



China's Shallow Integration: Networked Production and the New Challenges for Late Industrialization

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Summary. — Chinese enterprises have become extensively linked with the global economy, yet in a shallow manner. They remain stuck in commodity manufacturing, undifferentiated activities for which innovation is absent. Competition then revolves around cutthroat cost cutting. This outcome stems from three factors. First, it reflects the new challenges to development posed by globally networked production. Second, it reflects tensions between the political economic imperatives of successful post-socialist transition and the institutional imperatives for upgrading in networked economies. Third, it reflects uncertainty surrounding the adjustment of traditional industrial policy to the new demands of development through participation in global supply chains.

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1. INTRODUCTION

By the end of 2003, some 25 years into its extraordinary process of market transition, China had emerged as the world's third largest trading and fourth largest manufacturing economy. The country's trade surplus with the United States was projected to reach \$125 billion by year's end.¹ At the same time, though perceived as the engines of a rising economic powerhouse, Chinese firms across a number of sectors found themselves locked in intense, cutthroat competition—a bitter struggle among one another for razor-thin margins in highly commodified, highly standardized manufacturing activities. While certain voices within the developed world may lament globalization and the rise of new industrial competitors, those new competitors from the developing world—rather than celebrating—are barely hanging on, barely clinging to temporal, let alone sustainable competitive advantage. This paper aims to explain why this situation obtains, and what it suggests about the new challenges of economic development in an era of globalized, networked production.

China's emergence is occurring in the context of a transformation in the manner by which

production is organized, a shift that makes China's rise categorically different from that of predecessors such as Germany, Japan, and South Korea. That something is truly different is underscored by a phenomenon upon which this paper will focus. As indicated by a 2001 World Bank survey of 1,500 enterprises across five major Chinese cities, Chinese firms are integrating extensively with the global economy, but they remain concentrated in primarily low-end commodity manufacturing, activities for which they have few other options but to compete on the basis of intense discounting. As suggested by Daniel Rosen, 21% of China's \$325 billion exports in 2002 may have been classified by the Chinese government as "high-tech," but even these ostensibly higher end exports were dominated by lower end parts for information

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technology products, or at best, mature products such as DVDs and laser printers.² Either way, these are essentially standardized, nondifferentiable goods—products that command negligible margins, and as such, force suppliers to compete primarily on the basis of extensive discounting. As Rosen points out, the high value-added elements of these products generally need to be imported by China. In higher technology sectors, Chinese firms are churning out goods roughly 80% of whose value is created elsewhere.³ In global economic terms, China is integrating extensively, but, as the following paper argues, “shallowly.”

This paper makes three main arguments. First, the combination of extensive but shallow integration can be understood only as a byproduct of a new mode of industrial organization, globally-networked production. This manner of organization presents unique challenges to even the most successful developing countries such as China. Second, China’s pattern of integration, especially with respect to some of the difficulties faced by firms in industrial upgrading, has stemmed from contradictions between the political economic imperatives for effective post-socialist transition and the institutional imperatives for upgrading within the context of globally networked production. The policy approaches that permitted China’s successful climb out of socialist command planning are in some respects now impeding efforts by Chinese firms to build global competitiveness. Third, the shallow integration of Chinese firms also stems from the difficulties faced by policy makers in fitting an older model of development, namely the industrial policy focus of Japan and South Korea, into the newer and more ambiguous demands of networked production.

2. THE SHIFTING ARCHITECTURE OF GLOBAL PRODUCTION

Technological change, particularly digitization, has dramatically altered the architecture of production processes globally. By facilitating the management and transmission of vast amounts of information, digitization has allowed the codification of highly sophisticated manufacturing processes. Once codified, processes can be split into discrete steps—modules, in effect—and standards to ensure their connectivity can be established.⁴ Modularization, in turn, has permitted activities that once had

to be co-located geographically and managed organizationally within the confines of a single firm to be spread out across great geographic and organizational expanses.⁵

The issue is not that any activity can be done anywhere, or that all manufacturing has been completely modularized, but rather that new options now exist for structuring activities.⁶ For some manufacturing processes, individual steps have become completely modularized such that the rules of connectivity between upstream and downstream steps are fully codified and stable. At the other extreme are processes whose component steps cannot easily be codified and disaggregated. They may be separated geographically and organizationally, but their integration into a final product requires extensive coordination and communication among the producing parties. This sort of “integral” production architecture may be pursued as a matter of choice by a lead firm (i.e., a vertically-integrated organization), but also may be dictated by the state of technology.⁷

From an analytical perspective, the focus on modularity signifies a departure from traditional ways of conceptualizing manufacturing and distinctions across industrial sectors. Traditionally, industries have been categorized by the nature of the final material good produced: the product’s physical attributes, its complexity, the amount of capital needed to produce it, and the organizational complexity of the firm needed to manage that production. Hence, what counted was whether we were talking about steel, autos, aerospace, or—at the ostensibly less-sophisticated end—textiles, toys, or apparel. That information can be digitized, and that (at least some) extremely complex activities can be made modular necessitates our thinking along new dimensions, namely along the lines of the different ways in which production processes and their constituent steps can be structured. We are forced to consider the nature of the information transmitted across particular steps in the production process, and encouraged to categorize activities according to whether and to what extent that information can be codified and standardized.⁸

In this sense, whether for aerospace or apparel, we can conceive of some activities within their respective industry supply chains that are standardized and commodified, and other activities that are highly proprietary, as yet utterly uncodifiable, and highly lucrative. We can also see that as different firms occupy different parts of the supply chain—whether in high-tech

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