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World Development Vol. 82, pp. 83–94, 2016

http://dx.doi.org/10.1016/j.worlddev.2016.01.014

Interpreting the Evolution of the Energy-Saving Target Allocation System in China (2006–13): A View of Policy Learning

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Summary. — This paper examines how the efficacy of energy-saving policies can be improved through learning. Effective allocation of energy-saving targets is key to achieving China's reduction targets for energy intensity. Despite growing research interest in the energy-saving target allocation system, details regarding the logic and rationale behind the modifications to the system since the 11th FYP period remain unclear. This paper contributes to the previous literature by applying the concept of policy learning to an analysis of how and from what sources the Chinese government has learned to improve its energy-saving target allocation system over the 2006–13 period. Our study finds that the Chinese government has developed a distinct policy style of "learning from multiple sources" that involves three primary sources: previous experience, local practice, and expert knowledge. Although the extant literature has previously identified these three sources of learning, most of this literature has focused on only one—or at most two—sources of learning at any given time. The uniqueness of policy learning in the energy-saving target allocation system consists of the co-existence of these three sources of learning in one case. This learning-oriented policy style is characterized by reflexivity, which allows current policies to be adjusted in a timely manner in order to alleviate prospective risks.

Key words — energy-saving policy, policy learning, energy-saving target allocation system, policy style, China, Asia

1. INTRODUCTION

Energy saving has been a central feature of China's development strategy since the 1980s, initially as the result of persistent energy shortages (Nakajima, 1982; Qi & Wu, 2013) and more recently as the main plank of China's climate change mitigation efforts (Qi, Wu, He, & King, 2013; Richerzhagen & Scholz, 2008; Zhang, 2000). Beginning in 2006, the Chinese government has set mandatory energy-saving targets that aim for a 20% reduction in the average national energy intensity (i.e., energy consumption per unit of GDP) by 2010, using 2005 data as the benchmark, and an additional 16% reduction by 2015, using 2010 data as the benchmark (NDRC, 2006; State Council, 2012). The national energy intensity reduction target is to be met primarily by means of the energy-saving target responsibility system (TRS), which assigns energy-saving targets to lower levels of government and key energy-consuming enterprises pursuant to an allocation system. Importantly, the TRS holds government officials and enterprise leaders accountable for target performance through an evaluation system (Lo, 2014; Zhao, Li, Wu, & Qi, 2014; Zhao & Ortolano, 2010). The energy-saving TRS has proven effective in reducing national energy intensity by 19.1% during the 11th Five-Year-Plan (FYP) period (2005–10) and by 9.25% for the first three years of the 12th FYP period (2010–15) (Li, Zhao, Ma, & Qi, 2013; Qi, 2014). Thus, by and large, China has achieved its 11th FYP target to reduce its energy intensity and is mostly on track to meet its 12th FYP target by the end of 2015. Although energy intensity in China continues to exceed that of many developed countries, the gap between China and these countries is narrowing as the result of the rate of reduction of China's energy intensity, which is higher than that of most developed countries. For instance, energy intensity in China decreased by 26.3% from 2005 to 2013 (i.e., at an annual rate of 3.7%), whereas energy intensity in the United States decreased by only 11.7% (i.e., at an annual rate of 1.6%) during the same period. [1]

A key component of the energy-saving TRS is allocation of the responsibility of meeting the national energy-saving target to subnational governments and various sectors, which to a large extent determines whether the national energy intensity reduction target can be met. As with other burden-sharing mechanisms, energy-saving target allocation is a complex, multi-objective problem that must take both efficiency and equity concerns into account (Zhang, Feng, & Zhao, 2015). The principle of efficiency requires that the target allocation scheme minimizes the total cost of energy saving, which can be achieved by setting the marginal benefits of energy saving to be equal among the different regions (Zhou & Yu, 2008). Likewise, based on China's pronounced regional discrepancies in terms of population, resource distribution, and economic development, the principle of equity suggests that energy-saving target allocations should fully consider China's regional disparities (Zhang, Wang, & Bahaj, 2014). However, equity is a tricky, multi-dimensional principle that requires balancing short-term and long-term interests, as well as local and national interests (Miketa & Schrattenholzer, 2006; Ringius, Torvanger, & Holtsmark, 1998). For instance, policymakers in China generally agree that less developed inland provinces should have more lenient energy intensity reduction targets to encourage continued growth, whereas the more prosperous coastal regions should assume greater responsibilities for energy saving through more stringent energy intensity

* The authors are deeply indebted to Prof. Ye Qi of Tsinghua University for a conversation from two years ago in which he inspired us to examine the energy-saving target responsibility system from the viewpoint of policy learning. Special thanks go to Wenhui Yang, Youlang Zhang, and Edward Steinfeld for their constructive comments on early drafts of this article. The suggestions of three anonymous reviewers also greatly helped us to improve the organization and argumentation of this article. Final revision accepted: January 10, 2016.

reduction targets (Li, Wu, Zhao, Wang, & Qi, 2014). However, although setting more lenient targets for inland regions may contribute to their short-term economic growth, it also delays their energy-saving efforts and leads to more serious environmental pollution, which hurts their economies in the long run and may exacerbate China's regional disparity—in addition to neatly revealing the tradeoff between short-term and long-term equity (Zhou & Yu, 2008). Moreover, setting more lenient targets for inland provinces, which might be in their short-term interest, bucks against the national interest because carbon leakage between the provinces is likely to result if the inland provinces enjoy higher rates of economic growth than the coastal provinces, thus reducing the likelihood of meeting national targets (Li *et al*., 2014).

In light of the significance and challenges of energy-saving target allocations, the Chinese government has continuously reformed its target allocation system to improve its efficacy, an issue that has increasingly been the subject of scholarly focus (Ma, 2012; Price, Wang, & Yun, 2010; Zhou, Levine, & Price, 2010; Zhou & Yu, 2008). Zhou and Yu (2008) and Ma (2012) both provided a thorough description of the energy-saving target allocation process during the 11th FYP period. Zhou and Yu (2008) also performed a comprehensive assessment of the target allocation using efficiency and equity criteria and noting the deficiencies thereof while recommending a more sophisticated regional target allocation methodology for the 12th FYP period. Lo and Wang (2013) and Lo (2014) highlighted two modifications made to the target allocation system in the 12th FYP period: more stratified and less uniform target allocation for the provinces and the introduction of energy-saving targets by sector. Despite growing research interest in the energy-saving target allocation system, details regarding the logic and rationale behind the modifications to the system since the 11th FYP period remain unclear. Investigating the learning processes behind the evolution of the target allocation system not only is central to understanding the energy-saving policymaking style of the Chinese government, but also provides valuable insight into the learning processes that likely occur in other countries as well—particularly other developing countries confronted with similar energy-saving imperatives and strictures as China. Moreover, understanding policy learning in the energy-saving target allocation system in China can enhance efforts to compare learning patterns in different policy arenas, such as health policy (Wang, 2009) and economic policy (Heilmann, 2008).

This paper contributes to the previous literature by applying the concept of policy learning to an analysis of how and from what sources the Chinese government has learned to improve its energy-saving target allocation system over the 2006–13 period. In China, the central government is the key policymaking body, whereas local governments are mainly responsible for policy implementation (Lo & Wang, 2013; Qi & Wu, 2013). This paper mainly focuses on target allocation by the central government, particularly the National Development and Reform Commission (NDRC), which is one of the most influential institutions in the Chinese political system and plays a leading role in energy policymaking (Qi *et al*., 2013; Richerzhagen & Scholz, 2008).

2. THE FOUNDATIONS OF A LEARNING APPROACH

Since Heclo's Modern Social Politics in Britain and Sweden (1974), a learning model has proven to be a useful way to understand and explain policy change, complementing, rather than substituting for, the more traditional conflict-centered approaches to policy change (Fiorino, 2001; Nilsson, 2006). Despite the variety of definitions of learning, including political learning (Heclo, 1974), government learning (Etheredge & Short, 1983), policy-oriented learning (Sabatier, 1988), lesson-drawing (Rose, 1991), and social learning (Hall, 1993), we adopt a rather broad definition of policy learning in this paper, which encompasses the essence of the various definitions of learning: alterations of the present policy on the basis of the interpretation of previous experience and new information to better achieve the goal of governance (Bennett & Howlett, 1992; Hall, 1993; Sabatier, 1988).

In the past decade, a growing number of scholars have focused on the mechanism of learning as a facilitator of energy governance and have identified different sources of learning, which can be grouped into three primary categories: previous experience (Mah & Hills, 2014), local practice (Ma, Li, & Qi, 2012), and expert knowledge (Mah & Hills, 2014; Nilsson, 2006; Stigson, Dotzauer, & Yan, 2009). Dissatisfaction with previous experience is generally regarded as the most important stimulus to learning (Hall, 1993; Rose, 1991). In a review of the evolution of pricing policies for wind energy in China from 1994 to 2009, Mah and Hills (2014) found that reflecting on the unintended policy outcome of the 2006 tendering policy in part motivated the central government to replace the 2006 tendering policy with a fixed-price policy in 2009.

Local practice, i.e., the practice of certain policies or programs by subnational governments, has been identified as another key source of learning by Chinese policymakers in many policy arenas, such as the rural healthcare financing system (Wang, 2009), economic reform (Heilmann, 2008), and, more recently, the energy-saving policy during the 11th FYP period (Ma *et al*., 2012). Although each of these three cases identified local practice as a source of learning, it is important to note the differences among the three types of local practice. In the case of designing the national rural healthcare financing system, Wang (2009) found evidence of learning from two types of local practice: (1) unplanned, autonomous practice by local governments that was not subject to the control of the central government, and (2) systemic, interventional experimentation by the central government in a number of selected regions. The latter type of local practice corresponds to the notion of "experimentation under hierarchy" that has been developed by Heilmann (2008). After examining the development of the evaluation system for the energy-saving TRS, Ma *et al*. (2012) identified a third type of local practice as a key source of learning: local practice instructed by the central government. This is pursuant to the central government explicitly instructing local governments to practice a certain policy, but the former only provided a general framework for the policy without specifying detailed requirements. For instance, in the case of the energy-saving TRS, the central government mandated that provincial governments create an evaluation system for the energy-saving TRS as specified in the "State Council's Decision to Strengthen Energy Saving" but left provincial governments free to design their own evaluation criteria. Lack of specificity in this mandate allowed for diversity in local practice, which provided important reference points and lessons for national-level policymaking.

Finally, expert knowledge is a major contributor to energy policy learning. Contrasting Swedish climate policy (which is characterized by fundamental learning) with nuclear policy (which shows few indications of learning despite many changes), Nilsson (2006) examined the essential role of expert-led assessments in policy learning. Stigson *et al*. (2009) identified industry sector expertise as a key source of energy policy learning by the Swedish government. In the