



Sectoral innovation through competing logics: The case of antidepressants in traditional Chinese medicine



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ABSTRACT

This paper studies the sectoral innovation of antidepressants in traditional Chinese medicine (TCM) within the framework of logic competition between TCM and Western Medicine (WM). We find that with the entry of WM antidepressants the whole sector of TCM antidepressant is restructured. We argue that the coexistence of plural logics can stimulate sectoral innovation by injecting a new logic into each component of the innovation system. Existing sectoral actors innovate by referring to the competing logic to reinterpret their own logic and practice. In so doing they reshape sectoral practices and competitiveness.

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1. Introduction

Sectoral innovation has become more and more important for practitioners and researchers seeking industrial competitiveness (Malerba, 2002). They pay great attention to how a sectoral system of innovation is shaped and also emphasize exploring how to initiate sectoral innovation (Malerba and Nelson, 2011). In particular, attention is drawn to factors and situations affecting sectoral innovation. Considering that industry dynamics also reflect the impact of underlying institutional logics at the industrial field level (Styhre, 2011), it is surprising to find that little work on sectoral innovation is conducted from an institutional perspective.

The institutional logic idea is drawn from the neo-institutional branch of organization theory. An institutional logic is defined by Thornton and Ocasio (1999, p.804) “as the socially constructed, historical patterns of material practices, assumptions, values, beliefs, and rules by which individuals produce and reproduce their material subsistence, organize time and space, and provide meaning to their social reality.” We shall argue as did these authors that they would shape beliefs and behavior of organizational actors in a field. Organizations have often to deal with conflicting logics, both in their environment and within their own operations. This institutional complexity due to competing logics and its effects on organizational responses are attracting much attention from

institutional theorists (Greenwood et al., 2011; Reay and Hinings, 2009; Smets et al., 2012), but very little in sectoral innovation research (Smink et al., 2015).

In particular, the impact of institutional complexity on sectoral systems of innovation remains unaddressed except recently when Smink et al. (2015) examined the role of boundary-spanners in crossing the frontiers of conflicting logics. The question of how competing logics interact to influence sectoral innovation is not only significant in traditional but also in modern sectors. Every sector could face a situation of change in the relationship among two or more institutional logics, which inevitably results in turbulence affecting the whole sectoral system (Sabatier et al., 2012). How that would affect innovation in the sector is unclear and not addressed in the literature. It is an important gap that we intend to address in this article to contribute insights and theory to the sectoral innovation literature.

By applying an institutional logic view to sectoral innovation, this paper responds to the call for new theoretical perspectives to integrate factors and dimensions in promoting sectoral innovation work (Pitt and Nelle, 2008). Researchers have proposed that an institutional perspective would be meaningful in studying sectoral innovation (Cusmano et al., 2010). According to their theory of innovation, institutional effects shape sectors in multiple ways. For example public policies could not only increase market turbulence, they also provide new opportunities for firms to expand and build new knowledge and market capabilities (Chaturvedi et al., 2007). At the same time actors could respond to institutional change differently. This would result in more interactions within a sector, which could stimulate more innovation (Chittoor et al., 2008).

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The institutional effect on sectoral innovation is driven not only by government policy but also by social and cultural sources (Smink et al., 2015). The institutional drivers for sectoral innovation can come as well from actors and factors located beyond national and sectoral boundaries. For example, the global value chain has been described as a powerful institutional pressure on developing countries' innovation systems (Pietrobelli and Rabellotti, 2011). Thus, external institutions can act as motivators for sectoral systems of innovation. All of these indicate that an institutional perspective is meaningful for understanding the change of a sectoral system of innovation, and should be considered. This is particularly the case when considering changes in deep-rooted institutions with a long history, as in the traditional Chinese medicine (TCM).

The TCM antidepressant sector is a relatively new segment, interacting with deep-seated beliefs and practices. It is a fast growing segment, and the domain of much innovation. Although people generally believe that such a situation is largely related to the entry of Western Medicine (WM)¹ philosophy of depression medical treatment, there is no systematic analysis of how the TCM antidepressant sector is being shaped by the mutual influence of TCM and WM logics. Yet, these interactions are driving a large industrial renewal. TCM is lightly studied, probably because it is deeply embedded into the Chinese culture and social dynamics. Our unique access to the industry and its development would provide insights into an important industry, which is another important contribution of this research.

This paper studies how TCM is changing, by looking at transformations related to one of its new and important segments. More specifically, we examine how the dynamic interactions of very different logics, related to TCM and WM, are affecting sectoral innovation in the pharmaceutical antidepressant segment. We find that with the successful entry of WM antidepressants, the whole sector of antidepressants in China is undergoing major change. We argue that the coexistence of plural institutional logics can stimulate innovation in an industrial sector, by transforming each component of the sectoral system of innovation. Threatened sectoral actors pull selectively on competing logics to reinterpret and distinguish their own strategy and reshape sectoral competitiveness.

The rest of this paper is structured as follows: Section 2 reviews the relevant literatures about sectoral systems of innovation and competing logics; Section 3 describes the industrial background of the Chinese antidepressant sector and the research methods applied in this study; Section 4 reports the research findings; and the last two sections conduct a related discussion of the findings, and present our final conclusions.

2. Theoretical background

2.1. Sectoral innovation system with competing logics

A sectoral innovation system is defined as “a set of new and established products for specific uses and the set of agents carrying out market and non-market interactions for the creation, production and sale of those products” (Malerba, 2002, p.251). A sectoral system is composed of three main building blocks: (1) knowledge and technology; (2) actors and networks; and (3) “institutions”² (Malerba, 2005). Distinguished from national, regional, or technological innovation systems, a sectoral innovation system focuses on the development of a specific industry and provides a more direct impact on a single sector (Chaturvedi, 2007). A well designed and dynamic sectoral innovation

system could accelerate growth and innovation within an industry, and its related business parts.

With wide recognition about the positive effects of sectoral innovation systems, scholars' focus has been on how to build or change an innovation system for specific sectors (Niosi, 2011). The dominant perspective was generally functionalist and top-down. Meso-level state-mandated actors manage organizational and network behavior to generate innovation and market dynamism (Furtado, 1997; Quéré, 2008). Little attention has been given to the institutional work at the organizational level (Smink et al., 2015).

In particular, emphasizing the factors that drive sectoral innovation systems (Malerba and Nelson, 2011), scholars had typically explored the impact of sectoral components on the sectoral innovation system. For example, Kim and Lee (2008) have studied the role of technological factors in the Korean capital goods innovation system; Athreye et al. (2009) described the strategies and interactions of Indian pharma in their country's pharmaceutical industry innovation system; Adams et al. (2012) looked at the role of demand in the semiconductor sectoral innovation; and Lee et al. (2009) looked at government policy in the ability of Chinese cell phone and automobile sectors to catch up with international competitors.

While research made progress in the understanding of these single sectoral factor influences, there are two challenges ahead. First, for sectoral innovations, there are exogenous influences. For example, the entry of pharmaceutical companies into the food industry has changed the food sectoral innovation system (Weenen et al., 2013). A new entry could bring a completely new industrial logic and generate systemic complexity for the whole industry (Styhre, 2011). To respond, actors cannot rely on changing a single sectoral component but may need to change the whole innovation system. Second, facing the entry of threatening new industrial logic and complexity, actors cannot solely change themselves but may have to extend their influence from the organizational to the meso level. Such agency has rarely been documented. Thus, there is a need for an integrative perspective to explain sectoral innovation. We propose to call on an institutional logic perspective to fill these specific gaps. We now turn to clarifying further the proposed theoretical lens.

2.2. The institutional logics theory

The institutional logics framework is leading to a relatively new debate within institutional theory (Thornton et al., 2012). Despite a long theoretical history (Friedland and Alford, 1991), the perspective is still very influential and has attracted more and more attention in the past decade (Hinings, 2012; Smink et al., 2015; Thornton et al., 2012; van Gestel and Hillebrand, 2011), because it helps deal with two basic problems of the neo-institutional analysis: (1) its inability to deal with multiple levels of analysis, and (2) its inability to take into account agency.

Friedland and Alford (1991) were the first to introduce the concept of institutional logics in a seminal argument published as a book chapter. They then talked of central logics as “a set of material practices and symbolic constructions ... available to organizations and individuals to elaborate” (p.232). The institutional logics theory explains changes in organizational focus and innovation, by affecting executives' power in organizations. This, according to Thornton and Ocasio (1999), is done (1) by defining or shaping how sources of power are understood, seen as appropriate or legitimate; (2) by making some issues more salient and more relevant than others; (3) by determining the solutions more effective in changing power relationships.

As a set of history-based signals and practices, an institutional logic reflects the essential assumptions, values, and beliefs of actors (Thornton, 2002). Thus it can be appropriately applied to study sectoral innovation systems for three reasons. First, as said earlier, it facilitates the consideration of multiple level influences. The institutional logics perspective is based on the premise that there are several institutional orders of worth or justification, which guide and affect individual practices at different

¹ Western Medicine is usually called modern medicine in China.

² In Malerba terms institutions refers to organizations, generally public sector organizations, related to policy-makers, which are in charge of implementing policies. In this paper, we use institution in the organizational theory sense, and put Malerba's meaning between quotation marks.

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