness.

III. Why the world differs from the neoliberal ideal

A. The neoclassical approach

The reason why neoliberalism finds it difficult to analyse industrial development lies mainly in its treatment of *technology*. Developing countries are thought not to undertake significant technological activity, since they do not innovate at the frontier. The neoclassical model assumes that there are no additional costs, risks or other constraints to using technologies. Thus, it does not raise any policy issues: by assumption there can be no significant market or institutional failure.[13]

Neoliberal economists accept that there is a role for the state, essentially to provide basic public goods (apart from law and order and a sound legal system and macro management). They also now accept that it has a role in providing *non-selective* or *functional support* for education, health and infrastructure. Why "non-selective"? Selectivity (the support of particular activities, firms or technologies, or, crudely put, "picking winners") became the arena for the industrial policy debate in the 1990s. The mid-1980s neoliberal interpretation of East Asian success, that it was due to free trade and other non-interventionist policies, was subjected to intense criticism. It was noted that most successful Asian industrialisers had been very interventionist in trade, FDI, technology transfer and domestic resource allocation.[14] The evidence was so overwhelming that the neoliberal camp was forced to admit the facts of the case.

However, admitting that the most dynamic economies had "picked winners" created difficulties for neoliberals, as the normal – and in this case valid – interpretation would be that performance and policy were causally related. They responded with a "*moderate neoclassical*" stance (in contrast to the earlier "strong neoclassical" one that assumed all markets to be efficient) that devoted enormous effort to explaining why selectivity, while it existed, had been redundant and unnecessary (World Bank, 1993).[15] The moderate school admitted *some* market failures and *some* role for the state, but only as long as interventions were functional – it saw no valid role for policy in influencing allocation at the activity, firm or technological level. The "market friendly" approach, as it was appealingly labelled, segmented market failures not according to whether market failures existed but according to the level at which policies affected investment decisions.

That neoclassical theory provides no reason for such a distinction – after all, if policy can correct a market failure it is justified – was countered by a *political economy premise,* that it was impossible for governments to mount effective selective interventions. The World Bank (1993) admitted that some selectivity may have worked in East Asia, but the circumstances had been unique. Other governments did not and *could not* have the kinds of capabilities needed, and so selectivity would do more harm than good. The moderate position, later termed the "Washington consensus", happily coincided with the World Bank's own operations (in health, education and infrastructure), policy advice (greater liberalization) and structural adjustment programmes (stabilization, liberalization and privatization).

The moderate position retained the simplifying assumptions of the strong neoclassical position on technology. Both used, implicitly or explicitly, the basic neoclassical model in which all markets affecting technology are "efficient". In the theoretical sense, "efficiency" has stringent requirements: product markets give the correct signals for investment and factor markets respond to these signals. At the firm level there are no scale economies or externalities. Firms have perfect information and foresight and full knowledge of all available technologies. They choose the right technology if faced with free market prices. Having selected the right technology they use it instantaneously at "best practice". There are no significant learning processes, no risks, no externalities and no deficiencies in the skills, finance, information and infrastructure available to them.

In this model, any policy intervention that affects the prices facing enterprises is by definition distorting, and moves society away from the optimum allocation yielded by free markets.[16] The critical assumption for industrial policy is the one on *learning and capability building* and dropping it yields very different conclusions for policy (below).

But showing that there may be market failures in importing and using technology cannot establish a case for selectivity. It is also necessary to show that such failures are important in practice and not theoretical curiosities, and to establish that governments can effectively remedy them in real life, that government failures are not necessarily more costly than market failures. It is argued here that both can be shown, and the transition from an admittedly simplified neoclassical model to a universal, timeless neoliberal policy *diktat* is not justified in theory, history or practice.[17] To do this we turn to the structuralist approach to technology in developing countries.

B. *The technological capability approach*

How enterprises in developing countries actually use technology is analyzed by a large recent literature on technological capabilities.[18] The literature is mainly empirical but has its theoretical roots in the evolutionary approach of Nelson and Winter (1982) and the modern information theory of Stiglitz.[19] It argues that industrial success in developing countries depends essentially on how enterprises manage the process of mastering, adapting and improving upon existing technologies. The process is difficult and prone to widespread and diffuse market failures, with have important implications for policy (see box 1).

Technology has strong "tacit" elements that need the user to invest in new skills, routines, and technical and organizational information. Such investment faces market and institutional failures whose remedies require intervention. Many interventions have to be selective because technologies differ inherently in their tacit features and externalities. Industrial success in the developing world – and indeed in the presently developed world in its early phases of industrialization – is thus traceable to how effectively governments have overcome these market and institutional failures.

The process of gaining technological mastery in a new setting is not instantaneous, costless or automatic, even if the technology is well diffused elsewhere. It is risky and unpredictable, and the process itself may have to be learnt. The cost and duration of the learning process varies by the complexity and scale of the technology; becoming an efficient garment assembler, say, is far less costly and difficult than learning to make automobiles. Moreover, the process is rife with externalities: firms do not learn on their own but in interaction with other firms (suppliers, buyers, consultants and competitors) and institutions. And it often requires inputs from factor markets: physical inputs, new skills, technical information and testing or trouble-shooting services, finance and new infrastructure. The costs of the process rise with the degree of industrial backwardness of the economy.

Capability development can face market failures in building *initial capacity* and in *subsequent deepening*. Both need support, functional and selective. Support entails a mixture of policies apart from infant industry protection.[20] Take building initial capacity in new industrial activities. Free markets may not give correct signals for investment in new technologies when there are high, unpredictable learning costs and widespread externalities. This is, in modern garb, the classic case for infant industry protection: classical economists clearly recognised that in the presence of such costs, an industrial latecomer faced an inherent disadvantage compared to those that had undergone the learning process.[21] Add to this the extra costs and disadvantages faced by firms in developing countries: unpredictability, lack of information, weak capital markets, absence of suppliers, poor support institutions and so on: exposure to full import competition is likely to prevent entry into activities with relatively difficult technologies. Yet these are the technologies that are likely to carry the burden of industrial development and future competitiveness.

Why do these interventions have to be *selective*? Offering uniform protection to all activities makes little sense when learning processes and externalities differ by technology, as they inevitably do. In some activities the need for protection may be minimal because the learning period is relatively brief, information easy to get and externalities limited. In complex activities or those with widespread externalities, newcomers may never enter unless measures are undertaken to promote the activity. The only complex activities where investments may take place without promotion are those based on local natural resources, if the resource advantage is sufficient to offset the learning costs. However, the processing of some resources calls for strong industrial capabilities and for a learning base; thus, both Sub-Saharan Africa and Latin America have large

Box 1

TEN FEATURES OF TECHNOLOGICAL LEARNING IN DEVELOPING COUNTRIES

1. Technological learning is a real and significant process. It is vital to industrial development, and is primarily conscious and purposive rather than automatic and passive. Firms using a given technology for similar periods need not be equally proficient: each will be at the point given by the intensity of its capability building efforts.

2. Firms do not have full information on technical alternatives. They function with imperfect, variable and rather hazy knowledge of technologies they are using. There is no uniform, predictable learning curve for a given technology. Each faces risk, uncertainty and cost. Differences in learning are larger between countries at differing levels of development.

3. Firms may not know how to build up the necessary capabilities – learning itself often has to be learned. In a developing country, knowledge of traditional technologies may not be a good base on which to know how to master modern technologies. For a latecomer to a technology, the fact that others have already undergone the learning process is both a benefit and a cost. It is a benefit in that they can borrow from the others' experience (to the extent this is accessible). It is a cost in that they are relatively inefficient during the process (and so have to bear a loss if they compete on open markets). The cost and risk depend on how new the technology is relative to the entrant's base of knowledge, how developed factor markets are and how fast the technology is changing.

4. Firms cope with these uncertain conditions not by maximising a well-defined function but by developing organizational and managerial routines (Nelson and Winter, 1982). These are adapted as firms collect new information, learn from experience and imitate other firms. Learning is path dependent and cumulative.

5. The learning process is highly technology specific, since technologies differ in their learning requirements. Some technologies are more embodied in equipment while others have greater tacit elements. Process technologies (like chemicals) are more embodied than engineering technologies (machinery or automobiles), and demand different (often less) effort. Capabilities built up in one activity are not easily transferable to another. Different technologies involve different breadth of skills and knowledge, some needing a narrow range of specialization and others a wide range.

6. Different technologies have different degrees of dependence on outside sources of knowledge or information, such as other firms, consultants, capital goods suppliers or technology institutions.

7. Capability building occurs at all levels – shop-floor, process or product engineering, quality management, maintenance, procurement, inventory control, outbound logistics and relations with other firms and institutions. Innovation in the conventional sense of formal R&D is at one end of the spectrum of technological activity; it does not exhaust it. However, R&D does become important as more complex technologies are used; R&D is needed just for efficient absorption.

8. Technological development can take place to different depths. The attainment of a minimum level of operational capability (know-how) is essential to all activity. This may not lead to the development of deeper capabilities, an understanding of the principles of the technology (know-why): this requires a discrete strategy to invest in deepening. The deeper the levels of technological capabilities aimed at, the higher the cost, risk and duration involved. It is possible for an enterprise to become efficient at the know-how level and stay there, but this is not optimal for its long-term capability development. It will remain dependent on other firms for all major improvements to its technologies, and constrained in what it can obtain and use. The develop-

Box 1 (concluded)

ment of know-why allows firms to select better the technologies they need, lower the costs of buying those technologies, realise more value by adding their own knowledge, and to develop autonomous innovative capabilities.

9. Technological learning is rife with externalities and inter-linkages. It is driven by direct interactions with suppliers of inputs or capital goods, competitors, customers, consultants, and technology suppliers. Others are with firms in unrelated industries, technology institutes, extension services, universities, industry associations and training institutions. Where information and skill flows are particularly dense in a set of related activities, clusters of industries emerge, with collective learning for the group as a whole.

10. Technological interactions occur within a country and abroad. Imported technology provides the most important input into technological learning in developing countries. Since technologies change constantly, moreover, access to foreign sources of innovation is vital to continued technological progress. Technology import is not, however, a substitute for indigenous capability development – the efficacy with which imported technologies are used depends on local efforts. Similarly, not all modes of technology import are equally conducive to indigenous learning. Much depends on how the technology is packaged with complementary factors, whether or not it is available from other sources, how fast it is changing, how developed local capabilities are, and the policies adopted to stimulate transfer and deepening.

Source: Lall (2001a).

resource bases but advanced processing has only taken root in the latter, based on decades of capability building in import-substituting regimes.

It is important to reiterate that infant *industry protection is only part of industrial policy*, and *by itself can be harmful and ineffective*. This is so for two reasons. First, protection cannot succeed if it is not offset by competitive pressures on firms to invest in the capability building process. In fact, by cushioning the costs of capability building, protection removes the incentive for undertaking it. One of the reasons why industrial policy failed in most developing countries is precisely that they failed to overcome this dilemma. But it is possible to do so, by strengthening domestic competition, setting performance targets and, most effectively, by forcing firms into export markets where they have to compete with best practice. Infant industry protection only works well where it is counterbalanced by such measures. Many such measures also have to be *selective*, since the costs of entering export markets differ by product. Thus, differentiated export targets, credits and subsidies were often used in East Asia.

The second reason why industrial policy is far more than protection is the need for *coordination with factor markets*. Firms need many new inputs into their learning: new skills, technical and market information, risk finance, or new infrastructure. Unless factor markets can respond to these needs, protection cannot allow them to reach competitive levels of competence. And factor market interventions also *have to be selective as well as functional*, for three reasons. First, several factor market needs are specific to particular activities; if they lack the information or coordination to meet these needs, interventions are needed to remedy the deficiencies. For instance, the skill needs of electronics may not be fully foreseen by education markets,[22] or the financial needs emerging new technologies may not be addressed by capital markets. Second, government resources for supporting factor markets are limited, and allocating them among competing uses entails selectivity at a high level (say, between education and other uses). Third, where the Government is already targeting particular sectors in product markets, factor markets have to be geared to those activities if the strategy is to succeed.

The *deepening* of capabilities suffers similar problems. The more complex the functions to be undertaken, the higher the costs involved and the greater the factor market coordination required. Getting into production may be easy compared to design, development and innovation. Neoclassical theory accepts that free markets (implicitly in industrial economies) may fail to ensure optimal private innovative activity because of imperfect information. However, developing countries face an additional problem. It is generally easier to import foreign technologies fully packaged than to develop an understanding of the basic principles involved – the basis of local design and development.

"Internalized" technology transfer takes the form of wholly foreign-owned direct investment. This is an effective and rapid way to access new technology, but it may result in little capability acquisition in the host country apart from production skills.[23] The move from production to innovative activity involves a strategic decision that foreign investors, because of the skills and technical linkages involved, tend to be unwilling to take in developing countries. While some relocation of innovative activity *is* taking place (UNCTAD, 2002), it is largely in advanced countries and a few newly-industrializing economies.

There is, in other words, a risk of market failure in capability deepening because of the learning costs involved, similar to initial capability building. To ensure socially optimal allocation, it may be necessary to (selectively) restrict technology imports in "internalized" forms (via FDI) and promote those in "externalized" forms (licensing, equipment, imitation or OEM contracts). Over history most countries that have built strong local innovative capabilities have done it in local firms, often by restricting FDI selectively (see below). Some have done it partially by stimulating foreign investors to invest in R&D, but this has also involved selective interventions. Thus, it is not just interventions in trade that matter but also in the way in which technologies are transferred: complete openness to internalized technology imports may not be a good thing if it truncates the process of technological deepening and internalized transfers may need to be subjected to interventions to extract greater technological benefits.

Does the *globalization of production* change matters? The spread of integrated systems means that many technologies are now only available through FDI (Radosevic, 1999). It also means that countries that get into the low end of sophisticated activities can reap enormous export benefits. This makes the cost of restricting FDI much higher. Rapid technical change also makes it more risky to bypass global systems in building capabilities. While this is true, it does not demolish the case for policies to promote deepening. The growth of global sourcing *has* made it easier to become competitive in some activities without developing local capabilities. Nevertheless, local capability development remains vital for several reasons (taken up later); in fact, it becomes more important because tapping globalized systems needs stronger capabilities and more discretionary tools.

IV. Industrialization strategies in the mature East Asian Tigers

There was no general "East Asian model". Each country had a different model within a common context of export orientation, sound macro management and a good base of skills. Each model reflected different objectives and used different interventions (though some, like support for exporters, were similar). As a result, each had a different pattern of industrial and export growth, reliance on FDI, technological capability and enterprise structure. However, for none was "getting prices right" a sufficient explanation of industrial success. The different objectives of the NIEs are shown in table 2.

Figure 7 shows recent MVA growth for these four countries, China and industrialized and developing countries from 1980–2000. Hong Kong (China) stands out for its weak performance. The Republic of Korea is the best performer among the mature Tigers, but China outshines the four (and the rest of the region). Figure 8 shows manufactured export growth from 1981–2000, with very similar patterns except that Singapore marginally outperforms the Republic of Korea in the 1990s.

Hong Kong (China) was nearest to the neoliberal ideal, combining free trade with an open door policy to FDI. However, its success does not provide many lessons in the virtues of free markets to other countries. Hong Kong (China) had unique initial conditions and its industrial performance, after the initial spurt, was weak. Its initial conditions included a long *entrepôt* tradition, global trading links,

Table 2

INDUSTRIAL POLICY OBJECTIVES OF NIEs

	Deepening industrial structure	*Raising local content*	*FDI strategy*	*Raising technological effort*	*Promotion of large local enterprises*
Hong Kong (China)	None	None	Passive Open Door	None except technology support for SMEs	None
Singapore	Very strong push into specialised high skill/tech industry, without protection	None, but subcontracting promotion now started for SMEs	Aggressive targeting and screening of TNCs, direction into high value-added activities	None for local firms, but TNCs targeted to increase R&D	None, but some public sector enterprises enter targeted areas
Taiwan Province of China	Strong push into capital, skill and technology intensive industry	Strong pressures for raising local content and subcontracting	Screening FDI, entry discouraged where local firms strong. Local technology diffusion pushed	Strong technology support for local R&D and upgrading by SMEs. Government orchestrated high tech development	Sporadic: to enter heavy industry, mainly by public sector
Republic of Korea	Strong push into capital, skill and technology intensive industry, especially heavy intermediates and capital goods	Stringent local content rules, creating support industries, protection of local suppliers, sub-contracting promotion	FDI kept out unless necessary for technology access or exports, joint ventures and licensing encouraged	Ambitious local R&D in advanced industry, heavy investment in technology infrastructure. Targeting of strategic technologies	Sustained drive to create giant private conglomerates to internalise markets, lead heavy industry, create export brands

Note on abbreviations: SMEs refers to small and medium enterprises, FDI to foreign direct investment, TNCs to multinational corporations, R&D to research and development.

Figure 7

GROWTH RATES OF MVA

(Percentage per annum)

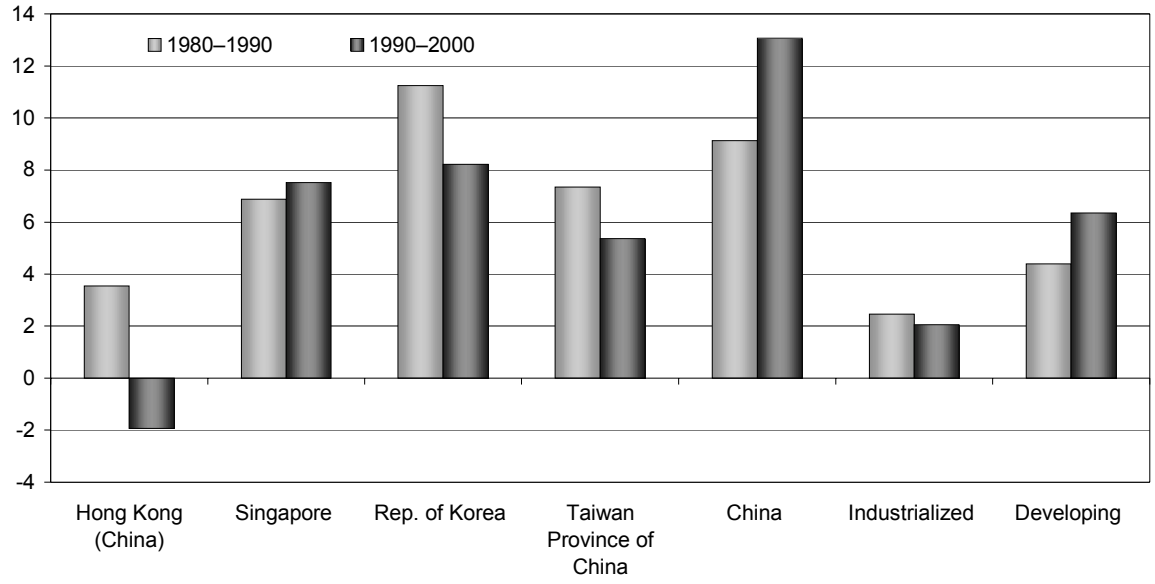
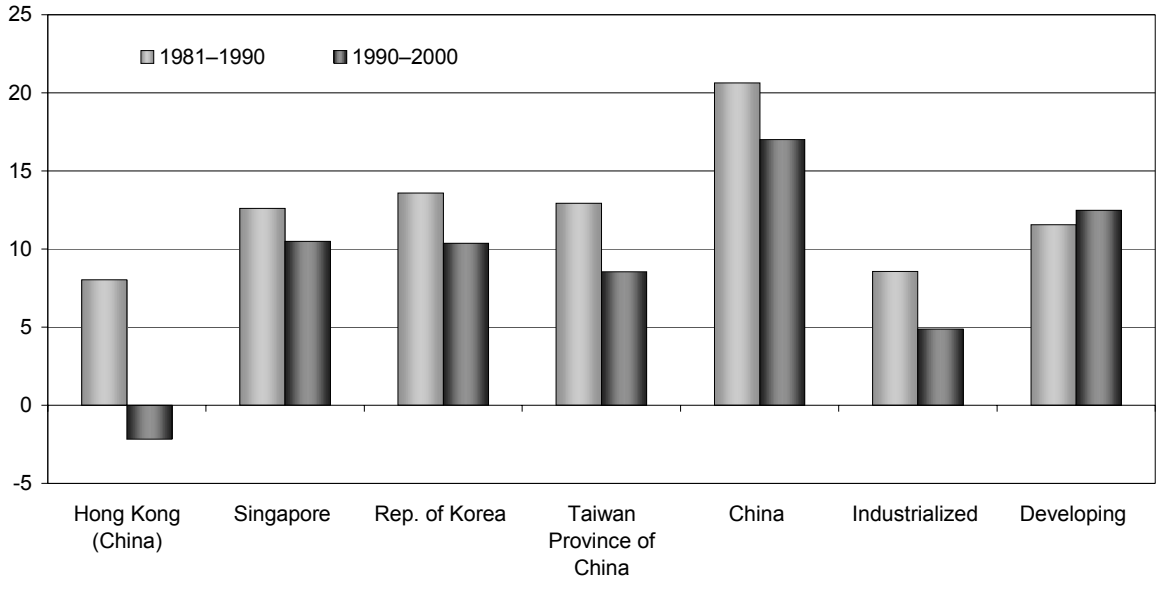


Figure 8

GROWTH RATES OF MANUFACTURED EXPORTS

(Percentage per annum)



established infrastructure of trade and finance, the presence of large British companies (the "Hongs") with immense spillovers in skills and information, and influx of entrepreneurs, engineers and technicians (with considerable past learning) from the mainland. This allowed it to launch into light export-based manufacturing: other *entrepôt* economies in the developing world have provided similar policy environments but have not enjoyed similar competitive success. Moreover, the colonial Government did intervene to help industry, allocating scarce land to manufacturers and setting up strong and well-funded support institutions like the Hong Kong Productivity Council, an export promotion agency, a textile design centre, a technical university, and recently a technology park with co-financing for high-tech start-ups.

The absence of selective industrial policy, however, constrained the deepening and growth of manufacturing as inherited capabilities were "used up". Hong Kong (China) *started with and stayed with* light labour-intensive activities where learning costs were relatively low. There was some progress in terms of product quality and diversification, but little industrial or technological deepening over time – in striking contrast to Singapore, a smaller *entrepôt* economy that pursued strong industrial policy. As a result, Hong Kong (China) de-industrialized as costs rose; manufacturing now accounts for less than 5 per cent of GDP compared to over 25 per cent at the peak. Its manufacturers shifted to other countries, mainly China, and its own exports went into decline in the 1990s. The economy has been growing slower than the other Tigers, and its main competitive advantage – providing financial and other services to the mainland – is under threat as China builds its own service capabilities. In any case, as far as *industrial development* goes, its experience does not convince one of the unalloyed benefits of free trade.

Singapore used highly interventionist policies to promote and deepen industry but in a free trade setting, showing clearly how industrial policy can take many other forms apart from import protection. With half the population of Hong Kong (China) even higher wages and a thriving service sector, Singapore did not suffer a similar "hollowing out" of manufacturing. Its industrial structure, with strong policy support, deepened steadily over time, allowing it to sustain rapid industrial growth. It relied heavily on TNCs but, unlike Hong Kong (China), the Government targeted activities for promotion and aggressively sought and used FDI as the tool to achieve its objectives (Wong, 2003).

Singapore started with a base of capabilities in *entrepôt* trading, ship servicing and petroleum refining. After a spell of import substitution, it moved into export-oriented industrialization, based overwhelmingly on FDI. There was little influx of new technical and entrepreneurial know-how from China, and a weak tradition of local entrepreneurship. After a decade or so of light industrial activity, the Government acted firmly to upgrade the industrial structure. It guided TNCs to higher value-added activities, narrowly specialised and integrated into their global operations. It intervened extensively to create the specific skills needed (Ashton *et al.*, 1999), and set up public enterprises to undertake activities considered in the country's strategic interest, where foreign investment was unfeasible or undesirable.

Such specialization, with the heavy reliance on FDI, reduced the initial need for local technological effort. Over time, however, the Government mounted efforts to induce TNCs to establish R&D and foster innovation in local enterprises (Wong, 2003). This strategy worked fairly well, and Singapore now has the third highest ratio in the developing world of enterprise financed R&D in GDP, after the Republic of Korea and Taiwan Province of China (UNIDO, 2002).

The two larger Tigers, *the Republic of Korea* and *Taiwan Province of China,* adopted the most interventionist strategies, spanning product markets (trade and domestic competition) as well as all factor markets (skills, finance, FDI, technology transfer, infrastructure and support institutions). They had a strong preference for promoting indigenous enterprises and for deepening local technological capabilities, and assigned FDI a secondary role to technology import in other forms. Their export drive was led by local firms, backed by a host of policies that allowed them to develop impressive technological capabilities. The domestic market was not exposed to free trade; a range of quantitative and tariff measures were used over time to give infant industries "space" to develop their capabilities. The deleterious effects of protection were offset by strong incentives (in the case of the Republic of Korea, almost irresistible pressures) to export.

The Republic of Korea went much further in building heavy industry than Taiwan Province of

Box 2

SINGAPORE'S USE OF FDI

The Singapore philosophy on foreign investment is that multinationals are to be "tapped" for the competitive assets they bring to the country. The Government's goal is to maximise learning, technological acquisition, rapid movement up the industrial ladder, and the skills and incomes of its working population. To this end it is willing to contribute capital, tax concessions, infrastructure, education and skills training, and a stable and friendly business environment. While the country is well integrated into international production networks in certain sectors, its fortunes are not tied to those of particular multinational companies, which (like local companies) the Government refuses to help if they are unable to compete in the rapidly changing local environment and the world market. Thus over time many multinational factories in Singapore have closed their doors – particularly in low-value, labour-intensive product lines and processes like simple electronic components and consumer goods – and shut down completely or relocated to neighbouring countries, with the Singapore Government's blessing.

The decisions of MNCs about what new technologies to bring into Singapore are strongly influenced by the incentives and direction offered by the Government. The Singapore Government is the only one in the region which, like many Governments in Western countries, gives grants to firms for complying with specified requirements. These are often to do with entering particular (advanced) technologies. The Government supports these incentives, acting in consultation with MNCs (or anticipating through proactive planning) by providing the necessary skilled manpower.

In many instances, it is the *speed and flexibility* of Government response that gives Singapore the competitive edge compared with other competing host countries. In particular, the boom in investment in offshore production by MNCs in the electronics industry in the 1970s and the early 1980s created a major opportunity. The Government responded by ensuring that all supporting industries, transport and communication infrastructure, as well as the relevant skill development programmes, were in place to attract these industries to Singapore.

This concentration of resources helps Singapore to achieve significant *agglomeration economies* and hence first-mover advantages, and has allowed it to set up many advanced electronics related industries. An example is the disk-drive industry, where all the major United States disk-drive makers have located their assembly plants in Singapore. These industries demanded not only electronics components and PCB assembly support, but also various precision engineering-related supporting industries such as tool and die, plastic injection moulding, electroplating and others. These supporting industries have been actively promoted by the Government as part of a "clustering" approach to ensure the competitiveness of the downstream industries.

As labour and land costs have risen, the Singapore Government has encouraged MNCs to reconfigure their operations on a regional basis, relocating the lower end operations in other countries and making Singapore their regional headquarters to undertake the higher end manufacturing and other functions. This has often led MNCs to set up regional marketing, distribution, service and R&D centres to service the ASEAN and Asia-Pacific region. To promote such reconfiguration, various incentives have been offered under the regional headquarters scheme, the international procurement office scheme, the international logistics centre scheme, and the approved trader scheme. There are now some 4,000 foreign firms located in Singapore, about half of them being regional headquarters. Some 80 of these regional headquarters have an average expenditure in Singapore of around US$ 18 million per year.

The management of industrial policy and FDI targeting has been centralised in the Economic Development Board (EDB), part of the Ministry of Trade and Industry (MTI) that gave overall strategic direction. EDB was endowed with the authority to coordinate all activities relating to industrial competitiveness and FDI, and given the resources to hire qualified and well-paid professional staff (essential to manage discretionary policy efficiently and honestly). Over time

Box 2 (concluded)

the agency has become the global benchmark for FDI promotion and approval procedures. Its ability to coordinate the needs of foreign investors with measures to raise local skills and capabilities has also been critical – and a feature that many other FDI agencies lack. The Government conducts periodic strategic and competitiveness studies to chart the industrial evolution and upgrading of the economy: the latest was published in 1998 (Ministry of Trade and Industry). Unlike many other countries, MNC leaders are actively involved in the strategy formulation process and are given a strong stake in the development of the economy.

Since its 1991 Strategic Economic Plan, the Government has focused its strategy around *industrial clusters*. The term cluster was not used to denote geographical agglomerations (though in view of the tiny size of the economy all industry is in fact very tightly concentrated) but inter-linked activities in a value chain. In the manufacturing sector the cluster programme (called "Manufacturing 2000"), the government analyses the strengths and weaknesses of leading industrial clusters, and undertakes FDI promotion and local capability/institution building to promote their future competitiveness. One explicit objective of the programme is to avoid the kind of industrial "hollowing out" experienced by Hong Kong (China) (and many other industrial countries).

This strategy has allowed it, for instance, to become the leading centre for hard disk drive production in the world, with considerable local linkages with advanced suppliers and R&D institutions. In 1994, the Government set up an S$1 billion Cluster Development Fund (expanded to S$2 billion later) to support specific clusters like a new wafer fabrication park. It also launched a Co-Investment Programme to provide official equity financing for joint ventures and for strategic ventures, not just in Singapore but also overseas (as long as this serves its competitive interests). The EDB can take equity stakes to support cluster development by addressing critical gaps and improving local enterprises.

China. To compress its entry into complex, scale and technology-intensive activities, its interventions had to be far more detailed and pervasive. The Republic of Korea relied primarily on capital goods imports, technology licensing and OEM agreements to acquire technology. It used "reverse engineering" (taking apart and reproducing imported products), adaptation and own product development to build upon these arm's length technology imports and develop its own capabilities (Amsden, 1989; Westphal, 1990). Its R&D expenditures are now the highest in the developing world, and ahead of all but a handful of leading OECD countries. The Republic of Korea accounts for some 53 per cent of the developing world's total enterprise-financed R&D (UNIDO, 2002).

One of the pillars of Korean strategy, and one that marks it off from the other Tigers (but mirrors Japan), was the deliberate creation of large private conglomerates, the *chaebol*. The *chaebol* were hand-picked from successful exporters and were given various subsidies and privileges, including the restriction of TNC entry, in return for furthering a strategy of setting up capital and technology-intensive activities geared to export markets. The rationale for fostering size was obvious: in view of deficient markets for capital, skills, technology and even infrastructure, large and diversified firms could internalise many of their functions. They could undertake the cost and risk of absorbing very complex technologies (without a heavy reliance on FDI), further develop it by their own R&D, set up world-scale facilities and create their own brand names and distribution networks.

This was a costly and high-risk strategy. The risks were contained by the strict discipline imposed by the government: export performance, vigorous domestic competition and deliberate interventions to rationalise the industrial structure. The government also undertook various measures to encourage

Box 3

MANAGING INDUSTRIAL STRATEGY IN THE REPUBLIC OF KOREA

Industrial targeting and promotion in the Republic of Korea was pragmatic and flexible, and developed in concert with private industry. Moreover, only a relatively small number of activities were supported at a given time, and the effects of protection were offset by strong export orientation (below). These features strongly differentiate its interventions from those in typical import substituting countries, where infant industry protection was sweeping and open-ended, non-selective, inflexible and designed without consultation with industry.

One of the leading authorities on industrial policy in the Republic of Korea, Larry Westphal (1997) describes it thus: "Since the economy's take-off in the early 1960s, the hallmark of the government's approach to developing the business sector has been its pragmatic flexibility in responding in an appropriate manner to changing circumstances. Several instances demonstrate this well: the means used at the outset to abolish the pervasive rent-seeking mentality that had been engendered by a decade of dependence on US foreign assistance; and the way that rampant pessimism about its growth prospects was overcome through sensible planning between government and business, the success of which soon created conditions that stimulated radical changes in the mode of economic planning."

"Another central feature has been the government's ability to adapt policy approaches borrowed from other countries. Here notable examples include the placement of the budget authority in the planning ministry and the entire apparatus of export promotion. But the most important characteristic of the government's approach has undoubtedly been its generally non-restrictive stance. More important, where many other governments have constrained business activities not in line with their development priorities, the government has practised 'benign neglect' rather than repression. As a result, entrepreneurial initiatives have identified significant business areas that were later incorporated into the government's priorities."

Export promotion was a compelling system to force firms into export activity. The export targeting system of the Republic of Korea is well known. Targeting was practised at the industry, product and firm levels, with the targets set by the firms and industry associations in concert with the Government. There were monthly meetings between top Government officials (chaired by the President himself) and leading exporters.[1] These targets were also enforced by several punitive measures: access to subsidised credit and import licences; income tax audits; and a number of other measures of suasion, publicity and prizes. On a long-term basis, moreover, bureaucrats were held responsible for meeting export targets in their respective industries, and had to keep in close touch with enterprises and markets. These measures were supported by regular studies of each major export industry, with information on competitors, technological trends, market conditions and so on.

---

[1] According to Rhee *et al.* (1984: 35–36), "The export targets and monthly meetings provide some of the most important information needed to administer the Korean export drive. Perhaps the most important is the up-to-date information on export performance by firm, product, and market and on reasons for discrepancy between target and performance. The government also gets much solid information on what is going on in the world. (The firms, meanwhile, get much solid information about the priorities and undertakings by government). But the government has not only acquired this information. The ministries, in concert with the firms, have sought first to identify the problems and opportunities and to determine appropriate actions. These actions have been characterised by pragmatism … speed … flexibility. … This willingness to implement new policies without careful, deliberate planning was generally a virtue for export policy-making – primarily because the test of those policies was success in the international market place. Firms thus saw the flexibility and frequent adjustments in the incentive system not as characteristics that would create uncertainty about the automaticity and stability of that system. They saw them as part of the government's long-term commitment to keep exports profitable – a commitment made possible by the continuity of the government. Without such commitment, firms would have faced much more uncertainty in their export production, and exports would have suffered as a result."

the diffusion of technology, putting pressures on the *chaebol* to establish supplier networks. Apart from the direct interventions to support local enterprises, the government provided selective and functional support by building a massive technology infrastructure and creating general and technical skills. The Republic of Korea today has the highest rate of university enrolment in the world, and produces more engineers each year than the whole of India. Its enrolments in technical subjects at the tertiary level are over twice the ratio in the OECD.

Even more striking than its creation of high level skills was its promotion of industrial R&D. Enterprise financed R&D in the Republic of Korea as a percentage of GDP is the second highest in the world, after Sweden, and exceeds such technological giants as the United States, Japan and Germany. Such R&D has grown dramatically in the past two and a half decades as a result of the promotion of the *chaebol*, export orientation, incentives, skill availability and government collaboration. *All this was an integral part of its selective industrial policy.*

The industrial policy in Taiwan Province of China encompassed import protection, directed credit, selectivity on FDI, support for indigenous skill and technology development and strong export promotion (Wade, 2000). While this resembles Korean strategy in many ways, there were important differences. Taiwan Province of China did not promote giant private conglomerates, nor did it attempt a similar drive into heavy industry. Industry in Taiwan Province of China remained largely composed of SMEs, and, given the disadvantages to technological activity inherent in small size, it supported industry by a variety of R&D collaboration, innovation inducements and extension assistance. Taiwan Province of China has probably the developing world's most advanced system of technology support for SMEs, and one of the best anywhere. But it also built a large public sector in manufacturing, to set up facilities where private firms were unwilling or unable to do so.

In the early years of industrialization, Taiwan Province of China attracted FDI into activities in which domestic industry was weak, and used a variety of means to ensure that TNCs transferred their technology to local suppliers. Like the Republic of Korea, Taiwan Province of China directed FDI into areas where local firms lacked world-class capabilities. The Government played a very active role in helping SMEs to locate, purchase, diffuse and adapt new foreign technologies. Where necessary, the Government itself entered into joint ventures, for instance to get into technologically very difficult areas such as semiconductors and aerospace (Mathews and Cho, 1999).

This outline of industrial policy in the mature Tigers leads to the following conclusions:

- Selective as well as functional interventions played vital roles in the industrial and technological development of the most dynamic economies in the developing world (Hong Kong (China) is the odd one out since its story is largely one of truncated industrial development).

- Each mixed selective and functional policies in each area of intervention. There is thus no reason to partition policy into these categories: any effective policy has elements of both.

- The extent of technological deepening in the three Tigers is directly related to their selective interventions in industry. Those who argue that intervention was irrelevant to their industrial success show a lack of understanding of the real capability building processes underlying industrialization.

- Governments in these Tigers showed the ability to devise and implement complex interventions effectively. In the Republic of Korea and Taiwan Province of China, the two that used trade interventions, export-orientation imposed a strict discipline on both industry and Governments. In Singapore, trade openness and the need to attract and retain FDI did the same.

- In all three, government capabilities improved over time, with growing levels of skill, remuneration and insulation allowing bureaucrats to operate efficiently and autonomously.[24]

- The nature and impact of interventions differed according to government objectives. The failures were addressed by different policies, reflecting location, size, history, culture and political economy.

- FDI was treated differently by each of the countries and so played varying roles in technology

Box 4

INDUSTRIAL TARGETING IN TAIWAN PROVINCE OF CHINA

In *Taiwan Province of China* early trade policies had "extensive quantitative restrictions and high tariff rates [that] shielded domestic consumer goods from foreign competition. To take advantage of abundant labour, the government subsidised light industries, particularly textiles". World Bank (1993: 131–133). As import substitution started to run out of steam, by 1960 "a multiple exchange rate system was replaced with a unitary rate, and appreciation was avoided. Tariffs and import controls were gradually reduced, especially for inputs to export. In addition, the Bank of Taiwan offered low-interest loans to exporters. The government also hired the Stanford Research Institute to identify promising industries for export promotion and development. On the basis of Taiwan's comparative advantage in low-cost labour and existing technical capabilities, the institute chose plastics, synthetic fibres and electronic components. Other industries subsequently promoted included apparel, consumer electronics, home appliances, watches and clocks" (*ibid*).

In the 1970s, Taiwan Province of China again drew upon foreign advice, now from consultants Arthur D. Little, to upgrade the industrial structure and enter into secondary import substitution. These interventions included the setting up of "capital-intensive, heavy and petrochemical industries to increase production of raw materials and intermediates for the use of export industries". In the 1980s, as its light exports lost competitiveness, Taiwan Province of China "again moved to restructure the economy. After extensive consultation with domestic and foreign advisors, the government decided to focus on high-technology industries: information, bio-technology, electro-optics, machinery and precision instruments, and environmental technology industries. The shift to a high-technology economy necessitated the close co-ordination of industrial, financial, science and technology, and human resource policies". Individual tariff rates still varied widely, with widespread quantitative restrictions in use: the use of these protective instruments was made conditional on prices moving towards international levels in 2–5 years. The average legal tariff rate in 1984 was as high as 31 per cent, higher if additional charges are added; this is higher than the 34 per cent prevalent in the developing world (Wade, 1990: 27).

Mathews (2001) describes one of the most successful and distinctive recent tools of industrial policy used in Taiwan Province of China*, R&D consortia*. "Unlike the case of many of the collaborative arrangements between established firms in the US, Europe or Japan, where mutual risk reduction is frequently the driving influence, in the case of Taiwan it is technological learning, upgrading and catch-up industry creation that is the object of the collaborative exercises. Taiwan's R&D consortia were formed hesitantly in the 1980s, but flourished in the 1990s as institutional forms were found which encourage firms to cooperate in raising their technological levels to the point where they can compete successfully in advanced technology industries. Many of these alliances or consortia are in the information technology sectors, covering personal computers, work stations, multiprocessors and multimedia, as well as a range of consumer products and telecommunications and data switching systems and products. But they have also emerged in other sectors such as automotive engines, motor cycles, electric vehicles, and now in the services and financial sector as well. Several such alliances could be counted in Taiwan in the late-1990s, bringing together firms, and public sector research institutes, with the added organizational input of trade associations, and catalytic financial assistance from government. The alliances form an essential component of Taiwan's system of innovation.

Taiwan's high technology industrial success rests on a capacity to leverage resources and pursue a strategy of rapid catch-up. Its firms tap into advanced markets through various forms of contract manufacturing, and are able to leverage new levels of technological capability from these arrangements. This is an advanced form of "technological learning", in which the most significant players have not been giant firms (as in Japan or Korea), but small and medium-sized enterprises whose entrepreneurial flexibility and adaptability have been the key to their success. Underpinning this success are the efforts of public sector research and development institutes, such as Taiwan's

Box 4 (concluded)

Industrial Technology Research Institute (ITRI). Since its founding in 1973 ITRI and its laboratories have acted as a prime vehicle for the leveraging of advanced technologies from abroad, and for their rapid diffusion or dissemination to Taiwan's firms ... This cooperation between public and private sectors, to overcome the scale disadvantages of Taiwan's small firms, is a characteristic feature of the country's technological upgrading strategies, and the creation of new high technology sectors such as semiconductors.

It is Taiwan's distinctive R&D consortia that demonstrate most clearly the power of this public-private cooperation, in one successful industry intervention after another. Taiwan's current dominance of mobile (laptop) PCs for example, rests at least in part on a public-private sector led consortium that rushed a product to world markets in 1991. Taiwan's strong performance in communications products such as data switches, which are used in PC networks, similarly rests on a consortium which worked with Taiwan's public sector industry research organization, ITRI, to produce a switch to match the Ethernet standard, in 1992/93. When IBM introduced a new PC based on its PowerPC microprocessor, in June 1995, Taiwan firms exhibited a range of computing products based on the same processor just one day later. Again this achievement rested on a carefully nurtured R&D consortium involving both IBM and Motorola, joint developers of the PowerPC microprocessor, as external parties. Taiwan is emerging as a player in the automotive industry, particularly in the expanding China market, driven by its development of a 1.2 litre 4-valve engine. Again, this is the product of a public-private collaborative research endeavour involving three companies, which have now jointly created the Taiwan Engine Company to produce the product. Thus, the R&D consortium is an inter-firm organizational form that Taiwan has adapted to its own purposes as a vehicle for catch-up industry creation and technological upgrading. The micro-dynamics of the operation of these alliances or consortia, is therefore a matter of some substantial interest."

Source: Lall (1996), Mathews (2001) and World Bank (1993).

development. Those that wanted to promote *indigenous* technological deepening had to intervene to restrict foreign entry and to guide their activities and maximise the spillovers. Those that chose to rely on TNCs and upgrade within their global production structure had to target investors, guide their allocation and induce them to set up more complex functions.

- The options and compulsions applicable to the larger economies, with greater scope for internal specialization and local content as well as better established indigenous enterprises, were different from those open to small States with weak indigenous entrepreneurship and a tiny internal market. Given the need to spread technological development more widely, the former had to take more direct steps to assist local firms.

Finally, the contrast between the success of industrial policy in the Tigers and its failures elsewhere suggests that there is no justification for the general Washington consensus case against selective interventions. It shows instead that the outcome depends not on *whether* governments intervene but *how* they do so. On "how to intervene", the differences between typical import-substituting strategies and those used in the Tigers lay in such things as:

- Selectivity (picking a few activities at a time) rather than promoting all industrial activities indiscriminately and in an open-ended way.
- Picking activities and functions that offered significant technological benefits and linkages.
- Forcing early entry into world markets, using exports to discipline and monitor both bureaucrats and enterprises.

- Giving the lead role in productive activity to private enterprises but using public enterprises as needed to fill gaps and enter exceptionally risky areas.

- Investing massively in skill creation, infrastructure and support institutions, all carefully coordinated with interventions in product markets.

- Using selectivity in FDI to help build local capabilities (by restricting FDI or imposing conditions on it) or to tap into dynamic, high technology value chains.

- Centralizing strategic decision making in competent authorities who could take an economy-wide view and enforce policies on different ministries.

- Improving the quality of bureaucracy and governance, collecting huge amounts of relevant information and learning lessons from technological leaders.

- Ensuring policy flexibility and learning, so that mistakes could be corrected *en route,* and involving private sector in strategy formulation and implementation (Lall and Teubal, 1998).

The list could be longer but it suffices to show that there are *many ways to design and implement* industrial policy. The analysis offers important lessons on what to do now. There are also *many levels* of selectivity, and adopting "industrial policy" does not mean that the country has to copy the comprehensive and detailed interventions used in the Republic of Korea or Singapore. In fact, the new setting may provide a case for lower degrees of selectivity in some areas. At the same time, the rigours imposed by globalization and technical change may well strengthen the case for more intervention in others.

The mistakes of some industrial policies should not be allowed to overshadow the success of others. The evidence on the benefits of their effective use is overwhelming (and stretches so far back in history, well beyond the post-war period covered here), and that on the effects of the alternative (passive and rapid liberalization) is very disappointing for countries with weak capabilities. To insist on the difference between selective and functional interventions and to condemn the former outright seems to fly in the face of theory and evidence – it carries the hallmarks of ideology.

V. Industrial policy for the new era

What difference do technical change and globalization make to the policies that developing countries need to promote industrialization? To start with, we abstract from the rules of the game.

Technical change: The rapid spread of information technology, the shrinking of economic distance and the skill and institutional needs of new technologies have made the competitive environment more demanding. Competition arises faster and with greater vehemence and immediacy. Minimum entry levels in terms of skill, competence, infrastructure and "connectivity" are higher. Specialized education is more important and technology support more essential. All these raise the need for support of learning by local enterprises. Low wages matter, but over time they matter less in most activities, particularly for unskilled labour. Only the possession of natural resources gives an independent competitive advantage, but only for its extraction; subsequent processing also needs competitive capabilities.

The essential policy needs of capability building have not changed much. They are *direct* – the infant industry case to provide "space" for enterprises to master new technologies and skills without incurring enormous and unpredictable losses – and *indirect*, to ensure that skill, capital, technology and infrastructure markets meet their needs. There is also a need to *coordinate learning* across enterprises and activities, when these are linked in the production chain and imports cannot substitute effectively for local inputs. At the same time, technical change makes it necessary to *provide more access to international technology markets*; it also makes it more *difficult to anticipate which activities are likely to succeed*. The information needs of industrial policy rise in tandem with technological change and complexity.

Does the greater complexity of technology make selectivity unfeasible? Not necessarily. Detailed targeting of technologies, products or enterprises may be more difficult because of the pace of change, but targeting at higher levels is feasible – and more nec-

essary. Technological progress may actually make industrial policy easier in some respects at the right level. Information on technological trends and markets is more readily available. More is known about the policies adopted by the successful countries, and their progress – and that of competitors – is easier to monitor.[25]

The *neoliberal alternative,* leaving capability development to free market forces, is hardly more promising. It can result in slow and truncated technological development, with gaps between countries rising. Some upgrading does take place over time, but it is likely to be slower and more limited than without promotion. Given the speed at which technologies are changing and path-dependence and cumulativeness in capability building, it can lead to latecomers being mired in low growth traps from which market forces cannot extract them.

With weak local capabilities, industrialization has to be more dependent on FDI. It is difficult to see, however, how FDI can drive industrial growth in many parts of the developing world without the development of local capabilities, for several reasons:

- FDI tends to concentrate in technology and marketing intensive activities where enterprises can develop ownership assets. It does not cover large areas of manufacturing with mundane skill, branding and technological requirements – the heartland of industrial growth in latecomers. In countries with reasonable industrial sectors and liberal FDI policies, foreign affiliates account for one-third to half of MVA; the rest is handled by local enterprises. If these are not capable, the industrial sector cannot sustain lopsided growth in the long term.

- Attracting manufacturing FDI into complex activities (beyond simple resource extractive and labour-intensive activities) needs strong local capabilities, without which TNCs cannot launch efficient operations. Thus, local and foreign capabilities complement each other.

- Retaining an industrial base with a strong foreign presence needs rapidly rising capabilities as wages rise and skill demands change.

- FDI is attracted increasingly to efficient agglomerations or clusters of industrial activity, again calling for strong local capabilities.

- The cumulative nature of capabilities means that once FDI takes root in particular locations and global sourcing systems become established, it becomes more difficult to newcomers to break in, particularly in the more complex activities and functions. First mover advantages, in other words, mean that late-latecomers face increasing entry costs – without strong local capabilities they will find it difficult to overcome these costs.

It is also difficult to see how host countries that have FDI can tap its potential fully without using time-honoured strategies like local content rules, incentives for deepening technologies and functions, inducements to export and so on. Admittedly, performance requirements have been deployed inefficiently in many countries, but, as with infant industry protection, they have also been used very effectively. Among the most assiduous users of incentives for technology transfer and innovation are the advanced industrial countries. It is a puzzling dilemma of the current policy environment that it recommends that countries open up to FDI while removing policy tools to overcome uncertainty, information failures, learning costs and so on.

Globalization: "Globalization" is used here narrowly to mean the fragmentation of processes and functions across countries. Fragmentation allows countries to develop competitive activities in niches – one component or process – and reach huge markets in ways not possible some years ago. The capability needs are narrower and more specialized than those in traditional forms of industrial specialization. TNCs can transfer the "missing elements" of technology, skills and capital needed to complement local capabilities if they see a competitive product at the end of the investment. In the process, they develop new capabilities – mainly production skills – in the affiliates to the extent needed for efficient production.

The spread of integrated systems makes it *more difficult and risky* to take the autonomous route of Japan, the Republic of Korea or Taiwan Province of China. It is much easier for countries to attract particular segments of TNC activity and build upon that rather than to develop local capabilities to match those of affiliates. In any case, local firms would find it extremely hard to enter export markets in a major way, emulating the earlier example of OEM contractors from the Republic of Korea and Taiwan

Province of China. All the later entrants into globalized systems, from Malaysia and Thailand to Mexico and Costa Rica, have gone the FDI route. As FDI regimes are more liberal today, TNCs are less willing to part with technologies to independent firms that might become competitors.

In sum, *globalization does not do away with the need for all selective industrial policies*; it only reduces the scope and raises the potential cost of some. FDI is not, as noted, a replacement for local enterprises or capabilities – after a certain level of development the two are complementary. Strong local capabilities raise the possibility of attracting high value systems and of capturing skill and technology spillovers from them; these capabilities need selective policies. Moreover, attracting export-oriented FDI increasingly requires selective promotion and targeting. The most effective targeting is now undertaken by investment promotion agencies in advanced economies (Loewendahl, 2001).

But there is a more fundamental issue: how far *can* globalized production systems spread across the developing world and how much do they *realistically offer* to industrial development in many poor, low capability countries? After all, fragmented production is characteristic of only some industries in which production processes can be readily separated in technological and geographical terms, and where differences in labour cost significantly affect the location of each process. In low technology industry, it is strong in clothing, footwear, sports goods and toys; in high technology industry, it is strong in electronics; in medium technology industry, it is strong in automobiles but the weight of the product and its high basic capability requirements mean that it only goes to a few proximate, relatively industrialized locations. This leaves a broad range of industries in which FDI and exports are not driven by global production systems.

Where such systems exist, they are likely to continue relocating to lower wage countries in only some activities. Low technology industries are the best candidates because of low entry requirements, but here the abolition of the Agreement on Textiles and Clothing (formerly the Multi-Fibre Arrangement) next year raises the risk that garment production will shift back to East Asia rather than spread further to poor countries. However, wages are rising rapidly in the Chinese coastal areas that provide the bulk of garment exports, and infrastructure in the interior is still poor. Major new export platforms may be located in other countries, like Viet Nam or Cambodia and South Asia, and Chinese enterprises may themselves become outward investors to find the most economical sites. How far they will encompass least developed countries in Africa or medium income ones in LAC or MENA is difficult to say. It is indicative that other labour-intensive systems that do not have trade quotas driving location – footwear, toys and the like – have not looked for production bases in these regions.

In high technology production systems like electronics the picture is different. Entry levels are higher than in the late 1960s when the industry first sought cheap labour in South-East Asia. Production techniques have advanced and grown more capital intensive. Manufacturing systems have "settled down" in their new locations, with established facilities, logistics, infrastructure and support institutions. If these systems grow, they are likely to cluster around established sites rather than spread to new, less-developed ones. Entry by newcomers *is* possible, of course: China is the obvious case – but most poor countries lack the industrial capability, size, location and other advantages of China. And most cannot use selective industrial policy to attract hi-tech FDI and induce it to source local inputs and skills in the way that China still does (and is likely to continue doing after WTO rules come into play). The prospects of complex global production systems spreading to most of Africa, LAC, South Asia or MENA are fairly dim. So far only South Africa, India and Morocco seem to offer some potential.

It is possible that systems will emerge in other industries to catalyze the growth of FDI-driven production in new sites. As far as poor countries go, these are likely to be in resource-based activities. However, these are likely to be fairly demanding in terms of skills, technology and infrastructure. Given the advantages of clustering in locations with established capabilities, new systems are likely to congregate in successful countries rather than to poorer ones without a good industrial base.[26] This chicken and egg problem can only be resolved by selective policy to build the base. Industrialization in the developing world continues to face many of the same constraints that it did before integrated systems. The need to foster the development of local capabilities remains the "bottom line" and globalization offers an alternative route only in some activities, to some countries and even to these only for some time.

A. The desirable, the practical and the permissible

The new formal rules of the game under WTO aegis do not prohibit all selective interventions, only those that affect trade. However, there are other forces making for liberalization that are not formal and rule-based: structural adjustment programmes, bilateral trade and investment agreements and pressures by rich countries. Taken together, these constitute a formidable web of constraints on the ability of governments to mount industrial policy. As noted at the start, constraints may be useful. They may prevent the more egregious forms of intervention that led in the past to inefficiency, rent-seeking and technological sloth. They are also beneficial to countries that have already developed strong capabilities behind protective barriers and should exploit them in competitive production: countries like Brazil, China or India should accelerate liberalization, if they can combine this with a strategy to restructure activities and enter promising new activities.

At this time, the main forms of selectivity permitted pertain to skill formation, technology support, innovation financing, FDI promotion and targeting, infrastructure development for IT, and all general subsidies that do not affect trade performance. These tools – and some not in line with the spirit of the rules (United States tariff protection on steel, for instance) – are all used vigorously by the industrialized countries. Most semi-industrial countries also use them, but the less-developed countries generally do not (on weaknesses in technology support in SSA, for instance, see Lall and Pietrobelli, 2002).

The critical issues facing the development community in industrialization are: *Is the degree of policy freedom left to developing countries sufficient to promote healthy industrial development?*[27] *If East Asia offers lessons for industrial policy, will the new environment allow them to be implemented? Without strong policy intervention, will persistence with liberalization suffice to drive industrialization?*

The answer to all these questions is "probably not". The permissible tools are probably not enough to foster the rapid and achievable development of technological capabilities. They will force poor countries with weak local industrial bases to become over-dependent on FDI to drive industrial and capability development. This cannot, for the reasons given, meet a major part of the needs of sustainable industrialization. Even countries fortunate enough to plug into some global production systems can only do so as providers of the low-level labour services; subsequent deepening may be held back by constrictions on selective capability development. For developing countries that have a capability base the rules can deter strategic diversification into new technologies and activities. They can prevent newly industrializing economies from diversifying into advanced activities where entry is particularly risky and costly.

In general, the rules and pressures for liberalization threaten to *freeze comparative advantage* in areas where capabilities exist at the time of liberalization, yielding a relatively short period of competitive growth before the stock is "used up". Subsequent upgrading of competitiveness is likely to be slower than if Governments had the tools to intervene selectively. Returning to the East Asia/LAC comparison, the current policy regime is likely to prevent most of Latin America from emulating the growth and dynamism of the Tigers. And other developing regions are likely to fare even worse if they accept the rules and renounce all policy in favour of market-driven allocation.

While local capabilities matter more than ever in an era of globalization, this does *not* mean that all developing countries try to replicate the selective policies used by Tigers like Singapore, the Republic of Korea or Taiwan Province of China. What it means is drawing lessons on selectivity from their experience and adapting them to local needs and circumstances. This should be done in the following stages:

- The *first* stage of a desirable international policy regime would be to provide policy makers with an objective and detailed analysis of what successful countries did to build industrial capabilities. This is not the case today; on the contrary, the system denies that industrial policy has any role to play.

- The *second* stage would be to create greater policy space for industrial policy. The move to wholesale liberalization has great momentum, but rules are man-made and can easily be reversed if a consensus exists. Yet, despite all the public breast-beating about growing poverty, marginalization, Millennium Development Goals

and the like, the assumption on which international development is based is that the industrial sector will develop best under the new rules – only further liberalization is necessary.

- The *third* stage would be to help develop the capability to mount industrial policy. The final recourse of the neoliberal, when confronted with the unanswerable theoretical case for selective interventions, is that it is impossible for governments to design and implement them. But there is a large body of case material showing that such interventions *can* work (and that neoliberal solutions do not): government failure is, in other words, not inevitable. What is needed as an integral part of industrial policy is the building of the administrative competence, information and insulation that governments need. That government capabilities and governance can be strengthened is not in doubt (if it is, there would be no scope for any kind of development policy).

- The *fourth* stage would be to help devise strategies appropriate to each country. Creating more policy space and strengthening government capabilities should not mean returning to the bad old days of import substitution. It should be used for careful and flexible policy making, with clear targets and checks aimed at specific forms of technology development. This would be the most difficult step, since it requires the rich countries not only to admit that industrial policy has a role and to allow poor countries to use such policy but to actively help them in designing and implementing it.

If this seems a forlorn hope at this time, consider the alternative of persisting with wholesale liberalization. This would support the strong and penalize the weak, on the assumption that globalization will by itself be sufficient to catalyze industrial development. This does not appear very promising. And there is enough evidence that well-used industrial policy can transform economic prospects. The development community has to accept this, provide the "space" for such policy and help countries to mount such policy, not deny its usefulness and practicability.

Notes

1 For an interchange based on this recommendation see Wood (ed.) (2003). Rodrik (2001) raises similar issues.

2 For a description of the categories and the rationale behind the classification see Lall (2001a).

3 The international fragmentation of value chains has, for economic reasons, gone furthest in activities with discrete and separable production processes and high value products. Electronics is the best example, placing production in several countries, each site specializing in a process or function according to its labour costs, skills, logistics and so on (Sturgeon, 2002). The segmentation of software, business process services and other IT based activities like call centres is another manifestation of this phenomenon outside manufacturing. Fragmentation goes beyond the spread of transnational companies (TNCs). It encompasses the closer integration of national value chains under several governance systems, with direct ownership by TNCs being at one end and loose buying relationships at the other (Gereffi *et al*., 2001; Humphrey and Schmitz, 2001).

4 No new protection can be offered to products for which members have "bound" their tariffs, though if actual tariffs are lower than bound tariffs they can be raised. Export processing zones may come under the purview of the subsidies ban in the future (LDCs are exempt so far).

5 General subsidies that do not create a cost advantage for identifiable activities may not be actionable. Only subsidies given to particular activities or locations that create such an advantage are subject to potential sanctions.

6 Local content rules are actionable if there are specific subsidies or incentives linked to achieving the prescribed levels. All countries, regardless of income levels, are now subject to this restriction.

7 For a comprehensive analysis see UNCTAD (2003).

8 The WTO Agreement on Subsidies and Countervailing Duties may also affect traditional means of supporting technological activity by subsidies. Although the Agreement excludes "fundamental research" from its actionable provisions (i.e. Governments may still subsidize research), the text leaves scope for interpreting what the limits of this are. In any case, R&D now comes under WTO scrutiny, and subsidies for research deemed non-fundamental could be limited in the future.

9 As is now well known, most East Asian economies used infant industry protection, export subsidies and targets, credit allocation and direction, local content rules and so on to build their base of industrial capabilities, disciplining the process by strong export orientation (Amsden, 1989; Stiglitz, 1996; Wade, 1990; Westphal, 2002; World Bank, 1993). There were different strategies within this general approach. The leading Tiger economies like Singapore, the Republic of Korea and Taiwan Province of China invested massively in human capital (particularly technical skills), fostered local R&D and built strong support institutions (Lall, 1996 and 2001a). They tapped FDI in different ways, Singapore by plugging into global production systems and the other two by drawing on its technologies via arm's length means like licensing, copying and original equipment manufacturing. The second wave of Tiger economies like Malaysia, Thailand, Indonesia and Philippines relied more heavily on FDI in export processing enclaves and less on building indigenous capabilities; their export success was thus largely driven by global value chains, particularly in electronics. China has a blend of different strategies, some similar to its neighbours and others, like public enterprise restructuring, uniquely its own (Lall and Albaladejo, 2003). The region as a whole liberalized cautiously and has retained a significant role for the state. As Stiglitz says in a special contribution to the new *Human Development Report*, "China and other East Asian economies have not followed the Washington consensus. They were slow to remove tariff barriers, and China still has not fully liberalised its capital account. Though the countries of East Asia "globalized", they used industrial and trade policies to promote exports and global technology transfers, against the advice of the international economic institutions" (UNDP, 2003: 80). Also see Rodrik (2001).

10 In the first phase, LAC, in common with most other developing regions, relied heavily on protected import-substitution, sheltering enterprises from international competition but failing to offset this with incentives or pressures to export. It did little to attract export-oriented FDI (in EPZs) and so missed the surge in global production systems in electronics. It did not deepen local technological activity (by encouraging R&D) or develop the new skills needed for emerging technologies. In concert with widespread macroeconomic (and in some cases political) turbulence, this meant that LAC failed to develop a broad base of industrial capabilities that would drive competitiveness as it liberalized. As a comparatively high wage region, LAC needed competitive advantages in complex activities to offset labour cost disadvantage *vis a vis* Asia. Despite its tradition of entrepreneurship and good initial base of skills, its industrial strategy failed to foster the necessary capabilities. There were exceptions, such as the automotive industry in the larger economies and resource-based activities more generally. But many such activities were not growing rapidly in world trade and, as shown below, LAC failed to increase its export market shares rapidly – the outstanding exception being Mexico, but due more to NAFTA privileges than to strategy.

11 In the second (liberalization) phase, policy reform in LAC was rapid and sweeping, with no strategy to foster competitive capabilities and target promising activities. Again, there were exceptions, including the auto industry (restructured with the help of complementation programmes, banned under new WTO rules), agro-based exports in Chile or national export "champions" like Embraer in Brazil, but the general lack of strategy on industrial competitiveness meant that the region failed to catalyze export dynamism. Its main growth was in resource-based sectors where it was largely exploiting static comparative advantages Some other developing regions that also used import substitution strategies liberalized more slowly and carefully – India is a good example – and did better in terms of MVA growth (but almost as poorly in terms of export competitiveness).

12 China now poses a major competitive threat to Mexico in textiles and electronics. Mexican figures suggest the loss of over 200,000 jobs to China since 2001. See *The Economist* (2003) and *The International Herald Tribune* (2003).

13 This is as true of endogenous growth models – grounded in technical change – as it is of traditional models. En-

dogenous models focus on frontier innovation (the creation of new knowledge) rather than on using existing knowledge, and so simply assume that developing countries do best by opening themselves to inflows of information embodied in trade and investment. Access to new technology becomes equivalent to its effective use. The policy implications of the models that follow from externalities, increasing returns and non-appropriability in innovation apply only to advanced countries; the development implications, in so far as they are mentioned, are the same as in standard neoclassical analyses.

14 The objections to the strong neoliberal position came from such authors as Amsden (1989), Lall (1992), Pack and Westphal (1986), Wade (1990) and Westphal (1982 and 1990).

15 The strong neoliberal stance was that *no* markets failed and that there was no role for the government apart from providing basic public goods and a stable setting for market driven activity. For a critique of the World Bank (1993) publication see Lall (1996) and for a recent restatement of the moderate neoclassical position see Noland and Pack (2003).

16 Neoclassical economists admit the possibility of market failure arising from such textbook cases as monopoly, public goods and some externalities, although they tend to treat failures as special cases rather than the rule. The market failures that may call for selective interventions are capital market deficiencies, scale economies and externalities arising from the imperfect appropriability of investments in knowledge, technology, and skills. However, the admission that these theoretical possibilities exist does not translate into recommendations that government actually mount selective policies to overcome them (as in the World Bank, 1993). Moreover, the neglect of firm-level learning processes (below) means that the list of market failures remains incomplete – the most critical ones for developing countries are ignored. For a longer discussion see Lall and Teubal (1998).

17 Wade, in the introduction to the forthcoming new edition of his path-breaking book of industrial policy in Taiwan Province of China, *Governing the Market,* says*:* "The remarkable thing about the core Washington Consensus package is the gulf between the confidence with which it is promulgated and the strength of supporting evidence, historical or contemporary. There is virtually no good evidence that the creation of efficient, rent-free markets coupled with efficient, corruption-free public sectors is even close to being a necessary or sufficient condition for a dynamic capitalist economy. Almost all now-developed countries went through stages of industrial assistance policy before the capabilities of their firms reached the point where a policy of (more or less) free trade was declared to be in the national interest. Britain was protectionist when it was trying to catch up with Holland. Germany was protectionist when trying to catch up with Britain. The United States was protectionist when trying to catch up with Britain and Germany, right up to the end of the World War II. Japan was protectionist for most of the twentieth century up to the 1970s, Korea and Taiwan to the 1990s. Hong Kong and Singapore are the great exceptions on the trade front, in that they did have free trade and they did catch up – but they are city-states and not to be treated as economic countries. In Europe some countries abutting fast-growing centres of accumulation were also exceptions, thanks to the "ink blot" effect. But by and large, countries that have caught up with the club of wealthy industrial countries have tended to follow the prescription of Friedrich List, the German catch-up theorist writing in the 1840s: "In order to allow freedom of trade to operate naturally, the less advanced nation [read: Germany] must first be raised by artificial measures to that stage of cultivation to which the English nation has been artificially elevated" (Wade, 2003). For a longer historical perspective see Reinert (1995).

18 See Lall (1992, 1996, 2001), Westphal (2002), UNIDO (2002).

19 In his analysis of East Asian success Stiglitz (1996) argues that "… whenever information was imperfect or markets were incomplete, government could devise interventions that filled in for these interventions and that could make everyone better off. *Because information was never perfect and markets never complete, these results completely undermined the standard theoretical basis for relying on the market mechanism.* Similarly the standard models ignored changes in technology; for a variety of reasons markets may under-invest in research and development … Because developing economies have underdeveloped (missing) markets and imperfect information and because the development process is associated with acquiring new technology (new information), these reservations about the adequacy of market mechanisms may be particularly relevant to developing countries". P. 156, emphasis added.

20 See the contributions by Wade and Lall in Wood (ed.) (2003).

21 On the case for infant industry protection, John Stuart Mill, the most powerful advocate of free trade in classical economic thought, says: "The only case in which, on mere principles of political economy, protecting duties can be defensible, is when they are imposed temporarily (especially in a young and rising nation) in the hopes of naturalising a foreign industry, in itself perfectly suitable to the circumstances of the country. The superiority of one country over another in a branch of production often arises only from having begun it sooner. There may be no inherent advantage on one part, or disadvantage in another, but only a *present superiority of acquired skill and experience* ... But it cannot be expected that individuals should, at their own risk, or rather to their certain loss, introduce a new manufacture, and bear the burden of carrying on until the producers have been educated to the level of those with whom the processes are traditional. *A protective duty, continued for a reasonable time, might sometimes be the least inconvenient mode in which the nation can tax itself for the support of such an experiment.* But it is essential that the protection should be confined to cases in which there is good ground for assurance that the industry which it fosters will after a time be able to dispense with it; nor should the domestic producers ever be allowed to expect that it will be continued to them beyond the time necessary for a fair trial of what they are capable of accomplishing" Mill (1940: 922), italics added. The 19th century saw intense debates, particularly in the United States, on the need for infant industry protection, and most early industrializing countries used the tool extensively.

22 On the selectivity of education and training policies in East Asia, and their intimate relationship to industrial

policy more narrowly defined, see Ashton *et al.* (1999). Also see Narula (2003).

23 TNCs also have to undergo costly capability development in new locations but the costs are generally lower for them. They know how to go about building capabilities, have "deeper pockets", more information and better training resources. If a developing host country engages only in simple assembly operations, TNCs may be able to achieve competitive production without protection because the learning period is short and relatively predictable. However, deepening and diversification into more advanced activities or functions may need government support to improve the quality of local factors and suppliers and to induce TNCs to transfer these activities and functions. This may not involve protection if the local workforce is sufficiently skilled – the Singapore story. However, Singapore had to use a battery of selective interventions to attract and target TNCs and provide them with the factor inputs, infrastructure and incentives needed to force the pace of upgrading. FDI may reduce the need for interventions for capability building but cannot remove it altogether. Once countries move beyond simple processing, they have to provide the factors that allow TNCs to undertake complex functions efficiently.

24 There was no "super-bureaucracy" in East Asia, and the process of building administrative competence was slow and halting. It often focused on the critical operational parts of the Government rather than covering the whole apparatus. Thus, there are important transferable lessons on improving government capabilities from the Tigers – it is difficult to argue that their ability to mount industrial policy was unique and unrepeatable. See Evans (1998) and Cheng *et al.* (1998).

25 As Lall and Teubal (1998: 1381) note, "Technology policy is an art rather than a science (there is an irreducible element of judgement), given the characteristics of technological development and the uncertainty inherent in any choice. Frequently, any one of several choices can work: what is important is not to identify the unique 'equilibrium' but to assemble a smaller set of 'reasonable' choices and implement them comprehensively and systematically. Since mistakes are inevitable (as with firms), the government has to be flexible and responsive to evolving characteristics – policy has to allow for its own *learning and adjustment*". Moreover, "Successful technology policy has to be *systemic*. A technology development programme has to be dovetailed with the improvement of the education and training systems, as well as with the provision of technology support and capital. When the supporting system is incomplete and leads to high learning costs, firms in priority areas have to be helped to bear those costs, for instance by giving temporary protection against import competition … It is possible to *target entire categories of nuclei* for promotion, such as clusters or sectors or generic technologies. An example may be Japanese promotion of products with high income elasticities of demand" (*ibid*).

26 Outside manufacturing, IT based services offer different prospects. Software, data entry, call centres and the like can in theory be located in any country regardless of its industrial base. However, so far the main IT service exporters in the developing world have been relatively industrialized, and the learning base for complex activities like software has been domestic industry. Agglomeration forces are also very strong, and it remains to be seen whether liberal policies will suffice to spread IT activities over the developing world. At the very least, targeted skill creation, infrastructure development and FDI promotion policies would seem to be essential.

27 What is "sufficient" is of course largely subjective. Some may consider it "sufficient" that poor countries do not industrialize and stay specialized in primary activities: market fundamentalism sanctifies market-determined outcomes, and any deviation from these, even if it leads to faster growth, is by definition wrong, unhealthy or distorting. Others may consider it "sufficient" if countries are able to raise industrial and manufactured export growth to, say, 5 per cent over an extended period, and still others may set the benchmark at the record of East Asia. The precise objective does not matter as much as the acceptance that industrial development has to be accelerated and that needs policy intervention.

References

Amsden A (1989). *Asia's Next Giant*. Oxford: Oxford University Press.

Ashton D, Green F, James D and Sung J (1999). *Education and Training for Development in East Asia*. London: Routledge.

Best M (2001). *The New Competitive Advantage*. Oxford: Oxford University Press.

Chang HJ (2002). *Kicking Away the Ladder*. London: Anthem Press.

Cheng TJ, Haggard S and Kang D (1998). Institutions and growth in Korea and Taiwan: the bureaucracy. *Journal of Development Studies*, 34(6): 87–111.

Economist, The (2003). Mexico's economy: The sucking sound from the east. London, 24 July.

Evans P (1998). Transferable lessons? Re-examining the institutional prerequisites of East Asian economic policies. *Journal of Development Studies*, 34(6): 66–86.

Gereffi G, Humphrey J, Kaplinsky R and Sturgeon TJ (2001). Introduction: Globalisation, value chains and development. *IDS Bulletin*, Institute of Development Studies, Sussex, 32(2): 1–8.

International Herald Tribune (2003). Mexico manufacturers lose business to China. Paris, 3 September.

Lall S (1992). Technological capabilities and industrialization. *World Development*, 20(2): 165–186.

Lall S (1996). *Learning from the Asian Tigers*. London: Macmillan.

Lall S (2001a). *Competitiveness, Technology and Skills*. Cheltenham: Edward Elgar.

Lall S (2001b). Competitiveness indices and developing countries: an economic evaluation of the Global Competitiveness Report. *World Development*, 29(9): 1501–1525.

Lall S (2003). Indicators of the relative importance of IPRs in developing countries. *Research Policy*, 32.

Lall S and Albaladejo M (2003). China's export surge: the competitive implications for Southeast Asia. Oxford: Queen Elizabeth House, report for the World Bank East Asia department.

Lall S and Pietrobelli C (2002). *Failing to Compete: Technology development and technology systems in Africa.* Cheltenham: Edward Elgar.

Lall S and Teubal M (1998). 'Market stimulating' technology policies in developing countries: a framework with examples from East Asia. *World Development*, 26(8): 1369–1385.

Loewendahl H (2001). A framework for FDI promotion. *Transnational Corporations*, 10(1): 1–42.

Mathews JA (2001). The origins and dynamics of Taiwan's R&D consortia. *Research Policy*, 30.

Mathews JA and Cho DS (1999). *Tiger Technology: The Creation of a Semiconductor Industry in East Asia*. Cambridge: Cambridge University Press.

Mill JS (1940). *Principles of Political Economy* (First published 1848). London: Longmans Green.

Narula R (2003). *Globalization and Technology*. Cambridge: Polity Press.

Nelson RR and Winter SJ (1982). *An Evolutionary Theory of Economic Change*. Cambridge (MA): Harvard University Press.

Noland M and Pack H (2003). *Industrial Policy in an Era of Globalization: Lessons from Asia*. Washington, DC: Institute for International Economics.

Pack H and Westphal LE (1986). Industrial strategy and technological change: theory versus reality. *Journal of Development Economics*, 22(1): 87–128.

Radosevic S (1999). *International Technology Transfer and Catch-Up in Economic Development*. Cheltenham: Edward Elgar.

Reinert E (1995). Competitiveness and its predecessors – a 500 year cross-national perspective. *Structural Change and Economics Dynamics,* 6: 23–42.

Rhee Y, Ross-Larson B and Pursell G (1984). *Korea's Competitive Edge*. Baltimore: Johns Hopkins.

Rodrik D (2001). The Global Governance Of Trade As If Development Really Mattered. Background paper for UNDP, April. http://ksghome.harvard.edu/~.drodrik.academic.ksg/papers.html

Stiglitz JE (1996). Some Lessons from the East Asian Miracle. *The World Bank Research Observer*, 11(2): 151–177.

Sturgeon TJ (2002). Modular production networks: a new American model of industrial organization? *Industrial and Corporate Change*, 11(3).

UNCTAD (1996). *The TRIPS Agreement and Developing Countries*. Geneva, United Nations.

UNCTAD (1999). *World Investment Report 1999*. Geneva: United Nations.

UNCTAD (2002). *World Investment Report 2002*. Geneva: United Nations.

UNCTAD (2003). *World Investment Report 2003*. Geneva: United Nations.

UNDP (2003). *Human Development Report 2003*. New York: United Nations.

UNIDO (2002). *Industrial Development Report 2002/2003*. Vienna: United Nations.

Wade RH (1990). *Governing the Market*. Princeton: Princeton University Press.

Wade RH (2000). Wheels within Wheels: Rethinking the Asian Crisis and the Asian Model. *Annual Review of Political Science 3*.

Wade RH (2003). Creating capitalisms. Introduction to new edition of *Governing the Market*. Princeton: Princeton University Press.

Westphal L (2002). Technology strategies for economic development in a fast changing global economy. *Economics of Innovation and New Technology*, 11: 275–320.

Westphal LE (1990). Industrial policy in an export-propelled economy: lessons from South Korea's experience. *Journal of Economic Perspectives,* 4(3): 41–59.

Westphal LE (1997). Government-business relations: experience of the Republic of Korea. Background note prepared for UNCTAD Expert Group Meeting.

Westphal LE (1982). Fostering technological mastery by means of selective infant-industry protection. In: Syrquin M and Teitel S (eds.), *Trade, Stability, Technology, and Equity in Latin America*. New York: Academic Press: 255–279.

Wong PK (2003). From using to creating technology: the evolution of Singapore's national innovation system and the changing role of public policy. In: Lall S and Urata S (eds.), *Competitiveness, FDI and technological activity in East Asia*. Cheltenham: Edward Elgar: 191–238.

Wood A (ed.) (2003). Symposium on infant industries. *Oxford Development Studies*, 31(1): 3–20, with contributions by J. Roberts, R. Wade and S. Lall.

World Bank (1993). *The East Asian Miracle*. Oxford: Oxford University Press.

WTO (1998). *World Trade Organization, Annual Report 1998*. Geneva: World Trade Organization.

Zedillo Commission (2001). Report of the high-level panel on financing for development. For the Monterrey Conference, at www.un.org/reports/financing/full_report.pdf.

G-24 Discussion Paper Series*

Research papers for the Intergovernmental Group of Twenty-Four on International Monetary Affairs

No. 27	March 2004	Gerald EPSTEIN, Ilene GRABEL and JOMO, K.S.	Capital Management Techniques in Developing Countries: An Assessment of Experiences from the 1990s and Lessons for the Future
No. 26	March 2004	Claudio M. LOSER	External Debt Sustainability: Guidelines for Low- and Middle-income Countries
No. 25	January 2004	Irfan ul HAQUE	Commodities under Neoliberalism: The Case of Cocoa
No. 24	December 2003	Aziz Ali MOHAMMED	Burden Sharing at the IMF
No. 23	November 2003	Mari PANGESTU	The Indonesian Bank Crisis and Restructuring: Lessons and Implications for other Developing Countries
No. 22	August 2003	Ariel BUIRA	An Analysis of IMF Conditionality
No. 21	April 2003	Jim LEVINSOHN	The World Bank's Poverty Reduction Strategy Paper Approach: Good Marketing or Good Policy?
No. 20	February 2003	Devesh KAPUR	Do As I Say Not As I Do: A Critique of G-7 Proposals on Reforming the Multilateral Development Banks
No. 19	December 2002	Ravi KANBUR	International Financial Institutions and International Public Goods: Operational Implications for the World Bank
No. 18	September 2002	Ajit SINGH	Competition and Competition Policy in Emerging Markets: International and Developmental Dimensions
No. 17	April 2002	F. LÓPEZ-DE-SILANES	The Politics of Legal Reform
No. 16	January 2002	Gerardo ESQUIVEL and Felipe LARRAÍN B.	The Impact of G-3 Exchange Rate Volatility on Developing Countries
No. 15	December 2001	Peter EVANS and Martha FINNEMORE	Organizational Reform and the Expansion of the South's Voice at the Fund
No. 14	September 2001	Charles WYPLOSZ	How Risky is Financial Liberalization in the Developing Countries?
No. 13	July 2001	José Antonio OCAMPO	Recasting the International Financial Agenda
No. 12	July 2001	Yung Chul PARK and Yunjong WANG	Reform of the International Financial System and Institutions in Light of the Asian Financial Crisis
No. 11	April 2001	Aziz Ali MOHAMMED	The Future Role of the International Monetary Fund
No. 10	March 2001	JOMO K.S.	Growth After the Asian Crisis: What Remains of the East Asian Model?

/...

G-24 Discussion Paper Series*

Research papers for the Intergovernmental Group of Twenty-Four on International Monetary Affairs

No. 9	February 2001	Gordon H. HANSON	Should Countries Promote Foreign Direct Investment?
No. 8	January 2001	Ilan GOLDFAJN and Gino OLIVARES	Can Flexible Exchange Rates Still "Work" in Financially Open Economies?
No. 7	December 2000	Andrew CORNFORD	Commentary on the Financial Stability Forum's Report of the Working Group on Capital Flows
No. 6	August 2000	Devesh KAPUR and Richard WEBB	Governance-related Conditionalities of the International Financial Institutions
No. 5	June 2000	Andrés VELASCO	Exchange-rate Policies for Developing Countries: What Have We Learned? What Do We Still Not Know?
No. 4	June 2000	Katharina PISTOR	The Standardization of Law and Its Effect on Developing Economies
No. 3	May 2000	Andrew CORNFORD	The Basle Committee's Proposals for Revised Capital Standards: Rationale, Design and Possible Incidence
No. 2	May 2000	T. Ademola OYEJIDE	Interests and Options of Developing and Least-developed Countries in a New Round of Multilateral Trade Negotiations
No. 1	March 2000	Arvind PANAGARIYA	The Millennium Round and Developing Countries: Negotiating Strategies and Areas of Benefits

* ***G-24 Discussion Paper Series*** are available on the website at: **www.unctad.org**. Copies of ***G-24 Discussion Paper Series*** may be obtained from the Publications Assistant, Macroeconomic and Development Policies Branch, Division on Globalization and Development Strategies, United Nations Conference on Trade and Development (UNCTAD), Palais des Nations, CH-1211 Geneva 10, Switzerland; e-mail: **mdpb-ed.assistant@unctad.org**.