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Explaining the Post-War South Chinese Trade Boom

Abstract

Throughout the 20th-century, businesses in the south China area have had a comparative advantage in producing time-intensive goods. This comparative advantage was of little value prior to World War II, but since the war, international telephone and air service have made international trade in time-intensive goods practical. This has caused the demand for time-intensive goods on the international market to grow at an extremely rapid pace. This growth in demand can explain the export booms experienced by both Hong Kong, Taiwan and finally China.

1. Introduction

The East Asian trade boom is one of the salient features of the post-war economy. This paper argues that in the case of south Chinese economies the trade boom was due to a sudden increase in international demand for goods for which south Chinese businessmen[1] had a comparative advantage. The immediate cause of the trade "miracle" was thus external to the economies in question.

The basic argument of this paper is as follows. In section two, "time-intensive goods" are defined and described. In short, these are goods for which demand falls quickly over time. A CPI might list an average price for an average dress and this price may change little over time, but the price for any particular dress will fall quickly as the dress goes out of fashion. The same is roughly true for computers, although in this case changing technology, rather than changing fashion, affects the product's value. In time-intensive markets, one's ability to deal with search and information costs in the market is much more important to profitability than overcoming transaction costs within the firm. In the post-war period, there were three important categories of time-intensive goods: (1) apparel, shoes and handbags, (2) consumer (and later business) electronics and (3) miscellaneous manufactures, mainly toys and cheap plastic goods.

Section three tests whether trade data shows that south Chinese exports in the above three categories were time-intensive. The data shows that in the 1966-1970 period East Asian exports to the United States in the time-intensive categories were virtually unique in their propensity to be shipped by air.

In section four, I argue that business networks among the peoples of the south China area have a comparative advantage in time-intensive industries. This is revealed by figures for post-war net exports. By 1973, virtually all of Hong Kong's net exports were time-intensive goods. This contrasted markedly with Japan. Serious observers of south Chinese exporters describe these businesses as having the characteristics of businesses in time-intensive industries. I argue that different business cultures exist in the world and can have important effects on production due to multiple equilibria caused by industry-wide increasing returns to different types of networking.

Section five shows that the demand for time-intensive goods in international markets grew with extreme rapidity in the 1950s and 1960s. Not only did fashion and technology change slower previous to the war, but the slowness in communications and transportation meant that local producers had a huge advantage over foreign

[1] I am leaving the term "south Chinese" deliberately vague. Although this paper deals mainly with Hong Kong and Taiwan, the business practices and comparative advantage described are historically typical of Chinese exporters along the southeast coast from Gwangdong province up as far as Shanghai

producers in time-intensive markets. The telegraph system of that period was sufficient to make known prices of standardized, relatively unchanging goods in markets throughout the world, but this limited form of communication was of much less use when dealing with ever-changing non-standardized products. Buyers for the dress industry, for example, had to see the product they were buying and this generally meant personally traveling to the production area. Before the war, travel between Asia and the U.S. was done by ship and a buying trip would have lasted months. Time-intensive trade was thus largely impractical. After the war, air travel by buyers quickly became the rule and quick trips could be made to other countries. The international trade show was created. South Chinese businessmen had always been adept at time-intense production and once time-intensive goods became traded goods, they received a windfall much as oil-producing areas once received a windfall from the new automobile industry.

2. Time-Intensive Goods

A time-intensive good is a good that has two qualities: (1) The good requires a significant one-time fixed cost to begin production and (2) the expected demand for the good is quickly decreasing. The one-time fixed cost generally consists of search and set-up costs. One must quickly identify the demand for a potential good and then set-up a system of production that can get a large number of these goods onto the market during the relatively short time in which the market price of the good remains above the cost of production. The decreasing demand for the good is generally due to one of two factors. The first is changes in fashion. A fashionable shoe or dress, or a toy linked to a popular movie can be sold profitably for only a short period of time and is then likely to be thrown into the remainder bin. The fashion problem for clothes is compounded by seasonality. By the 1980s, there were six seasons for women's clothing in the U.S each year.[2] The demand for winter clothes dries up early in winter and few businesses want to keep a large stock of winter clothes through the year hoping they will still be in style next winter season. Clothes ordered for March will be returned to the manufacturer if they arrive April 1 (Morawetz). The second factor leading to falling demand is technical change. Electronic equipment, for example, becomes quickly outdated. Electronic components are constantly being improved and the relative price of a new technology falls quickly. When a new computer chip comes onto the market, those who can get products using this chip quickly onto the market generally make most of the profit.

2

Soon newer chips come onto the market and the market price of goods based on the older technology quickly drops.

In addition to the two above-stated factors which define a time-intensive good, there are several other important characteristics generally associated with such goods. First, these goods are entrepreneurship-intensive. The key to making a profit in the time-intensive sector is alertness to market conditions. The two types of skills most important to managers of economic enterprises are (1) entrepreneurial skills, which allow one to quickly react to changes in the marketplace and (2) organizational skills, which allow one to use production factors efficiently and overcome agency problems within the firm. In an economy with both a time-intensive and non-time-intensive sector, managers will be sorted by the market into one of the sectors based on their characteristics. In the time-intensive sector, good entrepreneurial skills can overcome a deficit in organizational skills. In the non-time-intensive sector, change in the marketplace happens slower and good organizational skills that will allow one to minimize production costs will be relatively more important to success. To take full advantage of such a division of labor, enterprises in the time-intensive industry will tend to be small so as to minimize management problems. For example, whenever possible, firms in the time-intensive sector will assemble products from intermediate goods rather than produce the non-time-intensive intermediate goods themselves.

A second characteristic of time-intensive production is that it tends to use variable factors of production, primarily labor and materials. Fixed factors of production, such as capital goods, will be used sparingly. If expensive capital equipment is used, it will have to be multipurpose equipment that can probably still be used once the product now produced is discontinued and some unknown new product takes its place. Because of the need for flexibility, time-intensive industries will tend to be located in countries where it is easy to establish and disband companies and hire and fire short-term employees. Government regulations that make hiring and firing more expensive could benefit non-time-intensive industries by making it easier for employers to commit to long-term relations with their employees and thus limit agency problems, but time-intensive industries will prefer less regulated environments. On the other hand, insecure property rights are a smaller problem for time-intensive industries than for non-time-intensive industries since time-intensive industries have less fixed investment. Thus, time-intensive goods are often produced in a “wild west” environment where government plays a limited role.

A third characteristic of time-intensive markets is that manufacturing costs are small relative to the initial sale price of the good. On the one hand, the cost of identifying or creating consumer demand can be larger than the cost of physically producing the

good. On the other hand, a high profit on initial sales is necessary since demand is falling quickly and many of the time-intensive items produced will end up being sold at a loss, if at all. The manufacturing cost of imported clothes is often no more than one-third the price paid by the consumer and half of this manufacturing cost may consist of the cost of the cloth bought by the clothing manufacturer (Morawetz). Therefore, the idea that the clothing industry and other time-intensive industries are labor-intensive is somewhat misleading. While it is true that the capital-labor ratio in the manufacturing process is usually low, the proportion of the final product's initial price attributable to manufacturing labor is also low. Therefore, when locating production, cheap labor is a secondary consideration. A more important consideration is speed and reliable delivery of the time-intensive good.

A final characteristic of time-intensive industries is local industry-wide economies of scale. Enterprises in a time-intensive sector often work together. Sub-contracting is one common form of cooperation. When an entrepreneur discovers a new business opportunity, the quantity and quality of goods demanded by the new customer seldom matches the entrepreneur's current production capacity. In order to produce the order quickly, much of it is contracted out. Therefore, one must have good connections with other producers and be well-informed concerning their capabilities and reputation. The cost of connections and information is lowered if production is centered in one region. Connections between buyers, sellers and the various middlemen are also important. In industries like clothing and shoes, new ideas and business offers constantly come from both distributors and producers. Since the market, on both the demand and supply side, is in constant flux, production units are small and time is at a premium, matching buyers and sellers and determining prices is a significant cost that can be lowered by regional concentration. Finally regional concentration is efficient due to the high mobility of labor. Since production lines are constantly opening up and shutting down, all labor contracts are short term. Few workers would invest in the skills necessary for production if there were not a thick market for labor. Concentrating production in one region thus encourages investment in human capital by lowering the cost of the frequent changes in employment. Well-known examples of local concentration in a time-intensive industry are Silicon Valley and Manhattan's garment district.

The only successful time-intensive export from the south China region during the pre-war era was the Taiwanese hat industry. Not only did this industry show all the qualities above discussed, but it is also important to the argument in this paper since it shows that business networks in this region already had the capacity to carry out time-intensive production in the 1920s and 1930s. Grass-woven hat production began around the turn of the century almost concurrently in Okinawa and Taiwan.

The hats were originally sold in Japan, but by World War I, most were being exported to the West. Taiwanese and Okinawan business representatives would meet with Western merchants in Kobe and get orders that they would wire back to producers. The cost of producing a hat was split about evenly between labor and materials. Almost no fixed capital was needed.

Before 1920, the hat industry was not particularly time-intensive since there was little change in hat styles. During this period, the Okinawan industry slowly increased its market share at Taiwan's expense. Japanese who observed both the Okinawan and Taiwanese hat industries were most impressed with what they saw in Okinawa. Okinawan women worked for lower wages and did better work. The Okinawan women had long-term relationships with well-established manufacturers who cooperated within a strong trade organization. The long-term relationships mitigated agency problems. In Taiwan, the Japanese reported that manufacturing firms were very short-lived. When demand for hats grew, grocers, farmers, butchers, etc. would set up hundreds of small enterprises. Female workers constantly switched companies. The female workers were commonly cheated and they themselves cheated the firms that employed them. While the Okinawan trade organization united Okinawan producers when bargaining for raw materials or selling hats to Western buyers, Japanese-led attempts to organize Taiwanese producers into a meaningful trade organization came to naught. Japanese accused Taiwanese producers of practicing cutthroat competition. After 1920, however, much to the bewilderment of Japanese observers, the Taiwanese hat industry increasingly displaced the Okinawan industry in the international market.

After 1920, market change became an important factor in the hat industry. A Japanese paper factory had successfully manufactured paper strips that could serve as a cheap substitute for the dried grass and leaves that had previously been used. This occurred just as the bottom fell out of the market for the traditional hat types. In Taiwan, small producers scrambled to find a new hat type that would sell. Almost every year, some new hat material or hat style was produced and Taiwan's market share slowly increased. Then in 1928, the Taiwanese producers finally found an extremely popular hat type that took Taiwan's hat production to its peak level. This hat type, however, was only popular for a couple years and then demand dropped to almost nothing. The Taiwanese hat industry tried more hat types and soon found they could sell ultra-cheap hats in large quantities during the early 1930s. During this period of changing market conditions, the Okinawans moved much slower. On observing the great success of the Taiwanese in 1928, the Okinawans also started producing the new successful hat type, but by the time their product came out, the market was already in decline. In the 1930s, the Okinawans left the cheap hat

market to the Taiwanese and regained some of the market share they had lost to the Taiwanese by continuing to produce a smaller number of the more expensive high-quality hats for which there was a relatively stable demand.

The Taiwanese hat industry's success after 1920 was built on seeking out potential market opportunities that could quickly evaporate. The fixed costs consisted of (1) search costs born by Taiwanese business agents in Kobe seeking out new materials and markets and (2) training costs for female laborers who needed to constantly update their skills so they could produce new hat types with new materials. These investments often did not succeed and few enterprises stayed in business more than two or three years. The characteristics common to time-intensive industries were all evident in Taiwan. Although the Japanese criticized the Taiwanese for their seeming inability to organize production intelligently, their sole criticism of Taiwanese entrepreneurship was that it was excessive. The Japanese began mechanizing hat weaving in the 1920s and had a large export of machine made hats in the 1930s, but the Taiwanese maintained flexibility, and thus market share, by using almost no capital equipment beyond simple hat frames. Most strikingly, the large majority of Taiwanese hat producers all clustered in one small area of the island, in the coastal townships of present-day Miaoli and Taichung counties. In many of these townships, virtually all women wove hats. Businesses not only competed but also cooperated. When an agent in Kobe signed a deal with a Western firm to provide a large number of a certain type hat, the main office in Taiwan would quickly sub-contract out all the production it could not immediately handle itself. Occasionally a producer would try to move out of this area and start producing hats in a cheaper area where there was less demand for female labor, but most of these attempts quickly failed.

Taiwanese were thus capable of time-intensive manufacture before the war, but international demand was too limited to give much employment. Clothing was more varied and time-intensive than hats. The international hat market was just one small crack in the door that would be thrown wide open in the post-war period.

There were three main types of time-intensive goods in the post-war international marketplace: (1) clothing, shoes and handbags, (2) consumer electronics and (3) miscellaneous manufactures. Clothing, shoes and handbags were subject to fashion change. Many toys, cheap plastic goods and accessories were also subject to quick changes in fashion. Consumer electronics (and later business electronics) were subject to quickly changing technology. Naturally, goods in these categories were not all time-intensive and some goods in other categories were time-intensive but, as the next section will show, these categories are a good proxy for time-intensive production—at least during the late 1960s when Hong Kong and Taiwan exports were booming.

3. Empirically Measuring Time Intensity

The United States began recording the value and weight imports into the country by Schedule A category and means of transportation in 1966. Schedule A category numbers were almost equivalent to the SITC categories then in international use. Shipping goods by air was faster, but was more expensive. Therefore, one only shipped light goods to market which needed to arrive quickly, e.g., light time-intensive goods. During this period, 7.6% of goods (measured by value) exported to the United States from East Asia were sent by air. All goods were classified into 4-digit schedule-A sub-groups, roughly equivalent to the more widely used 4-digit SITC sub-groups. East Asian goods imported into the U.S. fell into 571 different 4-digit sub-groups. Since the total weight and value of the imports shipped from each country in each sub-category are given by method of transportation, one can divide weight by value to establish the average weight per dollar of the goods in each sub-group from each country by means of transportation. For the years 1966, 1969 and 1970, there are 1850 entries for imports by air and 3940 entries for shipments by sea. We divide these sub-categories into two types: time-intensive and non-time-intensive. Time-intensive goods are those in Schedule A categories #724 (consumer electronics), categories #83—85 (handbags, apparel and shoes) and #89 (miscellaneous manufactures). In table 1, the goods have been further sorted by average weight per U.S. dollar into four weight categories. There were no categories of goods shipped by sea whose average weight was less than 0.1 pound per dollar. Goods this light were shipped by air regardless of time-intensity. Goods over 0.3 pounds per dollar were usually too heavy to justify air shipment regardless of time intensity. But for those goods whose weight per dollar was between 0.1 and 0.3 pounds, the importance of time intensity shows up clearly. $586 millions worth of non-time-intensive goods were transported to the U.S. by ship in categories in which the average weight of the seaborne goods shipped fell within this range. Only $143 millions worth of non-time-intensive goods were transported to the U.S. by air in categories in which the average weight of the airborne goods shipped fell within this range. For time-intensive goods in this weight class, the corresponding figures were $111 millions worth or goods shipped by sea and $271 millions worth shipped by air. Thus, while only 19.6% of non-time-intensive goods were shipped by air 71.0% of time-intensive goods were thus shipped. Not only were more goods shipped by air but the average weight of these goods was greater. Time-intensive goods in the 0.1—0.3 pound category shipped by air averaged 0.242 pounds per dollar versus 0.165 pounds per dollar for non-time-intensive goods. Time-intensive goods shipped

by sea in this weight category were also slightly heavier than non-time-intensive goods: 0.226 pounds versus 0.218 pounds.

Since this paper argues that the goods from Hong Kong and Taiwan were particularly time-intensive we also have a separate listing for goods originating from these area. Goods shipped from Hong Kong and Taiwan were much more likely to go by air regardless of category. This may have been because goods within any given category were likely to be more time-intensive if produced in the south China area, but it is also possible that goods could be shipped out of this area by air relatively cheaply compared with the cost of shipment by sea. In any case, the data shows that time-intensive categories of goods were more likely to go by air whether they were shipped out of the south China area, or not. The one anomaly in the table is that in the 0.3 to 0.5 pounds weight class, non-time-intensive goods shipped out of the south China area were unusually likely to go by air, even more than time-intensive goods, but this is probably due to the small sample size in this category.

Table 2 shows the likelihood of being shipped by air for the three types of time-intensive goods individually. The least time intensive of these categories was miscellaneous manufactures. This is probably because the category was indeed miscellaneous. The chance of shipment by air for goods in the 0.1—0.3 pounds weight class for all three categories was well over 50%.

Were time-intensive goods unique in their tendency to be shipped by air? Since the difference between time-intensive and non-time-intensive goods is shown by the 0.1-and-0.3-pounds-per-dollar weight class, table 3 shows the chance of being shipped by air for other categories of goods in this weight class. All goods shipped to the U.S. from East Asia during this period are consolidated into fourteen categories. The chance of shipment by air was over 50% for the three time-intensive categories. There were two other smaller categories of goods which were normally shipped by air. Mineral-based goods between 0.1 and 0.3 pounds in average weight were primarily cheap costume jewelry. These are time-intensive but since the great majority of traded mineral goods are not time-intensive, this category of goods is left out of this study. Therefore, the only real anomaly in the data is the miscellaneous-metal-manufactures category. The goods being exported by air in this rather small category were primarily miscellaneous tools produced in Hong Kong. Besides these two categories the only non-time-intensive category to approach 50% was category #72 (less #724) which consisted of electric goods which were not consumer electronics. This category also contained time-intensive high technology goods but it also contained many traditional goods such as batteries and light bulbs so it is also not included in this study.

4. The Comparative Advantage of South China Business Networks

Business networks are tools that have evolved to overcome transaction costs. Their characteristics are determined by the human capital in the business community and the conditions the businesses face. Due to coordination problems, however, these networks can not always adjust quickly to change. A historically successful strategy used by a business network may be suboptimal in a changed environment but attempts by individuals to experiment with alternate strategies can cause confusion and misunderstanding. Thus even if a new strategy would be superior if adopted by the whole network, it may harm the individual businessperson and quickly be abandoned. In short, business networks are subject to path dependence and can be "locked into" a variety of equilibria depending on their historical development (Arthur 1988 and North 1990).

Business networks are complicated social phenomena but the primary characteristic of a business networks that determines whether it is well-suited for production of time-intensive goods is the average number of business relationships per person. Businesspeople have only a limited amount of time and resources they can expend on making and cultivating relationships. Therefore, there is a trade-off between the number of relationships a businessperson has and how much he can invest in creating transparency within each relationship. Businesspeople who invest heavily in a small number of relationships with potential partners, suppliers and customers suffer from lack of flexibility and information sources, but their heavy investment in transparency eliminates "noise" which can lead to misunderstanding and distrust. Businesspeople who maintain large numbers of contacts have great flexibility and many sources of information but their relationships are noisy due to low investment. Since the relationships can be ended unexpectedly at any time due to noise which causes misunderstanding, businesspeople expect each relationship to be relatively short term and they are thus more apt to cheat. Networks with many connections per node do well in time-intensive production because information is spread quickly. Networks with few connections per node do well in organization-intensive production which involves asset specificity problems and thus requires long-term commitments.

Ideally, a business network would look at transaction costs in their market and adjust the average number of relationships per person to suit present conditions, but coordination costs along with endogenous human capital accumulation makes adjustment difficult. Consider the case of a business network whose members in the past have invested heavily in a small number of relationships. Suppose this network's market changes or it enters a new market in which flexibility is now relatively more important compared to mutual trust. If a member of this business

network responds by cutting investment in his current relationships in order to increase the number of his relationships, then those people in current relationships with him may take this as a clear sign he is going to end the relationship or at least wishes to free ride on the investment in transparency of the other party. He will also have trouble finding appropriate partners since other people are tied to long-term relationships in which they have invested heavily. Finally, he will find that the human capital he has acquired in the relatively noise free environment will not be well-suited to his new strategy. He will not be accustomed to dealing with people who invest little in relationships. In the opposite case of a many-low-investment-relationships network moving into a market where trust is more important, similar adjustment problems will occur. For example, a person who begins to invest more in a fewer number of relationships will find his partner in each relationship may not reciprocate and instead free ride. Since his partners are surrounded by people looking for short-term relationships, the opportunity cost of cheating will be lower for his partners than it would be if they were in an environment in which most potential partners were tied up in long-term relationships.

South Chinese business networks have been active throughout East and Southeast Asia for centuries. They have made their profits largely through arbitrage. The political environment has been such that they have seldom invested in much fixed capital, so they have faced few asset specificity problems which would require them to develop skills in creating and enforcing long-term contractual relationships.

In the post-war period, the south Chinese specialization in time-intensive industries is not only born out by statistics but has often been noted anecdotally. Lam and Lee describe Hong Kong business as “guerilla capitalism” and note that small Chinese firms “seek out an opportunity for high profit margins in a particular good, develop a formula, exploit it by rapidly flooding the market before the established firms can respond, make profits over the short term, and then leave the market for another one before competition forces the prices down to the point where firms from newly industrializing countries are no longer profitable without large scale investments in technology or infrastructure.” This is exactly the strategy that must be used in time-intensive markets. Lee notes that the typical small Chinese firms “seldom consider their own production capacity as a constraint. They bid for as many orders as possible and then subcontract the part exceeding their capacity.” Clearly, the firms Lee is describing are making their money not through low organization and production costs (since other companies often produce the order) but through searching out good deals in ever-changing markets. Lee also notes that small Chinese firms try to limit their capital equipment to general-purpose machinery that can be used to produce a wide variety of products. When the market for Hong

Kong-made wigs collapsed in the 1970s, many wig producers survived by using their wig machinery to scale fish. Again this is behavior typical of successful entrepreneurs in time-intensive industries where constant market change is the rule. Yu surveys Hong Kong businesses and concludes that their success is based on Kirznerian entrepreneurship—alertness to opportunity. He notes that rush orders and overtime were prevalent among the businesses surveyed (p. 75). Sit and Wong (p. 188) report that payments for subcontract work in the Hong Kong textile industry are often set by the contractor since there is not enough time to negotiate prices.

Net exports of Hong Kong, Taiwan, China and Japan are shown in table 4. In this table, with one exception, net exports are defined as the amount by which exports exceed imports within each 2-digit SITC category. Whenever imports exceed exports, net exports in that category are set equal to zero. The sole exception is category 72 (electrical machinery) which, before 1978, I divide into two categories: 724 and everything else. Trade categories that consisted of mainly time-intensive goods are shown individually. These include clothing (SITC # 84), shoes (SITC #85), handbags and travel goods (SITC# 83), consumer electronics (SITC #724) prior to 1978 and consumer and business electronics (SITC #75 and #76) afterwards, and the catch-all miscellaneous-manufactures category (SITC# 89).

The exports of Japan, Hong Kong and Taiwan grew quickly in the post-war period, but the export boom in each country was different. In Japan, exports boomed in both the time-intensive and non-time-intensive sectors. During the first ten years, the time-intensive sector grew quicker than the non-time-intensive sector, but after 1963 the time-intensive sector's share of net exports decreased. During the 1960s, Japan's capital-intensive organization-intensive heavy industry was increasing in importance. This is the pattern that traditional economic development models would predict. Time-intensive goods were never much more than 20% of Japan's net exports.

Hong Kong's case was quite different. In 1953, Hong Kong's time-intensive industries, particularly the apparel and shoe industries, were already successful exporters. Throughout the next twenty years its specialization in time-intensive industries continued to increase until Hong Kong was a net importer in virtually every other category. This is different than a standard economic development model might predict since Hong Kong's success meant a great increase in capital and thus capital-intensive industries should have become more important. The fact that Hong Kong never "advanced" to the capital-intensive stage of manufacturing bothered some observers who saw this as a failure of the free market . But Hong Kong's government would not give special aid to capital-intensive organization-intensive heavy industry and Hong Kong demonstrated in the 1980s that it was possible for an economy to become a developed service economy without going through a

heavy-industry stage.

Taiwan was an intermediate case. In the 1950s, Taiwan's few exports were primarily agricultural products. The government used import-substitution policy and encouraged self-sufficiency. Both tariff and non-tariff barriers were used. The latter particularly affected time-intensive industries since they not only made international trade expensive but also slowed it down. Virtually the only time-intensive exporters during this period were hat manufacturers who complained that their business was throttled not merely by the costs of tariffs and overvalued exchange rates, but also by the long and uncertain time-lag caused by the bureaucratic trade regulations. In the late-1950s, Taiwanese policymakers became increasingly aware of the export successes of Japan and Hong Kong and began to gradually open up Taiwan's economy. During the 1960s, Taiwan began to follow the Hong Kong road to success so that by 1973, Taiwan's time-intensive sector accounted for about 57% of net exports and in the 1980s the proportion of net exports that were time intensive began to approach 90%. After 1989, Taiwan's exports to the West remained heavily time-intensive, but trade with China increased. Taiwanese business placed much of their time-intensive production across the straits in southern China. Since relatively to southern China, Taiwan's comparative advantage was security of property rights, Taiwanese businesses began using Taiwan as a base to produce capital-intensive intermediate goods to be assembled into time-intensive products in southern China.

In the 1980s, China became an important exporter on world markets. From 1984, when statistics first become available to 1993, the time-intensity ratio of China's net exports quickly rose. During the 1990s and 2000s, approximately 2/3 of China's net exports were time-intensive. The proportion of southern China's net exports that were time intensive (for which we have no figures) was certainly even higher.

One of the metaphors commonly used to describe the Asian dragons (Japan and the four little dragons, Hong Kong, Taiwan, Singapore and South Korea) is flying geese. The flying-geese metaphor assumes that Japan was the lead goose. Japan first began producing low-tech labor-intensive goods. Then as Japan gained experience and rising wages made its products more expensive it would move on to producing goods that were increasingly skill and capital intensive. One of the little dragons, as a following goose, would take on the production that Japan was abandoning. When this little dragon gained experience and the wages of its labor force rose to a certain point it would move up the ladder of production and leave the now too labor-intensive production to the next goose down the line. Superficially, the metaphor seems to work since most of the economies did gradually move toward increasingly skill- and capital-intensive production with Japan in the lead. But, as just noted, the

production in the south China region was very different than Japanese production. Regardless of the years compared, the Japanese economy tended to do best in organization-intensive exports while the south China area specialized in time-intensive exports. The clothing and textile sectors show this most clearly. Development economists have often grouped textiles and clothing together as one of the earliest low-tech labor-intensive sectors to develop in the industrialization process. But though these industries have certain features in common, they are very different as far as time-intensity is concerned. Using twentieth-century technology, textiles are best produced in large factories. They are standardized products whose prices in different markets are well-known. Demand for textiles is much less volatile than for clothing. Success in producing textiles requires good organization. Clothing on the other hand is usually produced in small factories or workshops. Organization is relatively less important. What is important is the entrepreneurial ability to keep up with and exploit constant change in the market. Clothing is a time-intensive industry.

Figures 1a and 1b show how international trade in textile and clothing changed over time in Japan, Hong Kong, Taiwan and China. Japan was primarily a textile exporter. In early years, it sometimes processed its textiles into clothes before exporting them, but non-processed textiles were most important. During the 1970s, Japan became a net-importer of clothes although its textile exports remained strong. Hong Kong, on the other hand, was a textile-importing economy. The great demand the clothing industry had for textiles led to textile mills being set up in Hong Kong, but overall Hong Kong never had a comparative advantage in producing textiles. Its comparative advantage lay in processing textiles into clothing. Taiwan, once again, was an intermediate case. In the 1950s, its government was trying to use import-substitution to imitate Japanese economic development. Economic policy makers were mainly engineers and thought large factories were key to economic development and modernization, and they saw low-tech textile factories as the obvious starting point. They saw no need to promote mere tailoring. Therefore, they strongly protected the textile industry leaving clothing-makers with poor expensive cloth unsuitable for making exportable clothes. They also protected the sewing machine industry forcing clothing producers to use expensive inferior machines (Schive). Most of the “clothes” exports shown by the figure in the 1950s were hats that did not use textiles. By the end of the 1950s, Hong Kong wages were rising so that Western buyers were making enquiries as to the possibility of producing clothing in Taiwan. The Taiwan government gradually backed off of its attempt to imitate Japan and, in effect, accepted Hong Kong as its lead goose. However, the government’s favoritism toward the textile industry seems to have remained a

problem and compared to Hong Kong, Taiwan had greater success in the shoe and consumer electronics industries than in the clothing industry. Like the Japanese, Taiwan remained a textile exporter, but unlike the Japanese, most Taiwanese textiles were processed into clothes before being exported.

Chinese data becomes available in 1984 and its pattern is very similar to the Hong Kong pattern. China has had a small net export of textiles throughout the 1984-2003 period, but this is very small compared to its booming apparel export. In 1989, Taiwan's textile exports surpassed apparel exports. Many of Taiwan's textile exports were going to China for processing.

5. The Growth in International Demand for Time-Intensive Goods

The preceding sections of this paper have argued that the south Chinese economies had a strong comparative advantage in producing time-intensive goods which largely determined the role they would play in international trade. Time-intensive goods were almost all non-traded goods in the pre-war era, but after the war trade in these goods grew quickly. It is not possible for a historian to predict what would have happened to the economies of the south China area if this change had not taken place. But it can be shown that the increase in the international trade of time-intensive goods was so explosive that there is little need to look elsewhere to explain the south China trade "miracle." All that was needed to take advantage of this quickly growing international demand was a certain degree of openness to international trade.

The growth in international demand for time-intensive goods came for two reasons: First, changes in fashion and technology have quickened so that time-intensive goods gained in importance throughout the world economy. Second, and by far most important, transportation and communications improved so that time-intensive goods no longer faced large natural barriers to trade. Before the war, domestic producers had a great advantage in time-intensive industries because they could get market information much quicker than a producer in a foreign country. After the war, international air and telephone service suddenly made large-scale trade in time-intensive goods feasible.

During the 1950s and early 1960s, by far the most important time-intensive good was clothing. Before the war, there was already a large market for ready-made clothes in the United States and Great Britain (Godley) but, throughout most of the world, clothing was either stitched at home or made by local tailors and seamstresses. The limited international trade in clothing focused primarily on special items such as gloves, hats and underwear.

The American ready-made clothing industry was centered in midtown Manhattan's garment district. By 1929, it is estimated that 80% of ready-made women's clothing was produced there. Manhattan was not a low-wage area and rents were high. Attempts were made to set up factories outside the city, and garment centers did exist elsewhere in Texas and California (De Moss), but moving outside Manhattan was seldom a successful strategy because it left producers "out of the loop." What one saved in production costs was more than countered by a loss in timely information. After the war, when quick communications and transportation had become cheaper, sewing work was often moved into up-state New York to save costs, but the main company office stayed in Manhattan.

Clothing, accessories and hats that were imported into the United States before the war usually came from Europe. American buyers would travel to Europe by ship, a trip that lasted several weeks. They would stay in Europe a couple months making purchases and then return by ship. During this period, communication with the United States was limited to brief telegrams. This form of business was known as the "craft trade" and mainly consisted of buying hand-worked items whose appeal was based on novelty. The items did not have to be fashionably up-to-date (Nicola). After the war, the trade changed. Buyers flew into Europe for several days, converged on popular trade shows and kept in touch with the home office by telephone. Fashionable French and Italian clothing began to appear on American store shelves.

Travel between the U.S. and the south China area was much slower than between the U.S. and Europe. Pre-war Taiwanese were fortunate in that there was a community of American buyers in Kobe, Japan. These buyers were in Japan due to the silk trade. Taiwanese sold their hats to these Kobe buyers. They would travel to Japan by boat where they could both negotiate deals with the foreign (primarily American) buyers and buy hat material from Japanese paper companies. They communicated with Taiwan by telegraph just as the buyers communicated with the U.S. home office.

The first air travel service from Japan to Taiwan was initiated in 1935. Taiwanese businessmen probably did not use this costly service. Its main importance was that letters could now be sent airmail. Air service between the U.S. and Asia had to wait until after the war. Before the war, Hong Kong had a small apparel industry which exported clothes to British colonies in Asia. Hong Kong only got air service in 1936 when it became possible to send airmail as far as Britain. After the war, airline travel to and from Hong Kong and Taiwan became common. Hong Kong began exporting apparel to Britain soon after the war, but due to the long delay between order and delivery its early exported tended to be in the less time-intensive fields such as work clothes and undergarments before it shifted gradually into more

time-intensive fashionable clothing (Winterton and Barlow). As in Europe, post-war Hong Kong also developed apparel trade fairs that attracted buyers who flew in from all over the world. Such shows would have been clearly impossible before the war. The trade boom in time-intensive goods is shown in table 5. In the 1950s, as in the pre-war era, most international trade was trade in raw or partially-processed materials and producer goods. Most time-intensive goods in this period were clothes, shoes and accessories. These time-intensive goods accounted for less than 2% of imports and were dwarfed by the trade in textiles and leather. Many of the traded goods in these categories were probably still not very time intensive. The plastic industry was still in its infancy and the consumer electronics that existed were still high-tech luxury goods best produced in the United States.

The post-war growth in time-intensive imports into developed nations after the war was much faster than growth in total imports. The first column shows that between 1953 and 1993 total imports measured in 1953 U.S. dollars rose almost twelve fold. The second column shows that time-intensive imports rose over 120 fold. These imports, which had originally accounted for 2% of total U.S. imports, were over 23% of total imports in 1993. Data from other developed countries generally show the same overall pattern as the U.S. data. Moreover, these figures understate the growth in traded time-intensive goods. Not only did the amount of clothing or toys increase greatly, but the proportion of traded clothes and toys that were time-intensive became ever greater and the time intensity of the average item increased. For instance, in the 1950s, there were only two seasons for women's clothing each year. By the 1980s, there were six seasons (De Paola and Mueller). Although harder to measure, most people would agree that consumer electronic goods become outdated much faster in the 1980s and 1990s, than they had in the 1960s and 1970s and the change in the stock of toys at the toy store is from Christmas to Christmas is also greater now than previously. Furthermore, by the 1990s, other categories of goods such as household furnishings and appliances were also becoming time intensive.

The massive increase in traded time-intensive goods was not due to change within East Asia. If the growth in trade in time-intensive goods was due to an improvement in productivity within the East Asian economies that came to dominate the international time-intensive goods trade, then one would expect to see the greater East Asian competitiveness squeezing other exporting countries out of the time-intensive markets. But if the growth in the market was due to increasing international demand, then the share of the market held by the economies with a comparative advantage in time-intensive goods might expand, but the exports of all countries meeting this growing demand should generally rise. Between 1953 and 1983, Hong Kong and Taiwan increased their market share of time-intensive imports into the U.S. from 1.4%

to 26.5%, but other nations were still able to increase their exports of time-intensive goods to the U.S. by a factor of 35. Even if one removes Japan and all four of the little dragons from the data, time-intensive exports by other countries to the U.S. increases by a factor of 20, much faster than the increase in total U.S. imports.

6. Concluding Remarks

South Chinese business networks did not succeed after the war by moving into markets that already existed. Their success came in new markets which had barely existed before the war. The source of growth in the south China area was the increase in international demand for time-intensive goods. The increase in this demand was due to technological change external to the south China area economies. The fundamental difference in the three Chinese economies was when the respective governments' opened their economies to trade. Hong Kong was already an open economy previous to World War II, but its openness was only of limited benefit in the pre-war era since time-intensive goods were still usually non-traded goods. After the war, its economy quickly took off. Taiwan began opening up its economy around 1960, but still retained many tariffs and protective policies. There were many other countries in the world economy less successful than Taiwan—although equally, or more, open—but these economies did not have Taiwan's comparative advantage in the booming time-intensive goods trade. China was in a much tighter ideological strait jacket than Taiwan. It did not begin opening its economy until the late 1970s. When the Chinese government began opening the country's markets, there was no intention to specialize in time-intensive exports. The Chinese government, similarly the Taiwanese government, assumed that economic advance depended on setting up big capital-intensive factories. The government's plans, however, were soon overwhelmed by their economy's comparative advantage.

Over the 200 years previous to World War II, transportation of goods worldwide improved greatly. This benefited Western businesses which were skilled at overcoming intra-firm agency problems. The expanding international markets meant these firms could produce with ever greater economies of scale. The introduction of telegraphy also meant that current prices for standardized goods in any given market were known worldwide. It was not until after World War II, however, that the communications and transportation system improved to the point that it could be much benefit to south Chinese business networks which had a comparative advantage in producing non-standardized products quickly in response to ever changing market conditions. Once international air travel and telephone communications did become available, the comparative advantage of southern Chinese business networks rose in

value relative to the comparative advantage of Western business networks and the southern Chinese economies began their “miracle” growth.

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Table 1. Imports to the United States by weight class and time intensity.

TYPE OF IMPORTS	WEIGHT CLASS (LBS/$)	EAST & SOUTHEAST ASIA		HONG KONG & TAIWAN		E & SE ASIA LESS HONG KONG & TAIWAN	
		Amount	% shipped by air	Amount	% shipped by air	Amount	% shipped by air
Non-Time-Intensive Goods	0.0—0.1	597	100.0%	206	100.0%	391	100.0%
	0.1—0.3	728	19.6%	44	78.6%	684	15.8%
	0.3—0.5	406	4.5%	17	23.6%	388	3.6%
	0.5—1.5	11616	0.3%	679	0.8%	10930	0.3%
Time-Intensive Goods	0.0—0.1	333	100.0%	186	100.0%	147	100.0%
	0.1—0.3	382	71.0%	183	99.8%	199	44.5%
	0.3—0.5	2345	4.5%	271	17.6%	2073	2.8%
	0.5—1.5	3711	0.8%	1442	1.1%	2268	0.6%

Source: U.S. Bureau of the Census, *U.S. General Imports/Schedule A Commodity Groupings by World Area,* Repots FT 150, Annual 1966, 1969, 1970. Data for years 1967 and 1968 will be added to this, but the interlibrary loan has still not arrived.

Table 2. Time-intensive imports to the United States by weight class and type.

TYPE OF IMPORTS	WEIGHT CLASS (LBS/$)	EAST & SOUTHEAST ASIA	
		Amount	% shipped by air
SITC #724 Consumer Electronics	0.0—0.1	0	100.0%
	0.1—0.3	56	100.0%
	0.3—0.5	1209	4.9%
	0.5—1.5	757	0.0%
SITC #83—85 Apparel, Shoes, Handbags	0.0—0.1	27	100.0%
	0.1—0.3	251	68.0%
	0.3—0.5	467	6.9%
	0.5—1.5	1713	0.4%
SITC #89 Miscellaneous Manufactures	0.0—0.1	306	100.0%
	0.1—0.3	74	59.4%
	0.3—0.5	670	2.2%
	0.5—1.5	1240	1.7%

Source: same as table 1.

Table 3. Imports to the United States from East Asia in sub-groups with an average weight of 0.1—0.3 pounds per dollar, by category

IMPORT CATEGORY	AMOUNT	% SHIPPED BY AIR
SITC #0 Food & Live Animals	1	1
SITC #2 Crude Materials	99	1
SITC #5 Chemicals	17	23
SITC #61-64 Leather, Rubber, Wood & Paper Manufactures	2	24
SITC #65 Textile yarn & fabrics	211	6
SITC #66 Mineral Manufactures	7	94
SITC #67—68 Metals	0.4	36
SITC #69 Metal Manufactures	2	97
SITC #71 & #73 Non-electric Machinery	131	42
SITC #72 (less #724) Electric Machinery	132	30
SIC #724 TVs, Radios, Telephones	56	100
SITC #83—85 Travel Goods, Clothing, Accessories & Shoes	265	67
SITC #86 Instruments	212	17
SITC #89 Misc. Manufactures	58	59

Source: same as table 1.

Table 4

Net Exports of Hong Kong, Taiwan China and Japan

Place	Year	Apparel	Shoes	Hand-Bags	Consumer Electronics	Various Manufactures	All Time-Intensive Goods
Hong Kong	1953	34.7	9.7	1.3	0	4.7	50.5
	1963	61.0	6.0	1.1	0	24.0	92.0
	1973	63.5	1.7	3.3	4.3	26.8	99.6
	1983	53.7	0.2	2.6	12.3	21.8	90.6
	1993	47.2	4.1	4.4	6.0	33.0	94.7
	2003	37.4	3.7	4.5	9.9	37.6	93.1
Taiwan	1963	4.5	0	0	0.2	0.2	5.0
	1973	24.0	7.7	1.9	12.8	10.9	57.4
	1983	25.1	15.2	6.7	19.1	20.6	86.7
	1993	7.7	6.2	1.1	30.0	15.0	60.0
	2003	2.4	0.2	0	36.7	10.4	49.7
China	1984	16.2	0	0	0	5.7	21.9
	1993	49.3	13.9	4.7	0.1	18.5	66.0
	2003	22.4	5.5	2.3	28.2	11.2	69.6
Japan	1953	3.7	0.3	0.2	0	5.8	10.0
	1963	5.3	1.7	0.4	7.0	7.9	22.2
	1973	0	0	0.1	10.0	4.2	14.2
	1983	0	0	0	18.7	2.5	21.2
	1993	0	0	0	19.4	0.6	20.0
	2003	0	0	0	20.3	0	20.3

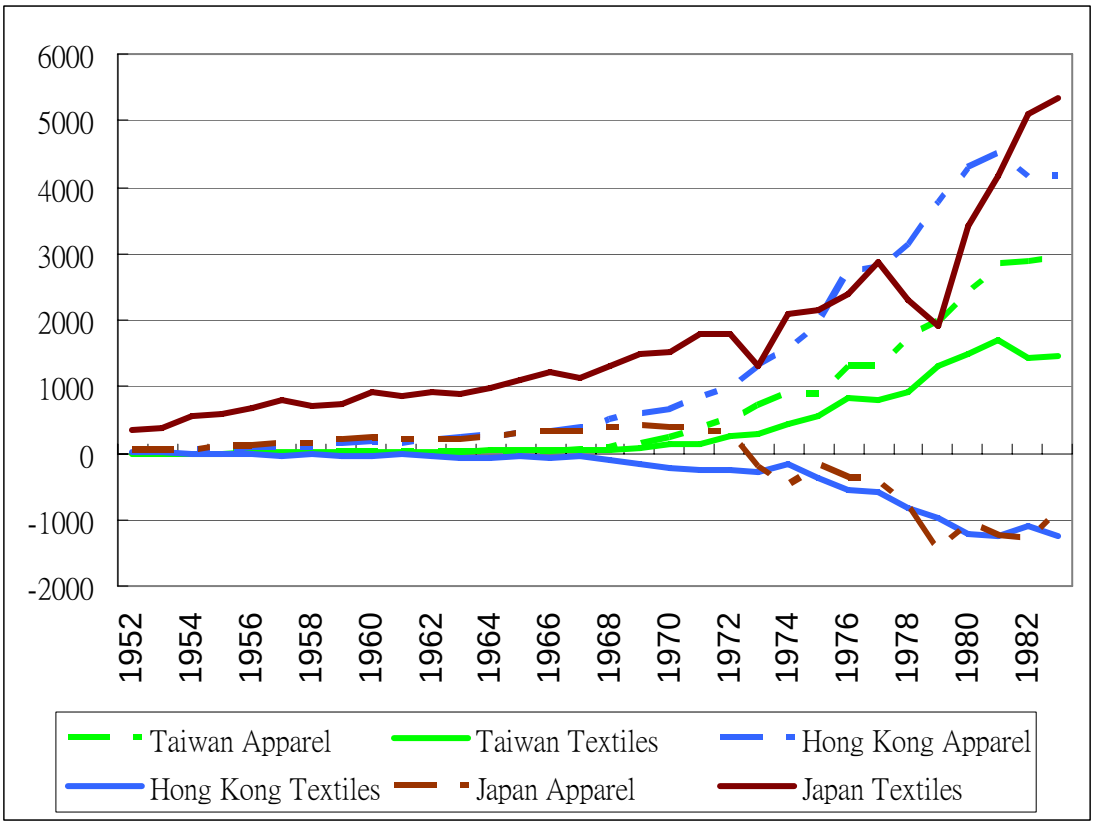
From the *Commodity Trade Statistics according to the Standard International Trade Classification*, United Nations, Dept. of Economic and Social Affairs (1953-1973), *International Trade Statistics Yearbook*, United Nations, Dept. of Economic and Social Affairs (1983-2003, non Taiwan data), *The Trade of China, Taiwan District*, Chinese Maritime Customs (1983, Taiwan data), and AREMOS (1993-2003, Taiwan data)

Table 5. Imports to the United States 1953—2003

United States					
Year	Total Imports	Total Time-Intensive Imports	Time-Intensive Imports from Hong Kong, Taiwan & China	Total Time-Intensive Imports Less Hong Kong, Taiwan & China	Total Time-Intensive Imports Less the 5 Dragons
1953	10,778	223	3	220	180
1963	14,239 (2.8)	1,091 (17.2%)	111 (43.5%)	982 (16.1%)	610 (13.0%)
1973	39,783 (10.8%)	4,928 (16.3%)	1,201 (26.9%)	3,727 (14.3%)	2,027 (12.8%)
1983	75,375 (6.6%)	10,686 (8.0%)	2,835 (9.0%)	7,851 (7.7%)	3,740 (6.3%)
1993	123,367 (5.1%)	28,365 (10.3%)	8,406 (11.5%)	19,959 (9.8%)	10,182 (10.5%)
2003	215,354 (5.7%)	52,149 (6.3%)	19,263 (8.6%)	32,886 (5.1%)	25,199 (9.5%)

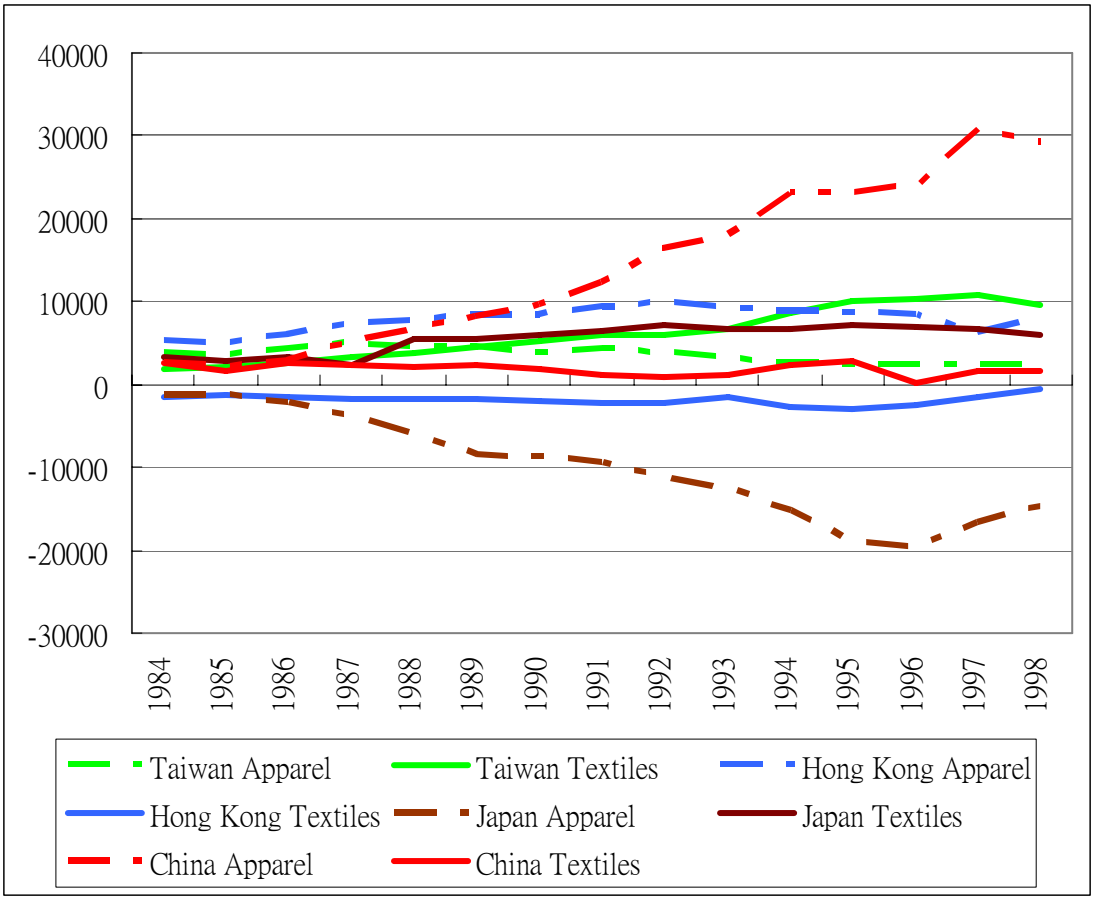
Imports are in millions of 1953 US dollars (deflated by the GDP deflator). The number in parentheses shows the average annual rate of growth over the previous decade. From the *Commodity Trade Statistics according to the Standard International Trade Classification*, United Nations, Dept. of Economic and Social Affairs (1953-1973), *International Trade Statistics Yearbook*, United Nations, Dept. of Economic and Social Affairs (1983) and http://dataweb.usitc.gov (1993-2003)

Figure 1a. Net textile and clothing exports, 1952—1983.



From the *Commodity Trade Statistics according to the Standard International Trade Classification*, United Nations, Dept. of Economic and Social Affairs and *The Trade of China, Taiwan District*, Chinese Maritime Customs (post1975 Taiwan data).

Figure 1b. Net textile and clothing exports, 1984—1998.



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