

## 8. Lessons from the New Literature on Structural Transformation

Following the discussion on policies for encouraging technological dynamism among SMEs, we end with a more general discussion on policies that promote structural transformation—that is, the process through which an economy engaged in traditional production activities moves to more diverse, modern, and high-productivity activities. Fostering an environment that promotes entrepreneurship and investment in new activities is critical. While government failures—due to macroeconomic mismanagement, burdensome regulations, weak/corrupt administration, and others—penalize entrepreneurship and innovation, market failures due to learning externalities and coordination failures can be rife in developing countries. There is considerable direct evidence of these types of market failures in the development and adoption of new technologies in agriculture (for example, the classic study of Foster and Rosensweig (1995) on the influence of learning externalities on the adoption of high-yielding crop varieties in Indian agriculture). While comparable evidence outside of agriculture is more scarce, discussions of the development of new activities in industry and services are clearly aware of the phenomena.

For example, efforts to promote the tourism sector in Lao PDR and Nepal recognize that high-end hotels in locations of natural beauty could be highly profitable, but only if there is a sufficiently developed transportation network that can bring in tourists from major cities. Moreover, ensuring the increase in tourism is sustainable requires additional investment. Similar remarks would apply to the development of a modern food processing industry—a labor-intensive manufacturing sector with strong and direct links with the agriculture sector holding considerable promise for generating more productive and remunerative job opportunities for workers in rural areas—in low income developing countries. Many factors can hold back the emergence of this industry. Farmers may be cultivating traditional varieties of fruit and vegetables unsuitable for processing; there may be a lack of infrastructure for postharvest preservation and quality control and testing; modern storage facilities encompassing cold-storage facilities, silos, and warehouses may be absent; and air-conditioned transport may not be available. Coordination failures can seriously impede the growth of a sector in which there are so many inputs and players, since no actor working alone would find it worth his or her while to make the required investments. Coordination of investment across different activities in sectors is required.

How should policy tackle the various market failures that hold back investment in new activities? Traditionally, government action to deal with these market failures has come under the rubric of “industrial policy” (for example, through the use of selective tax incentives and subsidies for particular sectors and/or firms). But the efficacy of such policies is the subject of voluminous debate in the economics literature. While scholars such as Alice Amsden and Robert Wade have pointed to the instrumental importance of interventions by governments in Korea and Taipei, China in developing industrial capabilities in new activities to the success of these economies, others such as Jagdish Bhagwati, Anne Krueger, and Ian Little have been highly skeptical. Still others accept that such interventions were effective in the NIEs of East Asia, but point to the apparent failure of similar interventions in other parts of the developing world, and argue that the success of interventions in the NIEs was based on circumstances unique to them.

This is not the place to go over these debates, but the following points are important to note (Rodrik 2007 and 2008): first, most countries practice some sort of industrial policy in the sense that they use various policy instruments to stimulate specific economic activities and promote structural change. (By no means do the activities being promoted have to lie within manufacturing. They can well be in agriculture or services.) Indeed, many of the efforts that we have discussed above—ranging from assistance to SMEs in accessing finance to public support for helping SMEs improve their links with larger and more dynamic firms—can be viewed as elements of industrial policy. Other types of policy intervention—such as the creation of special economic zones, export facilitation, and promotion of foreign investment—are also examples of industrial policy. Put differently, governments *already* choose—indeed, Hausmann and Rodrik (2006) argue that governments are ‘doomed to choose’.

Second, and partly as a result, rather than get into a debate on whether or not such policies should be used, a more fruitful debate would center on the design of these policies. In particular, criticism of industrial policies typically focuses on two issues: informational constraints on what sectors or activities suffer most from market imperfections and are therefore worth providing assistance to, and the possibility that industrial policies will be captured by special-interests. These concerns are valid. But this is precisely where policy design comes in. Put differently, a rather narrow view of industrial policy would be to see it as governments picking winners and implementing subsidy and tax schemes. Instead, an alternative view is of industrial policy as a collaboration between the private

sector and the government with the aim of uncovering the most significant obstacles to restructuring, and determining what interventions are most likely to remove them (Rodrik 2007). Among other things, this collaboration requires an ongoing and in-depth dialogue. Box 8.1 describes an agency set up by India's government to provide a forum for this, and its recent analysis and recommendations for India's textile and garment industry.

Rodrik (2007) provides general "design principles" that could have a high pay-off. A few words on some of these seems pertinent. First, public support and incentives

should be provided only for activities and not broadly defined sectors. Moreover, the activities in question should be new ones, including products that are new to the local economy or new technologies for existing products. They should also have the potential to crowd-in other, complementary investments or generate informational or technological spillovers. Certainly, choosing which activities that appear to be good candidates to support is not easy. But there are approaches and tools that are promising. Box 8.2 describes the concept of the 'product space' and its use as a tool for thinking about which types of activities have this potential.

#### Box 8.1 India's Textile and Garment Industry: An Assessment of India's National Manufacturing Competitiveness Council

The textiles and garments industry contributed almost 2% to India's gross domestic product and around 1.2% to manufacturing value added in 2006–07. It is also a very large employer. In recent years, it has accounted for 20% of employment in organized manufacturing and around 34% of employment in unorganized manufacturing. The industry is also a large exporter. Around 36% of its output was exported in 2005–06.

While the industry's performance has improved in recent years, it still falls well short of the performance of major producers and exporters of textiles and garments. In particular, India's exports were a quarter of the PRC's in 2000, a ratio which fell to less than 14% in 2006.

Where does India's industry fall short? Crosscutting issues such as India's legendary problems with power supply are part of the story. However, there are a number of issues specific to the industry. A supply-chain analysis commissioned by the National Manufacturing Competitiveness Council (NMCC) indicates that key bottlenecks appear in the second and third stages of the value chain. These are the weaving and knitting stages (Figure 8.1.1) whereby yarn is converted into "grey cloth" and the subsequent stage which involves processing of grey cloth (through bleaching, dyeing, printing, and others things) into processed fabric.

A large part of the problem in both areas has to do with the use of outdated technology—for example, a shortage of shuttleless looms and other modern equipment for weaving and knitting. Similarly, the poor quality of local dyes hampers the ability of garment manufacturers to work with high-quality fabrics. The low quality of processed fabric that results has led manufacturers who cater to export markets and the higher end of the local market to increasingly turn to imported fabrics. This happens despite India being among the largest producers of cotton—a key input into yarn—in the world.

While the government has established a technology upgradation fund (TUF)—a scheme whereby interest costs on loans used to upgrade technology, through, for example, the purchase of specified types of machinery and equipment, to be reimbursed once an application has been made by the enterprise—the use of these by the weaving and processing segment, in particular, has been low. Discussions with selected enterprises suggest that this happens because weaving and processing enterprises have difficulty obtaining loans from banks

in the first place. This, of course, leads to the question of why this is so. Our earlier discussion on the difficulties small firms face in raising finance is relevant here. As it turns out, the weaving and knitting industry is characterized by a large number of small units. Moreover, many of these operate informally—that is, without formal registrations—thereby not having the appropriate documentation to obtain bank loans.

There are, of course, other issues such as the centralized and apparently cumbersome approval process whereby the Small Industries Development Bank of India (SIDBI)—a government bank serving microenterprises and SMEs—disburses money to the TUF scheme. For example, an analysis of disbursement patterns revealed that there can be a delay of up to two years in the distribution of funds.

While decentralization of disbursement process used by SIDBI—something which has been recommended by the NMCC—should help, the fundamental problem seems to be the low scale of operations. Government policies have not helped in this regard. For example, enterprises with a turnover of 40 million rupees or less get 100% excise exemption for the next year. The problem with policies such as this is that it discourages consolidation in the industry and perpetuates small-scale operations.

One of the ways in which the problem of outdated technology could be addressed is through the development of production technologies that are more efficient and yet affordable for small enterprises. However, increasing the scale of operations is a must. The Ministry of Textiles has launched the Scheme for Integrated Textile Parks in 2005. These parks are based on a private public partnership model and require a minimum of five entrepreneurs to form a cluster. The parks would incorporate facilities for spinning, sizing, texturing, weaving, processing, and production of apparel. By starting facilities from scratch, it is hoped that modern technology and appropriate scale can be incorporated throughout the supply-chain.

It remains to be seen how these parks perform and what impact they have on enterprises outside the parks. In the meantime, it may be noted that one major challenge holding back the progress of these parks has to do with getting the statutory clearances for land use and environment related regulations.

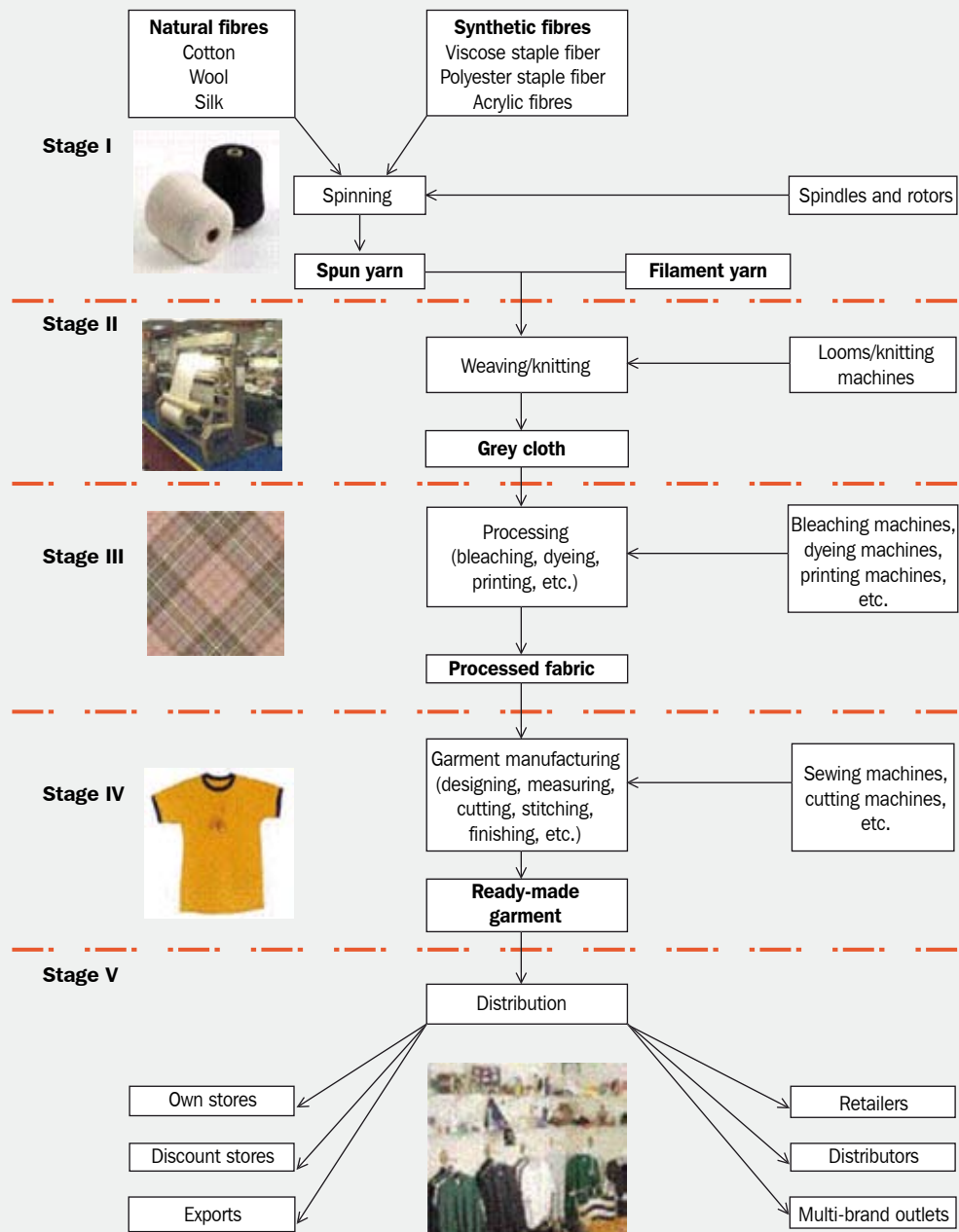
*Box 8.1 continued on next page*

Second, agencies that implement industrial policy must be competent, have good communication with the private sector, and be monitored by the highest level of leadership possible. Moreover, the definition of the private sector must be an inclusive one. In particular, the

private sector should not be represented just by the few in charge of a country's largest enterprises. It must have broader representation than that—for example, bringing representatives of SMEs into the public-private dialogue.

Box 8.1 continued from previous page

Box Figure 8.1.1 The Textiles and Garment Production Value Chain



Source: CRISIL (2009) for the National Manufacturing Competitiveness Council.

**Box 8.2 Product Space: A Guide for Decision-Making on Structural Transformation**

As noted in the text, public support and incentives aimed at encouraging structural transformation should be provided for new activities—either new to the local economy or new technologies for producing existing products. But which activities would these be? Some sense of which types of products hold promise is needed since numerous production activities exist, each one requiring a large set of relatively specific inputs and capabilities. While many inputs are supplied by the market, some crucial ones are not. The conventional view is that such inputs are few and very broad: a system of property rights and contract enforcement, a good general-purpose business environment, infrastructure, and enforcement. The role of government and public policy is then to provide these broad inputs.

If the conventional view is wrong, however, and capabilities and inputs are specific to particular activities, and if some of these are underprovided by the market policy makers hoping to encourage structural transformation are 'doomed to choose' across activities.

Which types of activities are relevant for a given country? Discussions with the private sector are vital, as is a careful examination of international markets and what other countries are doing. In addition to the usual tools for international benchmarking, Hausmann and Klinger (2006) have introduced the concept of the 'product space'. The product space is a graphical representation of exports depicting how related pairs of products are (Figure Box 8.2.1). Relatedness of a pair of products is measured through the probability that the countries of the world export both products. In the figure, a circle represents products (with size proportional to world trade).

A key feature of the product space is that it has dense parts and it has sparsely populated parts. The dense part of the product space is where products are highly interconnected. If a country produces products in this region, it is easy for firms to move to producing many other products in the neighborhood. Otherwise it is difficult. In addition, countries whose exports lie in the dense industrial 'core' (i.e., encompassing machinery, vehicles, etc.) grow faster.

The product space and related concepts are currently being used in various settings as a guide for decision making. For example, a recent ADB-Department for International Development (DFID)-ILO study on Nepal has used it to point out that jute production, one of

the activities that policy documents in the country have suggested be provided assistance, has low 'strategic value' in that fostering a more vibrant jute industry is unlikely to build capabilities or inputs that will allow Nepalese firms to diversify to other activities (ADB 2009d).

An even more detailed exercise is being carried out by an ADB study for Pakistan (Felipe 2009). The study notes that while Pakistan's export structure has become less concentrated over time, textiles and related products continue to constitute the top exports. While these exports are tightly connected to each other in the product space, they are poorly connected to the rest of the space, especially the 'industrial core' which is associated with rapid structural transformation and high-growth. Moreover, a measure of the sophistication of Pakistan's exports reveals that it remains low compared to countries in developing Asia.

There are three strategies Pakistani firms can use to diversify their production, especially into more sophisticated products: produce more and better of the same products; produce nearby products; and produce products farther away. The first entails improving productivity and quality in existing sectors (such as textiles). The second entails firms diversifying into related products such as garments, shoes, and agro-processed goods. The last entails developing the capabilities and inputs required to produce products that lie in the industrial core even though products here lie farther away in the product space compared to Pakistan's current exports. While the costs and risks associated with the third strategy are higher, potential payoffs are also higher and therefore worth a strategic bet. Indeed, for a large country such as Pakistan, Felipe (2009) points out that it makes sense to consider a mix of all three strategies.

The policies and interventions needed for implementing the strategies will obviously be different. For example, in textiles the quality of locally grown cotton can constrain the move to more sophisticated textiles; freer imports may be part of the solution. On the other hand, a strategic bet on activities in the electronics industry would require more work; a closer examination of the workings of industrial parks and efforts at attracting foreign direct investment would probably be required. Crucially, strengthening the nature of the public-private dialogue and careful monitoring and evaluation of chosen interventions will be key across all three strategies.

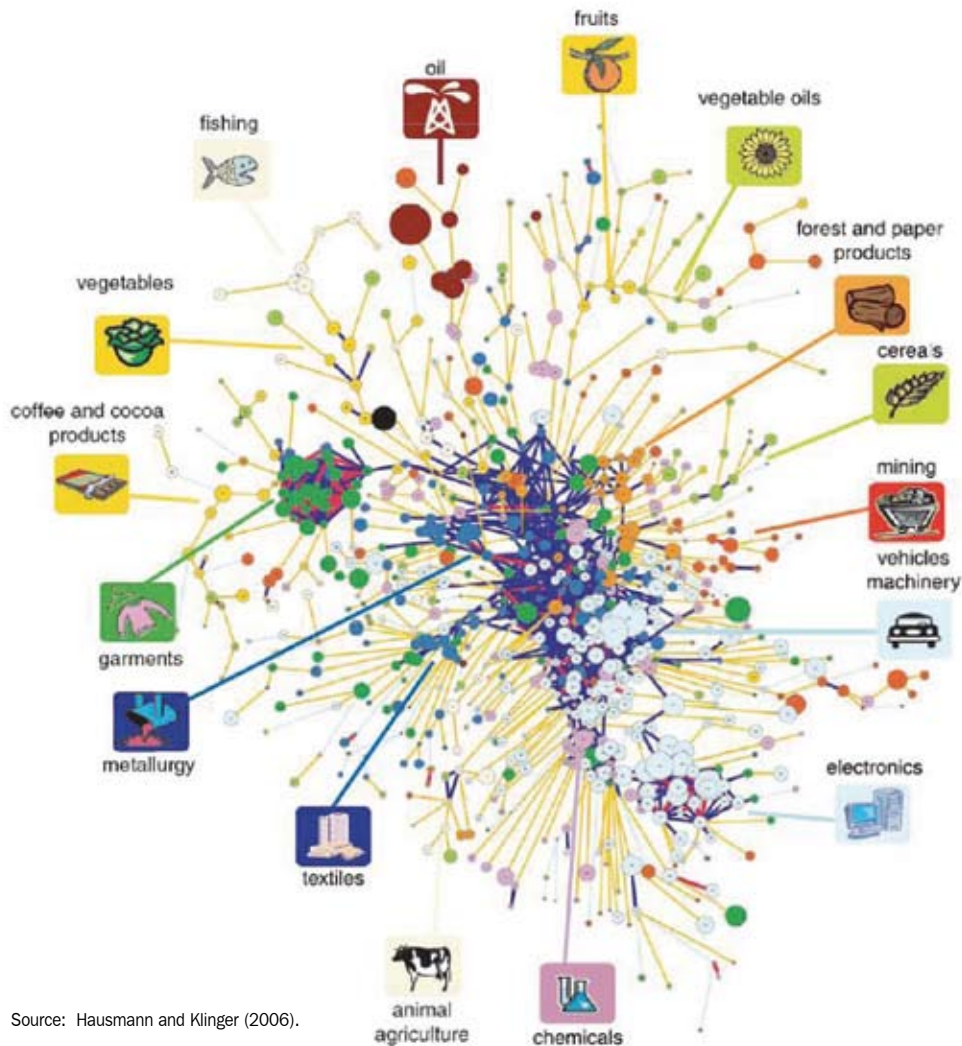
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Third, to make sure that public support is not abused or wasted, clear benchmarks for success and failure must be adopted, and monitoring and evaluation systems must be built into the programs. Public support should not be indefinite. The use of sunset clauses to phase out support could help in this regard. Indeed, one should expect at least some efforts to be unsuccessful when experimenting with new activities. The key point is in knowing when to call it "quits" when an activity is not working out.

In conclusion, these design principles are very much in line with those suggested for public support programs for SMEs (for example, in the use of cluster based development discussed previously). Additionally, while implementing these design principles is not easy—among other things, it can involve fighting vested interests—a potential for large payoffs would seem to make it worthwhile to make a concerted attempt to do so. Finally, adopting a more experimental mindset, and a commitment to rigorous

Box 8.2 continued from previous page

Box Figure 8.2.1 The Product Space



Source: Hausmann and Klinger (2006).

Sources: ADB (2009d), Felipe (2009), and Hausmann and Klinger (2006).

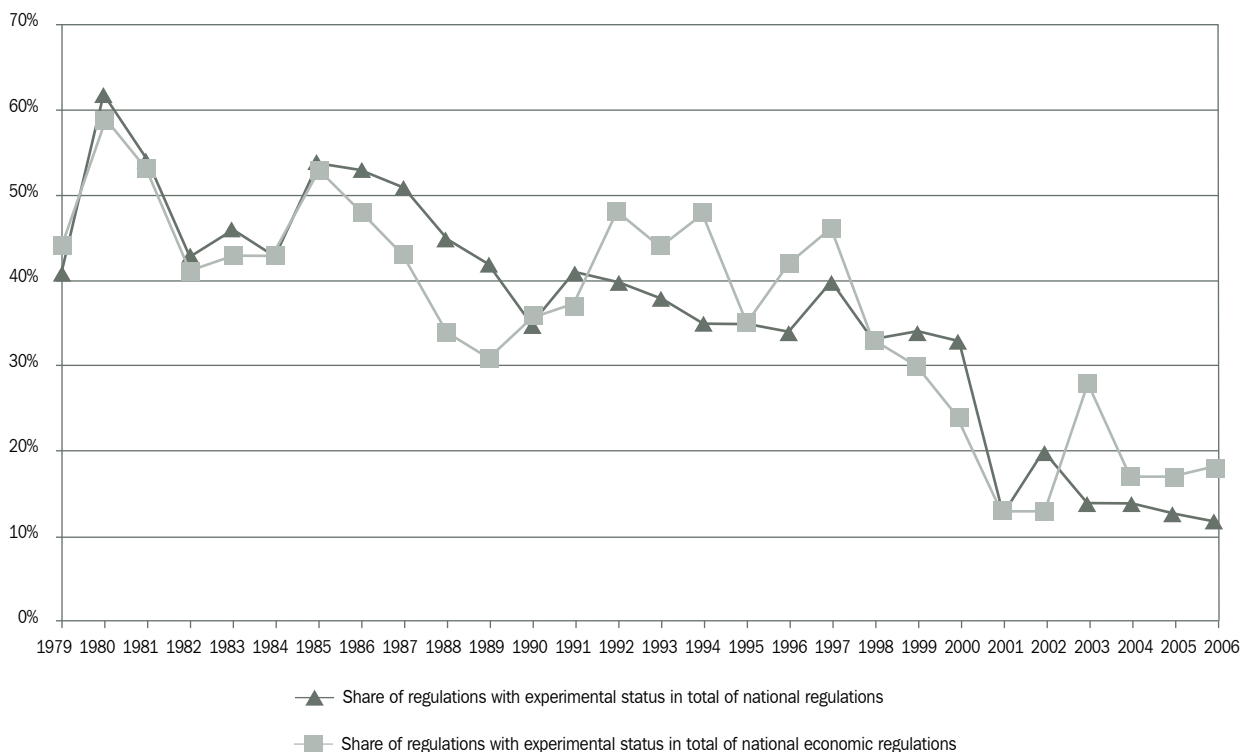
monitoring and evaluation would help in coming up with the specifics of policies and programs to help enterprises in structural transformation. As we have seen in the earlier sections, while there appears to be many commonalities in the type of assistance governments have provided SMEs, final outcomes seemed to have differed quite a bit across countries. Although some of the differences in outcomes can be explained relatively easily, others are more difficult to understand. Put differently, there is always uncertainty regarding the ultimate effects of a particular program. This underscores the importance of having in place robust monitoring and evaluation systems.

Indeed, an experimental mindset coupled with a system of monitoring and evaluation have characterized PRC policy-making over the course of its economic reforms of the last three to four decades (Ravallion 2008). Many elements of these reforms, introduced initially as experiments, have been very successful. In particular, the experiments have included the household responsibility system and dual track pricing that were essential components of the rural reforms credited with dramatic reductions in poverty. Crucially, policymakers were informed of these through the workings of credible

research institutes using objective field research methods to see what was happening on the ground (Ravallion 2008). More generally, the PRC's experiments with reform have also included township and village enterprises and special economic zones. Indeed, as Figure 8.1 shows, as much as half or more of all national regulations in the early to mid-1980s were experimental (Heilmann 2008 and Rodrik 2008).

While it may be true that the PRC's political economy has given it conditions under which this type of experimentation has been possible and successful, there seems to be little reason why policymakers in other economies should not approach policymaking and program design with more of an experimental mindset and greater adherence to rigorous monitoring and evaluation than seems to have been the case.

Figure 8.1 Policy Experimentation in the People's Republic of China



Source: Heilmann (2008).