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ABSTRACT

The Japan-born "flying-geese (FG)" theory of growth has recently gained recognition in academia and popularity in the media. Since Kaname Akamatsu introduced his ideas in a very broad fashion in the 1930s, opportunities abound for further elaboration and application to contemporary development issues. This paper reviews some of his key ideas and presents a reformulation from a new evolutionary structuralist perspective. The oft-used, yet vague, concept of "the ladder of economic development" is defined in terms of a "leading- sector" stages model, *a la* Schumpeter—and what comes next as a *new* rung is considered. The enabling mechanisms of structural upgrading are explored, and the dynamics and benefits of an FG formation of aligned countries are stressed. Also, a new stages (FG-theoretic) model of balance-of-payments is introduced to discuss the financial issues of "borrowed growth" and "global (G2) imbalances." The dynamics of structural upgrading and interactive growth via trade and investment within a *hierarchy* of countries is the essence of these reformulated FG models, which make up what is now increasingly shaped and recognized as "new structural economics."

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1. Introduction

The so-called "flying-geese (FG)" theory of economic development, originally expounded by a Japanese economist, Kaname Akamatsu (1897-1974) of Hitotsubashi University in Tokyo, in the 1930s (*inter alia*, 1935, 1961, 1962), has recently gained some currency in academia. In an article published in the *Foreign Affairs*, Steven Radelet and Jeffrey Sachs (1997) recognize it as one of the three major doctrines of catch-up strategy, along with the "big push" and "import substitution or infant industry protection." The FG theory is also more popularly cited in the media, especially when news about Asia's phenomenal economic growth is reported. Unfortunately, however, Akamatsu presented his ideas in very broad terms without much articulation as a well-specified theory--so much so that there have occurred some misinterpretations of and even confusions about the theory.

This paper clarifies the nature of the FG theory by introducing additional analytical dimensions to it from a new structuralist perspective. More specifically, the paper (i) briefly reviews the original ideas presented by Akamatsu, mainly the three patterns of FG formation he initially conceptualized, (ii) assesses Radelet and Sachs' interpretations, (iii) defines the hitherto casually used notion of "the ladder of economic (or technological) development" in terms of an evolutionary model of industrial upgrading, (iv) examines the enabling mechanisms of structural transformation in a catching-up country, and (v) restates a stages model of balance-of-payments, a framework that is useful in understanding the concept of "borrowed growth," as well as the global economic environment that spawned the financial crisis of 2008 and the "global (G2) imbalances." This paper does not intend to survey the existing vast literature on the FG model *per se* but rather to focus and shed new light on the dynamic process of economic development under global capitalism.

2. Three FG patterns

Given the fact that Akamatsu's original ideas were "diamonds in the rough" so to speak, the followers of Akamatsu's ideas have been polishing and elaborating on them, as done in numerous works[1]

So, what are Akamatsu's original ideas? In essence, he sketched out *three* separate, though intertwined, patterns of FG formation related to the process of industrial development in the Asian countries and the changing patterns of dynamic comparative advantage among them. In essence, however, he left the causal mechanisms of structural upgrading largely unexplained.

2.1. Import Substitution-Cum-Export Promotion

A first FG analogy came originally from his empirical findings of the sequential development pattern of *imports* (M) leading to *domestic production* (P) and then to *exports* (X) (i.e., MPX). The sequence involved thus goes *beyond* a process of import substitution under protection (i.e., infant industry protection) and ultimately leads to exporting. This sequence was detected in Akamatsu's statistical analyses of several prewar Japanese industries, such as textiles, machine tools, and light machinery, over the period of 1870-1939. Since the sequential trend curves of MPX activities resembled an inverted V-shaped flying formation of wild geese, Akamatsu chose the nomenclature, "flying-geese." It was thus initially a mere pattern identification in terms of such a poetic, catchy phrase. He considered the MPX trend curves *kihonkei* [basic or fundamental pattern]. The sequence of *import-substitution-cum-export promotion* was more recently described by Krugman (1984) as "import protection as export promotion," though unaware of Akamatsu's original contribution.[1] Some major differences, however, exist between Akamatsu and Krugman in conceptualizing the intervening causal mechanism. For Krugman, import protection under monopolistic competition leads to scale economies (increasing returns), which will eventually enable the protected producers to gain price competitiveness. On the other hand, Akamatsu's analysis is framed in terms of comparative-advantage building; *only those industries that are*

[1] To cite only several references (published in English), Ginzburg and Simonazzi, 2005; Ito, 2001; Korhonen, 1998; Kojima, 2000; Kwan, 1994; Ozawa, 1992, 2001; Rapp, 1967; Shinohara, 1972, 1982; Yamazawa, 1990; UNCTAD, 1995.

potentially capable of attaining comparative advantages are given protection for import substitution. [2]

2.2. Structural Upgrading

A second FG pattern is a sequence of structural changes in industrial development not only in the order of "capital goods following consumer goods" but also "in the progression from crude and simple goods to complex and refined goods" (Akamatsu, 1961). Both types of qualitative/structural transformation of goods and industries themselves are made possible by means of the MPX strategy. Hence, the FG pattern of *concomitant industrial and product upgrading* can be considered a *derivative* of the fundamental pattern of the MPX sequence. This structural transformation is related to the concept of "the ladder of economic development," which is popularly used—but without any clear-cut definition-- in development economics. This concept will be therefore elaborated on below within the FG framework.

2.3. An Alignment of Countries at Different Stages of Development

A third FG pattern is "the alignment of nations along the different stages of development" (Akamatsu, 1961, p. 208), a sequential positioning of the developing countries that are lined up behind the advanced nations so that the former can *emulate, learn from, and capitalize on* growth stimuli/externalities via economic interactions. As Akamatsu put it, "It is impossible to study the economic growth of the developing countries in modern times without considering the *mutual interactions* between these economies and those of the advanced countries" (1962, p. 1, emphasis added). In other words, the modern process of economic development *can never be autonomous and self-sufficient but is necessarily interactive with—and derived from-- more advanced countries*.

The essence of growth lies in a process of climbing the ladder of comparative advantages from labor-intensive to gradually and increasingly more capital-and knowledge-intensive industries on the part of catching-up countries (the ladder to be defined below). And all this would be achieved through dynamic commercial interplays

[2] How Akamatsu's MPX sequence is related to other Western development theories is discussed in Ozawa (2009).

between advanced countries and developing ones. The countries across the world are at *different* stages of development, growing at *different* speeds of structural transformation. This constitutes a *basis* for dynamic comparative advantages, and the countries within a hierarchy of countries can *interact* with each other in a complementary and mutually augmenting way so that they can benefit from the "economies of hierarchical concatenation" (Ozawa, 2001). Such economies are analogous to the effect that a gaggle of 25 flying geese can achieve a "70 percent-range energy saving over a bird flying solo" thanks to the "wingtip vortex" and "upwash/upcurrent" mutually created by flying together (Gedney, 1982). It is also observed in econometric studies on national economic growth that "regional dummies add substantially to a growth regression's explanatory power" (Temple, 1999, p. 131).

It is this third pattern that has become *most popularized and widely accepted* among those scholars and journalists who make reference to the FG theory of economic development. The typical pattern cited is usually the FG formation of East Asian economies, a formation led by Japan and immediately followed by the NIEs and then by the ASEAN-4, and more recently by China, and Vietnam--all down the hierarchy of economies that are at different and staggered stages of economic development. As will be made clear later on, however, this Japan-led intra-regional alignment of follower geese is somewhat a misleading representation of the FG phenomenon. The first lead goose has *never* been Japan but the United States.

As some critiques of the FG theory point out, furthermore, an intra-East Asian alignment of Japan-> the NIEs-> the ASEAN-4-> China-> Vietnam, if ever existed, is *no longer* observable. True, there was at one time a *perfect* multi-layered alignment of countries (U.S.-> Japan-> the NIEs-> the ASEAN-4-> China)--mostly throughout the 1960s, the 1970, and the 1980s. Such a *linear and monotonic* lineup has been disturbed as latecomers caught up rapidly. For example, the NIEs, especially South Korea and Taiwan, have caught up with Japan in some heavy industries (e.g., steel) and in some high-tech sectors (e.g., electronics and telecommunications). China's swift rise as a new workshop of the world has left the ASEAN-4 in the dust. Japan has clearly overtaken the United States in automobile manufacturing. There is thus no streamlined alignment any more. In fact, stages of catch-up are *jumbled, time-compressed, and even reversed*,

depending on a catch-up strategy adopted by a developing country (Ozawa, 2009). Nevertheless, despite the financial debacle of 2008, the role of the United States as the lead goose (the hegemon of the world economy) still prevails and will remain intact for the foreseeable future. And in this sense, the FG theory is still quite relevant.

3. Radelet and Sachs' Interpretations

It is in reference to the third FG pattern that Radelet and Sachs (1997) recognize and interpret the FG theory as a major doctrine of development strategy:

> … the "flying geese" model, according to which *countries gradually move up in technological development by following in the pattern of countries just ahead of them in the development process*. In this vision, Korea and Taiwan take over leadership in textiles and apparel from Japan as Japan moves into the higher-technology sectors of electronics, transport, and other capital goods. A decade or so later, Korea and Taiwan are able to upgrade to electronics and auto components, while the textile and apparel industries move to Indonesia, Thailand, and Vietnam... (p. 52).

Although the United States as the lead goose is not specifically mentioned, the FG model is clearly defined above as a process of sequential catch-up in technological progress, one country following on the heels of more advanced countries on the ladder of technological development (i.e., Akamatsu's third FG pattern). This may also be called "tandem growth" or "U.S.-led growth clustering" (Ozawa, 2009).

What are, then, the necessary institutional setups for a developing country to move up in technological development? Radelet and Sachs explain the distinct *institutional* arrangements that were each specific to the three major doctrines of development strategy:

> If the paradigmatic institution of the big push was *state ownership of industry* [as exemplified by the Stalinist drive toward rapid industrialization in the 1930s and China's Great Leap Forward of 1958-61], and for import substitution was *private ownership backed by protectionism* [as once seen throughout Latin America's inward-focused development strategy], for flying-geese development

> it is *the export platform*. The idea behind an export platform is to create an *enclave economy hospitable to foreign investors and integrated into the global economy, without the problems of infrastructure, security, rule of law, and trade policies that plague the rest of the economy*. Asian governments introduced several variations of the export platform, including export processing zones (EPZs), bonded warehouses, special economic zones, and duty drawback systems. Governments supported these institutions with macroeconomic policies that strengthened the incentives for labor-intensive exports, especially via appropriate exchange rates (emphasis added, pp. 52-53).

The "big push" approach was thus pursued in the interest of nationalistic self-reliance under communism and in isolation from the outside world. The "import-substitution" strategy, too, was carried out in an inward-focused fashion without much integration with the global economy. Both doctrines proved to be failures. In sharp contrast, the FG doctrine promotes integration with, and capitalization on, the outside world, by setting up what Radelet and Sachs call "capitalist enclaves" (p. 45) that serve as the bootstraps of catch-up development.

The enclaves, notably export processing zones (EPZs) and special economic zones (SEZs), constitute the *localized pockets of market capitalism*, free from and unencumbered by regulatory controls and political/bureaucratic constraints that prevail in the rest of the country—so as to be integrated into the global economy that is currently molded and driven by U.S.-led capitalism. They are, therefore, attractive to foreign multinational corporations who can bring in all the necessary productive resources (such as technology, managerial skills, capital goods, and access to export markets) lacking at home. The enclaves are *an institutional innovation* that is pragmatically designed to introduce thorough reforms ("wiping the slate clean," so to speak) only in certain confined localities if such reforms are impractical for the whole economy.[3] *Entire*

[3] Radelet and Sachs (1997) zero in on this point: "If there is anything to the "Asian miracle," it is that several governments, benefiting from Japan's early experience and from each other's experience since the 1960s, have been able to create an economic environment for profitable, private investment—almost always with important foreign partners—despite serious shortcomings in overall political and economic conditions. They did so, in most cases, by creating in the midst of weaker economic institutions *a capitalist enclave* that has gradually spread throughout the economy. Put another way, Asia's challenge, so far

institutions cannot be changed overnight, but they can be partially modified by creating enclaves.[4]

In short, Radelet and Sachs' interpretation emphasizes the establishment of "capitalist enclaves" as a *starting* point for market reforms and integration with the world economy so as to capitalize on global capitalism that "stirs powerful forces for economic growth" (1997, p. 46). It, however, leaves unexplained the *causal* factors for technological upgrading and the sequence of technological development.

4. The ladder of Economic (or Technological) Development: Defined

4.1. Trail-blazers' Legacy

What drives structural upgrading from one stage to another—that is, Akamatsu's progression "from crude and simple goods to complex and refined goods" and "capital goods following consumer goods" or Radelet and Sacks' sequence of "moving up in technological development"? In other words, what factors propel a catching-up economy to scale the ladder of economic/technological development—and in what manner? To answer this question, however, we must first define the ladder of economic development itself.

In neoclassical economics, economic development is conceived as a process of *capital accumulation*, that is to say, a country's *capital-to-labor* ratio increases. This merely means, however, that any growing country becomes increasingly more capital-abundant as the national income rises. Yet, capital accumulation is rather an *effect or result* and *not* the *cause* of growth. What really brings about spurts of growth and structural change under capitalism is *innovations*, both technological and organizational, or breakthrough

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accomplished, has been to create a virtuous circle, in which *a modern economic sector originally confined to an enclave* has not only expanded through new investments but has fueled a much broader modernization of political and economic institutions…global capitalism stirs powerful forces for economic growth even in the face of serious limitations in law, economic structure, and politics" (pp. 45-46).

[4] It is interesting to note that the idea of "a modern economic sector originally confined to an enclave" is now clearly promoted and applied by Sachs to UN-initiated economic development projects in Africa. As part of the UN Millennium Project on poverty reduction Sachs has initially set up 12 "research villages" in ten African countries and soon added another 66 villages. These villages are designed as the "modern sectors" that are provide with "fertilizer and seed to improve food yield; anti-malarial bed nets; improved water sources; diversification from staple into cash crops; a school feeding programme; deworming for all; and the introduction of new technologies, such as energy-saving stoves and mobile phones" ("African poverty: The magnificent seven," *The Economist*, April 29, 2006, pp. 51-52).

technological progress that creates brand-new industries that replace existing ones, as stressed by Joseph Schumpeter (1934).

Therefore, the ladder of economic development can be defined by tracing out the actual historical path of industrial (hence technological) development driven by innovations. The model to be presented here may be called a "leading-sector stages model" *a la* Schumpeter, in which *a sequence of growth is punctuated by stages* (five stages so far, as will be seen below), *and in each stage a certain industrial sector can be identified as the main engine of structural transformation* (Ozawa, 2005). In other words, long-term growth is *not* input-driven incrementally and marginally—not "due to a quasi-automatic increase in population [labor] and capital" (Schumpeter, 1942, p. 82)—but is set in motion by innovations, which then eventually lead to rapid capital formation in innovation-initiated new industries that serve as leading sectors. A set of innovations creates a new *rung* for the ladder of economic development. In sum, *the dynamic capitalist process of growth can be neither incrementally additive nor smoothly cumulative in capital accumulation as posited by neoclassical economics, but is driven by the logic of "creative destruction" that brings about "structural breaks."*

More specifically, this leading-sector stages model is built on the *historical evidence* that the world economy has so far witnessed five tiers of leading growth industry emerge in wave-like progression ever since the Industrial Revolution in England. The five rungs/tiers are schematically illustrated in Figure 1. These tiers give some defining characteristics to the erstwhile nebulous notion of a "ladder of economic development."

INSERT FIGURE 1 HERE

The first dominant industry that appeared was what may be called *"Heckscher-Ohlin" endowments-driven (natural resources- or "raw" labor-intensive light) industries* best represented by cotton textiles. (The first stage is named after the Heckscher-Ohlin trade theory that explains the doctrine of comparative advantage in terms of different factor proportions between countries and different factor intensities between goods.) It was soon followed by the *"non-differentiated Smithian" scale-driven (physical capital-intensive, natural resource-processing) heavy and chemical industries*, such as steel and

basic chemicals (mostly homogeneous/nondifferentiated goods). This second stage is named after Adam Smith who stressed the gains from dynamic increasing returns (inclusive of knowledge accumulation) in production.

Indeed, the Golden Age of Capitalism, Mark I (1780-1914) stemmed from the rapid growth of these first two phases of technological/industrial development under Great Britain's hegemony. That Age's need—and its search—for natural resources (e.g., iron and copper ores) and overseas markets for textiles and capital goods led to colonialism. And scale-driven heavy and chemical industrialization was pursued relentlessly under imperialism as part and parcel of an arms race among the imperial powers.

The rise of the U.S. as the industrial hegemon after World War II originated from American ingenuity in the innovation of interchangeable parts and assembly-line operations, which eventually culminated in the American manufacturing paradigm of *mass production* on the supply side and the America-initiated pattern of *mass consumption* on the demand side that both would set the tone for the rest of the world. The "differentiated Smithian" assembly-based industries (notably automobiles) emerged at the leading growth sector in the United States, following the introduction of Ford's assembly-lines and Frederick Taylor's scientific management ("time and motion study"). Fordism-cum-Taylorism thus became the dominant manufacturing paradigm, which was aimed at exploiting increasing returns to scale through standardization of products (as initially exemplified by the Model T), work processes, and parts and components. With entry of many competing producers, however, automobiles became increasingly differentiated in engineering, designs, functions, optional features, and add-on accessories to satisfy consumers' diversified preferences.

The stage of assembly-based industries, which also include electric machinery and appliances, is by nature far more *consumer-oriented* and far more responsive to diversified consumer tastes than its previous counterpart of heavy and chemical industrialization. The growth of these consumer-focused industries necessitated—and is compatible with--strong market democracy where people are able to vote by their dollars in determining the desirable types of consumer goods. Individual freedom of choice became the sine qua none of the age of high mass consumption. Consumerism is the

market ideology of U.S.-led global capitalism—and the hallmark of the Golden Age of Capitalism, Mark II (1950-71).

Rising consumerism in turn spurred R&D activities in corporate America in search of new products. As a consequence, especially in the post-WWII period, the *Schumpeterian R&D-driven industries* came to represent the subsequent stage of economic growth. The outcome was early postwar innovations of knowledge-intensive consumer goods, such as TV sets, computers, semiconductors, washers and dryers, dishwashers, microwave ovens, tape-recorders, and antibiotics. In the 1950s and 1960s, many large corporations in science-based industries began to set up R&D centers. Notable were IBM's Watson Labs and AT&T's Bell Labs. The "age of corporate laboratories" (Best, 2000) was thus ushered into the U.S. economy, leading to America's technological leadership in many emerging high-tech sectors. "Created assets" began increasingly to substitute for and replace "endowed" natural assets. Indeed, this structural transformation of the U.S. economy was captured in the product-cycle (PC) theory of trade and investment (Vernon, 1966: Hirsch, 1967).

The latest stage of economic growth is *driven by information technology (IT)*. It has emanated from the configuration of Schumpeterian industries. The new stage is built on the Internet and other forms of IT, which have revolutionalized the way we communicate with each other and gather information. The IT-based stage can be most appropriately called the "McLuhan" Internet-enabled phase of growth, in which we now live—named after Marshall McLuhan, the guru of mass communications. Indeed, the phenomena of "The Medium is the Message" (McLuhan and Fiore, 1967) and "The Global Village" (now Web-enabled) (McLuhan and Powers, 1989) are the hallmarks of our present age of information. This new growth sector was pioneered in the U.S., particularly during the first tech-boom of the latter half of the 1990s. The New Economy thus has come into existence. Moreover, the newest two sub-phases of R&D-driven growth are already in the making as additional spin-offs from the Schumpeterian industries and as subsystems of the New Economy. One is based on the biotechnology (BT) revolution, and the second is the nanotechnology (NT) revolution. In fact, these three revolutions of IT, BT, and NT are fast converging.

We can recapitulate the sequential path and nature of modern industries introduced under Anglo-American global capitalism as follows: What the Pax Britannica introduced were initially the labor-intensive light industries (of the "Heckscher-Ohlin" type) as typified by textiles and then the resource-intensive, scale-driven heavy and chemical industries (of the "non-differentiated Smithian" type) as epitomized by steel, basic chemicals, and heavy machinery.[5] These stages represent the Old Economy. They were once developed and thrived as the leading growth sectors in the advanced countries in the pre-WWII period—under a variety of economic systems; unfettered bourgeois capitalism and colonialism (early on in Great Britain and other capitalist powers), communism (in the Soviet Union and China), fascism (in Germany, Italy, and Japan), and welfare/socialist capitalism (in Scandinavia).

In contrast, the Pax Americana created the highly components-intensive, assembly-based, genuinely consumer-oriented, and R&D-intensive industries (the "differentiated Smithian" and "Schumpeterian" stages) as best represented by mass-produced

[5] These resource-intensive industries in turn created voracious demands for minerals and fossil fuels, thereby getting resource-rich developing countries involved as supply sources.

automobiles and electronics. And most recently, the Internet-enabled information-intensive industries (the "McLuhan" stage). In particular, the IT-driven industries are built on "intellectual and entrepreneurial capital" and strongly geared to, and closely tied with, the needs of final consumers in product development, distribution, and consumption. The New Economy is the latest creation of U.S.-led capitalism.[6]

4.2. Intra-industry Vertical Fragmentation

In addition to the basic five-stages of structural upgrading described above, each advanced stage has produced a widening range of *vertically* concatenated (hence, fragmentable) multi-process industries (or multi-segments), the upper end of which is highly capital-intensive and technologically sophisticated, while the lower end is labor-intensive and technologically standardized—hence, the latter being more readily transferable to low-wage developing countries (see Figure 2). As a consequence, even higher-stage industries, especially automobiles, electronics, and telecommunications equipment, are transplanting their low-end production (mostly of standardized parts/components/accessories, as well as the low value-added, low-profit lines of finished goods) onto low-wage locations in the developing world. The same thing can be said about services such as back-office jobs, as seen in the growth of call centers and data processing in the developing countries, most notably India. In short, both industrial upgrading (of the *inter*-industry/stage type) and refined vertical chains of value-added (of the *intra*-industry/stage type) have created opportunities structurally for the firms in both the advanced and the developing countries to pursue a new division of labor within a

[6] As Baumol (2002) argues, free market capitalism is the most efficient "innovation machine" to produce a stream of innovations, satisfying consumer needs and demands because of its "survival of the fittest" force of fierce competition. The rise of consumerism explains at least in part why Soviet communism came tumbling down in the late 1980s and why China began to switch to a market economy by opening its doors about the same time.

Market capitalism is therefore the necessary institution for Pax-Americana-nurtured industries, especially for the New Economy, where individuals are increasingly empowered more fully to exercise freedom of choice and communicate with each other at the grass roots more freely than ever before in real-time exchange of information at the click of a mouse, thanks to the IT revolution. (No wonder, then, why the Chinese government is having difficulty controlling the public in the use of the Internet for the purpose of criticizing the Communist party and expressing democratic values.)

network of production across borders—that is, cross-border value chains are thus established.[7]

INSERT FIGURE 2 HERE

4.3. What Comes Next on the Ladder? The "Green Technology (GT)" Revolution?

It is important to also emphasize that the source of main energy shifted from coal under Pax Britannica to oil under Pax Americana. And the rise of assembly-based industries (especially automobiles) for mass consumption inevitably increased demand for oil as both fuel and raw materials (for synthetics such as plastics). The U.S. and all other advanced countries are now "addicted to" oil.[8] And the recently surging demand for oil in China and India, as they enter the oil-dependent stage, is further contributing to the soaring demand for oil. Indeed, this heavy oil dependence may prove to be the Achilles' heel of U.S.-led capitalism unless alternative sources of energy are harnessed to replace oil.

Besides oil, furthermore, the current mode of industrialization and consumption has whipped up voracious appetites for other natural resources, such as copper, iron ore, and special metals. And the extraction of these resources is accompanied by ecological destruction and environmental problems. Moreover, the contemporary modality of consumption is highly energy-intensive and pollution-causing, especially in the use of automobiles, home/office heating and cooling, and household appliances.

Consequently, alternative sources of energy (such as solar energy, wind power, ocean-currents, geothermal energy, and biofuels) have been developed and increasingly tapped. Green technology (GT) for products and services, as well as for production, is a new catch phrase across the world. A GT-driven stage of growth as the next rung is in its infancy where BT, IT, and NT would separately spark or combine to ignite GT innovations—for instance, BT in biofuels, IT in smart energy meters and grids, and NT in energy consumption efficiency.

[7] For an excellent study on cross-border commodity value chains, see ,inter alia, Gereffi (1999).
[8] The Pax Americana is characterized by the car culture. One billion cars are expected to be on the road worldwide by 2020. "Automotive: the Journal Report," *Wall Street Journal*, April 17, 2006, R1.

4. 2. Latecomers' Paths to Catch-up Growth

What has been described above is the evolutionary unfolding of industrial structure as a series of innovations introduced one leading sector after another for over two centuries in the presently advanced world. The stages progression toward higher value-added industries (measured on the vertical axis in Figures 1 and 2) and the time involved (measured on the horizontal axis) necessarily indicate a monotonic progression from a longitudinal historical perspective. Yet, for today's catching-up countries, the progression *can be modified, its order sidetracked, and its pattern made non-monotonic.* After all, the historical path described presents only a flight map, so to speak, that follower-geese countries can consult in order to plan their own catch-up strategies. In other words, they are in a position to design their own paths by *taking shortcuts whenever and wherever possible*.

These possibilities are made all the more available, since in addition to the *inter*-industry progression toward higher value-added industries, there has occurred the *intra*-industry vertical deepening and fragmentation of each industry, with high-skill, capital-intensive production at the top and low-skill, labor-intensive production at the bottom (Figure 2). This development is creating trade opportunities for a new division of labor in which advanced and developing countries can further participate along the logic of the Heckscher-Ohlin theory—that is, for the advanced countries to specialize in the higher end markets, and for the developing countries in the lower-end markets (at least, initially as the first step in joining the global economy). This increased opportunity for the *vertical* division of labor is made possible in part because of the rise of components/parts-intensive industries (such as automobiles and electronics) and in part because of the IT revolution that has considerably reduced transactions costs. Some developing countries are now able to initiate their catch-up growth from the services sector and then move toward the manufacturing sector, as is the case with the recent strategy adopted by India. And this widened window of business opportunity is being actively partaken by multinational corporations in terms of a variety of their international business activity.

5. Enabling Mechanisms of Sequential Growth and Upgrading

5.1. Wages and Flexible Labor Markets

The advanced countries no longer have comparative advantages in lower-tier industries, especially labor-intensive light manufacturing (e.g., textiles and apparel) and resource-based "smoke-stack" low-tech heavy and chemical industries (e.g., steel and basic chemicals). Ironically, their own technological progress—hence their successful structural ratcheting-up—has made it impractical and impossible for them to retain competitiveness in lower-tier industries—and for that matter in the low-end segments of each of higher-tier industries (e.g., standardized final, intermediate, and capital goods). This loss of competitiveness is necessarily the inevitable outcome of "creative destruction" in the world of dynamic comparative advantages.

Such a structural transformation in the advanced world means that low-wage-based light industries (notably textiles and apparel) and assembly-operations of higher-tier industries (e.g., assembly of electronics goods such as TV sets and cell phones) are the ideal "entry" industries for developing countries to start out with in their efforts to climb the ladder of economic development. These industries, indeed, can serve as jump-starters of development by mobilizing the developing countries' *most* abundant factor, unskilled or semi-skilled labor, to active employment—hence, the most effective *market-coordinated* way of reducing poverty.[9] Being cognizant of this fact, many developing countries are eagerly producing and exporting apparel and standardized electronics goods as their major manufactures. Interestingly enough, this development strategy usually puts female workers, especially from the poor rural areas, in great demand, since low-end manufacturing creates more jobs for young female workers than for their male counterparts for whatever reasons.[10]

What really matters here is not so much low wages *per se* but flexible labor markets, in the sense that market principles are at work in wage determination and employment. In this respect, the setting-up of enclaves is no doubt the *necessary* first step in the developing countries if they are to capitalize on global capitalism. East Asia as a

[9] This mechanism is stressed in the model of "comparative advantage recycling in labor-driven growth" (Ozawa, 2009, Chap. 4).

[10] It is an important—often politically and emotionally charged—issue whether female workers are made better off or simply exploited as many feminists contend. It is, however, beyond the scope of this paper, since it requires careful analysis and justifies no generalization, as all depends on specific situations and circumstances. For a balanced analysis, however, see Bhagwati (2004).

whole—but especially China despite its communist rule—has fortuitously benefited from flexible labor markets largely because of the establishment and spread of capitalist enclaves. By comparison, India is still experiencing some difficulty fostering labor-intensive manufacturing because of strong labor unions and socialist labor laws despite the fact that it has already set up more than a dozen special economic zones modeled after China's.[11] Thus, enclaves alone are *not* a sufficient condition unless they are relieved from labor market rigidities.

Critics of labor-driven industrialization charge that it is a dead end, entrapping a developing country in perpetual labor exploitation by foreign interests.[12] The reality is, however, quite contrary. It opens up a way to higher wages and higher value-added activities. The Heckscher-Ohlin trade theory provides two major reasons: (i) when a developing country concentrates on labor-intensive production, the demand for the country's most abundant factor, namely labor, rises more than for their scarce factor, capital; and (ii) the factor-price (wage) magnification effect occurs in which the wage increases more than proportionately than the price of exports the labor produces. In fact, wages increased rapidly as Asian countries went through the labor-driven stage of catch-up growth. This phenomenon also leads to the rise of the middle-income group, which in turn expands domestic markets, soon supplementing export markets—all this creating a virtuous circle of economic expansion.

Flexibility in the labor market also means that once low-wage industries become comparatively disadvantaged, they are willingly contracted and shifted to still lower-wage countries abroad. This type of industrial transmigration occurred first from Japan to the NIEs, then from the NIEs to the ASEAN-4, and more recently to China—and lately to Vietnam and Cambodia. This relatively smooth transplantation has been made possible because the comparatively disadvantaged (hence, contracting) industries are on the whole (i) free from labor market rigidities (e.g., layoff restrictions) and are (ii) not rescued and sustained by inflows of low-skill labor from abroad, hence they can no longer be retained at home. The upshot was that resources were readily reallocated to

[11] "India, Known for Outsourcing, Expands in Industry," *New York Times* (on the Web), May 19, 2006.
[12] Many incidences of labor abuse no doubt occur unless the minimum work and safety standards are effectively enforced by the host governments. Here, NGOs and the codes of conduct by multinationals are helpful in reducing the abuse of workers.

higher value-added (hence higher wage) activities, and labor-saving innovations were encouraged and introduced. (The economic consequence of this structural change is perhaps most succinctly summarized in a once-oft-quoted observation: "While Japan is getting robots, Germany is getting Turks."[13])

A rapid rate of structural upgrading in more advanced countries, combined with the flexible labor markets on the part of catching-up countries, facilitates a transmigration of labor-intensive manufacturing, flying-geese style, from a higher developing country to lower developing countries across Asia. This provides one major explanation of why Third-World multinationals come into existence in the relatively early phase of their home countries' industrialization (Ozawa, 1992).

The labor-driven phase of growth is thus usually accommodated by flexible labor markets largely because labor-intensive industries (such as apparel) are highly competitive with a large number of small (family-owned) and medium firms (often forming a putting-out system) dominating such industries—and because of an abundance of unskilled or semi-skilled workers. Labor unions are scarcely existent. Yet, as a catching-up country moves up to the higher stages of growth where more capital investment is required for a much larger scale of operation and better-educated and skilled labor is needed, government involvement increases as a provider of capital and skill-training—and even as an initiator of new factories (say, steel mills). This new industrial environment is often amenable to labor unionism, reducing flexibility for further industrial upgrading, if industrial unions are organized.[14]

5.2. Currency Valuation

It has been found that developing countries' currencies tend to remain undervalued relative to advanced countries' (Bhagwati, 1984; Kravis and Lipsey, 1983). In fact, most developing countries want to keep their currencies undervalued, if possible, to gain export competitiveness and protect domestic industries. An undervalued home currency is thus normally a plus factor in export-led growth. Yet, the very success of such a

[13] This saying was reportedly popular when Germany's postwar economic miracle introduced the *Gastarbeiter* program ("Economic focus: Be my guest," *Economist*, Oct. 8, 2005, p. 86).
[14] In this regard, Japan benefited from the prevalence of company unions whose interests (higher wages and job security) are closely tied with their own companies' performance, facilitating diversifications into new businesses.

currency strategy ironically and inevitably leads to home currency appreciation as its trade balance improves. If the exchange rate is nominally fixed, the currency becomes even *more* undervalued—i.e., real exchange rate depreciation. This may strain trade relationships with other countries and eventually cause *increasingly high domestic prices of imported capital goods and industrial materials*. In other words, the benefits of undervalued currency begin to be outweighed by the costs during the course of rapid catch-up growth.

Some argue that the Bretton Woods system of fixed exchange rates has been *revived* in Asia, where exchange rate fluctuations against the dollar are contained by the Asian governments' foreign exchange market interventions (Dooley, Folkerts-Landau, and Garber, 2003)—and that such stabilized exchange rates may be even *a desideratum* for catch-up growth and should not be disturbed by rate adjustment (McKinnon, 2005a; 2005b—in defense of China's present currency policy). Undervalued currencies are thus considered one key explanatory variable in Asia' phenomenal catch-up growth. It has come to be described even as a new paradigm for Asia's development.

Paradoxically, however, any undervalued currency eventually meets the fate of sharp appreciation in the course of export-driven industrialization. For example, in the wake of Japan's swift catch-up growth with its current-account surplus rising, the Japanese yen became grossly undervalued. Consequently, as soon as after the fixed exchange rates were abandoned in 1973, the yen began to soar in value and became even overvalued. The yen gained more than fourfold in value against the dollar in 1995. As a consequence, many Japanese firms shifted production out of Japan into neighboring countries--not so much because they lost real comparative advantages, but *rather* because the abnormally high yen made it disproportionately more costly to produce at home than abroad (Ozawa, 2005).

Although less dramatic, a similar exchange-rate effect has been observed in the NIEs' overseas investments in the ASEAN-4 and China. In 1985, the NIEs' currencies likewise began to exhibit a secular trend of appreciation. In the meanwhile, the ASEAN-4's currencies and China's yuan in particular became undervalued. Indeed, because of China's rapid catch-up growth, the yuan is now grossly undervalued and under pressure for appreciation. These changing trends in exchange rates have no doubt played a key

role in the rapid transmigration of labor-intensive production, first from Japan to the NIEs and then from the NIEs to the ASEAN-4 and China.[15] The potential and inevitable appreciation of the yuan has already been compelling multinational, as well as Chinese, firms to adopt a "China-plus-one" strategy to move production out of China to Vietnam, Cambodia, and other still low-cost locations.

5.3. Market-Enhancing Structural Policy—and Trade and Multinationals as Market Coordinators

5.3.1. Coordination failure

Special economic zones like EPZs are an effective instrument to attract foreign multinationals' investment and offshored production in the labor-driven phase of catch-up growth. They are, however, no longer useful for higher stages of growth that require far larger amounts of capital investment both in infrastructure and in production facilities, more intensive uses of human skills, and cutting-edge technologies. After all, what matters at higher levels of growth is *created* assets, and *no longer* so much endowed assets at home. And both supply and demand *complementarities* (as external economies) rise pari passu with structural transformation (Rosenstein-Rodan, 1943).

After all, modern industries (e.g., steel, heavy machinery, chemicals, and automobiles) are characterized by (i) large-scale operations (large minimum efficient scales) that can reap the benefits of increasing returns, (ii) vertical (intra-process) and horizontal (multi-variety goods) specializations, and (iii) the need for a high degree of coordination in matching input supplies and in creating and meeting the demand conditions (Balassa, 1980). *Coordination failures*, especially in investment activities, are expected as a developing country strives to move up the ladder of development (Rodrik, 1995--for the cases of South Korea and Taiwan; Okazaki, 1997-- in reference to Japan). Therefore, there exists a legitimate justification for government involvement. This is actually nothing new; Alexander Gerschenrkon (1962) earlier observed that developing countries as latecomers to industrialization tend to rely on institutional arrangements (notably

[15] Although the undervaluation is not emphasized, Kwan (1994) observes how the changes over time in the exchange rates of East Asian currencies contributed to transmigration of production in a FG fashion across the region.

direct state involvement) rather than on the market—for the very simple reason that the market mechanism has yet to be developed.

In order to climb up the higher rungs of the development ladder, individual firms or entrepreneurs themselves may be neither willing nor capable to take investment risks in new modern industries unless they are assisted financially by their government. In other words, industrial or structural policy, along with special public funding for infrastructure in particular, is called for. In the words of Wade (2010) "leading the market" is far riskier than "following the market," and a government may take on the task of "leading the market" in terms of industrial policy. Therefore, government involvement necessarily entails (as already mentioned above in Section 5.1). This is especially the case when a developing country strives to catch up in industrialization as a matter of national goal. It is for these reasons that the "big push" doctrine of catch-up development was once advocated in order to take care of the simultaneous coordination of supply and demand requirements—that is, to solve the rampant problem of coordination failures.[16]

5.3.2. Trade and multinationals as market coordinators

In addition, developing countries face a supply gap in vital industrial inputs when manufacturing activities begin to take root, requiring new intermediate goods which are not yet readily available at home. In this regard, it should be stressed that trade and multinational corporations' investment activities serve the role of market coordinators in filling the gaps in supply and demand conditions for intermediate goods. Neoclassical trade theory predicts two gains: "exchange gains" and "specialization gains." "coordination gains," however, need to be added in the dynamic context of structural upgrading in an outward-focused developing country.

In fact, export-led growth in all the East Asian follower geese has become dependent on imported parts, components, and accessories from the advanced countries, especially from Japan. "In 1987, [the NIEs] obtained from Japan almost 50% of their total imports of technology-intensive manufactures (up from about 41% in 1980 as compared to 26%

[16] The Japanese experience can illustrate the point. It is no wonder the *keiretsu* groups (which were instrumental in solving the problem of coordination failure), the main-bank system (which created ample credit for capital-intensive industries), and the state-run long-term banks (devoted to invest in infrastructure) were once all arranged to facilitate the reconstruction and modernization of Japan's war-torn heavy and chemical industries in the early postwar period. For a detailed analysis, see Ozawa (2005).

from the United States)" (Park and Park, 1991). Shinohara (1987) noted that Japan interacts with the rest of East Asia more strongly from the supply side (i.e., as a supplier of inputs) than from the demand side (i.e., as a buyer of finished manufactures). China's successful exports to the "G3" of America, Europe and Japan likewise involve "re-exports" as China imports components and assemble them into finished export goods. Some 60 percent of Malaysian exports to China are re-exported. "Made in China" thus often means "assembled in China."[17]

It is therefore correct to argue that the East Asian countries are *not simply export-driven but at the same time strategically import-driven.* Imports of industrial knowledge, capital goods, and intermediate supplies, notably through multinationals' operations, are critical for the success of export-led growth. Indeed, an "import- and export-led growth" paradigm (Klein, 1990; Dutta, 1999) is appropriate for East Asia—excepting Japan that developed a rather self-sufficient industrial structure under infant-industry protection and without much reliance on imported capital goods.

And this modality of "import- and export-led growth" constitutes the basis of triangular or circular trade among three parties: Japan—and now the NIEs—as suppliers of capital and intermediate goods to China, which basically does assembling operations and exports finished goods to the G3 (notably, U.S. and Europe that both provide the major markets to China. And most recently, the intra-Asian segment of this circular trade has expanded, along with the China-U.S. segment, giving an erroneous impression that a rise in intra-Asian trade makes the region more autonomous in growth and independent of the U.S. and Europe. But the truth is that China's growth is still export-driven with the advanced countries' markets as the major outlet for its manufactures, despite its premature triumphalism as evidenced in what China calls the "golden age of development" in Asia[18]

5.3.3. The market as a good servant

According to the World Bank (1993), the high-performing Asian Economies (HPAEs) got the fundamentals right by way of (i) carefully limited and "market-friendly"

[17] "Banyan: Afloat on a Chinese tide," *Economist*, Sep. 4, 2010, p. 48.
[18] This phrase was reportedly used in China's People's Daily. See *Ibid.*, p. 48.

government activism, (ii) strong export orientation, (iii) high levels of domestic savings, (iv) accumulation of human and physical capital, (v) good macro-economic management, (vi) acquisition of advanced foreign technology, (vii) flexible labor markets, and (viii) "shared growth" (in which the benefits of growth spread to all groups). All these features are pro-business in nature. Indeed, policy matters—in building market-compatible (if not totally market-dictated) economies. There is an abundance of literature on the key role of government as a *market-facilitating or market-enhancing* agent in East Asian growth (*inter alia*, Amsden 1989, 2002; Aoki, Muredock and Okuno-Fujiwara, 1997; Wade, 1990), hence no need here to detail it. Here it suffices to say that East Asia's "social capacity"--a term coined by Ohkawa and Rosovsky (1972) and popularized by Abramovitz (1986)--are neither innate nor manna from Heaven but have been created and governed by the governments. This pro-activist approach is in sharp contrast to the neoclassical stance to place full trust in the market mechanism, which was at one time reflected in the so-called "Washington Consensus."

In this respect, Stiglitz (2003) advocates a "new (i.e., post-Washington Consensus) paradigm of development." This constitutes a "more holistic approach to development," whose features "were in fact, incorporated in the development strategies of the fastest [Asian] developers" (Stiglitz, 2003, p.92). In other words, the new paradigm is built on, and modeled after, the successful growth of East Asia's economies. After all, East Asian miracle has been characterized by the effective management of the market at the hands of "developmental states" (a term coined by Johnson, 1982) that actively engage in industrial policy to foster structural transformation. How the role of government was played in "governing the market" and engendering catch-up growth in East Asia is explored in Wade (1990). China, in fact, is now skillfully capitalizing on global capitalists (i.e., multinationals) as the most helpful servant for its authoritarian communism. And Wade (2010) sees even a more important role for industrial policy emerge in this post-2008 crisis world economy. Indeed, "the global revival of industrial policy" may lead to the rise of state capitalism or "Leviathan Inc."[19] (as hinted in Figure 1).

[19] "Leviathan Inc." and "Picking winners, saving losers," *Economist*, August 7, 2010, p.9 and pp. 68-70.

In this regard, it is often said that "Like fire, the market is a good servant, but a poor master" (Eatwell, 1982). Put differently, the market is basically neither goal-setting nor goal-pursuing; it is goal-neutral at best and sometimes even goal-hindering. In essence, the market is merely a resource-allocative mechanism, not a goal-oriented and –filling entity (Ozawa, 2005). Directions need to be given by states that represent collective desires at the national level. Effective masters are in great demand.

6. Comparative Advantage Recycling in Labor-Intensive Industries—with the U.S. as the First Lead Goose

What has happened so favorably in East Asia owes to the convergence of three earlier structural dynamisms: (i) the United States pioneered in the development of new R&D-driven industries such as computers, microchips, and information technology, (ii) Japan moved up the ladder of development from the lower tiers by first modernizing the war-torn light industries and heavy/chemical industries (that had already been established before WWII) and then by entering into, and innovating in, higher-tier industries (especially automobiles and consumer electronics), as its wages and currency rose and its capital deepening proceeded, and (iii) other East Asian countries at lower stages of development soon initiated catch-up growth by first developing labor-intensive manufacturing for export, one group of economies at a time in a staggered sequence--first the NIEs, then the ASEAN-4, and more recently China and Vietnam.

In the postwar period, the United States, the hegemon of postwar capitalism, adopted a liberal trade policy toward Asia, especially during the Cold War. It has been providing *the* major market for Asia's exports of labor-intensive goods, such as apparel, furniture, and sundries. Furthermore, the U.S. import markets for such goods, the markets once captured but soon discarded by Japan, were quickly handed over to the NIEs, which in turn soon relayed them to the ASEAN-4—and more recently to China. This pattern of comparative advantage recycling in the U.S. import markets for labor-intensive goods is evidenced in Figure 3.

INSERT FIGURE 3 HERE

It can be seen that on average Japan lost its lead to the NIEs at the start of the 1970s. The NIEs were able to attain a rising market share until the early 1980s and then, in turn, began to experience a rapid decline in market share; in 1992 they were finally taken over by China. The rise in the ASEAN-4's share was rather moderate and was likewise overtaken by China in 1982. By 1997, the shares of both the NIEs and Japan had dwindled and fallen behind both China and the ASEAN-4, whose exports of labor-intensive goods to the U.S. had started soaring in the mid-1980s onward. China's such soaring exports to the U.S. have been made possible by foreign multinationals' export-oriented investments and outsourcing operations attracted to, and induced by, China's low-wages and its huge potential domestic market after it opened the doors for the global economy in 1978. This shifting pattern of comparative advantages may be called "comparative advantage or market recycling" (Ozawa, 2005). U.S. markets for labor-intensive manufactures have been serving as export markets *repeatedly* for Asian economies one after another in a staggered fashion, resulting in export-led growth multiplication as the U.S. markets were passed down the East Asian hierarchy of economies.

For a successful recycling of comparative advantages to occur, it is imperative for upper-echelon countries to climb up the chain of value-added quickly and willingly shed and relay their increasingly comparatively disadvantaged production onto lower-echelon countries. In other words, their capacities to metamorphose themselves structurally are one key enabling factor. In this regard, Japan and the NIEs, not to speak of the U.S., have clearly demonstrated such capacity--in part because of their institutional flexibilities, notably in the labor markets.

It is now easy to understand that the United States has clearly been the first lead goose; it is the major *myth* that Japan was the lead goose that had led the gaggle of flying geese, the myth adopted in those writings (e.g., Pempel, 1996/97[20]) that criticize the FG theory by "barking at the wrong tree," so to speak. True, Japan did contribute to the

[20] Pempel (1996-67, p. 16) rather sarcastically states "… Japan, of course, would remain the country destined to lead all regional development and would control all leading technologies and industries, but by following Japan's lead along a common trajectory, other countries would quickly benefit. …The implicit arrogance of a permanent place at the front of the avian Asian advance seems never to have been challenged by most Japanese advocates of the model."

vitality of FG formation as a key supplier of industrial inputs and technologies mostly through FDI, but so did the NIEs as they moved up the ladder of development. *If there had not been for U.S. leadership and its role as the major provider of demand, a FG formation of tandem growth would have never occurred in the first place.*

7. Borrowed Growth: The Role of Finance in Catch-up Growth

How a catching-up country may climb the ladder of economic development is examined above. So far, however, we have looked only at the real-sector (though we did briefly touch on the role of exchange rates as a prompter of industrial upgrading). It is time to take account of the financial dimension of industrial upgrading. How are the different stages of growth financed? What is the role of the government in financial development at different stages? We will first consider the notion of "borrowed growth" as the critical feature of US-led growth clustering.

7.1. Borrowed Growth

Any developing country at the start of industrialization must cope with a situation in which internal savings (S) tend to be exceeded by domestic investment (I). Hence, how to cover this inherent deficiency of savings is a critical issue in formulating an effective strategy for economic growth. Any open economy that invests more than it saves at home will end up with a well-known Keynesian disequilibrium in which the current account (CA) becomes negative (namely, CA = S - I, assuming a balanced government budget). And this CA deficit needs to be financed by capital inflows (that is, external borrowings), since CA necessarily equals the financial account (FA). The FA keeps track of capital inflows and outflows. In other words, rapid growth is financed by a surplus on the FA or a net capital inflow (foreign savings). This type of CA-deficit-based growth may be called "borrowed growth."

Borrowed growth is a double-edged sward. Helped by capital inflows, "input-driven" industrialization *a la* Krugman (1994) is made possible, and in fact, *accelerated*. Such growth leads to a boom, which itself in turn attracts more capital inflows, stimulating further growth in a virtuous circle. At the same time, however, once foreign investors sense some danger of weakness in the borrowing country's performance, a herd

mentality takes over. This causes an abrupt and exaggerated reversal in capital flows—and a sudden slump and bust. All this corresponds to the familiar pattern of "manias, panics and crashes" (Kindleberger, 1996).

7.2. Stages of Growth and Balance-of-Payments

Borrowed growth, which occurs in developing and advanced countries alike, can be best understood in terms of the stages theory of the balance of payments (BOP). Rapidly growing developing countries are likely to experience CA deficits at the start. Once they succeed in building a strong industrial base, CA (especially merchandise trade) surpluses become their BOP characteristic. In contrast, fully developed and mature countries are prone to CA deficits (largely because of merchandise trade deficits, if not yet CA deficits because invisible trade and investment incomes may be in surplus). In other words, BO conditions can be interpreted as a matter of how much advanced a country is in economic development—that is, they depend on growth stages. Management of BOP, therefore, requires different policy responses along the path of growth.

More specifically, Crowther (1957) classifies such a long-term trend in growth-driven BOP conditions into six stages: (i) "immature debtor-borrower" (a deepening CA deficit), (ii) "mature debtor-borrower" (a declining CA deficit), (iii) "debtor-lender and debtor-repayer" (a rising CA surplus), (iv) "immature creditor-lender" (a record-high CA surplus), (v) "mature creditor-lender" (a declining CA deficit), (vi) "creditor-drawer and borrower" (a rising CA deficit). This six-stage model gives us a starting point for our own analysis.

7.2.1. The "perilous CA-deficit" stage

When an underdeveloped economy opens up for trade and investment at the start of economic development, its CA registers a growing deficit, especially if left to free market forces without any restrictions on cross-border transactions. This corresponds to the transition period from the "take-off" to the "sustained growth" stage (in the words of Rostow, 1966). During such a transitional period, capital goods, technologies, modern business services, and hitherto-unavailable consumer goods are all necessarily imported from the advanced world to develop the country's industrial base and domestic markets.

Whatever it can produce (normally primary goods) is exported, but this may be not sufficient to cover the costs of imports. A resultant CA deficit needs to be financed by borrowing from abroad. As the economy succeeds in industrialization, however, this deficit is eventually reversed and eliminated.

Stated in terms of Crowther's theory of BOP, the above-described situation matches the first two stages of "debtor-borrower." These early stages represent the most critical, danger-laden period for a developing country, since its rising CA deficits require more and more foreign borrowings unless otherwise controlled—and it plunges deeper and deeper into debts with ballooning interest payments. (This kind of situations is still prevalent in many developing African countries.) This tendency is all the more pronounced if exchange rates are fixed, since domestic borrowers are falsely assured that their debts specified in foreign currencies are the same as home-currency debts. Yet an "unexpected" devaluation of home currency, which may be triggered by sudden capital withdrawals by foreign lenders and investors, would wreak havoc to the debtors (as happened in the Asian crisis of 1997-8). This period can, therefore, be identified as the "*perilous CA-deficit phase"* (see Figure 4).

INSERT FIGURE 4 HERE

7.2.2. The "robust CA-surplus" stage

On the other hand, the subsequent two stages of "creditor-lender" are accompanied by CA surpluses (first rising and then declining), the phase that can be called the "*robust CA-surplus phase."* Those countries that have reach this phase are at the height of their industrialization drive, in which the secondary sector (manufacturing and construction) dominates, serving as the primary engine of growth—with a shrinking share of the primary sector and a rising share of the tertiary (service) sector (Clark, 1935). They are heavily specialized in "making goods" and their rising incomes derive from investment-driven growth (i.e., investing in productive capacity)—and from export revenues. In particular, domestic output and exports in manufacturing industry are mutually reinforcing, making the logic of cumulative causation (or virtuous cycle) work (Kaldor, 1985; Eatwell, 1982).

In fact, the rapidly catching-up Asian countries have been able to swiftly leave behind the perilous and enter the robust CA phase through a variety of policy measures. Moreover, a massive inflow of capital, especially in the form of FDI by MNCs that bring advanced technology, leads to a substantial CA surplus--as best witnessed in China's and Vietnam's export booms.

7.2.3. The "mature CA-deficit" stage

Finally, the last two stages of 'creditor-drawer and borrower' may be labeled the '*mature CA-deficit phase*'. As a secular trend, the mature advanced countries are likely to stay in this phase, though they may temporarily record surpluses.[21] How can, then, these deficit-prone countries cope with the deficit? In the first place, they can live off their past overseas investments abroad—that is, their investment incomes may be substantially large enough to minimize and keep the deficit at a manageable level. In addition, they are normally capable of attracting capital inflows easily because they enjoy high credit-rating and offer an attractive business environment for foreign MNCs. Some enjoy the privilege of having their currencies used as reserves by other countries. They are thus able to reap *seigniorage* by "*exporting*" their own currencies as financial assets. Their CA deficits can thus be maintained so long as the rest of the world is willing to hold their currencies. All these situations may combine to create a favorable condition in which some advanced countries enjoy an unusually *prolonged* period of borrowed growth, as has been the case with the US.

It should be noted in passing that many developing countries in the perilous CA-deficit stage may constantly experience downward pressure on their currencies, if domestic prices rise, leading to overvaluation under fixed exchange rates--or to persistent depreciation under flexible rates—before they transit to the next phase. On the other hand, those countries in the robust CA-surplus stage experience exactly the opposite. And those advanced countries in the mature CA-deficit stage are likely go through frequent exchange rate fluctuations as they allow the market to determine their exchange

[21] At the moment, Germany and Japan are the outliers from the general trend depicted in the above model because of their traditional strong emphasis on manufacturing. They are, nevertheless, closer to the end of the "robust CA-surplus" stage and may not continuously record surpluses year after year.

rates. Unless their economies are badly managed, they can avoid any serious currency crisis.

7.2.4. "Global (G2) imbalances"

The above stages model of BOP shows that payments imbalances are structurally determined by different stages of economic development. And the growth-driven fundamental pattern of the CA trend curve (shown in Fig. 4) is normally altered by existing macroeconomic policy (i.e., fiscal and monetary) and propensities (consumption and saving) and currency policy (fixed, managed, and flexible exchange rates). Hence the size of a surplus or a deficit may be magnified (or reduced). This is actually the case with China's huge (magnified) CA surplus largely as a result of its strong export orientation and the yuan's growing undervaluation (situational/aberrant policy factors on China's side)—and with the U.S.'s recent large CA deficits reflecting its rising fiscal deficits, easy money, and low savings rate (situational/aberrant policy factors on the U.S. side). And these situational factors on the both sides of the Pacific have converged in magnifying the G2 imbalances.

Nevertheless, the fundamental CA conditions *inherent i*n different stages of growth underline the nature of the G2 imbalances that accompanied the recent growth of the world economy brought about under U.S.-led global capitalism. Hence, exchange rate adjustments alone cannot restore global balances. And both China's and the U.S.'s "abnormally" large CA imbalances are precisely the outcome of their *complimentary* situational policies pursued under the U.S. leadership that has encouraged China to open up and adopt a capitalist approach to economic growth.[22]

7.3. Financial/Money vs. Industrial/Real Sectors: Interaction

CA and FA represent the two sectors of an open economy--the former the "industrial/real" sector, and the latter the "financial/money" sector, respectively. They necessarily interact closely in the course of economic development. Real-sector

[22] This does not mean that the CA deficits of the U.S. are entirely attributable to China's CA surpluses. The U.S. trade deficit with China is, however, one of the largest among U.S. trade partners, and most importantly, China is *the* largest recycler of dollars back to the U.S. Treasuries market, causing a FA-pushed CA deficit (to be explained below).

transactions require money-sector ones for finance and settlement of trade accounts, but the latter often becomes "autonomous" (no longer "accommodating") in this age of fast capital flows, compelling CA instead to accommodate.

In short, an open economy (S = I + CA) has a *higher* degree of freedom in development finance than a closed economy (S = I), because the former can avail itself of its external balance (CA [= FA]). For a closed economy, domestic savings are the only source of finance, and if domestic savings are not sufficient, it is constrained from growth. An open economy can rely on borrowing from overseas as supplements to domestic savings in order to grow. In this case, CA transactions are autonomous—or *masters*, so to speak, while FA transactions are accommodating—or *servants*. This means that *the more open a growing economy is to capital inflows into its productive capacity-building investment, the higher the rate of growth.* Borrowed growth, however, is accompanied by high risks of excessive capital inflows. A sudden surge in capital inflows may not be properly channeled into productive capital formation, spilling into unproductive, purely speculative types of investment--hence into a greater CA deficit. The domestic need for capital formation may thus be overwhelmed by unnecessary huge capital inflows. The upshot is a *role reversal*; FA transactions become "masters," whereas CA transactions become "servants,"

Moreover, in the context of borrowed growth with unfettered capital flows across borders, rapid growth exposes a developing country to the forces of *cumulative causation*, upward as well as downward, which are generated in both the industrial and the financial sectors simultaneously. These forces would cause both "super-growth" and "super-crisis" (magnified boom-and-bust cycles) as explained in the following scenario: (a) High domestic investment (initially accompanied by high savings) → (b) high growth → (c) capital inflows → (d) *super-growth* (acceleration) → (e) more capital inflows → (f) a danger of inflation (due to a rise in money supply caused by capital inflows) and diminished investment opportunities in the industrial sector → (g) speculative and excessive investment in the financial sector (resulting in the rising price of securities, commodities, and real estate) → (h) signs of a collapse (busting) of a bubble → (i) defaults on domestic debts → (j) hot global money to the exists → (k) depletion of

official reserves (under fixed exchange rates) → (l) currency crisis (home currency meltdown) → (m) defaults on foreign debts → (n) *super currency/financial crisis*.

The boom (super-growth) period is covered by the first-half sequence of (a) through (g), while the bust (super-crisis) is represented by the second-half sequence of (h) through (n). The whole sequence involves *spiraling* interactions (initially complementary and augmenting but later on deleterious and subversive) between the industrial and the financial sectors.

7.3.1. Two genres of BOP imbalances: "CA-pulled" vs. "FA-pushed"

As mentioned above, there has recently been a role reversal between CA transactions and FA ones. The former used to be "masters," and the latter "servants," in the sense that trade is financed and settled by accompanying financial transactions. The latter merely facilitate the former. When the Bretton Woods system of pegged exchange rates early on permitted discretionary controls on short-term capital flows, trade, and foreign exchanges, CA transactions used to be the *primary/autonomous* part of international economic activities, whereas their FA counterparts merely played the *secondary /accommodating* role by financing CA transactions. These were the *standard* characterizations of CA and FA that were accepted and taught in international economics (see, for example, Meade's (1951) definitive tome on the theory of BOP).

7.3.2. CA-pulled type: internally originated deficits

In those days, CA deficits, when they appeared, were the result of an *internal* disequilibrium caused by an excess of aggregate demand over aggregate supply (output) at home, as best stipulated in the Keynesian "absorption" theory of BOP (Alexander, 1953). CA deficits were regarded as the consequence of a country "living beyond its means" (since CA = Y – absorption [C + I + G]). To correct a serious CA deficit, therefore, tight macroeconomic policies (monetary as well as fiscal) were called for and applied to reduce domestic expenditures. The best way for an economy to grow was then to raise domestic savings to finance domestic investment, since capital flows were "imperfect" due to restrictions under the Bretton Woods system.

Indeed, the BOP served as a strict guidepost for macroeconomic stabilization. Those countries that could not manage BOP had to seek a bailout from the IMF. The IMF, however, imposed so-called "conditionalities" or austerity program on the borrowing governments to solve *internal* disequilibrium (excessive spending). The governments thus had to implement IMF-prescribed deflationary policies to force themselves to live "within their means." If an austerity diet was judged unworkable, the IMF allowed a devaluation of currency in the face of "fundamental disequilibrium." These IMF prescriptions—the austerity program and devaluation—were considered appropriate and effective to deal with *internally originated* (CA-caused) BOP crises, since capital flows (FA transactions) remained largely controlled.

7.3.3. FA-pushed type: externally caused deficits

With liberalization of cross-border capital movements and rising liquidity sloshing around the global economy, however, the whole situation began to change. Pure financial transactions have grown ever larger in volume as an autonomous type of capital flows (especially, hot money) and have risen in importance, overwhelming CA transactions.[23] When other types of capital flows which are not transacted through the foreign exchange markets (e.g., physical flows of hard currencies such as the U.S. dollar and the Euro to be used as a store of value outside of the U.S. and the Eurozone—and illegal transactions) are included, the volume of capital flows is even much greater.

Be that as it may, most capital flows (especially, portfolio investments and bank loans) are primary and autonomous—and no longer secondary and accommodating in the traditional sense. When a country is flooded with capital inflows (hence, a huge surplus on its FA), it is compelled either to let currency appreciate (under flexible exchange rates) or to inflate its economy (under fixed exchange rates). This expansionary pressure caused by imported liquidity in turn leads to a CA deficit *for the very purpose of relieving such pressure via increased imports*. Even if the country's CA deficit rises, it is still possible that its currency remains overvalued. This outcome may be called the "continuing CA deficit but still strong currency" paradox, as experienced by the U.S. for

[23] According to a recent BIS survey, the daily global volume of currency transactions in foreign exchange markets hit $4 trillion, as reported in "Currency Trading Soars," *Wall Street Journal*, Sept. 1, 2010, A1. This is by far larger than the value of global trade in goods and services.

many decades. This type of CA deficits is an *externally originated (FA-pushed) BOP imbalance* where FA transactions become masters (causes) and CA transactions servants (effects), an imbalance that is diametrically opposite to the traditional *internally originated (CA-pulled) BOP imbalance* where the CA is still a master and the FA is a servant (Ozawa, 2009).

At the time of the Asian financial crisis of 1996-7 the IMF was severely criticized for its continued imposition of the outdated austerity programs on the bailed-out Asian governments. Those stricken Asian countries had been maintaining fundamentally sound macroeconomic conditions: relatively well-balanced budgets, stable money supplies, and price stability. In the case of the Asian crisis, those debtors were mostly the private banks which borrowed from overseas in foreign currencies (mostly the U.S. dollar) and lent to domestic firms in local currencies. When the ties of their currencies to the dollar were broken as a consequence of depleted international reserves, the debtors were no longer able to repay. Consequently, the IMF's conventional prescriptions made things worse. The bailed-out economies were driven into a severe slump by high interest rates and tight fiscal conditions. Businesses collapsed, causing even more bad loans, thereby sparking a banking crisis. Banks contracted loans and precipitated a credit crunch. The conventional IMF remedies that were once developed to cope with internally originated (CA-pulled) BOP imbalances proved to be not a medicine but rather a poison for those countries with externally originated (FA-pushed) BOP imbalances.

It can be generalized, therefore, that when an economy is still under-industrialized and its financial sector underdeveloped (i.e., still in their early stages of development), it is prone to internally originated BOP imbalances, and that as the economy successfully scales the ladder of economic development, attracting capital inflows into its financial markets, it tends increasingly to succumb to externally originated BOP imbalances.

7.4. Borrowed Growth and Financial Crisis

The "East Asian miracle" and the "East Asian debacle" of 1997-8, which occurred in tandem, are nothing but the results of excessive debts created through liberalized financial markets by way of hot money inflows. This exaggerated swing from miracle (super-growth) to debacle (super-crisis) represents the perils of borrowed growth. A

string of currency and financial crises that East Asia, Latin America, and Russia experienced in the 1980s and 1990s was due to the mismanagement (or "non-management") of borrowed growth—and due to institutional inadequacy and inappropriate policy responses. Also, advanced and mature economies would likewise experience the similar outcome of borrowed growth, as more recently seen in the U.S., Iceland, and Greece.

7.4.1. Borrowed growth, the "perverted" American Dream, and the financial crisis

The U.S. economy has been, and still is, operating in a mode of borrowed growth. Its economic expansion has been supported by large capital inflows that can supplement or rather substitute for domestic savings. Its CA deficit escalated toward nearly $1 trillion in 2008—say, from about $300 billion at the end of the 1990s. It has recently hovered around 6.5% of GDP. Combined with the banking crisis in the wake of the subprime mortgage debacle, America's borrowed growth has finally begun to cause a sharp fall of the U.S. dollar, starting in the early 2008.

However, the U.S. has long enjoyed some unique positions despite its heavy debt to the rest of the world. First of all, it is not so much U.S. borrowers but foreign investors who bring money to America's financial markets. The U.S. is not really "borrowing" in the real sense of the term in order to finance its CA deficit—that is, a situation of *internally* originated (CA-pulled) BOP imbalances. Excepting some political opposition to foreign interests' attempts to buy out America's "strategic" companies, America allows free capital inflows to fuel its economic growth. Such inflows of foreign savings *result in* an ever-growing CA deficit—that is, a situation of *externally* originated (FA-pushed) BOP imbalances.

Ever since the end of WWII, furthermore, the U.S. has been arguably a safe haven for many foreign investors. It is one of the most political stable countries where reliable securities (most of all, Treasury securities) and sophisticated (often high risk but high return) private financial instruments are in abundant supply. In contrast, those export-driven developing countries that rapidly accumulate large hoards of exchange reserves lack such well-developed financial markets at home for the very simple reason that they

are not fully developed yet. In this sense, they are engaged not so much in interest arbitrage as in *institutional arbitrage*.

In addition, the U.S. dollar, despite its fall, has been the world's dominant currency, allowing a high level of tolerance for a CA deficit. In a sense, the U.S. dollar itself can be looked upon as America's major "export." In most of the time the dollar has been a good (even superior) substitute for gold (which Keynes even called 'barbaric'), and the global economy has come to operate effectively on a *dollar* standard.

Nevertheless, America's borrowed growth hit a snag in September 2008 after the collapse of Lehman Brothers—and the rest is history. The epicenter of the crisis was an implosion of the subprime mortgage market that had been created basically by the U.S. Federal Housing Administration (FHA) (Norberg, 2009). At the core, it was no doubt the outcome of the *perverted* American Dream--perverted in the sense that the Dream is not self-driven and -attained but government-provided. The trade modality of borrowed growth ("import *both* cheap capital and low-price goods as much possible--mostly from China"), in which the U.S. economy had come to be trapped, created the ideal environment where the Federal Reserve was able to keep interest rates low without worries about inflation, thereby funding the subprime market and speculations in newfangled financial instruments. All this converged to produce the perfect storm of financial crisis.

8. Concluding Remarks

So, what is the essence of the FG theory of economic development as it has been elaborated on and reformulated in this paper? It is *a theory of catch-up structural upgrading (hence, economic development) by means of interactions within a hierarchy of closely integrated economies that is currently governed by hegemon.-led capitalism*. It explains how stepped-up integration with the outside economy via trade and investment can assist any aspiring developing country to jumpstart and sustain rapid structural metamorphosis and economic growth. Such an outer-dependent strategy enables a developing country to scale the ladder of economic development by capitalizing on economies of hierarchical concatenation—that is, by exploiting the growth stimuli engendered by the hegemon, the United States, and other advanced countries. A

hierarchy—i.e., an FG formation of aligned countries-- matters, since it can avail itself of, and in turn generate, positive externalities within the hierarchy. The constituent countries can catch up and grow much faster than when they try to industrialize on their own. This is the logic of FG formation that can exploit economies of concatenation (a 70%-range energy saving over a goose flying solo). It is, therefore, imperative upon any developing country, if it intends to industrialize and catch up in economic and technological development, to open up its economy and judiciously submit itself to the forces of globalization.

In order to effectively take advantage of external opportunities, the country must adopt business-friendly institutions compatible with the principles of market capitalism. This does not mean, however, that it blindly follows and bends to the market forces (as once seen in the unqualified acceptance of the "Washington Consensus"). The FG model of the ladder of economic development (i.e., the logic of industrial upgrading) clearly points up the key role to be played by government in (i) implementing market-friendly reforms strategically, if not overnight (e.g., setting up "capitalist enclaves" as the first step and gradually spreading their logic to the rest of the economy), (ii) enhancing/facilitating the market mechanism by solving the problem of coordination failures as the country climbs up the rungs toward higher-tier industries, and (iii) minimizing/alleviating the ill effects of market activities such as the environmental problems and income inequality (i.e., by spreading the fruits of rapid growth via the policy of "shared growth").

In addition to the real-sector story of a FG formation (i.e., the newly defined notion of the ladder of economic development), a financial side story is presented above in terms of the three-stage model of BOP; the "precarious CA-deficit" stage, the "robust CA-surplus" stage, and the "mature CA-deficit" stage. The BOP deficits are classified into two types; the CA-pulled deficit (conventional and internally originated kind) and the FA-pushed type (new and externally caused kind). The U.S. operates in the mature CA-deficit stage but fell deep into the trap of the FA-pushed type. In contrast, China is in the robust CA-surplus stage, an inverted mirror image of the U.S. Their BOP conditions have been complementary with each other, and are merely the different sides of the same coin.

It is nowadays often said that mainstream (neoclassical) growth theory has become irrelevant to the needs of policymakers. A recent IMF journal, *Finance & Development*

(March 2006), had feature articles on "Understanding Growth." The underlying theme of this special issue is "the economics profession's discouraging quest for answers through decades of growth research;" this is because there has developed an ever-widening gap (tensions) between "the logics of academic interest and the needs of the policy practitioners" (Pritchett, 2006, p. 18). As a consequence, it is said that "[E]conomists are reconsidering what they really know about economic growth and how to go about formulating policies in the *absence* of reliable models" (Zagha, Nankani, and Gill, 2006, p. 7, emphasis added). Neoclassical development economics is clearly in disarray.

Surprisingly, however, not much attention has been paid to the FG theory of economic development for whatever reasons. Perhaps this is in part because of its erstwhile underdeveloped status as theory, particularly as a formalized mathematical or econometric model with which mainstream economics is excessively obsessed.[24] Romer (1993, p. 549) observes the predominant logic of academic interest as follows: "…over time, economists relied increasingly on mathematics as the language of intellectual discourse. As they did, *objects* took precedence over *ideas* for purely technical reasons… Ideas—like Adam Smith's closely related notion of specialization and the division of labor—were pushed aside as the mathematical assumption of convexity and the behavioral assumption of price-taking took on greater importance in economic reasoning."[25] Here, however, the FG theory of economic development as a major doctrine of catch-up growth (as identified by Radelet and Sachs) gives a ray of hope, since it has been an effective, field-tested doctrine in connection with East Asia's phenomenal growth and has recently been more and more elaborated on for policy relevancy, as has been done in this paper—and elsewhere (Ozawa, 2009). After all, a FG way of development thinking is its focus on the dynamics of structural change along the path of development and

[24] Krugman (1995) explains that big development ideas, such as a "big push" and "balanced vs. unbalanced growth," did not have a lasting impact on mainstream development economics simply because they failed to be formalized as mathematical models.

[25] Similarly, with respect to statistical testing, Romer (1993, p. 454) stresses that "the mainstream economic community would gain a great deal by moving beyond its narrow focus on statistical hypothesis testing and making explicit use of the broad range of evidence that the dissidents have been able to exploit. The correlations in macroeconomic data can suggest orders of magnitudes of possible effects, but will never be able to resolve the most important questions about causality."

growth. In this regard, the FG models newly introduced in this paper can constitute the vital part of what is now emerging as "new structural economics," a new discipline in the field of development economics (Lin, 2010).

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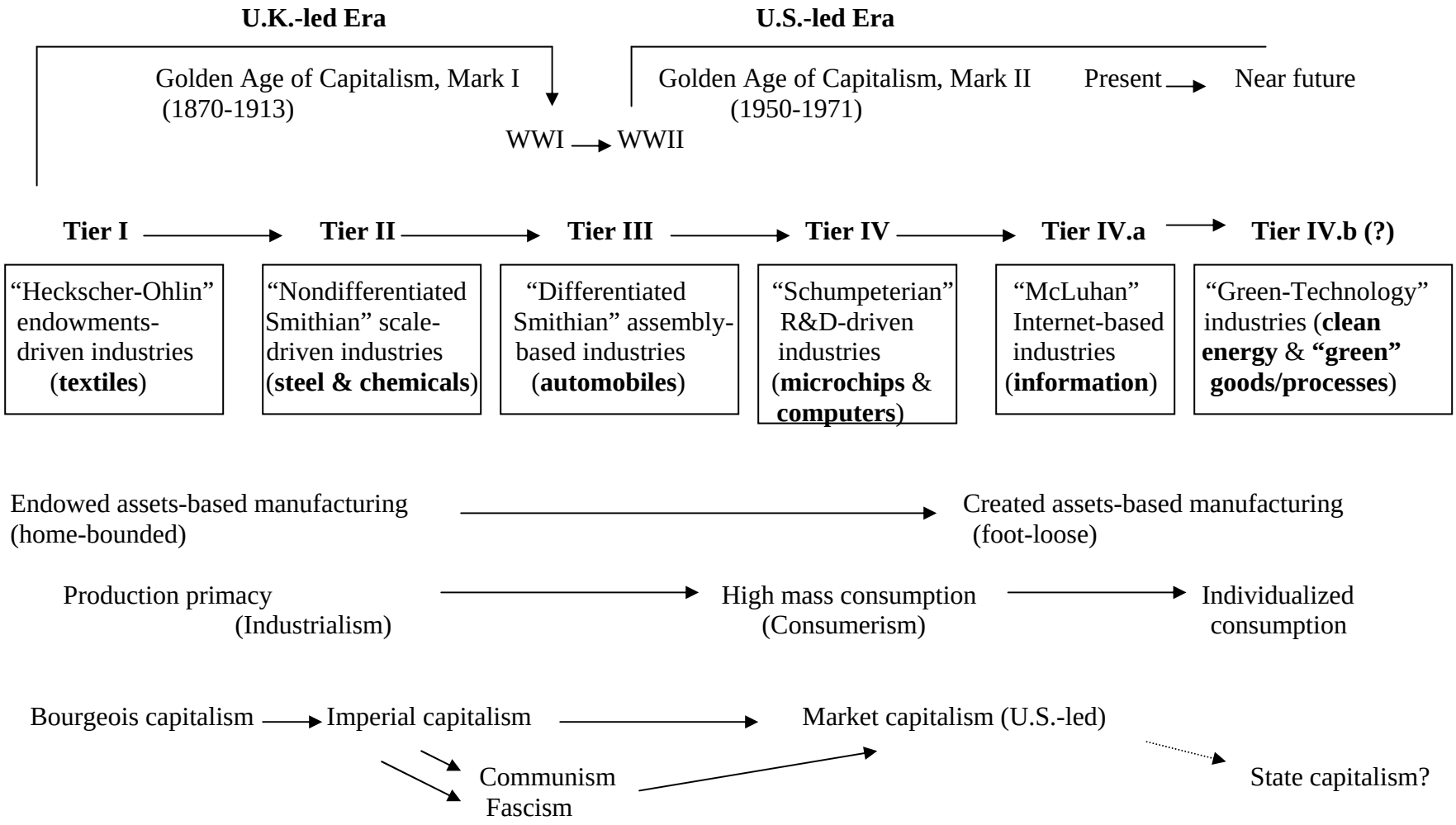
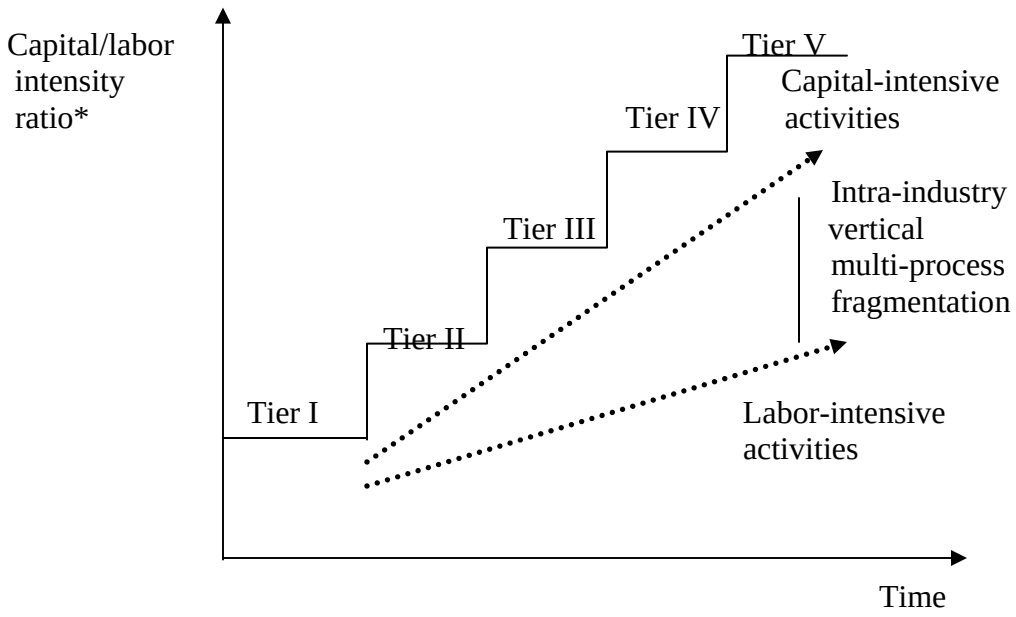
Figure 1 The ladder of economic development: industrial upgrading under U.K.- and U.S.-led global capitalism



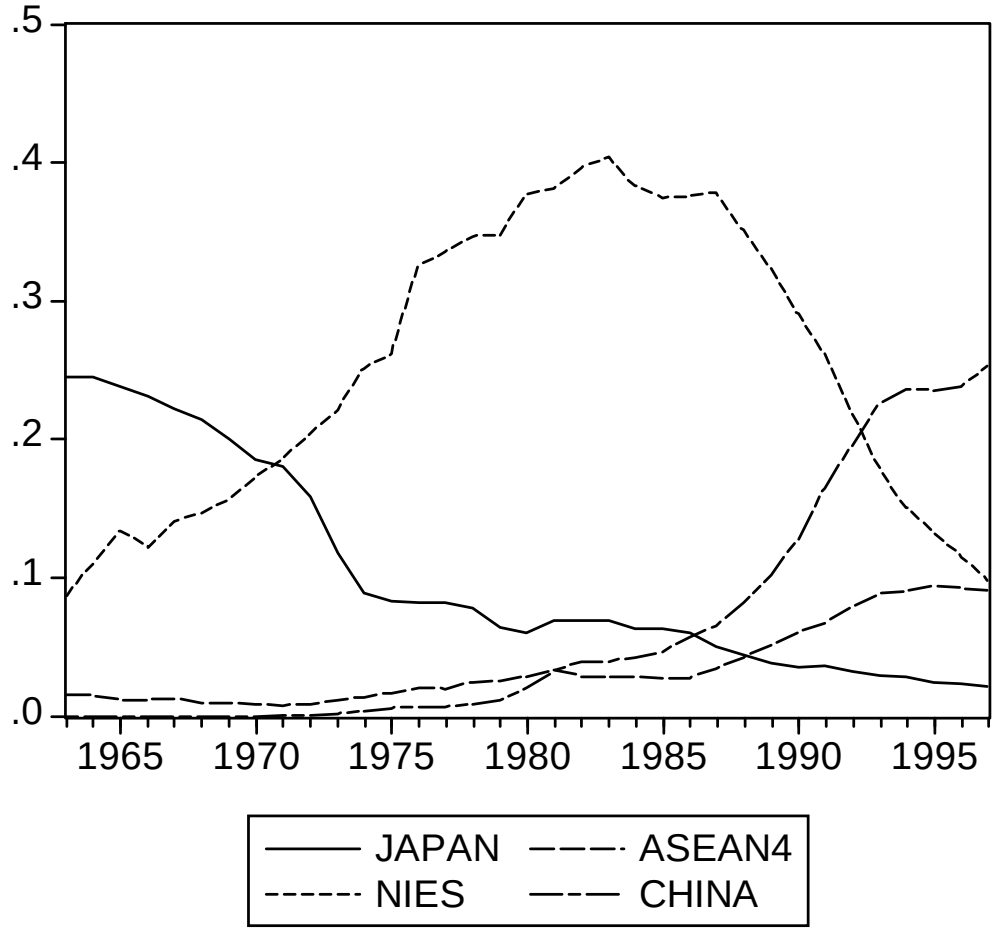
Source: based on Ozawa (2009).

Figure 2 Fragmentation of production along the capital-labor intensity ratios



*Capital includes human capital.

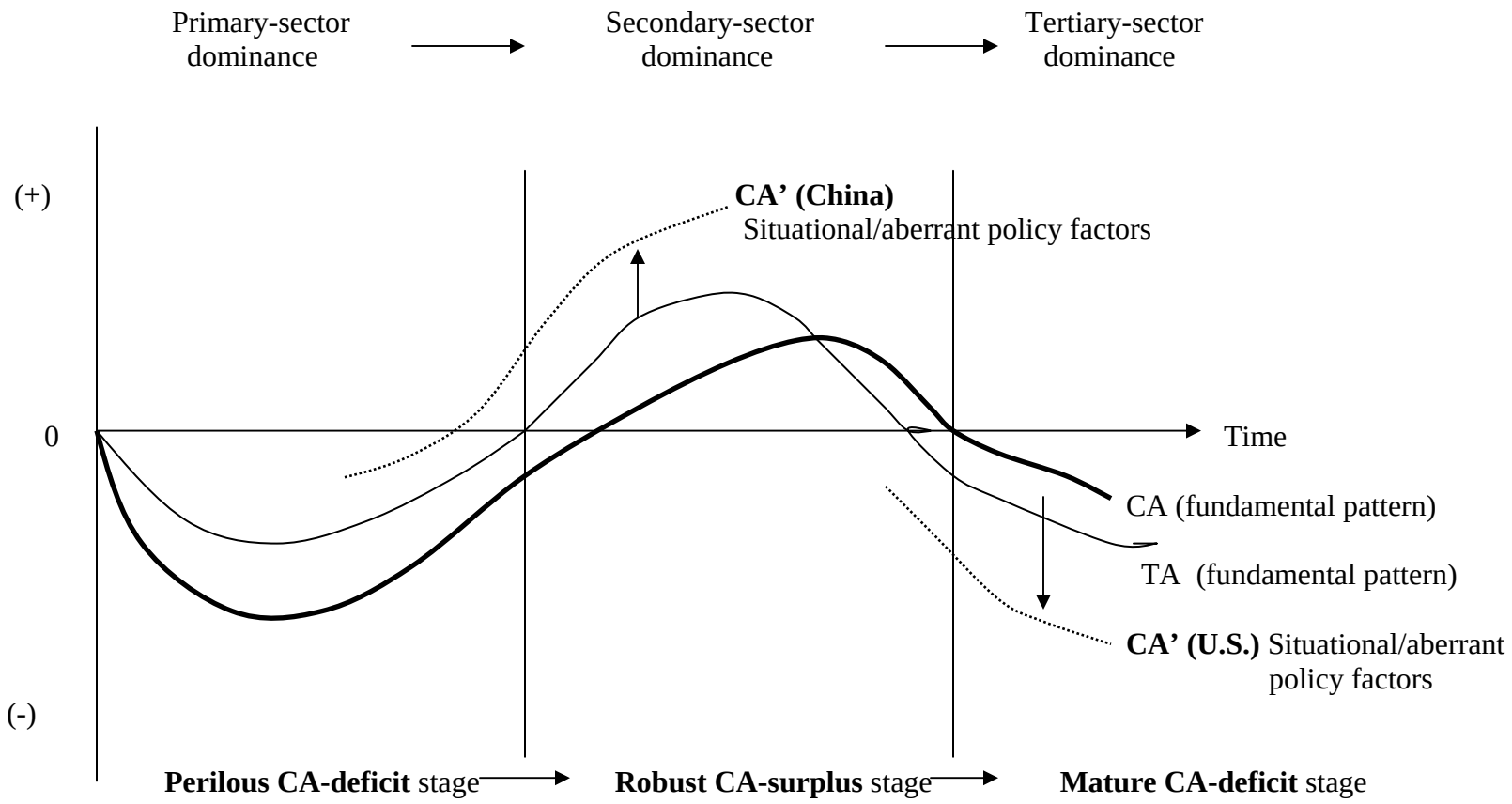
Figure 3 U.S. import market shares for labor-intensive goods



Note: Labor-intensive goods consist of textiles (SITC 65), non-metallic mineral manufactures (SITC 66), furniture (SITC 82), travel goods, handbags, etc. (SITC 83), clothing (SITC 84), and footwear (SITC 85).

Source: Adopted from H. Cutler, D. Berri, and T. Ozawa (2003), "Market Recycling in Labor-intensive Goods, Flying-geese Style: An Empirical Analysis of East Asian Exports to the U.S.," *Journal of Asian Economics*, 14, 35-50.

Figure 4 Structural transformation and balance-of-payments stages: The U.S. in the "mature CA-deficit" phase, while China in the "robust CA-surplus" phase, magnified by institutional/policy factors.



Note: TA = Merchandise trade account; CA = Current account

Source: Based on Fig. 7.1 in Ozawa (2009).