



An institutionalized policy-making mechanism: China's return to techno-industrial policy



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ABSTRACT

Technology and innovation policy in China shifted dramatically in 2003, returning to “techno-industrial policy” that involves direct government interventions to shape specific industrial sectors. This article precisely documents the shift and shows that it occurred through two successive waves of policy change. This policy shift was formulated through a policy process that, like others in China, has become increasingly institutionalized. The article introduces a general four-phase model that describes the structured policy process in China. In the case of innovation policy, this structured policy process facilitated a shift to a substantially more interventionist policy.

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1. Introduction

Since Gerschenkron (1962) first advanced the theory of development in economically backward countries, the role of the state in fostering development has been intensively researched and discussed. In East Asia, Japan and Korea extensively used targeted industrial policies to accelerate the catch-up process (Johnson, 1982; Amsden, 1989). As these economies drew closer to the technology frontier, they generally shifted from industrial policy to innovation policies which stressed knowledge infrastructure, entrepreneurship and efficient markets (Kim, 1997; Acemoglu et al., 2006; Eichengreen et al., 2015). For twenty-five years, from the beginning of economic reforms in 1978 until 2003, China seemed to be following a similar trajectory. From a starting point in a planned economy, market reforms and technological catch-up led to a dramatic reduction in targeted interventions, and the development of an increasingly market-oriented national innovation system (IDRC and SSTC, 1997; Dahlman and Aubert, 2001; Liu and White, 2001; OECD, 2008). However, after 2003, China broke with this trajectory in important respects, with a dramatic return to “techno-industrial policy” that involved direct government interventions to shape specific industrial sectors. This shift

was not widely acknowledged at that time, but it has since caused fundamental changes in the mode of operation and outcomes of China's innovation system. As the “China model” has appeared to be attractive to many, China's shift has encouraged a new round of discussion and debate about the role of government in fostering innovation. Moreover, China's trajectory has been surprising in that it has not fit the trend toward a “lighter touch” government innovation policy as its economy has matured and moved toward the technological frontier. In spite of the importance of China's policy shift, there has been little work that examines exactly how the change took place.

This paper examines China's shift in innovation policy beginning in 2003 and shows that it was a major turning-point, in two senses: *policy* was different after the shift, and the *direction* of policy evolution was different after the turning point. That this turning point had such broad and lasting impact suggests that both political and economic frameworks may be important in explaining the change. First, from a purely political perspective, the policy change would have been the outcome of competition between market reformers and advocates of government intervention. In this sense, the policy turning point shows that leaders with new policy preferences adopted a new “path” and began to move policy in a different direction. Second, from a broadly economic perspective, we expect that when economic conditions and capabilities change, policies change in response. One practical variant of this economic approach might be that Chinese leaders were long-term adherents of a “developmental state” whose preference for state-

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led economic development had been temporarily restrained (in the 1990s) by a lack of state resources and developmental capacity. When economic conditions changed after the turn of the century, policy-makers seized the opportunity to build capacity and mobilize resources. These two perspectives are to some extent competitive, but they are not mutually exclusive, and both have validity. Each provides a plausible causal framework for policy change: to go further in understanding policy change, it is necessary to first open the “black box” of policy process and show how change actually took place.

This paper examines the policy process in detail to show how policy was made. We adopt an institutionalist perspective to illustrate how politicians and bureaucrats in practice influenced policy outcomes through specific organizations and procedures. We found that a highly structured policy process was used to facilitate policy change and had a significant influence on specific outcomes. Our purpose is not to adjudicate among different causal explanations of the policy turning point. Rather, by showing precisely when and how policy changed, we seek to clarify the specific policy actions that need to be explained by competing interpretations and thereby provide boundaries to the explanatory potential of different approaches. We then return to these issues in Section 6.2 below.

This paper makes three main contributions. First, we show that China’s policy toward technology development and innovation shifted dramatically after 2003. The shift in policy was carried out through two successive “waves” of policy, which we treat analytically as two cases. The first wave reached its “peak” in 2006, with the adoption of the Medium and Long Term Program of Science and Technology (hereafter, MLP), which emphasized “indigenous innovation” and provided funding for sixteen Megaprojects. The second wave reached its peak in late 2010, with the program for Strategic Emerging Industries (hereafter, SEIs). After these two peaks passed, policy stabilized. We document this change and explain how it occurred, thus contributing to the understanding of China’s innovation policy and national innovation system.

Second, this paper shows that, as part of a long-standing effort to rationalize policy-making, China has adopted increasingly institutionalized rules and procedures that structure input into policy-making. Institutionalization has gradually occurred in nearly every policy arena in China, and reached new heights during the Premiership of Wen Jiabao (2003–2013). We present a general four-phase model of the policy process that makes the institutional structure explicit and is applicable in many policy arenas in China. The four phases are policy fermentation, formulation, specification and implementation. We use the two “waves” of policy as two separate but closely related case studies to illuminate common features of the policy process and to explain certain aspects of technology and innovation policy in China.

Third, we examine the relationship between institutionalization of the policy process in the S&T field and the shift in technology policy. In general terms, any structured policy process determines which actors and opinion groups have a voice, and how opportunities and capabilities are represented to decision-makers. In the particular case of Chinese technology policy, the consultation process was structured in a way that facilitated the adoption of a distinctly more interventionist technology policy.¹ We identify three concrete mechanisms through which this occurred. The more highly institutionalized process: (a) gave leaders leeway to structure the policy consultation process, thereby allowing them to give greater “weight” to voices that supported a more activist govern-

ment role; (b) allowed the top leader to build in specific objectives, facilitating targeted industrial policies; and (c) handed over policy specification to bureaucrats at an early stage, encouraging direct government interventions. These mechanisms contributed to a robust process that led to a major, long-lasting turn in China’s technology policy.

This paper draws on the policy process literature, and applies it to China. The foundation is Ostrom’s analysis of institutionalization as a process incorporating designated actors and acknowledged “rules in use.” (Ostrom, 1990, 2007). Study of the Chinese policy process was pioneered by Lieberthal and Oksenberg (1988), who identified bureaucratic interest groups and the processes through which they influenced policy. The approach was applied specifically to innovation policy by Breznitz and Murphree (2011), Segal (2003), and others. Subsequent literature sought to explain how this fragmented and authoritarian political system became effective enough to support robust economic development. Three main approaches can be identified, respectively stressing decentralized policy-making (Xu, 2011); adaptive policy-making (Heilmann, 2008); and institutionalization (Ma and Lin, 2012). Our work developed within the “institutionalization” paradigm (Cf. Liu et al., 2011). The effort to achieve policy rationalization led the Chinese government to consult with experts and create a more institutionalized policy process incorporating more complexity with greater predictability. In our definition, policy process institutionalization increases as: (a) the number and type of interest/opinion groups routinely represented increases; (b) tasks in the policy process are assigned to different actors in predictable ways; (c) the complexity and level of detail of policy outcomes increases; and (d) objectives and criteria of policy are available that can serve as the basis for discussion and argument among diverse opinion groups. The three main approaches in the policy process literature have not been tested against each other; we discuss the contrast between our approach and others in Section 6.1.

Our research follows a process-tracing methodology. Based on our understanding of the Chinese system, we first identified several distinctive features of the Chinese policy process. We then traced the policy process through the first case (the MLP), and developed our four-phase model. In order to verify the adequacy and reliability of this model, we then traced the policy process through the second case (SEIs). Our data come from open source materials as well as a few interviews with officials and experts conducted between 2011 and 2013. These interviews helped us test ideas for plausibility, but facts are included in this article only after they have been independently verified by publicly available sources.

The rest of this paper is structured as follows: Section 2 first presents the policy outcomes that need to be explained. It begins by establishing a clear policy benchmark during the Zhu Rongji years (1998–2003) and a related benchmark for institutionalization of the policy process. It then establishes a series of objective indicators of policy outcomes that clearly demonstrate a turning point after 2003. Sections 3 through 5 are the core of the paper, laying out the model of the policy process and its application to each of the two successive cases of policy change. Section 6 discusses our findings and contrasts them with other interpretations of the Chinese policy process. It shows the relevance of our findings for understanding the evolution of China’s technology policy and national innovation system. Section 7 concludes.

2. Benchmarks and policy change

In this section, we establish the basic benchmarks of policy outcomes and policy processes which underlies our analysis. The Chinese leadership commitment to science and technology has consistently been high. From 1978 through the early 2000s, though,

¹ This was contrary to our expectations, since we brought to this work an assumption that institutionalization of the policy process would produce policy continuity and continued movement toward market-oriented policies.

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