An integrated analysis of socioeconomic structures and actors in Indonesian industrial clusters
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1. Introduction

1.1 The Significance of the Study

In his 1890 book *Principles of Economics*, Alfred Marshall wrote a chapter on the externalities of specialized industrial locations. One of Marshall’s contributions to economic science is the distinction between internal and external economies: The former depend on the resources of individual businesses, whereas the latter reflect the general development of industry overall. External economies are particularly significant when specialized industries concentrate in localities. Marshall (1890) further distinguishes three types of external economies: intermediate input effects, the diffusion of technological know-how and ideas, and the concentration of specialized skills.

In particular, small industry clusters are important in both developed and developing countries (Becattini, 1990; Schmitz, 1995), because most firms located in clusters attain comparatively higher levels of productivity and business performance than those outside clusters (Visser, 1996; Klapwijk, 1997; Weijland, 1999; Becattini et al., 2003).

An industrial cluster plays a critical role in promoting the performance of firms in developing countries by allowing for shared production networks and stimulating business specializations (Berry et al., 2001). In the case of Indonesia, researchers consider clusters important for the development of firms, especially small firms (Sandee, 1995; Klapwijk, 1997; Weijland, 1999; Tambunan, 2006). For example, Rutten (2003) finds that in the iron-casting cluster of Batur (Central Java, Indonesia), local entrepreneurs pursue manufacturing capabilities through technological improvements, leading to market expansion and greater product variety.

Yet empirical evidence regarding how social and economic factors influence the structures of interfirm relationships within a cluster remains limited. Studies that emphasize cooperation among firms in clusters lack concrete accounts of how their market ties may affect their interfirm relationships (e.g., Nadvi, 1997; Humphrey and Schmitz, 1998). Studies that put more emphasis on market ties in turn are inadequate for clarifying the impact of
available governance structures, repeated transactions, and the role of trust and reciprocity (e.g., Porter, 1998; 2000; Sandee 1995; Klapwijk, 1997; Sato, 2000).

A few efforts raise the issues of actors and local production structures but even these do not explore how actors may lead a cluster community to improve its development and which factors influence the structures of clusters. For example, Sandee (1995) studies five roof tile clusters in the Central Java province (Indonesia); in two cases (Mayong Lor and Klepu), the innovation processes are driven by buyers (agents from urban building material shops) who take care of the technical, financial, and marketing sides of the processes. Yet in Karanggeneng, producers from large firms organize to finance new equipment, share indivisible capital, and gain access to new markets, so these producers are the most important stimulants of innovation adoption. Thus in all cases, Sandee (1995) describes involvement by traders and large producers and their impact on cluster development, but he does not consider how actors lead or manage firm linkages or how local structures of clusters might enable actors to overcome constraints to their growth and development.

In a study of the structure and nature of firm linkages in a rural cluster in Central Java (Indonesia), Sato (2000) finds limited evidence of specialization, division of labor, information sharing, or joint actions among local producers. Thus, she concludes that firm linkages are of limited importance. With respect to the actors, Sato notes one industrial cooperative in the cluster, “which receives orders mainly from state-owned corporations, allocates them to member firms, procures inputs for the orders and collected outputs for delivery” and “is now democratically managed under the leadership of local industrialists” (2000, p. 160). Nevertheless, Sato does not explore the genesis of the leadership or the influence of local structures on the involvement of actors in the cooperative.

Thus, previous studies neglect the interdependence of socioeconomic structures of clusters and the role of local actors. They fail to explain this interplay, which affects the dynamics of clusters. Accordingly, this study seeks to fill the gap left by the absence of an analysis of the links between actors and structures. For that purpose, this study deals with the dynamics of industrial clusters in emerging economies with respect to the interplay between actors and structures.

The reasons for this study are twofold: First, an industrial cluster is a local system characterized by the active participation of a community of persons and specialized small firms in a variety of production lines. Local actors initiate and develop clusters, together with local people in need of supplementary activities who support social learning processes. The actors take the lead in addressing issues and opportunities, supported by local structures that contribute profoundly to the success of the interactive learning process through their embedded ties with local people.
Second, the benefits of clustering derive from the local structures in which local economic agents cope with economic and social problems. In a cluster, transactions are arranged through not only market and/or formal mechanisms but also social ties based on trust and reciprocity. Firms within a cluster are potential competitors, and their interactions have significant direct consequences, regardless of whether they compete or cooperate. Any firm that pursues its own interests needs to learn about and adjust to the behaviors of its competitors. Members of a cluster also likely interact frequently, because they sell similar products and services, often to the same customers, in similar geographic areas. The concepts of social embeddedness thus may provide a basis for understanding who regulates interfirm relations to mediate local competition and cooperation and facilitate the historical emplacement of sector-specific knowledge. Through dense social ties and local business organizations, local actors can mobilize, guide, coordinate, and control the efforts of group members.

Clustering is thus a dynamic process, both within the cluster and among the community members, determined by the interplay between local structures and the role of local actors in identifying essential cluster issues. An analysis of a productive system that ignores the relevance of social relationships and local actors provides an unrealistic picture of the actual functioning of a cluster. The structures of interfirm linkages are critical to an understanding of the local production system in a cluster, but local actors also must initiate, arrange norms for the organization, and manage collective actions among firms to solve common problems and achieve collective objectives.

Therefore, this study proposes an extended framework to represent comprehensively the dynamics of clusters and articulate the clustering effects on the development of firms in a cluster. The framework combines a focus on the socioeconomic structures of a cluster and the role of local actors. Using evidence from Indonesian clusters, this study undertakes an integrative analysis of socioeconomic structures and the role of actors through empirical research in three different clusters in the Yogyakarta province of Indonesia: the Kasongan ceramic handicraft cluster, the Kotagede silver handicraft cluster, and the Manding leather handicraft cluster.

The decision to study the dynamics of Indonesian clusters reflects observations in previous research about Indonesian clusters, which generally share conclusion about the development and importance of Indonesian clusters. The clustering of small and medium-sized firms seems to be a common feature of successful industrial clusters in Indonesia, and the socio-territorial entity is characterized by the active presence of a community of people. It is possible to single out the role of some actors who lead in the pursuit of the development of a cluster. Therefore, the Indonesian context is appropriate to examine clusters in an integrative way.
1.2 Research Questions and Study Objectives

This study focuses on the contingencies associated with the socioeconomic structures of a cluster and the role of local actors in local business organizations within a cluster. I consider the circumstances in which a cluster may be affected by the forces of socioeconomic structures and collective action. I argue that the dynamics of a cluster and firm performance depend on the way the cluster is embedded in the relationship between the actors and socioeconomic structures of a cluster community, as well as the role of local actors in that cluster community. Therefore, this study tries to answer the following main question:

*How do socioeconomic structures and the role of actors influence the dynamics of a cluster and the performance of individual firms in a cluster?*

To answer this main research question, I formulate four subordinate questions. The socioeconomic structures of clusters are constructed simultaneously by competition and social embeddedness between firms, so the initial three questions pertain to the elements of the socioeconomic structures of clusters. The final question refers to actors and examines the interplay between structures of clusters and actors.

1. How do firms in a cluster compete with one another? What factors influence competition among firms in a cluster?
2. How does social embeddedness among clustered firms function? Do participating firms trust one another? Are there reciprocal relationships among firms?
3. Does the simultaneity of market relations and social embeddedness positively affect the performance of individual firms in a cluster?
4. Are there local actors in local business organizations within a cluster who manage interfirm relationships to establish collective actions? How do local actors organize and manage interfirm relationships through organizations?

1.3 Unit of Analysis

To answer the main question and four subordinate questions, I selected three industrial clusters for analysis. In clusters, firms link together in the net of a local social system. Therefore, I should be able to determine internal forces and interfirm linkages that represent the socioeconomic structures of clusters. I focus on relationships among local people within clusters and concentrate on a selected portion of the overall production system and social system.

I do not ignore the role of exogenous forces on internal changes; many changes in systems represent reactions to changes in the external environment. To capture this link, this study examines the intensity of contacts of local firms with governmental and non-governmental institutions. Therefore, I describe
existing forms of cooperation between local business associations and external institutions.

The three focal clusters contain 210 individual firms and several local business associations. The firms include manufacturers, retailers with their own workshops, and retailers who do not own workshops. These units of analysis enable me to investigate the behavior or perceptions of firms regarding competition and social embeddedness within clusters, as well as examine the simultaneous impact of competition and social embeddedness on firm performance.

Furthermore, using local business associations as a unit of analysis enables me to capture the role of local actors within a cluster. The local business association provides a medium for local actors to coordinate their collective actions. A pilot study (July–September 2007) revealed that clusters are not driven by a single leader determining and enforcing the rules. However, people in the clusters acknowledged some local influential actors, who played significant roles in coordinating the firms’ linkages through local business associations. Therefore, I explore the role of local actors in the decision-making process undertaken by members of the associations, which reflects the dynamics of the clusters due to the various local actors who coordinate the firm relationships.

Overall then, I explore the effects of the socioeconomic structures of three clusters on the performance of firms, as well as the role of local actors in local business associations, and I determine how their interplay affects the dynamics of interfirm relationships within clusters.

1.4 Thesis Outline

This thesis consists of nine chapters. After this introductory chapter, Chapter 2 contains the literature review to clarify the dynamics of the socioeconomic structures of industrial clusters and highlight affinities with the complexity of human socioeconomic life. Accordingly, a conceptual contribution of this study is the integration of the concepts of socioeconomic structures and the role of actors in the context of an industrial cluster.

Chapter 3 is devoted to the conceptual framework, which contains concepts derived from the literature review. This chapter applies and discusses the implications of eight theories from Chapter 2. The conceptual framework also defines the key elements of competition, social embeddedness, leadership, and firm performance. It finally posits how structures of clusters and actors together might influence firm performance and the dynamics of clusters.

In Chapter 4, I present the research methodology, which consists of four phases of fieldwork, participative observation of meetings of the local business associations in three studied clusters, and the data analysis. It also details why the three clusters were chosen for this research and demonstrates the credibility of the research method.
The next four chapters present the results of the empirical study. Chapter 5 contains an analysis of socioeconomic structures of the Indonesian clusters by combining a qualitative and quantitative analysis (descriptive statistics). After outlining the general economic conditions of the three sample clusters, this chapter presents the nature of interfirm relationships, competition/market relations, and social embeddedness in the clusters. The socioeconomic structures of the clusters are represented by market relations/competition and social embeddedness/cooperation. Both prevail in the focal Indonesian clusters. Therefore, neither competition nor cooperation appears in its pure form among firms in clusters; instead, a simultaneity of competition and social embeddedness marks these studied clusters. With Chapter 6 I examine the effects of these socioeconomic structures on firm performance. Using an ordinary least square (OLS) model, I test the impact of the simultaneity of competition and social embeddedness on firm performance. This chapter proves that their simultaneity in the three clusters positively affects firm performance.

The next chapter, Chapter 7, focuses on the role of local actors and local business associations within the clusters. Some local actors define, maintain, and establish internal organizational rules and strategies through formal and informal decision-making processes. This chapter describes the leadership types of the local actors in local business associations. In the final discussion of the main issues of this study, Chapter 8 offers an integrative analysis of socioeconomic structures and the role of actors within a cluster. This chapter explains how their interplay affects the establishment and development of clusters. The history of the three studied clusters reveals that the establishment of clusters was initiated by local actors and supported by local structures. Interactive learning processes developed clusters through embedded ties among local people. In the process, influential actors have had to manage collective actions.

Finally, Chapter 9 concludes with important notes about the theoretical and policy implication of this study. In particular, this study has critical policy implications for central and local policymakers who are considering an industrial cluster as a potential backbone of regional development.