The Transition of the State-Business Relationship in China: A Case Study of the Private Software Industry in Beijing*

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Taking as an example the private software industry in Beijing and government policies concerning the software and information industry promulgated in 2000, this article examines the performance of the local government. From the perspective of neo-statism, it assesses whether the communist state can form a "developmental state" relationship with enterprises in this up-and-coming sector. It is concluded that the Chinese regime is proceeding toward a developmental state. However, two institutional obstacles remain in its path: (1) lack of coordination between the different parts of the state machine, leading to a disconnection between policymaking and implementation; and (2) lack of mutual communication and trust which has hampered the development of "governed interdependence." Although the state machine has incentives enough to boost the national economy, it is insufficiently farsighted. The state's policymaking still tends to be reactive and passive; policy changes always trail behind trends

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in the industry. Hence, China has not attained the ideal model of a developmental state in terms of neo-statism.

KEYWORDS: developmental state; neo-statism; Beijing; software industry; private firms.

In the 1990s China entered a period of economic boom and is

now playing a significant role in the global economy, being dubbed a "world factory." This achievement should be attributed to the previous two decades of economic reform that transformed China from a plan-oriented into a market-oriented economy. The state-owned sector now accounts for less than one-third of the national economy. However, this development does not simply imply a "retreat of the state" to the degree that the state only acts as a "night watchman" or a "regulator"—as advocated by classical liberalism. In fact, the communist regime has been making use of various policy instruments to direct economic development. In order to establish market institutions, the involvement of the state is deemed indispensable.

Some scholars have associated this structural change with the concept of a "developmental state," a term usually applied to the postwar East Asian capitalist countries. Zhu Tianbiao (朱天殿) recently expressed the opinion that China now resembles the early developmental stage of Taiwan, when state-owned enterprises controlled the upstream production and export-oriented private firms were located in the downstream process.¹ He suggested that China is a developmental state in the making. State capacity has been shifting from its previous strength at the policymaking level toward a good balance between policymaking and policy implementation. However, how is the development of implementation capacity in China faring today? To what extent has China attained the model of the "developmental state"?

¹Tianbiao Zhu, "Building Institutional Capacity for China's New Economic Opening," in States in the Global Economy: Bringing Domestic Institutions Back in, ed. Linda Weiss (Cambridge: Cambridge University Press, 2003), 142-60.

This article examines the case of the software industry in Beijing and the implementation in the city of the array of new policies promulgated by the Chinese authorities since 2000 to assess the current state-business relationship in China. This is a documentary study supplemented by follow-up interviews with five software entrepreneurs in Beijing conducted in the summer of 2003.² The ultimate goal of the case study is to shed light on whether the Chinese state, especially the state at local level, is proceeding toward a "developmental state" model from the perspective of neostatism.

The first of the following sections reviews the theories and debates surrounding the "developmental state" model, thus offering a framework for analysis; the second is a discussion of the association between high-tech industry and the developmental state. This is followed by a background study of China's software industry and the policies concerning it, while the final section evaluates the state's progress using the example of the development of private software enterprises.

The Developmental State: Theory Revisited

Neo-classical economists assert that the state should be reduced to an economic regulator and arbitrator, and that its role in economic management should be minimized. However, many newly industrialized countries have experienced a high degree of state intervention during their economic takeoff. The success stories of Japan, South Korea, Singapore, and Taiwan exemplify this pattern. Chalmers Johnson dubbed this model the "developmental state." It does not follow that state intervention always has a posi-

²The five entrepreneurs were interviewed for the author's Ph.D. research in 1999. See Bennis Wai Yip So, "The Rise of Urban Private Enterprises in China: A Study of the Information Technology Sector" (Ph.D. dissertation, Australian National University, Canberra, 2001).

³Chalmers Johnson, MITI and the Japanese Miracle: The Growth of Industrial Policy, 1925-1975 (Stanford, Calif.: Stanford University Press, 1982).

tive effect. Such a state can take the form of a "predatory state," as defined by Peter Evans, the function of which is to extract resources from society, contributing nothing to national economic advancement. Cronyism, rentseeking behavior, and other corrupt government-business relationships are common in developing countries. Hence scholars of the developmental state emphasize the necessity for an "independent state will" which is able to transcend all business interests. The "strength" of a state is measured by them in terms of the degree to which it is independent of various social interests.

Based on the above theoretical foundation, numerous case studies of the developmental state have appeared since the 1980s. These have typically examined East Asian countries like Japan, South Korea, and Taiwan.⁵ Because of the complications of these narrative accounts and inevitable variations between different countries, there is no universally accepted definition of the developmental state, even though there have been attempts to derive common features from the individual cases.⁶ These common features may be listed as follows: (1) a high degree of state autonomy, being immune to social interests and having a strong and independent will (this feature is usually associated with an authoritarian state); (2) a cohort of capable technocrats and a bureaucracy with integrity that can facilitate economic development; and (3) the existence of a capitalist market economy, although it may be coupled with some state-guided economic plans and, especially, industrial policies that enhance its international competitive advantage.

⁴Peter Evans, *Embedded Autonomy: States and Industrial Transformation* (Princeton, N.J.: Princeton University Press, 1995), 12.

⁵In addition to Johnson's case study of Japan, other seminal works include: Alice H. Amsden, Asia's Next Giant: South Korea and Late Industrialization (New York: Oxford University Press, 1989); and Robert Wade, Governing the Market: Economic Theory and the Role of Government in East Asian Industrialization (Princeton, N.J.: Princeton University Press, 1990).

⁶See, for example, Ziya Öniş, "The Logic of the Developmental State," *Comparative Politics* 24, no. 1 (1991): 109-26; and Cheng Wei-yuan, "Fazhanxing 'guojia' huo fazhanxing guojia 'lilun' de zhongjie?" (The end of developmental "state" or the end of the "theory" of developmental state?), *Taiwan shehui yanjiu jikan* (Taiwan: A Radical Quarterly in Social Studies), no. 34 (July 1999): 1-68.

The developmental state model has been criticized, especially for its emphasis on the contribution of the "state" rather than the "market" to economic development. The viewpoints of critics can be summarized as follows. First, the model underplays the function of the market and the private sector; for instance, certain scholars contend that the economic success of Taiwan depended on small and medium-sized enterprises (SMEs) that flourished in a free market, rather than being a direct result of state planning. Even though Taiwan's success story is associated with its national industrial policy, the former was an unintended consequence of the latter. The industrial policy was initiated for political rather than economic reasons. Second, if industrial policy is really the key to success, why did the policy fail to bolster some industries, like the automobile and shipbuilding industries in Taiwan?

Two arguments may be raised in response to the above critiques. First, Chalmers Johnson's developmental state model refers specifically to a "capitalist" developmental state and thus does not deny the function of the market. Instead, it proposes that the state is able to leverage the marketplace. Second, there is no reason why the failure of certain industrial policies should mean that others are not successful. Many private enterprises fail, but this does not undermine the credibility of all private enterprises. In a word, we should not be confined by a government/market dichotomy—an oversimplification of which these critiques are guilty.

The developmental state model certainly has its shortcomings. In its traditional form the model stresses an independent state will that must transcend all business and social interests. The strength of a state is measured in terms of its degree of independence from social groups. "Statism" of this

⁷See, for example, Yongping Wu, "Rethinking the Taiwanese Developmental State," *The China Quarterly*, no. 177 (March 2004): 91-114.

⁸Chu Wan-wen, *Quanqiuhua xia de Taiwan jingji* (Taiwan's economy under globalization) (Taipei: Tangshan chubanshe, 2003).

⁹Hence, I do not concur with the attempt of Gordon White to place China in the category of the developmental state in the 1980s, as the planned economy was still playing a leading role and the market economy was just emerging. See Gordon White, *Developmental States in East Asia* (New York: St. Martin's, 1988).

kind is incapable of giving a cogent account of the success or failure of economic development. ¹⁰ In addition, in the wake of globalization, democratization, and the growth of the private sector, especially after the 1997-98 Asian financial crisis, the developmental state model has been challenged and is widely regarded as an obsolete notion. Some scholars have suggested that economic development in all the newly industrialized nations should return to the "normal" track of the Anglo-Saxon-style free market system. ¹¹

The proponents of the developmental state model, of course, do not take this view. Linda Weiss argues that the Asian economic crisis was a consequence of inappropriate financial liberalization in the 1990s and thus goes to prove that state involvement is indispensable.¹² To be sure, recent work on the developmental state model has revised the notion of "statism." In addition to Weiss, Peter Evans and John Hobson suggest that it is impossible and inappropriate for the state, in the process of driving national economic development, to dissociate itself fully from all social interests. The key is not whether the state should be associated with society or business but how this can be done so that problems such as particularism or rent-seeking behavior can be avoided. Peter Evans introduces the concept of "embedded autonomy" to describe an appropriate relationship between the state and society: on the one hand, the state should establish formal and informal ties with various social interests; on the other, the state should be able to transcend any particular interest.¹³ Weiss and Hobson identify not only the indispensability of state-civil society ties but also the need for close state-society partnership and mutual coordination. A de facto

¹⁰Richard F. Doner, "Limit of State Strength: Toward an Institutionalist View of Economic Development," World Politics 44, no. 3 (April 1992): 398-431.

¹¹Yun Tae Kim, "Neoliberalism and the Decline of the Developmental State," *Journal of Contemporary Asia* 29, no. 4 (October 1999): 441-60; and Eul-Soo Pang, "The Financial Crisis of 1997-98 and the End of the Asian Developmental State," *Contemporary Southeast Asia* 22, no. 3 (December 2000): 570-93.

¹²Linda Weiss, "State Power and the Asian Crisis," New Political Economy 4, no. 3 (November 1999): 317-42; and Linda Weiss, "Developmental States in Transition: Adapting, Dismantling, Innovating, Not 'Normalizing'," The Pacific Review 13, no. 1 (2000): 21-55.

¹³See note 4 above.

developmental state should have sufficient "infrastructural power" to mobilize and foster social resources in order to attain national economic goals. Accordingly, Weiss and Hobson propose that the relationship between the state and society should be a kind of "governed interdependence." In a word, this notion of "neo-statism" demands that we pay equal attention to the capability both of the state and of society. Cal Clark and K. C. Roy conclude from their comparative study of East and South Asian countries that a strong state machine and a strong society are equally important to national economic development. Alternatively, as Juhana Vartiainen indicates, successful state intervention depends on a relationship of "mutual dependence" or "mutual balance" between the state and the rest of the economy.

Such a view of state-society collaboration highlights the significance of "institutions" as well as the synergy of various factors within the institution. The fact that some industries have succeeded and some have failed reflects institutional variations within a country. As a result, recent studies have shifted their focus to the particular institutional structure of individual industries, rather than making generalizations on the basis of individual cases. For instance, Chen-dong Tso (左正東) demonstrates that differences in the institutional development of the state-technologist nexus in the semi-conductor and the wireless communications industries in Taiwan resulted in these two industries performing differently. On the foundation of Evans' work, Vibha Pinglé compares and contrasts the steel, automobile, and computer software industries in India to identify the factors that make for a successful "developmental state." She develops the theoretical framework of a "developmental ensemble," pointing out four essential institu-

¹⁴Linda Weiss and John M. Hobson, State and Economic Development: A Comparative Historical Analysis (Cambridge: Polity, 1995).

¹⁵Cal Clark and K.C. Roy, Comparing Development Patterns in Asia (Boulder, Colo.: Lynne Rienner, 1997).

¹⁶Juhana Vartiainen, "The Economics of Successful State Intervention in Industrial Transformation," in *The Development State*, ed. Meredith Woo-Cumings (Ithaca, N.Y.: Cornell University Press, 1999), 219.

¹⁷Chen-dong Tso, "State-Technologist Nexus in Taiwan's High-Tech Policymaking: Semi-conductor and Wireless Communications Industries," *Journal of East Asian Studies* 4, no. 2 (May-August 2004): 301-28.

tional factors necessary for the state to successfully develop an industry: (1) a cohesive bureaucratic structure with a strong *esprit de corps*; (2) an autonomous bureaucracy insulated from societal pressures; (3) political encouragement for bureaucratic innovation; and (4) noncontractual ties between bureaucrats and industry actors that allow for the transfer of information but do not lead to the capture of the latter by the former. ¹⁸ Of the above-mentioned three industries, only the computer software industry benefited from all four factors, enabling it to take a leading role in the recent Indian economic takeoff.

Despite these revisions of the model, neo-statism maintains its original state-centered characteristic. To be sure, from the viewpoint of political scientists, the role of the state in national economic development—how it can make a contribution to the national economy—is the main concern. In this, the "developmental state" model does provide a good framework. For example, the market-oriented reforms in China made use of the fiscal and monetary policies of Western market economies as a tool of macroeconomic leverage, while on the other hand upholding the ideology of mercantilism by using industrial policies to selectively boost individual industries in order to protect and promote China's global competitiveness. This basically follows the ideology behind the "developmental state" model.

China and the Developmental State Model

Most previous studies of the state's role in the economic development of post-Mao China have zeroed in on how the state/government spurred development through the public sector.¹⁹ In the models used by these

¹⁸Vibha Pinglé, Rethinking the Developmental State: India's Industry in Comparative Perspective (New York: St. Martin's, 1999), 6-10.

¹⁹Jean C. Oi, "Evolution of Local State Corporatism," in *Zouping in Transition: The Process of Reform in Rural North China*, ed. Andrew G. Walder (Cambridge, Mass.: Harvard University Press, 1998), 35-61; Marc Blecher, "Development State, Entrepreneurial State: The

scholars, the government plays the role of both an economic regulator and a producer. However, as a consequence of further marketization and privatization in the 1990s, private enterprises are becoming a major engine of China's economic growth and the state-society relationship in the economic sphere is being reordered. It may be that China will follow in the tracks of the East Asian developmental states. Empirically, some studies have begun to look at interaction between the state apparatus and private enterprises. However, many of these attempts only focus on the economic relationship between grass-roots rural governments and the private sector.²⁰ They seldom touch upon the issue of interaction between industrial policy and private firms.

Zhu Tianbiao is justified in suggesting that China is proceeding in the direction of a developmental state. However, whether this trend is accompanied by a strong implementation capability is another matter. As the World Bank has noted, "Good policies by themselves can improve results. But the benefits are magnified where institutional capability is also higher." China's recent rapid economic growth is unquestionably the consequence of the government's reform and opening-up policies. However, the pre-reform institutions are still exerting a strong negative impact and are constraining development. In this regard, Pinglé's "developmental ensemble" may help us to analyze to what extent China's state apparatus has been transformed into a developmental state. Of the four factors she puts forward, the first and the fourth deserve attention with regard to China. This is because the first factor—"a cohesive bureaucratic structure with a strong *esprit de corps*"—is strongly associated with the implemen-

Political Economy of Socialist Reform in Xinju Municipality and Guanghan County," in *The Chinese State in the Era of Economic Reform: The Road to Crisis*, ed. Gordon White (Armonk, N.Y.: M.E. Sharpe, 1991), 265-91; and Jane Duckett, *The Entrepreneurial State in China: Real Estate and Commerce Departments in Reform Era Tianjin* (New York: Routledge, 1998).

²⁰Marc Blecher and Vivienne Shue, *Tethered Deer: Government and Economy in a Chinese County* (Stanford, Calif.: Stanford University Press, 1996); and Jonathan Unger and Anita Chan, "Inheritors of the Boom: Private Enterprise and the Role of Local Government in a Rural South China Township," *The China Journal*, no. 42 (July 1999): 45-74.

²¹World Bank, World Development Report 1997: The State in a Changing World (Washington, D.C.: The World Bank, 1997), 33.

tation capability of the state, and the fourth factor—"noncontractual ties between bureaucrats and industry actors"—governs the relationship between the state and private enterprises.²² The socialist institutions of the past discriminated against the private economy, and even though the Chinese Communist Party (CCP) has now adopted a liberal policy toward the private economy, it is a moot question whether the state will be able to communicate effectively with private enterprises and form a relationship of mutual trust and partnership with them.

As for Pinglé's second factor—"an autonomous bureaucracy insulated from societal pressures"—even though China's bureaucracy is always closely connected with business interests, it usually works in the form of the "entrepreneurial state," i.e., the so-called problem of the "nonseparation of government and enterprises" (政企不分, zhengqi bu fen). In fact, the bureaucracy remains the most powerful independent interest group in China, and the private sector is relatively very weak. Hence, there is no question that the bureaucracy is insulated from societal pressures. With regard to the third factor—"political encouragement for bureaucratic innovation"—there is no doubt that the top echelon of the Chinese government has continuously encouraged economic development, as that is the key basis of the regime's legitimacy. The top leaders devolve decisionmaking power to local authorities and facilitate local bureaucratic innovation only if this can advance economic development. The situation that Pinglé worries about—that politicians will intervene in rational bureaucratic operations for electoral reasons—does not exist in China now, despite the introduction of limited grass-roots level elections in rural areas.

High-tech Industry and the Developmental State

High-tech industry has in recent years become a spearhead of global economic growth, and establishing a high-tech industrial base is now a

²²See note 18 above.

strategic policy objective for many developing countries. In general, the high-tech sector is highly marketized and internationalized, yet paradoxically the sector always demands a large input of state resources. Since the sector is highly risky and requires a large capital input, most private firms were reluctant to enter the industry at the outset. As a result, initial investment by the government was crucial. The Taiwan government's strategic investment in its semiconductor industry in the 1980s exemplifies such a pattern. Globalization certainly reduces the ability of the state to leverage development, but the high risks and huge capital inputs required by the industry, plus its short business cycle, makes it volatile and thus occasionally willing to embrace state intervention.²³ This intervention may have only a limited impact, but it is expected to make a positive contribution.

The high-tech industry is a robust sector which does not follow a traditional slow business cycle. The industry works in a highly competitive global market in which enterprises must be highly market-responsive. In these circumstances, it is difficult for capitalist cronyism to survive. The takeoff of the software industry in India was the result not only of the country's outstanding pool of human resources in this field but also of the technocracy's immunity to India's deep-seated and intertwined politician-business relationship.²⁴ The case of Taiwan's high-tech industrial development is similar. The heads of the administration of the Hsinchu Science Park (新竹科學工業園區), the cradle of Taiwan's semiconductor industry, are recruited from the high-tech field, not from the career civil service. They are familiar with the operation of the industry and usually have related experience overseas, which makes them strongly identify themselves with the industry. Despite the absence of the kind of publicprivate partnership between the government and conglomerates that exists in Japan and South Korea, the officials of the Hsinchu Science Park main-

²³Hidetaka Yoshimatsu, "State-Market Relations in East Asia and Institution-Building in the Asia-Pacific," *East Asia: An International Quarterly* 18, no. 1 (2000): 5-33.

²⁴Evans, *Embedded Autonomy*, 113-16; and Pinglé, *Rethinking the Developmental State*, 121-57.

tained formal and informal channels of communication with enterprises in the park.²⁵ As a result, compared with other government agencies, the park administration is more flexible and responsive, satisfying the sector's special demands. This is one factor that has led to the success of the industry in Taiwan.

Another unique characteristic of the high-tech industry is its network production structure. Saxenian considers this to be a significant factor in the success of Silicon Valley, 26 whereas social networks were previously always reduced to nepotism or patron-client relationships, being associated with rent-seeking behavior. However, this is never the case in the high-tech sector. For instance, the network production of SMEs in general in Taiwan is popularly regarded as being fraught with personal and blood relationships and they are usually run in the form of family businesses. According to a study by Jar-der Luo and Chu-yung Yeh, these personal ties found in Taiwan's traditional industries do not exist in the high-tech sector. Even though informal ties and trust relationships exist among high-tech enterprises, they are founded on "professional trust" that is the product of previous performance in cooperation. 27

The above discussion is aimed at showing how the impersonalized nature of the high-tech sector fosters the institution of "embedded autonomy" or "governed interdependence." The ideal governance structure of the developmental state is more likely to exist in this sector, as it does in the Indian software industry despite that country's history of corrupt relations between politicians and the business community. This author does not intend to overplay the association between the high-tech sector and the developmental state, but the proposition is at least justifiable. For this reason, the industry can be used to test whether China as a whole is evolving into a developmental state.

²⁵Author's interview with H. Steve Hsieh (薛香川), former director-general of the Hsinchu Science Park, April 26, 2004.

²⁶Anna Lee Saxenian, *Regional Advantage: Culture and Competition in Silicon Valley and Route 128* (Cambridge, Mass.: Harvard University Press, 1994).

²⁷Jar-der Luo and Chu-yung Yeh, "Reviewing Embeddedness: The Role of Trust in the Taiwanese Hi-tech Firms' Network Governance" (Unpublished paper, 2002).

The Development of the Software Industry and Related Policies in China

The history of the software industry in China can be traced back to the development of computers in the 1950s. At that time, software was not as highly valued as it is now, being considered a subsidiary to computer hardware. By the same token, software development had not yet become an independent industry. Before the mid-1980s, computers were only available to a handful of government agencies. The founding of the China Software Industry Association (中國軟件行業協會) in 1984 marked the burgeoning of the industry. However, software business before the mid-1990s was confined to producing hardware-embedded software, the localization of foreign software, and the production of in-house-developed or customer-designed software. Purely commercial software products were seldom to be found in the market.²⁸

The information technology (IT) industry in China has been associated with software development since its inception. It is not widely known that many of the pioneer IT enterprises, such as Levono (formerly Legend) (聯想), Stone (四通), Xintong (信通), Jinghai (京海), and Kehai (科海), started their businesses with software. Furthermore, although the government began promulgating policies concerned with the software industry very early, it tended to value hardware more than software until the end of the 1990s when the takeoff of the Indian software industry attracted official attention. It was then that substantive policies were formulated to buttress the industry.

The software industry has grown rapidly since the mid-1990s,²⁹ mainly in China's eastern and coastal regions. In 2002, the output value

²⁸Jeff X. Zhang and Yan Wang, The Emerging Market of China's Computer Industry (Westport: Ouorum Books, 1995).

²⁹The sales growth rate reached almost 30 percent every year, making it a significant part of the IT sector. Its share in the IT market rose from 25.6 percent in 1999 to 37.9 percent in 2002. See China Software Industry Association, *Zhongguo ruanjian chanye fazhan yanjiu baogao* (Annual research report on the development of China's software industry, 2002-2003) (2003), 75.

of the software industry in Beijing, Shenzhen (深圳), Guangdong (廣東), Shanghai (上海), Zhejiang (浙江), and Liaoning (遼寧) comprised over 60 percent of the national total.³⁰ Furthermore, most of that industrial output is concentrated in the cities of Beijing, Shanghai, Shenzhen, Shenyang (瀋陽), and Nanjing (南京). As the software industry is relatively young and the threshold for starting a business in the sector is not very high, non-state-run firms are better equipped to enter the industry and they account for the majority of software enterprises. In 2002, the number of state-owned and collective software enterprises only accounted for 3.9 percent of the national total.³¹ Hence, the industry is a stronghold of private enterprise in China. Many of the most successful firms, like Lenovo and Ufsoft (用友), are private.

In response to the boom in software exports in India, the Chinese government has begun to encourage its businesses to export (see table 1). Exports mainly take the form of offshore outsourcing contracts and over 60 percent of these come from Japan. However, most Chinese partners in this field are only engaged in low-end programming services in contrast to the higher-end activities undertaken by their Indian counterparts.

National Policy for the Software Industry

Around the mid-1990s, the Chinese government began to take the software industry seriously and established many software parks in order to promote the formation of industrial clusters and to nourish a pool of talent. Some software enterprises and universities also set up their own software parks, and now there are more than thirty such parks in China. However, policy leverage has only recently begun to be applied to the industry. In July 2004, Vice Premier Wu Yi (吳儀) announced that the state would prioritize the development of the sector into a strategic in-

³⁰Ibid., 85.

³¹Ibid. 86.

Table 1 Chinese Software Industry Sales (1996-2003)

							Unit: Billion yuan			
	1996	1997	1998	1999	2000	2001	2002	2003		
Software Products ¹	9.2	11.2	13.8	18.2	23.8	33.0	50.74	80.5 (including exports)		
Software-related Services ²	11.3	14.8	18.7	23.85	32.2	40.6	46.86	79.5 (including exports)		
Software Exports	_	-	-	2.1	3.3	6.0	12.4	16.5		
Total	20.5	26.0	32.5	44.15	59.3	79.6	110	160		
Growth Rate	46.8%	31.0%	26.4%	35.8%	34.3%	34.2%	38.2%	45.5%		

Notes:

Sources: China Software Industry Association, *Zhongguo ruanjian chanye fazhan yanjiu baogao* (Annual report on China's software industry, 2002-2003) (2003), 79; and China Software Industry Association, *Zhongguo ruanjian chanye fazhan yanjiu baogao* (Annual research report on the development of China's software industry 2004) (2004), 53.

dustry.³² The most important of the central government policies designed to promote the industry is State Council Document No. 18 of 2000—"Some Measures for Encouraging the Development of the Software and Integrated Circuit Industries" (鼓勵軟件產業和集成電路產業發展的若干政策, hereafter called Document No. 18).³³

The most important measures for the software industry in this document, which were widely appreciated in the industry, are as follows:

1. Venture capital is to be encouraged to invest in the software industry; a stock market for high-tech shares (analogous with New York's NASDAQ) should be opened as soon as possible. No matter what kind of

¹Software products are composed of system software, application software, supporting software, and hardware-embedded software.

²Software-related services are composed of system integration, consultation service, training, testing, maintenance, outsourcing programming, and pre- and post-sales service.

³²Renmin ribao (People's Daily), July 28, 2004, 2.

³³This document is available at http://www.zgc.gov.cn/cms/data/118/5081.doc.

ownership they are under, software enterprises should be given priority to go public only if they meet basic terms and conditions.

- 2. Software enterprises which have developed original products can claim a value-added tax rebate amounting to the difference between the *de facto* tax payable at a rate of 3 percent and the normal tax at 17 percent. Any new software enterprises that have been officially certified are to be granted a tax holiday for two years and will only have to pay half their income tax for another three years after they begin to make a profit.
- 3. Enterprises whose annual software exports are worth at least US\$1 million can enjoy independent export rights.³⁴
- 4. The government should give priority to domestic enterprises when procuring software for key state systems and computer projects. A domestically produced software system should be procured as long as it is not inferior in quality or function to imported systems and as long as its price is not higher.³⁵

In July 2002, another State Council policy document, "An Action Outline for Promoting the Software Industry" (振興軟件產業行動綱要),³⁶ was published. This document was aimed at consolidating the measures contained in Document No. 18. It set a sales target for the software and related services industry of 250 billion *yuan*, representing 60 percent of the market, by the end of 2005. The government promised that during the Tenth Five-Year Plan (2001-05), funds set aside in the central government budget for the industry would total at least 4 billion *yuan*. Moreover, the central government would allocate another 1 billion *yuan* specifically to promote the industry during the years 2003-05.

³⁴Private enterprises in general cannot directly export their products but have to do so through a trading company that is usually a state firm.

³⁵So, "The Rise of Urban Private Enterprises in China," 258.

³⁶This document is available at http://www.csia.org.cn/info/government/policy_statedepartment 200247.htm.

Case Study: The Development of the Software Industry in Beijing

Background

Beijing is a major cradle of the software industry in China, and many renowned software developers are located there. Recently, the annual growth rate of the industry reached almost 30 percent, which is three times the GDP growth rate of the municipality in general.³⁷ Since Beijing is the national hub of higher education and research, it is an ideal location for the knowledge-based software industry. Back in the 1980s, many faculty members started business ventures in Beijing, a practice known as xiahai (下海, jumping into the sea of private business). Their firms were usually clustered in and around the Haidian District (海淀區), where the national key universities and research institutes are situated. This cluster became known as "Electronics Street of Zhongguancun" (中關村電子一條街, Zhongguancun dianzi yitiaojie). These private initiatives received official recognition in 1988 when Zhongguancun became the first New and High Technology Development Zone. The zone, which was established to foster high-tech industries, was initially entitled the "Beijing Municipal Experimental Zone of New Technology Industries" (北京市新技術產業開發試 驗區, Beijingshi xinjishu chanye kaifa shiyangu), and in 1999 it was expanded and renamed the "Zhongguancun Science Park" (中關村科技園, Zhongguancun kejiyuan).

As the capital of a socialist country, Beijing has been dominated by the state-owned economy, and this is why a bottom-up development like this is such an interesting phenomenon. According to Adam Segal, the

³⁷In Beijing, there are more than 120,000 people working in the industry. Sales were worth 38.5 billion *yuan* in 2003, compared to 29.1 billion *yuan* in Shanghai. In that year, officially certified software enterprises in Beijing accounted for 20.1 percent of the national total. Beijing firms were responsible for the highest number of registered software copyrights (4,751 or 43.1 percent of the national total). Shanghai, in second place, registered only 1,312 (11.9 percent). See China Software Industry Association, *Zhongguo ruan chanye fazhan yanjiu baogao* (Annual research report on the development of China's software industry, 2004), 61, 171, 467-69; and Cao Sui and Liu Hong, eds., *Beijing hangye fenxi baogao* (Report on industries in Beijing) (Beijing: Zhongguo iingii chubanshe, 2004).

central government has readjusted the economic role of Beijing during the reform era, changing its orientation from heavy industry to new technology and services. In addition, Beijing has never borne such a heavy revenue remittance or fiscal burden as Shanghai or Xi'an (西安). As a result, the municipal government has tended to tolerate the growth of the non-state sector. Furthermore, high-tech entrepreneurs have usually had informal ties with central government officials which have protected them from intervention by the local government.³⁸

Driven by the growth of high-tech firms, the private economy has proliferated in recent years and now half of all enterprises in Beijing are privately-owned. In the Zhongguancun Science Park, 90 percent of firms are privately-owned. The majority of these are concentrated in the Haidian District, at the core of the park. Most software firms in Beijing are SMEs. In 2002, there were 1,045 small software firms with an annual revenue of less than 1 million *yuan*, accounting for 44.1 percent of the total. There were only 451 (19 percent) large firms with a revenue of more than 10 million *yuan*.³⁹ In comparison, software firms in Shanghai and Shenzhen are fewer in number but their average scale is much larger. This is because most of the Beijing firms are private ventures which are usually small in scale.

Policy Implementation in Beijing

The Beijing municipal government sets great store by the development of the software industry, promoting it as a spearhead of municipal economic growth. In 2003, the government issued a "Five-Year Action Outline for Upgrading Zhongguancun Science Park" (中關村科技園區五年上台階行動綱要) and a "Long Wind Plan" (長風計劃) that was spe-

³⁸Adam Segal, *Digital Dragon: High-Technology Enterprises in China* (Ithaca, N.Y.: Cornell University Press, 2003), 53-55.

³⁹Section on Society and Technology, "Ruanjian qiye yangfan qihang: 2002 nian ruanjian chanye fazhan baogao" (Launching of software enterprises: report on the development of the software industry in 2002), website of statistical information of Beijing: http://www.bjstats.gov.cn/gcfx/tjbgjzl/kjfz/200305230006.htm.

cifically aimed at promoting the software industry.⁴⁰ The plan set a goal of more than 80 billion *yuan* worth of sales by the end of 2005, 1.4 times the volume in 2002. The measures adopted by the municipal government are broader and more liberal than those in Document No. 18. Municipal Government Document No. 4 issued in 2001 allows any software firms whose exports are worth at least US\$1 million or *whose registered capital is at least 2 million yuan* (a condition that is obviously more easily fulfilled) to register for independent export rights with the municipal economic and foreign trade commissions.⁴¹ According to this author's interviews with software entrepreneurs in Beijing, this measure has been implemented.

Even though the Chinese government has made efforts to promote the software industry, the implementation of its policies is hampered by many obstacles. The first and foremost of these are financing problems. A high-tech stock market has yet to be set up. The SME market, which was opened in Shenzhen in April 2004, is only a mini version of the

⁴⁰Zhongguancun Science Park Administration, Zhongguancun shangve zhinan (Zhongguancun science park business guide) (Beijing: Zhongguo shangve chubanshe, 2004), 27-32; and for the coverage of the Long Wind Plan, see Beijing ribao (Beijing Daily), March 3, 2003.

⁴¹However, the corresponding measures in Xi'an and Guangzhou (廣州) are more generous. Firms with registered capital of only 1 million *yuan* can enjoy the same rights. See *Zhongguo gaoxin jishu chanye daobao* (中國高新技術產業導報, China High-Tech Industry Herald), December 9, 2003.

main market. Apart from a lower minimum share threshold for listing, other terms and conditions are the same, and it is still a far cry from the NASDAQ-style market that most high-tech entrepreneurs would like. With the bursting of the high-tech economic bubble in 2000 and the lack-luster performance of the Growth Enterprise Market in Hong Kong, it is no wonder that the government is in two minds about this issue.⁴²

In addition, according to interviews with entrepreneurs in Beijing, it remains difficult for private firms to obtain bank loans. Before they ask for a loan, they need to apply for a loan warrant, and according to one survey, only 330 out of 7,000 substantial enterprises in Zhongguancun were able to obtain loans for cash flow, a success rate of 4.7 percent.⁴³ Despite claims by the municipal government in recent years that it was introducing measures to help SMEs solve their financing problems, there has been no sign of anything actually being done. For instance, the National Development Bank and Beijing Commercial Bank offered a total quota of 5 billion yuan in guaranteed loans for SMEs in Zhongguancun. However, to qualify for the loans a firm had to have annual revenue of between 20 million and 500 million yuan, and the loans were only worth 10-30 million yuan each.⁴⁴ This lending policy is clearly too conservative for most SMEs. The banking and credit system in China is underdeveloped and problem-ridden, and banks are unable or unwilling to bear high credit risks, so most SMEs seldom qualify for bank loans. For those that do qualify, the loans are usually too small to meet their real needs. Furthermore, the traditional way of lending money upon collateral is unsuitable for the development of high-tech industry that is usually thirsty for capital.

In fact, most high-tech firms tend to look for venture capital rather than bank loans. The IT industry in China has been the major target of venture capitalists. In 2002, the industry absorbed 57 percent of all venture capital in China, of which 36.6 percent was taken by the software sector.⁴⁵

⁴²Zhonghua gongshang shibao (China Business Times), April 28, 2004.

⁴³Zhongguo gaoxin jishu chanye daobao, August 6, 2004.

⁴⁴Xinhua, June 5, 2003.

⁴⁵Zhongguo ruanjian chanye fazhan yanjiu baogao (2003), 185.

However, compared to other countries, the flow of venture capital into the Chinese market is small in scale. The average investment in a single project was around US\$1.94 million in 2002, whereas a similar project in the United States would attract US\$5.45 million.⁴⁶ In 2003, only twelve Chinese software firms (excluding telecommunications firms) obtained venture capital, of which five were from Beijing, two from Shenzhen, and one from Shanghai.⁴⁷

Even though venture capital has been used in China for over a decade, its development is still far from mature. It tends to be very conservative, especially when it comes from the government, for which the Western idea of only a 10-20 percent success rate is not acceptable. 48 This funding operates in a somewhat similar way to a bank loan. Although non-state and foreign venture capital are alternative sources of funding and have been active in the Chinese market in recent years, the lack of outlets for their investments (mainly the lack of a stock market for high-tech firms) makes it difficult for venture capitalists to make a profit and recycle their funds into new investment projects. That discourages them from expanding their investment. In addition, venture capital firms in China, unlike their foreign counterparts, do not enjoy any tax breaks. This has a further negative impact upon the market. As a result, the growth rate of venture capital inflow slowed down for the first time in 2001 and hit an all-time low of 21.3 percent in 2003.⁴⁹ This downturn reflected dissatisfaction with the market among venture capitalists. In response to this major obstacle to high-tech industrial development, the third plenary session of the CCP's Sixteenth Central Committee in 2003 finally resolved to establish a multilevel capital market system. Obviously the state's response to this issue was too slow.50

⁴⁶Ibid., 190.

⁴⁷Zhongguo ruanjian chanye fazhan yanjiu baogao (2004), 159.

⁴⁸Eric Harwit, "High-Technology Incubators: Fuel for China's New Entrepreneurship?" *The China Business Review* 29, no. 4 (July-August 2002): 27.

⁴⁹Jingji chankaobao (經濟參考報, Economic Reference News), August 3, 2004.

⁵⁰This resolution is available at http://news.xinhuanet.com/newscenter/2003-10/21/content_ 1135402. htm.

ISSUES & STUDIES

As for preferential tax treatment, the private software firms are getting the tax rebate promised by the new policy.⁵¹ However, the local tax bureau has been unable to fulfill the state's promise to settle rebate payments immediately after tax is paid. According to this author's interviews with entrepreneurs, the rebate payment is always deferred by one or two months, and according to a report by the China Software Industry Association, the time gap can exceed three months.⁵² This has an adverse effect on corporate cash flow. The failure to implement this policy properly is attributed to the limited national annual tax rebate quota

The State-Enterprise Relationship under the Implementation of These Policies

In the developmental state model, there are two aspects to the stateenterprise relationship: (1) whether the state is able to promote industrial development and facilitate the growth of enterprises by providing them with good services; and (2) whether the state forms a partnership with enterprises, working hand-in-hand with them to promote national industrial development.

In recent years, the Beijing municipal government has indeed improved its services to enterprises. It has streamlined administrative procedures for company registration in Zhongguancun, stipulating that the Industry and Commerce Administration (工商管理局) should complete the procedure in ten days, rather than the thirty days it took in the past. According to this author's interviews and media reports, this target is being met.⁵³ The municipal government also offers services online, which enhances administrative efficiency and minimizes red tape and corruption.

⁵¹According to my doctoral research, high value-added tax and the lack of a tax allowance was complained about by most software entrepreneurs. See So, "The Rise of Urban Private Enterprises in China." 250-51.

⁵²Zhongguo ruanjian chanye fazhan yanjiu baogao (2003), 120.

⁵³Xinhua, April 23, 2001.

Even though most of the entrepreneurs the author interviewed remain dissatisfied with the government's performance in many respects, they all agree that much progress has been made in recent years.

The promotion of software exports is a significant strategy contained in the policy. From 2000 to 2003, China's exports of software grew rapidly, registering an average annual growth rate of 67 percent (see table 1). In 2002 Beijing overtook Shanghai to become China's third most important source of software exports.⁵⁴ However, at the outset the customs authorities treated software exports as "tangible" goods, a classification that always delayed export clearance and allowed for the imposition of unreasonable customs tariffs. Now the municipal government levies a business tax rather than value-added tax on software exports. The government also allows software developers to export their products over the Internet, exempting them from the procedures required for "tangible" goods. The central government has also lifted limits on the opening of foreign currency accounts for domestic software firms.⁵⁵ The impact of these changes can be seen in the experience of one software firm interviewed for this study which is engaged in outsourcing services. The firm now only pays business tax at a rate of 5.5 percent. It can directly receive foreign currency payments, although it still experiences problems in transferring foreign currency overseas. The firm needs to subcontract some jobs to firms in Japan and Korea, but government approval is required for any transfer over US\$2.000, which causes inconvenience for the business.

In order to promote the software industry, the government has abolished many of its old controls, but it has also imposed new ones. For instance, the government has introduced a "software enterprise and product certification system" through which enterprises qualify for preferential treatment.⁵⁶ All certified software firms have to be examined annually,

⁵⁴The first and second are Shenzhen and Guangdong Province, respectively. See *Zhongguo ruanjian chanye fazhan yanjiu baogao* (2003), 110.

⁵⁵Ibid 480

⁵⁶For the certification system, see http://www.csia-srrd.org/gzgc.htm.

and any that fail the examination are disqualified. This practice to a certain extent reflects the fact that it is still the administrative authority rather than the market that determines the performance of a firm.

The certification system is administered by local software industry associations. Although these are nominally nonofficial intermediaries, they are in fact government-led consultative organizations that execute administrative tasks on behalf of the government. Like other such organizations in China, they are not advocates of the industry. Most software enterprises rarely have any contact with their local associations unless they need to apply for certificates. The active members of the association are usually entrepreneurs of large firms. The Beijing Software Industry Association was set up in 1986, but it has only around three hundred members, whereas there are more than three thousand software firms in the IT hub. Above the Beijing Software Industry Association is the Center of Software Industry Promotion of Beijing, a semiofficial organization. These organizations are somewhat like "peak associations" under the structure of "state corporatism."

To sum up, the state is really trying to play the role of economic facilitator and has tried to relax its control over the software industry. However, the state remains unable to form partnerships with enterprises. Government officials still tend to act as "arm's length overseers." According to this author's interviews, there is still a lack of communication between the state and entrepreneurs. Entrepreneurs do not trust the government much and they seldom make active attempts to influence government policy. In fact, some entrepreneurs do not understand the thinking behind government policies. For instance, they do not understand why the government does not simply lower the tax rate, rather than getting them to pay tax and then claim a rebate.

⁵⁷See Zhai Hongxiang et al., eds., *Hangye xiehui fazhan lilun yu shijian* (The theory and practice of industry association development) (Beijing: Jingji kexue chubanshe, 2003).

The Government's Strategy of Developing the Software Industry and Its Capacity

Since the mid-1990s, "ownership" has no longer been a significant point of consideration for the government's industrial policy. State- or publicly-owned enterprises are not able to gain a competitive edge simply on account of how they are owned. Even though state-owned enterprises have better access to various resources, the key to competitive advantage nowadays consists of technology, creativity, and marketing ability, and in these respects quite a few private enterprises are able to outstrip their state-owned counterparts.

In the software industry, the advantages enjoyed by private firms are more evident. Even though basic software systems are usually developed by large state-owned software enterprises, such as Chinese Linux, local commercial application software packages are dominated by private firms. Some of these have caught the government's attention and gained policy support. Only if a firm is able to create a market niche and thus achieve takeoff will it become the target of government support. The Chinese authorities clearly adopt a "pick-the-winner" strategy to foster the industry, and those enterprises picked by the government enjoy more advantages. For example, the privately-owned Ufsoft is the biggest financial software group in China. It is now also one of eighteen "key-point" (重點, zhong-dian) software enterprises in Beijing, and it recently became one of only three software enterprises to be granted a cut in income tax from 15 percent to 10 percent.⁵⁸

However, this strategy may be creating an unfair and unhealthy competitive environment. In recent years, large-scale enterprises in Beijing have tended to be given the most advantages and benefits, leaving the small ones in a highly vulnerable condition. In 2002, the average annual earnings of large software enterprises were 66.37 million *yuan* (up 3.6 percent over

^{58&}quot;Three Chinese Software Makers Pay Lower Taxes," SinoCast Business Daily News, February 25, 2004, 1.

the previous year). In comparison, medium-sized ones earned an average of 3.684 million *yuan* (down 1.1 percent), and small ones earned only 0.22 million *yuan* (down 33.7 percent).⁵⁹ In Taiwan, the government also encouraged the emergence of "flagship" enterprises to drive industrial advancement. However, the Taiwan government has never given such enterprises preferential treatment, choosing instead to offer them more government services.⁶⁰

Another way in which the Chinese authorities help the industry is by favoring the use of domestic software systems in government agencies. For instance, in 2001 most government agencies attempted to change from Microsoft Office to WPS, an office software package developed by the private company Kingsoft (金山). This move was eventually abandoned as the domestic system was ridden with problems even though it was much cheaper than the Microsoft system. Favoritism in government procurement alone has not succeeded in strengthening the domestic sector. Instead, technological improvement through more domestic competition remains the key to advancement. China still has a few years in which it can protect its domestic sector before it has to open the market fully to foreign firms around 2010 in accordance with WTO rules.

The piracy problem is another obstacle to the development of the software industry. The more popular a software product is, the more likely it is to be pirated, and the piracy rate can exceed 90 percent. Professional software products, in contrast, are less likely to be pirated. This is why many software developers in China are reluctant to develop packaged software products, concentrating instead on programs that must be run with professional support, hardware-embedded software, system integration services, or other software-related services. Before 2001 software-related services still accounted for half of all software sales (see table 1), which is

⁵⁹See note 39 above.

⁶⁰Author's interview with H. Steve Hsieh, former director-general of the Hsinchu Science Park, April 26, 2004.

⁶¹Michael E. Porter, *The Competitive Advantage of Nations* (New York: Free Press, 1990), 662.

a sign that commercial packaged software products did not have a significant share of the market. Hardware-embedded software is also expanding its market share. ⁶² Thousands of software firms which do not follow these paths are forced out of business by piracy every year. Most profitable software firms specialize in these two areas, especially in management software that requires professional support during its operation.

Piracy is a major reason why not many of the huge number of software firms in China have been able to grow into large companies. An education software developer interviewed for this study said that despite the fact that his firm's software package had been rated the best in its category by a computer magazine, his sales were poor. He complained that 95 percent of users of his software were using pirated packages. Since this author first met him in 1999, he had been forced to cut costs by reducing his office space. His software package was being sold at a very low price, and was earning only a marginal profit. This case is typical among small private software developers. Even though the government has introduced anti-piracy measures and cracked down severely on software pirates in recent years, the problem remains rampant. To be sure, it is unfair to blame the government alone for this problem, but it is evident that the government lacks the capacity to enforce its anti-piracy laws properly.

The growth of any industry is driven by profits, and despite being a sunrise industry, the software sector has seen its profits slump in recent years, and they are now even lower than they were in the golden age of the 1980s. Because of fierce competition in the software market plus a serious piracy problem and other institutional drawbacks, the majority of small software firms are now struggling to survive. While the overall figures for the industry look quite promising, there are many potentially serious

⁶²Software products are mainly composed of application software that accounts for around 60 percent of the sales (others including system software and supporting software). See China Software Industry Association, *Zhongguo ruanjian chanye fazhan yanjiu baogao* (2004), 55.

⁶³For government action on piracy, see John Wong and Wong Chee Kong, "China's Software Industry: Moving on the Fast Track," *Journal of Chinese Economic and Business Studies* 2, no. 1 (January 2004): 78-80.

problems on the horizon. The question now is whether the state will play the role of a facilitator or an obstacle.

Conclusion

From the above analysis, it is clear that although the state is attempting to facilitate the development of the software industry in China, it is at the same time erecting many obstacles to that development. This author agrees with Zhu Tianbiao that China's communist regime is evolving into a developmental state. With regard to the software industry, one of the sectors in which the governance structure of the developmental state is most likely to emerge in China, the state authorities concerned are better able to provide adequate services than the average government agency and are more responsive to demands from the industry. However, the sector is still lacking the first and fourth factors in Pinglé's "developmental ensemble." With regard to the first factor—"a cohesive bureaucratic structure with a strong esprit de corps"—the different parts of the state apparatus still lack the capacity to coordinate policy execution, something that is typically reflected in the areas of financing and taxation. The "fragmented authoritarianism" that emerged during the post-Mao era is possibly the reason for this lack of coordination.⁶⁴ Other outmoded pre-reform institutions (like banking) also constitute hidden costs for economic development. As for the fourth factor—"noncontractual ties between bureaucrats and industry actors"—there is still a lack of communication and mutual trust between the state machine and enterprises, and a structure of "governed interdependence" has yet to develop. Under the kind of state corporatism that exists in China, certain big enterprises can exert a real influence on policy, but the industry overall has insufficient communication with the government. Most government officials still see themselves as "controllers," be-

⁶⁴Kenneth G. Lieberthal and David M. Lampton, eds., *Bureaucracy, Politics, and Decision Making in Post-Mao China* (Berkeley: University of California Press, 1992).

cause they believe that in a country as big as China, confusion will reign if there is no control.

In addition to looking at this issue from the perspective of Pinglé's "developmental ensemble," this author suggests two more points for readers' consideration. First, Chinese government officials in charge of hightech policy tend not to have business experience (particularly overseas business experience), unlike their counterparts in Taiwan. This may have a negative impact on the quality of policymaking. According to this author's observations, IT industrial policymaking in China has tended to be a reaction to spontaneous developments in the industry. No sooner had officials noted the outstanding performance of Indian software exports than they made corresponding measures to promote exports in China. Computer games software was disregarded by the authorities in the 1990s, but the official attitude changed once they recognized the boom in online gaming in South Korea. In 2003, the development of online games was for the first time included in a list of 863 national research projects. The above examples reflect a tendency toward conservatism among government officials in this sphere. Second, the "pick-the-winner" strategy of the Chinese authorities is debatable. A policy bias toward certain individual enterprises has been a general practice in China's industrial policy. Whether this practice hampers healthy domestic competition and whether the bias should be in favor of particular industries rather than individual enterprises are two critical questions in the "developmental state" debate.

In conclusion, although China may be proceeding toward a developmental state, from the point of view of "neo-statism" it still has quite a long way to go before it achieves this goal. To borrow Peter Evans' term, China is still an "intermediate state," where the performance of the state apparatus is not consistent and certain sectors within the state can occasionally show the performance of a developmental state. We should note that the historical context of the Chinese state in the post-Mao era is very different from that of the other postwar East Asian states. This different

⁶⁵Evans, Embedded Autonomy, 60.

ISSUES & STUDIES

context may possibly lead to another pattern of developmental state, or may be an obstacle to China's evolution into a developmental state at all. Further observation is necessary before we can answer these questions.

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