

## **Foreign Direct Investment and Technological Capabilities: The Relevance of the East Asian Experience for Pakistan**

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### **Abstract**

*This paper makes the case for a vigorous policy thrust to support investment-led growth. Pakistan's economy has not maintained a sufficient level of capital formation to sustain growth over the long term. Two thirds of current growth is driven by consumption and not investment: this needs to be turned around. The government needs to put in place an investment regime that motivates and induces industry to invest, innovate, and reinvest. Foreign direct investment can play an important role in strengthening the country's investment rates. There is also need for deliberate policies to boost technological capabilities in the enterprise sector. In this context, East Asia – which successfully created a dynamic process of capital formation and technological learning that upgraded its productive capacity and underpinned export success – holds important lessons for Pakistan.*

**Keywords:** Investment, technology, industry, Pakistan.

**JEL classification:** F21, O38, O53.

### **1. Introduction**

The 600-page primer of the Lahore School of Economics, *Pakistan: Moving the economy forward*, contains a wealth of analyses and insights that should nurture a new generation of homegrown economic policymakers. One of these insights is that Pakistan's economy is growing, but not necessarily advancing, in the global economy. On the one hand, it is reassuring to note that economic activity has remained resilient over the last 50 years—with GDP growing at 5.2 percent annually—in spite of frequent setbacks, shocks, and missed opportunities (Hasan, 2013, p. 25). On the other hand, it is disconcerting that growth has not been sustained. This sputtering growth has handicapped Pakistan's efforts to keep pace with other developing countries of comparable economic strength.

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In recent years (2009–13), some two thirds of the country's economic growth has been driven by consumption and not investment (Pakistan, Ministry of Finance, 2013, pp. 9–10). Growth is, of course, welcome in any form, but investment-led growth can instill a dynamic process of capital formation and technological learning that transforms productive capacity and underpins export success. This growth dynamic—which has not taken hold in Pakistan—is one of the main features of the East Asian experience and is relevant to Pakistan's current economic predicament of prolonging growth spurts into growth spirals (Amjad, 2014).

## 2. The East Asian Experience

Economic growth involves an expansion of output through capital accumulation, factor use, and productivity/efficiency gains according to the available production possibilities. Investment generates income, creates productive capacity, and harnesses technological progress. This can be an arduous process but for developing countries operating inside the world technological frontier, it is a relatively simple matter of "catch-up."

The premise of catch-up is that scarcities at home can be augmented from abroad. The catch-up process operates through capital inflows, technology transfers and knowledge sharing, and trade: the exchange of traditional products for capital- and skill-intensive goods necessary to transform and upgrade productive capacities. Generally, the more backward the economy, the greater potential it has to catch up with the rest of the world. Additionally, the more open the economy, the greater the links through which the catch-up process can operate and, hence, the greater the scope for catching up. At the same time, the larger objective is to catalyze a growth dynamic within the economy. Excessive reliance on external drivers can perpetuate dependencies that stifle the emergence of entrepreneurial and innovative behavior.

Thus, the policy challenge is to manage the catch-up process—the asymmetry of global links, the interaction between foreign and domestic actors, and the national institutions that incentivize economic activity—in a way that the stimulus from abroad uplifts and empowers national capabilities. A passive approach can inculcate a *rentier* attitude on the part of consumers, producers, and the state. With the right policies, however, the catch-up trajectory can seed growth poles, endogenously driven, that eventually take over, shape, and sustain a country's development path.

The East Asian catch-up experience is illustrative (see, for example, MacDonald, 1993; United Nations Conference on Trade and Development [UNCTAD], 1993; Ernst, Ganiatsos, & Mytelka, 1998; Lall & Urata, 2003). In the 1960s, the East Asian economies—the Republic of Korea, Taiwan (China), Malaysia, Singapore, Thailand, and others—were agricultural economies like Pakistan. However, in a relatively short period, these commodity producers were able to achieve high rates of capital accumulation and transform themselves into newly industrialized economies. They altered their structure of exports from primary commodities to manufactures in little more than a decade, and upgraded their export performance to higher-skill manufactures in the following decade.

The East Asian catch-up was driven by investment and technology in a variety of ways. The Republic of Korea fostered technology acquisition by large conglomerates (*chaebols*). Taiwan encouraged small and medium enterprises (SMEs). Both Korean and Taiwanese enterprises relied on technology transfer through original equipment manufacturing arrangements with large transnational corporations (in electronics) to gain technological competence and access to export markets. Singapore supported state enterprises and attracted foreign direct investment (FDI). Malaysia and Thailand also sought technology transfers through FDI (in textiles, electronics, and automotive components).

Whether through FDI, technology licensing, or other arrangements, a common feature was a twofold strategy to (i) import technology from developed countries to create a manufacturing industry and (ii) augment the transfer with an array of complementary activities and measures to facilitate technological learning. These measures ranged from education programs and business services to favorable (fiscal, financial, tariff, and procurement) policies. The effect was to buttress the ability of enterprises to absorb, assimilate, master, and diffuse technology. The process of “learning by doing” and knowledge spillovers increased technological capabilities across industries.

The enlarged capabilities triggered, in turn, additional processes of technological upgrading and international production sharing. As enterprises mastered particular stages of production, they moved up the technology ladder: from low-skill assembly operations to medium-skill component fabrication and up to higher-skill equipment manufacture and product design. In the process, they outsourced lower-level activities to other domestic firms or to companies in neighbouring countries, including China, linked through cross-border production networks and

value chains. Exports were diversified and inter-industry trade expanded rapidly throughout East Asia. From the Republic of Korea and Taiwan emerged global players such as Acer, Daewoo, Hyundai, and Samsung.

In brief—and this is admittedly a cursory summary—the East Asian experience was a pragmatic mix of FDI, technology transfer and capability development, private initiative, public investment, and policy intervention. While the state nurtured leading industrial sectors, industrialization was enterprise-led. It was the enterprises (public or private) that invested and, crucially, reinvested, ensuring that aggregate *ex post* savings were high and used for productive purposes, thereby enlarging industrial capacity, infusing technological progress, and sustaining dynamic growth.

### 3. The Relevance for Pakistan

Pakistan's catch-up strategy was similar to that of East Asia in several respects. The emphasis was on rapid industrialization, based on import substitution by the private sector with capital inflows and technology transfers from abroad. Industrial policy restricted the import of consumer goods; offered to enterprises, on favorable terms, financial credit and foreign exchange for the import of machinery and industrial inputs; and invited joint ventures with foreign companies. Industrial policy also favored agro-based industries. Modernized industrial plants were established for fertilizer production. The textiles industry, built on imported capital-intensive machinery, received raw cotton inputs at favorable prices and became the principal exporter of manufactures. The economy expanded at a comfortable rate, with GDP growing at an annual average of 7.3 percent and manufacturing at 9.9 percent in the 1960s.

However, there were also differences in the growth trajectories of East Asia and Pakistan. The latter's technological progress was driven mainly by the acquisition of capital goods from abroad—in some cases, by importing entire turnkey plants and factory complexes. Investment approvals favored capital-intensive production. Little attention was paid to technological learning—absorption, assimilation, improvement—and the possibilities for innovation and, hence, to the need for reinvestment. Capital accumulation, which had risen steadily in the first half of the 1960s, fell back by the end of the decade: the share in GDP of gross fixed capital formation (GFCF) rose from 11 percent in 1960 to 21 percent in 1965 and then slipped back down to 11 percent in 1973. In contrast, GFCF

more than doubled in the Republic of Korea from 11 percent in 1960 to 24 percent in 1973 (World Bank, 2014).

Consider the case of textiles, a priority industry for Pakistan and the East Asian economies. In Taiwan, companies invested in the production of textiles and then reinvested in new technologies for the manufacture of synthetic fibers and the production of garments. The textiles industry soon fostered an upstream fabrics industry and a downstream apparel industry, intertwined with backward and forward linkages. Support industries, such as light engineering, mushroomed. Pakistan, however, did not feel the push to upgrade to manmade fibers due to the availability of natural cotton fibers. Its expansion into the manufacture of higher value-added apparel was slow: today, Pakistan is still mainly a textiles exporter while its principal competitors (China, Bangladesh, India, Indonesia, and Viet Nam) export mainly garments (Table 1).

**Table 1: Share of garments in textile and clothing exports, 2012**

Country	Percent share
Bangladesh	89
China	62
India	41
Indonesia	61
Pakistan	31
Viet Nam	76

*Source:* <http://unctadstat.unctad.org>

There was also a difference in relations between industry and the government. Although industry and wealth was concentrated in East Asia and in Pakistan, the rich in East Asia were more inclined to invest than the rich in Pakistan. The ratio of capital accumulation to wealth concentration—a measure of the propensity of the rich to spend their income on investment rather than consumption—was a low 14 percent in Pakistan and a high 46 percent in the Republic of Korea in the 1970s. In part, this reflects a difference in investor behavior but it also reveals a difference in policy response. In Pakistan, the government responded by nationalizing private enterprise. In East Asia, governments chose to work with industry to inculcate in people the equivalent of the Protestant ethic (sometimes referred to as the Confucian ethic) and establish a positive nexus between profit and investment such that corporate earnings were largely reinvested.

Would Pakistan now be a newly industrialized country alongside East Asia had it not nationalized its industrial sector? Certainly, the disruption was costly. However, the counterfactual is the textiles industry, which was not nationalized and which did not develop a dynamic profit-investment nexus. Clearly, there is a role for a developmental state to put in place an investment regime that motivates and induces industry to invest, innovate, and reinvest.

The state played a key role in the East Asian development experience, and this included operating state-owned enterprises and even nationalization. The Republic of Korea nationalized banking in the 1960s in order to finance the development of the strategic industries of steel, petrochemicals, and shipbuilding. This strategy has its critics but there is no doubt that the country succeeded in shifting its industrial base from the manufacture and export of apparel to automobiles. The success lay not so much in picking winners but in ensuring that those picked became winners.

Consider the case of steel. Both Pakistan and the Republic of Korea built steel mills at about the same time. Pakistan invited Russia to build a massive turnkey plant in Karachi. The Republic of Korea sourced technology from Japan and Europe to build and expand multiple plants through the 1980s. It invested in human resources and technological innovations, and established institutes of industrial science and technology that developed new techniques for smelting and casting. The country also negotiated long-term contracts with overseas suppliers for the import of iron ore and coal, including joint ventures with Australia, Brazil, and Canada. Meanwhile, the Pakistan Steel Mill took 12 years to build (1973–1985) and, although only half its planned size, it has operated in most years at less than half capacity and been unable to cover operating expenses. In retrospect, perhaps a less ambitious and more determined effort would have been preferable—in 1956, the German company Krupp had proposed building a steel mill to process the coal and iron ore in Kalabagh district. Anyhow, the broader lesson is that the role of the state in setting industrial policy is circumscribed by the adequacy and capacity of institutions to support its implementation.

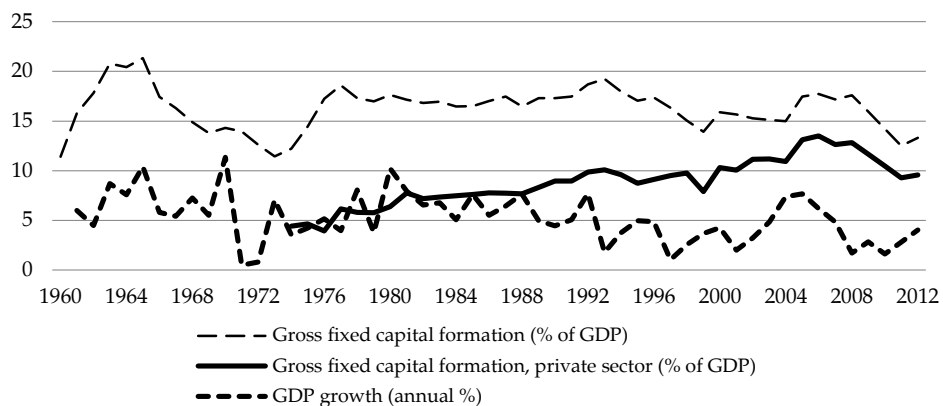
Generally, Pakistan's public enterprises have operated at a loss and been unable to generate sufficient earnings for reinvestment and technological upgrading. The decline of public enterprises suggests an overreach in the 1970s. Since then, the baton of capital accumulation has,

once again, reverted to the private sector: its share has doubled and now accounts for over two thirds of GFCF.

However, a major constraint affecting all industry is the crippling energy shortage that emerged in the 1990s. The energy crisis is a self-inflicted tragedy. It reflects long-term neglect, the weakness of institutions, and a stagnating standoff between vested interests and free riders. Power cuts have escalated from being a nuisance to an endemic problem. Industry now operates at drastically reduced hours, shaving off two percentage points from current growth (Pakistan, Ministry of Finance, 2013, p. 1) and stifling investment for future growth. The economy remains resilient—driven by consumption, remittances, and imports—but the opportunity cost of the energy (and more complex security) problem is that it distracts from the longer-term need to restore the economy to a dynamic growth path.

Looking back at its long-term performance, Pakistan has not been able to maintain a sufficient level of capital formation to sustain economic growth. Sustainability depends on many factors—including policies and institutions, macro-conditions, and the external environment—and capital formation is also a matter of investing in people (e.g., in their education and health). Nevertheless, economic growth is strongly and positively related to GFCF. A cross-country analysis for 1960–2000 suggests that, as a rule of thumb, a GFCF level of 20–25 percent of GDP is the minimum threshold for dynamic growth (UNCTAD, 2003, p. 61). Capital formation in Pakistan has been well below that level for most of its history (Figure 1).

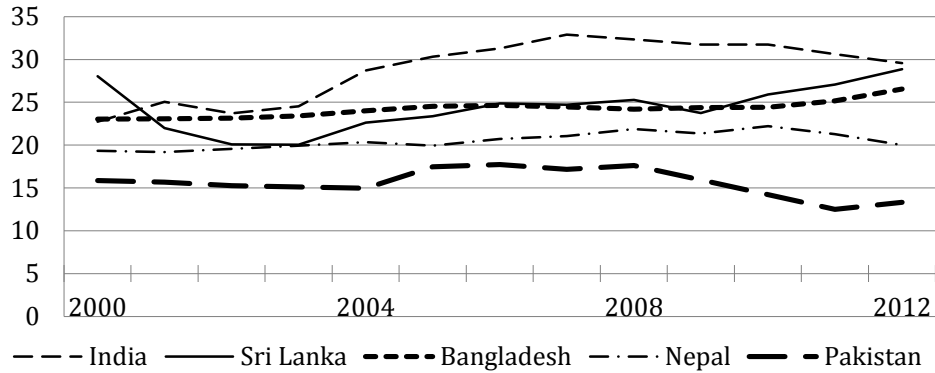
**Figure 1: Capital formation below the threshold for dynamic growth**



*Source:* World Bank, World Development Indicators.

Pakistan's comparative performance is also weak. Its neighbors faced similar constraints but have passed the 20 percent threshold (Figure 2). Pakistan's investment regime has also been less successful in inducing a strong response from its elite in comparison not only to East Asia but also within South Asia (Table 2). The country is, relatively, more of a *rentier* than entrepreneurial economy.

**Figure 2: GFCF in South Asia (percent of GDP)**



Source: World Bank, World Development Indicators.

**Table 2: Propensity of the rich to invest  
(Accumulation/concentration ratio, %)**

Country	1970–79	1980–94	1995–2000
Bangladesh	11	16	34
India	25	28	34
Korea	46	53	70
Malaysia	28	32	41
Pakistan	14	18	22
Thailand	35	46	49

**Note:** The accumulation/concentration ratio is the share of private investment in GDP expressed as a percentage of the share of the richest quintile in total income or consumption.

**Source:** UNCTAD (1997, pp. 164–165; 2003, p. 64).

#### 4. Toward a Dynamic Growth Strategy

To recap, Pakistan, like other developing countries, has pursued a catch-up growth strategy through the acquisition of capital and technology from abroad. Among possible growth paths, it opted for the turnpike, choosing capital-intensive processes and turnkey projects.



While the economy industrialized rapidly, technological progress became embedded in capital accumulation; technological capabilities did not become a secondary driver of capital formation and growth as they did in the East Asian economies, which stressed technological learning. As a consequence, investment has been sluggish, productivity gains in manufacturing have generally not been realized, and industrial upgrading and diversification has lagged behind that of other countries.

In the 1950s, Pakistan's manufacturing sector grew more rapidly than that of any country except Japan (Papanek, 1964, p. 462), but that was then and its present manufacturing output is less than that of even the lower middle-income developing countries. The technological content of this output is considerably lower (Table 3). Paradoxically, the technology bias implicit in Pakistan's initial choice of capital-intensive techniques contributed to the low technological capability of its manufacturing industry (Table 3).

Technological weakness is a particular handicap to engaging in world trade. Textiles, which were a dynamic export in the 1960s, are now a low-technology, low value-added product in a saturated market. The European Union's award of GSP-plus (tariff preference) status provides welcome room for further growth but it is along a downward path. Pakistan will be expanding exports but it will also be falling behind in the global economy. Textiles have served the country well, but it is time for other industries to develop their export potential and contribute to export diversification.

**Table 3: Technological content of manufactures, 2011 (%)**

	Pakistan	Lower middle-income developing countries
Manufacturing value added to GDP	18	24
Of which medium- or high-technology	25	40
Manufactured exports in total exports	81	79
Of which medium- or high-technology	11	55

*Source:* United Nations Industrial Development Organization (2013).

There is need for a vigorous policy thrust to support investment-led growth. Although the scope for macroeconomic stimulus may be limited, there are actions the government can take to bolster investor confidence. FDI can also augment capital formation while easing balance-

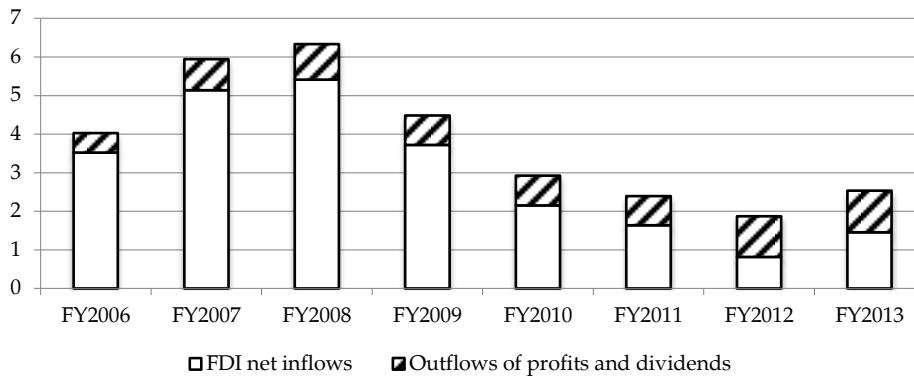
of-payments constraints. However, foreign investment—particularly portfolio but also FDI—is not a panacea because outflows can offset inflows under the open capital account.

#### ***4.1. The Need For a Broader FDI Strategy***

A particular effort is needed to realize the potential contribution of FDI. Not only does it generate capital inflows, it also has wider benefits: FDI can infuse capital accumulation with technology and skills transfer, and expand exports through global production networks. However, these benefits are not automatic. The contrasting experience of East Asia suggests that imported technology can either obsolesce (as in Pakistan) or be absorbed into technological progress and productivity growth (as in East Asia). Foreign investors may either settle for domestic markets (as in Pakistan) or upgrade their activities for world markets (as in East Asia). Pakistan needs to make greater effort to capture these wider benefits.

The government's 2013 investment policy and FDI strategy (2013–17) to increase annual FDI inflows to USD 4 billion by 2017 set a target that is ambitious but not unreasonable. As discussed elsewhere (see Hamdani, 2013), Pakistan has successfully attracted FDI in all sectors in the past, including extractive industries, manufacturing for a growing consumer market, and services (telecommunications and banking). FDI inflows in 2007/08 exceeded USD 5 billion. At present, net FDI inflows are around USD 1 billion—less than half the target for 2014. In the first half of the current fiscal year (July–December 2013), the net inflow of FDI from China was negative (USD –12.6 million) even though it had invested USD 174 million in Nepal in the same period. Clearly, we should be doing better, given the political vision of a Pakistan-China economic corridor.

The weakness of the strategy is not its ambition but its singular focus on attracting FDI. Pakistan's preoccupation with macroeconomic management and the balance of payments emphasizes attracting foreign capital inflows and neglects the need to create an investment environment that is conducive to reinvestment and technological upgrading. Both are important: Pakistan needs to attract FDI and also promote sequential investment. The neglect of sequential investment is apparent in the significant annual outflows of profits and dividends that are reducing the net inflow of FDI (Figure 3). With a credible strategy to encourage reinvestment, FDI inflows would be double their level of the past two years. Without it, the economy is merely filling a leaking tub.

**Figure 3: FDI inflows would double with reinvestment (USD billion)**

*Source:* State Bank of Pakistan.

A comprehensive approach to FDI strategy would require the government to work with existing investors (foreign and domestic) and encourage them to reinvest and upgrade production, train workers, create supplier linkages, and develop exports. It should also strengthen policies and institutions that support the building up of industrial technological capabilities. Without such efforts to increase sequential reinvestment, future outflows of FDI profits will burden the balance of payments.

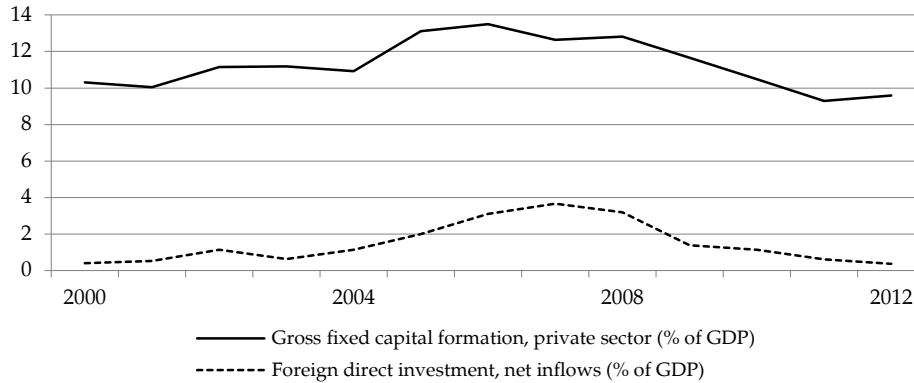
#### **4.2. Bolstering Investor Confidence**

There is a need to bolster investor confidence across the economy. Too often, government efforts to facilitate investment favor foreign over domestic business but, in reality, foreign investors tend to follow the lead of the local private sector (Figure 4). Put differently, it is unrealistic to expect foreign businesses to invest in Pakistan when its own private sector is not investing. The problem of investor confidence must be addressed at home before making overtures abroad.

The government must engage more with the domestic private sector in formulating investment policy and strategy. Over the years, the Pakistan Planning Commission has generated a wealth of analyses, projections, and strategic plans. The Five-Year Plans were serious and laudable efforts for their time. The recent Framework for Economic Growth (see Pakistan, Planning Commission, 2011) was a refreshing diagnostic. Unfortunately, these efforts have fallen short on implementation. Again, the East Asian experience is instructive: planning was less a strategic framework and more a pragmatic exercise undertaken

in consultation with industry, the outcome of which was shared goals and commitments to concrete action on the part of the stakeholders. Pakistan's planning process needs effective consultation and coordination mechanisms, extending beyond the government bureaucracy.

**Figure 4: FDI follows the private sector**



*Source:* World Bank, World Development Indicators.

A credible interface between the government and the actors in the real economy serves two purposes. First, it provides a platform to address broad issues on an economy-wide basis. These include the urgent problems of energy, security, and investor confidence; practical matters of the regulatory barriers that impede entrepreneurship and business; and policy questions relating to pro-growth macroeconomic conditions. To be effective, the exchange must be frequent, not ad hoc, and involve decision makers in the government and industry, including the foreign private sector. High-level, institutionalized consultation has been particularly effective in East Asia.

Second, the interaction between the government and industry needs to proceed at the level of specific industries. A rudimentary SWOT (strengths, weaknesses, opportunities, and threats) analysis would shed light on actions conducive to, say, diversifying and upgrading the textiles and garment industry, raising the export profile of the pharmaceuticals industry (as happened in India), and integrating the affiliates of multinationals (in electronics and motor vehicles) into their global production systems as exemplified in East Asia. There are surely other opportunities too and these are best identified by industry.

FDI should be seen as a component of a larger industrial strategy. Pakistan's natural resources and large consumer market is attractive to

foreign investors. Although they are initially market- and resource-seeking, their activities create links and spillovers that can be enlarged and diffused, diversifying the industrial base and encouraging the growth of SMEs. Successful ventures will generate profits for owners, some of which can be reinvested to expand and upgrade production, including for export. In this way, through sequential investment, market-seeking investment can also become export-oriented.

With appropriate support, industrial transformation can be catalyzed. In other countries, public (federal, provincial, and municipal) officials have successfully worked with existing foreign investors to expand their operations, enter export markets, create business links with SMEs, and provide training and credit to local suppliers. Industrial clusters and science parks have been built in partnership with, and funded by, multinationals. Such experiences should be widely replicated in Pakistan.

Finally, it deserves emphasizing that, while public expenditure can sometimes crowd out private expenditure, public investment generally supports private investment and can even accelerate it in the case of development expenditure in education, health, and infrastructure. The common denominator in the dynamism of the East Asian economies has been their deliberate efforts to build up their technological capabilities through a host of programs aimed at: education and training, particularly in science and technology; enterprise and entrepreneurship development, including credit facilities and support services; and technology diffusion through research institutes, industrial clusters, and business link schemes. These intuitive imperatives are vital components of industrial policy.

To sum up, FDI is more than an external resource inflow. It can also, and more importantly, modernize industry and better integrate Pakistan with international production. Although natural resources and a large internal market are Pakistan's main attractions for FDI, with appropriate policies and a strategy developed in partnership with industry, the country stands to realize significantly wider gains, including in exports.

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