

Chapter 9

Optimizing International Joint Venture (IJV) Ownership Structures: A Technology and Knowledge Transfer– Linked Productivity Growth Perspective

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ABSTRACT

This chapter portrays a quantitative framework regarding entry mode choice and ownership structures by measuring performance under given ownership structures as the degree of efficiency in technology transfer, and knowledge exchange in the form of a residual productivity growth variable. This method has been shown to be a proxy for or an indirect measure of transaction costs, in that ownership structures are validated by the growth in technology/knowledge-based productivity that they caused. In the process, the chapter discusses hierarchical entry modes and adjustment of ownership structures with respect to minimizing transaction costs incurred in the transfer and internalization of complementary assets, both tangible and intangible. Previous research has dealt with subsidiary performance mainly in terms of financial measures (e.g., profitability, ROA, ROE, ROI), instability, and lifespan. By contrast, this chapter extends existing research by providing a specific quantitative framework for optimizing technology/knowledge-based productivity growth. The second important contribution of the chapter is the linkage of the quantitative results to their applicability and potential for implementation in Japanese equity-based subsidiaries in Latin America over the lifetime of the subsidiaries. Other factors important in the implementation and internalization of new technologies and knowledge have also been analyzed quantitatively and linked to case studies qualitatively. The chapter further analyzes adaptations to regional

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contexts and parent companies of nationalities other than Japanese. Therefore, the model presented in the chapter addresses IJV ownership structures which are optimal to productivity growth linked to new technologies and knowledge and by adaptation of variables, and discusses results for emerging markets in Latin America, such as Peru, Colombia, and the newly industrialized Brazil. The chapter also highlights advantages and disadvantages of forming IJVs with a local partner of different levels of technological sophistication, and the degree of managerial and equity involvement to allow the local partner.

PRODUCTIVITY AND OWNERSHIP

Several studies have been conducted on ownership and productivity. Those conducted on a micro-economic level have tended to remain conceptual due to the difficulty of access to large-scale company or subsidiary-level data, particularly panel (time-series) data. Yet other studies have tended to remain industry- or sector-based, such as private and state ownership. Therefore, most studies which have employed a productivity growth concept (e.g., Total Factor Productivity or TFP) have tended to analyze industry-level or country-level data.

A highly relevant study with regard to firm-level data was conducted by Fukao et al. (2005). They included a micro-level firm panel data of both foreign and domestically-owned companies in Japan's manufacturing sector over a seven-year period and conducted a TFP analysis. Their sample size was 236, and their findings indicated foreign-owned companies' technology-based productivity was approximately 8% higher than that of local firms. Furthermore, the growth rate of technology-based productivity also exceeded that of domestic enterprises, and they showed that local companies which were later acquired by foreign companies had higher technology-based productivity growth rates. Their findings were supported by data on expenditure on Research and Development (R&D) per worker and capital per worker ratio which were both higher. Interestingly, Fukao et al. (2005) also found that foreign-owned companies had significantly lower growth rates of tangible assets, suggesting foreign-owned companies rely much more on the exchange of knowledge-based assets.

Several studies have already considered ownership and its effects on technology-based productivity in more detail. For instance, Blomstrom and Sjöholm (1999) have found majority ownership allows the subsidiary to receive more sophisticated technologies from the parent firm. However, Jefferson et al. (2000) has suggested minority ownership allows the local partner greater contact with technologies, and therefore helps technology diffusion, barring large technological or knowledge gaps. Similarly, Dougherty and Guckin (2001) highlight that value-added activities in Chinese Standards of Excellence (SOEs) tend to rise when partnering with a foreign firm due to technology and knowledge spillovers, which therefore raises the overall technology-induced productivity for the IJV. However, their study is conceptual and not nationality-specific. I will first review those studies which treated the issue of ownership and technology-based productivity.

Blomstrom and Sjöholm (1999) approach the problem of productivity growth from the perspective of technological spillover effects by Multinational Corporations (MNCs) entering a foreign market where their market entrance distorts the existing local market equilibrium. Local companies are then forced to react to protect their market share. Nonetheless, the authors argue these effects have had a positive influence on local firms with respect to absorption of new technologies. Where technological gaps were too large, however, the authors found a moderating effect on productivity because of the "limited scope for learning" by the local partner.

Their study leaves several issues unanswered. First, they only present statistical proof that productivity is compromised due to the local part-

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