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International fragmentation and the new economic geography

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Abstract

Fragmentation of vertically integrated production processes implies that segments (production blocks) are located in different geographical areas, perhaps in different countries, and that they may be undertaken by different firms. Service links are required to coordinate such fragmentation, and it is in these links (such as communication and transportation) that significant economies of scale are to be found. This often leads to dis-agglomeration of economic activity, especially at the international level, which runs counter to suggestions found in the "new economic geography" literature. This paper explores the implications of increasing returns in service links for fragmentation and the dispersion of production.

JEL classification: F10; F20; O30; R12

Keywords: Fragmentation; Agglomeration; Service links

1. Introduction

In a recent magisterial survey, Neary (2001) remarked that, "Economic Geography has come of age." Several years later we are witnessing an extended birthday bash—a newly published volume by Baldwin, Forslid, Martin, Ottaviano, and Robert-Nicoud (2003), and

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a forthcoming volume 4 of the *Handbook of Regional and Urban Economics* (Henderson & Thisse, 2004). Most of this literature pays special tribute to the pioneering article and book by Krugman, (1991a, 1991b), as well as Venables (1996), and the detailed book, *The Spatial Economy*, by Fujita, Krugman, and Venables (1999). This book pays special attention to the so-called Core-Periphery model laid out in the earlier Krugman contributions, and to the central issue in this body of theory, i.e., the phenomenon of agglomeration of economic activity. Much of the effort in newer articles and chapters, including the Neary survey, is devoted to coming to grips with problems presented by the core-periphery account. As Baldwin, et al., attest, “This model . . . has the unfortunate feature of being astoundingly difficult to work with analytically” (2003, chap. 1, p. 2).

In this paper, we have no intention of adding to these efforts to make the new economic geography analyses more tractable, although we do empathize with the need to simplify the analytics of the issue. Instead, we discuss our alternative framework within which issues such as the agglomeration of economic activity can be understood. This work, starting with our original article in 1990, is supported by the emphasis placed in the theory of international trade on the increasing importance of trade in intermediate goods and goods in process. Such emphasis is reflected, of course, in the long-standing interest in foreign investment activity. Around four decades ago, the importance of international trade in intermediates was recognized by the many contributions to the theory of effective rates of protection. This theory contributed the valuable insight that the production of final commodities often relied on intermediates originating abroad, and that account of such trade should be taken in calculating the *effective* rate of protection to local productive activity provided by a country’s tariff structure (e.g., Corden, 1966). In an era of intensive international tariff reductions, the theory of effective protection addressed a real-life issue: what is the essential meaning of reductions in tariff walls when industries are interdependent and interconnected in a global economy.

In the early 1980s, the concept of *middle products* was introduced (Jones & Purvis, 1983; Sanyal & Jones, 1982) to incorporate the notion that almost all final commodities make use of a pair of inputs—those available in national markets and those obtained in world markets. Here again, a real-life phenomenon suggested a research agenda: When inflation became a truly international event, could countries insulate their economies from global influences under a fixed exchange rate system? Traditional trade theory applied to open macro-economics seemed to be saying no, at least in the context of small countries that produced only tradable goods. And yet, inflation rates differed across countries, small and large, and even PPP did not hold particularly well.

The theory of trade in middle products suggested an explanation of the puzzle by postulating that productive activity within an economy could be separated into two *tiers*—an *input tier*, wherein labor and natural resources locally found can be combined to produce goods *for* the world market, and an *output tier* that combines goods *from* the world market with local inputs to produce final consumer goods. That is, almost all of international trade takes place in the middle of the production spectrum. While prices of middle products may equalize across the world rather quickly and completely (and be exogenous for small countries), the prices of goods actually consumed need not be the same.

No short review of economic phenomena and trends encouraging research and leading to new trade theories or models would be complete without the intra-industry trade described