

## Chinese Trade Expansion and Development and Growth in Today's World

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### Abstract

The current Chinese trade expansion brings benefit to many parties, both outside and inside the Chinese Mainland. It also poses huge challenges to others, in foreign countries, also in China. The event is important for its own sake, but also what it implies when rapid growth happens to countries large in population and size (including India, Russia, Brazil).

It has to be understood in context. Conventional wisdom in economics and popular explanations cannot explain Chinese growth, let alone its implications. Only with suitable adaptations of what the economic discipline has to offer, can one assess the nature of what we observe and the policy measures needed for today.

Like other episodes after Industrial Revolution, the late industrialization in China also relies on outside technology, often gained through trade and foreign investment. Because of the de-colonization after 1945, such growth can succeed even with scanty domestic resource. Like other East Asian economies, participation in cross border supply chains along its neighbors offers China an effective entrée.

What makes China different from the other East Asian economies is size. The presence of a huge labor reserve keeps wage down, profit up, attracts foreign investment coming with technology, but may also lead to deteriorated terms of trade and income inequality at home, de-industrialization and the loss of development opportunities abroad, also resource shortage and environment damage, some of these are irreversible in nature.

Over all, the development is the result of efficiency gain, which is basically desirable. It takes international cooperation to steer such development toward mutually beneficial paths. It is also desirable for China to accelerate job creation at home and avoid irreversible environment harm. These are well recognized by Chinese decision makers. More can be done.

## 1. Introduction

The recent expansion of the Chinese trade is the focus of attention worldwide, in chancelleries, academia and the street. As a researcher of trade and East Asian development, but not the Chinese economy, I focus on the impact of China on worldwide growth and development. The basis of my discussion will be contextual, with the emphasis on the general perspective, rather than special knowledge.

The main discussion, written for brevity, comes in three sections, with two appendices supplying the background. In Section 2 below places the Chinese expansion in the context of world development. Section 3 then examines the characteristics of the Chinese economy further. Section 4 offers a short list regarding what should be done to ease the transition caused by China's entry into the world market. Appendix A contains some quantitative measurements about Chinese growth. Appendix B concerns the contextual approach used here. It is argued that like astronomy, another empirical but non-experimental discipline, economics has developed from isolated observations to large scale theory, thus afforded us a vantage point to investigate specific issues from general understanding.

## 2. The Perspective of the World at Large

The rapid expansion of the Chinese economy is an event significant *for itself*, and also *for what it implies*,

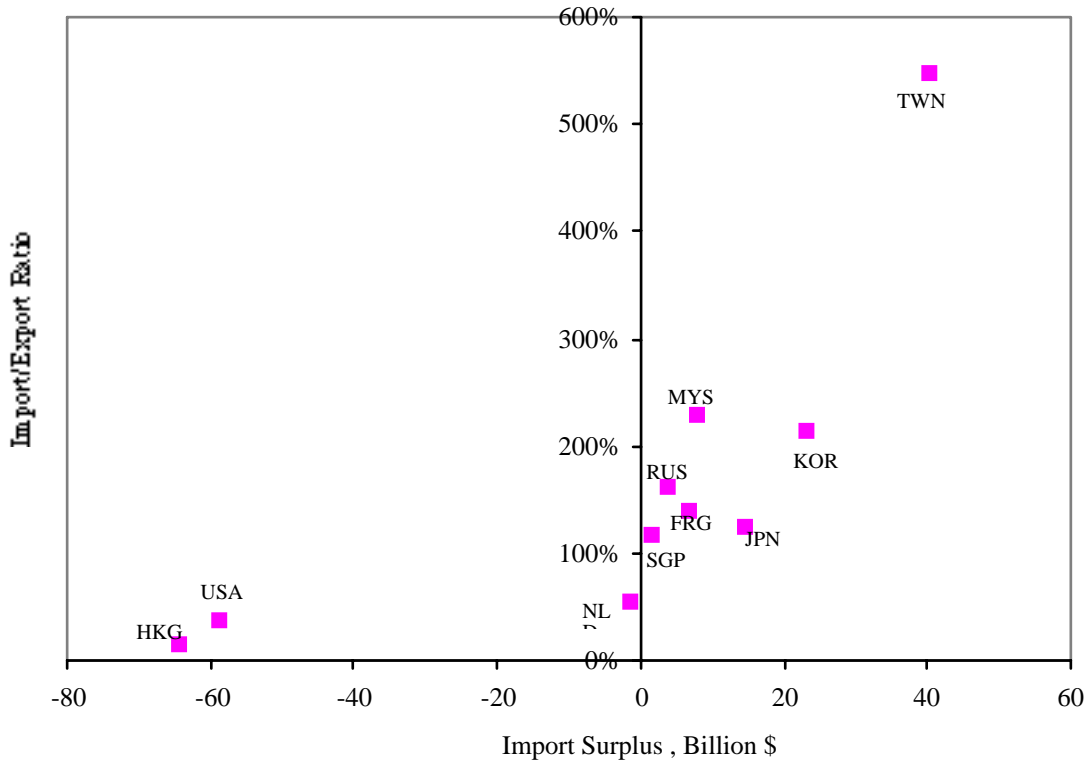
Among all nations, Chinese growth brings *opportunities* to some and *challenges* to others. The *low wage* and *large population* of a *rapidly expanding* economy mark an event with special impact in both the short run and the long run. This fits the growth of China now, India soon, a resurgent Russia, an energized Brazil down the road, and perhaps also the Middle East and Sub-Sahara economies, to them, the Chinese success is likely a *wake up call*. Thus, this might be the beginning of the end of underdevelopment. Of course, the increase of total income is only the benign half of the coin in economic development, distributive justice is also important; The development process has both economic and also non-economic impact, on both human welfare and human survival.

In all matters, the impact of an event depends upon its nature. The development of the Chinese economy since 1978 defies simplistic explanations, based on either the

conventional wisdom in economics or various popular hypotheses. Six types of such theses are discussed below.

First, from either the neoclassical or endogenous growth theory, high growth is associated with either high saving, or human capital formation, such as R. and D. But it is patently clear that the *start* of current Chinese growth spell owes little to the *rise* in the saving/income ratio, the tapping of foreign savings or the emergence of local technical innovation. For illustration, Chart 1 displays both the saving rate and the growth rate, and there is no clear implication that increased saving caused increased growth.

Chinese Trade 2002



Second, one may try to relate the Chinese growth to the traditional theory of gains from international trade. It is known however that although Chinese trade looms relatively large to GDP<sup>1</sup>, since the value added share in Chinese trade is very modest, the gains from trade, conventionally defined, cannot really explain Chinese growth.

Third, one may seek institutional explanations based on market efficiency. This is no trivial task either. True, without the 1978 reform, there would not be growth like in today for China. But, institutionally, from corporate governance to financial institutions to labor market, there is a world of difference between China and all other economies which had enjoyed 'miracle growth'. From West Germany under the Marshall Plan, to the Republic of Korea, after the Korean War, in each and every of these economies which enjoyed high growth, market force has played far larger roles compared against China. While market institutions have been gradually re-introduced in China, after 1978, high growth

<sup>1</sup> In fact, the Chinese ratio exceeds that of Japan.

in China had gone on before these, for substantial part of the post-1978 period. In that phase, market mechanism had played only modest roles in vast proportion of the economy. Even today, Chinese stock market and Chinese banking are still substantially different from what exists elsewhere. It will be placing the carriage before the horse to conclude that China has grown faster than many other developing economy, say, in Latin America, mainly because in China, market force has functioned more like in London or New York.

Fourth, one can try to search recent Chinese history for explanations in the opposite direction, claiming that Chinese growth is due to the avoidance of market failures. But it is hard to argue that the current Chinese political institutions or the economic pre-conditions of Chinese growth (such as the near total absence of any private ownership and the presence of the centrally planned system) are solely the 'right stuff' for today's sustained rapid growth. The economic record in East Europe and the formerly USSR economies, both before and after the passing of Communism clearly shows the difficulty of making such an argument. Further, there has been persistent criticism by Chinese officials and foreign observers against such situations in China today, like the huge loss of state owned enterprises (SOEs) and the Non-Performance Loans (NPLs) of Chinese state banks<sup>2</sup>.

Fifth, another way is to search for causes of growth in some initial conditions, like the low wage in China, which might favor exports. But this cannot be the sufficient reason to explain the performance of the Chinese economy. Bangladesh, Myanmar, North Korea and many Sub-Sahara African countries have wages even lower than China today, and their performance is clearly different from China.

Finally, some may attribute high growth to the Chinese culture and ethos. However, these factors certainly cannot explain the difference in the growth record of the same China before the 1978 reform, and the period after it.

But if without adaptation, the economic literature - in growth and trade as well as economic history and institutional economics - cannot adequately explain Chinese growth, the Chinese economic performance does have a great deal to offer to all these economic fields.

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<sup>2</sup> A convenient reference is Woo (2002).

To make a long story short, it is our view that what drives economic development is mostly technical progress, and in most economies, except the technology leader, this is a matter of the inward transfer of information (in technology and opportunities). In the last six decades, the transfer is largely a byproduct of trade and investment, as long as the history and institutions of the economy permit these to happen.

This is the main mechanism which governs East Asian development. The case of Communist China is the exception proving this rule. It also explains to some extent what happened in Europe. Before the German Unification, the lag of East Germany behind West Germany. Judging from the recent economic development of China under Communism, this lag of East Germany is perhaps more due to its isolation from the advanced economies (also to some extent, the rigidity of the planned economy) than anything else, ideology and political institutions included.

Thus, by its nature, the Chinese growth is the latest phase of *East Asian economic development*, something dating back to the economic recovery of Japan during the Korean War, half a century ago. In turn, the development of East Asia also shares *some though not* all of the properties of the post-WWII recovery and growth of West Europe. In turn, the acceleration-then-deceleration of various economies in West Europe and East Asia, together with the rise-then-fall of the centrally planned economic systems (in New Delhi, Beijing, also Moscow) form the twin defining events in what is known as the *American Century*. Here the American hegemony by technology and globalized finance has replaced the British hegemony by gunboat under quintessential colonialism.

Both West Europe and East Asia were ravaged by war in 1945, and lagged much behind America. Then both have recovered and prospered, utilizing waves and waves of new technology<sup>3</sup> developed in America<sup>4</sup>. In West Europe and East Asia, economy after economy had their spells of 'miracle growth', at rates much faster than the steady but prosaic American growth. Invariably, by the end of their 'high growth' period, they would have erased much of their proportional gap in per capita real income versus America. Yet, a recalcitrant residual gap remains, defying efforts for any further reduction. As a first approximation, the mechanism of such development may be

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<sup>3</sup> From antibiotics, to electronics to integrated circuits, the globally positioned satellites, (GPS) and the internet, to genetic and nano technology,

characterized as an axle-and-spokes model of interdependent growth. See Wan (2004) reported in the DEGIT IX Conference.

In such a model, America - as the 'axle' - serves as the incumbent technological leader. For other economies, the high growth period<sup>5</sup> represents a 'window' for intensive inward transfer of technology and practice. This is an interval when the *capacity to absorb* is high, but *the technology backlog* remains substantial. The process of technology transfer is a contact sport, accessible only to those open to foreign trade and investment. To wit, by combining with 'openness', the 1978 reform in China has succeeded to induce sustained rapid growth, while all earlier reform efforts failed.

Institutionally and culturally, East Asia is very different from West Europe, with its historical ties to the incumbent hegemon. For developed countries in West Europe, trade among each other has intensified, forming a regional network, with the German economy at its core. In contrast, the growth of East Asia is shaped by the fact that in technology, Japan is more advanced than the Asian Newly Industrialized Economies (NIES), namely, Korea, Taiwan, Hong Kong and Singapore, and these four are more advanced than Mainland China. This fact matters. It has produced an ever lengthening supply chain for America: Japan, the earliest member of the chain gravitates to produce high tech components, while China, the latest member joining the chain specializes in labor intensive production.

Low wage may be the beginning of the East Asian advantage, but by no means its end. Focusing on economics and the technology driving the economics, economies in East Asia forged ahead with much single-mindedness. Thus, transistor radio was developed soon after the appearance of transistors. Cameras with view-finders came after the maturity of the optical sensor technology. The computer-numerically-controlled (CNC) machine tools arrived when micro computer became available. Digital watch swept the market when integrated circuits materialized. From Walkman, Camcorder and Nintendo to Sandisk memory, Japanese innovative product design is integrated seamlessly with American cutting edge technology. Likewise, Korean fabrication

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<sup>4</sup> though some might have roots elsewhere

<sup>5</sup> if any

technology in mass production makes that country a world leader in shipbuilding as well as memory computer chips, in spite of the rising domestic wage.

East Asians also networked with each other for industry migration and product cycles. Thus, it is Japan from East Asia which emerged as the world's second largest economy next to America, and it is Taiwan whose merchants made China the world's second largest exporter of information technology (IT) products, overtaking Japan. Likewise, Singapore and Hong Kong also alternate with each other as the world's largest container port and the most efficient harbor.

To recapitulate, three points deserve notice. First, East Asians are not merely imitators. What has sustained their success is innovation. Initially, with low wage and strenuous effort in adaptation, East Asians gained the entrée into the markets of advanced economies, in comparison against Latin Americans, notwithstanding all the advantages of the latter, in both technical competence and cultural affinity<sup>6</sup>. Next, close commercial association with America form the basis of East Asians in their innovative co-development with the American economy, thus catching up with West Europe in their pace of economic growth. Second, so far, East Asian innovations remain dependent upon their close ties with America. Overtaking America is still not possible on a broad front, and not because of the lack of trying. The failure of Japan's Generation Five (G5) Project in information technology is symptomatic of this reality. Finally, on a per capita basis, East Asia is poor in natural resources. In contrast to other developing economies, this may be a blessing in disguise. These societies focus attention to education and the acquisition of pragmatic skill, exporting manufactures for natural resources. Since learning on the manufacturing jobs is likely to be less product-specific, and the supply in educated workers had facilitated the upgrading of the industrial structure, these economies may have an easier time to adapt to market uncertainties, also to move up the product ladder.<sup>7</sup>

Within East Asia, where Confucianism forms the common cultural denominator, the Vietnamese, the Koreans, the Japanese and the Chinese differ from each other, in history

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<sup>6</sup> See the discussion by Morawetz (1981)

<sup>7</sup> Findlay and Wellisz (1993) related how well Hong Kong had adapted to the meteoric rise and fall of the wig industry and Cheng (2001) related how Taiwanese workers shifted relatively easily from the production of straw hats to produce footwear of higher value.



and even more, in language: a division no less than what divides the Basque, the Magyar, and the Estonian from the English. Yet necessity is the mother of competence. The Japanese general trading companies and the more traditional Overseas Chinese network function well in outsourcing. The recent rapid change of the world trade pattern represents more of the transfer of specific technology and institutional adjustment among East Asian economies than the change in factor endowment (including human capital) which dominates the conventional explanations in trade theory. In such transactions, trade in manufactured input is quantitatively a dominant component, also an indispensable catalyst for industrial migration. The rapid change of sources for American footwear imports is nothing short of astounding. Within half a dozen years, the Chinese share went from single digit to nearly two thirds, as the Taiwanese share evaporated almost overnight, after the exchange rate appreciation in mid-1980s. The current expansion of the Chinese trade is a continuation of such patterns.

In the shifting of the supply base and the trade in intermediate goods, the intra-East Asian division of labor resembles intra-national trade (for example, in America, with the migration of the textiles and the automobile industries to the American South from the Northeast and the Midwest states). This is the harbinger of the intra-China expansion of the export base that is currently happening.

For historical perspective, we present Table 1 to highlight the performance and the challenges facing four different economies.

Table 1 Time required to double income, and the date for such doubling.

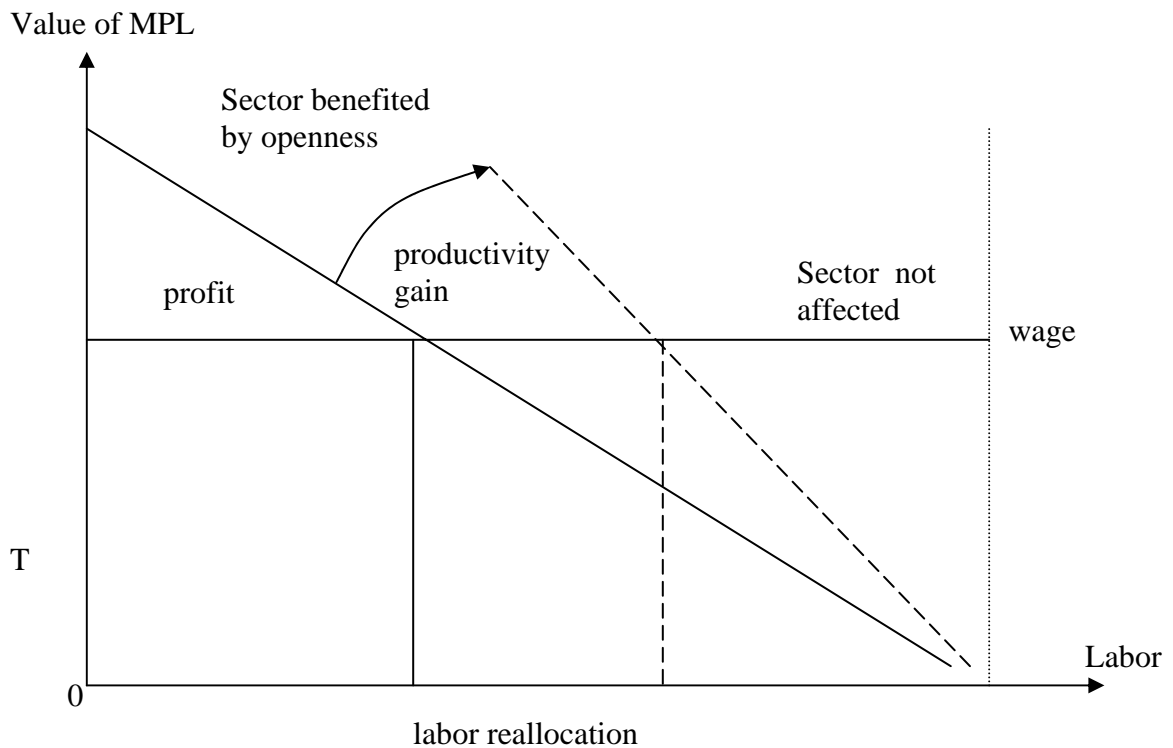
Country	Time for doubling	The dates of doubling	Remarks
Britain	58 years	1780-1838	As the technology leader, made progress only based on own R & D
Japan	34	1885-1919	As a follower, but restricted by resource availability
The Republic of Korea	11	1988-1977	As a follower, unrestricted in resource under globalization
China	9	1978-1987	

See Wong (2002)

### 3. The 'Chinese Exceptionalism': the Low Wage and the Large Population

The 'border effect' exists between America and Canada, as it is shown in the recent empirical studies in international trade. This reflects the fact that due to laws, regulations and human connection, and the channels via existing institutional hierarchies, the shift of production activity is, in general, easier inside the borders than across national boundaries.

Chart 3 A simplified picture



That is why for the China trade, national size matters in view of the low Chinese wage and the large Chinese population. Being 27 times as populous as South Korea (or ten times as Japan) the Chinese economy is *not just another* member, or *just another* collection of East Asian economies. In population at least, what China is to East Asia resembles what Russia is to the Slav peoples. And yet, for now, in value terms, the Chinese total income is only one quarter of that of the Japanese. That means, for the moment, extraordinarily low wages, and also extraordinarily low labor costs, provided Chinese productivity *will rise*. Given the size of the Chinese population, that also means, the relative insensitivity of wage rate to export demand, and a sensitivity of the government to regional income polarization<sup>8</sup>.

<sup>8</sup> What caused China to call for developing the 'West Region' is the fact that there in 1998, 56% of China's area had 23% of the population, with only 15% of the income as well as the fixed assets, with just 3% of the export and foreign direct investment, and the gap with the coastal 'East Region' was widening. See Tina (2002). More recently, the development plan for the West is postponed because of its cost.

To avoid massive internal migration, and the administrative stress that goes with it, the government would encourage local participation in the export trade, throughout the continental-sized nation. Thus the low Chinese wage is likely to endure. Hence, the surplus-labor theory of Lewis and Ranis and Fei regains its relevance, in a changed form. The situation, greatly simplified, is shown in Chart 3.

The Chinese trade expansion has a slow start, and hence a suddenness in its progress. This recent growth of Chinese export is to no small degree the result of internal reconfiguration of the Chinese export base, in geography and in ownership. Both are path-dependent, due to the special history of Chinese political economy.

As China adopted market reform in 1978 in its major institutional and ideological reorientation, much stumbling blocks loomed ahead. The peril of reform is such that East European regimes lost power and Soviet Union imploded as a nation. Unfamiliar with the process, the Chinese leadership was cautious in its approach, holding back temporarily the reform in the lower Yantze delta<sup>9</sup>, the Chinese industrial heartland, but allowed more experimentation in Guangdong, near Hong Kong. The false start in Hainan Island, and the misplaced attention paid to areas around the dysfunctional Macao have revealed amply both the utter lack of information of the Chinese decision makers, as well as the sagacity of their caution in, 'fording the river by feeling the stones'.

It is only after the success of Shenzhen, an instant metropolis behind Hong Kong that the Chinese leaders signaled 'full court press' to develop Pudong, a mammoth industrial region adjacent to Shanghai, as the heart of the new expansion. In population size, Guangdong alone is a province half again as large as Korea, and the equal of France plus Belgium. Yet , history has shown that in comparison, the lower Yantze delta has far outdistances Guangdong, in its proven industrial potential.

But geographical progression is only part - perhaps the far easier part - of the detour in the Chinese strategy. Total state ownership was achieved at heavy cost under the leadership of Chairman Mao. The return of private businesses and foreign capitalist firms were expediciencies initially difficult to comprehend by the mass of idealistic supporters of the State. They had sacrificed so much to bring about the status quo. Whatever their effectiveness, both the reform of large and middle sized state owned firms - still in

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<sup>9</sup> Especially Shanghai

process without total success - and the introduction of the cooperative ('hybrid') form of the 'town and village industries' had been necessary steps in marketizing the economy. That difficult phase has been passed, along the earlier inflation, caused by overheating.

With its low wage rate, it is no surprise that China has emerged as the favorite export platform of the world's multinational corporations (like WalMart), and hence as the *workshop of the world*. Given the mechanism of learning-by-doing, Chinese productivity *must rise*, a boon to its trading partners and a bane to its competitors.

The effects on other economies are of two kinds. The pressure for relocation of the present and the change of the prospect for the future.

First, to more and more foreign producers, relocating to China becomes 'an offer one cannot refuse'. Given the lower transaction cost to relocate factories among culturally similar societies, first, to Hong Kong and Taiwan, then, to Singapore and the Penang state, Malaysia, areas with heavy Chinese settlement, and next, to Korea and Japan, de-industrialization becomes a threat. Competitive relocation becomes a Prisoners' Dilemma. The key is not the expected profit from a move, but the probable loss in staying and competing against rivals already made the move. Thus, in Hong Kong, the 900,000 manufacturing jobs of the 1980s shrank to less than 200,000 today. But then, across the border, there are now more than 11 million Chinese workers in Hong Kong -connected factories. The combination of Hong Kong experience and Chinese labor cost is a grim prospect facing their competitors, elsewhere.

Relocation is often thought of as a process of prosperity and rising wages, but the Crisis of 2001 proved otherwise. The risks and initial cost of relocation, usually avoided by firms in fair weather, might be braved in adversity, as a desperate gamble: once the alternative is sure oblivion. For those who survived and thrived, experience is gained once for all, and an intended temporary relocation may become a long term commitment, encouraging others still on the fence, once the bar of uncertainty is lowered.

But the impact goes further. As the term 'China price' becomes a byword in the American market, those American firms who find it hard to relocate can lobby for temporary protection of their home turf. When the multi-fiber agreement (MFA) expired, foreign suppliers to America, from Lesotho and the Czech Republic, to the Dominican Republic are bereft of that option. The industrially hollowed out Hong Kong can evolve

into a destination for Chinese tourists nearby. The trend of de-industrialization may steer Taiwanese firms to use their Chinese connection in managing supplies for MNCs, rather than producing themselves. The options for African and Latin American manufacturers are less obvious.

Among the enterprises, the pressure is directly imposed on the primary producer, but indirectly also on all supporting firms. For the employees, the young and qualified may be sent over with promotion, to care for the new undertaking, but the fate for the old and less trained is only redundancy. Income polarization thus develops among the workers.

Secondly, as Chinese export expands, new orders may go to old rivals, re-orienting the pattern of specialization. In textbook terms, this change is entirely innocuous. But in real life this is not so<sup>10</sup>.

As post-World War II history shows - technology transfer happens mostly from trading directly with the high income countries, the shift in trade routes is a matter of concern to discerning economists like the late Linsu Kim (2000). He deplored the loss of American market by Korea to China, shifting Korean export outlet to China instead in goods, like steel.

If the interest of an advanced mid-income country like Korea can be hurt due to the reconfiguration of trade, economies of lower industrial potential have even more reason to fear that their development opportunity may get pre-empted.

Having surveyed the impact of Chinese trade expansion on other economies it is time to turn to the effect on China itself.

It is important to note that what faces the world is neither the dawn of a 'Chinese Century', in place of the current American hegemony in technology and finance, nor an upheaval 'of the Chinese, by the Chinese and for the Chinese'. During the current wave of globalization, the economic juggernaut is a collection of multinational supply chains, in which the China serves only as a lowly-paid link. With some doing, China can even be entirely replaced with South Asians, or countries in the Middle East. The change of actors would change nothing essential in the plot. What brought on this new era is the impersonal force of international technology transfer. Backed by the pool of a large but

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<sup>10</sup> The above discussion goes beyond the axle-and-spokes model, since the 'spokes' interact with each other: one latecomer in industrialization may hinder another's path.

poor local purchasers, China has some bargaining power, to be sure, but not all that much: among the world's five billion relatively poor: enough others are waiting in the wings.

The role of the Chinese leadership is at the most a facilitator, along with the MNCs, the high tech innovators and the world's financial institutions. Globalization has brought huge consumers' surplus to buyers around the world, hefty profit to parties controlling certain strategic or cutting edge technology, as well as the owners of scarce natural resources. The gain of the Chinese working class is neither the lion's share, nor is it evenly distributed.

One might scrutinize why China has achieved sustained rapid growth ahead of many other large developing countries. Relative to the others, for better or worse, the Chinese at the early 21st Century are less influenced by religion (when compared to the Islamic societies), by tradition (when compared to the Indians), and are available in larger numbers (as compared the Koreans, the Vietnamese)<sup>11</sup>. They also happen to have the right combination of literacy, health standard, and the social organization (as compared to Sub-Sahara Africa). They share enough cultural and historical connections with the other East Asians in Japan and the Newly Industrialized Economies (NIEs) who have previously served in similar roles on the supply chains (as compared to the Latin Americans). This is why the Chinese workers are advantageously positioned in joining the supply chains, to play the most visible roles<sup>12</sup>. As a result, in common perception, China also enjoys the undeserved honor of posing the greatest economic threat.

Truth be told, in the first place, from strategic planning to product design and marketing, much of the Chinese export is handled by firms outside of the Mainland. For example, a main channel of the Chinese electronics exports is the firm Hong Hai from Taiwan. In the second place, a broad range of manufactured intermediate inputs is imported, from economies with far higher wages. For example, bicycles made in Dongguan contain much imported inputs from both Japan and Taiwan, and in value, either part exceeds the local content. Thirdly, although the two-way trade between America and China is heavily unbalanced against America, the over all balance of trade

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<sup>11</sup> needed to keep wage cost low for a long period

<sup>12</sup> though far from the most remunerative

for China is more or less balanced. Within the past few years, China has become the largest export outlet for Hong Kong, Taiwan and Korea. This means China resembles a conduit to earn American dollars for other economies. See the testimony to the American Congress of Lawrence Lau (2003) in which it is further pointed out that the portion of value added earned by the Chinese is surprisingly meager. Finally, on supply chains, China is not only a late - comer in calendar time, but among late-comers, China also appears 'late in coming', counting from the principal economic reform which opens the economy to the outside world. Thus, in the reform of 1958, Taiwan became open to world trade, without years ahead of the Chinese reform in 1978. By 1983, a quarter of a century later, Taiwanese firms like Evergreen and Acer already played significant worldwide roles in container shipping and personal computers. By 2003, a quarter of a century after its own 1978 reform, few firms from China, a far larger economy, had a position in their own industries, worldwide comparable to Evergreen and Acer, 20 years ago. From all these, objectively speaking, it is far too early to speculate *whether* and *when* would China ever take over the leadership role enjoyed by America now, and Britain in the past.

Leave aside the relative ranking in the world and focus on the absolute position. The current situation is far from an unmixed blessing to China. From the macroeconomics angle, the pressure for job creation on the government is unrelenting. That explains the Chinese emphasis on export volume in lieu of the terms of trade, the real income, etc. This is so, even though China can never fully resolve the problem of under-employment by export expansion. This is why at a time when China attracts direct foreign investment which give their owners hefty profit margin, the government accumulates zealously huge foreign exchange reserves in such assets earning for the Chinese scanty returns.

It is arguable that there is enough dynamic trading gain from learning to justify the promotion of exports with tax rebates on imported inputs. But does it take to serve as 'the workshop of the world' just to gather information from exports? Has the point of immiserizing growth been reached? There is little indication that these are questions of official concern.

At the same time, these are trade issues which should be sensitive to the Chinese government, namely, income polarization, which has rightly attracted government



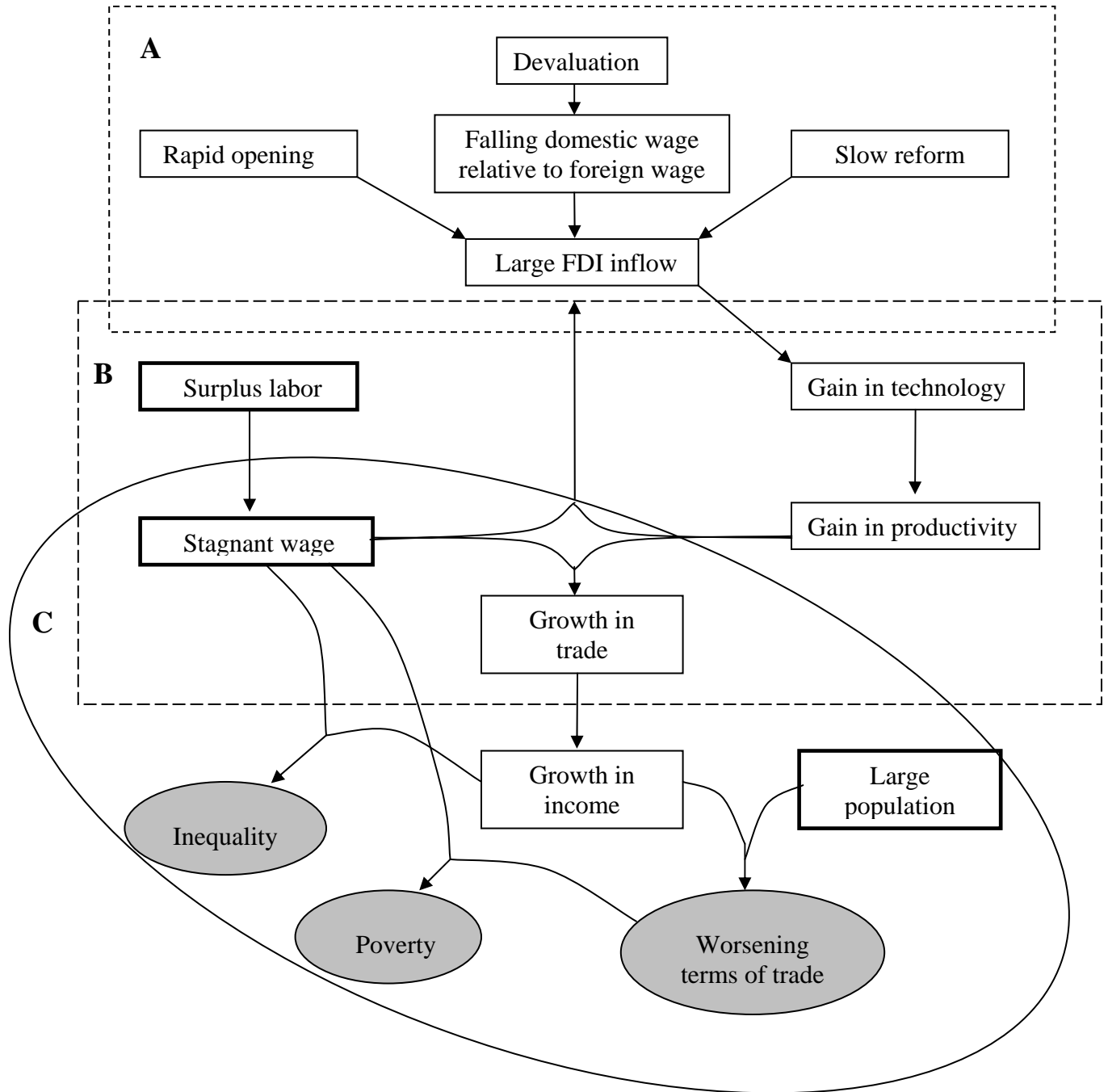
attention in the interregional context. Rightly or wrongly, it is speculated that Chinese rapid growth is related to world wide shortages in petroleum and certain nonferrous metal. Given the fact that petroleum price through its influence on transportation cost can have effect on the cost of living, causing immiserizing growth. Now, the presence of 'surplus labor' may reduce the upward flexibility of the money wages. When this is coupled with immiserizing growth, it would raise the 'inequality measure', affecting members among the working class by reducing the real wage income, perhaps even threaten to place workers below the poverty line.

Given the operation of the world market, such questions can affect laborers elsewhere as well as in China, of course being at the center of the current globalization, the negative effect on Chinese labor can be equally significant on workers elsewhere.

One can summarize the effect of Chinese growth on the Chinese economy in Chart 4, summarized in three blocks. Block A indicates how the reform, the devaluation (also the taming of the inflation) has triggered the growth. Block B indicates the expansion of trade, the inward flow of outside investment and the transfer of technology has made China 'the workshop of the world', a development seemingly resemble a machine of perpetual motion. Block C indicates the limit of growth which can affect China, with profound effect on the rest of the world also, in a way that the rapid expansion of Japan and the NIEs did not have to face in the past.

In many ways, Block B represents the situation today, and the negative effects in Block C have not yet fully emerged. Of course, early countermeasures are important to avoid future difficulties.

Chart 4 Summary of Chinese development, relating to China



The other issues are non-economic in nature, the pressure of industrialization on environment. It is known that fresh water fishery in the Yangtze delta - the pride of historical China for millennia - has been affected in recent decades. Acid rain has decimated forests locally as well as cross-border. The needs for energy has caused the use mining of coal in unsafe facilities, in the face of accidents after accidents. Fortunately, these questions have attracted official notice in China.

Of course, the industrialization of China, with whatever imperfections, remains like some unattainable 'happy state' in poorer Asian lands. Moreover, unless coordinated international effort is made, efforts by China alone would not be of that much help.

On a global scale, *Plus ça change, et plus c'est la même chose.*

#### 4. What is to Be Done?

At this point, some general observations may be made.

First, current Chinese growth is based on both the improvement in production technology and the intensified international division of labor. In itself, such development enlarges the world production potential and, in principle, can be beneficial to all parties in the long run.

Second, what can cause harm is due to either the externality of environmental degradation, like global warming, which is detrimental to everyone, or such lopsided income redistribution which affects the welfare of the world's least fortunate, or else, a process of adjustment so turbulent that it may result in serious injury during the transition or social instability. These are genuine and serious concerns, not to be dismissed as protectionist sentiment of the few.

Third, under globalized production, the present expansion of the Chinese export is in fact a collaborative undertaking, only with the last stage of fabrication taking place on Chinese soil. It may hurt the interest of some party but help others, in China as well as elsewhere.

Fourth, more generally, the Chinese development is by now closely intertwined with other economies in the world. The acceleration of current expansion can cause serious dislocations, but any major reversal of the development in recent years is also likely to lead to equally deleterious to the interest of various parties throughout the world. Take America for instance, a shift of supply source away from China

may mean some sharp price rises in large segments of consumers' spending, and the sales of the dollar assets held as reserves by the Chinese monetary authority would also be quite disruptive to American financial markets.

Fifth, what is needed and what is likely to happen is coordinated transition of trade patterns via international negotiation, among parties with economic power, rather than some formal supra-national forum, which is likely to be mired in gridlock. It would be far from fully efficient, but it may also head off both major economic upheavals and the stalling of economic progress.

Sixth, contrary to textbook economics, there are mutually advantageous opportunities that are not pursued, due to market failure. International negotiation can potentially yield win-win solutions.

Since China is likely to play major international roles, effort should be made to convince the Chinese, both the people and the authorities, that it is to their own interest in taking serious policy measures to restructure the economy. In particular,

(a) Major job creation program must be undertaken to resolve the 'surplus labor' problem. Only then the country can avoid immiserizing growth.

(b) High priorities have to be assigned to environment protection, resource conservation, and the generation of cleaner energy. Their importance is no less than the control of population. The future of economic growth depends on these initiatives.

(c) 'Second stage import substitution' should be promoted, to reduce the dependence on manufactured inputs imported from economies with wage higher than China.

In the longer run, internationally, Chinese must become richer clients, and also less bruising competitors.

## Appendix A The PRC Economy

### 1. Introduction

The growth record of the PRC economy is very striking. As the most populous in the world, the economy of China is not only important for its own sake, it also forms a vital part of the world economy in this era of globalization. Its future performance is now critically intertwined with much of East and Southeast Asia. On the one hand, China is the largest export market to most of the NIEs. On the other, as the 'workshop of the world', the Chinese industries also form the critical links in the supply chains for much of the manufacturing imports of the developed world.

Most writers maintain that the economic growth of the PRC has gone exceptionally well; a small minority would doubt the statistics. This paper tries to make comparison with the record of other economies, so we can draw conclusions more intelligently.

Two simple comparisons come next.

#### A. Comparison with India

Figure 1 below plot the relative real per capita GDP of the PRC and India between 1952 and 2000. The following points might be deduced.

- a) Both China and India had major economic reforms, in 1978 and 1991 respectively.
- b) When both countries were before their reforms, India dominated China.
- c) China had its reform earlier than India by 13 years, and China caught up with India in 1982, after the reform in China and before the reform in India.
- d) The 'openness' nature of the reform apparently matters: the adverse shock to the external relations of PRC after the Tiananmen Square Incident, India immediately closed the gap for a year or two.
- e) As the foreign investment record shows in Figure 2, China receives far more than India, and from Figure 3, the 'ethnic Chinese economies' of Hong Kong, Macao, Taiwan and Singapore had played major roles in such investment.
- f) Figure 4 shows that in the period between 1960 to 1996, the ethnic Chinese economies have closed their gap in relative per capita real GDP from America at speeds higher than most economies, but the non-resident Indian economies like Fiji Islands Guyana, Jamaica, Trinidad-Tobago, etc. have even seen their gap widened, some of the time. Even Mauritius had not done as well as the ethnic Chinese economies.
- g) This implies, to some extent, the migration of industries from these high-performance ethnic Chinese economies to the PRC may have boosted the Chinese progress. For example, 11 million Chinese workers work in factories with Hong Kong investment, and 2/3 of Chinese electronics export today are from firms with Taiwanese investment. Figure 5 illustrates the influence of such industry migration from Taiwan to Chinese Mainland, as the change in the sources of American footwear imports.
- h) In the past, much of the FDI to PRC is from Hong Kong (which dominated the world market in textiles) and Taiwan (which has been prominent in electronics), but not from Korea, a major source of steel and ships. The PRC exports textiles and electronics but not steel nor ships. That pattern suggests 'foreign investment dependence'.
- i) Industry migration has its limit. The manufacturing jobs of Hong Kong fell from 900,000 at the peak to 200,000 workers now. So the period of comparative advantage enjoyed by the Chinese relative to the Indians may soon be over.

Figure 1 Comparison between India and Chinese Mainland

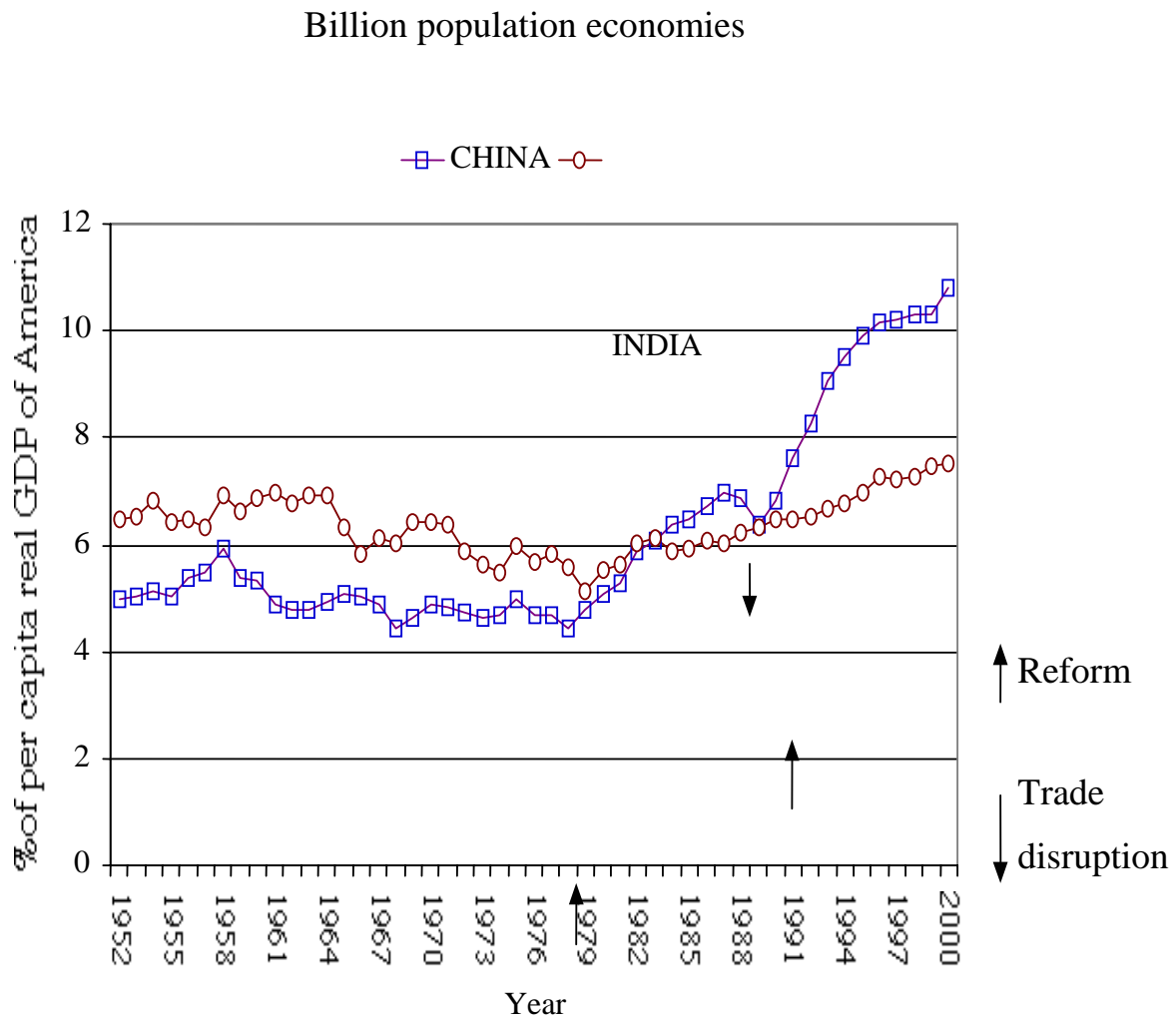


Figure 2 Volume of Direct Foreign Investment

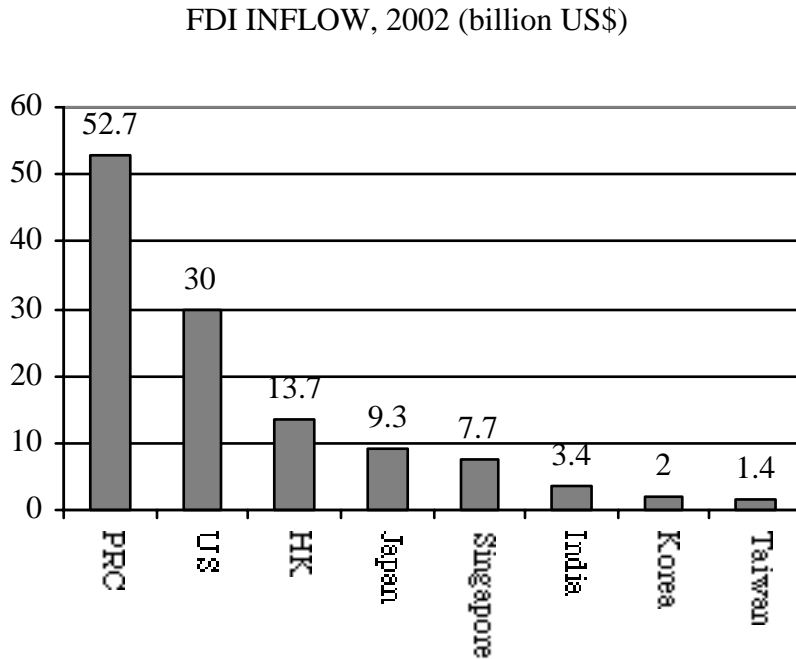


Figure 3 Source of Foreign Investment

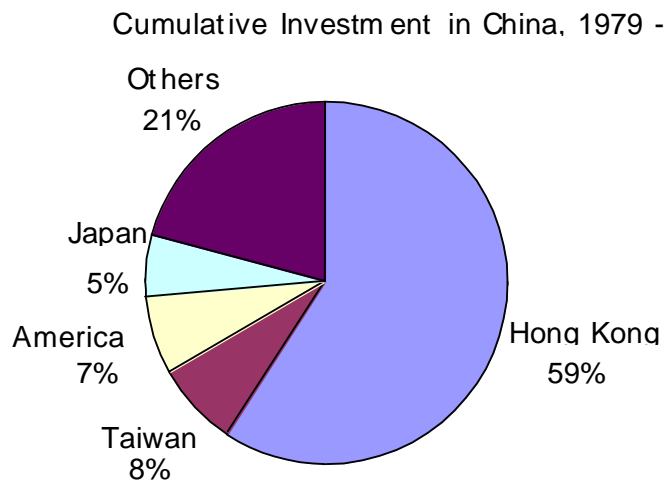


Figure 4 Reduction of gap in per capita real GDP from the US 1960-62 to 1966-68

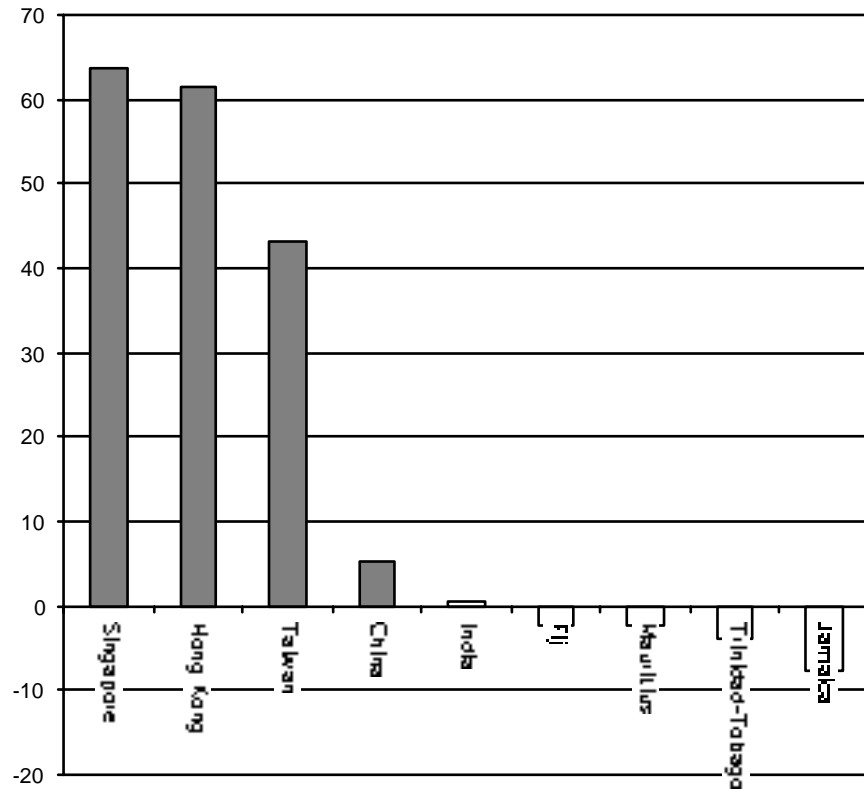
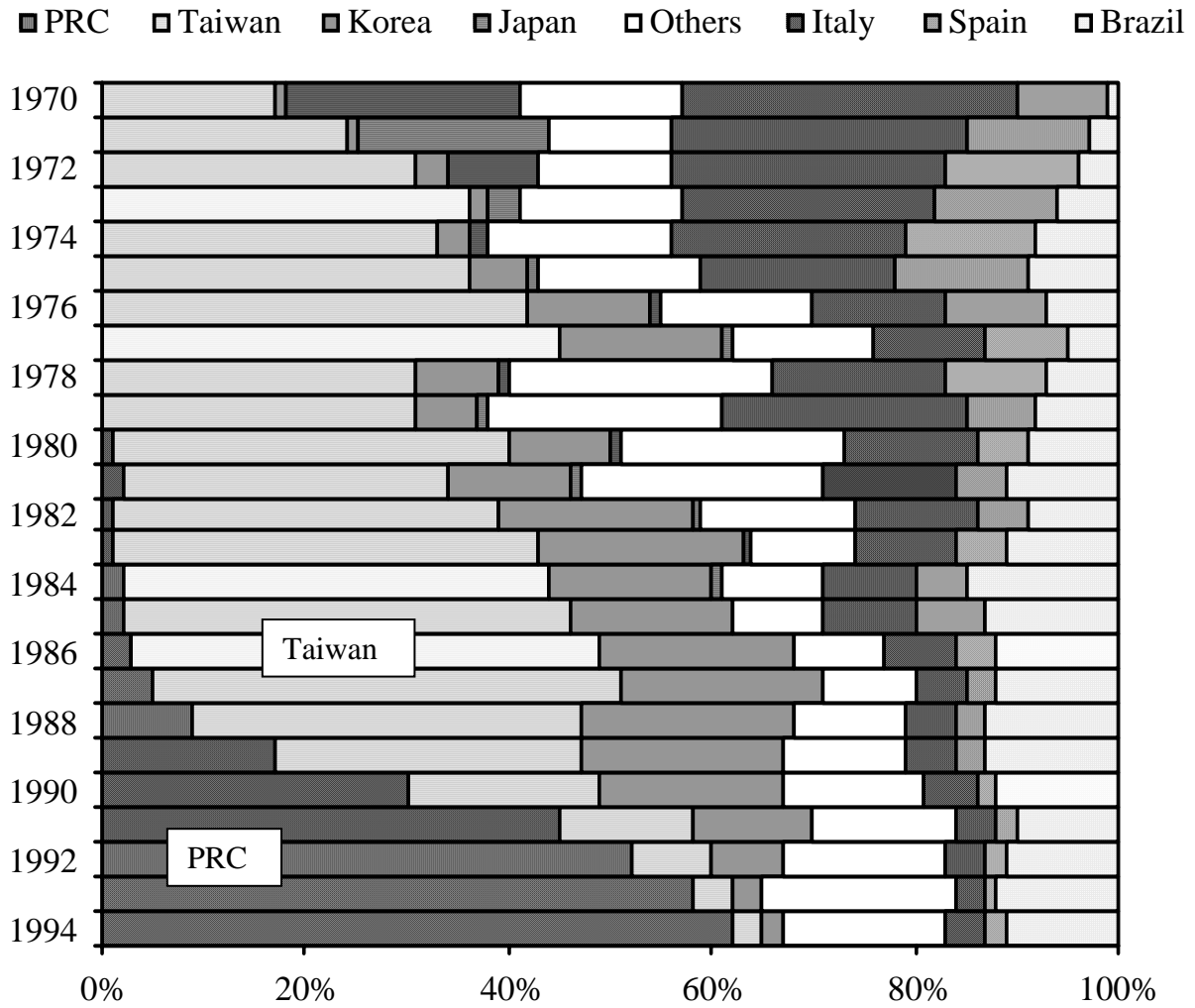




Figure 5 Percentage distribution of the Source of Imported Footwear of America



## B. Comparison with Taiwan

The major reform that led to economic growth happened in Taiwan in 1958 and in the PRC in 1978. One can ask that comparing the 'pace' of improvement, at a given number of years after the date of reform, either in the difference or in the ratio between their relative per capita real GDP. Both of these measures are shown in Figure 6. If this way of comparison is appropriate, then the PRC has not yet performed at the Taiwanese level, 20 years earlier.

A possible objection is that by starting at the lower level, one would not expect that the PRC can perform as well as Taiwan, at the earliest stage.

In any case, the present situation shows a symbiotic economic relationship with Taiwan, with Taiwan gaining much as shown in Figure 7, also in a highly dependent situation. Not just with PRC serving as the largest export market (around 1/4) of Taiwan, but the PRC provides much foreign exchange income to Taiwan in a lop-sided relationship, which is unique and extreme for the PRC. Sooner or later, normal economic force, to say nothing caused by any possible future political alienation, would change this, as the PRC economy waxes stronger still and the Taiwanese economy becomes more dependent, with no visible sign of major diversification of trade nor upgrading of production pattern.

At a time, that America placed great pressure for the PRC to balance bilateral trade, the overall trade of the PRC is largely balanced, except with huge import surplus toward Korea, Japan and Taiwan, with Taiwan being the extreme case, in both (import - export) and (export/import). The foreign exchange flow is:

America → The PRC → Taiwan

and the consequence is the displacement of Japan by the PRC as the world's second largest exporter of information industry products (America first, Taiwan fourth, and Korea fifth).

Figure 6 Taiwan and PRC in Years After Reform

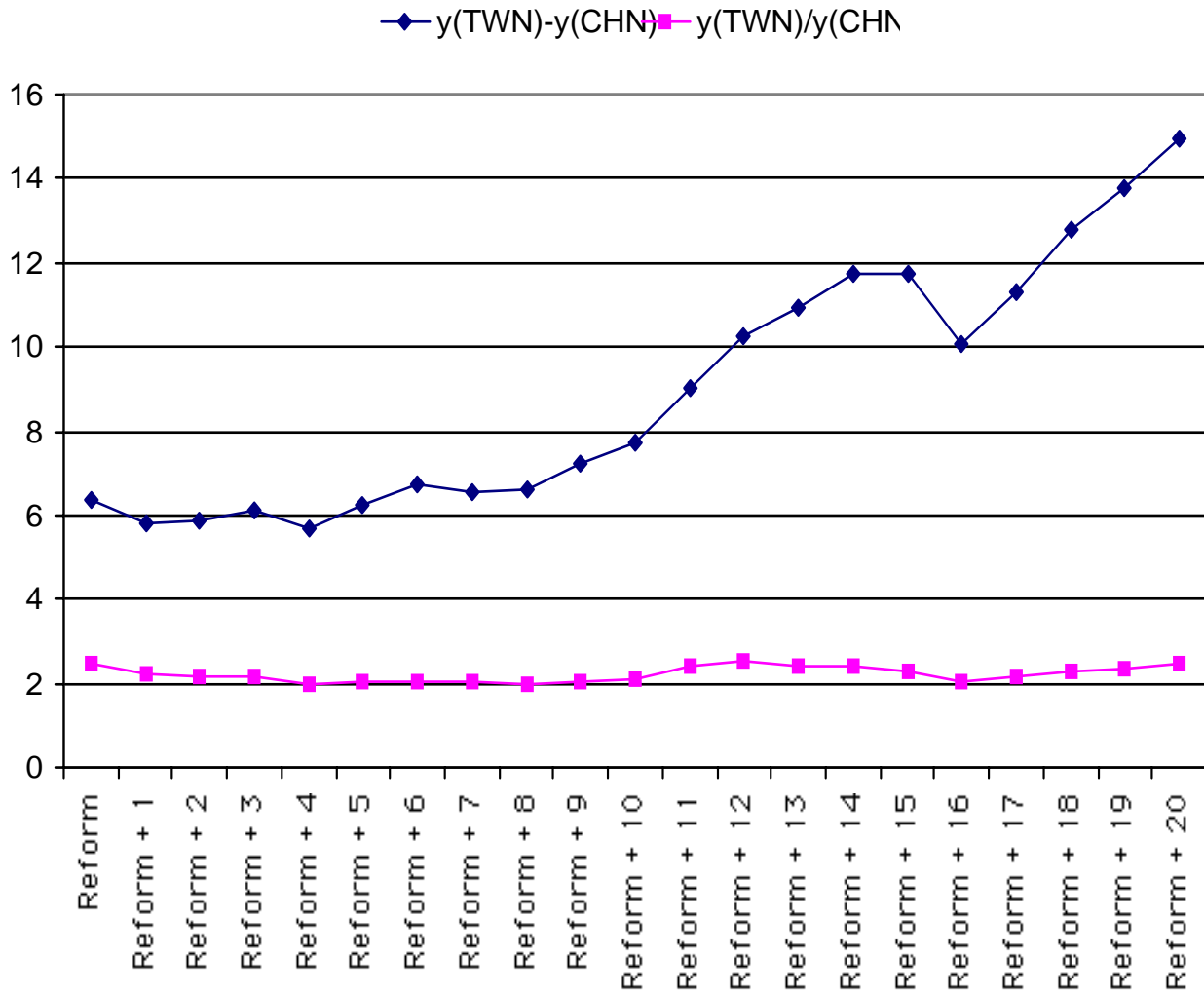
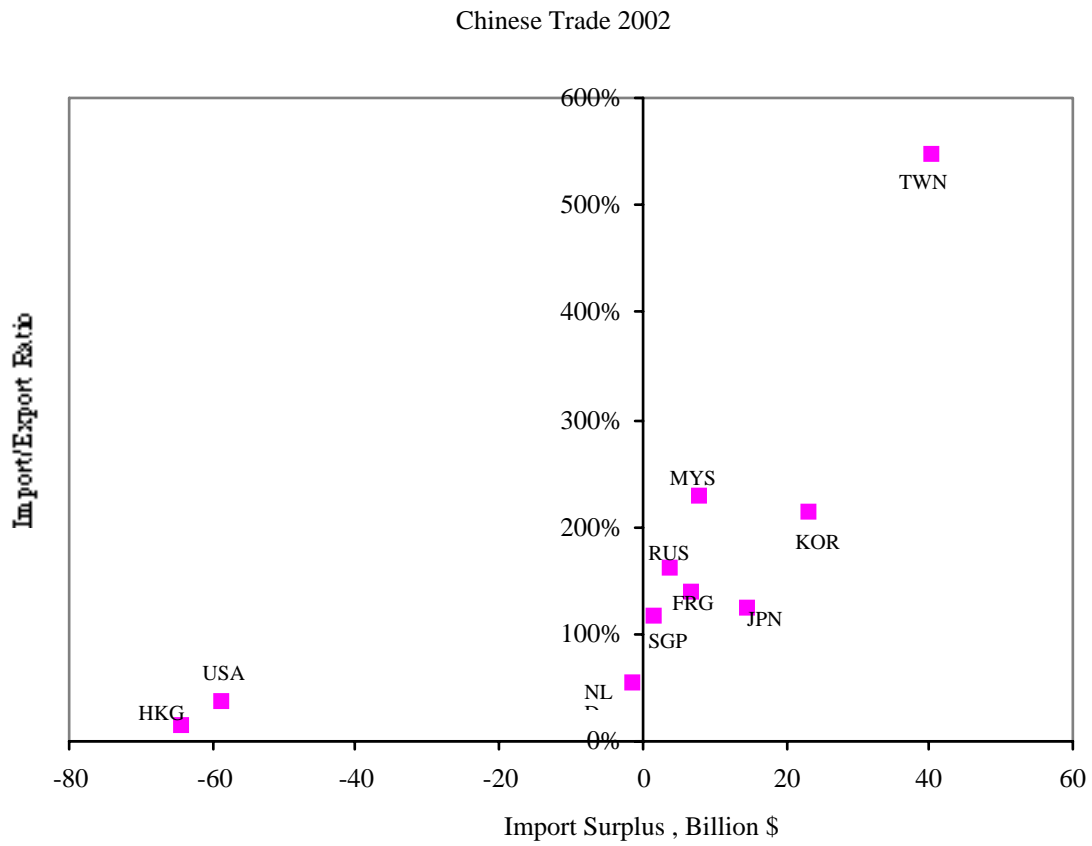


Figure 7. Current Bilateral Trade of the PRC



## 2. The Per Capita Real and the Nominal GDP

In comparison with both Taiwan and India, the growth record of the PRC is now quite understandable and credible, in both senses of that word. There is not likely much data problem, but nor is it incredibly outstanding. Reform came late, compared against Japan, Korea and Taiwan, but earlier than India and from a base lower than all, India included. The cultural affinity with the other ethnic Chinese economies has played a highly beneficial role.

We must consider now the difference between the nominal and the real per capita GDP. On nominal terms, the PRC has an average income which is 1/20 of America. Adjusted by the purchasing power parity, the ratio is more like 10%. There is a large difference in between. The real measure takes into account that for example, a haircut is a haircut, yielding the same satisfaction, even though due to labor cost, such items may be far more expensive in a richer country, according to the Balassa-Samuelson version of the so-called Penn Effect. For higher income countries, higher wage, hence wage would bring the nominal closer to the real.

One can see how the above explanation fits well among seven Asian economies with 2002 data, in Figure 8. The effect of a low wage for India and PRC is obvious.

Although the growth rate of the PRC has stayed much higher than America (like the case of India), to catch up with America on per capita terms would take several life times, at the present pace, let alone the fact that such a pace may not be sustainable.

But as all economies gradually catch up with the United States, do their relative wages catch up, and hence the Penn effect becomes less pronounced? Figure 9 shows a complex picture: yes for Japan, Hong Kong and Korea; no for Malaysia and Singapore, because of terms of trade effects; emphatically no, for India and China. Figure 10 would focus on the data of PRC in detail. Early years one may be seeing an over-valued RMB, but subsequent stationarity of the ratio must mean that even though there is rapid productivity gain, the 'real wage' by and large has not gone up sufficiently to make a difference, in the half a dozen years, 1996-2002. In particular, the pattern is starkly different from either Korea or Japan.

Figure 8 The Penn Effect, 2002.

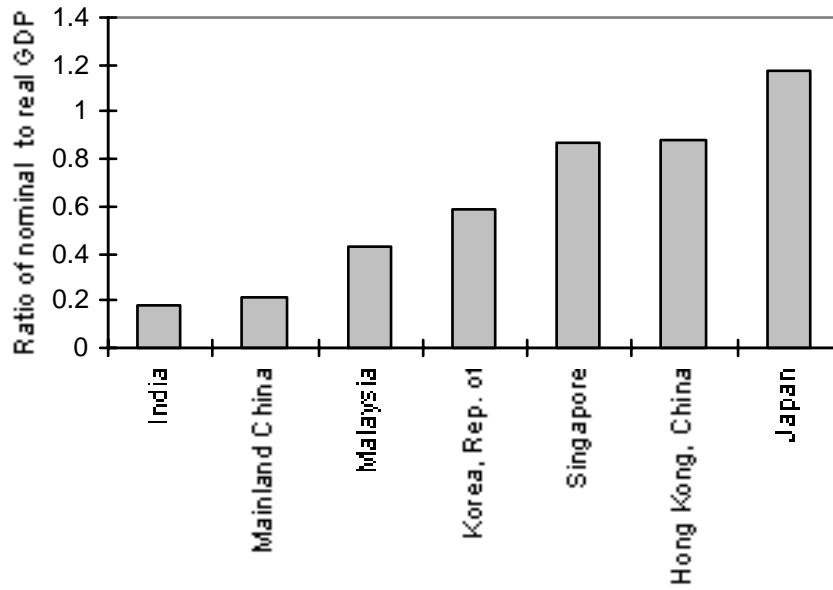


Figure 9 Is there a Penn Effect over time?

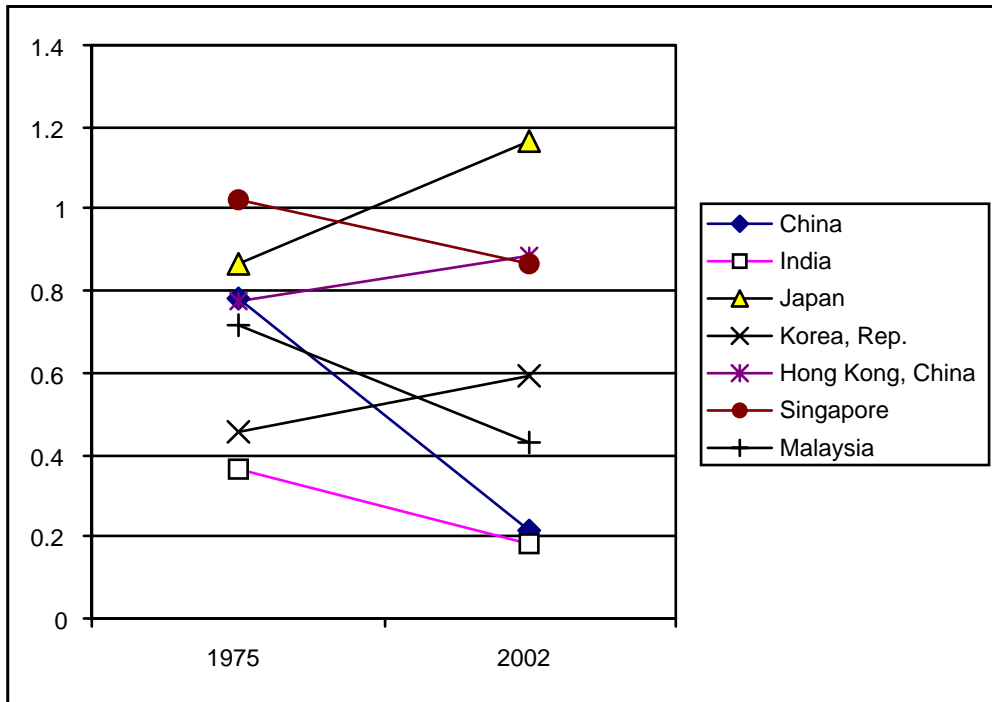
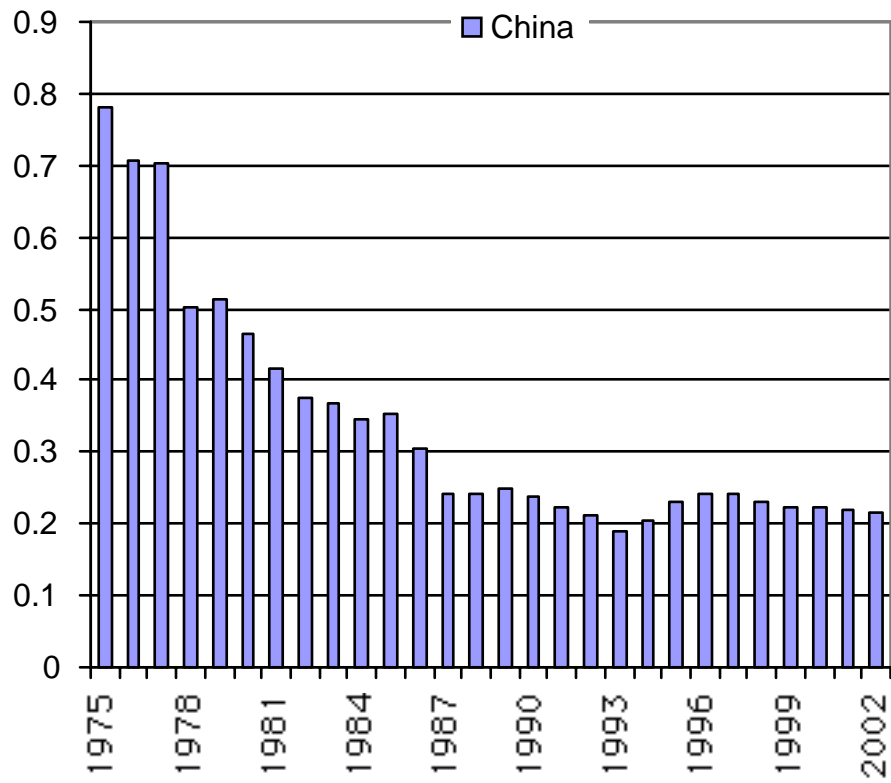


Figure 10 The Chinese 'Penn Ratios'





### 3. Chinese 'Exceptionalism'

In many ways, the Chinese economy behaves distinctively differently from other economies in the world, in particular, its neighbors nearby, including the following seven aspects.

(a) As it has been long observed that the less developed is an economy, then proportionately, the more its real per capita income exceeds its nominal per capita income. This phenomenon, under the name Penn Effect has been explained in different ways. In any case, by any of such reasoning, when an economy develops, the two measures of per capita income must tend to converge. But for PRC the ratio between these two measures are farther and farther from unity. By the Penn effect alone, this should happen if the Chinese economy had stagnant or negative growth. But in fact, the PRC economy has grown faster than most of the other economies in the world.

(b) From the launching of manned spaceships and the sequencing of the silkworm genome, to the number of scientists and engineers trained every year, Chinese science and technology does not seem to be all that backward. Yet, in both nominal and real per capita income, the PRC is so low that even at its present phenomenal growth rate, it will still take centuries to catch up with Japan or America.

(c) Yet, if growth potential depends on per capita income, no other economies at the level of per capita income as the PRC has ever had a rapid growth.

(d) Unlike Japan and Korea which promote strategic industries by granting directed credit to local firms, the Chinese government banks give most loans to state enterprises, which contributed relatively little to growth.

(e) Again unlike Japan or Korea which hesitated to allow foreigners making investment as equity holders in their early stage of development, PRC offers tax holidays etc. to attract foreign investors.

(f) It is equally unusual that the PRC has not only attracted more foreign capital than any other country, but such invested capital usually come as foreign direct investment, in rather small scale, and not very profitable.

(g) The Chinese trade pattern also defies expectations. The PRC enjoys comparative advantage in both the low skill goods of shoes and garments and the high skill products like electronics. Yet, China also imports both primary products as well as goods from industries enjoying scale economy, like steel.

## Appendix B The Contextual Approach

The evolution of economic studies may be compared with astronomy, an empirical discipline with few opportunities for experiments. As understanding deepened, the field advances from isolated observations to over-all structure and dynamics. Without attempting a model-for-everything, theoretical development can already been applied to practical applications

Over time, interest in astronomy extends from individual objects: a satellite<sup>13</sup>, a star<sup>14</sup> and some planets<sup>15</sup>, to ever broader assemblages: the solar systems, the galaxies, groups, clusters, the large scale structure and the expanding cosmos. Exceptional events like the supernova and the comet observed by Tycho Brahe, contribute to the discovery of regularities and invariants in the field. The practical benefits go from the environment preservation to protection against in-coming asteroids.

The evolution of economics takes a similar course, from the studies of an agent (e.g. the Gossen's observation), an industry (e. g., the 'flying geese' pattern), and an individual economy (e.g., the turnpike theorem), to the formulation of various hypotheses on the world wide income distribution. Building blocks set down earlier pave the way for advances toward the grand synthesis. Better understanding means better strategies against poverty and inequality.

Thus, by the observation of Gossen, time is needed for consumption, but consumers have limited time, so ever newer goods appear in ever richer societies, with ever more time-saving designs. By the 'flying geese' scenario of Akamatsu, the catching up process of typical economies cause the representative industries to go through life cycles: from the emergence phase of import substitution, to the blooming phase of self-sufficiency - then -export, to the ultimate phase of decline. By the turnpike theorem, an economy moves toward a time horizon, approaching some asymptotic, constant growth rate. By the hypothesis of relative convergence, member economies in convergence clubs evolve along adjacent growth paths. For the worldwide income distribution, indications suggest a gravitation toward some twin-peak pattern.

The world economy of the last 60 years can be recognized as the dawn of a new epoch, with unending waves of new products and technology arrive at an unprecedented pace. The exceptional episodes of sustained rapid growth in East Asia herald the emergence of an interdependent world. As a first approximation, the law of motion is captured in an axle-and-spokes model. Extending the theme in Wan (2004), a model by Clemhout and Wan (2005) is now built to integrate with the framework the conventional theory of growth<sup>16</sup>.

Using such an approach, the period 1945-2005 marks a new epoch. There is profound and ceaseless change: vital technical progress, in medicine, micro-electronics, and informational technology, is coupled with the expansion of the fully developed societies, from the North Atlantic and Australia into the Asian - Pacific littoral. There are

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<sup>13</sup> the Moon

<sup>14</sup> the Sun

<sup>15</sup> Jupiter, Venus, etc.

<sup>16</sup> Kuznets (1982) had sketched out the idea of such a theory in literal terms. Gomulka (1990) approached the catching up issue from empiric angle. The identification of America alone as the axle, and the full development of an analytic theory are done in Wan (2004) and Clemhout and Wan (2005)

also patterns reflecting remarkable stasis: within the 'American century' centered on technological advantage: American per capita real income, measured in purchasing power parity, leads most other economies, most of the time; American economy grows at a steady trendless rate, over the entire period. Ironically, the spectacular episodes of sustained rapid growth in East Asia serve to dramatize two characteristics, both measured against America:

(a) There is a period of high growth, often hailed as a miracle, which lasts a for some interval, with the growth rate falling invariably then toward the American rate.

(b) Compared against America, the proportional gap in per capita income would first reduce by some significant degrees, but then settle down to some irreducible residue.

In truth, (a) and (b) form a 'common pattern' shared also by various West European economies during their earlier phases of high growth, under the Marshall Plan, soon after the Second World War.

What is remarkable is not just the eventual tapering off of the growth paths of these formerly miracle economies (in West Europe or East Asia), but (i) *all* of them slow down to average growth rates not far from that of America, and (ii) *each* of them leaves a residual proportional gap from the American path, which is resistant to further reduction.

It is striking that (iii) this 'common pattern' is not restricted only to economies of a certain location, or with a certain market size, or pursuing either *laissez faire* or active industrial policy, also (iv) nor does the high growth period occur at any particular period in calendar time, or to economies with a particular level of per capita income, measured in either absolute terms or as a proportion to the American level.

Additional, but somewhat fragmentary information may also be stated. The onset of sustained rapid growth is often spearheaded by deregulation for foreign exchange and investment, as well as export promotion. This leads to the inter-connected growth of production and export, in a trading world, with America at its core.

Finally, from the over all perspective, catching-up (with America) is far from a common behavior shared by all economies in the world, during this period. Less than a third of the economies in the world have managed to reduce their proportional gaps in per capita real income against America within the 36 years between 1960 and 1996.

Depending upon how events are characterized, one may even argue that over the entire world, income distribution is more polarized. For the per capita real income relative to America, the 'twin-peak' view may be augmented into the following scheme:

- 1) There is America, standing out alone like a pinnacle
- 2) There is a group of economies, less than half in number, but possibly more in population, gravitating slowly toward a zone distinctly below America, and
- 3) There are economies in the rest of the world - whether there may or may not be any absolute growth in per capita real income - are facing widening gaps between themselves and America.

Now quantitatively, the speed of catching up by any technology follower may depend upon the nature and pattern of the trade. Yet there are trade patterns and trade patterns, some favors one follower, some the other. Countries compete against each other in deciding which pattern prevails. In the axle and spokes model, this means spokes compete against each other and there is then trade friction. Such reality is not yet formally analyzed.

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