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PERSISTENCE OF THE VEBLENIAN "OLD JAPAN": ORGANIZATIONAL EFFICIENCY AS A WELLSPRING OF COMPETITIVENESS

by
TERUTOMO OZAWA * and RONNIE J. PHILLIPS **

In an article written in 1915 Thorstein Veblen presented a conceptual paradigm to explain the rapid industrialization and economic growth of Japan. According to Veblen, Japan enjoys an opportunity to rise to the heights of economic efficiency because the socio-cultural structure of the "Old Japan" interacts favorably with its need to adopt and adapt modern western technology in order to transform itself into a new Japan. Veblen (1934) notes

> It is in this unique combination of a high-wrought spirit of feudalistic fealty and the chivalric honor with the material efficiency given by the modern technology that the strength of the Japanese nation lies... With great, perhaps with exceptional facility, the Japanese have been taking over and assimilating the industrial ways and means offered by the technological knowledge and the material sciences of the western people (pp. 251-252).

But this fortunate state of affairs lasts only until Japanese society is westernized; "... as soon as her people shall have digested the western state of science and technology and have assimilated its spiritual contents, the "Spirit of Old Japan" will, in effect, have been dissipated (1934, pp. 254-255). Veblen thus predicts an eventual convergence of Japan's industrial system and spiritual structure with those of the West and an inevitable slowdown of its economic expansion.

Veblen's analysis closely parallels that held by those Western scholars

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and policymakers, especially in the United States, who advocate patience toward Japan ("traditionalists") by maintaining that Japan's economic system, though still characterized by some backwardness of a latecomer who endeavors to catch up with the advanced West, will in due course become similar to Western capitalism in modes of production, distribution and consumption; it will sooner or later become so similar that it will not only play the game of capitalism under the same set of rules as in the West, but also will face the structural problems of Western-style capitalism such as labor malaise and "conspicuous waste". Yet there has recently appeared another group of policy analysts ("revisionists") who counterargue that the Japanese economy is evolving into an entirely new form of capitalism quite distinct from that familiar to the Westerners [1]. The latter is in effect questioning the validity of Veblen's "opportunity of Japan" thesis.

On the surface, it appears that westernization of Japanese society is well in progress, to be sure, and that the "Spirit of Old Japan" is on the wane [2]. In the political sphere, Japan is apparently a well-founded democratic society. By now, the Japanese have fully "digested the western state of science and technology" and actually are on the forefront of many industrial arts. Despite the overwhelming signs of westernization, the strength of Japan has been continuously on the rise, without exhibiting any serious signs of secular stagnation – and without many damaging social ailments of the West such as high rates of crime, widespread drug abuse, etc.

The aim of this paper is to show (1) that although Veblen was correct in emphasizing the critical role of feudalism in facilitating Japan's catch-up with the West, he failed to see a distinctive difference in the post-feudal vicissitudes of the social system between the West and Japan, and (2) that the "Old Japan" has left an indelible mark on the organizational structure of Japanese industry, a persistent legacy peculiarly and serendipitously compatible with, and reinforcing on, the organizational requirements of modern industry.

1. *The Veblenian Paradigm of Japan's Economic Growth*

Veblen viewed Japan's rise to industrial power as a process of catching

[1] The revisionist views include, among others, FALLOWS (1989) and VAN WOLFEREN (1989).

[2] For the latest changes in the Japanese style of living, see, for example, EMMOTT (1989). An attempt to prove the validity of Veblen's thesis is made in reference to the recent liberalization of Japan's financial market by LEATHERS (1990).

up with the advanced West by filling in a technological gap, a process greatly accommodated by the feudalistic devotion of its people:

> The opportunity of imperial Japan as a fearsome power in the world's concert of dynastic politics may by consequence confidently be expected to lie with the historical interval that so intervenes between Japan's acquirement of the western state of the industrial arts and its consequent, slower but inevitable, falling into line with those materialistic, commercial, and spendthrift conceptions of right and honest living that make the outcome among the [Christian] peoples that have gone before along the road of industrial dominion and individual self-help (1934, p. 255).

Veblen's conceptual framework thus can be summarized in terms of the following functional relation: $OoJ = f(Tg, Sg)$, i.e.

> "The Opportunity of Japan" is a function of Tg – a borrowable stock of western technology (= a technological gap) – and of Sg – residues of feudalistic institutions & mores ("the Spirit of Old Japan") (= an institutional gap).

He assumed that Japan would benefit from "the usufruct of the modern state of science and the industrial arts, without the faults of its qualities" (1934, p. 259) as a latecomer to the world dominated by Western civilization. Hence the first explanatory variable, (Tg) borrowable Western technology, is positively related to Japan's economic growth, since it accords "material efficiency"; the larger the technological gap, the greater "the Opportunity of Japan" by way of feeding on imported technology. The second causal variable, (Sg) "the Spirit of Old Japan", which is represented by "a high-wrought spirit of feudalistic fealty and the chivalric honor", is in essence the Japanese people's willingness to devote – and even sacrifice – themselves for national or collective interests. It is a socio-spiritual, institutional gap regarded as "the anomalous cultural situation for the country" (1934, p. 265). This variable raises the motivational level of productive activity (or in modern parlance, what Harvey Leibenstein (1966) identifies as "X-efficiency") and creates investable surplus as workers are willing to accept a wage rate much lower than a rate of increase in productivity (which itself is enhanced by X-efficiency).

There are, furthermore, interactions between the two explanatory variables. Each variable is in fact a function of the other. Variable Tg, a gap-filling in technology, is facilitated by variable Sg, namely, an *increasing* function of the latter, in terms of creations of surpluses (hence the ability to pay royalties) and workers' adaptability to technological requirements (e.g., me-

chanization and skill upgrading). On the other hand, variable *Sg* is a *decreasing* function of a successful adoption of Western technology, whose "spiritual contents" eventually cause "the Spirit of Old Japan" to disintegrate. This is because

> ... the spread of such matter-of-fact information [science and technology] and such mechanistic conception must unavoidably act to dissipate all substantial belief in the *opera bouffe* mythology ... time-worn elements of Shinto are even less viable under the exacting mechanistic discipline of modern industry than are the frayed remains of the faith that conventionally serve as articles of belief among the Christian people (1934, p. 262).

Thus as variable *Tg* declines to zero, so does variable *Sg*. And when both variables are zero, the Opportunity of Japan disappears. In other words, when this critical point is reached, westernization (or modernization) of Japan will be complete and peculiar post-feudal advantages can no longer be enjoyed by Japan. In Veblen's view, this motion of attaining material efficiency is already in progress and Japan is on an unavoidable path to a homogenized global civilization [3].

Moreover, Japan will eventually experience the full development of a business or pecuniary economy, under forces of institutional homogenization and at that point technological progress will be retarded. Hence there is a period of time during which the Japanese industry can work at full technological capacity, but this will inevitably end in the "sabotage" of production by the profit motives of business to restrain output. Veblen notes, "The new era in Japan has not yet reached this stage of economic maturity, but there is

---

[3] Veblen (1934) notes:

> "The spiritual disintegration has already visibly set in, under all forms of modernization spoken of ... but it is presumably still safe to say that hitherto the rate of gross gain in material efficiency due to the new scientific and technological knowledge is more than sufficient to offset this incipient spiritual deterioration; so that, while the climax of the nation's net efficiency as a political or warlike force lies yet in the future, it would seem at least to lie in the calculable future. When this critical point in the country's growing maturity under the new economic dispensation shall be passed, when Japan shall have reached the place of materialism and commercialization occupied by the Christian nations, in respect of pecuniary ideals and self-help as well as of technological efficiency, then the advantage that now visibly insures to the government of Japan from the anomalous cultural situation of the country should be at an end, and the efficiency of the Japanese national organization should then presumably fall to the same level of efficiency per unit of men and of expenditure as is now occupied by the older peoples with the European community of nations" (1934, p. 265).

no reason to presume a different outcome for Japan in this respect, given the necessary time for adjustment" (1934, p. 264).

In short, the Veblenian paradigm is a self-dissipating system, in the sense that an initial disequilibrium (i.e., the concurrent existence of a technological gap and residues of feudalism on the part of Japan the latecomer) automatically generates its own adjustment force or *tâtonnement* in attaining equilibrium (that is, westernization of the Japanese economy) in both "matter-of-fact information" and the "spirit" of its society. Yet the *tâtonnement* is not an instant phenomenon but rather a prolonged affair, hence Veblen did not predict the length of time for Japan's opportunity.

> It would of course be hazardous to guess how long an interval must necessarily elapse between Japan's acquirement of the western state of the industrial arts and the consequent disintegration of that "Spirit of Old Japan" that still is the chief asset of the state as a warlike power; but it may be accepted without hazard that such must be the event, sooner or later. And it is within this interval that Japan's opportunity lies (1934, p. 264) [4].

Given the workings of the Veblenian paradigm as interpreted above, how does it fit the actual Japanese experience? Does it really explain the phenomenal growth – and particularly, its continous growth – of the Japanese economy?

---

[4] Underlying this paradigm is Veblen's vision of the future: the entire world is destined to be eventually and ineluctably dominated by the homogenizing and universal western culture of "matter-of-fact knowledge", though such a culture can not be *a priori* judged superior, but nevertheless its global dominance is the fact of life:

> "... The modern western culture, with its core of matter-of-fact knowledge, may be better or worse than some other cultural scheme, such as the classic Greek, the medieval Christian, the Hindo, or the Pueblo Indian. Seen in certain lights, tested by certain standards, it is doubtless better; by other standards, worse. But the fact remains that the current cultural scheme, in its maturest growth, is of that complexion; its characteristic force lies in this matter-of-fact insight; its highest discipline and its maturest aspirations are these.
>
> In point of fact, the sober common-sense of civilized mankind accepts no other end of endeavour as self-sufficient and ultimate. That such is the case seems to be due chiefly to the ubiquitous presence of the machine technology and its creation in the life of modern communities. And so long as the machine process continues to hold its dominant place as a disciplinary factor in modern culture, so long must the spiritual and intellectual life of this cultural era maintain the character which the machine process gives it" (Veblen, 1919, pp. 29-31).

In other words, Veblen is advancing what may be called a thesis of technological proselytization, a process in which "matter-of-fact" civilization homogenizes the spirits of different cultures.

It is now clear that Japan has succeeded in closing the technology gap by catching up with and even surpassing the West in some key areas; yet despite the success in technological catch-up, Japanese industry still exhibits a vigorous and renewed pace of expansion. The modern business culture brought about by "the machine process" has not really dissipated the unique *elan vital* of Japanese society. As one observer put it, "Rivals beware: Japan's unique strain of capitalism is unlikely to fall prey to the problems plaguing the West" (Holstein, 1990).

Can we dismiss such a statement by saying that Japan is still in that lucky "interval" and away from the "stage of economic maturity" as emphasized by Veblen? Or has any significant development unenvisaged – hence unspecified – in his paradigm come to play a key role in causing the continuous vigorous expansion of the Japanese economy?

2. *Two Distinct Legacies of Feudalism*

For Veblen, feudalistic traditions or experience play a positive role in economic development. This line of reasoning is in full agreement with a widely recognized view that feudalism did contribute to the development of democracy, capitalism, and modern civilization in the western societies, for it introduced an orderly social system based on contractually specified relationships[3]. Some even regard feudalism as a prerequisite to civilization:

> In spite of all the differences in their origins and features, the feudal systems of the various societies... manifest some common characteristics. Perhaps most important is that they played a major role in the development of "high" cultures or civilizations. Feudal systems can be found, even if in varying degrees, in almost all of the great civilizations of the past, where they were central in keeping and developing great traditions under circumstances often inimical to their maintenance...
>
> In more differentiated societies – as in western Europe and in Japan – the feudal background made the later transition to modernity easier and

[3] For example, the *New Encyclopedia Britannica* (1990) explains:

> "Although feudalism by the end of the 14th century was no longer a political and social force, it had left its mark on European society. It exercised its greatest influence in the elaboration of modern forms of constitutional government. Ideas about consent to taxes and resistance to and defiance of the lord and the whole balance of rights and duties between lords and vassals played a great role in colouring the outlook of early representative institutions" (p. 755).

more stable, and in some cases, it might have facilitated – after a period of the "estate" system or of absolutism – the development of a relatively pluralistic system (Prawer and Eisenstadt, 1968, pp. 401-402).

It can be said, then, that feudalism served as a *cradle* of democratic representation and modern contractual society. Early on, indeed, feudalism in England gave rise to the practice of contracting by specifying and formalizing a system of governance by the rule of law [6]. And in the end, contractual relations, the central mode of governing interpersonal commercial relations and transactions between independent operative units in modern times, have come into existence as a legacy from the evolution of feudalism. The practice of contracts (formal specifications of rights and duties among transacting partners) liberated individuals from the shackles of arbitrariness and exploitation by the powerful lords who bound their vassals in informal and often charismatic relations.

In sharp contrast, the Japanese brand of feudalism left different evolutionary traits, traits that have survived into "modern" Japan:

> Japan's feudalism differed from the European pattern in several important respects: (1) the continuous importance of the imperial center in spite of its loss of political function; (2) the weakness, perhaps even total absence, of contractual elements in the relations between lords and vassals; (3) the full, personal, familistic expression of these relations; and (4) the lack of any representative institutions (Prawer and Eisenstadt, 1968, p. 400).

For our analysis, the second and third features, "the weakness, perhaps even total absence, of contractual elements in the relations between lords and vassals" and "the full, personal, familistic expression of these relations", are crucial in understanding the social system that came to exist in Japan's post-feudal period.

---

[6] Prawer and Eisenstadt (1968) explain:

> "With the tremendous expansion of the empire of Charles the great and for two centuries thereafter, vassalage as a type of social cohesion became the normal way of assuring not only military service but also public authority. Although the ancient oath of fealty of subjects to the ruler remained, it was felt that it did not sufficiently assure either loyalty or political allegiance. Consequently, an oath of vassalage, more binding and directly linked with the ruler, was demanded from appointed officials. The heads of military and administrative circumscriptions – dukes, marquis, and counts – became vassals of the king. This new type of relation, which abandoned the charismatic character of the earlier period, was based mainly on the notions of fealty and absolute loyalty, strengthened by the religious element inherent in the oath itself, and it bound the *contracting parties in a contractual relation*" (emphasis added) (p. 395).

There thus emerged a contrasting difference in the influence of feudalism between the West and Japan. Modern Western societies have evolved into a system of democracy built on individualism after having been liberated under the feudal legacy of contractual relations and representative institutions, whereas modern Japanese society has developed into what may be called "borrowed democracy" on the basis of largely unwritten, noncontractual relations.

So far as the economic system is concerned, the economies in both the West and Japan thus derive from their respective feudalism – but with different ways of coordinating economic transactions and interlinking relations. In the former the behaviors of micro-agents are contractually specified and explicitly rule-governed, while in Japan they are less legally particularized and bound but are more generally governed by personal ties or connections that distinctly characterize the Japanese system, a source of competitive advantage that shed light on the persistence of the "Old Japan", as detailed below. In this respect, the Japanese modality of organizing economic exchanges has some affinity with what Karl Polanyi describes as a system of "reciprocity" as opposed to a system of "exchange" (Polanyi, 1957, pp. 48-49). In the former system, goods and services are circulated "on the basis of familial or political obligation, reinforced by ritualistic or religious principles" – in contrast with "the two-way transfer of equivalent values motivated by self-interested calculation that is characteristic of market exchange" (Stanfield, 1986, p. 20).

It is thus important to realize that the feudalistic legacy that has contributed to modern Japanese industrialism is not so much "a high-wrought spirit of feudalistic fealty and the chivalric honor" *per se* as emphasized by Veblen, but rather the managerial (or governance) modality of transactional links between economic units (operatives) that was molded during feudalism and has been handed down to the present. And this critical element, which is missing in the Veblenian paradigm, is currently giving a unique foundation for the managerial skills of Japanese industry, a foundation that happens to prove fully congruous with – hence highly supportive of – the organizational requirements of modern industry.

3. *The Organizational Requirements of Modern Industry*

Modern industry is characterized by an ever-deepening division of labor through specialization not only between independent firms and economic agents but also within a given economic organization. The former

constitutes the marketplace where the famed Smithian process of "haggling and higgling" (Smith, 1776) generates market forces and the latter the hierarchical coordination of productive activities in which the Coasian intra-firm transactions (Coase, 1937) transcend the market. With an advance in modern industrial technology which is biased toward making production processes increasingly sequential, multi-staged, and interdependent between value-adding units, hierarchies have become more and more dominant over markets. In other words, the "visible hand" has gradually gained over the "invisible hand" (Chandler, 1977). In addition, as identified by Richardson (1972), a networking of cooperation and affiliative transactions is simultaneously on the rise as a third mode of coordinating economic activities. In short, arm's-length transactions ("markets") thus coexist with hierarchical ones ("organizations") and affiliative ones ("links"), but the latter two types, in particular, are growing in significance for modern industrial production and distribution.

It is against this background that so-called transactions economics has recently gained popularity – and relevancy – over the conventional microeconomic (neoclassical) approach. The prevalence of transaction costs points out the inadequacies of the market (i.e., market failure) for certain types of economic exchanges and forces economists to recognize the other two modes of economic coordination.

The arm's-length transactions that are supposed to occur in the neoclassical world of marketplace are always depicted as one-shot deals each time at its occurrence, leaving no trace of the social relations that economic activity in reality necessarily entails; market-mediated transactions are thus visualized as totally impersonal and discrete.

It was Karl Marx (1867) who, drawing upon Adam Smith, stressed the importance of intra-organizational division of labor and the synergistic outcome of collective action and correctly identified any economic endeavor as a *social process*. In Marx's celebrated statement,

> Apart from the new power that arises from the fusion of many forces into one single force, mere social contact begets in most industries *an emulation and a stimulation of the animal spirits* that heighten the efficiency of each individual workman. Hence it is that a dozen persons working together will, in their collective working-day of 144 hours, produce far more than twelve days in succession. The reason of this is that man is, if not as Aristotle contends, a political, at all events a social animal (emphases added) (1967, pp. 325-326).

Thus the division of labor and economic exchanges are not the mere

phenomena of technical requirements but rather the interactions between "social animals". Yet Marx paid a rather lopsided attention to the exploitative/conflictive aspect of exchanges in contrast to Alfred Marshall who stressed the voluntary cooperative aspect and the ability of the market to reconcile individual freedom and collective production (Hymer, 1972, p. 117).

Viewed in this light, organizational or social technology (how to manage inter-human relations) is equally – and often more critical than – technical technology. The former, indeed, is becoming even more important as modern technical technology itself necessitates an ever more sophisticated organizational structure.

Postulating that economic exchanges are the acts devoid of any collaborative non-market relationships between economic agents (no "collusion" whatsoever), the arm's-length approach completely neglects the issue of *relational efficiency* among "social animals" by implicitly assuming that such efficiency, if relevant, is always at the maximum.

Here, Leibenstein's concept of *X*-efficiency captures the notion of relational efficiency within the firm, but such efficiency extends beyond the level of inter-agent relationships within a given firm and to the level of interactions between firms themselves. Indeed, it was no other than Thorstein Veblen who stressed the importance of "interstitial coordination" in this civilization of "the machine process" in his 1927 book, *The Theory of Business Enterprise*:

> ... each industrial unit, represented by a given industrial "plant", stands in close relations of interdependence with other industrial processes going forward elsewhere, near or far away, from which it receives supplies – materials, apparatus, and the like – and to which it turns over its output of products and waste, or on which it depends for auxiliary work, such as transportation. The resulting concatenation of industries has been noticed by most modern writers. It is commonly discussed under the head of the division of labor. Evidently the prevalent standardization of industrial means, methods, and products greatly increases the reach of this concatenation of industries, *at the same time* that it enforces a close conformity in point of time, volume, and character of the product, whether the product is goods or services (emphasis added) (pp. 15-16).

Here Veblen is clearly referring to relational efficiency or what may be alternatively called "interstitial efficiency" – in addition to the internal productive efficiency of each economic unit attainable from standardization and specialization through the division of labor, whose very progression necessi-

tates, hand-in-hand, a higher degree of interunit coordination. Veblen continues:

> By virtue of this concatenation of processes the modern industrial system at large bears the character of a comprehensive, balanced mechanical progress. In order to an efficient working of this industrial process at large, the various constituent sub-processes must work in due coordination throughout the whole. Any degree of maladjustment in the *interstitial coordinations* of this industrial process at large in some degree hinders its working. Similarly, any given detail process or any industrial plant will do its work to full advantage only when due adjustment is had between its work and the work done by the rest. The higher the degree of development reached by a given industrial community, the more comprehensive and urgent becomes his requirement of interstitial adjustment (emphasis added) (p. 16).

Veblen was thus a forerunner of transactions economics, though the present literature on this new, and still inchoate, branch of economics is silent on his original contribution [7].

Transactions economics is also approached by Victor Goldberg (1986) in terms of what he calls a *relational exchange* framework. He observes,

> Much economic activity takes place within long-term, complex, perhaps multiparty contractual (or contract-like) relationships; behavior is, in varying degrees, sheltered from market forces (p. 87).

The reasons why much economic activity is "sheltered from market forces" can be explained, according to Goldberg, by three facts about the real world:

> First, people are not omniscient; their information is imperfect and improvable only at a cost. Second, not all people are saints all of the time; as the relationship unfolds there will be opportunities for one party to take advantage of the other's vulnerability, to engage in strategic behavior, or to follow his own interests at the expense of the other party. The actors will, on occasion, behave opportunistically. Third, the parties cannot necessarily rely on outsiders to enforce the agreement cheaply and accurately (p. 87).

And because of these infirmities of interpersonal relations "the parties will find it efficacious to protect one party's reliance on the continuation of

[7] The authors owe to Dennis Black for bringing to their attention Veblen's writings on this topic.

the relationship", so long as "the spectre of opportunistic behavior hangs over the relationship" (p. 89). Further, "If the parties cannot draw upon *a reservoir of trust* or rely on the discipline of future dealings, they will require some mechanisms for balancing the reliance and flexibility interests" (p. 89), thus calling for some sort of governance mechanism and raising the costs of transactions. Here it is worth restressing the role of *trust* as an intangible economic resource that can substitute for a formal governance mechanism. It facilitates *continuous, long-term* transactions in which benefits and costs are usually shared only over time [8].

In short, then, modern industry is becoming ever more dependent on interstitial efficiency in managing the continuous inter-unit relationships, and "a reservoir of trust" has emerged as a critical determinant of such efficiency.

4. *High-Trust Society and Informational Efficiency*

Legal contracting and litigious proceedings (when conctracts are not fulfilled) are the major governing mechanisms that enforce transactional promises between economic agents in the Western market economies. By comparison, economic transactions and exchanges in Japan are less legally specified and governed; instead they more strongly involve personal commitments, trust, duties and obligations – in other words, treated as *social exchanges* rather than as pure economic exchanges. Hence Japanese-style transactions and exchanges tend to be "internalized' in long-term, enduring relationships between the sellers and buyers of commodities, services, and assets. The exchanges are not considered the arm's-length discrete type of deals between independent parties where *caveat emptor* is the order of the day. The Japanese are eager to build long-term relationships, especially in the intermediate product market. An atmosphere of patronage and reciprocity *a la* Polanyi rather than that of suspicion and threat pervades the ex-

[8] In this connection, GOLDBERG (1986) observes:

> "Within the contract each party makes expenditures, receives benefits, and confers benefits on the other party at various times. The timing of the streams of benefits and costs need not coincide. For example, *X* might have planted crops and contracted with *Y* for harvesting them. ... If *X* had cheap, effective legal remedies available (or if he could rely on *Y*'s need to maintain his reputation) then the noncoincidence of the streams of costs and benefits to the parties would be immaterial. But if external enforcement is imperfect, *X* is vulnerable to being held by *Y*" (p. 88).

changes in the Japanese marketplace. The end result is a much higher incidence of mutual trust that serves as a key governing device of economic exchanges.

Zeroing in on this major difference, Mark Casson (1990) observes:

> ... difference in the degree of trust between economic agents may explain some of the differences between the US and Japan that existing theories cannot explain. Other things being equal, high levels of trust promote economic performance. Japan, it is claimed, benefits from a relatively high degree of trust between economic agents. This high level of trust is engineered and sustained by economic institutions which have adapted ancient traditions for modern purposes (p. 105).

Casson then proceeds to present a model in which the degree of trust is negatively related to (a) the degree of social mobility and (b) beliefs about the right to anonymity, and positively related to (c) preference for a longer term relationship and (d) the degree of unanimity in moral commitments. In Casson's view, because of a high degree of trust in Japan, the Japanese economy can rely more on – and benefit more from – the efficiency of implicit contracts in external markets (thereby saving on transaction costs), while the U.S., with a low degree of trust and cooperation, is compelled to depend more on internal markets and suffers from the high transaction costs [9]. Thus, the resultant cost difference can be most clearly seen in the assembly-based, componentry-intensive industries such as automobiles which usually need to choose internal and external markets for procurements of parts and components. As elaborated in a theory of inefficient intra-firm transactions (Rotemberg, 1991), dependence on internal markets for parts and components also lowers quality, a critical competitive factor in modern manufacturing.

Relevant here is a recent study made by the Industrial Productivity

[9] "In a high-trust society ownership structure is to some extent a matter of indifference – though because of their high setup costs it is usually advantageous to dispense with hierarchical organizations and rely on external markets instead. External markets in the high-trust society involve repeat trading and rely on implicit contracts. In a low-trust society, by contrast, hierarchy is important in controlling cheating in intermediate product markets. An internal market is cheaper than an external market, because it is easier to monitor within a pyramid of authority than outside one. Low trust also means that hierarchical control will be strict, while outside the hierarchy, formal, legally binding contracts and aggressive competitive strategies – involving price comparisons and threats of switching – will be used. The ethic of freedom, which encourages flexibility through competition in external markets, exacts a price in a low-trust society, in terms of recourse to rigid rules and strict supervision within the hierarchy, which inhibit internal flexibility..." (CASSON, 1990, p. 123).

Commission of Massachusetts Institute of Technology (Dertouzos, Lester, and Solow, 1989) on U.S. competitiveness, which observes: "Undeveloped cooperative relationships between individuals and between organizations stand out in our industry studies as obstacles to technological innovation and the improvement of industrial peformance" (p. 94). That is to say, U.S. industry suffers from interstitial inefficiency! Indeed, as stressed by Mancur Olson (1982), a stable cooperative relationship is a key ingredient in exercising "the Logic of Collective Action" so as to maximize the output of a collective good.

The external economies of interactive membership are best illustrated – and most actively exploited – by Japan's so-called corporate groups (*keiretsu*) which are the loosely-knit cooperative affiliations of complementary enterprises representing practically every major industry; each group is often likened to a "mini-economy" because of its comprehensive inclusion of key industries and their principal firms. In addition to this horizontal type of corporate grouping is the vertical one in which the main assemblers in componentry-based industries such as automobiles maintain long-term relationships with their subcontractors. These corporate groups are considered effective mechanisms for innovations. For horizontal groupings facilitate technology fusion, the modern alchemy of technological progress that draws on diverse scientific and tecnological knowledge and skills from different sources and activities. On the other hand, vertical groupings enable both the final assemblers and their parts suppliers to collaborate for product development from the very initial stages of R&D, design-engineering, and customerization of a new product (Aoki, 1989; Nakatani, 1990).

Modern manufacturing is no doubt becoming ever more R&D-derived, innovation-based, and customer-oriented. Firms' ability to put scientific discoveries to practical use (that is, to commercialize new ideas into marketable products) and adopt state-of-the-art technology expeditiously in response to the changing needs and tastes of customers. Basic research is certainly a necessary but not sufficient condition for the long-run competitiveness and survival of individual firms. Developmental research itself needs to be closely linked with marketing research activity. In other words, flows of information about both technology (supply-side) and customers (demand-side) need be constantly enhanced and expeditiously coordinated not in a unidirectionally linear fashion (as seen in the conventional framework of the "invention-innovation-marketing" sequence) but in a multifaceted interactive feedback-oriented manner.

Especially in high-tech businesses, the innovatory role of the R&D de-

> partment is being usurped by a new kind of boffin: the customer. Japanese consumer-electronics firms are masters of the technique – get the basic product right and on to the shop shelves, let customers suggest innovations, then get the mark-two version into the market straight away. By which time the customer is already working on the mark-three model (*The Economist*, 1991, p. 63).

In this connection, Jorde and Teece (1990) emphasize U.S. industry's need for socially beneficial forms of cooperation among competitors that can facilitate the development and commercialization of new technology and propose modifications for the U.S. antitrust law. In their view, both Japan and Europe have more innovation-conducive legal environments.

Given the fact that people are the generators, carriers and disseminators of information, it is a critical matter how the business enterprise and industry are organized in order to facilitate and maximize informational flows, both upstream and downstream – as well as criss-crossing, within individual firms and between their customers and themselves. Japan's organizational modality which is focused on interpersonal links and mutual trust is peculiarly suitable for this purpose [10].

Flexibility is the core of the dawning age of so-called lean production or flexible manufacturing. It is said that the art of craft production perfected in Europe was later challenged by the technique of mass production introduced in the United States, but that mass production itself is about to be rendered obsolete by the technology of lean production currently pioneered in Japan (Womack, Jones, and Roos, 1990). What matters most for lean production is the socio-organizational capability that can ensure an endless quest for perfection in the reduction of defects, inventories, and waste, timely delivery, and the matching of product attributes with customers' preferences. In the new system of flexible manufacturing, team works or

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[10] ADAMS (1991, p. 12) observes: "Prominent among the factors accounting for superior Japanese competitive performance is an organizational approach strikingly different from its counterpart here. The basic units in Japanese laboratories, and even on production lines, are cooperative work groups. Ranging widely across related disciplines, these groups typically include craftsmen and technicians as well as senior scientists and engineers. There is a consistent emphasis on consensus-seeking on the making of decisions by those as close as possible to the point at which they must be implemented; and on the opening of channels of communication at all levels. Individual workers are given every opportunity to attain their full potential by being cross-trained in a variety of skills, rather than being forced into routine assignments in which they are essentially viewed as expendable parts of a machine... The result, clearly, is a deeply felt attitude of mutual respect and loyalty that results in consistently superior responsiveness, accountability and performance. The lesson is... that 'people make a difference'. That lesson is as disarmingly elementary as it is universal" (p. 12).

group-coordinated activities are an indispensable modality of production organization. Here the Japanese tradition of group orientation is a godsend for industry [11].

In sum, it is this serendipitous match between the organizational requirements of ever-more information-based, modern industry and the Japanese social mores of interpersonal cooperation and obligation inherited from its distinctive feudal past that enables Japan to continuously cultivate its economic dynamism and strength. The culture has its own heredities just as does any ethnic group in its genes. Those cultural genes passed down from the Old Japan that are highly compatible and complementary with the organizational needs of modern industry are active ones – and are now made even more active through its intensified use – in the New Japan. The survival of genes are not the decreasing function of the closing technological gap (materialistic modernization of the Japanese economy) as suggested by the Veblenian paradigm; on the contrary, they comprise the modern foundation of the New Japan, whose economic strength is being increasingly built on its own innovations.

5. *Conclusions*

It has been three-quarters of a century since Thorstein Veblen made an

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[11] MURAKAMI (1982), for example, points out two components of prewar Japanese values: "On one hand, the Japanese valued diligence, frugality, efficiency in work, perfection of skills, and so forth. They were oriented toward work, the future, efficiency, and achievement. In other words, these were the same as values of modern Western society. On the other hand, the Japanese, in comparison with Westerners, valued harmony within a society or group, as do people in many cultures based on Eastern religions such as Confucianism, Buddhism, or Hinduism. The first facet might be called 'instrumental', and the second 'group oriented'. In talking about the Westernization of Japanese values, many people once considered the possibility that the second facet would be taken over by individualistic values, with the first facet probably remaining unchanged. The interpretation to be offered here is nearly the opposite. Since the Japanese standard of living has approached the level of affluence, the instrumental values have been gradually weaning, with limited changes in group-oriented values" (pp. 19-20).

Murakami then continues to maintain: "Group orientation in Japan is indeed changing in style. Respect for authority is generally weakening, as is the idea of male superiority. Full-time commitment to an organization such as a firm is also gradually fading. However, these signs do not imply that the Japanese are beginning to have more belief in the self as an ultimate entity. Millennia-old cultural traditions will not die out, and probably with good reason. Judiging from opinion survey data, the average Japanese, even in the younger generations, seems to keep holding to the idea that a group or organization can be something more than a mere collection of individuals or a mere instrument of self actualization" (p. 20).

interesting observation about the industrial strength of Japan. He correctly perceived the critical role of Japan's cultural traits in assisting its technological catch-up with the West. But he erred on his assertion that the very process of modernization brought about by such catch-up would simultaneously eliminate those peculiar traits that are supposed to give Japan a unique advantage during the "historical interval" of technological gap-closing. In the usual "leader-and-follower" paradigm of economic growth it is universally recognized that the larger the technological gap, the greater the potential of a follower country to grow even more rapidly than the leader country itself, so long as the follower has an adequate *social capability* to exploit the technological gap. But one related question is whether the follower's growth weakens or strengthens with the narrowing of the gap. On this issues, Abramovitz (1986) observes:

> [There is a widespread view that] a follower's potential for rapid growth weakens as its technological level converges on the leader's. This is not necessarily the case if social capability is itself endogenous, becoming stronger – or perhaps weaker – as technological gaps close. In the one case, the evolution of social capability connected with catching up itself raises the possibility that followers may forge ahead of even progressive leaders. In the other, a leader may fall back or a follower's pursuit may be slowed (p. 388).

In analyzing the Opportunity of Japan, Veblen rather narrowly treats Japan's social capability basically as exogenous, since it is merely a residual of feudalism ("a high-wrought spirit of feudalistic fealty and the chivalric honor") that is destined to be erased by modernization. Yet the Japanese experience fits the case in which "social capability is itself endogenous, becoming stronger as technological gaps close". The transactional mode of the New Japan, firmly rooted in its social fiber, has turned out to be most suitable for the organizational needs of modern industry. Once so recognized, the Japanese mode is more and more actively and selectively exploited so that its strength becomes all the more refined and pronounced in the process of evolution.

Moreover, Japan's technological advance has not stopped at the end of the catch-up; it proceeds further into new areas. Japan now stands as the world's leader in many fields of new technology such as robotics, optoelectronics, and new ceramics. This advantage of Japan continues to be fostered by its cultural genes that are not likely to be obliterated so long as Japan exists as a distinct society with its own history, tradition, and mores, despite the fact – to paraphrase Veblen – that a new era has already arrived in

Japan, as it has unequivocally reached the materially efficient state of economic development.

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PERSISTENZA DEL « VECCHIO GIAPPONE » VEBLENIANO: EFFICIENZA ORGANIZZATIVA COME FONTE DI COMPETITIVITÀ

Questo articolo esamina la tesi di Thorstein Veblen (1915) sull'« occasione

del Giappone » alla luce della sua apparentemente continua espansione economica, nonostante il recente superamento dei divari tecnologici e la considerevole « occidentalizzazione » del suo sistema economico (cioè l'apparente scomparsa del « Vecchio Giappone »). L'autore dimostra che 1) sebbene Veblen avesse ragione nel sottolineare il ruolo importante del feudalesimo nel processo giapponese del raggiungimento dell'Occidente, gli è sfuggita la sostanziale differenza tra l'Occidente e il Giappone nelle vicissitudini post-feudali del sistema sociale e che 2) il « Vecchio Giappone » ha lasciato un indelebile segno nella struttura organizzativa dell'industria giapponese, un'eredità duratura peculiarmente e felicemente compatibile con le esigenze organizzative dell'industria moderna.

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THE FUTURE OF JAPAN'S MAIN BANK SYSTEM IN DEREGULATED FINANCIAL MARKETS

by
CHARLES G. LEATHERS * and J. PATRICK RAINES **

I. *Introduction*

Financial keiretsu – diversified groups of large industrial corporations loosely organized around "main banks" – have been credited with providing an important foundation for Japan's remarkable economic growth during much of the post-WWII period. To Japan's western competitors, however, the keiretsu stand as anti-competitive arrangements which impede improved international economic relations. During the Structural Impediments Initiative talks, for example, the U.S. contended that the main bank system imposes non-tariff trade barriers (see Ostrom, 1990 and Genay, 1991). In that light, a provocative question is whether Japan's bank-centered corporate groups will survive (and in what form) in the new competitive environment being created by the liberalization (deregulation) of Japanese financial markets.

According to Cargill and Royama (1988, p. 45), the main bank system has been weakened as the financial reform process of the past decade has led to the emergence of alternative funding sources for Japanese corporations. Opinions differ, however, on the actual extent of that weakening and whether it will continue as Japan's financial institutions adjust further to deregulated market conditions. Brunello (1988, p. 430) has suggested that new market-related instruments will slowly replace the main bank system. Ostrom (1990, p. 14), who describes the financial keiretsu as economic dinosaurs, also expects their eventual demise. In contrast, Fujigane (1991, p. 26) observes that the keiretsu remain a major force in the Japanese

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economy. Eli (1990, p. 130) concludes from prevailing conditions that the keiretsu will become larger and more powerful. In a similar vein, Rapoport (1991, p. 85) argues that Americans will have to imitate the keiretsu system to compete effectively with the Japanese.

An earlier American experience with bank-centered corporate groups may provide additional insights into the probable future of Japan's main bank system in deregulated financial markets. The keiretsu is typically described as a unique Japanese institution (see Cargill and Royama, 1988, p. 45; also Angresano 1989, p. 516). As Ostrom (1990) correctly observed, there is no direct American counterpart to Japan's keiretsu. Yet, the investment bank-centered corporate groups organized in the early 1900's by J.P. Morgan and his contemporaries shared certain characteristics with the keiretsu. The similarities are important because the keiretsu are now being exposed to essentially the same forces that contributed to the decline of the American groups in the 1920's. At the same time, several differences between the two groups suggest that the keiretsu will be more resistent to those forces.

II. *Japan's Main Bank Corporate Groups*

During the post-WWII period, six large financial keiretsu emerged in Japan: Mitsui, Mitsubishi, Sumitomo, Fuyo, Sanwa, and Dai-Ichi Kangyo. Collectively, the "big six" employ 4 percent of Japan's work force, hold 13.5 percent of Japan's total assets, and account for 14.0 percent of Japan's net earnings. Because the 188 "elite" Japanese corporations that are members of the "big six" keiretsu have numerous subsidiaries, which also have subsidiaries, the actual influence of the six keiretsu is substantially magnified (Fujigane 1991, pp. 26).

The keiretsu emerged in the 1950's as a modification of the prewar zaibatsu, a type of holding company made up of manufacturing, trading, and financial entities under the control of wealthy families. The major industrial activities of Japan were controlled by ten zaibatsu before and during the war. The official American position was that the zaibatsu were anti-competitive arrangements which perpetuated an uneven distribution of income and contributed to Japanese militarism. During the U.S. occupation, the zaibatsu were ordered to be officially disbanded and holding companies were made illegal. Rather quickly, however, the group structure re-emerged in the looser form of the keiretsu. Indeed, three of the six major keiretsu – Mitsui, Mitsubishi, and Sumitomo – are descendents of pre-war zaibatsu.

Keiretsu differ from zaibatsu in several ways. In the absence of a holding company, the member corporations are loosely affiliated. Instead of controlling ownership of corporate stock by wealthy families, cross ownership of stock among members is encouraged. Although keiretsu members are more loosely connected than in the zaibatsu, the interconnections are still highly valued and constitute an important part of the industrial and financial structure of Japan. On the average, intragroup stock holdings are sufficiently large to keep voting control securely within the group (see Goldsmith 1983, pp. 196-198).

The keiretsu are loosely coordinated through cross directorships and regular meetings of the top officials of the member firms. The center of leadership, however, rests with the main bank, which owns stock in the member corporations subject to the limit of 5 percent imposed by law. Although important in prewar Japan, banks played a subordinate role in the zaibatsu groupings. In the postwar period, the banks showed a marked gain in their relative influence with industrial firms in financing the postwar reconstruction and expansion. Bank mergers engineered by the government during the war resulted in a small number of large city-based banks. The leadership role of those banks was a natural outcome of the undeveloped status of Japan's financial system, the great erosion of financial wealth during the war, and the banks' direct access to Bank of Japan credit. The role of the city banks was further enhanced because their detailed knowledge of the firms within their group provided a substitute for a financial disclosure framework.

In the postwar Japanese financial system, indirect financing through bank intermediation dominated. As business firms depended heavily upon bank loans, the city banks consistently favored larger enterprises in their loan policies. Taking advantage of their strategic position, the city banks in the mid-1950s began to exert persistent efforts in forging close links with prominent industrial firms. The objective of establishing diversified industrial groups with the bank as a nucleus was actively pursued by employing a preferential loan policy. By the late 1950s, clearly discernible patterns of corporate groupings emerged which were based on bank ties (Yoshino, 1968, pp. 139-142).

Each of the main banks sought to strengthen the members of its own group by providing substantial amounts of the funds needed for expansion and diversification. In addition, the banks made concentrated efforts to direct member firms into new growth fields. They also encouraged their major corporate clients to cooperate within the group by diversifying into new fields and establishing close ties with one another. To achieve those

ends, the banks promoted mergers and joint actions of various kinds and encouraged cross-holdings of stocks among member firms.

On their part, the city banks purchased bonds of their major client firms and bought extensively into the equity of those firms (subject to the legal limit). In addition, the banks placed some of their executives on the boards of directors of client corporations. They also placed some of their men in key managerial positions. Usually, these men (most of whom had officially resigned their bank posts) were put in charge of the firms' financial operations and served as the liaison officials between the firms and the bank (Yoshino, 1968, pp. 142-148).

Keiretsu are often explained as a reflection of group decision-making in Japanese culture. In keeping with traditional Japanese socio-economic attitudes, the keiretsu are designed to achieve long-term and stable economic performance for their members (Cargill and Royama, 1988, p. 47). The overall level of risk is effectively reduced through mutual support of financial, service, and product interdependence. The diverse membership allows member firms to gain access to a wide variety of financial and nonfinancial services. Low-risk members can borrow from banks and simultaneously act as intermediaries to the higher-risk members by providing trade credit. The city banks in the company groups also provide a substitute for an extensive and reliable financial disclosure framework that did not exist during the high-growth period.

Aoki (1990) has explained the sometimes subtle role of the main bank in the following manner. As long as profit rates are satisfactory, the member corporations are managed autonomously. But if unsatisfactory profits begin to emerge, the main bank's monitoring role detects the problem at an early stage. Tacit and explicit pressure for an internal change of management would be initiated by the main bank in exchange for certain types of rescue measures. Such measures are facilitated by the bank's roles as the lead agent in cash management and the managing agent in loan consortiums for the corporation's long-term credit.

If the problem is not resolved at that stage, the main bank may decide to assume control of management. Such an action would be accomplished through the structure of corporate governance, i.e., stock-holders meetings, board of directors. The threat of bank takeovers becomes real only in the case of a business crisis. But the potential threat of such a takeover provides an important monitoring function (Aoki, 1990, pp. 14-17).

III. *American Bank-Centered Corporate Groups*

Cargill and Royama (1988, p. 45-49) have argued that the main bank system was a major reason for the failure of open money and capital markets to develop in Japan. Within that context, they also suggested that the absence of extensive customer relationships among financial and non-financial firms in the U.S. partially accounts for the more developed open money and capital markets in the U.S. Yet, in the early 1900's, informal corporate groupings created and controlled by large investment banks emerged which were in several ways suggestive of the keiretsu.

A contemporary analysis by Veblen (1923) of how the large investment banks gained a position of dominance over large corporations operating in the key industries revealed the keiretsu-like characteristics of those groups. Veblen traced the beginning of the "Era of the Investment Banker" in America to the financing of mergers and holding-companies by J.P. Morgan in the late 1890's, which started a wave of such corporate reorganizations. In their capacities as creditors, underwriters, sponsors, bankers, and brokers, the large investment bankers who organized the large corporate mergers became the fiscal masters of their corporate clients (Veblen, 1923, p. 340). Moreover, they also effectively took control of the strategic management of the corporations in a manner suggestive of the keiretsu arrangement, i.e., through the instruments of equity interest, control of credit, voting trusts, and interlocking directorates (Veblen, 1923, p. 354).

Veblen noted that a community interest emerged between the investment bankers and their corporate clients as the bankers received substantial blocks of securities in the new corporations as bonuses for their organizational and underwriting services. To protect the value of their own holdings, the investment bankers acted to assure favorable market prices for the shares of their client corporations. In addition, the goodwill acquired by successfully distributing shares which did well in the market, e.g., Morgan's U.S. Steel Corporation shares, was a valuable asset to the investment bankers in gaining new business. Like the Japanese main banks, the investment banks interceded in the management of their corporate clients primarily to prevent implementation of unprofitable managerial strategies (Veblen, 1923, p. 363).

While each holding company organized by the investment bankers effectively represented a horizontal combination of industrial producers, the investment banks created more diversified keiretsu-like groupings by their involvements in a number of firms in different industries. An illustration of such a keiretsu-like arrangement is provided by the "money trust" controlled

by the Morgan interests. Those interests held 118 directorships in 34 large banks and trust companies; 30 directorships in 10 large insurance companies; 105 directorships in 32 large transportation companies; 63 directorships in 24 large producing and trading companies; and 25 directorships in 12 large public utility corporations. In all, the 341 directorships gave the Morgan group links to the management of large corporations in a number the nation's key industries (Allen, 1936, pp. 177-178).

The role of commercial banks and insurance companies in the American corporate groupings was especially significant in establishing a keiretsu-like arrangement. Earlier we noted that the emergence of the main-bank system reflected the importance of indirect financing in postwar Japan. Indirect finance also played an important role in the emergence of the American corporate groups. The investment bankers' influence over the supply of capital emerged from their close relations with the institutions of indirect finance (Edwards, 1938, p. 228). Thus, inclusion of commercial banks and insurance companies was vital to the creation of the corporate groupings.

Like the keiretsu, the American groups created a certain degree of stability, a point stressed by Veblen (1923, p. 362). Until the great economic expansion of the 1920's, the large investment bankers in New York, Boston, Philadelphia, and Chicago ruled their corporate groupings, and created stability in the financial world. Competition in financial markets was constrained by the tendencies of the dominant investment bankers to respect the relationship between an investment bank and its cluster of corporate clients. The major investment bankers eschewed soliciting new accounts, preferring instead to deal with a selected group of long-standing customers. In their operations, the banking houses acquired a reputation for keeping the business upon a basis of the strictest integrity, operating with absolute straightforwardness and unimpeachable respectability. At the pinnacle of the investment bank-centered groups stood the House of Morgan, which was able through its great influence in financial markets to maintain an iron rule of stability (Edwards, 1938, pp. 228).

IV. *Decline of the American Corporate Groups*

In the 1920's, significant changes occurred in the financial markets which effectively led to a decline of the investment bank-centered corporate groups. Rapid growth in the system of direct investment led to a "complete transformation in the organization of investment banking" (Edwards, 1938,

p. 228). The great increase in the volume of direct investment by individuals in stocks and bonds was the underlying factor which weakened the older investment banks' control over the supply of capital. In place of a few large houses located mainly in New York, Boston, Chicago, and Philadelphia, there were many investment banks operating in virtually every large city throughout the nation.

Because the financing needs of American corporations in the 1920's were vastly greater than before the war, investment bankers could no longer single-handedly supply the requisite funds or assume the attendant risks. Instead, the financing had to be done by a network of syndicates acting together, many of which operated outside of Wall Street. Rather quickly, investment banking fell into the hands of a number of contesting parties, none of whom possessed Morgan's ability to maintain an iron rule of stability (Thomas, 1967, p. 143).

The new competitive conditions in investment banking brought a number of changes in the two essential operations of investment banking – the purchasing of new issues from corporations and selling those issues to investors. Important changes occurred in the relationship of investment bankers and their corporate clients. In their aggressive competition for business, investment bankers sought to lure clients away from their old long-established contacts with the older banking houses with a variety of inducements. While the disposition of a large issue of new securities required the formation of a syndicate of investment bankers, competition was often severe within the group.

The older philosophy of a continued interest in the performance of their client corporations gave way to a new sense of irresponsibility of the investment banks for their issues. The new banking houses resorted to high pressure and persuasive tactics to widely distribute their products. It became a common practice to "peg" the price of a new security at an initially high level, rather than letting the issue find its own true price as had been the practice of the older banking houses. Once the securities had been sufficiently digested, the investment banker would pull the peg. In many cases, the issue would subsquently decline to a low level. Frequently, no effort was made to see that the corporations financed continued in a sound financial condition. At times, the investment banks failed even to continue keeping on file current information about the financial positions of these corporations (Edwards, 1938, pp. 233-234).

The consequence of these changes was a rapid erosion of the environment that was conducive to the keiretsu-like corporate groups. The longer-term community interest between investment banks and their corporate

clients quickly disappeared. Competition among financial institutions provided new options for corporations seeking funds. At the same time, the lure of quick pecuniary gains from distributing securities and the threat of losing clients to competitors caused the investment banks to abandon their involvement in the management of their client firms.

V. *Implications for Japanese Keiretsu*

While competition in deregulated financial markets in the 1990's is not strictly comparable to the competition in the virtually unregulated financial markets of the 1920's, the same fundamental forces are definitely present. The numerous comparisons between the 1920's and the 1980's are highly instructive on this point (see, for example, Galbraith, 1987). Of particular interest is the expansion in direct financing which led to the special problems of financial disintermediation in the 1970's, which in turn led to deregulation measures in the 1980's. That development is reminiscent of the fundamental changes that occurred in the financial markets during the 1920's.

Any competitive forces that are currently being unleashed by the deregulation of Japanese financial markets will expose the financial keiretsu to a situation similar to that faced by the American investment bank-centered corporate groups in the 1920's. Unquestionably, such competitive forces have been manifesting in the Japanese financial markets (see Cargill and Royama, 1988, p. 117; Troughton, 1986, p. 71; Viner, 1988, p. 304; and especially Eli, 1990, pp. 51-53). Most analyses indicate that a circular process had been involved. The buildup of new competitive pressures was a major factor contributing to the Japanese government's decision to deregulate. In turn, deregulation has stimulated an increase in the competitive pressures.

In part, the new competition has come from foreign sources anxious to move into Japanese financial markets which were relatively closed to non-Japanese institutions. More importantly, Japanese financial institutions, whose behavior has been influenced by their experiences in western financial markets, have shown an eagerness to pursue new profit opportunities by aggressively moving into formerly segmented markets and by introducing new financial instruments and services. This has been particularly true for the large city banks, which strikes almost directly at the center of the financial keiretsu.

In the absence of any ameliorating sources of resistance, the cohesive-

ness of the bank-centered corporate groups in Japan could be expected to be eroded by the new competition, as was the case with the American bank-centered corporate groups in the 1920's. Yet, important differences between the keiretsu and the U.S. investment bank-centered corporate groups can be identified which will tend to reduce the impact of new competition on the keiretsu. These differences reflect different cultural attitudes which have manifested into different operational practices.

The American investment bank-centered groups faced stiff opposition from a government that was traditionally opposed to "money monopolies" as well as other types of anti-competitive arrangements (see Edwards, 1938, p. 230). Even as Japan's markets are being deregulated, governmental philosophy and administrative practices are still much less hostile toward group arrangements (see Lanciaux, 1991, p. 574). Indeed, the process of liberalization of Japanese financial markets has been described as "a brilliant job of defending and protecting the interests of Japanese financial institutions" (Zengage and Ratcliffe, 1988, p. 150). The actions implemented were carefully calculated to not only avoid disruption, but to help the Japanese institutions to mature into "strong domestic and international players" (ibid.).

Group loyalty as a Japanese tradition provides an intangible cohesive material that will make the keiretsu resistent to the pressures of competition. No similar sense of group loyalty manifested among the members of the American bank-centered corporate groups. On the contrary, the community interest involved was strictly in the nature of a pecuniary link between each member firm and the investment bank.

Operational differences will undoubtedly ameliorate the impact of competitive forces on the Japanese groups. The ultimate objective of the investment bankers who controlled the American corporate groups was to maximize profits for themselves and their banking houses (Veblen, 1923, p. 368). The stability that emerged was an unintended outcome of the investment bankers in an environment of relatively constrained competition. In contrast, the major objective of the keiretsu is not high profits for member firms but rather stable performance over the long run. Drucker (1991) notes that the first concern of keiretsu is power and influence. Since there is no intention of selling the stocks held in member corporations, the keiretsu are relatively less interested in share prices or capital gains (Drucker, 1991, p. 107).

In light of the importance of the intangibles arising from underlying cultural differences, the future of Japan's main-bank system in deregulated financial markets will ultimately turn on the extent to which competitive

pressures erode the traditional attitudes and values. Interestingly, Veblen (1915) predicted that the allegedly unique institutions of Japan, which appeared so intractable, would be rather quickly eroded under the progressive influence of borrowed western technology and competitive business institutions. The eagerness of many Japanese financial institutions to compete more aggressively in unregulated markets attests to the extent to which the modernization of Japan has proceded along lines projected by Veblen. Diggins (1978, p. 203) has noted, however, that developments in postwar Japan appear to contradict arguments that modernity and traditionalism make an "unstable compound". On the contrary, Japan has exhibited a special facility for developing ways for traditional practices to survive in a modern market economy.

VI. *Concluding Statement*

In view of the strength of traditional values and attitudes in Japan, competition in deregulated financial markets will probably have the effect of reshaping but not substantially eroding the main bank system. The aggressive competition among investment bankers in the 1920's produced conditions that subsequently led to the imposition of regulations by the American government in the 1930's. Some critics of deregulation fear that a new era of instability in financial markets is resulting from the abandonment of those regulations. As those concerns grow, it is likely that new regulations will be imposed in western financial markets. In contrast, the continued existence of the keiretsu may provide an automatic restraining effect which will prevent a build-up of pressures leading to new regulations of financial markets.

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GIAPPONE: IL FUTURO DEL SISTEMA BANCA-IMPRESE NEI MERCATI FINANZIARI

In Giappone, grazie alla forza dei suoi valori e comportamenti tradizionali, la concorrenza nei mercati finanziari deregolamentati avrà probabilmente l'effetto di ristrutturare ma non di erodere sostanzialmente il sistema banca-impresa. Negli anni Venti la concorrenza aggressiva fra le banche d'affari creò condizioni che in seguito condussero negli anni Trenta all'imposizione di norme restrittive da parte del governo americano. Alcuni critici della deregolamentazione temono che l'abbandono di quelle norme porterà a un nuovo periodo di instabilità nei mercati finanziari. Col crescere di queste preoccupazioni è probabile che vengano imposte nuove norme nei mercati finanziari occidentali. In Giappone, invece, il persistere nel tempo dei rapporti banca-impresa (keiretsu) potrà avere un effetto automaticamente restrittivo e impedire un accumularsi di pressioni che portano a nuove regole dei mercati finanziari.

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THE EUROPEAN COMMUNITY'S EXPORT OPPORTUNITIES IN JAPAN

by
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In 1992, Italy had a surplus of $258 million, while Germany had a deficit of $9,571 million. To what do these statistics refer? Few people would guess correctly that the figures are the trade balances with Japan, the world's largest surplus country.

Indeed, Italian exports to Japan have been doing well for the past few years. According to the statistics compiled by the Ministry of Finance (MOF) of Japan, in 1989 Italy had a surplus of $1,023 million and in 1990 the surplus grew to 1,600 million. While the surplus has been on the decline since 1991 ($746 million), it is still being maintained. On the other hand, Germany, a net exporter in intra-EC trade, has been consistently running deficits with Japan since 1971, with its value in 1991 amounting to $9,867 million. Another net exporter in intra-EC trade, the Netherlands, has also had a consistent deficit with Japan.

While Italians may not agree with the size of the surplus because of the difference in calculation methods, it is nonetheless evident that Italy was outperforming other EC countries in trade with Japan. In 1992, Italy is the only EC country which had a surplus against Japan, with the exception of Denmark which is a regular surplus country against Japan because of its exports of pork (which consists half of its exports to Japan), according to the MOF statistics. Among non-EC countries, Switzerland also registers a continuous surplus.

In 1992, Italy's exports to Japan decreased by 8.3%. This was mainly due to the sluggish Japanese economy. The largest export item to Japan in 1992 was clothing, which accounted for 12.2% of the total exports to Japan. In value, Italy is the second largest (the first is China) clothing

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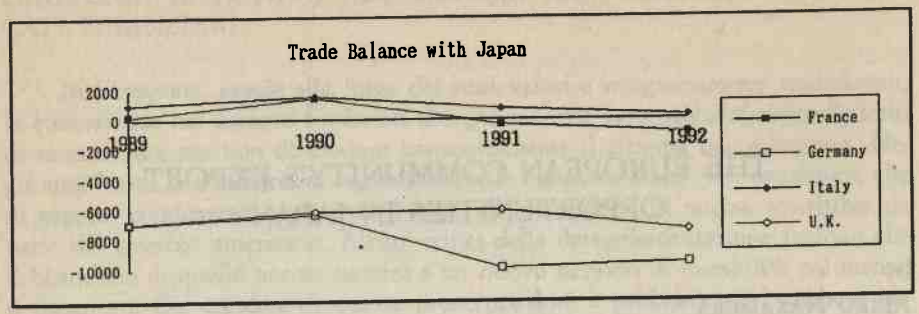
In million dollars



supplying country for both men and women in Japan. The second largest item was "traveling goods and handbags", comprising 8.6%. The third largest item was "woollen fabric", accounting for 4.2% of the total exports to Japan. Those fashion related exports, which have been the top-three Italian exports to Japan, are still strong but declined in share in 1992. Clothing was down by 12.2%, traveling goods and handbags by 1%, and woollen fabrics by 10.2%. On the other hand, the export of high-tech products, such as computers and "semiconductors and ICs" are increasing (by 112.8% and 17.3% respectively).

Exports to Japan of chemical products, such as pharmaceutical goods, have also increased, in this case by 22.4%.

French exports, like those of Italy, were also doing well but only until 1990. France had a surplus of $242 million with Japan in 1989 and the surplus surged to $1,462 in 1990. The export of works of art and antiques, making up 37.2% of the total exports to Japan in 1990, was the main reason for its surplus. During 1989-90, Japan experienced a "bubble economy", characterized by rising asset prices as well as income. However, as the economy cools down, the Japanese are now turning away from art investment and the purchase of luxury items. With the decrease in exports of works of art and antiques by 81%, France's trade balance with Japan turned into a deficit of $304 million in 1991. In 1992, the export of the works of art and antiques further decreased by 68.2% and accounted for only 3.2% of the total exports to Japan. In the same year, the trade with against Japan grew to $900 million.

France's largest exports to Japan in 1992 were brandy (comprising 12.5%), aircraft (comprising 10.7%) and travel goods and handbags (comprising 5.0%). Those top-three items had declined in share by 6.1% and 12.2% and 2.4.% respectively. Among the items whose share increased were machines for office use (by 192.1%), woollen fabrics (by 22.7%),

and shoes and sandals (by 20.6%). Unlike Italy, fashion-related items are still increasing. This is probably due to the unsaturated market penetration of French fashion related-products compared to their Italian counterparts. French woollen fabrics imported to Japan, for instance, are less than one seventh the volume of those from Italy.

The U.K. has long been a deficit country with Japan. As early as the 1950s, when Japan had chronic trade deficits with major western countries and its major export to U.K. was fish and canned oranges, the U.K. had a mixed record of surplus and deficit with Japan. The deficit became chronic in the 1960s. From the viewpoint of the U.K., which has easy access to both the European continent and the U.S., the importance of Japan as a trading partner was negligible in the 1960s.

However, in 1987, realizing that the U.K. was not exploiting export opportunities in Japan, the Department of Trade and Industry (DTI) in the U.K., initiated an "Opportunity Japan" campaign. The campaign aimed to double U.K. exports to Japan in three years. This target was not met as U.K. exports in 1990 amounted to 1.75 times the 1987 level. However, exports to Japan did increase from 1987 to 1991. During the same period, the import-export ratio also steadily decreased each year from 3.7 (1988), 3 (1989), 2.6 (1990) to 2.2 (1991). However in 1992, exports to Japan decreased and the import-export ratio increased to 2.5.

During the "bubble economy", automobiles, particularly luxury cars were selling well. The export of passenger cars increased by 54% and 76% in 1989 and 1990 respectively. However, the quantity of cars exported to Japan dropped by 27% in 1991 and by a further 23% in 1992. The major exports to Japan in 1992 were whisky (comprising 8.9% of the exports) followed by pharmaceutical products (7.6%) and gold (6.7%). Exports of computers increased in share by 84.7% resulting in their comprising 4.1% of the total exports to Japan.

Trade between Germany and Japan can be characterized as intra industry trade, exporting and importing similar goods. As an illustration of this, Germany's largest export item to Japan in 1992 was the same as that from Japan to Germany, namely passenger cars.

During the "bubble economy", German luxury cars were selling very well in Japan. In 1990, the value of Germany's automobile exports to Japan exceeded that of automobile imports from Japan by $500 million. However, in terms of the number of automobiles exported to each other's country, the Japanese total exceeded that of Germany by 300,000 in the same year. This suggests that Germany's surplus in automobile trade with Japan in 1990 came from its export of luxury cars. In 1991, as Japan tightened its

purse, Germany's automobile trade balance against Japan turned into a deficit of $1,100 million. Germany's decreased exporting capacity due to the burden of unification also contributed to the increase in the overall trade deficit with Japan.

Germany's trade deficit against Japan increased by more than $3,000 million in 1991 from the previous year. In 1992, the trade imbalance with Japan widened moderately to $9571 million. While other EC countries', namely Italy, France and U.K.'s, exports to Japan decreased, Germany's exports to Japan in 1992 were not affected. This was probably due to the fact that German exports to Japan consists of fewer luxury goods, compared to those countries'.

In 1992, passenger cars accounted for 32.9% of the total German exports to Japan (the share of Japanese automobiles imported by Germany was 24.4% of the total Japanese exports to Germany). Germany is by far the largest automobile exporter to Japan as 70.9% of the imported cars in Japan are German made, followed by 15.6% for U.S. made cars. Its second largest export item to Japan was pharmaceutical products (8.1% of the total German exports to Japan). In pharmaceutical products also, Germany leads the U.S. in terms of share in the Japanese market, this item consisting of 23.6% of the total imported pharmaceutical products in Japan. The third largest German export item to Japan was organic compounds (4.9% of the total German exports to Japan).

In aggregate, the EC's trade deficit with Japan in 1992 was $31 billion, an increase of $4 billion from the previous year. Exports to Japan in 1992 decreased by 1.6% while imports increased by 5.6%. The Community was affected by the Japanese consumer's decreased demand due to the recession. Passenger car exports, the largest EC export item to Japan (comprising 12.9% of the total exports to Japan), were down 6.3% from the previous year. This decrease, however, was less severe compared to the 19% decrease for 1991, when Japanese consumers began to turn away from luxury cars. Pharmaceutical products were the second largest EC export to Japan, comprising 6.4% of total exports, up 26.4%. Organic compounds were third with a 5.4% share, up 2.2% from the previous year. Works of art and antiques, which had a share of 9.5% in 1990, dropped by 77.8% in 1991. Their share decreased further by 59.6% in the following year, consisting of only 1% of the total export to Japan from the EC.

The EC's imports from Japan increased by 5.5% in 1992. Passanger cars had the largest share in total imports from Japan, comprising 17% of the total, up by 13.4% from 1991. Computers were the second largest item, with a 8.4% share, an increase of 19.8% from the previous year.

Third was scientific and optical instruments, including cameras, lenses and copying machines. TV cameras, which were the third largest import commodity from Japan in 1991, were down to a 3.6% share (in 1991, 4.4%), as a result of the beginning of local production.

Imports from Japan are likely to increase in the future due to various liberalization measures taking place both in EC countries and Japan. Part of the reason for the surplus or relatively small deficit of Italy and France are their trade restrictions against Japanese products. Five EC countries (France, Greece, Italy, Spain and Portugal) adopt quantitative import restrictions against some Japanese products, including automobiles and consumer electronics (as of January 1993).

The Japanese government is asking those countries to remove these restrictions and it is expected that they will be removed or at least reduced. When the restrictions are reduced, imports of these goods are expected to rise.

Facing the prospect of increased imports from Japan and decreased exports of luxury goods to Japan, can the EC improve its trade balance with Japan? There are some products with which the EC can expect to further exploit export opportunities in Japan. The first is in pharmaceutical products. The export of chemical goods to Japan from EC countries in 1992 steadily increased from the previous year in the face of an overall downturn of exports to Japan. For instance, they were 1.7% up in France, 7.9% up in Germany, 24.4% up in Italy and 38.9% up in the U.K. This was partly due to the ongoing deregulation of the chemical and drug industry in Japan. Pressed by the U.S. government, the Japanese government has relaxed the standards and regulatory frameworks for the pharmaceutical industry. Another reason for the opportunity in the Japanese pharmaceutical market for EC companies is technical. The Japanese drug industry has previously concentrated on developing antibiotics, which are currently criticized for being overprescribed. The Japanese drug industry is now shifting towards developing non-antibiotic drugs, although at this moment about a third of the drugs sold in Japan are foreign made.

Another area in which the EC is likely to continue to perform well in Japan is with items targeted for young people. Such items are non-luxury goods but with high quality and medium-high price. Young people in their 20s or in early 30s in Japan tend to have more disposable income than the older generation. Those items that the young generation is eager to purchase are athletic goods, clothing, shoes, travelling goods, etc.

In 1992, while overall exports from the EC to Japan decreased by 1.6%, exports of athletic goods from EC countries increased by 14.4%.

Consequently, about 90% of the skiing equipment imported to Japan is European made. The EC's exports of sweaters to Japan were up by 7.1% and that of shoes increased by 6.7. German exports of travelling goods and handbags increased by 28.3%. Japan also imports clothes, shoes and handbags from Asian countries such as China, Taiwan, and Korea. However, compared to products from those Asian countries, European products have non-price competitiveness in Japan for their quality and design.

As a result of the end of the "bubble economy", the Japanese stopped purchasing antiques, works of arts and other luxury items from Europe, which were aimed at wealthy people, and instead began to import goods appreciated by a wider range of people. In this respect, despite the increase in the trade deficit with Japan, EC-Japan trade can be considered to have become healthier.

However, the Japanese are highly penalized by the policy of their importers, who (with the consent of the Japanese government, which as usual serves the interests of the large national industrial and financial groups) do not allow ordinary citizens to benefit from the higher purchasing power of the Yen vis-a-vis the European currencies, especially the Italian Lira, which, from an exchange rate of 8.78 Lira to 1 Yen in July 1992, decreased to 14.92 Lira to 1 Yen as of October 1993.

As an example of this situation, a Christian Dior lipstick which is sold at 17$ at a department store in New York is sold for ¥4,000 (about 36$ at ¥110/1$ exchange rate) at department stores in Tokyo. The price of ¥4,000 was recently revised from ¥5,000 due to the appreciation of the yen. Moreover, in Tokyo, many of the European Brand lipsticks, for example Yves Saint Laurent, Chanel, as well as Dior, are sold at the same price, which is not the case in the U.S. This enormous price differential is caused mainly by regulation. The current Ministry of Health and Welfare regulations make it practically impossible to prevent the monopoly power of the suppliers of European brands as their products are, in general, imported through only one agent for each brand. The protest against the regulation is growing. The president of a discount shop for electric appliances even went deliberately against the regulation to sell European brand lipsticks at a discount without an authorized label. His intention was to provoke public attention to revise the law.

A self-claimed pro-deregulation government, the Hosokawa Cabinet of Japan is currently preparing a five year deregulation plan. The plan, according to its interim report, will attempt to deregulate around 500 items including the above mentioned imported cosmetics. Changes are taking place although it may take some time for Japanese consumers to fully benefit from the gains in trade.

LE OPPORTUNITÀ DI ESPORTAZIONE DELLA CEE IN GIAPPONE

Le bilance commerciali dei paesi CEE rispetto al Giappone sono molto diverse da quelle dei paesi CEE fra di loro. Per esempio, l'Italia ha un avanzo commerciale verso il Giappone, mentre la Germania è fra i paesi CEE quello col maggiore disavanzo. Nel complesso la performance commerciale dei paesi CEE verso il Giappone ha continuato a migliorare sino al 1991, ma questa tendenza si è invertita nel 1992 a causa della recessione giapponese. La modesta performance commerciale della CEE verso il Giappone implica opportunità non sfruttate poiché le merci europee sono molto competitive in questo paese non in termini di prezzo ma grazie alla qualità e al design. Si prevede che la deregulation avviata in Giappone aumenti le opportunità degli scambi commerciali con la CEE.

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JAPANESE DIRECT INVESTMENT IN THE UNITED STATES

by
PATRICK O'SULLIVAN * and YASAR GEYIKDAGI *

Introduction

Foreign direct investment in the United States on a historical cost basis increased from $ 373.8 billion in 1989 to $ 403.8 billion in 1990. Between 1986 and 1989, it rose at an annual rate of more than 15 percent per year while the outward flow from the United States averaged about half that rate. The United States foreign direct investment abroad rose from $ 370.1 billion in 1989 to $ 421.4 billion in 1990, on a historical cost basis. The surge in the expansion of direct investment into the United States from $ 83.0 billion in 1980 to $ 403.8 billion in 1990, a five-fold cumulative addition, caused considerable public debate on the impact of this inflow on the American economy.

Even though European enterprises accounted for almost 65 percent of the $ 403.8 billion stock of foreign direct investment in the United States in 1990, with the United Kingdom holding 27 percent, it was Japanese enterprises, with 21 percent, which mainly evoked the most strident criticism from American politicians, labor leaders and businesses.

The purpose of this paper is to examine the characteristics and determinants of Japanese direct investment in the United States during the 1976-1990 period with greater emphasis on the 1980's which had a significantly higher rate of growth in Japanese direct investment. The manner in which the direct investment was executed, the favored industrial sectors, and the locational and motivational determinants will be investigated. An econometric model will try to determine the statistical strength of the more prominently hypothesized factors leading to Japanese direct investment.

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Direct Investors in the United States

Foreign direct investment inflows to the United State since 1978 have grown rapidly and made up more than half of the world total (OECD, 1989). The United States has accumulated almost forty percent of the more than one trillion dollar stock of international direct investment. No longer just a source country for international direct investment, as was true in the 1950's and in the 1960's, the United States became in the 1980's the favorite host country for European and Japanese direct investors. Non United States multinational enterprises have demonstrated that they can compete effectively against American firms in world markets. This same success has been exhibited in United States markets as the global preeminence of the United States in technology, productivity and financial services has diminished.

In 1990, European investors increased their direct investment position in the United States to $ 256.5 billion from $ 181.0 in 1987 by accounting for 61 percent of the yearly inflows. The United Kingdom, the largest direct investor in the United States, with a cumulative position of $ 108.1 billion in 1990 holds 48 percent of the European total. Although Japan has just 21 percent of the total stock of direct investment in the United States compared with 64 percent for Europe, the relatively large inflows of capital for acquisitions and new establishments from Japan in 1986-1990, led to the growth of the stock of Japanese direct investment from $ 26.8 billion in 1986 to $ 83.5 billion in 1990 and to Japan displacing the Netherlands as the second largest direct investor in the United States.

If one focuses on acquisitions (Rosengren, 1988), the United Kingdom, Canada, Germany and France are not only prominent buyers of American companies, they are also leading sellers of companies to United States multinationals. Whereas, in 1988-1990, Japan was a major buyer of United States enterprises, and even though a significant liberalization of laws affecting foreign ownership of Japanese businesses has occurred since 1980, foreign acquisitions of majority interests in Japanese firms were infrequent (OECD, 1989).

An analysis of the data of yearly inflows of direct investment to the United States since 1985 reveals that almost 50 percent of the inflows goes into manufacturing. Europe's cumulative investment of $ 125.6 billion represented 78 percent of the $ 160.0 billion total stock of foreign direct investment in American manufacturing in 1990 while Japanese investors held less than 10 percent. The United Kingdom, the largest foreign investor in United States manufacturing had a 33 percent share of the total with

$ 53.0 billion compared with Japan's $ 15.2 billion. In 1987, the Japanese ownership of foreign direct investment in United States manufacturing was $ 5.0 billion, but by 1990 it had grown to $ 15.2 billion, an increase for this period of 300 percent. In the petroleum sector, the United Kingdom and the Netherlands with total investment shares of 40 percent and 28 percent, respectively, of the $ 38.0 billion cumulative investment in 1990, accounted for most of the European investment. Japanese investment in the petroleum industry was negligible.

In 1986-1989, the real estate sector in the United States attracted strikingly large inflows of capital from Japan. The cumulative inflow of $ 15.9 billion from Japan was 140 percent of the European total of $ 11.3 billion as of 1990 and 46 percent of the total $ 34.6 billion overseas ownership of United States real property. In 1988-1990, Japanese real estate investment in the United States represented 86 percent or more of all acquisitions. The appearance of Japanese businessmen, buying office buildings and hotels in New York, Boston and Los Angeles at perceived discounted prices with the accumulated dollar surpluses obtained from alleged unfair trading practices, engendered a wave of recriminations and galvanized political support to stem this alleged inimical practice. Similar sentiments had been ignited in the United States in the 1970's when many Americans believed that Arab nations laden with excess petro-dollars would buy large amounts of American real estate. Still, recent estimates indicate that foreign ownership of United States real estate is less than 2 percent of the total value.

Robert Eisner and Paul J. Pieper (1991) noted that, "Contrary to popular perception there is no net investment in the United States by foreigners when they buy stocks or bonds or hotels or the Rockefeller Center". These are only reallocations of their portfolios and simply transfer their assets from cash. The net investment would take place only with exports, imports or international transfers.

On the other hand, William A. Niskanen (1991), who defines foreign investment in the United States since 1982 as net import of capital, still does not see that as a problem per se but only the result of the low rate of private saving and the large government deficit in the United States. Also, Edward John Ray (1991) writes that the foreign direct investment activity in the United States is concentrated in regions with serious structural unemployment problems which would be exacerbated with the curbing of such investment. Finally, Michael Ulan (1991) shows that the economic and national security arguments purporting to restrict foreign investment in the United States are flaxed. On the contrary, foreign investment, which bene-

fits the economy by raising the nation's productive capacity, should be encouraged.

In 1985 the Japanese stock of investment in banking was $ 2.1 billion and $ 51 million in non-banking finance compared with European investments with respective amounts of $ 5.7 billion and $ 2.5 billion. By 1990, the Japanese investment in banking had grown to $ 6.0 billion or 31.5 percent of the $ 19.1 billion total and in non-banking finance (investment banking) the total was $ 10.4 billion or 79.5 percent of the total. In recent years, Japanese banking and investment banking institutions have become the largest in the world and have an especially noticeable presence in the United States. According to an article in the *Federal Reserve Bulletin* (Terrell, et. al., 1990), 50 percent of the activities of foreign banks in the United States is attributable to Japanese banks.

Japanese investment also expanded very rapidly in wholesale trade from $ 11.8 billion in 1985 to $ 27.6 billion in 1990 for an increase of over 130 percent. European participation in wholesale trade increased from a stock of $ 13.8 billion in 1985 to $ 19.8 billion in 1989, a change of 43 percent. The trading companies of Japan have expanded enormously in the United States in the 1980's and have surpassed European influence in this industry.

While the relative shares of yearly foreign direct investment inflows to the United States shift among the major industrial sectors such as petroleum, manufacturing, banking, finance, wholesale trade and real estate, the shares of Japanese investors in the stock of foreign direct investment has grown rapidly since 1980, and especially in 1988 and 1990. These shifts may be explained by analyzing the changing goals of foreign investors, the different investment opportunities present in the United States and the varying economic and political climate in the United States and abroad.

For example, in 1987, European firms, desirous of acquiring more advanced technology and a foundation in the specialty chemical business, readily purchased the divested units of American chemical companies which were restructuring their organizations due to the slowing domestic economy by selling off excess capacity and unrelated business units to reduce costs.

Fears of protectionist legislation in the United States, a significantly cheaper dollar relative to the yen after 1985, rising unit labor costs at home, an opportunity to buy the divested subsidiaries of recently merged and acquired American companies, the size of the United States market and access to new technology might have led Japanese enterprises to acquire numerous new businesses and expand existing operations.

Mode of Foreign Direct Investments

The strategies employed by foreign investors to carry out direct investment in the United States in the 1980's included mergers, acquisitions, joint ventures, and new establishments (greenfield ventures). Before 1988, Japanese investors were less willing than their European counterparts to use mergers and acquisitions to gain access to new markets or to enlarge conspicuously their existing share of United States markets. Japanese businesses, possibly being sensitive to the American political climate because of Japan's large bilateral trade surplus with the United States, chose to establish new plants (Honda, Nissan, Toyota) and expand existing ones.

Of the total number of purchases of American businesses for which purchase price disclosure exists, European investors in 1989 acquired 79 United States enterprises out of a total of 173 while Japanese investors bought 38 or 22 percent of the total. Over the period 1985-1989, acquisitions of American businesses both in number and in dollar value by the United Kingdom has easily surpassed any other foreign investor. Total foreign acquisitions of American companies rose from 6 percent of all acquisitions in 1984 to about 10 percent in 1988 (GAO, 1988). In 1987, out of a total 3,524 acquisitions, 91 percent were purchased by United States firms with the remaining 9 percent or 326 being acquired by foreign buyers. Of the 326 foreign acquisitions only four were hostile takeovers and one of these was by a Japanese firm. There were 17 hostile takeovers for the period 1984 through the first half of 1988 with British firms accounting for 8, Canadian firms 3, French firms 2, and one each by Dutch, Japanese, Swiss and Swedish firms. The one case of the Japanese hostile takeover of a United States firm in 1987 was in the chemical industry.

Foreign direct investment in the United States is most often transacted through foreign-owned American affiliates. In 1990, as in the three previous years, over 80 percent of foreign direct investment was accomplished through the United States affiliate of the foreign enterprise. Because foreign direct investment presumes a long-term commitment and high visibility with large attendant costs and risks, knowledge of and familiarity with the general economic environment and markets in the host country is indispensable. The information obtained from operating in the economic, political, cultural and legal environment of the United States gives the United States affiliate of the foreign multinational enterprise a substantial advantage.

Operations of Japanese Firms in the United States

Japanese firms have been accused by politicians, business people and

labor unions leaders because of, allegedly, fostering manufacturing enclaves which buy inputs primarily from Japanese suppliers, use mostly Japanese managers to run operations, circumvent the unionization of workers, create fewer jobs than comparable American and European firms, perform little R & D work in the United States and exploit the most advanced American technological innovations and transfer them to Japan.

A study by Graham and Krugman (1989) compared all foreign affiliates with Japanese affiliates in the United States and ascertained that Japanese firms are usually no different in their compensation of employees, R & D per worker, and in value-added per employee. The most noticeable difference was that the Japanese firms had an import propensity about two and a half times greater than other foreign-owned enterprises. Some of this difference is explained by the reluctance of American suppliers to adapt to Japanese supply schedules, quality control standards and distinctly different management practices. Consequently, Japanese businesses, most conspicuously in auto manufacturing, have imported a high proportion of inputs as well as succeeded in convincing numerous Japanese suppliers of auto components to establish operations in the United States. Yet, as Japanese auto companies have become more firmly established in the United States their domestic input content has increased and these transplanted Japanese auto manufacturers have become exporters.

The higher import propensity of Japanese businesses is more easily understood when we note that over one third of the stock of Japanese direct investment in the United States in 1980 was in wholesale trade compared to just 7.5 percent for Europe. Japanese trading companies import a very large percentage of the finished goods they sell in American markets. Comparatively, almost 60 percent of Europe's direct investment is in petroleum and manufacturing. Also, a large proportion of this European investment has been in the United States far longer than comparable Japanese investment.

Still, Japanese direct investment in the United States can be expected to be intensely scrutinized in the future because of the many distinct cultural and economic differences between the two countries. Japan has a smaller percentage of its sales, employment and assets under foreign domination than France, the United Kingdom, Germany and the United States (OECD, 1989). Even though Japan has opened its border to direct investment inflows from Europe and the United States, Japanese investment in Europe and the United States is more than four times larger than foreign investment in Japan. Employment, business, and cultural practices in Japan continue to hold formidable barriers to foreign direct investors from Europe and America. Yet, the United States as a foreign direct investor controls about 50

percent of the stock of foreign direct investment in Japan and about 25 percent in Europe.

Specification of the Model

Isolating the principal determinants of foreign direct investment inflows has very often proven to be elusive. For over three decades economists from diverse backgrounds have striven, using a variety of differing techniques from econometric and statistical methods to simple surveys, to ascertain the factors which could explain and predict foreign direct investment flows.

During the 1960's and 1970's, much effort was expended (Hymer, 1960; Aharoni, 1966; Kindleberger, 1970; Scaperlanda and Mauer, 1969; Dunning, 1970 and 1971; Rugman, 1979; Lunn, 1980) in the attempt to discover the explanatory variables determining the outflows of direct investment from source countries, the United States, and the factors that influence the direct investment inflows to host countries, Europe and the developing countries. While the number of variables and hypotheses proliferated, the results generated were often inconsistent.

A widely accepted reason, for direct investment in the United States by multinational firms, is the ability to exploit the stability and enormous size of its market. Since the size of the gross domestic product is strongly related to the total purchasing power in a country, the former could be used as a proxy for market size.

The inclusion of an exchange rate variable is open to debate. Some economists argue that since the exchange rates are short term and cyclical phenomena, their negative and positive effects would be canceled out in the long term. Thus, exchange rates should not be crucially important for investors. Still, other economists cling to the opposite view that exchange rates play a primary role in the foreign investor's decision framework (Aliber 1970; Corden 1974), since he would invest where he could raise capital at cheaper costs than elsewhere.

In order to circumvent tariffs and other trade barriers imposed by nation states, firms may feel obliged to invest directly in these countries rather than to export. The United States, being a case in point, greatly increased the tangible or psychological barriers, especially against Japanese imports during the 1980's. This, in turn, might have led Japanese firms to manufacture in the United States rather than export directly from Japan.

Previous studies by Glickman and Woodward (1989) and Graham and

Krugman (1989) indicate significant causal relationship between the timing of Japanese direct investments and the rise of protectionism in the United States. In the absence of a direct measurement of protectionism, it would be appropriate to examine developments such as the growth of Japanese exports to the United States, changes in the United States trade balance with Japan, changes in Japan's trade surplus with the world and changes in the United States trade balance with the world, as variables which could possibly act as triggers for protectionism. When Japan's trade surpluses increase for a few consecutive years or its exports to the United States show a growing trend, protectionist sentiments in the United States may arise, possibly causing a reduction in Japanese exports and an increase in Japanese direct investments there. Therefore, there could be a negative correlation between Japanese investments in the United States and its trade balance with the United States or, still, its exports to the United States. Similarly, a continuous negative trade balance of the United States with the rest of the world may give rise to general protectionist sentiments. Therefore, when the United States trade deficit grows, the efforts to curb it, by decreasing exports, may increase foreign direct investment inflows to the country. However, it is difficult to establish the time lag between these developments. Their impact may be seen for just a few months or may go on for a few years while gradually losing its momentum. Labor costs, which are carefully considered by foreign investors, are another factor. In some cases, tax rates, investment incentives offered by states and a host of legal and cultural considerations could exert some influence on the direct investment decisions. In the United States, incentive packages usually influence the choice of location inside the country only after the foreign direct investment decision has already been made. Hence, they could not have a serious impact on the total amount of foreign investment.

The proposed model attempts to recognize the following factors: (*i*) The growth of the gross domestic product in the United States which is usually taken as a proxy for market size; (*ii*) A country's proclivity towards protectionism which can be an important trigger for investment; (*iii*) The relative wage rate in the United States with respect to Japan; (*iv*) Exchange rates as well as balance of payment factors which may be crucially important in investment decisions; (*v*) A dummy variable to measure the impact of political decisions, such as the implementation of the Reagan Administration's Voluntary Export Restraints.

The model is specified as:

$JDI = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 E_t + \alpha_3 P_{it-1} + \alpha_4 W_{t-1} + D_t + u_t$

t = 1, ... 15 (from 1976 to 1990)

i = 1, ... 4 (4 types of proxies for measuring the impact of protectionism)

Y_{t-1} = One-year lagged *GDP* of the USA

E_t = Exchange rate at period t. (The relative value of the U.S. dollar against major currencies)

P_{1t-1} = Japan's exports to the U.S. as a percentage of Japan's total exports in the previous year

P_{2t-1} = U.S. trade balance with Japan in current dollars in the previous year

P_{3t-1} = Japan's surplus with the world in current dollars in the previous year

P_{4t-1} = U.S. trade balance with the world in current dollars lagged for a year

W_{t-1} = One-year lagged relative wage rate

D_t = A dummy variable to measure the impact of the Reagan Administration's Voluntary Export Restraints policy ($D_t = 1$ when $t = 6 \ldots 15$, $D_t = 0$ otherwise)

U_t = random disturbance term, and

$\alpha_0 \ldots \alpha_4$ = parameters to be estimated.

The necessary statistical data, covering the period 1976-1990, were obtained from various issues of *The Direction of Trade Statistics* and *International Financial Statistics*, both prepared by the International Monetary Fund, as well as from the *United States Economic Report of the President* and the *Survey of Current Business*.

Empirical Results

First, the original model, which was specified above with four types of protectionism variables, has been estimated by using the ordinary least squares technique. Since both the relative wages and the dummy variable were found to be statistically insignificant, they were dropped from the four equations. The relative wage variable also displayed multicollinearity with the nominal *GDP* in two of the equations.

The elimination of these two variables from the model have had a minimal impact on the results as the indicators of the goodness of fit, the R^2s of the reestimated models, remained high as shown in Table 1.

TABLE 1

TEST RESULTS

	Constant	Market Size	Exchange Rate	Protectionism	R^2	F	$D\text{-}W$
Model 1	2.81	3.96	− 0.23	0.26	0.91	34.8	1.55
	(0.576)	(3.302)	(− 3.294)	(1.041)			
Model 2	8.71	2.66	− 0.20	0.14	0.92	41.0	1.70
	(1.678)	(1.810)	(− 3.720)	(1.743)			
Model 3	4.72	3.29	− 0.16	0.07	0.92	40.5	1.84
	(1.059)	(2.812)	(− 2.853)	(1.692)			
Model 4	8.62	3.45	− 0.21	0.04	0.91	38.1	1.46
	(1.546)	(2.809)	(− 3.688)	(1.459)			

NOTES: 1) In Model 1, the protectionism variable is Japan's exports to the U.S. as a percentage of Japan's total exports.
2) In Model 2, the protectionism variable is the U.S. trade balance with Japan in current dollars.
3) In Model 3, the protectionism variable is Japan's trade surplus with the world in current dollars.
4) In Model 4, the protectionism variable is the U.S. trade balance with the world in current dollars.

After these changes, the basic model has become:

$$JIND_t = \alpha_0 + \alpha_1 Y_{t-1} + \alpha_2 E_{t-1} + \alpha_3 P_{it-1} + u_t$$

The test results of the respecified model are shown in Table 1. A separate equation has been estimated for each type of protectionism variable. The high values of the F ratios (in fact much higher than typical table values) demonstrate the significance of the relationships between the dependent and explanatory variables. Since the calculated values of the Durbin-Watson statistic are greater than the upper limit of the tabular value (1.46) at 1 percent levels of significance, there is no evidence of autocorrelation.

The signs of the explanatory variables are consistent with the *a priori* expectations that the dependent variable is positively correlated with the market size variable (nominal *GDP*) and negatively correlated with the relative exchange rate variable. Thus, a relatively cheaper dollar attracts the Japanese investors to the United States.

All explanatory variables are statistically significant at 1 percent levels, with the exception of the market size variable in Model 2 which is significant at a 10 percent level. None of the protectionism variables seems to be

meaningful. The parameters of the Models 2, 3 and 4 are statistically significant only at 20 percent levels. One possible explanation may be that the influence of protectionist sentiments and its repercussions may last for more than a year and at a changing level instead of the constant level one year lags as specified in the model. Still, due to the possible existence of factors, albeit of lesser importance, not accounted for in this model, the conclusions drawn from this analysis must be tempered.

Conclusions

An examination of Japanese direct investments in the United States, during the 1970's and the 1980's, show that they grew faster than those coming from Europe. However, when one looks at the cumulative total of investments, Japan is still behind the United Kingdom. Moreover, the Japanese are still far from exerting a significant influence in the United States economy.

The results of a multiple regression analysis indicate that the size of the American market, as measured by the gross domestic product, positively influences Japanese investments in the United States. Also, there is a negative relationship between the relative value of the dollar and these investments, supporting the assumption that a fall in the value of the American dollar should make investments in the United States less costly and, hence, more attractive.

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INVESTIMENTI DIRETTI GIAPPONESI NEGLI STATI UNITI

Questo articolo esamina gli investimenti diretti giapponesi negli Stati Uniti durante gli anni settanta e ottanta. Benché gli investimenti diretti giapponesi in America abbiano avuto un tasso di crescita piú rapida di quelli dei maggiori paesi europei, non hanno ancora raggiunto il livello piú elevato in termini di quantità totale. Diversamente da quanto si crede, i giapponesi sono ben lungi dall'influenzare l'economia americana in modo significativo.

Una analisi di regressione multipla individua nella dimensione del mercato americano e nella caduta del valore del dollaro statunitense relativamente alle altre valute i fattori piú importanti che spingono i giapponesi a investire negli Stati Uniti.

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SOME ASPECTS OF JAPAN'S CONTRIBUTION TO TAIWAN'S ECONOMIC DEVELOPMENT: PRE- AND POST-WWII

by
JOSEPH A. MARTELLARO *

1. *Introduction*

By 1942, Japan's military forces occupied most of Eastasia, including those city-states and nations which we have dubbed the Four Tigers, or Four Dragons. Taiwan, or Formosa as it was called by the Portuguese, cannot be counted among Japan's World War II conquests, for Taiwan had been under Japanese colonial domination for half a century, 1895-1945. As a means of ending the Sino-Japanese War of 1894-95 (a conflict which proved to be a humiliating defeat for China), the two belligerants signed the Treaty of Shimonoseki on 8 May 1895. Among the conditions of the treaty, China was required to cede Taiwan and the Penghu Islands to Japan and Korea was given its independence [1]. Later, Korea was forcibly annexed by Japan and renamed Chosun.

Not until the early 1940s were steps taken by the Allied Nations to sever Taiwan's colonial status with Japan. The Cairo Declaration of 3 December, 1943, which was signed by Generalissimo Chiang Kai-shek, President Franklin D. Roosevelt, and Prime Minister Winston Churchill, called for the return of Taiwan and the Penghu Islands to China at war's end. The declaration was affirmed at the Potsdam Conference in July 1945, and it became a part of the unconditional surrender agreement which Japan signed with the USA on 15 August, 1945. However, *de facto*, Taiwan was not

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[1] In addition, Japan won war reparations of 310 million yen (some USA $225 million, expressed in 1895 dollars), Korea was given its independence, and a portion of Liaodong Peninsula was ceded to Japan. However, the latter was returned to China, after strong protests by Russia. As stated in the text, Korea did not enjoy independence for long, having been annexed by Japan 15 years later.

reunited with Mainland China, for when defeated on the mainland of China, Chiang Kai-shek and his Nationalist forces retreated to Taiwan in December 1949 declaring themselves to be the "true and legal government of *all* China", naming Taipei as a provisional capital.

Not only Japan's wartime forced occupation of many of Eastasian areas but also the brutality often imposed on the local citizenry by the occupying forces resulted in an anti-Japanese attitude by other Asians during the postwar period, particularly during the 1950s and 1960s. Although the anti-Japanese attitude still exists in varying degrees among the peoples of several Asian nations, the ill-feelings displayed against the Japanese by other Asian peoples have softened considerably over recent years.

The easing of anti-Japanese feelings is attributable to a number of reasons, among them the following: Firstly, the leaders of Japan and those of several of the formerly occupied nations have made sincere efforts to improve political relations. Secondly, the younger generations of the Asian nations have been an influential factor in the betterment of relations; many of the harsh memories of the past have faded in the minds of people. Thirdly, Japan is the "success-nation" of the East; it serves as a model of political leadership, economic development and growth, and social advancement – especially among the newly emerging industrial economies, such as South Korea and Taiwan. Fourthly, Japan has aggressively pursued an agenda of developing close commercial, industrial, and trade partnerships with several of the Asian nations which were formerly occupied. Taiwan is no exception.

During the decade following World War II, Taiwan, in no small way, relied upon the United States for its national survival. Militarily threatened by Mainland China, the United States shielded Taiwan against consistent mainland threats to launch a military offensive across the Taiwan Straits. Furthermore, the United States provided Taiwan with generous financial and economic assistance [2]. Over the past decade Taiwan's economic ties with Japan have strengthened significantly. On the basis of total trade turnover, the United States continues to be Taiwan's leading trading

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[2] During the period of 1951 to 1954, project, non-project, and other forms of financial aid from the USA to Taiwan amounted to $375.2 million. An additional $230 million was provided by the USA during the years of 1955 and 1956. Some $360 million in commodities (consisting of raw materials, capital goods, and consumer goods) were delivered from the USA during the five-year period of 1961 to 1965. For all practical purposes, American financial assistance came to an end after 1965, when it became sufficiently clear that Taiwan had become economically viable. See MARTELLARO (1987, p. 29). (In 1950, the per capita income, PCI, of Taiwan was a meager USA $50.00; by 1992 it had risen to $8,815 – a clear indication of Taiwan's rapid economic progress in but four decades).

partner. But since the mid-1970s, trade between Taiwan and Japan has taken on added importance; this article focuses on that relationship. However, it is probably desirable to first briefly focus on Japan's legacy to Taiwan which, in a large measure, has been an important factor in Taiwan's postwar development.

II. *Some Conflicting Theories on Colonialism*

Clearly, it is shallow to view the period of colonialism as having been totally evil. It is an equally shallow view to ignore the misdeeds committed by the colonial powers and point only to the positive contributions made by the colonial powers during the days of occupation. Too many of the maleficent consequences inherited by former colonial states who, by and large, make up many of today's less developed economies, LDCs, continue to make themselves felt. Given the diversity of thought among economists relative to the beneficial and harmful effects of colonialism, it is not surprising that numerous theories addressing the topic have emerged over the years.

Among the various well-known theories are the structuralist theory proper, dominance-dependence theory, and, of course, that of "monopoly capitalism" portrayed by Karl Marx, later elaborated upon by Vladimir Lenin [3]. Although there is some overlap between the theories of structuralism and dominance-dependence, it is sometimes helpful to view them as individual theories. But as dismal as some aspects of colonialism appear, there is another side of the issue, i.e., the contention that although the colonies suffered harm as a consequence of their being economically and politically dominated, they derived benefits as well. Certainly, it can be persuasively argued that Italy put far more into its former colonies (Italian Somalia, Ethiopia, and Libya) then she gained. In his "Western Guilt and Third World Poverty", among the various arguments he presents, P.T.

[3] The structural theorists of development, such as Raul Prebisch, hold that the composition, or "structure", of employment, output, and trade are the essential elements for the understanding the process of development. As examples, where the neoclassicalist portrays an economic system of general harmony and flexibility, the structuralists view the system in LDCs as inflexible, non-responsive, and rigid. Also, they accuse the elites of LDCs of having become addicted to Western culture. Furthermore, they stress the lack of a stimulus-response mechanism (markets) in Third World nations. Among the dominance-dependence theorists is Osvaldo Sunkel, who contends that the higher incomes enjoyed in the industrialized nations over those of LDCs are not only attributable to the former's early lead in scientific and technical fields, but also to the neo-colonial policies of "imperialistic powers".

Bauer suggests that the present-day "underdevelopness" of the LDCs is not necessarily attributable to their colonial past. Instead, Bauer argues, "many of the African and Asian colonies of the European powers progressed very rapidly during colonial rule, usually much more so than the independent countries in the same area" [4]. He further points up that the foundations and ingredients of modern social and economic life to be found in Black Africa today were introduced by Westerners. Moreover, Bauer suggests that LDCs find it beneficial – especially those which were former colonial states – to create and perpetuate a guilt complex among Western powers in order to more easily acquire loans, grants, and other benefits from the Western nations and international organizations.

III. *Japan's Legacy to Taiwan*

In whatever theoretical direction the reader may lean, there is little question that Japan did leave Taiwan a legacy, a legacy which was to later serve as an adequate foundation upon which Taiwan could economically build upon in the post-WWII years [5]. This is not to say that the patterns of colonial investment and resource flows in Taiwan under Japanese rule differed significantly from those which are also visible among LDCs which were at one time or another colonies of the Western powers. Mother Nature was niggardly in its endowment of natural resources in the case of Taiwan; so not unlike some other resource-poor colonies, Taiwan supplied Japan with agricultural products, mainly rice and sugar. In return, Japan provided Taiwan with finished goods.

Nevertheless, among the positive contributions made by the Japanese during its days of colonial domination of Taiwan, are the following [6]: Firstly, because the Japanese colonial effort in Taiwan concentrated on agriculture, much attention was given to the expansion and maintenance of Taiwan's irrigation system. Between 1910 and 1942, the area of land under irrigation rose from 227,000 hectares to 519,000 hectares. During the same period, land under cultivation rose by 60 percent, to 837,000 hectares. Moreover, from Japan came not only abundant supplies of fertilizer but also new farming techniques were introduced. Interestingly enough reference is often made to the "green revolution" of the post-WWII days, but as one

[4] Bauer (1976, p. 34).

[5] For a good presentation of the colonial period of Taiwan, see Ho (1978).

[6] In this and the subsequent two paragraphs, the author has generously drawn from Fei et al. (1979, pp. 21-26).

might correctly surmise, the Japanse successfully instituted a green revolution of their own in Taiwan long before the term became popular in the 1950s.

Secondly, Japan injected substantial amounts of human, institutional, and physical capital into Taiwan. Whereas between 1910 and 1945, the population of Taiwan increased by 58 percent, the net domestic product rose by 178 percent. Agricultural production rose some 135 percent, while industrial output rose by 267 percent. The industries established in Taiwan were primarily oriented toward utilizing output of the agricultural sector and supplying inputs to the agricultural sector. By 1940, the greater proportion of Taiwan's colonial industry of 9,000 factories employing some 130,000 workers was directly linked to agriculture.

Thirdly, the colonial rulers promoted public health in Taiwan, health improvements which were direly needed, and as a consequence, the mortality rate was reduced by 50 percent. Fourthly and of great importance, the Japanese legacy included up-to-date infrastructure of education, finance, and trasnsportation which not only expedited domestic commercialization but also accelerated export growth. Whereas the literacy rate was 1.0 percent in 1905, it rose to 27 percent in 1940. Today, the literacy rate measures an impressive 93.6 percent. In addition, what is today Taiwan's leading university, National Taiwan University, finds its roots in the days of Japanese colonialism.

As a means of facilitating the transportation of rural production, existing roads into the countryside were improved and new ones constructed. Also, a basic but efficient railroad system was constructed, and key ports, e.g., Kaohsiung and Keelung, were improved. Clearly, although during the 50-year period of colonialism Taiwan's economy continued to be primarily agriculturally oriented, as stated earlier, the Japanese left behind an economic base upon which the people of Taiwan and its leaders could build during the post-WWII years.

Although Taiwan's First Four-Year Plan (1953-56) assumed a gradualist approach to development and growth by placing emphasis on the recovery and growth of agriculture (the feeding of the island's 7.5 million people was viewed as a matter of high priority), ambitious plans for expanding the infrastructure, industrial development, and export trade were not totally ignored. Having studied and learned well the Japanese model of development and growth, subsequent economic plans placed emphasis on primary, or first-stage, import-substitution. A major goal of first-stage import-substitution was to create a class of entrepreneurs who would channel investment toward producing domestically produced consumer goods to re-

place previously imported industrial consumer goods. Having proved quite successful, this subphase of an overall economic development plan was de-emphasized by the late 1950s.

Continuing to emulate Japan's pattern of development, the period of 1961-72 witnessed a new direction of resource flow, the introduction of export-substitution [7]. As an economic policy this too proved to be successful, for Taiwan's exports rose from USA $195.16 million in 1961, to almost USA $3.0 billion in 1972 and to USA $12.69 billion in 1978 [8]. Moreover and interestingly enough, whereas in 1952 some 92 percent of exports were accountable to processed and non-processed agricultural products and the remainder to industrial goods, by 1981, some 80 percent of exports were attributable to industrial products. Today, almost 96 percent of exports are ascribable to industrial products and the remainder is accountable to agricultural products. In addition, slightly over 40 percent of Taiwan's Gross National Product is generated through exports.

It would be remiss not to mention the careful planning, that preceded and accompanied the implementation of the export-substitution phase of Taiwan's development. Again taking a lesson from the Japanese, Taiwan's economic planners based their product decisions on careful surveys of Western European and North American markets to carefully assess which modestly priced products of reasonable quality offered real potential for mass demand over sustained periods of time in those targeted markets. Almost needless to say, they learned their lesson well, and they did their work well.

Several other factors played an important role in directly and indirectly making Taiwan's program of export-substitution successful, among them: an emphasis on maximizing the distribution of income at home, promoting a high rate of savings, implementing a highly successful program of land reform, importing needed technology, and establishing modest interest rates for investment. Moreover, without doubt, the Chinese work ethic made a positive contribution as well.

IV. *Japanese Investment in Taiwan, 1980-91*

Not unlike other developing nations on the Pacific Rim, the government of Taiwan encourages foreign investment in those areas which

[7] In a sense, Taiwan's economic planners defied conventional wisdom which considered a long-term commitment on import-substitution by developing economies as highly important. In Taiwan's case, emphasis on import-substitution lasted less than a decade.

[8] Council for Economic Planning and Development (1992, p. 196).

Taipei views as strategic and/or vital to the economic development of the island. The nature of the investment and the investor(s) must be approved by Taiwan's Ministry of Economic Affairs. To attract foreign investors, Taipei has formulated a set of incentives, among them the following [9]:

1. Foreign investors are guaranteed status equal to that of national entrepreneurs.

2. Foreign firms are permitted to establish fully owned subsidiaries or joint-ventures.

3. They are extended the same tax incentives as are granted to national firms.

4. Excluding certain government-owned and operated projects, e.g., government monopolies, public utilities, and strategic industries, no limitations on foreign equity exist.

5. Investors from abroad are expected to export a share of their output, the proportion depends upon the kind of productive activity in which they are engaged.

6. Foreign investors are not only exempted from paying import duties but they are also provided with subsidies to offset the interest paid on loans. Moreover, foreign investors enjoy a tax-holiday (up to five years), and in some cases, they are also granted government land *gratis*.

7. Accelerated depreciation is allowed on equipment used by investors who are engaged in research development.

By most standards, these and other incentives offered to potential foreign investors are considered sufficiently generous.

From Table 1, which shows the sources of private foreign investment in Taiwan during the period of 1980 to 1991, several interesting observations may be made. As is evident in the table, during the first half of the decade of the 1980s, the United States, for the most part, was the principal investor in Taiwan, followed by Japan, and then the European nations, almost in entirety by members of the European Community. However, the period of 1986 to 1991 inclusively was mainly one of Japanese dominance of investment, supplanting the United States as the leading investor. Of additional interest is the growing attraction of investment opportunities in Taiwan to European investors during the period of 1985 to 1991. In 1991, the European Community (EC) nations almost trebled their investments over that of 1985. Of considerable interest is that the EC investment in 1989 increased some sevenfold over that of 1985. Although not shown in the table, not to be overlooked is the investment made by those often called

[9] Economic Intelligence Unit (1992, p. 45).

TABLE 1

PRIVATE FOREIGN INVESTMENT IN TAIWAN, 1980-91
(expressed in millions of USA dollars)

Year	USA		Japan		Europe		Others		Grand Total	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1980	110.1	45.23	86.1	35.37	14.4	5.92	32.8	13.48	243.4	100.0
1981	203.2	57.03	64.6	18.13	13.2	3.70	75.3	21.14	356.3	100.0
1982	79.6	24.84	152.2	47.50	46.6	14.55	42.0	13.11	320.4	100.0
1983	93.3	24.85	196.8	52.41	20.8	5.54	64.6	17.20	375.5	100.0
1984	231.2	44.63	114.0	21.82	92.2	17.80	81.6	15.75	518.0	100.0
1985	332.8	50.35	145.2	21.97	100.0	15.13	83.0	12.55	661.0	100.0
1986	138.4	19.62	253.6	35.94	139.6	19.79	173.9	24.65	705.5	100.0
1987	414.1	33.86	399.2	32.64	234.3	19.16	175.4	14.34	1223.0	100.0
1988	134.7	12.70	431.9	40.70	206.2	19.43	288.3	27.17	1061.1	100.0
1989	343.0	15.31	640.6	28.58	531.4	23.71	726.1	32.40	2241.1	100.0
1990	540.4	25.96	826.8	39.72	348.4	16.73	366.1	17.59	2081.7	100.0
1991	587.6	37.69	526.2	33.76	221.7	14.22	223.4	14.33	1558.9	100.0
Total 1980-91	3,208.4		3,836.2		1,968.8		2,332.5		11,345.9	
Total 1980-91	(28.28)		(33.81)		(17.35)		(20.56)		100.0	

SOURCE: Compiled by this author with data drawn from the COUNCIL FOR ECONOMIC PLANNING AND DEVELOPMENT (1992, p. 246).

"overseas Chinese". It is estimated that the overseas Chinese account for about 15 percent of investment flowing into Taiwan from foreign shores. In 1991, USA $219.5 billion of investment was attributable to the overseas Chinese, who generally engage in tertiary activities. American, European, and Japanese investors usually concentrate on secondary activities.

One should also note from Table 1 the standing of Japan, the USA, and the Western European nations regarding the aggregate investment made in Taiwan, in absolute and relative terms, during the period of 1980 to 1991 inclusively. Given Japan's 1986-91 investment surge, by the end of 1991, Japan surpassed the USA in total investments made during the twelve-year period by almost USA $630 million, accounting for almost 34 percent of all investment.

Among the industries attracting foreign investors, including Japan, are automotive, chemicals, construction, electronics, and pharmaceutical. Examples of Japanese firms which have made substantial investments in Taiwan are Nissan, Subaru, Ici, Hitachi, Toshiba, and Sony.

No question, during the period of colonial occupation and during the post-1950 period, Japan made some rather, significant contributions to Taiwan's economic growth and development. However, there are critics in-and outside of Taiwan who are convinced that, over recent years, Japan has set out to deliberately forestall Taiwan – and South Korea for that matter – in their respective bids to become serious competitors of Japan in international markets. The following are typical criticisms leveled toward Japan [10].

1. That Japan refuses to open its domestic markets to Korean and Taiwanese products.

2. That Taiwan has been made not only highly dependent on Japan for technology but also that Japan is very selective as to what kind of technology it will share. Moreover, critics contend that in those instances when Japan does share technology, the technology shared is rarely the state of the arts. Chu Tseng-hsiung Vice-General Manager of Taiwan's Sampo Corporation (one of the nation's leading producers of major appliances) has criticized the Japanese for not sharing technology for the manufacture of television sets and video cassette recorders. Chu has stated: "There's no way for our people to understand the special technology of the integrated circuits and semi-conductors", implying that Japan ought to facilitate the absorption of technology in Taiwan.

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[10] In this and the subsequent paragraph, this author has generously drawn from HOLDEN et al. (1992, p. 92D).

3. That by the hard work of their people and by careful economic planning, both South Korea and Taiwan have looked to becoming serious exporters of high quality products, e.g., automobiles, computers, and TVs. Yet, critics argue that Japan has strategically blunted those efforts by not only holding back needed modern technology – as stated above – but also by establishing low-labor-cost plants in Indonesia, Malaysia, and Thailand, thus undercutting Taiwan and South Korea [11].

4. That Taiwan's dependence on Japanese goods and technology is reflected by the enormity of its trade deficit with Japan; in 1991 alone, Taiwan's exports to Japan equalled USA $9.19 billion while imports were USA $18.86 billion. (See Table 2) [12].

Clearly, the aforegoing criticisms are not all-inclusive.

Some steps are being taken by Taipei to free itself from the tight Japanese economic grip. Once again, Taipei, has begun to turn to the West for technological assistance, even though Taiwan's economic planners recognize that the long period of dependence on Japanese technology will now make it difficult for Taiwan to ally itself with new partners of technology. Moreover, as another means of loosening Japan's technological grip, Taiwan's latest Five-Year Plan, prepared by the Ministry of Economic Affairs, aims at making Taiwan self-sufficient in the production of some 65 key components and products presently imported from Japan – in short, a partial albeit minuscule resumption of a policy of import-substitution.

V. *Japanese-Taiwanese Trade, 1980-91*

When viewed over some four decades, i.e., since 1950, the USA ranks as Taiwan's leading trading partner, followed by Japan. However, there is a principal difference; whereas since 1980 the USA has suffered significant trade imbalances with Taiwan, Japan has enjoyed considerable, favorable trade balances in its dealings with Taiwan. Not since 1967 has the USA enjoyed a favorable trade balance with Taiwan, and not since 1955 has Taiwan had a favorable trade balance with Japan. Table 2 provides the trade figures of Taiwan vis-à-vis its two major trading partners.

Aggregate exports by Taiwan were 66.3, 67.2, and 76.2 billions of USA dollars in1989, 1990, and 1991 respectively. Imports were 52.3, 54.7,

[11] Over recent years, wages have increased substantially in both South Korea and Taiwan; therefore, in a measure, they have lost the low labor advantage they once enjoyed.

[12] Council for Economic Planning and Development (1992, p. 196).

TABLE 2

TAIWAN'S TRADE WITH THE USA AND JAPAN, 1980-91
(expressed in billions of dollars)

Year	USA			JAPAN		
	Imports	Exports	Total Turnover	Imports	Exports	Total Turnover
1980	4.67	6.76	11.43	5.35	2.17	7.52
1981	4.77	8.16	12.93	5.93	2.48	8.41
1982	4.56	8.76	13.32	4.78	2.38	7.16
1983	4.65	11.33	15.98	5.59	2.48	8.07
1984	5.04	14.87	19.91	6.44	3.19	9.63
1985	4.75	14.77	19.52	5.55	3.46	9.01
1986	5.43	19.01	24.44	8.25	4.56	12.81
1987	7.65	23.68	31.33	11.84	6.99	16.69
1988	13.01	23.47	36.48	14.83	8.77	23.60
1989	12.00	24.04	36.04	16.03	9.06	25.09
1990	12.61	21.75	34.36	16.00	8.34	24.34
1991	14.11	22.32	36.43	18.86	9.19	28.05
Total:	93.25	198.92	292.17	119.45	63.07	180.38

SOURCE: Compiled by this author with data drawn from the COUNCIL FOR ECONOMIC PLANNING AND DEVELOPMENT (1992, p. 196).

and 62.9 billions of USA dollars respectively for the same years [13]. Clearly for each year, Taiwan enjoyed substantial trade balances. The semi-tabular presentation below indicates the proportion of Taiwan's exports and imports to and from Japan and the USA.

Year	Japan		USA	
	Exports	Imports	Exports	Imports
1989	13.67%	30.67%	36.25%	23.00%
1990	12.41%	29.24%	32.35%	23.05%
1991	12.06%	30.00%	29.30%	22.45%

[13] Much of the raw data in this and the subsequent paragraph are drawn from *Ibid.* (p. 196).

Given the aforegoing percentages, it is clear that Taiwan's export-import trade with Japan in recent years has remained fairly stable. Whereas in 1989 exports to Japan accounted for 13.67 percent of Taiwan's total exports, there was a slight but progressive decrease the next two years; down to 12.41 percent in 1990, and down to 12.06 percent in 1991. Exports to the USA, in relative terms, decreased rather substantially during the three year period, from 36.25 percent in 1989 to 29.30 percent in 1991. This decrease is also apparent in absolute terms. (See Table 2).

On the other hand, as a percentage of total imports, Taiwan's imports from Japan remained fairly stable during the period of 1989 to 1991, although in absolute terms, imports from Japan increased. (Again, see Table 2). Imports from the USA also remained fairly constant, relatively speaking, varying by only 0.6 percent. However, in absolute values, the USA exports to Taiwan rose during the three-year period, from USA $12.00 billion in 1989 to USA $14.11 billion in 1991. In addition, it is important to note from the semi-tabular presentation that during each year over 40 percent of Taiwan's exports were shipped to the USA and Japan combined.

VI. *Conclusion*

No question, Taiwan has been one of the most successful of the newly emerging industrial nations. The extent to which it owes its success to Japan is debatable. Those who view the era of colonialism in its most harshest terms might persuasively argue that, but for its half a century of its colonialism, Taiwan could well be even more economically developed than it is today. Yet, when one surveys Taiwan's per capita income (USA $8,085), life expectancy (over 70 for males and females), daily caloric intake (3,020), literacy rate (92 percent), unemployment rate (2.5 percent), and a Physical Quality of Life Index (90), the data suggest that Taiwan perhaps ought no longer be counted among the LDCs.

The structural theorists would have to argue long and laboriously to point to Taiwan as being a victim of structuralism. Along with a substantial measure of government intervention, Taiwan is characterized by many vigorous small businesses as well as large firms actively operating in free markets, nationally and internationally. Nor can we say that multinational corporations – though granted that they exist in Taiwan – are embodied by "monopoly capitalism". And certainly, the elites of Taiwan are not overly addicted to Western culture. On the contrary, it is many of the younger generation from all economic and social strata who have embraced many Western ways.

Certainly, much credit for Taiwan's economic progress goes to the USA during the post-WWII years. Protected by the shield of the American military strength, Taiwan was able to economically and politically develop without falling under the control of Mainland China. Not to be overlooked is not only the generous financial and technical assistance provided by the United States but also the free access to American markets given to Taiwanese firms.

Japanese (and American for that matter) investment in Taiwan has certainly contributed to Taiwan's emergence as a developing industrial nation. Nevertheless, as pointed up earlier in this article, there are those in- and outside of Taiwan who are critical of Japan's present-day treatment of its former colony, particularly relative to competitive price-cutting in foreign markets and Japan's refusal to share modern technology; a strong case along these lines can be made. But in reality, one may well rebut by pointing out that much of the problem of sharing state of the arts technology may also be attributable to Taiwan's limited absorptive capacity. In addition, Japan's protection of its competitive edge is a natural, national posture assumed by many industrialized nations of the world, given today's keenly competitive international markets.

The dominance-dependence theorists might very well argue that the Japanese-Taiwanese economic relationship as it exists today glowingly typifies a case of post-colonial dominance and dependence. But in the final analysis, in viewing Taiwan's colonial and post-colonial relationship with Japan, one might conclude that Taiwan's benefits may have outweighed the costs incurred. Indeed, the historical evidence available suggests that Taiwan may have found it far more difficult to achieve it present state of development without the Japanese legacy which served as an economic foundation in the post-WWII period. However, this author hastens to add that whatever contributions were made by Japan to improve Taiwan's economy – particularly during fifty years of colonialism – it was first and foremost done to promote Japan's economic and political interests. In short, one may well conclude that any benefits bestowed upon Taiwan then and in the present have been a spinoff from Japan's goals.

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ALCUNI ASPETTI DEL CONTRIBUTO DEL GIAPPONE ALLO SVILUPPO ECONOMICO DI TAIWAN: PRIMA E DOPO LA SECONDA GUERRA MONDIALE

Da un lato, il considerare il periodo del colonialismo come un periodo completamente negativo e attribuire tutti i mali economici e politici dei paesi meno sviluppati alla loro precedente condizione di colonie può essere una miope e superficiale accusa verso alcune potenze ex-coloniali. D'altro lato, è probabilmente altrettanto miope pensare che la colonizzazione delle regioni « incivili e arretrate » del mondo abbia recato grandi vantaggi ai paesi ex-coloniali.

Poiché le relazioni tra i paesi coloniali e le loro colonie non possono essere generalizzate, ogni caso richiede uno studio particolare per determinare i relativi costi e benefici. Certamente, le risorse umane e materiali di alcune ex-colonie furono incoscientmente sfruttate da varie potenze coloniali; altre ex-colonie ebbero vantaggi e soffrirono perdite; altre durante il periodo coloniale godettero di un discreto benessere. Inoltre, dopo l'indipendenza, alcune ex-colonie ricevettero assistenza economica dalle nazioni industrializzate che le avevano dominate in passato.

La relazione economica tra il Giappone e Taiwan può essere classificata come uno di quei casi dove per Taiwan era presente una relazione costi-benefici (prima e dopo l'indipendenza). Questo articolo esamina alcuni aspetti di questa relazione prima e dopo la seconda guerra mondiale.

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THE BURSTING OF TWO ASIAN BUBBLES: SOME LESSONS FROM JAPAN AND TAIWAN

by
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The envy showered on the tremendous export-led economic growth of Japan and Taiwan in the 1980's was well founded. Japan's real GNP grew at a 40% from 1984 to 1991, and Taiwan's real GDP had also grown more than 60% during the same period. The two important economic phenomena which distinguish these two economies from other economies in the world are the sustained trade (current accounts) surpluses and the consequent "Bubbles" created within these two economies.

These two bubbles, as bubbles generally do, have burst in the last two years. There are valuable lessons other countries can learn from their experiences. In particular, those rapidly expanding Asian economies can avoid creating economic bubbles and their many undesirable effects.

1. *Different Natures of the Two Bubbles*

Japanese growth in the 1980's provided amazing evidence for how an economic rationalization (adjustment to changes) and a powerful monetary expansion through low interest rates and credit expansion can overcome a severely adverse economic situation. The G-5 Plaza Accord of September 1985 more or less forced Japan to appreciate the yen/dollar ratio from its mid 200 level to lower 100's: an appreciation of 70% to 100%.

In the first half of the 1980's, due to the U.S. federal budget deficit (the Reagan deficit), a sustained high interest rate level in the United States, and the consequent capital inflow, the U.S. dollar has been forced up to the point where, in 1985, Japan, with its undervalued yen (about 250 yen to

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one dollar), was able to enjoy trade and current account surpluses of 56 billion and 49 billion dollars, respectively. This was accomplished mostly at the expense of U.S. trade deficit against Japan.

Japan had to agree to an up-valuation of the yen even though there was a strong domestic industrial and business outcry against it.

The industrial rationalization in restructuring and cost-cutting has been phenomenal, but the main driving forces which provided the impetus for industrial rationalization were the monetary and financial policies executed by the Bank of Japan and other bank and nonbank financial institutions. The discount rate of the Bank of Japan was adjusted downward in five steps from 5% to 2.5%, starting in January 1986 and ending in February 1987. This extremely low rate has been maintained for more than 28 months until the end of the second quarter of 1989. During the same period, the quasi-money supply (equivalent to M_2) increased over 70%. More importantly, claims on the private sector (mostly in the form of loans) by bank and nonbank institutions increased by almost 100%.

Thus, the original intention of the monetary authority was to provide easier credit for industrial rationalization (restructuring), but it helped creating an excessive credit expansion as an end result. Japanese exports were able to overcome the adverse effect of the yen appreciation, but the excessive credit expansion pumped up the speculative boom in Tokyo stock market and land speculations in major metropolises such as Tokyo and Osaka. The Japanese "Bubble" was pumped up by bank and nonbank loans, with the ever skyrocketing land and real estate values and stock shares as collateral. The spillover effect of this credit expansion craze was reflected in, for example, million dollar country club memberships and hundreds of multi-million dollar paintings purchased abroad.

The Nikkei Index for stocks shot up from around 16,500 to 38,915 between October 1986 and the end of 1989, despite the fact that the "Black Monday" had reduced the value of shares by 25% earlier in October 1987.

Taiwan's economy had grown at an annual rate of over 8.5% during 1982-90. The last year in which Taiwan's trade was balanced was 1980, and since then the trade surplus has been accumulating at an alarming rate. The accumulated trade surplus was 18 billion dollars during 1981-84, and it surged to 82.5 billion dollars during 1985-90, for a total of over 100 billion dollars during the ten year period. The estimated 1991 trade surplus is over 10 billion dollars. Since the Central Bank of China (Taiwan) excercises a policy of foreign exchange control, any accumulation of international reserves without effective sterilization measures would mean an expansion of reserve money. The reserve money of the central bank almost tripled, and

the money supply increased by 160% during the 1985-91 period. These mounting international reserves, basically at the expense of the United States trade deficits, prompted the U.S. government to apply heavy pressure on the Taiwan government to appreciate the Taiwan dollar. Moreover, large sums of "hot money", upon detecting no downside valuation risk situation in Taiwan, had subsequently poured into the island country. The combined U.S. pressure and the market pressure pushed the Taiwan dollar value up from 39.85 to one U.S. dollar to approximately 25 to one U.S. dollar despite repeated foreign exchange market interventions by the Central Bank. The excessive liquidity on this small island economy has exerted a tremendous pressure on the small stock market where only about 220 corporate shares are listed. The Taipei Stock Index (1966 = 100) was only 745 in 1985, but it climbed up to 11,983 by February 2, 1990. The total value of stock market transactions in 1989 was over one trillion U.S. dollars. The bubble in Taiwan was blown up many times that of Japan. Land speculations were even more drastic and the rent on Taipei's office space became one of the highest in Asia. A class of rich land speculators was born.

2. *Creation of the Bubbles and Their Collapse*

The Bank of Japan, in fear of inflation and also of excessive real-estate-based loans extended by bank and nonbank institutions, decided to take tightening actions beginning on May 31, 1989. The discount rate was raised from 2.5% to 3.25% and, in a short one year period, up to 6%. This drastic braking action tightened the money supply and cooled the boom psychology. The stock market soon peaked and slid down all the way to around 17,000 (Nikkei Index). The bubble was burst. The spiral downward movement in the stock market triggered a negative chain reaction. High interest cost and tightening of credit meant that many developers had to liquidate heavily leveraged real estate holdings, and the market value of stocks plummeted furthermore. The estimated loss of total market value of listed stocks from the peak to the bottom was approximately 54%. A major Japanese financial journal reported that the price of some commercial building space in central Tokyo area dropped to 40% of their peak level, and some high class residential apartment space was sold at merely one half of its peak price. Even the regular two bedroom apartment in Tokyo was discounted over 30%. In April, the Finance Ministry announced that nonperforming loans at Japan's top 21 banks had doubled to approximately $59

billion. Some estimates predict that 60% of land developers may go bankrupt within a year.

In Taiwan, the Central Bank started to raise the reserve requirement on December 11, 1988 and again on April 1, 1989 in conjunction with the higher discount rate, up 1% to 5.5%. The discount rate was raised again to 7.75% on August 23 to combat frenzied actions in the stock market, which had created a nationwide speculative atmosphere. In a country of 20 million people, there were at one time over 3 million individual accounts. In short order the overblown bubble exploded, and in six months the Taipei Stock Index dropped from around 12,000 to less than 3,000. The market lost nearly 70% of its peak value.

Even though these burst bubbles have not destroyed the production sectors of the economy, the recession has finally arrived in Japan. Nevertheless, Japan still had approximately 110 billion dollars trade surplus in 1991, mostly due to reductions in import demand induced by recession. The Japanese government is under heavy pressure to boost domestic demand, not merely by lowering interest rates but also by heavy investment spending to pump-prime the economy.

Taiwan's international reserve accumulation has never stopped. It is estimated that by the end of 1992, the official reserve holding will reach 95 billion dollars. The Central Bank continues to face upward pressure on the Taiwan dollar, which makes Taiwan products lose their competitiveness in the world market. Taiwan's official reserve is the highest in the world, and it makes independent monetary policy impossible to execute. In mid May 1992, the Central Bank finally abandoned the defense line of 25 Taiwan dollars to one U.S. dollar, and the Taiwan dollar is facing another round of up-valuation. When will it end?

3. *The Effects of the Burst Bubbles*

In a relative sense, the size of the Taiwan bubble was blown much bigger than the Japanese bubble, even though in absolute size the Japanese bubble was larger. The two bubbles were created by different causes. The Japanese low interest rates and expansionary credit not only made industrial restructuring possible, they also made the Japanese products more competitive in the world under the G-5 imposed yen appreciation. In essence, it is the excessive liquidity which created a land boom and a stock market bubble.

In Taiwan, it is the Central Bank's continuous accumulation of interna-

tional reserves which caused the island nation to be glutted with excess liquidity. This also blew a phenomenal bubble in the small stock market and prompted a land boom.

The major social consequences of the bubbles in Japan as well as in Taiwan are drastic distortions in wealth (asset) distributions, especially in real estates. This can be observed by the fact that large numbers of billionaires in Japan listed in the *Fortune* magazine mostly are also land owners or developers. However, wealth distribution distortions have been much more severe in Taiwan. With GNP less than one eleventh that of Japan, the total net wealth of five top billionaires in Taiwan exceeded the total net wealth of all the eleven billionaires in Japan when Taiwan's bubble was at its peak.

In the following, some social costs and some possible benefits will be briefly analyzed.

A. It is not difficult to envisage many benefits of the short-lived bubble economies. For instance, the trade surplus and the appreciated domestic currencies made possible the acquisition of foreign real assets, the importation of higher quality products including many rare master paintings of the western world, and overseas travel of many people (over 10 million Japanese and two million Taiwanese go abroad annually). Moreover, the booming financial market made equity financing easier with lower cost stimulating investment activities. For the public sector, there was an unusual increase in tax revenues and, because of high land prices in the metropolitan areas, there was some degree of dispersion of industries to different regions. It also contributed to increased Japanese international participation in providing capital grants and aid overseas. Without question, we can find some more minor beneficial effects of the "bubble" booms. However, the negative effects by far outweigh the beneficial effects.

B. As mentioned above, the worsening asset distribution (the gap between the haves and the have-nots) created a deep sense of unfairness and injustice among citizens even though most people enjoyed the benefit of rapidly expanding GNPs. Income distribution also showed a rapid deterioration. Taiwan used to be proud of its continual improvment in income equality in the midst of successful economic growth. The income ratio of the highest fifth income group to that of the lowest fifth's continuously declined from 5.28 in 1968 to 4.17 in 1980. But since then, the economic growth in the 1980's completely reversed the trend toward income equality

and by the end of 1991 income distribution is estimated to be back to the status of the late 1960's.

The gigantic land price bubble in metropolitan areas and other regions had made the acquisition of land for public use so difficult that many of the infrastructure investment projects had to be postponed because of lack of funds. This speculative investment in land and other real estate also created reductions in land supply because of price expectation.

Many young salaried people felt the despair that they might never be able to afford a home in their lifetimes.

One puzzling question is that, with all the increase in money supply and the subsequent financial and land bubbles, why did the consumer prices (CPI) and the wholesale prices (WPI) stay rather dormant? The answer lies in these open economies whose import dependencies are so high. The extraordinary appreciation of their currencies meant that imported materials became rather inexpensive in terms of domestic currencies. In the case of Taiwan, the WPI as of August 1992 was 88.7 (with 1985 = 100) while the CPI was 120.0. Since there was almost 60% appreciation of New Taiwan dollar over the same period, there has been significant, even though not excessive, inflation. This is so especially if one takes into account that CPI contains much more domestic components and services than WPI which has seen substantial price rises.

Stock fever hit the whole society. People from all walks of life were involved in stock speculation because of the seemingly "ever" increasing stock prices. Financial institutions became careless in their lending practices, and borrowers were also willing to go deeper and deeper in debt for they were sustained by the boom psychology and the available low interest loans.

Lastly, the Japanese real estate purchases with fanfare and the "nouveau riche" ways in which the Japanese spent their money had fostered the image that Japanese are nothing but economic animals. The consequent Japan bashing may not be a logical response, but it is an understandable reality which has strained the U.S.-Japan relations.

As one of the biggest creditors in the world, Japan has been asked to bear greater and greater burdens in the international politics of aid and grants. Meanwhile, Taiwan has been listed as one of the most severe violator of copyrights and is subject to potential trade retaliations. Why does little Taiwan need nearly $100 billion in foreign exchange? It only created one of the worst bubbles in history.

4. *Conclusion*

As of August 18, 1992, the Nikkei Index dropped to 14,309.41, its lowest point in six years. The value of the shares lost 63 percent since the peak, or approximately $3 trillion. Many investors' net worth declined so much that the negative wealth effect affected the consumption spending as well as investment.

The Japanese economic growth rate in 1992 is estimated to be below 2.0 percent. Even though the Bank of Japan took measures to lower the discount rate, the Japanese government still maintained a rather tight fiscal policy stance. Finally at the end of August, Japanese government had to announce the nation's largest economic rescue packages in its history to stimulate the growth. This 10.7 trillion yen (or $89 billion) pump-priming was basically focused on roads, sewer systems, schools and other public works. It also contains some measures to boost the real estate market, banking sectors, and small business loans. Japanese government claimed that these measures would increase the growth rate by 2.3 percent. However, the real effect of the pump-priming may take much longer than one year to be realized.

The two collapsed bubbles in Asia were created in different ways, but both had similar societal impact. In developed countries such as the United States, France, England, and Gernmany, stock market prices have shown a dramatic increase since the mid 1980's, even though there was the infamous "Black Monday" dip in October 1987. Bubbles are still growing due to a variety of different causes. The New York Stock Market boom may be considered a Republican Bubble, sustained by the huge federal deficit.

There are also two bubbles being blown almost out of proportion in India and Hong Kong. Since January 1992, the Hang Seng Index of the Hong Kong Stock Exchange gained 1,500 points, or about 35%. The Bombay Stock Exchange Sensitive Index skyrocketed from about 1,300 to well over 4,500 within ten months. However, the social and economic impact of these two bubbles may be quite different from the ones in Japan and Taiwan. The relatively small Bombay market (where daily turnover is less than one tenth of that of Taipei) compared to the size of India's economy means that the social and economic impact would be limited even if the bubble collapses. The Bombay market collapsed recently due to a major scandal and the BSE index dropped to nearly 2500 at the end of August 1992. In Hong Kong where sizable actions come from various international financial capital in the stock market, the local economy may be less affected by the size and collapse of the bubble. The effect of speculative

bubbles in other NIEs in Asia could be quite different from the ones in Japan and Taiwan but these countries should carefully avoid bubble creations as these countries travel down the road of their economic growth.

LO SCOPPIO DI DUE BOLLE SPECULATIVE ASIATICHE: UNA LEZIONE DAL GIAPPONE E DA FORMOSA

Durante gli anni ottanta il Giappone e Formosa hanno avuto degli enormi avanzi nella loro bilancia commerciale e in entrambi i paesi si sono prodotte delle bolle speculative. Queste bolle sono ora scoppiate e le loro conseguenze continuano a danneggiare entrambe le economie. L'articolo esamina come si sono prodotte e sono scoppiate queste due bolle speculative e illustra alcune loro conseguenze positive e altre piuttosto negative. Molti paesi di nuova industrializzazione possono trarre alcune lezioni dall'esperienza del Giappone e di Formosa.

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TECHNOLOGY TRANSFER TO CHINA A PATH TO GROWTH DIFFERENT FROM JAPAN'S

by
WEN-JEN HSIEH *

I. *Introduction*

Since 1979 China has emerged as a major trading nation and foreign trade has begun to exert great influence on the domestic economy. One of the major reasons for China's sustainable open door policy is the transfer of technology. This has become the focus of a great number of articles and books which examine the "openness" of China. Among other major recent studies are Tang (1987), Feng (1987), Grub and Lin (1991), Pearson (1991), Yuan (1991), Lardy (1992) and Ono (1992). Their research on the regulations of patented technology, the product markets of joint ventures, the institutional factors of direct foreign investment (DFI), the control of DFI under socialism, the law and institutions of Chinese foreign trade, the various aspects of foreign trade, the Sino-Japanese trade and DFI, respectively, has made a substantial contribution to the literature.

Due to the difficulty in obtaining adequate statistical data, insufficient attention has been given to the contribution of transferred technologies to China's economic growth. It is widely accepted that technology transfer can be beneficial to economic growth. However, other less developed countries (LDCs), may have very different perceptions about the quantity and quality of these benefits.

Because different countries engage in research and development (R & D) at different rates and because the dissemination of technological information is neither instantaneous nor complete, some countries are technological-

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ly more advanced than others. Moreover, the latest technologies are concentrated in relatively few companies in a few industrially advanced countries. The technological gaps between the industrially advanced and the LDCs may be closed, either by intensifying the R & D effort to create indigenous technologies in the LDCs or by the continual dissemination of information as technologies are transferred from advanced countries. Admittedly, technology transfer is important and perhaps, the most effective.

The term "technology" refers to a very broad concept. Technology can be "embodied" in machinery or human beings, or it can be "disembodied". Technology can be "organizational" technology, that consists in the ability to produce higher quality more efficiently without necessarily using different machinery. This is the "software" which has been stressed by Chinese policymakers recently, particularly in the context of direct foreign investment (World Bank, 1988, p. 48).

Technology transfer may occur through the following well recognized channels: (1) direct foreign investment, (2) technical cooperation agreements, (3) machinery importation, (4) the return of students studying abroad. It is anticipated that transferred technology, through the channels of direct foreign investments, technical cooperation agreements, machinery importation, and returned experts will enhance China's economic growth. These channels of technology transfer will be further explored and the related historical statistical data will be examined in Section II. In Section III, a production function, incorporating transferred technologies, will be employed to evaluate the contribution of transferred technologies, while Section IV provides summary and concluding remarks.

II. *Channels of Technology Transfer*

In general, technology transfer from the technologically advanced countries to the LDCs is an advantage of backwardness and serves as the cornerstone of the convergence of economies, if there is any within group of overall convergence (Baumol, 1986; DeLong, 1988; and Barro, 1989).

It is a common belief that direct foreign investment (DFI) is beneficial to China in its process of economic development. The DFI can not only reduce the foreign currency gap, but also transfer important "know-how" into China. However, not all DFI has introduced advanced technologies, especially the DFI which concentrates on processing and assembly and takes advantage of China's cheap labor force. But even in this case, the new concepts of marketing, management, and international competition could be

considered as a part of advanced technology in a broader sense and can be emulated by Chinese economy.

By the official Chinese definition, technology imports include technical licensing, complete plant and key equipment, technical service, advisor's consultance, and co-production, (*Almanac of China's Foreign Economic Relations and Trade*, 1990, p. 55). The total number of technology import contracts signed on national scale, in 1989 and 1990, reached 328 with a value of US$2.92 billion and 232 with a value of US$1.27 billion, respectively.

TABLE 1

CHINA'S UTILIZATION OF DIRECT FOREIGN INVESTMENT, 1979-1990

	Approved Agreements		Utilized Amounts
Year	Number of Units	Amount US$ million	US$ million
1979-1990	29,049	40,360	18,982
1979-1982	922	6,010	1,166
1983	470	1,732	638
1984	1,856	2,651	1,258
1985	3,073	5,931	1,661
1986	1,498	2,834	1,874
1987	2,233	3,709	2,314
1988	5,945	5,297	3,193
1989	5,779	5,600	3,393
1990	7,273	6,596	3,487

SOURCE: *Zhongguo Tongji Nianjian, 1991 (Statistical Yearbook of China, 1991)*, p. 629.

Table 1 presents China's approved agreement and actually utilized amounts of DFI. A modification of the law on Sino-foreign (equity) joint ventures, announced on April 4, 1990, should also be welcome news for foreign investors. The number and amount of signed agreement with DFI in 1992 will surpass 40,000 and hit US$ 58 billion. Both figures triple that of 1991 (*Beijing Review*, 1993).

Different forms of DFI may bring in different levels of technologies. See Table 2. In general, enterprises which operate exclusively with foreign capital will enjoy more advanced technologies. This form of DFI was discouraged by the Chinese government in the past, but it has grown very fast in recent years.

TABLE 2

STATEMENT OF CHINA'S UTILIZED AMOUNT OF DIRECT FOREIGN INVESTMENT, 1988-1990 (BY FORMS OF INVESTMENT)

Unit: US$ million

Forms	1988	1989	1990
Total DFI	3,193.6	3,392.6	3,487.1
of which: Joint Ventures	1,975.3	2,037.2	1,886.1
Contractual Joint Ventures	780.0	751.8	673.6
Enterprises Operated Exclusively with Foreign Capital	226.2	371.4	683.2
Joint Exploration	212.2	232.2	244.3

SOURCES: *Almanac of China's Foreign Economic Relations and Trade, 1990 and 1991*, p. 597 and 580, respectively.

The major source of DFI is from the Chinese living abroad. The amounts of DFI from Hong Kong and Macao, presented in Table 3, may be inflated by including the Chinese living in areas other than Hong Kong and Macao (e.g. Taiwanese). However, the DFI coming from Hong Kong and Macao, in terms of average DFI per enterprise unit, is below average. In 1989 and 1990, the overall averages of DFI were US$ 96,900 and 90,700 and the averages of DFI from Hong Kong and Macao were US$ 77,600 and 79,800, respectively. Other than Chinese living abroad, the major sources of DFI also include the United States, Germany (Fed. Rep.), and Japan.

In Table 3, the overseas Chinese have shown relatively strong support for China's open-door policy regardless of the political turbulence. However, the overseas Chinese tend to bring in relatively smaller scale investment projects. In spite of great cultural and language barriers, the U.S. has made one of the largest, next to Japan, DFI in China. Note that, Chinese enterprises, either state-owned or collectively owned, might rank profit maximization second to political targets, ignore market signals and seek political windfalls. These practices repeatedly cause misunderstanding between the

TABLE 3

STATEMENT OF CHINA'S UTILIZED AMOUNT OF DIRECT FOREIGN INVESTMENT (1986-1990), BY COUNTRY/REGION

Unit: US$ million

Country/Region	1986	1987	1988	1989	1990
Total	2,243.7	2,313.5	3,193.7	3,392.6	3,487.1
Hong Kong & Macao	1,328.7	1,598.2	2,095.2	2,077.6	1,913.4
Japan	263.4	219.7	514.5	356.3	503.4
U.S.A.	326.2	262.8	236.0	284.3	456.0
Singapore	13.6	21.6	27.8	84.1	50.4
Germany (Fed. Rep.)	26.9	3.2	14.9	81.4	64.3
France	43.6	15.6	22.7	4.6	21.1
Britain	35.3	4.6	34.2	28.5	13.3
Australia	78.8	5.0	4.2	44.4	24.9

NOTE: Data for 1986 includes Other Foreign Investment (international leasing, compensation trade, processing assembly).

SOURCES: *Statistical Yearbook of China, 1987, 1988, 1989* and *1991*, p. 604, 656, 646 and 630, respectively.

host and investors. Examining the different patterns of investment may provide some insight into the successful business relationship for both the technology receivers and providers.

Technical cooperation agreements, made between Chinese firms and providers of foreign technology, such as the purchase of patents (technical licensing) from abroad, have the virtue of an apparent absence of control over operations by those providers. Whether or not technical cooperation agreements can accommodate technology transfer successfully depends on the nature of the production process, the kind of knowledge needed, the local environment in which the transfer takes place, and the compatibility of the objectives of the transferring and receiving firms.

The transfer of technology to China often includes the supply of equipment and various forms of technical services, such as training of technical personnel and workers, technological consultation, and business management. Additionally, in the past, owing to the lack of patent laws in China, the protection of transferred technologies had been relatively weak. In response, the enactment of the Patent Law of the People's Republic of China in April 1985 was a major step to facilitate the transfer of patented technologies by foreign patentees to Chinese enterprises (Tang, 1987).

TABLE 4

THREE TYPES OF FOREIGN PATENTS APPLIED AND GRANTED, 1986-1990

Year	Total units	Creations and inventions	Utility models	Designs
1986	353	4	52	297
1987	410	111	91	208
1988	654	408	77	169
1989	1,649	1,220	135	294
1990	19,304	1,149	16,744	1,411

SOURCES: *Statistical Yearbook of China, 1987-1991*, p. 806, 844, 866, 774 and 747, respectively.

Table 4 presents three types of foreign patents applied and granted since the enactment of the Patent Law of the PRC in 1985. With the much improved legal system in China, the total number of foreign patents granted in 1990 increased more than eleven fold since 1989. Most of this rapid growth comes from utility models of patents which refer to the practical and new technical proposals on the shape and structure of the product or the combination of both (*Statistical Yearbook of China*, 1988, p. 945). Again, most of the patents applied for and granted are from Japan, the United States, and Hong Kong.

The imports of machinery also provides an important channel for technology transfer because modern technologies may be embodied in the machinery. Existing literature supports the assertion that the marginal productivity of imported machinery is greater than that of domestic machinery,

either through the direct productivity effect or the indirect diffusion effect (Desai and Sihag, 1985; Desai, 1979); Green and Levine, 1978; and Weitzman, 1979). Nevertheless, the imported machinery poses the following problems: (1) machinery from developed countries is highly capital-intensive in its use, and therefore, may not be appropriate for labour-abundant countries, such as China with a 1.2 billion population; (2) imported machinery frequently embodies a high degree of complementarity to skilled labor rather than to unskilled labor; and (3) adequate servicing and parts replacement are often difficult to handle when dealing with a foreign supplier. Thus, the effective use of such imported machinery involves disembodied technical progress in the form of improvements in organization, management and skill.

Some recent studies indicate that it is possible to erode the international competitive capacity in some technologically advanced economies, by granting too many foreign patents (Kotabe, 1992). China might need to worry about this problem only at much later stages of economic development.

The import of machinery and equipment, defined either by means of production and means of livelihood or by standard international trade classification (SITC), are presented in Table 5. Since the establishment of People's Republic of China (PRC), China's composition of imports has been dominated by produce goods, with a minimal amount of consumer goods. Machinery and transportation constitutes about 30-35% of the total imports in recent years. China's imports of complete industrial equipment and the introduction of technology have been dominated by Japan and some West European nations. See Table 6. Surprisingly, the United States is not one of the most important China's supplier of machinery and equipment.

The quality of China's labor force is the key to absorption and dissemination of the transferred technologies. A sizable pool of skilled labor exists in China. In addition, engineering skills are abundant and, especially in the defense industry, are of a high quality (World Bank, 1990, p. 52).

Manpower planning is the most essential part of any economic planning. Table 7 shows the average number of governmental students studying abroad and returned for the first five-year plan (1953-57) to the seventh five-year plan (1985-90). However, education did not receive its fair share of attention from planners, especially in Mao's era. Before 1959, the students studying abroad were Russian trained scholars. Today, they are second or third echelon technocrats. Many of these senior policymakers are engineers with careers in heavy industry and deeply committed to technological advance.

TABLE 5

MACHINERY AND EQUIPMENT (M & E) IMPORTS, 1953-1990
(1) By groupings of means of production and means of livelihood.
(2) By SITC system (section 7).

Value Unit: US$100 million

	Total	M & E (1)		M & E (2)	
Year	Imports	Value	%	Value	%
1953-1957	14.87	8.35	55.9	—	—
1958-1962	17.16	6.88	37.0	—	—
1963-1965	16.10	2.16	12.7	—	—
1966-1970	20.73	3.59	17.1	—	—
1971	22.05	4.84	21.9	—	—
1972	28.58	5.57	19.5	—	—
1973	51.57	7.88	15.3	—	—
1974	76.19	15.85	20.8	—	—
1975	74.87	24.06	32.1	—	—
1976	65.78	20.37	30.9	—	—
1977	72.14	12.77	17.7	—	—
1978	108.93	19.03	17.5	—	—
1979	156.75	39.57	25.2	—	—
1980	195.50	53.75	27.5	—	—
1981	194.82	51.05	26.2	—	—
1982	174.78	33.94	19.4	—	—
1983	185.30	32.54	17.6	—	—
1984	253.56	51.96	20.5	62.55	24.7
1985	343.31	109.65	31.9	124.62	36.3
1986	330.83	122.92	37.2	125.91	38.1
1987	333.99	108.03	32.3	118.76	35.6
1988	398.50	108.18	27.2	124.44	31.3
1989	391.43	120.72	30.8	130.15	33.2
1990	330.51	109.19	33.0	112.80	34.1

SOURCES: compiled from *Almanac of China's Foreign Economic Relations and Trade, 1990* and *1991*, p. 349, and 328-329, respectively.

TABLE 6

CHINA'S IMPORTS OF COMPLETE INDUSTRIAL EQUIPMENT AND INTRODUCTION OF TECHNOLOGY, 1988-1990, BY PROVENANCE

Value Unit: US$ million

Provenance	1990	1989	1988
Total	3,942.32	4,351.44	4,093.54
Japan	505.98	959.55	1,139.52
France	797.26	508.74	262.40
Germany, Fed. Rep.	421.12	396.53	790.05
USA	284.51	453.61	342.21
Hong Kong	264.00	345.76	367.54
United Kingdom	281.82	174.36	90.30
USSR	184.13	258.10	133.69
Italy	158.79	367.40	212.37

SOURCES: *Almanac of China's Foreign Economic Relations and Trade, 1990* and *1991*, p. 534 and 516, respectively.

For the last several years, the number of Chinese students (not including Taiwanese) studying in the U.S. has been ranked highest among all the foreign students. From Table 7, with about a 50% ratio of returnees for the last two decades, the Chinese government might worry about "brain drain". However, the South Korean and Taiwanese experiences suggest that reversed brain drain is very likely to happen within the next couple of decades and the most advanced technology from technologically advanced countries (primarily the U.S.) will be transferred to China to contribute to future economic development.

Better utilization of the high quality labor force and of the well trained specialists returning from technologically advanced countries calls for greater job mobility, an area in which China lags badly. Improved job

TABLE 7

AVERAGE NUMBER OF GOVERNMENTAL STUDENTS STUDYING ABROAD AND RETURNED, 1950-1990

Unit: person

Year	Total gov. students studying abroad	Returned from abroad	Year	Total gov. students studying abroad	Returned from abroad
1950-52	215	—	1972-75	180	64
1953-57	1,443	149	1976-80	1,052	220
1958-62	334	1,330	1981-85	3,168	1,981
1963-65	1,166	816	1986-90	3,889	1,868

SOURCE: Compiled from *Statistical Yearbook of China*, 1991, p. 691.

mobility in the near future should greatly facilitate the process of technological advance.

III. *The Model and Empirical Results*

In order to examine the contribution of transferred technologies to China's economic growth, a simple model based on available statistical data will be employed. In terms of time series data, the only well-documented channel of technology transfer is the import of machinery and equipment.

Based on production relations between output and the imports of machinery and equipment, the model can be written as

$$Y_t = f(M_t, K_t^d, L_t) \tag{1}$$

where Y, M, K^d, L, and subscript t denote national income, the stock of import of machinery and equipment, domestic capital (defined as total capital minus M), labor, and time. Equation (1) cannot be estimated without questioning the accuracy of China's statistical data. Therefore, the first order difference will be applied to all of the variables.

$$dY_t = f(dM_t, dK_t^d, dL_t) \tag{2}$$

or

$$dY_t = \beta_1 + \beta_2 dM_t + \beta_3 dK_t^d + \beta_4 dL_t + \mu_t \tag{3}$$

where d denotes the first order difference of any variable X, i.e., $dX_t = X_t - X_{t-1}$. The coefficients β_2, β_3, and β_4 are the contribution to the increment of national income (dY) by increasing one unit of machinery imports (dM), domestic investment (dK^d), and new comer in labor force (dL), respectively. Error term μ is assumed to satisfy all classical assumptions. Data sources are from the *Statistical Yearbook of China* and the *Almanac of China's Foreign Economic Relations and Trade* (various issues).

The null hypothesis of testing is H_0: $\beta_2 \leq \beta_3$, and the alternative hypothesis is H_A: $\beta_2 > \beta_3$. The coefficient β_2 is expected to be not only significantly greater than zero but also greater than β_3. Then the imported machinery and equipment will make a much larger contribution to the economic growth than domestic capital.

To test whether the contributions of these inputs to the output is constant through time is to test the nonlinearity of Equation (3). One of the techniques of testing nonlinearity is the Box-Cox (1964) transformation. For any variable X_t, it is transformed as $X_t^* = (X_t^\lambda - 1)/\lambda$, where λ is the transformation parameter. It can be shown that when $\lambda = 1$ (or $\lambda = 0$), Equation (2) reduces itself to a linear (or log-linear) form with a constant slope, or alternatively speaking, the marginal increment in inputs will result in constant increments in output. If the Box-Cox model is employed, the marginal contribution of the imports of machinery and equipment in Equations (2) can be shown to become $\beta_2 (dM_t/dY_t)^{\lambda-1}$ and $\beta_3 (dK_t^d/dY_t)^{\lambda-1}$, respectively.

The regression and λ are finally chosen when the value of the log-likelihood function is maximized. The likelihood ratio test can be employed to compare the linear regression versus the general regression derived from the Box-Cox transformation. The statistical test leads to a χ^2 distribution with one degree of freedom.

The estimated results by employing Box-Cox transformation are summarized in Table 8. The assertion that the marginal contribution of imported machinery and equipment is greater than that of domestic machinery and equipment is supported. The test of linearity is rejected by the performance of the χ^2 test. In light of China's rapid growth, the constancy would be an impossibility, hence the nonlinearity of the coefficients through time is expected.

TABLE 8

ESTIMATED RESULTS BY EMPLOYING THE IMPORTS OF MACHINERY AND EQUIPMENT, 1953-1990

	Box-Cox	Linear
dM_t	0.5696 (3.4727)	− 6.9780 (− 1.2462)
dK_t^d	0.3156 (4.2304)	0.0243 (5.9878)
dL_t	7.4694 (18.129)	0.1924 (3.6863)
Intercept	− 15.329 (− 17.774)	− 4159.7 (− 2.0911)
$\bar{R}^2$	0.9960	0.9903
A.N.D./D-W	1.8687	0.8655
ρ	0.0612	0.5500
λ	− 0.4400	1.0000
$L(\lambda)$	− 228.1611	− 268.4908

The dependent variable is the change of national income (dY_t).
dM_t: imports of machinery and equipment.
dK_t^d: domestic productive accumulation (investment).
dL_t: change of labor employment.
A.N.D./D-W: approximate nonlinear Durbin (A.N.D.) (White, 1992)/Durbin-Watson d statistic.
λ: Box-Cox transformation parameter.
$L(\lambda)$: log-likelihood function.
Figures in parentheses are t-ratios.
NOTE: Two dummy variables were included then deleted, owing to the statistically insignificant results.
$D1 = 1$ for $1960 <$ year < 1973, otherwise $D1 = 0$; and
$D2 = 1$ for year > 1985, otherwise $D2 = 0$.

IV. *Summary and Concluding Remarks*

There are at least three aspects of technology transfer which need to be carefully evaluated. First, technology transfer may contribute a greater sensitivity to distributional inequity in China. Most of the transferred technologies are concentrated in the costal areas. For example, Guangdong Province alone received almost 50% of the total DFI in 1990. Will a trickle-down effect take place? If so, when? The inland areas need to stand up and transfer appropriate technologies to advance their own backward production, management, and even advertisement techniques.

Second, for successful technology transfer to take place, considerable analytical ability is required to assess the channels as well as the appropriateness of transferred technologies for the recipient country. The most advanced technology may not be the best choice, depending of each individual country's conditions. The criteria for assessing the appropriateness of the transferred technology are, among others, employment creation, income and regional distributions, foreign exchange cost, and basic needs.

Finally, it should be noted that a channel of technology transfer may not be able to continuously upgrade the technology due to the lack of freedom in decision-making. Technology transfer should not therefore, be relied upon as the sole mechanism of technological advance. Instead, the efforts in R & D are essential to assure continuous technological progress. Besides, R & D is important in coping with transferred technologies and developing indigenous technology which is more appropriate to the conditions of a particular economy.

To succeed in their modernization, many Chinese enterprises must update and upgrade the machinery and equipment, which embody the technology transferred from the Soviet Union in the 1950s. Since 1972, China liberalized its trade policies to attract foreign capital and advanced technology from abroad: mainly from the U.S.A., Japan and overseas Chinese, including Hong Kong, Macao, Taiwan and Singapore. The major channels of technology transfer used by China are machinery imports, direct foreign investment, licensing agreements, and students returning after studying abroad.

This study describes the performance of various technology transfer channels and evaluates their relative effectiveness. The data on machinery imports are analyzed to compare the contribution of imported and domestically produced machinery to China's economic growth. Statistical analysis of data obtained suggests that the marginal contribution of imported machinery has been greater than that of domestic machinery. Moreover, the rejection

of linearity test implies that the marginal contributions of both has been varied through time.

Available data indicate that the United States have made the largest average scale of DFI in China. Japanese companies have developed long-term plans of technological transfer to China, while overseas Chinese succeeded in introducing relatively less advanced technology with a smaller scale of investment. They received preferential treatment, hence they are more likely to generate profits in the early stage of the ventures. Unfortunately, some Chinese enterprises tend to rank profitability second to political objectives, ignore market signals and seek political windfalls. This frequently causes misunderstanding between the foreign investors and their hosts.

On the whole, China's rapid growth in the 1980s demonstrates that technology transfer through the channels of machinery importation, technical cooperation and students returning after studying abroad, can be beneficial to its economic growth and development.

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TRASFERIMENTI DI TECNOLOGIA ALLA CINA. UN SENTIERO DI CRESCITA DIVERSO DA QUELLO DEL GIAPPONE

Per riuscire a modernizzarsi, molte imprese cinesi devono aggiornare e migliorare quei macchinari e attrezzature che incorporano la tecnologia trasferita dall'Unione Sovietica negli anni cinquanta. Dal 1972, la Cina ha liberalizzato le sue politiche commerciali per attirare capitale straniero e tecnologia avanzata dall'estero: soprattutto dagli Stati Uniti, Giappone e dai paesi cinesi fuori dalla Cina: Hong Kong, Macao, Taiwan e Singapore. I principali canali di trasferimento della tecnologia usati dalla Cina sono le importazioni di macchinari, gli investimenti stranieri diretti, le licenze, e gli studenti che ritornano in Cina dopo gli studi all'estero.

Questo articolo descrive gli effetti dei vari canali di trasferimento della tecnologia e ne valuta l'efficacia relativa. Vengono analizzati i dati sull'importazione di macchinari per confrontare il contributo alla crescita economica della Cina dei macchinari importati e di quelli prodotti all'interno. L'analisi statistica dei dati suggerisce che il contributo marginale dei macchinari importati è stato maggiore di quello dei macchinari di produzione nazionale. Inoltre, il rifiuto dell'ipotesi del test di linearità implica che il contributo marginale di entrambi varia nel tempo.

Nel complesso, la rapida crescita della Cina negli anni ottanta dimostra che il trasferimento della tecnologia attraverso l'importazione di macchinari, la cooperazione tecnica e il ritorno degli studenti dall'estero dopo gli studi può essere vantaggioso alla sua crescita e sviluppo.

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