Technovation 38 (2015) 1–14

Contents lists available at ScienceDirect

Technovation

journal homepage: www.elsevier.com/locate/technovation

Framework for analysing the role of state owned enterprises in innovation policy management: The case of energy technologies and Eesti Energia

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ARTICLE INFO

Available online 9 September 2014

Keywords:
State owned enterprises
Innovation policy
Energy technologies
Innovation performance
R&D investment

ABSTRACT

This article discusses the role of state-owned enterprises in innovation policy management. This has long been a neglected topic in both management and innovation literature. The paper outlines the most important factors that influence R&D objectives and investments in state-owned enterprises and their interaction with other innovation policy actors and measures. The main contribution of the article is a novel theoretical approach for analyzing the main trends in innovation policy practices in state-owned enterprises. Their possible role in technology advancement, especially in areas requiring large-scale investments, as in energy technologies is discussed. The probable outcomes of innovative investment depending on the constraints present in the system are analyzed. The framework is actualized with a case study of Eesti Energia, a state-owned energy company in Estonia.

1. Introduction

Most of the current research surrounding state-owned enterprises (SOEs) is focused on the issues of efficiency and privatization (e.g., World Bank, 1995; Netter and Megginson, 2001; Omran, 2004; Goldeng et al., 2008). It usually presents a negative picture with regard to the role of SOEs in policy making. As such, traditional governance and management literature tends to ignore innovation as a goal or to minimize its role in SOEs. Policy management practices and the way they affect the inner work of firms towards achieving R&D and innovation objectives are usually disregarded. This stems from a consensus about the role of SOEs as ubiquitous tools in industrial policy-making in prior decades, especially in the context of import substitution schemes in Latin America (Toninelli, 2000), which are at most employed under the ‘exceptional’ conditions of interventionist politics in East Asia (Amsden, 1989; Stanford, 2008). Nevertheless, with the rise of the latter's economies and different forms of innovation policy governance, these foregone conclusions should not be taken as self-evident. State-run companies still produce a large proportion of the national industrial output in many developed and developing economies (OECD, 2005), even more so after the financial crisis. Thus, one can assume that their role in science and technology (S&T) policies is still significant – in combination with internal R&D expenditures, procurement for innovation, collaboration with research institutes, etc. – even though it has mostly remained unobserved. Above all, SOEs are researched in the context of China as a peculiarity of the state-managed economy (e.g., Yusuf et al., 2006; Guan et al., 2009; Chan and Daim, 2011). However, when it comes down to a broader analysis of innovation policy management (policy specification and policy implementation from a state-centric viewpoint to the traditional national innovation systems framework; Nelson, 1993) in and through SOEs, it is an area of research that has long been neglected in academic debate. This article tries to fill the void.

The paper departs from the assumption that SOEs can be founded (or firms nationalized) in order to reach a wider range of goals, which prevail over simple profit maximization and are aimed at a broader social welfare maximization (Vickers and Yarrow, 1988; Austvik, 2012). In innovation literature, this idea has more often been linked to the concept of the possible ‘public good’ of R&D in government-controlled companies (Molas-Galart and Tang, 2006). In this line, SOEs could be considered as the prospective drivers of economic development and innovation. Due to the nature of previous research, this may be more obvious in developing/transition countries, but should not be limited to the former. As this is a novel topic in the field, no specific theoretical approach for the latter currently exists in innovation or management literature. For this, a broad framework of the most important factors of innovation policy management in SOEs is developed. Innovative performance pertaining to technological development is analyzed, although the taxonomy could apply to a wider range

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http://dx.doi.org/10.1016/j.technovation.2014.08.001
0166-4972/

of innovative activities. In the following sections, theoretical considerations with regard to governance and the role of SOEs in economic development and innovation policy will be presented. Further, a theoretical framework for studying their role in innovation policy management is developed and a possible variation in broader innovation outcomes is described. The approach with the preliminary propositions is then discussed through the empirical case of Eesti Energia Ltd., a state-owned energy company in Estonia.

2. Theoretical considerations

The change from industrial policy to innovation policy has coincided with the change in governance from 'public enterprises' to SOEs (Galambos, 2000). This has not been merely a nominal change. In the background, agency theory (Berle and Means, 1932; Jensen and Meckling, 1976) has greatly influenced the separation of ownership from the control of SOEs and the identity of both companies and their owners (e.g., Thomsen and Pedersen, 2003; Wu, 2011). In this line, government's asymmetrical managerial know-how has been found to have an unconstructive effect on the performance of state-run companies. This logic of market failure assumes that all policy goals and the continued supply of goods should be addressed only through regulation (Koppell, 2007). If innovation and technology are examined at all, the focus is usually on the effect of ownership concentration (e.g., Shapiro et al., 2013) or on a wide range of ownership structures (Choi et al., 2012) rather than on the specific role of the government who acts upon long-term policy goals. Thus, the traditional argument would presume that due to the lack of control from owners, i.e. general public, there is no 'exit' from investment (Hirschman, 1970) and SOEs would thus have no incentive to increase their performance in order to pursue rewards from innovation (World Bank, 1995). Thus, prior to the privatization process also many R&D units were stripped from SOEs in the 1990s (Acha and Balazs, 1999).

At the same time, SOEs have traditionally had many different goals and also varied reasons for being created (Christiansen, 2013). In the US, they are seen as an extension of the government and its agencies rather than businesses that serve national objectives. And yet, sometimes they act similarly to venture capital funds (Weiss, 2014). In China, the aim of SOEs is to maintain control over strategic industries, build them up and direct capital for investment (Chan and Rosenbloom, 2010; Kroll and Liefner, 2008). Among others, MacAvoy et al. (1989: 12-3) have provided a list of functions ranging from resource preservation (maintenance of vital industry), hording (problems with allocating property rights to national resources), value promotion (interest in non-commercial values) and simply rent collection from resource-based industry. In terms of innovation, this could be broadened to include not just the preservation of resources, but also their creation, e.g., by providing access to technology. This is mostly discussed from the perspective of demand-side innovation policies, where SOEs could be seen as the agencies, procurers of innovation (Rothwell, 1994). However, a much wider approach should be taken and these issues explored, when innovation policy management through SOEs is discussed. In the next sections, these introductory arguments are explored further with special focus on the impact of corporate governance and privatization, which have influenced the concept of SOEs in the policy-making over the past few decades.

2.1. Governance of SOEs

Academic literature on SOEs is mainly found within the framework of corporate governance under the title of corporate financing and profit maximization (e.g., Vagliasindi, 2011). Thus, SOEs have most frequently been studied from the perspective of ownership influence on the performance of the firm (e.g., Aharoni, 2000; Toninelli, 2000); it is usually found that privatized firms show better results (Megginson and Netter, 2001; Shirley and Walsh, 2000). If SOEs' governance structures are compared to private companies, the negative effect of political interference – the exertion of social and political policy goals to company's operations – is accentuated in terms of managerial decisions of SOEs (e.g., Shleifer and Vishny, 1998; Dewenter and Malatesta, 2001). Further, their nature of being 'public', 'state-owned' makes SOEs vulnerable to heightened public scrutiny and accountability, which makes media engagement and image essential in many decisions. With the 'public' as their owner, SOEs can have both non-commercial objectives and profit maximization goals (see the differentiation in the case of SOEs in Canada in Bozec et al., 2002). Thus, business-oriented goals and policy utilization can greatly differ and there can be a discord in the alignment of the aforementioned. As these goals can be highly contradictory, SOEs have to face some uncertainty in connection with making investment decisions; especially because politicians can change their positions depending on the prevailing public opinion. With various political motives, the decisions of the supervisory council may also heavily depend on election cycles. Hence, it cannot be assumed that the supervisory council of a SOE will act in the interests of the organization; firstly because the interests of its shareholders are not as clear as in a private company; and secondly, the composition of the supervisory council might be a mixture of the representatives of different ministries and state agencies (Sprenger, 2010). Therefore, while SOEs are embraced by most governments as private entities, they may be subjected to the same problems in terms of addressing risks, uncertainty, accountability and possible corruption as is the case with most investments in the public sector (Osborne and Brown, 2013).

To cope with the aforesaid, SOEs as private entities in the mixed, public-private environment are assumed to develop organizational routines that are dependent on direct or indirect state support (Nelson and Winter, 1982). Consequently, the majority of SOEs are highly involved with the fiscal planning system of the state (for subsidies, investments or as a financial source for the national budget) and the extent of intervention and the assertion of policy goals can also depend on the latter. Hence, from the perspective of political embeddedness, SOEs may benefit from being more closely connected to the state: namely by influencing regulatory policies (Hillman et al., 2004; Lester et al., 2008) and/or by having access to government-owned resources (Xin and Pearce, 1996). However, interaction with the public budget planning system is a double-edged sword as the privatization of SOEs has been closely linked to the high level of public deficit and the need to pay public debt (for Italy's case, see Felice, 2010: 596–601). Consequently, the degree of the fiscal autonomy of these enterprises is especially important, when their investment decisions are being considered. As mentioned above, from the demand-side perspective, SOEs can act as customers who buy a number of products and services, including technology and R&D from the private sector (Toninelli, 2000). However, all this can also tie into further fears of corruption and manipulation that are central topics in the research of SOEs. As such, the state's willingness to divert business goals in order to achieve its own socio-economical interests can be perceived as a danger (e.g., Shleifer and Vishny, 1998).

The problems outlined above make it clear that the appropriateness of SOEs for innovation and development-related policies can hinge on the interaction between the ownership structures, financing and subsequent monitoring mechanisms (see also Wright et al., 2005; Kankaanpää et al., 2014). Lack of control, multiple, vague and