



# Pakistan Policy Note 5

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## Revitalizing Manufacturing

*On a trend decline since 1960, Pakistan's economic growth is highly dependent on financial inflows of aid and worker's remittances. Manufacturing has great potential, though, based on a growing labor force and rising urbanization and connectivity, but its poor performance stems from its largely low-skilled labor force, poor commercial environment, and failure to diversify production and climb up the technology ladder. Manufacturing remains heavily concentrated on nondynamic low value-added consumer products that attract little investment. Though manufacturing is improving these factors, it has room to sharply raise its contribution to GDP while reducing public "bads" of an unemployed labor force, such as social conflict and the need for widespread social assistance. Equally, negative impacts of industrial expansion, such as pollution, need to be mitigated with a combination of economic instruments, public participation, industrial voluntary actions, and command and control regulations. This note discusses ways in which Pakistan can revitalize its manufacturing and promote agglomeration economies, thereby increasing manufacturing's contribution to medium-term growth and to job creation.*

*Like other South Asian countries, Pakistan is experiencing a shift from an agriculture-based to a services-based economy. But South Asia—unlike East Asia where manufacturing has played an increasing role in recent decades on the path to becoming largely middle income—has seen its manufacturing share of GDP stagnate since 1980 in all major economies except Bangladesh. For Pakistan, trends are complicated by declining growth since 1960 and overreliance on financial inflows (aid and worker's remittances).*

*At the same time, a young and largely low-skilled unemployed labor force has also been rising. Part of the solution is for Pakistan to follow in China's footsteps by engaging in low-skilled labor-intensive manufacturing, filling the gap left behind as China moves up the value chain with its increasingly sophisticated labor force and amid pressure from increasing wages. Yet, equally important is to join China in moving up the value chain.*

*Jolting Pakistan's manufacturing into increasing its share of GDP involves a raft of measures. They include improving skills and the commercial environment; harnessing the positive forces of agglomeration (such as focusing on infrastructure investments and facilitating trade); promoting inclusive green industrial growth (by, for example, addressing bottlenecks in supply chains, taking advantage of cleaner industries and certification for exports, and facilitating entry of women in the labor force); and ensuring that regulations are in place and enforced to avoid the negative externalities of agglomeration.*

### **Spatial Transformation, Manufacturing Performance, and Economic Growth**

*Pakistan is in the midst of two key trends that can provide increased manufacturing potential: significant migration to urban areas and the development of "agglomeration" economies. The first is a physical concept, the second an economic one. Urbanization facilitates agglomeration, as face-to-face exchange of information is important in allowing labor and production to learn from each other and to apply technological*

advances. It can also reduce transport costs, as moving goods, people, and ideas becomes cheaper. People may take advantage of agglomeration when different ways to connect and exchange information are available (telecommunications, information technology, and so on). Agglomeration economies also help create internationally connected cities, concentrating production and further facilitating economic growth.<sup>1</sup> These trends combined can have a profound influence on how natural resources and infrastructure are used, which in turn may influence migration, agglomeration, and ultimately the prospects for high-productivity jobs and economic growth (Box 1). But if unchecked, urbanization may backfire due to the public bads associated with it—hence the importance of ensuring that such growth is “green” and inclusive (that is, it takes into account environmental and social issues).

agglomeration, they are important engines of economic growth. Figures 1 and 2 provide snapshots of this relationship in 1960 and 2011. In 1960, Latin America was fairly distant from South Asian and East Asian economies not only in urban population but also GDP per capita. Half a century later, the Republic of Korea and Malaysia are not only as urbanized as Latin American countries but are also richer. Pakistan, however, has not moved up the curve: although one of the most urbanized countries in South Asia, its urbanization and growth pale in comparison with that in other countries. It has been unable to use its urbanization and agglomeration to generate the growth and high-productivity jobs that should come with them. Equally, megacities like Karachi suffer from the public bads of urbanization, like congestion, pollution, and social conflict.

*Countries tend to move up the path of urbanization and economic progress in tandem. As cities catalyze*

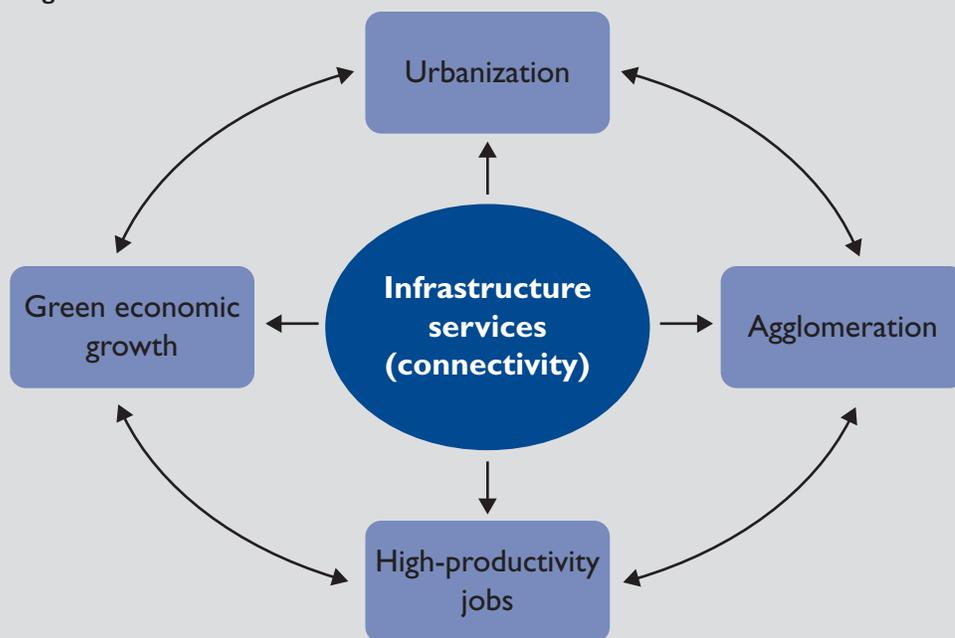
*As an economy develops and urbanizes, the share of agriculture in GDP inevitably declines while that of manufacturing and services rises. This form*

**Box 1 Infrastructure, agglomeration, and urbanization**

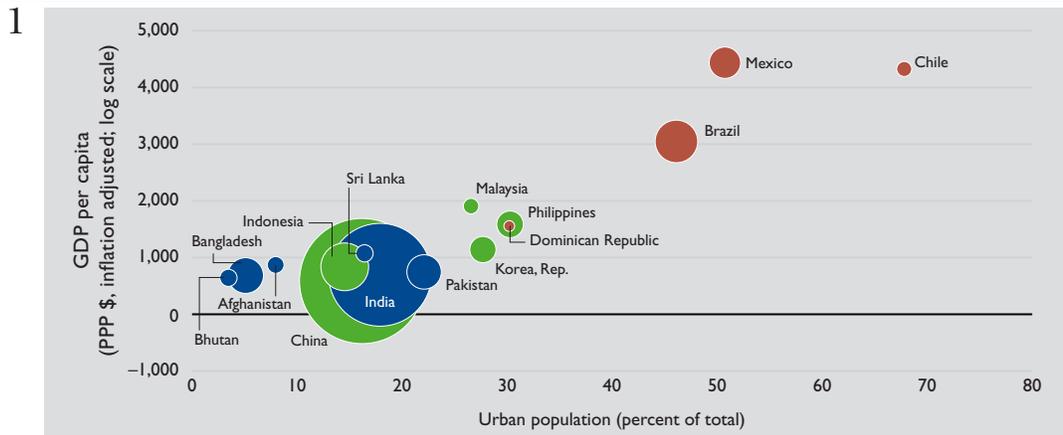
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Rising shares of services and manufacturing in an economy are generally associated with urbanization as the economy increases its sophistication through stronger productivity and growth. The box figure presents a simple conceptual framework of various factors. All influence one another in a virtuous circle, and infrastructure services (connectivity) are inputs to the different quadrants and to the circle as a whole.

**The goal of a virtuous circle**

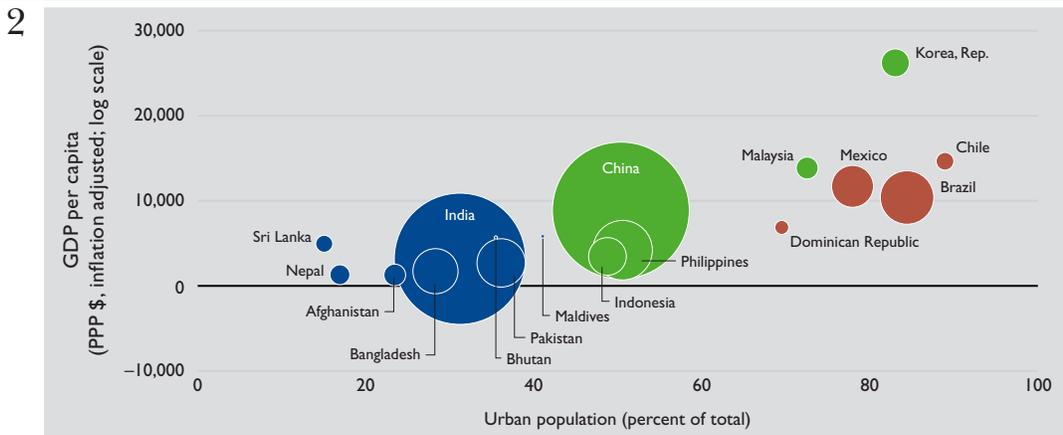


**Figure Snapshot of urbanization, 1960**



Note: Regions are in different colors. The size of the bubbles represent country populations.  
Source: World Bank 2012; www.gapminder.org.

**Figure Snapshot of urbanization, 2011**

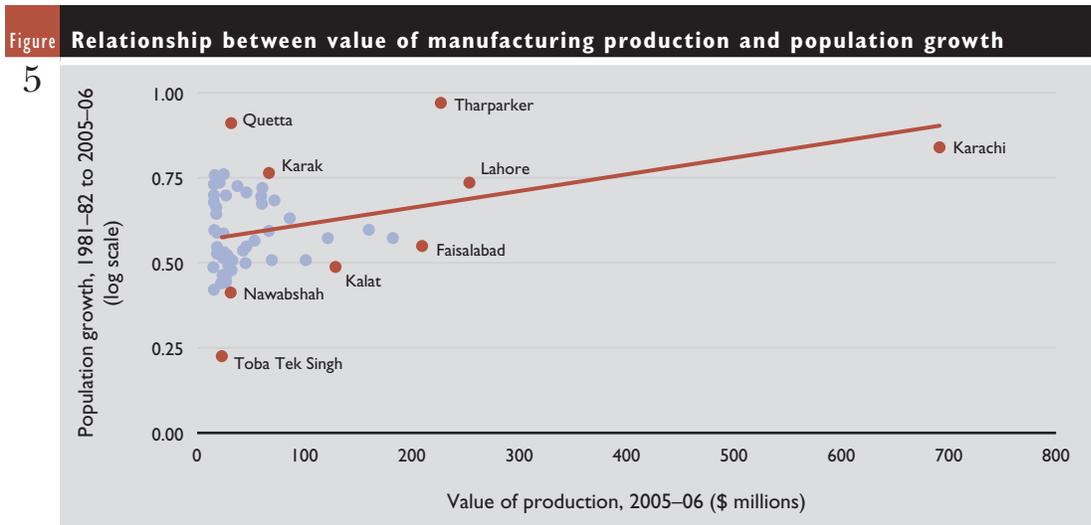
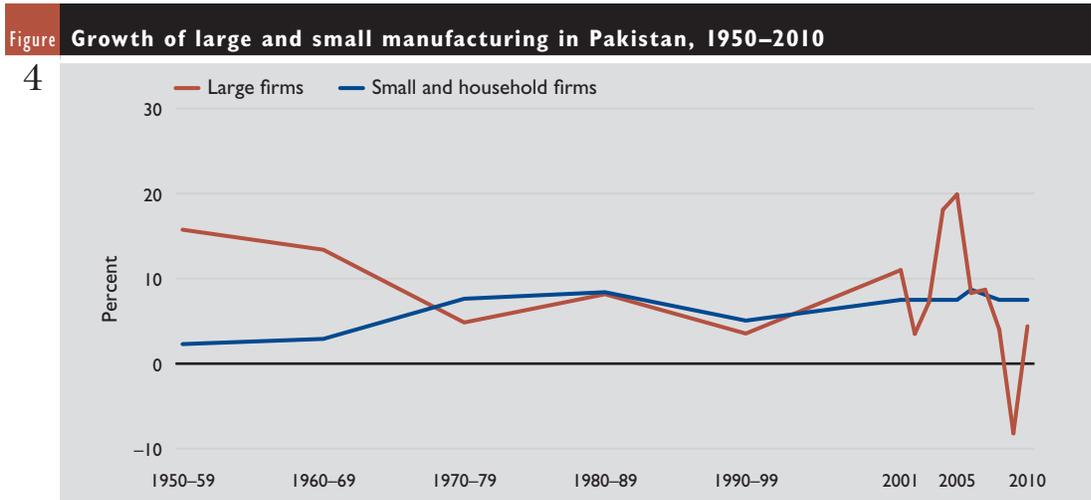
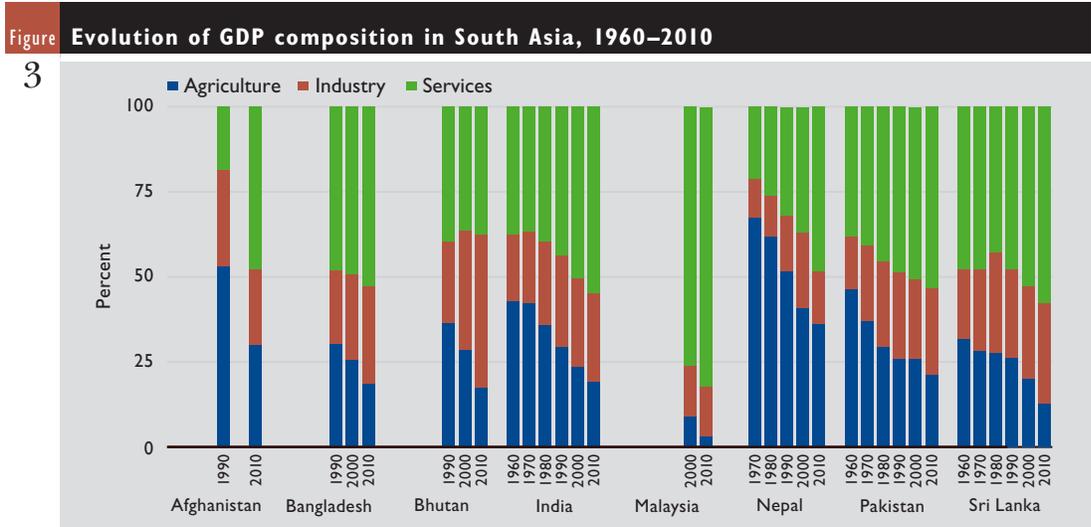


Note: Regions are in different colors. The size of the bubbles represent country populations.  
Source: World Bank 2012; www.gapminder.org.

of intersectoral change normally represents a gradual shift from low- to high-productivity activities. With country growth, manufacturing tends to diversify as firms produce and export a wider range of more sophisticated products. At even higher levels of income, specialization again increases but in high value-added and technologically advanced products. Increased product diversification therefore represents an intermediate stage in a country's economic development. Yet, apart from Bangladesh, manufacturing has been virtually stagnant for the past 30 years in South Asia (Figure 3). Agriculture's loss has largely been services' gain.<sup>2</sup> While mitigating the potential negative effects, Pakistani manufacturing needs to capture the benefits of agglomeration.

*Small industrial companies have generally had a more stable and upward trend than larger companies, amid lagging industrial growth generally.* Growth of small and household firms has been fairly steady since 2000 while large-scale manufacturing saw a sharp increase in 2002–05, followed by a sharp contraction, reflecting weakening aggregate demand, deteriorating security, and power shortages (Figure 4).

*Districts with faster population growth have seen stronger growth in manufacturing production value, a sign that even though manufacturing is underperforming, agglomeration is an essential element in its growth (Figure 5).* Districts with a population density of more than 600 persons per square kilometer are characterized by industrial development and by



better education, health infrastructure, and sanitation than those in rural areas.<sup>3</sup> By contrast, districts with low population densities—below 30 persons per square kilometer—offer few job opportunities and little to no industrial presence (World Economic Forum 2011).

*Agglomeration's importance is also seen in location and type of firms.* Firms tend to set up in areas with “location economies”—areas that minimize procurement costs (such as those of transporting raw materials to the firm) and distribution costs (such as those of distributing products to customers). These are areas with specialized labor, interindustry spillovers, local transfers of knowledge, and access to export markets. Statistical results based on the Ellison and Glaeser Index indicate that 35 percent of industries in Pakistan are highly agglomerated, 38 percent are moderately agglomerated, and 27 percent are not agglomerated (Ellison and Glaeser 1997). The most highly concentrated industries are ship-breaking, followed by sports and athletic goods. Other highly concentrated industries are those which need to be close to consumers and suppliers.<sup>4</sup>

## Main Issues in Industrial Development

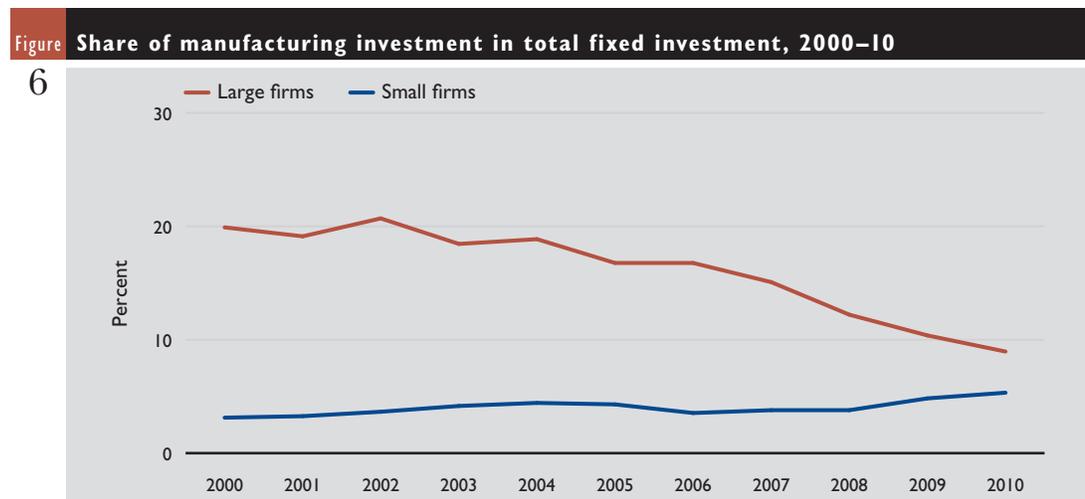
### Declining resources for infrastructure to stimulate agglomeration-benefiting industries

*Weak infrastructure is one of the main bottlenecks for doing business in Pakistan.* Access to power,

communications, and transport is a top infrastructure concern for businesses worldwide. Pakistan provides relatively low access to services, which in turn inhibits foreign investment. As examples, Pakistan has only 2 fixed telephone lines per 100 people, far below the 70 in China, 17 in Sri Lanka, 16 in Malaysia, and 16 in Indonesia, and less than India's 3 (World Economic Forum 2011). Road density in Pakistan is also far lower than in India and Sri Lanka. Only about 62 percent of the population has access to power, less than the 99 percent in China and 80 percent in Sri Lanka, while unreliable energy supply in Pakistan has stifled industrial growth (World Bank 2009a). An inefficient transport sector costs Pakistan's economy 4–6 percent of GDP a year.<sup>5</sup>

*Investment in key areas is declining.* Although the share of transport and communication investment in the total rose from 12 percent to 24 percent in 2000–10, the share of industrial investment fell from 38 percent to 20 percent.<sup>6</sup> The share of manufacturing recorded a similar decline, driven largely by a steep fall in investment in large firms (Figure 6).

*The Global Competitiveness Report 2011–2012 ranks Pakistan 115 of 142 countries in infrastructure.* The biggest obstacles for doing business in Pakistan are government instability and coups, corruption, policy instability, inadequate supply of infrastructure, and inefficient government bureaucracy, followed by poor access to



Source: Pakistan Economic Survey (various issues).

funding. All these factors reduce export competitiveness, hit the economy's ability to integrate with global supply chains, and increase the cost of doing business (World Economic Forum 2011).

### Little diversification and low productivity in manufacturing

*A main reason for industry's poor performance is its heavy concentration in low value-added consumer products, such as food, beverages, and textiles, which account for more than 70 percent of total exports. These goods are nondynamic (Table 1), offer little possibility for technological improvement, and attract very little foreign direct investment (FDI). Industry has largely failed to move into more sophisticated capital goods or to develop upstream ancillary manufacturing, such as chemicals and engineering. Crucially, manufacturing focuses on products that are losing share in the world market. In 2010/11, the share of textiles in the country's exports was about 50 percent (Planning Commission 2011), but as a share of total merchandise exports it dropped from 1.72 to 1.65 for 2009–11 (WTO 2012). Value added in industry (as a share of GDP) is much lower than that in comparator countries: it ranged from 21 percent to 27 percent in the 1970s and 1980s, constant at about 23 percent in 1994–2003, and around 27 percent since. India has had higher industrial value added since the early 1980s, and even low-income countries have recently overtaken Pakistan.<sup>7</sup>*

### Lack of trade competitiveness due to little manufacturing diversification

*Rapid growth in global manufacturing exports has allowed developing countries—notably excluding Pakistan—to gain a sizable share of the world market. The global share of exports from India, Malaysia, and Thailand, for example, increased considerably over 1974–2008, while Pakistan's share remained stable for the period, though it declined over 1990–2008 (Table 2).*

*Moreover, Pakistan exports a narrow range of manufactured products to which it adds little value. This can be captured by the PRODY index, which associates a certain income to each product, and the revealed comparative advantage (RCA), a measure that is greater than 1 if the country has a comparative advantage in producing a given good.<sup>8</sup> The results in Table 3 suggest that, despite being a major producer of raw cotton, Pakistan does not have a comparative advantage in those textile products that fetch the highest prices. Its exports are instead concentrated in goods produced by low-income countries (raw cotton, cotton yarn, and cotton fabrics). Pakistan's high RCA in these products is due mainly to government policies that have favored low value-added items over more sophisticated products, such as felt articles or bonded fiber fabric.*

*In sum, Pakistan's export position in world markets is not very encouraging. This can be illustrated graphically: Figure 7 compares the growth rate*

Table 1 Average product shares in manufacturing, Pakistan, 1970–99

Product	1970–79	1980–89	1990–99
Food and beverages	30.45	30.94	22.89
Textiles	27.78	18.14	25.06
Industrial chemicals	11.20	14.29	15.50
Metals and nonmetals	9.10	14.20	13.20
Petroleum and coal	5.27	6.01	3.26
Electrical machinery	3.31	3.26	5.43
Transport equipment	2.99	2.89	3.05
Apparel, leather, and textiles	2.04	2.37	2.80
Nonelectrical machinery	1.84	2.14	2.09
Rubber and plastic	1.80	1.80	1.42

Source: Pakistan Economic Survey (various issues).

**Table 2 Country export shares in world exports, 1974–2008**

(percent)

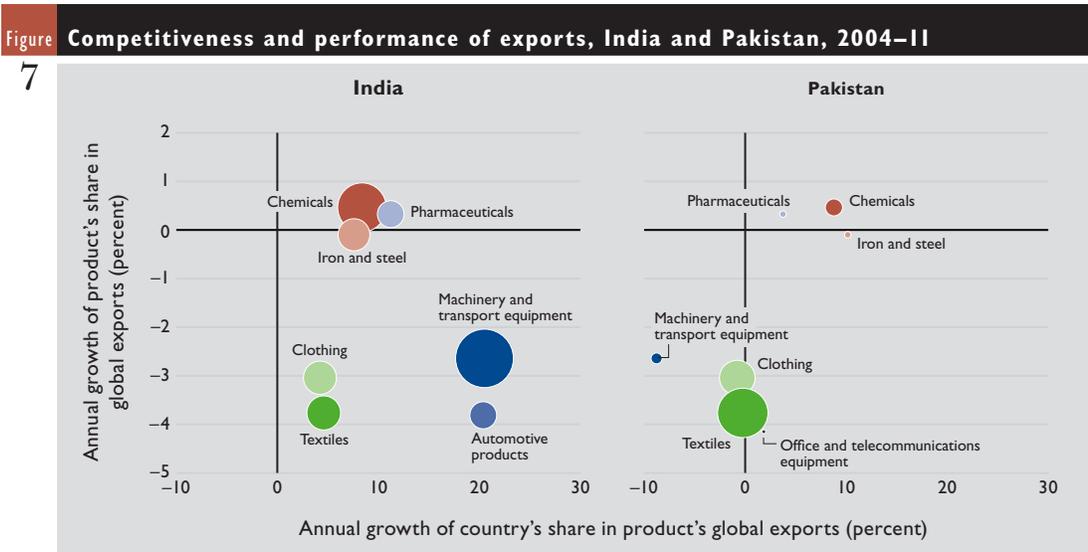
	1974	1980	1990	2000	2008
India	0.56	0.43	0.57	0.70	1.32
Malaysia	0.55	0.74	0.94	1.61	1.43
Thailand	0.32	0.37	0.74	1.13	1.25
Pakistan	0.14	0.15	0.18	0.15	0.15

Source: United Nations Statistics Division n.d.

**Table 3 PRODY and revealed comparative advantage in textiles, 2008–09**

Product	PRODY (\$)	Revealed comparative advantage
Raw cotton	2,036	5.9
Cotton yarn	5,631	86.5
Cotton fabrics	4,541	115.0
Men's and boys' readymade garments	6,777	13.2
Women's and girls' readymade garments	5,160	5.2
Clothing accessories (knit wear)	9,419	22.5
Articles of felt (technical textile)	22,486	0.1
Bonded fiber fabric	31,250	0.2

Source: United Nations Statistics Division n.d.



Source: Nabi 2011.

of a given good in world exports with the corresponding growth rate in Pakistan's exports. If the product is in the top right-hand quadrant (the "competitive quadrant"), the product is internationally competitive. Pakistan has only 4.8 percent of its exports in that quadrant, compared with India's 13.8 percent. Manufacturing exports are dominated by textiles (35.8 percent), whose world demand is falling.

*The underlying reason for Pakistan's inability to achieve a dynamic competitive advantage is the persistent failure to diversify its production and climb up the technology ladder (Lall 2000).<sup>9</sup> In fact, in 2008 medium- and high-technology products accounted for a mere 9.5 percent of Pakistan's exports, but 57.6 percent of world exports (Table 4). Moreover, the performance of medium-technology exports has not been*

**Table 4** Technological level of exports, Pakistan and the world, 1998–2008

Sector	Pakistan exports			World exports <sup>a</sup>	
	Growth 1998–2008	Share 1998–2000	Share 2006–08	Growth 1998–2008	Share 2008
Primary	10.1	12.3	12.7	11.2	11.4
Resource-based	23.9	3.5	10.9	10.5	14.8
Low-technology	8.2	74.7	66.7	9.2	16.2
Medium-technology	8.7	8.6	8.1	10.1	35.5
High-technology	17.5	0.8	1.4	9.3	22.1
Total	9.6			10.1	

a. Excludes oil.  
Source: Pakistan Economic Survey (various issues).

encouraging, with growth below both the corresponding world growth rate and Pakistan's total export growth rate. The growth of high-technology exports, by contrast, has been remarkable at 17.5 percent a year, although their share in Pakistan's total exports is negligible and exceptionally low relative to other countries.

*Overreliance on remittances and official assistance further aggravates the above impediments.* The evidence is considerable that remittances result in appreciation of the equilibrium exchange rate, eroding manufacturing international competitiveness (Lartey, Mandelman, and Acosta 2008; Montiel 2006). Such appreciation also stimulates final consumption (of imports), further conspiring against a competitive local manufacturing sector. While the Pakistan rupee has experienced nominal depreciation since the 2008 global financial crisis, it has been largely overvalued for a long time (and remains so in real terms), effectively penalizing Pakistan's international competitiveness, especially in activities that depend on medium-term investment like manufacturing.

*FDI in recipient countries has strong links to economic growth, but FDI can be inhibited by an unstable macroeconomic environment.* FDI in the last two decades has come in the oil and gas sector and in the power, financial, and telecommunications sectors, shifting away from manufacturing. Less than a fifth of Pakistan's FDI in 2008 went to manufacturing, reflecting a declining trend that started in 2004. Due to economies of scale and technological spillover effects, FDI in manufacturing generates more benefits

than in nonmanufacturing sectors of the economy, which in turn promotes economic growth (Wang 2009). To halt this declining trend, it is important to strengthen policies that reduce firms' costs of doing business and that keep fiscal and monetary imbalances from becoming too large.

#### Lack of financing

*The financial market in Pakistan is shallow.* Firms rely principally on retained earnings to finance their working capital and investment needs, ranging from 78 percent in Sindh to 88 percent in Khyber Pakhtunkhwa (World Bank 2009b). If firms draw on external finance, they usually resort to banks and trust funds (67 percent), or the Central Directorate of National Savings (22 percent). Further, access to finance is highly uneven across firms, and credit rationing hits small and medium-size enterprises (SMEs)—potentially some of the country's most dynamic—making it hard for them to grow or improve productivity. SMEs also face barriers over weak and poorly enforced creditor rights, as well as high costs of borrowing. They are also often perceived as risky borrowers, both because of their variable rates of return and their lower human and capital resources to withstand economic adversity. And their accounting systems and financial controls are often inadequate, undermining the quality of their data.

*Onerous collateral requirements are particularly problematic (Bari, Cheema, and Haque 2005).* Most

banks require collateral exceeding 100 percent of the loan to mitigate asymmetric information. Yet the principal asset of manufacturing firms is land, which is in effect removed from the collateral pool by a highly inefficient land market. The main problem is that land acquisition is cumbersome, involving multiple agencies, complex record keeping, and past sales transactions lacking valid conveyance documents. It takes 49 days to register a property and costs about 4.2 percent of its value (LUMS 2011). And vendors rarely transfer formal titles, thus preventing firms from accessing credit and preventing land from being put to its most efficient use.

### **Social conflict and pollution**

The growth of manufacturing can also lead to public bads that, if not addressed, can act as bottlenecks in the form of social conflict and pollution.

*Social conflict, heightened by Pakistan's demographic growth, manifests itself as sectarian or ethnic strife.* Yet a growing urban population can become an important economic asset and lead to jobs growth, assuming that appropriate policies are in place to mitigate these negative impacts. And this can be a virtuous circle as agglomeration economies in urban areas can themselves mitigate the likelihood of social conflict.

*Social conflict affects industrial production at several levels.* First, lack of security creates a poor perception of Pakistan in international markets, and buyers in these markets have become skeptical about doing business with suppliers in the country. Second, a perception of lack of security causes the private sector to reduce its economic activity, with implications for business property and assets. Based on a World Bank survey, the proportion of firms considering law and order a major constraint to their business rose from 22 percent in 2002 to 35 percent in 2007 (LUMS 2011).

*Industrial degradation of the environment presents health risks for the population and may have impacts for firms trying to access international markets.* Ambient air pollution in medium and large urban centers is extremely serious but very little

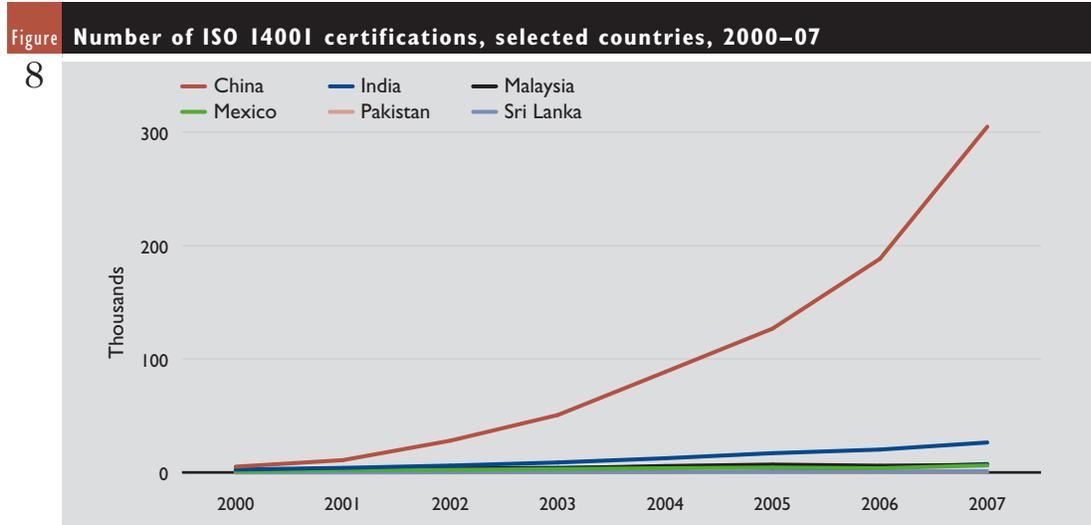
has been done to tackle it. High levels of dangerous pollutants, such as fine particulate matter and sulfur dioxide, are major health risks. At the firm level, particularly among manufacturers, corporate social and environmental responsibility is becoming increasingly important to gaining and maintaining export markets in high- and upper middle-income countries. Some firms for which exports are important have market-friendly mechanisms to signal to their market that they are serious about this responsibility, as exemplified in attaining process certifications such as ISO 14001 (which covers environmental processes). Yet Pakistan (as well as India and Sri Lanka) are far behind China, for instance, which increased its ISO 14001 certifications nearly 60-fold over 2000–07 (Figure 8). Moreover, lax enforcement of occupational safety standards makes industrial hazards common. The Karachi garment factory fire in September 2012 was the worst in Pakistan's industrial history—more than 280 people died—and such events harm the country's manufacturing reputation.

### **Policy Recommendations**

*A combination of the following policies may help improve Pakistan's ranking in competitiveness and manufacturing's contribution to GDP.* (Table 5 summarizes these suggestions.)

#### **Build a prudent macroeconomic framework**

*Current nominal exchange rate depreciation linked to macroeconomic difficulties could easily swing toward nominal and real appreciation associated with remittances and other capital inflows.* Such appreciation may inhibit exports and thus potential industrial growth, making it critical to reduce fiscal and monetary imbalances in order to build a strategy for sustainable industrialization. It also makes it all the more important to remove distortions in the credit market, trade policy, and tax regime. Finally, the government could facilitate FDI from Pakistanis abroad by enabling the creation of diaspora-focused venture capital and private equity funds in such areas as information technology, automobile-vending industry, medical equipment and services, and hospitality.



**Table 5** Summary of challenges and suggested solutions

Sector or issue	Challenge	Solution
Fiscal/trade (S)	<ul style="list-style-type: none"> <li>Discriminatory tax regime</li> <li>Fiscal and exchange rate fluctuations</li> </ul>	<ul style="list-style-type: none"> <li>Make manufacturing activities attractive to invest in by not taxing them net when compared with other economic activities</li> <li>Mitigate by prudent macro policies and remove distortions in the credit market, trade policy, and tax regime</li> </ul>
Transport (S M L)	<ul style="list-style-type: none"> <li>Poor transport sector</li> </ul>	<ul style="list-style-type: none"> <li>Efficiently connect cities and industrial clusters</li> <li>Give increased attention to rail</li> <li>Modernize trucking fleet</li> <li>Redefine government's role to focus on regulation and improve the private investment environment</li> <li>Adopt new technology</li> </ul>
Power (S M)	<ul style="list-style-type: none"> <li>Power shortages</li> </ul>	<ul style="list-style-type: none"> <li>Develop more and clean energy</li> <li>Exploit power trade with neighboring countries</li> </ul>
Trade and logistics (S)	<ul style="list-style-type: none"> <li>Weak cross-border infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Exploit Gwadar's strategic location for gas pipeline</li> </ul>
Social development (S M L)	<ul style="list-style-type: none"> <li>Little skilled labor for small and medium-size enterprises</li> </ul>	<ul style="list-style-type: none"> <li>Improve skills training and education</li> </ul>
Government (M L)	<ul style="list-style-type: none"> <li>Limited capacity</li> <li>Burden on the environmental management framework</li> </ul>	<ul style="list-style-type: none"> <li>Strengthen institutional capacity of infrastructure sector and environment agencies</li> <li>Combine command and control and market-based incentives to address environmental degradation</li> </ul>

S is short run; M is medium run; L is long term.  
Source: Authors.

**Address systemic issues**

*Issues eroding manufacturing competitiveness include a discriminatory tax regime, poor access to credit, and ad hoc incentives such as statutory regulatory orders (Nabi 2011; Planning Commission 2010).* In 2009, 40 percent of firms stated taxes as being a barrier in doing business (though a decrease from 47 percent in 2002; World Bank 2009b). The bulk of the country's total tax revenue is collected from manufacturing firms (corporate income tax) and their output (sales tax and various excises), while agriculture and

most services are out of the tax net, which makes it more attractive to invest in nonmanufacturing activity. Taxes increase the cost of doing business and reduce incentives to invest in manufacturing (Manes 2009). Pakistan's tax system needs to be better balanced across economic activities and should be focused on taxing bads.

*In other areas, increasing access to credit, especially for SMEs, facilitating vocational training through industry chambers, and supporting firms' certification in international standards of practices (ISO*

14001, for example) would help raise manufacturing competitiveness. These wide approaches run counter to the government's current incentives to manufacturing, which are generally ad hoc measures like statutory regulatory orders, often provided without a clear economic rationale. The government should instead focus efforts to improve the overall commercial environment for production and address market failures related to environmental and social degradation.

### **Facilitate agglomeration through better connective infrastructure**

*Cities and industrial clusters need to be better interconnected by upgrading, extending, and rehabilitating infrastructure.* In Khyber Pakhtunkhwa, Punjab, and Sindh, spatially connective infrastructure—particularly interregional transport infrastructure, as well as information and communication technology services—can help facilitate links between cities and along trade corridors. The planned rail and road infrastructure connecting Gwadar Port with northern Sindh is one example. Investments in freight transport should be developed, coordinated with efforts to establish or strengthen industrial clusters. Synergies between freight transport and cluster development would boost the structural and spatial transformations that Pakistan is undergoing.

*The potential of freight transport needs to be unleashed.* Reforms should prioritize integrating different modes of transportation while emphasizing rail for long distances, where it is more efficient than road transport (adopting a multimodal transport system); modernizing the trucking fleet to reduce environmental and social externalities; redefining the government's role to focus on regulating and attracting private investment and gradually eliminating the biases that distort the market; and fostering new technologies and procedures that add value to the trade and transport sector, including moving from the current focus of bulk cargo to containerized cargo.

*As more reliable energy is critical to industry—indeed, energy shortages have hit this sector*

*hardest—the government should urgently develop new sources of energy supply.* This entails, in particular, developing cleaner sources of energy as an alternative to its limited supply of gas sources, upgrading distribution networks, investing in thermal and hydro plants, using coal in a clean way as an alternative source of energy, and cooperating with other South Asian countries to exploit sources of energy, particularly gas and electricity from neighbors.

### **Break down trade barriers and improve cross-border infrastructure for the major transport corridors and markets**

*A 2007 study found that trade between India and Pakistan would increase by 405 percent if political and territorial conflicts were resolved.<sup>10</sup>* The strategic location of Gwadar should be exploited: it serves as an important node for any Iran–Pakistan–India gas pipeline that could be developed. Importing natural gas would partly address the energy concern, given that natural gas demand in Pakistan far exceeds supply—there would still be a supply gap after 2015 even if indigenous gas reserves and planned projects in pipelines in the country materialize (LUMS 2011).

### **Improve skills training and education of workers to better match employment needs and supply in industry**

*Such efforts are crucial given that many SMEs lack access to skilled labor.* Pakistan is rapidly urbanizing, and reforms in trade and infrastructure are expected to contribute to this trend, particularly as investments and new employment opportunities will most likely materialize in urban areas. Although urbanization offers benefits, low skills and education can offset them.

### **Strengthen the institutional capacity of provincial environmental agencies to implement appropriate regulatory frameworks**

*Strengthening provincial environmental agencies should be a priority (particularly after devolution due to the 18th Amendment).* Such agencies have little capacity to address the many environmental

and social issues that arise during construction and operation of transport infrastructure. Raising their capacity to design and implement environmental and social regulations (that address market failures and diminish rent seeking) at the earliest planning stages and to address issues as they arise would generate wide benefits for the population. These steps may also have long-term benefits for industrial growth and exports, though such growth—with its countrywide effects—may burden the environmental management framework. Provincial agencies need to improve their capacity to address environmental and social impacts of industrialization as well.

### Notes

The authors wish to acknowledge the research assistance of Ashma Basnyat and the comments provided by Jose R. Lopez-Calix, Javed Burki, and Anthony Cholst.

1. The literature on agglomerations is vast. See, for example, Fujita and Thisse (2002) and World Bank (2009).
2. It has been argued that Pakistan could leapfrog into service led growth. Yet to take full advantage of modern services and spread the benefits across society, Pakistan needs a well-educated and prepared labor force. Moreover, the very long-term future of the country's economy may well be services. This note argues that the path to services for Pakistan would go through a dynamic manufacturing sector if there is to be a shared prosperity. The services sector in South Asia has also been extensively discussed in recent literature (for example, Ghani 2010).
3. These districts include Karachi, Lahore, Peshawar, Faisalabad, Sialkot, Islamabad, Multan, Swabi, Gujrat, Rawalpindi, Charsadda, and Gujranwala (World Economic Forum 2011).
4. Including furniture and fixtures, scientific instruments, pharmaceuticals, apparel, handicrafts and office supplies, printing and publishing, pottery and china products, and paper and paper products (LUMS 2011).
5. Ministry of Finance 2011. In many developed countries, transport contributes 6–12 percent of GDP (Rodrigue, Comtois, and Slack 2009). In India, the transport sector contributed 5.7–6.4 percent of GDP in 1999–2005 (ADB 2007).
6. See *Pakistan Economic Survey* (various issues).
7. Even in textile-related industries, a move in the value chain may prove beneficial. For example, 50,000 pounds of cotton fiber creates 400 jobs in each of the three stages of the textiles value chain—spinning, weaving, and finishing of cloth. At the next stage (garments manufacturing), the same volume of fiber creates 1,600 jobs. In addition to being the most labor-intensive stage of the textiles chain, garments manufacturing creates by far the largest value addition and is the least energy- and capital-intensive segment of the textiles chain (Nabi 2013).
8. The PRODY index is constructed as the weighted average of the per capita GDPs of the countries exporting a specific product, and thus represents the income level (and productivity) of that product. The weights are the RCA of each country in each product (normalized to 1). If most high-income countries have an RCA in the export of a product, the PRODY would be high. (The RCA is the ratio of the share of product A in Pakistan's total exports to the share of product A in total world exports. If the RCA is greater than 1, it implies that the country has a comparative advantage in that product.)
9. The product concentration level is measured using the index
 
$$G_t = \left( \sum_k W_{it}^2 \right)^{1/2},$$
 where  $k$  is the number of products that account for more than 90 percent of Pakistan's exports and  $W_i$  is the share of commodity  $i$  in total export earnings. The index can take a value between 0 and 1; the closer it is to 1, the greater the degree of concentration. Pakistan's value is 0.40.
10. Naqvi and Schuler 2007. According to World Bank (2009a), in 2004 Pakistan and India engaged in the “Composite

Dialogue” on peace and security issues, including terrorism and drug trafficking, confidence building, economic and commercial cooperation, and friendly exchanges in various fields.

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The report was designed, edited, and typeset by Communications Development Incorporated, Washington, DC.