

WORKING PAPERS

EAST-WEST CENTER WORKING PAPERS



EAST-WEST CENTER

The U.S. Congress established the East-West Center in 1960 to foster mutual understanding and cooperation among the governments and peoples of the Asia Pacific region including the United States. Funding for the Center comes from the U.S. government with additional support provided by private agencies, individuals, corporations, and Asian and Pacific governments.

East-West Center Working Papers are circulated for comment and to inform interested colleagues about work in progress at the Center.

For more information about the Center or to order publications, contact:

Publication Sales Office
East-West Center
1601 East-West Road
Honolulu, Hawaii 96848-1601

Telephone: 808-944-7145

Facsimile: 808-944-7376

Email: ewcbooks@EastWestCenter.org

Website: www.EastWestCenter.org



Economics Series

No. 27, May 2001

Multinational Corporations and Endogenous Growth: An Eclectic-Paradigmatic Analysis

Terutomo Ozawa and Sergio Castello

Terutomo Ozawa was a **Visiting Fellow** at the East-West Center and is a professor of economics at Colorado State University. Previous affiliations include visiting professor at the University of Tokyo (Institute of Social Science), short-term visiting professor at the University of Paris I (Pantheon-Sorbonne), visiting research associate at MIT, and consultant for OECD, World Bank, UNCTAD, and other international organizations. His latest book is Business Restructuring in Asia: Cross-border Mergers and Acquisitions in the Crisis Period, co-authored with James Zhan of UNCTAD, Copenhagen Business School Press, 2001.

Sergio Castello is an **Assistant Professor** of Global Business/Economics at the University of Mobile, Alabama. Dr. Castello has co-authored several publications this year, which include: The Internet Revolution, the McLuhan Stage of Catch-up, and Institutional Reforms in Asia, to be published in *The Journal of Economic Issues*, June 2001.

An earlier version of this paper, "Toward an International Business' Paradigm of Endogenous Growth: Multinationals and Governments as Co-Endogenizers," will appear in the *International Journal of the Economics of Business*, forthcoming in 2001. This revised version is considered as a chapter in K. Fatami (ed.), Globalization and International Business at the Turn of the Century, (forthcoming in 2002).

East-West Center Working Papers: Economics Series is an unreviewed and unedited prepublication series on research in progress. The views expressed are those of the author and not necessarily those of the Center. Please direct orders and requests to the East-West Center's Publication Sales Office. The price for Working Papers is \$3.00 each plus postage. For surface mail, add \$3.00 for the first title plus \$0.75 for each additional title or copy sent in the same shipment. For airmail within the U.S. and its territories, add \$4.00 for the first title plus \$0.75 for each additional title or copy in the same shipment. For airmail elsewhere, add \$7.00 for the first title plus \$4.00 for each additional title or copy in the same shipment.

ABSTRACT

Endogenous growth theory has recently originated in economics. Building on this theory, this chapter conceptualizes the phenomenon of endogenous growth in terms of some new ideas developed in the field of international business (IB). These ideas have so far been not linked to the notion of endogenous growth. On the other hand, mainstream economics has not made much progress in exploring the MNC-government relationships through which growth-inducing “mechanics” are created, a topic of great importance and research in the IB-related discipline. Both MNCs and governments complement each other in facilitating an efficient matching of ownership-specific assets (notably knowledge) with location-specific advantages, thereby enabling the developing host countries to realize potential growth in an intensified manner, a new mode of endogenous growth that counteracts the law of diminishing returns. The phenomenon of MNC-cum-government-driven endogenous growth is thus conceptualized.

I. INTRODUCTION

Endogenous growth theory (or also called the “New Growth Theory”) (*inter alia*, Arrow 1962; Romer 1986; Lucas 1988; Grossman and Helpman 1991) has recently revitalized the field of economic development. This new growth theory treats a number of growth-inducing factors, such as “learning by doing,” “human capital formation via education and training,” “R&D,” “public goods and infrastructure,” and “knowledge spillovers,” as *endogenous* variables. All these growth factors are related to the generation and flows of knowledge. Knowledge is self-augmenting and its use is characterized by the law of increasing returns. As Alfred Marshall observed, “the part of nature in production may show a tendency to diminishing returns, but the part of man shows a tendency to increasing returns... Knowledge is our most powerful engine of production: it enables us to subdue nature and satisfy our wants” (Marshall 1930, as cited in Meier 1999). Knowledge thus helps us overcome the forces of diminishing returns. Hence long-term vigorous growth becomes a possibility.

Multinational corporations (MNCs) are widely recognized as a crucial catalytic institution, which creates and transfers knowledge across borders (both intentionally and unintentionally)--and are generally welcomed as such--in the developing host economies.¹ The literature on international business (IB) is full of fascinating ideas and conceptual analyses, as this paper demonstrates, about the roles of MNCs and governments in knowledge creation and dissemination and their impact on local economic development. Nevertheless, there has so far been no attempt to link these ideas to the notion of endogenous growth. On the other hand, the mainstream economic (neoclassical in origin) literature on endogenous growth has not yet drawn on any of these new exciting ideas introduced in the IB literature. For that matter, it has not yet explored the dynamic interactions between MNCs and government policies for economic growth as closely as the IB discipline has done. Indeed, the MNC-government nexus is a topic of central importance for IB scholars. True, some mainstream works on endogenous growth (e.g., Grossman and Helpman, 1991; Eicher and Kalaitzidakis, 1997) have explored this topic, but have done so only within the straightjacket (mathematical formalization) of neoclassical analysis. In such a constrained approach, MNCs are not adequately portrayed as *an institutional agent* of dynamic growth and change, interacting with host governments’ development policies.

The purpose of this chapter is to examine the MNC-government nexus and derive policy implications to the catch-up process of developing host countries. Hence, IB ideas are explored

¹Just to cite a few notable examples of policy studies that specifically treat MNCs as an instrument of development. United Nations Conference on Trade and Development (UNCTAD) has been actively studying the role of MNCs in economic development. See its annual World Investment Reports (especially 1992, 1995 and 1999). The impact of globalization with stepped-up MNC activities on economic development is the focus of a conference volume (Hood and Young 2000). How Central Europe is making use of inward FDI in its transition to a capitalist-path of development and growth is detailed, for example, in a collection of papers (Hunya 2000).

in comparison with mainstream theory. Here, John Dunning's contributions, especially the eclectic paradigm of international production (1981) and his notion of macro-organization (1992, 1997), provide the necessary foundations to construct a conceptual framework. The following section first briefly reviews the "mechanics" of endogenous growth introduced in mainstream economics and then identifies and discusses some relevant works in the IB field, the works that present the new mechanics of enhanced growth. MNC-cum-government-driven endogenous growth will be conceptualized as a frame of reference.

II. CONCEPTUAL EXPOSITION

II. A. *Mainstream Economic Approach*

As summarized in Table I (A), those growth factors that have so far been identified by the proponents of the theory of endogenous growth in the mainstream economic literature include: (a) learning-by-doing, (b) skills of workers, (c) human capital formation (education and training), (d) research and development (R&D), (e) knowledge spillovers, both at home and across borders, (f) infrastructure and public goods, and (g) trade liberalization/deregulation.² Interestingly, the first five elements, (a) through (e), are directly related in one way or another to the knowledge-related activities of MNCs. Indeed, mainstream economics began to examine the link between FDI and knowledge spillovers in a traditional endogenous growth model (for example, De Mello, 1997, 1999). As detailed below, investment in R&D and knowledge spillover (d and e) in particular are further explored in the IB literature.

Infrastructure and liberalization (f and g) belong to the domain of government tasks and responsibilities. A large part of human capital formation (notably basic education and public health) is also carried out by the government. Thus *both MNCs and governments need to be recognized as the crucial facilitators (institutions) of endogenous growth*. In fact, the recent popularity of the new growth theory as opposed to the "old" growth theory (which predicts a path of growth convergence among countries) derives partly from the fact that because of wide disparities in growth rates among countries, "peoples are interested in knowing the implications of different government policies on growth... The more practical implication of these models was that the government has *a role in economic growth*" (Long and Wong 1997: 64, emphases added).³ (See Table 1)

Yet surprisingly—or rather expectedly from its rather narrow disciplinary orientation, the

²This list is not meant to be exhaustive. There are many ancillary ideas such as horizontal and vertical innovations.

³For the origins of the new growth theory, see Romer (1994). Barro and Sala-i-Martin (1995) emphasized the role of government in promoting viable long-term growth: "if we can learn about government policy options that have even small effects on the long-run growth rate, then we can contribute much more to improvements in standards of living than has been provided by the entire history of macroeconomic analysis of counter-cyclical policy and fine-tuning."

two key institutions, MNCs and governments, that can facilitate endogenous growth--and particularly their interactions and synergies in joint production of created assets--have so far not adequately been examined in mainstream economics; in fact, it leaves these two key institutions of endogenous growth unlinked and their strategic relations unexplored. In contrast, the IB discipline has recently witnessed the emergence of some interesting ideas about, and analyses of, the critical role of MNC-government relations in promoting rapid growth. The IB scholars are squarely focused on the role of MNCs as a business institution, which serves as an organizer of globalized production networks.

II.B. International Business Related Approach

So, what are these ideas of the IB genre? We can identify seven major ones. As shown in Table 1 (B), (a) technology transfer and spillovers by MNCs and their networks, (b) dynamic evolution of OLI configuration *pari passu* with economic growth, (c) cross-border technological development and sourcing, (d) cumulative causation in technological competitiveness, (e) locational agglomeration of innovative activities, (f) pro-trade (as opposed to anti-trade) FDI, and (g) industrial restructuring and comparative advantage recycling in a regionalized context. All these “mechanics” in IB facilitate the continuous expansion of business activities in the world economy by restraining the law of diminishing returns--hence, endogenously driven growth.

What follows will highlight the nature of each of these IB-based sources of endogenous growth.

(a) technology transfer and spillovers by MNCs and their networks:

One of the keys to endogenous growth is technology transfer and knowledge spillovers. John Dunning (1958) examined both the direct knowledge transfers and spillovers of American multinationals in British manufacturing industry. In his seminal theory of MNCs’ overseas investment, Stephen Hymer (1960) identified “the flow of business techniques and skilled personnel” as a major feature of “the international operations of firms.” Raymond Vernon (1966) introduced the product cycle theory of trade and investment, depicting the investment of American firms in less developed countries as the major vehicle of manufacturing technology (both product and process) transfer and as the cause of trade reversal (i.e., initial exports turning into imports in the mature stage of product cycle). Vernon (1979) explored the altered pattern of innovations and their diffusions in light of geographically dispersed R&D centers.

Focusing on the imperfect nature of the factor markets, Buckley and Casson (1976) theorized the efficacy of the MNC as a superior institution to organize production than markets (hence stimulating economic growth worldwide), an institution in which knowledge transfers are more efficiently executed. Blomstrom (1989) specifically analyzed the technological spillovers

associated with inward FDI (in the context of a host economy, Mexico).⁴ Kokko (1992) looked at how FDI interacts with host country characteristics in producing spillovers. Kokko and Blomstrom (1995) studied the policies to encourage technology inflows through FDI. Lall (1997) similarly examined the host country strategies to promote the upgrading of technology advantages by intervening in MNC activities (in the four Asian NIEs). Bende-Nabende (1999) provided an econometric investigation for the ASEAN-5 economies of the impact of FDI and its spillover effects on economic growth.

Most recently, Ernst (2000a, 2001) introduced the concept of “global production networks (GPN),” a cross-border hierarchical organization which is established by flagship multinational corporations and which creates knowledge spillovers to their overseas affiliates and suppliers through global outsourcing activities. An empirical study of the interactions between such networks and the growth of Asia’s electronics industry was made in a number of essays in Borrus, Ernst, and Haggard (2000). The GPN model is reminiscent of Hymer’s (1971) “corporate headquarters” model of the globalized and hierarchical corporate economy in which, as Hymer put it, the benefits of such an economy “trickle down” from “the metropolis to the hinterland.” It also parallels Rugman and D’Cruz’s (1996, 1997) “the five-partners business network model” and “the theory of the flagship firm.” It is structurally related to the model of a transnationalized “commodity chain” introduced by Gereffi (1992) and Gereffi and Korzeniewicz (1994). To the extent that the spread of the globalized corporate economy facilitates knowledge dissemination, global economic growth no doubt accelerates, so long as its efficiency-enhancing force outweighs its market-control power.

(b) Dynamic evolution of OLI configuration pari passu with economic growth:

Dunning’s eclecticism of the OLI (ownership-, location-, and internalization-specific advantages) framework has recently developed into a dynamic evolutionary theory of configurations of these triumvirate factors (Dunning 1993; Narula 1996; Dunning and Narula 1996; Narula and Dunning, 2000; Torentino 1993;). Dunning (1991:126) explains how the OLI configuration changes over time:

... At a given moment of time, the pattern of international production represents a point on a set of trajectories towards (or, for that matter, away from) the internationalization of production by firms. That trajectory itself is set by the continuous and iterative interaction between the OLI configuration over a succession of time periods and the strategy of firms in response to these configurations, which, in turn, will influence the OLI configuration in subsequent time periods.

Following Dunning’s lead, Narula (1996) argues that a firm’s O advantages at a given period of time depend on L factors in a previous period, while a country’s L advantages are in turn

⁴Spillovers by outward FDI on domestic employment, exports, and research in Sweden—and in general terms—are explored by Blomstrom and Kokko (1994, 1997).

augmented by its ability to capitalize on the O advantages of foreign MNCs in a previous period. In short, a virtuous circle emerges between O and L advantages through “continuous and iterative interaction.”

Dunning and Narula (1996) and Narula and Dunning (2000) further explore the interactions among host-governments’ trade and FDI policies, foreign MNCs’ activities, and the development of intellectual capital at large and created assets at firm level—and their growth-inducing impact on a host country’s ability to “catch up” and join the ranks of advanced countries (or otherwise a country’s fate to “fall behind”). Their analyses are based on the five stages of “investment development path (IDP)” through which the configurations of O and L factors evolve in a mutually reinforcing manner, exhibiting the path of “net outward investment (NOI)” position.

It should be noted that O and L advantages play different roles in endogenous growth because of their different characteristics; the former are firm-specific (i.e., of a private-property nature) and mobile but are normally transferred on an exclusive basis (i.e., not necessarily available to all outsiders), whereas the latter are of a public good nature⁵ (equally available to all firms in principle) but immobile. At low levels of development, L-advantages are a more important determinant of *localized* endogenous growth (say, in a particular developing host country or region rather than anywhere else) than their O-advantage counterparts. Yet as developing countries catch up and converge with the advanced world, their general L-advantages grow similar at high levels of development, and their O-advantages become less home-country-specific and more industry-specific. Indeed, the O-advantages are then increasingly derived from firm-specific multinationality.

(c) Cross-border technological development and sourcing:

As John Cantwell (1989, 1995, 1999; Cantwell and Janne, 1999) observe, through international business operations, MNCs in a high-tech/R&D-based industry are not merely involved in technology transfer and knowledge spillovers but more importantly are increasingly engaged in new knowledge creation via a cross-border network of R&D facilities. In fact, this trend is accelerating as more and more MNCs in R&D-based industries are involved in overseas production of knowledge itself—in addition to overseas production of products and services.

While the above analysis is made largely from a viewpoint of knowledge-outsourcing (mostly large) multinational corporations with formal R&D facilities, Ernst (2000b) stresses the knowledge-enhancing mechanism on the part of local knowledge-subcontractors, especially small and medium firms in a relatively small economy (Taiwan) as a result of “inter-organizational knowledge creation.” Whether examined from outsourcing MNCs’ or from subcontracting local firms’ perspective, this new type of international production (i.e., cross-border intra-network knowledge production) means an acceleration of global knowledge

⁵The “publicness” of L-advantages is, of course, stressed as a key factor of endogenous growth in the mainstream approach, as mentioned as “infrastructure and public goods” in Table 1.

creation. In other words, the more globalized and interconnected the world economy becomes (instead of subdivided and segmented), the greater the chances of border-straddling knowledge production—hence the more rapid and lasting the endogenous growth of the world economy.

(d) Cumulative Causation in technological competitiveness:

The cumulative causation (both *virtuous* and *vicious* circles) between the technological activities of MNCs and the international competitiveness of an open economy may be intensified (Cantwell, 1987). A virtuous circle occurs because inward FDI is likely to be attracted into innovative industries caught up in a virtuous circle in the first place, industries with local R&D facilities and a rising indigenous technological capacity, and because newly established foreign affiliates increase technological dissemination to suppliers and customers and spur local rivals to a higher rate of innovation. This virtuous circle is nothing but a powerful engine of MNC-driven endogenous growth. Here, the size of the firm and the size of the market attainable by way of expanding multinationality of the firm also give strong micro-economic incentives to innovate, because the firm's enlarged operations across international markets facilitate transfer of intangible assets at nominal marginal costs.

On the other hand, a vicious circle may also occur as a result of MNCs' market power, which may drive out local competitors and hinder the technology creation of local suppliers. As Cantwell (1987:134) summarizes,

The overall conclusion to be drawn from the basic model is that, as a long run process, an internationally trading industry will gradually become increasingly divided into some dynamic and some stagnant production locations. The former will be characterized by a high proportion of research intensive activity and a relatively steep technological progress function, the latter by a low proportion of research linked production and a comparatively shallow technical progress function.

(e) Locational agglomeration of innovative activities:

Cantwell's analysis thus directly leads to the notion of locational agglomeration of innovative activities. This notion has only recently begun to be explored by IB scholars (*inter alia*, Porter 1990; Dunning 1991, 1996, 1997; Nachum 1999, 2000), although conventional economics has long been familiar with it ever since Alfred Marshall (1920) conceptualized an "industrial district," and a revival of interest in it has occurred with a work of Paul Krugman (1991). The IB literature has lately begun to zero in on this important topic. For example, an idea of cluster-based development strategies was discussed in Enright (2000). The creation of competitive advantages by MNCs through geographical agglomeration of innovation with all its multifarious aspects is explored in a conference volume (Dunning, 2000) from IB perspectives. Ernst (2000) also introduces the "Flagship model of concentrated dispersion," in which rapid cross-border dispersion coexists with agglomeration. IB-related research is expected to step up on the dynamics of cluster-based L advantages, which is no doubt a main wellspring of endogenous growth.

It should be cautioned, however, that forces of agglomeration work in both ways, positively and negatively. Diseconomies occur in terms of deteriorations in the environment (pollution and ecological destruction) and social infrastructure (congestion, crimes, and rising housing costs, etc.), and these need to be tackled at policy level to ensure endogenous growth.⁶ This type of diseconomies weighs more heavily as a growth policy constraint in advanced countries than in developing countries.

(f) Pro-trade (as opposed to anti-trade) FDI:

Focusing on the trade implications of FDI, a distinction can be made between pro-trade and anti-trade types of FDI from a host country's perspective and in terms of the Ricardian doctrine of comparative advantage (Kojima 1973, 1975; Kojima and Ozawa 1984). When trade induces strong growth, the pro-trade type of FDI is a powerful promoter of comparative advantage. The origination of this idea lies in the recognition that MNCs as organizers of FDI are business institutions (as opposed to markets) that can create this macro-economic effect as a result of their multinational business operations. There is no place for MNCs to exist in the traditional trade theories which assume atomistic competition ("firms don't matter.") and no cross-border factor movement (including FDI and knowledge diffusion). Therefore, the pro-/anti-trade FDI model, though based on the neoclassical Heckscher-Ohlin framework, is classified here as an IB approach because of its focus on MNCs as a market-transcending institution.

The "maximum" growth-inducing effect of trade is based on three key propositions (Kojima and Ozawa 1985:135-139):

Proposition I: Countries gain from trade and maximize their economic welfare when they export comparatively advantaged goods and import comparatively disadvantaged goods.

Proposition II: Countries gain even more from expanded trade when superior entrepreneurial assets are transferred through FDI (or through non-equity types of transactions) from the home countries' comparatively disadvantaged industries or segments in such a way as to improve the efficiency of comparatively advantaged (existing as well as potential) industries or segments in the host countries.⁷

⁶For a recent theoretical and empirical study on this issue, see, for example, Braunerhjelm, et. al. (2000).

⁷This important second proposition is lacking in Ricardo's trade model, since he intentionally assumed away cross-border factor movement. Ricardo reasoned that international factor movement (including technology) would destroy the basis for trade (i.e., productivity differentials) between countries: "...under [the circumstances of higher labor productivity in Portugal]...the wine and the cloth should both be made in Portugal,..therefore the capital and

Proposition III: The process of transferring comparative-advantage-augmenting assets is facilitated when the home countries are capable of generating new goods or industries in which they can continuously renew comparative advantages and retain full employment, particularly employment of those resources released from comparatively disadvantaged (hence contracting) industries.

These propositions represent a country's *triple pro-trade orientation*, which can magnify the growth-enhancing effect of trade. The first proposition is Ricardo's pro-trade specialization, which is comparative (not absolute) advantage-induced; the second is pro-trade asset transfers; and the third is pro-trade structural upgrading (analogous to Schumpeter's "creative destruction" at the macro level). The third proposition, in particular, is now important, since the cost of globalization on domestic employment needs to be minimized; here the government is expected to play the role of a facilitator of MNC-triggered structural change via human resource development and technology policies (this directly connects to the IB theme of the interactive roles of governments and MNCs).

On the other hand, anti-trade FDI (replacement of exports) is most likely to occur, for example, when the host countries pursue import-substituting development policies⁸, or when innovating firms decide to specialize in knowledge creation (R&D) rather than production and exporting by quickly transplanting manufacturing overseas, especially in rapidly growing foreign markets.

Pro-trade FDI also generates scale and learning economies—in addition to allocative efficiency through trade-induced specialization in comparatively advantaged host industries. FDI itself (even if it is of the neutral type) brings with it the superior technologies and organizational skills hitherto unavailable in the host economies. How the host countries will benefit from inward MNC activities, however, depends ultimately on their "social capability" (Abramovitz 1986) and "national technological capabilities" (Lall 1992). But the host country's capability itself may or may not be enhanced by foreign MNCs' participation in the domestic industries for a variety of reasons (Lall 1999; UNCTAD 1999). But when the host countries are able to capitalize on MNCs' pro-trade investment in the interest of its structural upgrading, its economic growth will be all the more accelerated and prolonged—that is more endogenously driven than otherwise.

(g) Industrial restructuring and comparative advantage recycling:

labor of England ... should be removed to Portugal." Thus, Ricardo did not see how England's comparative advantage in cloth would be even enhanced if the Portuguese secrets of higher productivity in cloth are transferred to England's comparatively advantaged industry. See Ozawa (1997b).

⁸If import substitution occurs as part of the long-term process of building up local industrial capacity which eventually develops into exporting, the anti-trade nature of FDI is a temporary (short-run) phenomenon. In fact, FDI is generally trade-creating in the long run.

Closely related to the idea of pro-trade FDI is the use of FDI, both inward and outward, as agents of industrial restructuring and upgrading along the lines of dynamic comparative advantage (Ozawa 1992, 1993). Supergrowth (a success case of endogenous growth in its ultimate form) thus becomes a possibility, especially for outward-looking, export-oriented economies with MNC-friendly development policies.⁹ Moreover, when a regionally clustered group of countries which are at staggered stages of economic development adopt the similarly outward-focused strategies of development simultaneously, such a region becomes a dynamo of economic development, as has been evidenced in East Asia.¹⁰ A proper alignment of countries along the different stages of industrialization, along with stability in foreign exchange rates, creates an ideal set of conditions for comparative advantage recycling (Ozawa, 1993). For example, labor-intensive manufacturing (such as apparel, toys, and standardized electronics goods such as radios, TV sets, microwave ovens, and key boards) has been quickly shifted first from Japan to the NIEs, then from the NIEs to ASEAN-4, and most recently from these Asian countries to China, creating the job-creating, wage-boosting, and growth-inducing effects of FDI in *each* successive round of comparative advantage recycling and generating a “tandem development multiplier” effect.

This analysis actually constitutes an extension (restatement) of the so-called “flying-geese” theory of economic development (Akamatsu, 1935, 1961; Kojima, 1958) in terms of the role of multinationals as the augmenters and recyclers of trade advantages (Ozawa 1993, 1996, 1997b).¹¹ Comparative advantage recycling is thus a powerful mechanism of endogenous growth.

II.C. Focus on MNC-Government Interactions

It is now clear that the IB literature has produced some analytically fascinating ideas which can constitute the critical “mechanics” of endogenous growth and which are equal in explanatory power and supplementary to those identified in the mainstream economic literature. One major strength of IB, compared with the traditional branch of economics, is that it is focused

⁹A developing country’s strong outward orientation is certainly not without drawbacks, as has been seen in the recent Asian crisis, especially when its financial sector is opened to foreign banks, portfolio investors and currency speculators. This is discussed below.

¹⁰Indeed, one key question raised in the New Growth Theory is: “Why have countries, or groups of countries, been able to grow for decades in succession with no apparent tendency to slow down, despite rising capital-labor ratios?” (Boltho and Holtham 1992). Most recently, such successful growth did occur in East Asia, which was, in fact, once identified as “the East Asian miracle” (World Bank 1993).

¹¹Both Dunning’s IDP theory and the reformulated “flying-geese” paradigm are the stages models of FDI-driven economic development. For discussions on their interrelatedness, see Ozawa (1996) and van Hoesel (1997).

squarely on the relationships between MNCs and the host governments charged with the task of promoting domestic economic growth. And in fact, this focus makes IB distinctly different from conventional economics (especially, traditional international economics). In the words of Robert Grosse and Jack Behrman (1992: 93):

International business has existed as a distinct field of study for the past three decades, but it does not have a widely accepted explanatory theory on which to base its uniqueness as a discipline... Since international business is the study of business activities that cross national borders and, therefore, is *fundamentally concerned with the firms that undertake that business and the national Governments that regulate them, a theory that is unique to such business must explain the responses of businesses to government policies and the policy-making of Governments themselves towards international firms* (emphases added).

They insist that “any theory of *international* business must be a theory of policies and activities of business *and* Governments, in conflict and cooperation” and that “a theory of international business should explain how the issues of government concerned with TNC activities are defined, how they are negotiated, what trade-offs are involved, how differences are resolved, what adjustments are made over time and why” (p.97). Consequently, Grosse and Behrman (1992) introduce a bargaining theory, which explains how MNCs and host governments come to terms by trading off their “relative bargaining resources” and “relative stakes” within the range of “similarity of interests.”

What this chapter is concerned with is, however, not the bargaining process *per se*, nor how the two parties arrive at an agreement or end up sharing the spoils of MNCs’ operations. Our primary focus is beyond the bargaining and settlement stage; it is on the possible macro-organizational (*a la* Dunning) developmental impact of both MNCs’ operations and the host governments’ policies toward trade and FDI on the process of local economic growth and change.

Dunning’s eclectic paradigm has the well-known triumvirate conditions that a firm must meet if it is to invest and produce abroad: (1) the possession of net O advantages vis-à-vis firms of other nationalities in serving particular markets; (2) it should be more profitable to use O advantages within its hierarchy (i.e., to “internalize”), and (3) it must be in the interests of the firm to utilize these advantages in conjunction with at least some factor inputs outside its home country (Dunning, 1988: 25-26). And it is this third condition that directly leads to the arena of interactions through international business operations between MNCs as seekers of foreign factor inputs and markets and host governments as managers of host-specific location factors. Here, O advantages need to be *matched and effectively linked up* with some L advantages or assets of the host economy. There are, however, a number of political economy issues in the “new diplomacy” of bargaining between foreign firms and host governments (Stopford and Strange 1991). Both benefits and costs need to be thrashed out and managed when developing host countries intervene in investment promotion, domestic-content requirements, export-performance requirements, and technology transfers for local economic development (Moran 1998).

It is this focus on the MNC-government interface that makes the IB approach distinct from mainstream economics and places the former in a more advanced state of understanding about the dynamics of endogenous growth and its policy implications for catch-up development. In addition to this key difference, the latter is devoted to “formal theorizing,” while the former is oriented to “appreciative theorizing”—to borrow Nelson and Winter’s (1982) classification of theorizing. Furthermore, mainstream economics is somewhat “reductionist “ and “deeply specialized,” while IB is more “holistic” and interdisciplinary in analysis—and more directly policy relevant. Needless to say, however, these two approaches are complementary with each other, although the IB literature unfortunately remains unorthodox to—and largely neglected by--mainstream economics.

II. D. MNC-cum-Government-Driven Endogenous Growth

By combining all the ideas of the IB genre reviewed above into a unitized frame of reference, we can thus develop what may be called “MNC-cum-government-driven endogenous growth.” This framework should become the hallmark of the IB theory of endogenous growth.

As stipulated in Dunning’s eclectic paradigm, O advantages or firm-specific intangible assets (such as product and process technologies, and managerial and marketing skills) are possessed and controlled by MNCs, while L factors--inputs (such as labor, natural resources, and industrial infrastructure), local markets (demand conditions), and the general economic ambience—are all under the purview, and in the bailiwick, of the host government.

It is, therefore, worth stressing that an act of “internalization” (setting up and running a subsidiary)—and especially *how efficiently and how effectively (hence how profitably) internalization is carried out*--is actually not a one-sided act on the part of MNCs alone. Internalization efficiency is obviously affected by the host government’s management and control of L factors, as well as by the quality of participation of local interests in MNCs’ ventures as partners (in the case of joint ventures, which are often strongly promoted by the host country as a measure to build its national industrial capacity). In other words, a process of internalization needs to be examined from both MNCs’ and host countries’ points of view; involving “MNC-side internalization” and “host-side internalization.” (Ozawa 1997c). By host-side internalization is meant that the host government tries to *maximize and retain within its own economy* as much as possible all the *direct* and *indirect* benefits of foreign MNC activities, which accrue from their effective combinations with existing L factors.¹² To this end, the government must create the “right” type of L advantages suitable for the “right” type of foreign MNCs and their activities at the “right” stage of economic development (Narula and Dunning 2000), the L advantages appropriate for the prevailing factor endowment and technological

¹²Here, government active involvement toward inward FDI is postulated. If the host government adopts a hands-off policy leaving economic coordination to market forces, no internalization efforts are made by the government, as is usually the case with advanced countries (notably the United States, although its state and local governments are engaged in capturing the benefits of inward FDI with incentives).

conditions. Thus the government's ability to do so basically determines national competitiveness and economic growth. It should be noted, however, that the present trend toward globalization has tilted the balance of power in favor of MNCs (Dunning 1997).

This two-sided process of internalization is likely to contribute to FDI-led locational agglomerations--another cause of endogenous growth. Since the host governments' abilities to capitalize on and make use of MNC activities differ, divergent growth paths and rates will entail.

There are, however, some costs of this type of outward-dependent process of growth. One cost is the inevitable weakening of "nationhood" (Gray 1999), and some may even resurrect the ghost of the "dependency" theory of development. But here lies the key role of government in maximizing the benefits of MNC-based growth and minimizing its costs. In this respect, the capability of government (national governance) itself increasingly becomes a key locational asset (an endogenous factor) in its own right, given the current trend of globalization.¹³

III. SUMMING UP

In this chapter some new ideas developed in the IB-related field are linked to the notion of endogenous growth, contrasting with, and supplementing, the mainstream economic analyses. And what may be called "MNC-cum-government driven endogenous growth" is stressed as the core of the IB-related approach. MNCs and governments play the critical roles in facilitating the efficient matching of firm-specific assets with location-specific advantages so as to produce a vigorous and enduring business expansion in the local economy. They (in collaboration with local industry) are *the chief co-drivers* of endogenous growth by turning development constraints (L factors) into both new business opportunities (opportunities for O advantages to be appropriated and reinforced) and growth augmentation (in which L advantages are appropriated as part of GDP), which can counteract the law of diminishing returns--all within Dunning's eclectic paradigm. Moreover, endogenous growth can be enhanced even further within an intra-regional hierarchy of economies where a new form of dynamic industrial agglomeration comes into existence via MNC-networks of knowledge generation and commercialization, via cross-border networks of production and procurement, and via inter-development-stage recycling of dynamic comparative (and competitive) advantages. The "international business" paradigm of endogenous growth presented in this chapter draws heavily on the *macro-organizational* model of MNC-government interactions (i.e., the interface between the O and L factors) as the vital factor in continuous and rapid economic development. Development and growth in the age of globalization are increasingly becoming IB-driven endogenous growth within the key framework for interactions ("joint internalization") between MNCs (possessors of O advantages) and host governments (managers of L advantages)--that is, co-endogenization of advantages for vigorous business expansion and economic growth.

¹³True, the mainstream approach also stresses human capital formation, investment in R&D, and infrastructure and public goods. But these are not framed in terms of MNC-government interactions.

Table 1. Basic Mechanics of Endogenous Growth

A. Mainstream Economic Approach

- a) Learning by doing (Arrow, 1962)
- b) Skill level of workers (Uzawa, 1965)
- c) Human capital formation (Lucas, 1988)
- d) Investment in R&D (Chipman 1970; Grossman and Helpman 1991)
- e) Knowledge spillover, both at home and across borders (Romer 1986; Krugman 1979; Grossman and Helpman 1991)
- f) Infrastructure and public goods (Barro 1990; Barro and Sala-i-Martin 1995; Turnovsky 1997)
- g) Trade liberalization and deregulation (Rivera-Batiz and Romer 1991)

B. International Business Related Approach

- a. Technology transfer and spillovers by MNCs and their networks (Dunning 1958, 1981; Hymer 1960, 1971; Vernon 1966, 1979; Blomstrom 1989; Bende-Nabende 1999; Ernst 2000a, 2001; Borrus, Ernst and Haggard 2000; Rugman and D’Cruz 1996, 1997; Gereffi 1992; Gereffi and Korzeniewicz 1994)
- b. Dynamic evolution of OLI configuration (Dunning 1993; Dunning and Narula 1996; Narula 1996; Narula and Dunning 2000; Tolentino 1993)
- c. Cross-border technological development and sourcing (Lall 1979; Casson 1991; Cantwell 1989, 1995, 1999; Pearce 1997; Ernst 2000b)
- d. Cumulative causation in technological competitiveness (Cantwell 1987)
- e. Locational agglomeration of innovative activities and production (Porter 1990; Dunning 1991, 1996, 1997, 2000; Nachum 1999, 2000; Enright 2000, Ernst 2000a)
- f. Pro-trade (as opposed to anti-trade) FDI (Kojima 1973, 1975; Kojima and Ozawa 1985)
- g. Industrial restructuring and comparative advantage recycling (Ozawa 1992, 1993)

Note: Here a complete survey on conceptual contributions is not intended. These two lists are meant to illustrate some representative ideas about the mechanics of endogenous growth.

REFERENCES

- Abramovitz, Moses (1986). "Catching Up, Forging Ahead, and Falling Behind," *Journal of Economic History*, XLVI (2), June: 385-406.
- Akamatsu, Kaname (1935). "Waga Kuni Yomo Kogyohin no Boeki Susei [Trend of Japanese Trade in Woolen Goods]," *Shogyo Keizai Ronso*, Nagoya Higher Commercial School.
- Akamatsu, Kaname (1961). "A Theory of Unbalanced Growth in the World Economy," *Welwirtschaftliches Archiv*, 86, 2: 196-215.
- Arrow, Kenneth (1962). "The Economic Implications of Learning by Doing," *Review of Economic Studies* 29: 155-176.
- Barro, Robert (1990). "Government Spending in a Simple Model of Endogenous Growth," *Journal of Political Economy* 98: S103-S125.
- Barro, Robert J. and Xavier Sala-i-Martin (1995). *Economic Growth*, New York: McGraw Hill.
- Bende-Nabende, Anthony (1999). FDI, Regionalism, Government Policy and Endogenous Growth: A Comparative Study of the ASEAN-5 Economies, with Development Policy Implications for the Least Developed Countries, Aldershot, U.K.: Brookfield, Vt. and Sydney: Ashgate.
- Blomstrom, Magnus (1989). *Foreign Investment and Spillovers: A Study of Technology Transfer to Mexico*, London and New York: Routledge.
- Blomstrom, Magnus, and Ari Kokko (1994). "Home Country Effects of Foreign Direct Investment: Sweden," in Steven. Globerman, (ed.), *Canadian-Based Multinationals*, Calgary: University of Calgary Press:
- Blomstrom, Magnus, and Ari Kokko (1997). "How Foreign Investment Affects Host Countries," Policy Research Working Paper No. 1745, Washington, DC.: World Bank, International Economics Department.
- Boltho, Andrea and Gerald Hotham (1992). "The Assessment: New Approaches to Economic Growth," *Oxford Review of Economic Policy* 8 (Winter): 1-14.
- Borras, Michael, Dieter Ernst, and Stephan Haggard (eds.) (2000). *International Production Networks in Asia: Rivalry or Riches?* London: Routledge.
- Braunerhjelm, Pontus, et. al. (2000). "Integration and the Regions of Europe: How the Right Policies can Prevent Polarization," CEPR, No. 10.
- Buckley, Peter J. and Mark Casson (1976). *The Future of the Multinational Enterprise*, London:

MacMillan.

Cantwell, John A. (1987). "The Reorganization of European Industries after Integration: Selected Evidence on the Role of Multinational Enterprise Activities," *Journal of Common Market Studies*, xxvi: 127-51.

Cantwell, John A. (1989). *Technological Innovation and Multinational Corporations*, Oxford: Basil Blackwell.

Cantwell, John A. (1995). "The Globalization of Technology: What Remains of the Product Cycle Model?" *Cambridge Journal of Economics*, 19: 155-174.

Cantwell, John A. (1999). "From the Early Internationalization of Corporate Technology to Global Technology Sourcing," *Transnational Corporations*, Vol. 8, No.2 (August): 71-92.

Cantwell, John A. and O.E.M. Janne (1999). "Technological Globalisation and the Innovative Centres: the Role of Corporate Technological Leadership and Locational Hierarchy," *Research Policy* 28 (2-3): 119-144.

Casson, Mark C. (1991). *Global Research Strategy and International Competitiveness*, Oxford: Basil Blackwell.

Chipman, John S. (1970). "Induced Technical Change and Patterns of International Trade," in Raymond Vernon (ed.), *The Technology Factor in International Trade*, New York: National Bureau of Economic Research: 95-127.

De Mello, L.R., Jr. (1997). "Foreign Direct Investment in Developing Countries and Growth: A Selective Survey," *Journal of Development Studies* 34: S.1-34.

De Mello, L.R., Jr. (1999). "Foreign Direct Investment-led Growth: Evidence from Time Series and Panel Data," *Oxford Economic Papers* 51: S.133-151.

Dunning, John H. (1958). *American Investment in British Manufacturing Industry*, London: Allen & Unwin.

Dunning, John H. (1981). *International Production and the Multinational Enterprise*, London: Allen & Unwin.

Dunning, John H. (1991). "The Eclectic Paradigm of International Production: A Personal Perspective," in Christos Pitelis and Roger Sugden (eds.), *The Nature of the Transnational Firm*, London: Routledge; 117-136.

Dunning, John H. (1992). "The Global Economy, Domestic Governance, Strategies and Transnational Corporations: Interactions and Policy Implications," *Transnational Corporations*, Vol. 1, No. 3, December: 7-45.

- Dunning, John H. (1993). *Multinational Enterprises and the Global Economy*, Reading, MA: Addison-Wesley.
- Dunning, John H. (1997). "A Business Analytic Approach to Governments and Globalization," in John Dunning (ed.), *Governments, Globalization, and International Business*, Oxford: Oxford University Press: 114-131.
- Dunning, John H. (2000). *Regions, Globalization and the Knowledge Economy: The Issues Stated*, forthcoming.
- Dunning, John H. and Rajneesh Narula (1996). *Foreign Direct Investment and Governments: Catalysts for Economic Restructuring*, London and New York: Routledge.
- Enright, Michael J. (2000). "The Globalization of Competition and the Localization of Competitive Advantage: Policies towards Regional Clustering," in Neil Hood and Stephen Young (eds.), *The Globalization of Multinational Enterprise Activity and Economic Development*, London: Macmillan/New York: St. Martin's Press: 303-325.
- Ernst, Dieter (2001). "The Internet's Effect on Business Organization: Bane or Boon for Developing Asia?" *Asia Pacific Issues*, No. 48 (January).
- Ernst, Dieter (2000a). "Global Production Networks and the Changing Geography of Innovation Systems: Implications for Developing Countries," East-West Center Working Paper, Economics Series, No. 9 (November), and forthcoming in the *Journal of the Economics of Innovation and New Technologies*.
- Ernst, Dieter (2000b). "Inter-Organizational Knowledge Outsourcing: What Permits Small Taiwanese Firms to Compete in the Computer Industry?" *Asia Pacific Journal of Management*, Vol. 17, Issue 2 (August): 223-255.
- Gereffi, Gary (1992). "New Realities of Industrial Development in East Asia and Latin America: Global, Regional, and National Trends," in J. Henderson and R. Appelbaum (eds.), *States and Development in the Asian Pacific Rim*, Newbury Park & London: Sage Publication, 85-112.
- Gereffi, Gary, and Miguel Korzeniewicz (1994), *Commodity Chains and Global Capitalism*, Westport, Conn.: Greenwood Press.
- Gray, H Peter (1999). *Global Economic Involvement*, Copenhagen: Copenhagen Business School Press.
- Grosse, Robert and Jack Behrman (1992). "Theory of International Business," *Transnational Corporations*, 1 (1): 93-126.

- Grossman, Gene M. and Elhanan Helpman (1991). *Innovation and Growth in the Global Economy*, Cambridge, Mass.: MIT Press.
- Hood, Neil and Stephen Young (eds.) (2000). *The Globalization of Multinational Enterprise Activity and Economic Development*, London: Macmillan/New York:St. Martin's.
- Hunya, Gabor (ed.) (2000). *Integration Through Foreign Direct Investment: Making Central European Industries Competitive*, Cheltenham, U.K.: Edward Elgar.
- Hymer, Stephen H. (1971). "The Multinational Corporation and the Law of Uneven Development," in Jagwahi Bhagwati, (ed.), *Economics and World Order*, New York: Macmillan: 113-40.
- Hymer, Stephen H. (1960). *The International Operations of National Firms: a Study of Foreign Direct Investment*, Ph. D. dissertation, Massachusetts Institute of Technology (later published from MIT Press in 1976).
- Kojima, Kiyoshi (1958). "Nihon Keizai no Gankokeitaiteki Hatten to Boeki no Yakuwari," in Kiyoshi Kojima, ed., *Nihon Boeki no Kozo to Hatten* [The Structure and Growth of Japanese Trade], Tokyo: Shiseido; 1-25.
- Kojima, Kiyoshi (1973). "A Macroeconomic Approach to Foreign Direct Investment," *Hitotsubashi Journal of Economics*, 14: 11-21.
- Kojima, Kiyoshi (1975). "International Trade and Foreign Investment: Substitutes or Complements," *Hitotsubashi Journal of Economics*, 16: 1-12.
- Kojima, Kiyoshi and Terutomo Ozawa (1984). "Micro- and Macro-Economic Models of Direct Foreign Investment: Toward a Synthesis," *Hitotsubashi Journal of Economics*, 25: 1-20.
- Kojima, Kiyoshi and Terutomo Ozawa (1985). "Toward a Theory of Industrial Restructuring and Dynamic Comparative Advantage," *Hitotsubashi Journal of Economics*, 26: 135-145.
- Kokko, Ari (1992). *Foreign Direct Investment, Host Country Characteristics, and Spillovers*, Stockholm: Economic Research Institute.
- Kokko, Ari, and Magnus Blomstrom (1995). "Policies to Encourage Inflows of Technology through Foreign Multinationals," *World Development* 23, no. 3 (March): 459-68.
- Krugman, Paul R.(1979). "A Model of Innovation, Technology Transfer, and the World Distribution of Income," *Journal of Political Economy* 87: 253-265.
- Krugman, Paul (1991). *Geography and Trade*, Cambridge, Mass.: MIT Press.
- Lall, Sanjaya (1979). "The International Allocation of Research Activity by U.S.

- Multinationals,” *Oxford Bulletin of Economics and Statistics* 41: 187-196.
- Lall, Sanjaya (1992). “Technological capabilities and industrialization,” *World Development*, Vol. 20, No. 2: 165-186.
- Lall, Sanjaya (1997). “East Asia,” in John Dunning (ed.), *Governments, Globalization, and International Business*, Oxford: Oxford University Press: 497-430.
- Lall, Sanjaya (1999). “Technological Change and Industrialization in the Asian NIEs,” in L. Kim, and R.R. Nelson (eds.), *Technological Learning and Economic Development: The Experience of the Asian NIEs*, Cambridge: Cambridge University Press:
- Long, Ngo Van and Kar-yiu Wong (1997). “Endogenous Growth and International Trade: A Survey,” in Bjarne Jensen and Kar-yiu Wong (eds.), *Dynamics, Economic Growth, and International Trade*, Ann Arbor: University of Michigan Press: 11-76.
- Lucas, Robert E (1988). “On the Mechanics of Economic Development,” *Journal of Monetary Economics* 22 (1): 3-42.
- Marshall, Alfred (1930). *Principles of Economics*, 8th ed., London: Macmillan.
- Meier, Gerald M. (1999). *The International Environment of Business*, New York: Oxford University Press.
- Moran, Theodore H (1998). *Foreign Direct Investment and Development: The New Policy Agenda for Developing Countries and Economies in Transition*, Washington, DC., Institute for International Economics.
- Nachum, Lilack (1999). *The Origins of the International Competitiveness of Firms: The Impact of Location and Ownership in the Professional Service Industries*, Cheltenham, U.K.: Edward Elgar.
- Nachum, Lilack (2000). “Economic Geography and the Location of TNCs: Financial and Professional Service FDI to the USA,” *Journal of International Business Studies*, Vol. 31, No. 3P 367-385.
- Narula, Rajneesh (1996). *Multinational Investment and Economic Structure: Globalisation and Competitiveness*, London and New York: Routledge.
- Narula, Rajneesh and John H. Dunning (2000). “Industrial Development, Globalisation and Multinational Enterprises: New Realities for Developing Countries,” *Oxford Development Studies*, forthcoming.
- Nelson, Richard and Sydney Winter (1982). *An Evolutionary Theory of Economic Change*, Cambridge, Mass.: Harvard University Press.

- Ozawa, Terutomo (1992). "Foreign Direct Investment and Economic Development," *Transnational Corporations*, Vol. 1, No.1 (February): 27-54.
- Ozawa, Terutomo (1993). "Foreign Direct Investment and Structural Transformation: Japan as a Recycler of Market and Industry," *Business & the Contemporary World*, Vol. 5, No. 2 (spring): 129-149.
- Ozawa, Terutomo (1996). "Japan: the Macro-IDP, meso-IDPs and the Technology Development Path (TDP)," in John Dunning and Rajneesh Narula (eds.), *Foreign Direct Investment and Governments: Catalysts for Economic Restructuring*, London: Routledge: 142-173.
- Ozawa, Terutomo (1997a). "Japan," in John Dunning (ed.), *Governments, Globalization, and International Business*, Oxford: Oxford University Press: 377-406.
- Ozawa, Terutomo (1997b). "MNCs and the "Flying Geese" Paradigm of Tandem Growth in the Asia-Pacific," in Noritake Kobayashi (ed.), *Management: A Global Perspective*, Tokyo: Japan Times: 127-155.
- Ozawa, Terutomo (1997c). "'Excessive' FDI and Dilemmas of Technology Transfer" (in Japanese) in *Developing Engineering*, 3: 27-42.
- Ozawa, Terutomo (2000). "The 'Flying-Geese' Paradigm: Toward a Co-Evolutionary Theory of MNC-Assisted Growth," in Khosrow Fatemi (ed.), *The New World Order: Internationalism and Multinational Corporations*, Amsterdam: Pergamon: 209-223.
- Pearce, Robert D. (1997). "Decentralized R&D and Strategic Competitiveness: Globalized Approaches to Generation and Use of Technology in MNEs," *Research Policy* 28: 157-178.
- Porter, Michael E. (1990). *The Competitive Advantage of Nations*, New York: Free Press.
- Rivera-Batiz, Luis A., and Paul M. Romere (1991). "International Trade with Endogenous Technical Change," *European Economic Review* 35: 971-1004.
- Romer, Paul M. (1994). "The Origins of Endogenous Growth," *Journal of Economic Perspectives*, Vol. 8, No. 1, winter:23-44.
- Romer, Paul M. (1986). "Increasing Returns and Long-run Growth," *Journal of Political Economy* 94 (October): 1002-37.
- Rugman, Alan M. and Joseph D'Cruz (1996). "Partners Across Borders: the Five Partners Business Network Model," *International Management* 1 (1): 15-26.
- Rugman, Alan M. and Joseph D'Cruz (1997). "The Theory of the Flagship Firm," *European Management Journal* 15 (4): 403-12.

Sachs, Jeffery D. (1981). "The Current Account and Macroeconomic Adjustment in the 1970s," *Brookings Papers on Economic Activity*, 1: 201-268.

Stopford, John M. and Susan Strange (1991). *Rival States, Rival Firms: Competitions for World Market Shares*, Cambridge: Cambridge University Press.

Tolentino, Paz Estrella E. (1993). *Technological Innovation and Third World Multinationals*, London: Routledge

Turnovsky, Stephen J. (1997). "Public and Private Capital in an Endogenously Growing Open Economy," in Bjarne Jensen and Kar-yiu Wong (eds.), *Dynamics, Economic Growth, and International Trade*, Ann Arbor: University of Michigan Press: 171-210.

UNCTAD (1992, 1995, and 1999). *World Investment Report*. New York: UN Publications.

Uzawa, Hirofumi (1965). "Optimal Technical Change in an Aggregative Model of Economic Growth," *International Economic Review* 6: 18-31.

Van Hoesel, Roger (1997). *Beyond Export-led Growth: The Emergence of New Multinational Enterprises from Korea and Taiwan*, no. 174 of the Tibergen Institute Research Series, Amsterdam: Thesis Publishers.

Vernon, Raymond (1966). "International Investment and International Trade in the Product Cycle," *Quarterly Journal of Economics*, LXXX, 2 (May): 190-207.

Vernon, Raymond (1979). "The Product Cycle Hypothesis in a New International Environment," *Oxford Bulletin of Economics and Statistics*, 41, 4 (November): 255-267.

World Bank (1993). *The East Asian Miracle: Economic Growth and Public Policy*. New York: Oxford University Press.