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Overcoming Successive Bottlenecks: The Evolution of a Potato Cluster in China

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Summary. — Although the role of industrial policy in economic development is a frequent topic of debate in both the literature and the political arena, most discussions focus on industrial policymaking at the national level. Using a case study of a potato cluster in China, we show that industrial policymaking at the local level contributes greatly to economic development as well. Many of the industrial policies affecting the cluster—including leveling land, developing better varieties, establishing a potato trade association, lobbying for increasing freight car quotas, and attracting processing firms—were implemented at the local level, highlighting the need for discussion of local industrial policymaking as a major determinant of cluster development. As the case study demonstrates, economic development is a continuous process with constantly evolving binding supply-side and demand-side constraints. Often, after a local policy helps remove one binding constraint, a new one emerges that, in turn, may require a new set of policies. Therefore, the success of clusters depends upon local industrial policies that respond to emerging binding constraints at different stages of the cluster's development.

Key words — economic transformation, clusters, comparative advantage, local industrial policy, poverty

1. INTRODUCTION

The literature is home to a lively debate on the usefulness of industrial policy.[1] Skeptics often question bureaucrats' ability to pick the right industries for support. And, in the past, well-intentioned industrial policies, such as import substitution industrialization, have led to price distortions, resulting in inefficient resource allocation across sectors and stagnant economic growth (Baldwin, 1969; Pack & Saagi, 2006). Believers in the efficacy of industrial policymaking argue that many advanced economies, such as United States, Germany, France, and Taiwan, have intervened actively in their domestic economy through such policies during their various stages of development (Chang, 2003, 2009; Evans, 1995; Wade, 2009).

Recent work by supporters of industrial policymaking concentrates on how best to implement such policies. Because individual firms often face externalities in the process of product upgrading and diversification, some scholars reason that governments can play a facilitating role in providing key public goods and services to overcome the externalities. Therefore, the reasoning goes, good industrial policies are always helpful and needed. The real question in these scholars' minds, then, is not *if* industrial policies should be implemented, but rather *how* to best design and implement them (Rodrik, 2009). Similarly, Lin (2010b) argues that previous instances of failed industrial policies should not prevent governments from pursuing such policies at all. Instead, governments should learn from the failures as well as from instances of success. He points out that the violation of a country's comparative advantage is a key reason for policy failure. Lin (2010a) proposes six strategic steps by which a country can identify its comparative advantage and implement industrial policies.[2]

Such views face stiff opposition. Tendulkar (2011) is skeptical that governments can correctly identify and nurture opportunities for structural change and sustained growth through industrial policies. Pack (2011) insists that the amount of information and knowledge required for industrial policymaking goes beyond the scope of capabilities of any developing country's national government. Willem (2011) raises several questions about Lin's six steps: he points out the difficulty of measuring certain export opportunities and the irrelevance of past data due to shifting demand patterns; and he says that institutional or geographic differences between countries may render Lin's first step insufficiently informative.

A common feature in this debate is a lack of distinction between local and national industrial policy. Such a distinction can help clarify some of the arguments. For example, critiques that focus on informational disadvantages in identifying industries for support at the national level may not apply to the local level. In reality, the distribution of industries is often location-specific and different regions may have different set of industries. Consequently, most industrial policies are likely to occur at the local level. Although there exists an emerging but rather limited body of empirical literature on the usefulness of industrial policy, most studies focus on the national level;

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studies of industrial policy at the local level are conspicuously scarce.

Yet local industrial policymaking may be more relevant to local economic development than national industrial policymaking for several reasons. First, even under the same national comparative advantage, there often exists large production differentiation across regions in a country. One region can specialize in one product while a neighboring region specializes in a different one. Consequently, the need for and style of government intervention in each region can be quite different. Because different locales can have different industries, binding constraints on both the supply side and the demand side of the market may differ across regions.

Second, local governments have an informational advantage over the central government by virtue of their proximity to the firm level and corresponding knowledge of the binding constraints for the local industries. As external factors such as market conditions change, the binding constraints evolve as well. Because of proximity to the ground, local governments can respond more quickly and effectively than the central government. It is almost impossible to find a one-size-fits-all national industrial policy for all regions at any given time that adequately addresses these constraints. Third, market failures are often involved during the various stages of the cluster's development, which would necessitate the interventions of the government.

We examine a potato cluster in Anding County, China, and find several industrial policies that have been integral to the cluster's development. Furthermore, nearly all of those industrial policies—including leveling land, developing better varieties, establishing a potato trade association, lobbying for increasing freight car quotas, and attracting processing firms—were implemented at the local level, highlighting the need for discussion of local industrial policymaking as a major determinant of cluster development. As this potato cluster demonstrates, successive bottlenecks in the development process call for local industrial policies that recognize and address continuously emerging supply-side and demand-side binding constraints.

One key reason why the local government has been so keen in fostering the cluster development has something to do with the incentive structure of local governments and officials. Arrangements such as tax revenue sharing between local and national governments provide powerful incentives for local governments to take a more active role in facilitating local economic development. [3] In addition, local officials' promotions are often tied to the performance of local economy. Consequently, local officials place economic development as a top priority. In fact, the cluster-based model is rather ubiquitous in China (Long & Zhang, 2011, 2012) in large thanks to the embedded interest of local officials in promoting local economy.

We should bear in mind the limitation of this study, which is based on only one county and covers only a successful story. There must be some failed local policy interventions as well. More in-depth case studies are needed to understand both successful and failed local industrial policies. Nonetheless, our case study shows that even in a remote area with extremely poor natural endowment like Anding, it is possible to achieve rapid economic growth through a cluster-based development model.

The paper is organized as follows. Section 2 discusses the conceptual model we use to illustrate the role of local industrial policies in our case study. Section 3 describes the location of the potato cluster and includes subsections focusing on specific policies and their effects on supply-side and demand-side constraints. We conclude with a summary and discussion.

2. A CONCEPTUAL MODEL OF THE EFFECTS OF LOCAL INDUSTRIAL POLICIES

Before delving into our discussion of the Anding County potato cluster, we first articulate a simple conceptual model to describe the role of local industrial policies in helping to overcome successive demand and supply constraints. Adapted from Sonobe and Otsuka (2006), the model captures the effects of industrial policies on cluster-based development, a commonly observed pattern in developing countries. [4] Figure 1 plots the demand and supply curves. The demand curves are shown as the downward-sloping curves and are labeled with a capital letter D. For a small region, a commodity's price is mainly determined by the extent of the market. The slope of the demand curve may be initially rather flat because the scale of local production is small. However, when local production reaches a certain scale, the market can become saturated, resulting in a sudden drop in price as shown in the steeper part of the demand curve. A better transportation link can help expand the extent of the market, avoiding price collapse associated with rising local supply.

In a small region, local governments find it hard initially to have a direct effect on demand factors. However, local governments do have several options available to facilitate a rightward shift of the supply curve. Using potatoes as an example, the local government can help improve irrigation facilities and breed high-yield, virus-free varieties to shift the supply curve rightward from S_0S_0' to S_1S_1'. The policy interventions result in a welfare gain as measured by the area $S_0E_0E_1S_1$ and a drop in price. However, as farmers see the profit opportunity, they will expand cropping area, leading to a further shift of the supply curve all the way down to S_2S_2'. At the new equilibrium price E_2, it is no longer profitable for anyone to expand into potato production.

At this stage, demand becomes a more binding constraint. Facing deteriorating market conditions, farmers and business communities are likely to be more willing to work with the local government to overcome the demand bottleneck. There are various ways to attract more demand for local products. For instance, a better road can help connect the broader consumer market in remote regions and larger storage facilities will enable farmers to store a portion of their potatoes in the harvest season when the price is low and sell them later when markets

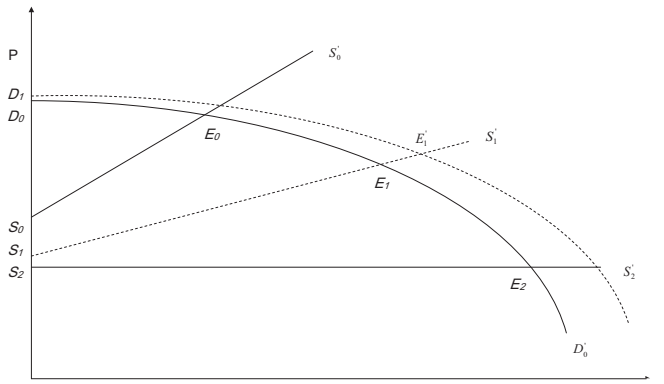

Figure 1. *Market equilibrium in the supply and demand expansion phases as a result of local industrial policy. Note: Policy interventions that shift the supply curve SS′ include improving land quality, breeding better varieties, and so on. Local policies that move the demand curve DD′ up include lobbying for more freight car quotas, building storage capacity, and developing processing industries. Source: Drawn by authors.*