

# **Dynamic Comparative Advantage and Evolution of Capitalist World System**

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This paper propose a new framework for historical and theoretical political economy, an institutional Marxian political economy which consists of a basic theory of capitalism, an intermediate theory of specific types of capitalist world systems, and an empirical analysis. In this paper, I concentrate in an intermediate theory. I introduce three new concepts into institutional Marxian political economy in order to investigate evolution of capitalist word system: dynamic comparative advantage, the super Minsky cycle and the new flying geese theory. Then I investigate evolution of capitalist world system after World War II paying special attention to industrialization of East Asia. And finally I will discuss whether the subprime loan crisis is a systemic crisis that will destroy the present capitalist world system.

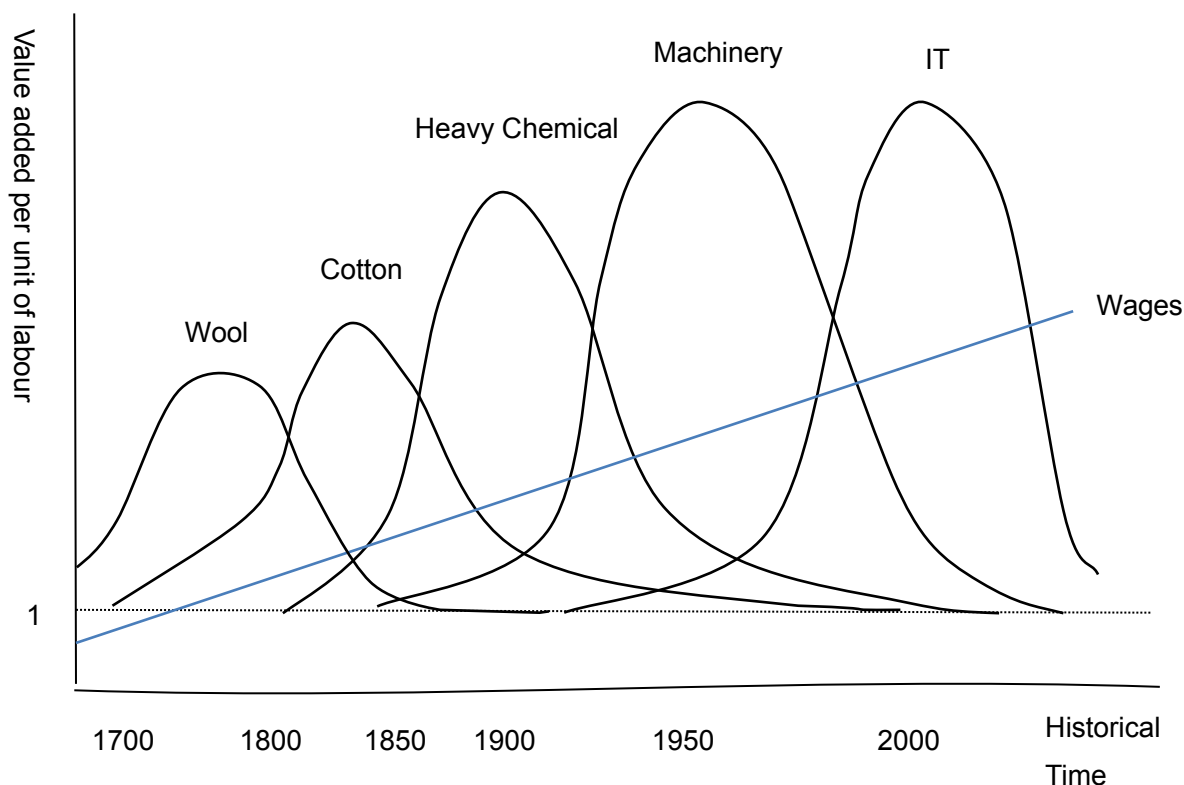
## **1. Dynamic Comparative Advantage**

### **1a. Dynamic comparative advantage and structural crisis**

A dynamic industry is an industry where productivity growth is the most rapid. It is also a leading industry and an engine of economic growth. It shifted historically: agriculture and wool were the most dynamic industries in the 18<sup>th</sup> century; the cotton industry between the late-18<sup>th</sup> and mid-19<sup>th</sup> centuries, heavy and chemical industry from the late-19<sup>th</sup> to the early 20<sup>th</sup> century; the machinery and electronics industries from the 1920s to the 1970s; and IT and knowledge intensive industries since the 1980s (Figure 1).

Value added per unit of labour (VAL) is the amount of value-added which is produced by one hour's labour. It can be broken down into the value-added per unit of product and the number or volume of commodities produced by one hour's labour. The value added per unit of product is large when a new product is exclusively supplied by a firm. It is called in many terms such as extra profits, super profits, monopoly rents and technological rents. It eventually decreases with diffusion of technology and increasing competition. New competitive products also reduce it. In dynamic industries, VAL increases with the increase in productivity, and eventually decreases, since the volume of product increases with productivity growth, but value-added per product will eventually decrease (Figure 1). VAL eventually becomes 1 when the technology is fully diffused both domestically and internationally.

Figure 1. Dynamic Industries and VAL



The dynamic comparative advantage depends on the difference between VAL and wages. Historically, real wages have increased in proportion to average productivity growth. Let us examine the mechanism by which real wages increase. In dynamic industries wages are kept within productivity growth. For example, capital accumulation in mid-19<sup>th</sup> century England was dominated by the current dynamic industry, the cotton industry. When capital accumulation increased in the cotton industry, capital accumulation in other sectors also increased. With the progress of prosperity, employment increased, and some types of labour in the dynamic industries became scarce, and so wages rose more than productivity growth, which reduced the rate of profits and eventually caused a crisis. In dynamic industries, productivity continuously increased by means of new method of production, which was introduced by replacing old fixed capital by new and more productive fixed capital in a depression. The new and more productive machinery created relative surplus population and reduced wages less than productivity growth. It increased VAL and the dynamic comparative advantage. Then the accumulation of capital recommenced under sound conditions of exploitation and abundant surplus population. Thus the conflict between capital and labour over the distribution of income was solved automatically through a cyclical crisis,

and wages were kept within productivity growth. I call this a cyclical crisis, which reinforces self-regulating nature of capitalist economy.

When the available labour of the industrial reserve army was eventually absorbed with the progress of capital accumulations, wages in lagging sectors had to be increased in order to secure workers even though these sectors failed to match the fast productivity growth observed in dynamic sectors. Large wage increases in the dynamic sectors spilled over into the lagging sectors, and were mostly passed on to consumers in the form of higher prices. This is Baumol's cost disease (Baumol, 1967). Once Baumol's cost disease starts, the ratchet effect of wage rises occurs. Rising wages in times of prosperity do not decrease in periods of depression. Unlike wage rises in dynamic sectors, they are not compensated by productivity growth, and therefore they decrease profits and the dynamic comparative advantage.

Through the repetition of business cycles, the dynamic comparative advantage starts to decline with decreasing VAL and rising wages. This causes serious structural crises, like those at the end of the 19th century and in the 1970s, which destroyed existing capital accumulation regimes. I call this crisis, a structural crisis of a capital accumulation regime.

There are two strategies to escape from reduced dynamic comparative advantage. The first is the sophistication of industrial structures, shifting leading industries to new dynamic industries. The second strategy is to reduce international competition by forcing free trade and market policies to other countries so that they cannot catch up (Chang 2002). It is relatively easy for catching-up countries to adopt the first strategy, if new dynamic industries have already been well developed by advanced countries and are readily available. When catching-up countries adopt this strategy, they follow a linear development path. It is more difficult for the most advanced country to develop a new dynamic industry, because of the high risk and cost involved. As can be seen from Figure 1, there is the possibility that the VAL of a new dynamic industry may be lower than that of the current dynamic industry until the new dynamic industry takes off. There is a conflict between social benefit and private benefit. If the choice is left to the market, less capital is invested in the new dynamic industry than would be socially preferable. It may be easier for ambitious catching up countries to develop a new dynamic industry. Firstly, the deference between the VAL of the current and new dynamic industries is less than that of the most advanced countries. Secondly, their wages are lower than that of the most advanced country. Thirdly, they usually favour interventionist industrial, technical and trade policies (ITT policies for short<sup>1</sup>) to catch up with and to challenge the top countries. When catching-up countries take this strategy, they can unfold a new development path.

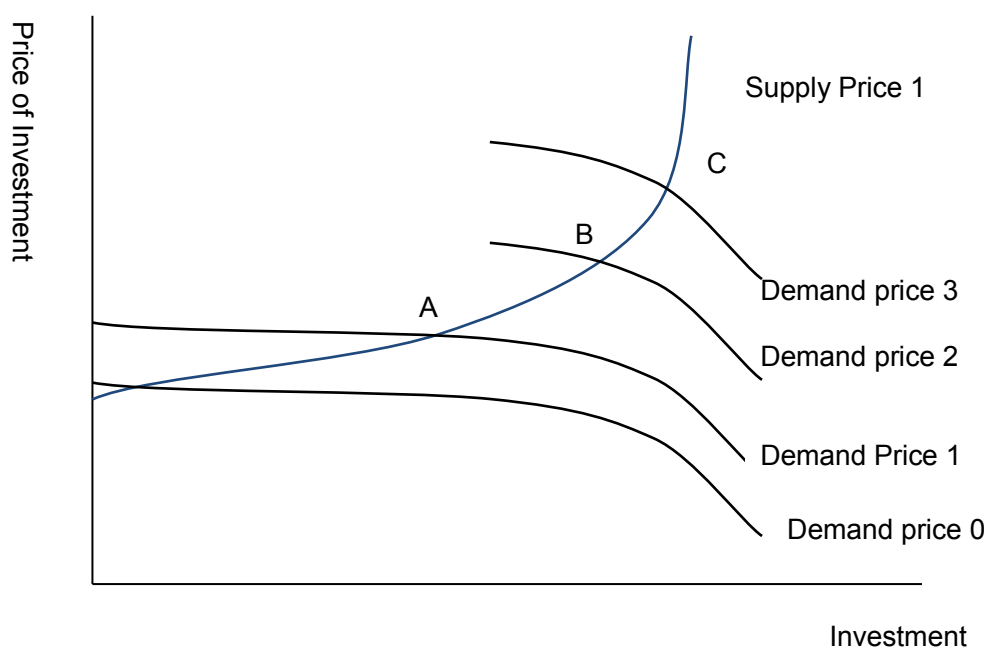
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<sup>1</sup> See Chang (2002) for ITT policies.

## 1b. Dynamic comparative advantage and super Minsky Cycle

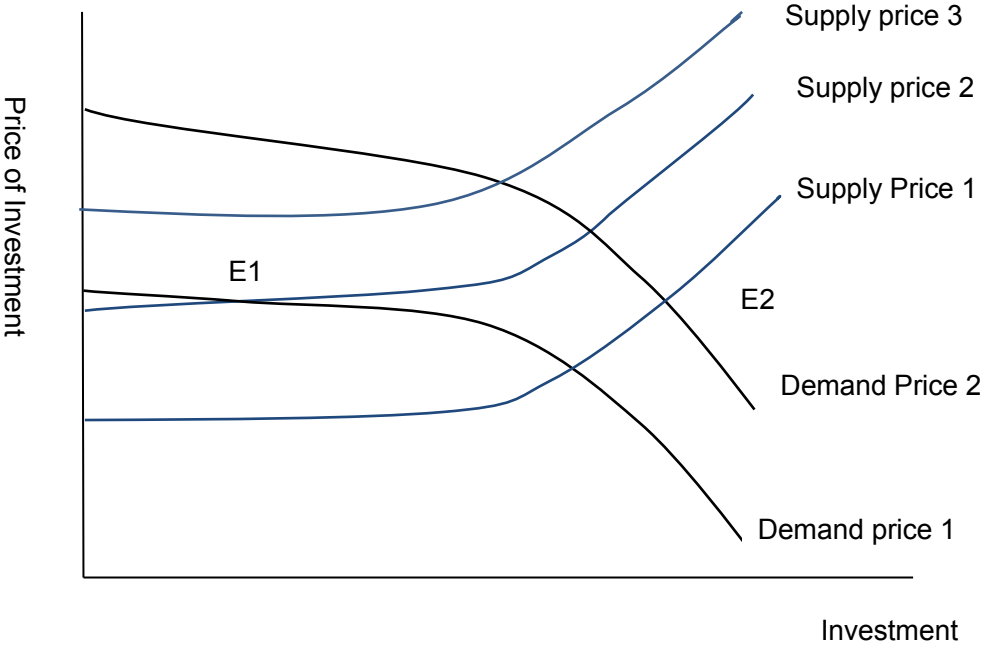
I introduce Minsky's financial instability hypothesis (Minsky, 1982) into our institutional Marxian political economy to explain monetary aspects of cyclical crises. Minsky's basic theory may be reconstructed paying more attention to the accumulation of real capital, as follows (Figure 2). The demand price of investment is determined by expected profit flows of the investment divided by the current interest rate (demand price curve 1). The supply price of investment is determined by the prices of the production of the capital goods (supply price curve 1). As long as the demand prices of investment are expected to exceed the supply prices of investment, investment continues (to A). With the increase in profit flows, both borrowers' and lenders' expectations become progressively more optimistic, and the demand price curve shifts from 1 to 2, and then from 2 to 3. Investment overshoots to B and then C. Financial arrangements change from hedge finance in times of prosperity, wherein borrowers expect revenues cover to repay interest and loan principal, to speculative finance in boom times, wherein revenues cover only interest, then to Ponzi finance, wherein revenues are insufficient to cover interest. When monetary authority tightens credit due to inflation, the boom collapses (the demand curve 3 to 0).

Figure 2. Basic Minsky cycle



Minsky's original theory does not explain the rise and fall of an accumulation regime. I introduce the concept of dynamic comparative advantage and build the theory of super Minsky cycle<sup>2</sup> that works over a period of several business cycles in order to analyse monetary aspects of structural crises.

Figure 3. Super Minsky Cycle



In the period of increasing dynamic comparative advantage, the supply price curve shifts down with higher productivity (supply price curve 2 to 1 in figure 3), and the demand price curve shifts up with higher expectations of profits (demand price curve 1 to 2); so the theoretical equilibrium shifts from  $E_1$  to  $E_2$ . The economy becomes very dynamic. In the period of decreasing dynamic productivity, the supply price curve eventually shifts up with a higher cost of production such as wages and imported raw materials (supply price curve 1 to 2), and with a lower expectation of profits, the demand price shifts down (demand price curve 2 to 1). The theoretical equilibrium shifts from  $E_2$  to  $E_1$ . Then the economy loses dynamism. When the supply price curve shifts further up (supply price curve 2 to 3), or the demand price curve shifts further down, the demand price of investment (demand price curve 1) is lower than the supply price of investment at any investment

<sup>2</sup> See Palley 2010.

level. In this case capitalists do not invest since they cannot expect profit from investment. I call it a structural crisis, while Minsky (1982, p.108) called this “present value reversal”. According to Minsky this is a reinterpretation of Keynes’s “liquidity trap”, where money hoarding increase infinitely.

### **1c. The new flying geese theory**

Industrialization in East Asia has been studied in the framework of Akamatsu’s flying geese theory (Akamatsu 1962). I consider it an early adaptation of the dynamic comparative advantage to analyse industrialization. The first thesis of the flying geese theory is development moving from the importation of foreign goods, through the substitution of imports with locally produced goods, to exports, followed by eventual sectorial decline. The second thesis is that successful developers moved on to new dynamic industries. The third thesis explains regional economic development in East Asia, with declining industries in the leading geese, particularly Japan, developed sequentially by following geese, such as South Korea and Taiwan.

According to Akamatsu, the flying geese pattern of development is on the one hand a catching-up process, where differences in productivity are reduced by conversion, and on the other hand a diversion process, where advanced countries try to improve productivity further by upgrading their industries and introducing new production methods. In its original form, the flying geese theory covers only the case of linear development and applied only to industrialization in East Asia in the post war period. The theory of dynamic comparative advantage is complements Akamatsu’s flying geese theory. In the new flying geese theory, we cover both liner and non-liner development. Changes in the leader of new dynamic industry such as from Britain to the USA are explained by the strategies adopted by the countries when they faced structural crises in a capital accumulation regime. The new theory explains both linear and non-linear industrializations in any countries including advanced, catching-up and developing countries and in any capitalist word systems. It also emphasises importance of ITT policies and complementary institutions more systematically.

### **1d. The capitalist world system**

During the evolutionary process of capitalism, numerous varieties of capitalist economies have appeared. While most of them have failed to establish a new world system, the British variety in the nineteenth century, and the US variety in the twentieth century have been able to establish respective capitalist world systems with complementary institutions (Table 1).

Table 1. Periodization of capitalist world systems

Hegemon	Formation	Establishment (Golden age)	Diversification (Globalization)	Systemic Crisis
Britain	Mercantilism (1750s-1810s)	Liberalism (1820s-1870s)	Imperialism (1870s-1910s)	Interregnum (1920s-1940s)
USA	Interregnum (1920s-1940s)	Welfare State (1950s-1970s)	Neo-Liberalism (1980s-1990s)	2000-

Capitalist world system was first established when British variety of capitalism created complementary institutions, Liberalism, with cotton and railway industries as the dynamic industries. I call it “market capitalism” because it was characterized by the coordination of the economy by the market such as free trade and the gold standard. Dynamic comparative advantages of cotton and railway industries were fully developed in this capital accumulation regime with foreign demand as the engine of demand growth. It created the first golden age of capitalism. Cyclical crises reinforced the self-regulating nature of capitalist economy by solving conflict between workers and capital over income distribution.

Facing the structural crisis of capital accumulation regime of liberalism in the late 19th century, Britain left the choice of capital investment to the market. The result was insufficient fixed capital investment in the new dynamic industries. Instead, Britain increased capital investment in such countries as the USA and other British offshoots, where the rates of profit were higher than in Britain, thereby promoting the first globalization. Dynamic industries shifted to heavy and chemical industries and centres of economic growth shifted from the UK to the USA and Germany. A new capital accumulation regime, imperialism, was created with two challengers and one old hegemon. The dynamic advantage of heavy and chemical industries was not fully developed in the imperialism due to demand side constraint. Market capitalism was finally collapsed by the systemic crisis of the great depression in the 1930s and replaced by Bureaucratic Capitalism after World War II.

The second capitalist world system was established when the USA created complementary institutions welfare state with mass production and mass consumption system and machinery industry as the dynamic industry. A dynamic comparative advantage of machinery industries was fully developed in this capital accumulation regime which successfully replaced foreign demand by domestic demand with wages as the engine of demand growth. This created the second golden age of capitalism. I call it “bureaucratic capitalism” because it was characterized by the coordination of economies by well-structured bureaucratic systems of oligopolistic corporations, big governments, and international institutions. Mild business cycles reinforced the self-regulating nature of capitalist economy by solving conflict between workers and capital over income distribution.

After the structural crisis of capital accumulation regime in the 1970s, a new capital accumulation regime, neo-liberalism, was created which destructed the link between wages and productivity growth. The dynamic advantage of IT has not fully developed in the neo-liberalism accumulation regime due to demand side constraint.

## 2. The rise and fall of the golden age and Catching-up industrialization

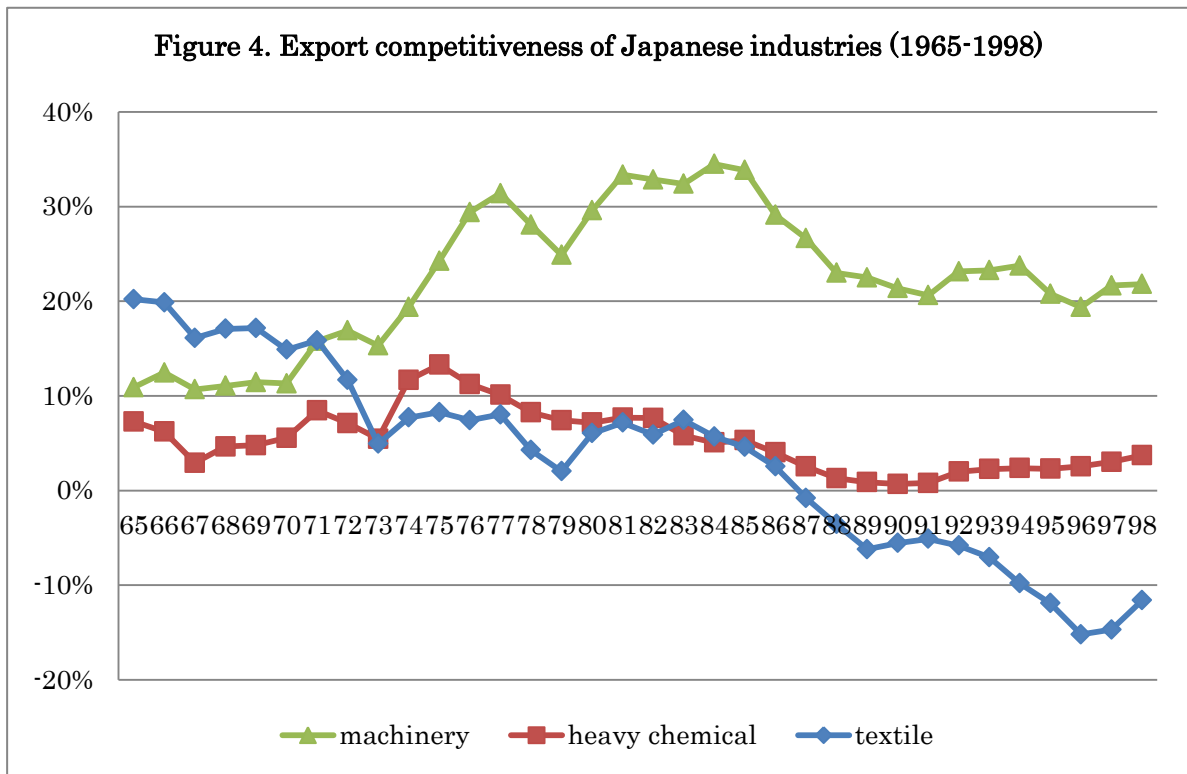
I shall now investigate evolution of capitalist world system after World War II paying special attention to industrialization of East Asia.

### **2a. Capital accumulation regime in the golden age**

After World War II, competition between capitalism and socialism became systemic, and the two systems sought superiority in both economic and military power. The economic systems under both capitalism and socialism were designed to maximise economic performance. The capitalist countries reindustrialized with the strong support of the USA and well-designed international and domestic institutions.

The leading industries shifted from heavy and chemical industries to the machinery and electronics industries in the 1920s and 1930s in the USA. US mass production systems in the machinery and electronics industries known as 'Fordism' were established in the 1950s and were introduced into Europe in the 1950s and 1960s. In Japan, the leading industries shifted from light industries to heavy and chemical ones in the 1950s and 1960s, and then to the machinery and electronics industries in the 1970s (Figure 4). In the golden age, all countries except the USA benefited from catching-up effects, rapidly increasing their productivity.





Export Competitiveness = (Production/Domestic Demand) – 1

Source: MITI (2000)

Post-war governments had powerful institutions with which to maximise economic performances, such as fiscal and monetary policies, ITT policies, and the sheer size of government stabilized economic fluctuations. In the new managed currency system, the central banks could create currency to meet the liquidity needs of the expanding domestic economy. They also had institutions for more direct intervention. Some countries, such as Japan and Germany, favoured direct government intervention and developed their ITT policies and supporting institutions in order to catch up with the USA.

Welfare state policy was the result of the requirements of bureaucratic (or oligopolistic) firms and states. Firstly, bureaucratic firms could not rely upon foreign demand and domestic demand had to replace it. Secondly, it was also the result of state policy. The success of socialist planned economies undermined the superiority of capitalist economies. Bureaucratic governments had to achieve full employment and higher living standards. For these reasons, although there were huge surplus populations in many developed countries in the 1950s and early 1960s, wage rates increased in proportion to average productivity.

The Bretton Woods system was designed to reduce the external constraints imposed on national economies by the gold exchange standard. In order to accelerate the reindustrialization of

the capitalist economies, the USA changed its trade policy from protectionism to liberalism. This US policy change to liberalism helped the reindustrialization of capitalist economies, since it opened its markets up to capitalist countries, and enhanced technological transfer, while tolerating catching-up countries' protectionist ITT policies. The USA also controlled supplies and prices of raw materials and fuel so that capitalist economies would not suffer from supply constraints. The smooth expansion of international trade under the free and multilateral trade regime (GATT), and the abundant availability of the international currency, accelerated the growth of international trade, which in turn accelerated the catching-up and GNP growth of the capitalist countries.

## **2b. Cyclical crises**

With strong support from the state and international institutions, bureaucratic capitalism successfully reversed the pattern of capital accumulation from dependence on foreign demand to dependence on domestic demand, with wages as the engine of demand growth; and it established the mutually reinforcing mechanism between productivity growth and domestic economic growth, resulting in the long-lasting prosperity of the 1950s-1960s with occasional recessions.

### **(1) Prosperity**

Prosperity started mainly with the increase of investment and consumption, raising both employment and the rate of profit. Accumulation of capital increased both wages and profit, and thus consumption demand and investment demand. With the progress of prosperity, firms maximized investment, utilizing credit in order to take advantage of economies of scale and dynamic economies of scale, which further increased profits and investment demand. At full capacity utilization, a Kaldorian profit-led accumulation mechanism worked. The increase of investment raised the price level, which increased profits with sticky money wages<sup>3</sup>. Labour unions tolerated higher prices because the increase in investment increased demand for labour, and increased productivity, which eventually increased real wages.

### **(2) Boom**

Acceleration in the accumulation of capital by credit expansion, and the collapse of the boom by tightening credit, took different forms according to the levels of savings. Minsky's financial instability hypothesis explains boom and bust in current account surplus countries via money market

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<sup>3</sup> Kaldor (1960) and Rowthorn (1982).

psychology<sup>4</sup>. As long as the demand prices of investment were expected to exceed the supply prices of investment, investment continued. With inflation and increased profit flows, both borrowers' and lenders' expectation became progressively more optimistic, and investment overshot. Financial arrangements changed from hedge finance to speculative finance in the boom, and then to Ponzi finance. When the monetary authority tightened credit due to inflation, the boom collapsed.

In current account deficit countries, the accumulation of capital was restricted by the balance of payments. Full employment was reached by expansionary monetary policy and capital inflow, which tended to increase inflation. As long as the rate of inflation was kept equal to or less than the US rate of inflation, the balance of payments did not deteriorate. But once the financial system accelerated inflation beyond that level, the balance of payment was degraded and the exchange rate was strained. When the exchange rate dropped below the predetermined rate, the IMF fixed-rate system forced the monetary authority to tighten credit.

### **(3) Recession**

In all countries, the monetary authorities tightened credit before a crisis actually erupted. This reduced investment, and a recession started. However, recession was a temporary problem, since the economies had been cooled down before the crisis actually began. Once inflation had been reduced, credit was loosened again.

### **(4) Depression**

In the depression-period, a Kaleckian wage-led accumulation mechanism was at work<sup>5</sup>. Sticky money wages and a lower price-levels increased real wages. Increase of real wages together with automatic stabilisers increased aggregate demand. The positive effect of demand via increased real wages depended on the price level. The more the prices of wage goods decreased, the more consumption demand increased with the same money wages. Productivity growth in wage goods industries allowed a reduction in the prices of wage goods in the depression in the golden age without reducing average profits. The supply price of investment also dropped quickly and then the demand price of investment curve was higher than the supply price of investment curve again in our model. Oligopolistic firms responded to the increased demand by increasing output. In an oligopolistic market, investment of fixed capital increased with higher utilization rates (i.e. the acceleration principle). As the result of the acceleration principle, the increase of production more

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<sup>4</sup> See Minsky (1978, 1982)

<sup>5</sup> Kalecki (1954, 1971), and Rowthorn (1982).

than compensated for the increase in wages, and increased both profits and the rate of utilization (Rowthorn 1982). Then dynamic comparative advantage was recovered and prosperity started again.

#### **(5) Self-regulating nature of capitalist economy**

Thus cyclical crisis automatically solved the conflicts between workers and capital over income distribution, and reinforced the self-regulating character of capitalist economy, or the law of value, with the help of complementary international and domestic institutions. The long lasting high rate of capital accumulation in the 1950s and 60s fully developed dynamic comparative advantage.

### **2c. Structural change**

The long-lasting high rate of capital accumulation itself made further accumulation difficult in the 1970s. The social institutions that supported the law of value in bureaucratic capitalism declined. With the destruction of these supporting social institutions, the conflict between workers and capital over income distribution became more severe.

#### **(1) Uneven development and its disorganizing influences on international relations**

The long boom of the 1950s and 1960s was much stronger in Japan and Europe than in the USA. The rapid growth of the capital stock, encouraged by plentiful supplies of relatively cheap labour, and by new technologies and management practices developed in the USA over the previous decades, eroded the productivity gap of European and Japanese manufacturing with the USA. This increased competition in international trade and decreased VAL.

A first disorganizing influence of the uneven development on international economic relations arose because of changes in international competitiveness. It decreased the relative strength of US trade, and put strong stress on the free trade regime under the GATT.

A second disorganizing influence was the loss of confidence in the US dollar. In spite of the decline in its current account surplus, the USA could not decrease both its capital exports and its government deficit so as to keep its dominant status in the world economy and to simultaneously stabilise its domestic economy. The result was an increased US deficit and an increased supply of US dollars abroad, undermining confidence in the US dollar, and heightening concern about the US gold reserves. As the result, the USA had to stop conversion in 1971.

A third disorganizing influence was the splitting-apart of the fixed exchange rate system. The combination of diverging productivity growth and inflation rates generated persistent payments

imbalances which undermined the fixed exchange-rate system. As the result of the second and third disorganising influences, the Bretton Woods system was abandoned.

A fourth disorganizing influence was supply constraints. High demand for energy and other materials put pressure on available supplies. The rise in food, raw material and fuel prices in the early 1970s, a response to high demand and which was topped up by speculation, increased supply prices of investment and exacerbated domestic inflationary pressure.

## **(2) Productivity growth slowdown and its disorganizing influence on domestic economic relations**

The long-lasting high rate of capital accumulation eventually reduced productivity growth. First, 'Fordism' reached the saturation stage in many advanced countries by the early 1970s. One aspect of hitting this limit was the erosion of factory discipline. Second, part of the productivity slowdown stemmed from slower output growth in industries characterised by economies of scale. The decline in accumulation reflected business anxieties about the decline in profitability, the rise in inflation and the other indicators of instability. Third, in Europe the scope for catching up with US productivity levels had declined. Fourth, the relative backwardness of productivity growth in the service sector forced de-industrialisation<sup>6</sup>. Productivity growth in the service sector was difficult with available technology.

A first disorganizing influence of the staggering productivity growth on the domestic economic relations was a reduction in VAL. Diffusion of technology increased competition both domestically and internationally and reduced the price of products and value added. And because of reduced productivity growth, the decrease in value added per product was not compensated by an increase in the number or volume of commodities produced by one hour's labour.

A second disorganizing influence was Baumol's cost disease. Long-lasting capital accumulation eventually exhausted the available industrial reserve army. Large wage increases in the dynamic sectors spilled over into the lagging sectors and were mostly passed on to consumers in the form of higher prices, which further increased wages. Increases in wages under a declining VAL reduced the dynamic comparative advantage.

A third disorganizing influence was conflictual industrial relations. With the over-accumulation of capital with respect to available labour, labour union became militant, and wage bargaining changed from Keynesian with sticky money wages to Marxist with sticky real wages (Epstein and Schor, 1990, p.130.) When demand for higher real wages surpassed stumbling productivity growth,

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<sup>6</sup> Rowthorn and Wells (1987).

wage pressure contributed to a squeeze on profitability. Thus conflict over income distribution changed co-ordinated capital/labour relations into conflictual capital/labour relations.

A fourth disorganizing influence was the paralysation of Keynesian policy. Keynesian effective demand policy is effective for overcoming demand side constraints but not for supply side constraints. Keynes envisaged that a government spending boost would increase demand and the price levels, and prime the pump of private investment by increasing profits. Under supply constraints, government spending increased money wages and exacerbated inflation without increasing profits and investment.

## **2d. The structural crisis of Bureaucratic Capitalism**

The 1970s started with stagflation. The effect of the abandonment of Bretton Woods system was similar to that of the abandonment of gold exchange standard in the 1930s. The new floating exchange regime increased uncertainty in the world economy. However, it also removed balance of payments fetters, and enabled the pursuit of aggressive monetary and fiscal policies which shifted demand price of investment curve up and reignited investment, although Keynesian policies had become less effective. When the economies recovered, the oil shock attacked in 1973 accelerating inflation. The supply price of investment curve shifted further up. Governments tightened both monetary and fiscal policies to reduce inflation, which shifted the demand price of investment curve down. Investment prices were reversed and the structural crisis started.

With the start of severe crisis, monetary and fiscal policies were relaxed. But even with aggressive monetary and fiscal policies, the economy did not recover for the next five years. In this environment of low productivity growth and supply constraints, both the wage-led and the profit-led accumulation mechanisms of the golden age did not work.

The Kaleckian wage-led accumulation mechanism did not work. First, slower productivity growth in wage goods industries, the high cost of raw materials and fuels, and Baumol's cost disease did not allow a reduction in the prices of wage goods in depression as much as before. If prices of wage goods rise in depression, the Kaleckian wage-led effect would be lost completely. Second, increased competition between capitals under staggering demand growth kept idle fixed capital to a minimum. Thus the acceleration principle stopped working.

Neither did a Kaldorian profit-led accumulation mechanism work. First, when firms increased investment and product prices rose, the sticky real wages soon squeezed profits, and firms lost any incentive to invest more. Second, business anxiety reduced investment in fixed capital. The slower accumulation of fixed capital further reduced productivity growth. Third, conflictual capital-labour

relations made capital cautious about increasing employment. Investments focused mainly on labour-saving investment, which did not increase employment.

The US and Japanese economies bottomed out in 1975, while those in Europe finally bottomed out in 1977. Then the second oil shock attacked the OECD countries in 1979, and tight fiscal and monetary policies caused structural crisis again.

### 3. Diversification of Bureaucratic Capitalism and Neo-Liberal Accumulation Regime

Without a complementary combination of the capital labour relation with the production method, the accumulation of capital cannot start again. There were three successful attempts to recover profitability in the 1980s. Centralised bargaining in corporatist and social democrat nations rehabilitated co-operative relations, and workers agreed to reduce wages in order to increase employment. Japanese mini-corporatism combined labour loyalty and the flexible production system. Anglo-American neo-liberal economies demolished labour union power. In these countries, the conflict between workers and capital over income distribution was thus solved by reducing wage levels.

#### **3a. The neo-liberal accumulation regime**

It was the Anglo-American neo-liberal accumulation regime that reshaped the capitalist world system after the structural crisis. As discussed, there are two strategies to avoid the loss of dynamic comparative advantage. Facing the structural crisis the USA (after the 1980s) took the second strategy as Britain did in the late 19<sup>th</sup> century, and changed its international policy to neo-liberalism and forced catching-up countries to adopt this policy. The USA also promoted the second phase of globalization by increasing Foreign Direct Investment. US companies transferred industries which had lost their dynamic comparative advantage to countries with low wages. The US globalization model also encouraged investment and the transfer of manufacturing know-how to developing countries through global value chain. The US monetary authority kept strong dollar policy to encourage capital inflow as Britain did in the 1920s. Developing countries happily accepted the US model of globalization with strong dollar policy, since it allowed them to pursue export-led industrialization policies (Palley, 2010). However, US strategy was different from the British strategy in an important respect. The USA protected and promoted IT industries through massive military spending; these became the next dynamic industries in the 1990s.

The Bretton Woods System was effectively replaced by a market-led international financial system, namely the Eurodollar markets. This neo-liberal international monetary regime made

economies extremely vulnerable to short-term capital flows both in the advanced and developing economies as in the 1920s.

The decisive domestic economic policy shifted from welfare state to neo-liberalism came in 1979. The UK government and the US Federal Reserve pushed up interest rates to unprecedented heights to cut inflation. It increased unemployment and solved supply constraints. At the same time they demolished labour unions' power. This re-established a sound exploitation condition by reducing wages and creating a relative surplus population of the industrial reserve army in the USA and Britain.

The neo-liberal accumulation regime faced two demand side constraints. First, when the economy is in a liquidity trap (or in a present value reversal), an increase of the supply of money does not reduce the interest rate. Consequently, monetary policy lost effectiveness. Second, it destroyed the link between wages and productivity growth. Wages are both cost of production and a source of demand. If wages do not increase in proportion to average productivity, a new source of effective demand is required. It was neo-liberal financial relaxation that solved both problems. It includes regulatory capture such as Wall Street's lobbying efforts to decrease regulations, regulatory relapse such as memory loss regarding the lessons of the great depression, and regulatory escape such as financial innovation<sup>7</sup>.

The processes of financial relaxation are accompanied by increased risk-taking by borrowers and lenders both for investment and consumption. Neo-liberal financial relaxation increased asset prices and reduced the rate of interest, which worked both on consumption demand and on investment demand. It increased consumption demand by increasing income from capital gains and the availability of many kinds of loans. At the same time, decreased interest rates increased investment demand by increasing the demand price of investment, shifting the demand price of investment curve upward in our Minsky model.

In the neo-liberal accumulation regime, borrowing and asset price inflation became the engines of aggregate demand growth in place of wage growth in the golden age. In prosperity, a profit-led accumulation mechanism worked. The Increases in investment raised price levels, which increased profits with constant money wages. With an increase of profit flows, both borrowers' and lenders' expectations become progressively more optimistic. The demand price of investment curve shifted upwards, and financial arrangements changed from hedge finance to speculative

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<sup>7</sup> Financial innovation includes the shadow banking system, derivatives, options, home equity loans, and securitization and tranching of securities (Palley, 2010).



then to Ponzi finance. When the monetary authority tightened credit due to inflation (or due to asset price bubble), the boom collapsed.

Tight monetary policy stopped investment and the crisis began. Both investment and consumption had been heavily dependent on credit; so tight monetary policy made many borrowers bankrupt. In this process, banking crises often started, and this developed into industrial crisis. Once depression started, it did not recover automatically, since a wage-led accumulation mechanism did not work. The economy fell into a liquidity trap again (or into a reversal of present value, in our Minsky model). It required further neo-liberal financial relaxation to start prosperity again, which increased financial fragility. Thus policy-led bubble and bust replaced the self-regulating character of capitalist economy.

The neo-liberal accumulation regime worked well, especially in the 1990s, when new dynamic industries recovered dynamic comparative advantage. IT in the USA and finance in Britain were dynamic industries and engines of growth in this period.

### **3b. Industrialization in East Asia**

Japan was among the countries that most rapidly bottomed out from the serious structural crisis in the 1970s. Japan adopted the first strategy to shift leading industries to new dynamic industries and followed linear development path. Japan had been the most backward country among the catching-up countries in the golden age. When it lost dynamic comparative advantage in the heavy and chemical industries, it was able to shift towards more sophisticated machinery industry, such as automobiles and electrical machinery, from the mid-1970s onwards (Figure 4). Japan was able to recover a dynamic comparative advantage, since Japanese productivity in manufacturing was about 70% of the US level, while its wages were about 50% of the US level in the 1970s (Glyn 2006). Once the link between productivity growth and wages was destroyed a new source of effective demand had to be found. Japan adopted an export-led industrialization strategy, increasing its trade dependency from 10 per cent of GDP in the golden age to 15 per cent from the mid-1970s to mid-1980s. The development of Japanese industries left room for less-developed East Asian countries to industrialize in the flying geese pattern. This is reflected in the East Asian export-led flying geese industrialization pattern as follows.

Industrialization in labour-intensive sectors started in NIES in the 1960s. The US companies started to shift labour-intensive processes such as assembly lines for electrical equipment to NIES. This was followed by Japanese FDI. The main exports from NIES were labour-intensive products, such as clothing, textiles, groceries, and electrical and electronic equipment. Most of them were produced by subsidiaries of companies from advanced countries. From the mid-1970s onwards national strategies in NIES promoted industrialization in heavy and chemical industries. In the

1970s, Japan started to export replica factories, including know-how and skills, to East Asian countries, a process which made the introduction of heavy industries much easier and significantly increased productivity in NIES<sup>8</sup>. These developments formed a well-developed flying geese pattern.

In the first half of the 1980s, the US dollar was hugely overvalued. The IMF calculated that the Japanese, Korean and Taiwanese currencies were undervalued by 40 per cent, 35 per cent and 25 per cent respectively against the US dollar in the mid-1980s (IMF, 2010). Their current account surplus shares of the world's combined surplus in peak years were 42 per cent, 6 per cent and 8 per cent respectively. After the Plaza accord of 1985, these currencies appreciated rapidly. The Japanese yen had appreciated by 46 per cent against dollar by the end of 1986, and the Taiwanese dollar appreciated by 57 per cent against the US dollar in four years (ibid.). After the current account surplus reversal, Japanese trade dependency reduced to 10 per cent between 1985 and 2003. These economies had to replace foreign demand by domestic demand. They did not restore the link between wages and productivity growth, but adopted neo-liberal accumulation regime.

These economies adopted the following strategies. Firstly, they increased foreign direct investment initially to ASEAN and then to China to reallocate lower value added section of the value chain. They reallocated domestic production toward higher-value-added sections where they still had a dynamic comparative advantage. Secondly, they compensated the reduction of domestic production of tradable by increasing domestic production of non-tradable, such as services and construction. Thirdly, they, especially Japan, chose neo-liberal financial relaxation to increase investment and consumption demand. Japanese bubble in the late 1980s and bust in the early 1990s was a typical and most serious bubble and bust in the neo-liberal accumulation regime.

In this period, Japan built a Pacific Rim triangle trade regime whereby Japan (later Korea and Taiwan) exported capital goods to the ASEAN and China, and the ASEAN and China exported completed products to the USA. Japanese FDI to the ASEAN4 and China for cheap wages, followed by Korean and Taiwan FDI, accelerated industrialization in the ASEAN4 and China.

In the 1980s and 90s China did not follow the flying geese pattern of industrialization and promoted industrialization in many sectors at once. The international competitiveness of Chinese light industries, heavy industries, and machinery were simultaneously improved. Chinese-type compressed industrialization was made possible by three exceptional conditions. First, China's multiple and ample production factors enable industrialization in many sectors with necessary scales of production. China has also become the most attractive country as a vast mass market,

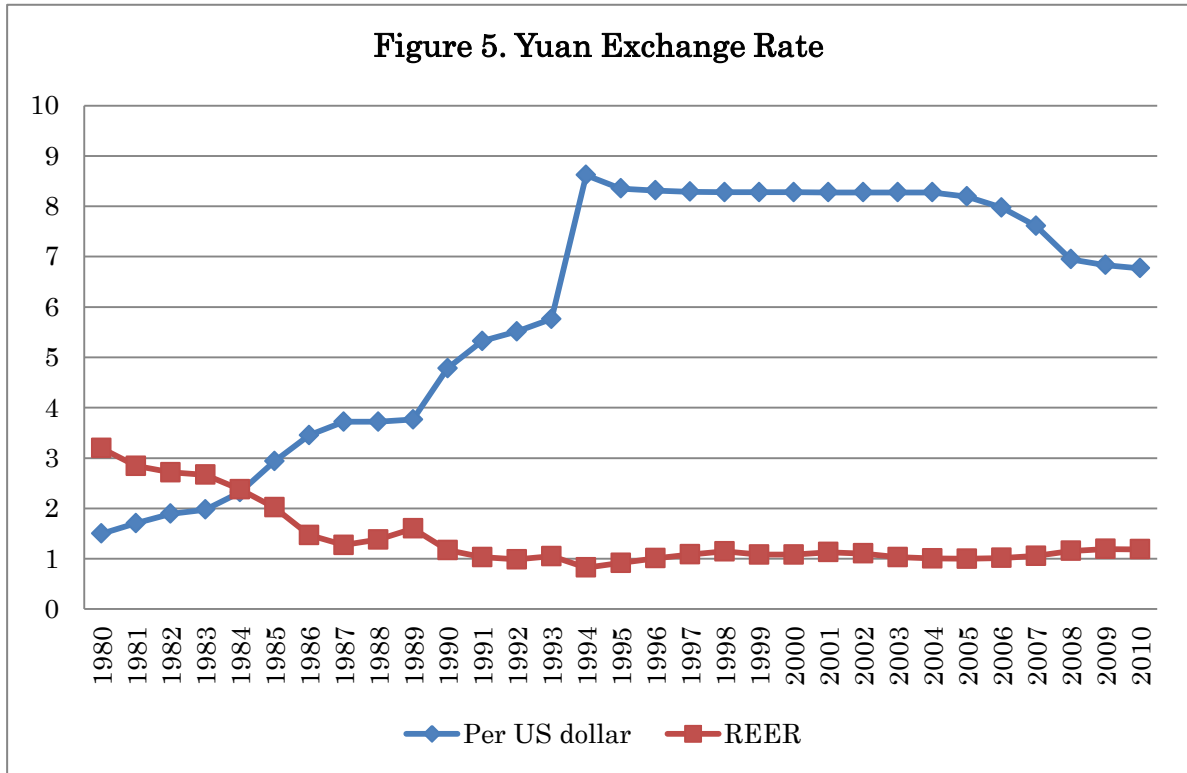
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<sup>8</sup> Posco (Pohang Iron and Steel Company) in Korea is a very significant example. It is now the world's third-largest, and Asia's most profitable, steelmaker.

since it achieved 40 per cent of total East Asian growth in 1999. Second, China has a number of social institutions for materializing the advantages of backwardness: an enormous population and historical economic achievement in the socialist planned economy give China production factors equivalent to those of the whole of East Asia; moreover, unlike the ASEAN and NIES, China is politically integrated.

Third, it was made possible by pseudo Lewis-type industrialization. Lewis (1965) explained low wage levels in developing countries and the deflation effect of their industrialization on the world economy by his theory of “industrialization with unlimited supply of labour”. If the supply of labour is available without limits from surplus labour in the agriculture in the industrialization of a less-developed economy, wage levels are kept at subsistence levels plus transport costs. At current exchange rates Chinese wage levels were kept at 5 per cent of the US level from 1980 to 2000 (Glyn 2006). There are two reasons for this. Firstly, Chinese agricultural employment was still 50 per cent, which gave a vast amount of relative surplus population for the reserve army. Secondly, Chinese wages had been increasing dramatically in Yuan, but the devaluation of the Yuan from 1.5 Yuan to a US dollar in 1980 to 8.6 Yuan to a US dollar in 1994 had kept Chinese wage levels at 5 per cent of US levels for the 20 years of its catching-up process (Figure 5). I call this ‘pseudo Lewis-type industrialization’, since wage increases were concealed by devaluation of the currency.

Chinese compressed and pseudo Lewis-type industrialization had the following influence on Chinese dynamic comparative advantage and on the world economy. In the catching-up process, increases in wages decreases the dynamic comparative advantages, which forces to shift dynamic industries to more sophisticated industries. China did not lose its dynamic comparative advantage in less sophisticated industries until the mid-1990s. Therefore, the Chinese industrial structure was not upgraded sufficiently in the 1990s. It blocked the flying geese-type industrialization process of less-developed countries, and applied deflation pressure on the world economy.



Source: IMF IFS

Table 2 Shares in Chinese goods trade

	Goods exports from China %					China's goods imports %				
	Japan	Korea + Taiwan	ASEAN5	USA	EU27	Japan	Korea + Taiwan	ASEAN5	USA	EU27
1991	13.1	3.4	4.8	18.5	16.7	18.1	1.7	6.1	15.6	17.5
1995	16.1	4.7	4.4	21.6	14.9	24.8	9.2	8.1	13.8	18.6
2009	9.1	6.1	6.0	22.6	23.7	14.6	17.8	11.1	8.7	14.5

ASEAN5=Indonesia, Malaysia, Philippines, Singapore and Thailand.

Source: RIETY-TID2010

<http://www.rieti.go.jp/jp/projects/rieti-tid/index.html>

Table 2 shows that Japan's influence on the Chinese economy peaked in the early 1990s. This was also the peak of the Japan-led Pacific Rim triangle trade. After China became a member of the WTO, its share of international trade sky-rocketed. Chinese goods exports increased four times, from 394.5 billion US dollars in 2000 to 1512.6 billion US dollars in 2008, and its goods imports increased five times, from 195.2 billion US dollars in 2000 to 982.6 billion US dollars in 2008 (RIETY-TID2010). Japanese goods exports to China and imports from China increased

dramatically, raising Japanese trade dependency to 15% again between 2002 and 2007. It enabled Japan to adopt export-led growth strategy and to recover from the decade long depression. However, Japan could not keep pace with China, and its share of Chinese trade was reduced both as exports and imports. Now China imports capital goods from Japan, Korea and Taiwan, food and raw material from less developed countries, and exports completed products to the EU, USA, Asia, and other areas. The cross-border division of work and trade in East Asia has been completely rebuilt by China, and the Japan-led Pacific Rim triangle trade regime has been replaced by a China-centric East Asian production network.

In this process, Chinese pseudo Lewis-type industrialization finally ended. Its market exchange rate and real effective exchange rate had been stable since the mid-1990s (Figure 5). Its rapid wage rise was reflected in its dynamic comparative advantage. Specialization in light industries such as textiles, toys, and electrical appliances peaked in the late 1990s, and specialization in machinery such as electrical and general machinery increased rapidly from the mid-1990s onwards. Production and domestic demand in heavy and chemical industries also increased rapidly from the mid-1990s (RIETY-TID2010).

#### 4. The Fall of Neo-Liberal Accumulation Regime and the Subprime Loan Crisis

As the success of the golden age accumulation regime itself undermined the institutions that supported it and caused structural crisis, the long lasting neo-liberal accumulation regime itself has undermined its complementary institutions.

(1) The effect of neo-liberal financial relaxation is losing momentum. First, although aggregate demand depends on higher risk-taking by borrowers, unprecedented levels of household debt makes further increases difficult. Second, neo-liberal financial relaxation destroyed the robustness of the financial structure; so further relaxation undermines the safety of the financial system. Third, neo-liberal monetary policy to decrease interest rate reached its limit at the zero interest rate. Further reduction is difficult. Furthermore, unprecedented levels of government debt and increasing social spending have made further tax cuts difficult. These factors has increased demand side constraints and made shifting the demand price of investment curve upward difficult.

(2) Neo-liberal globalization shifted the centre of capital accumulation to developing economies such as China and India. Their industrializations are very successful. However this has increased the demand for raw materials, energy, and food. Higher international commodity price have raised the supply price of investment. These factors have increased supply side constraints and shifted the supply price of investment curve upward.

(3) The engine of demand growth in the US neo-liberal accumulation regime shifted from domestic financial relaxation to foreign debt since the East Asian Economic Crisis in 1997, increasing international imbalance. Most significant are the Chinese and German current balance surpluses, which increased significantly since 2002, surpassing Japan in 2005 and 2006 respectively. The total surpluses of these three countries peaked at 837 billion dollars in 2007. On the other hand, the current account deficit of the USA (and Britain and other southern EU countries) increased rapidly after the 2000s, and the US deficit peaked at 788 billion dollars in 2006. Prosperity in the USA (and Britain and southern EU countries) in the early 2000s was made possible by borrowing from foreign countries. The borrowed money was spent on the consumption of imported goods and residential fixed investment rather than on investment (i.e. on non-residential fixed investment.)

The Sub-Prime Loan Crisis is the most severe world crisis since the structural crisis in the 1970s. The historical process of the crisis may be summarised as follows. A housing market bubble began in the late 1990s and accelerated in the early 2000s. Banks earned large fees by securitizing mortgages and selling them to capital markets. Institutional investors all over the world bought these securities because they had higher returns than equivalently-rated corporate bonds. Banks began to offer mortgages to those who could not afford them when the housing price bubble evaporated and/or interest rates rose. Home sales peaked in late 2005, and housing prices peaked in early 2006. Then the sub-prime loan crisis erupted in mid-2007. The crisis began in the US, and spread all over the world.

The question is what kind of crisis is the subprime loan crisis. Is it a cyclical crisis, a structural crisis, or an even more serious crisis that may abolish the present capitalist world system, as did the 1929 world crisis and the following great depression – that is, a systemic crisis? We have three scenarios.

First scenario. This is not a structural crisis in a capital accumulation regime but a crisis in excessive financial relaxation. Minskyians argue that financial excess was the only problem, and normal growth with cyclical crises will return once the financial excess has been remedied (Kregel, 2008, p.20). In my opinion, neo-liberal financial relaxation was introduced to solve demand constraints. It is necessary to reconstruct robust financial systems. However it does not solve demand constraints, and the economy does not recover.

Second scenario. This is a structural crisis in the neo-liberal capital accumulation regime, but not a systemic crisis of the present capitalist world system. Structural Keynesians argue that the ultimate cause of the crisis is the disconnection of the link between wages and productivity growth. Solving the problem requires reversing neoliberalism and restoring the link between wages and productivity growth (Palley, 2010). In my opinion, it requires reconstruction of the Bretton Woods

regime internationally, and of the welfare state domestically. Without overwhelming economic power, international cooperation is required to rebuild international monetary system. This rebuilt system should be more trans-national and public than the US dollar standard system. Keynes' international clearing union may be rehabilitated. Reconstruction of welfare society requires productivity growth and an egalitarian income distribution mechanism. It seems to be more possible now than in the 1980s, since dynamic comparative advantage has recovered due to the take-off of new dynamic industries, namely IT and knowledge-intensive industries.

Third scenario. This is the beginning of a systemic crisis of bureaucratic capitalism that will destroy present capitalist world system. Neo-liberalism enabled the USA to enjoy prosperity in the 1990s and 2000s. Neo-liberalism has remained the dominant ideology even in the face of the structural crisis of neo-liberal capital accumulation regime after 2007. If the USA wants full development of IT industries, it requires solving demand constraints by rebuilding the link between productivity growth and wages and keeping most advanced knowledge within the country by controlling transnational corporations. The neo-liberal ideology makes these policies impossible.

On the other hand we see the possibility that the further industrialisation of China may re-establish a flying-geese pattern of development on a global level among developing countries. Facing the collapse of the US neo-liberal capital accumulation regime, pressure to reverse the Chinese current-account surplus has increased since 2008. China has changed policies from export-led industrialization to domestic-demand-led industrialization, which may re-establish the link between wages and production growth. This will increase Chinese wage rates and China's real exchange rates, and reduce China's competitiveness in less sophisticated labour-intensive industries. It will allow less-developed countries to industrialize in a flying-geese pattern. Furthermore, if transnational corporations choose China as their centres to promote IT industries to maximize profit, China may develop a new development path.

I agree with the second and third scenario, since I believe that rebuilding the link between wages and productivity both in advanced and developing countries is necessary to recover from this most serious crisis of the capitalist world system, and to develop productivity of the new dynamic industry fully.

## Conclusion

In this paper I introduced the concept of dynamic comparative advantage. It does not last forever, because of the eventual decrease of VAL and increases in wages. There are two strategies to escape from reduced dynamic comparative advantage. The first is the sophistication of industrial structures, shifting leading industries to new dynamic industries. When catching-up countries adopt this strategy, they follow a linear development path. The second strategy is to reduce international

competition by forcing free trade and market policies to other countries so that they cannot catch up. When ambitious catching-up countries leapfrog the most advanced country, they unfold a new development path. I reconstructed Minsky's financial instability hypothesis paying more attention to the accumulation of real capital to explain monetary aspects of cyclical crises. I introduced the concept of dynamic comparative advantage and built the super Minsky cycle in order to analyse monetary aspects of structural crises. I introduced concepts of linear and non-linear developing passes to Akamatsu's flying geese theory and developed a new flying geese theory.

Using these concepts I investigated evolution of capitalist world system. When the USA created complementary institutions, welfare state, with mass production and mass consumption system and machinery industry as the dynamic industry, the second capitalist world system was established. This created the second golden age of capitalism. Mild business cycles reinforced the self-regulating nature of capitalist economy by solving conflict between workers and capital over income distribution. I explained turmoil of the 1970s by the decreasing dynamic comparative advantage and the super Minsky cycle.

The Anglo-American neo-liberal accumulation regime reshaped the capitalist world system after the structural crisis. The USA changed its international policy to neo-liberalism and forced catching-up countries to adopt this policy, and promoted the second phase of globalization. Developing countries happily accepted the US model of globalization. In the neo-liberal accumulation regime, borrowing and asset price inflation became the engines of aggregate demand growth in place of wage growth in the golden age, and policy-led bubble and bust replaced the self-regulating character of capitalist economy. The neo-liberal accumulation regime worked well, especially in the 1990s, when new dynamic industries recovered dynamic comparative advantage. However, the long lasting neo-liberal accumulation regime itself has undermined its complementary institutions: the effect of neo-liberal financial relaxation is losing momentum, and Industrializations in China and India has increased the demand for raw materials, energy, and food and increased supply side constraints.

I used the new flying geese theory to explain industrialization of East Asia. The development of Japanese industries left room for less-developed East Asian countries to industrialize in the flying geese pattern with export as the engine of demand growth. After the current account surplus reversal in 1985, Japan and NIEs adopted neo-liberal accumulation regime. Japanese FDI to the ASEAN4 and China for cheap wages, followed by Korean and Taiwan FDI, accelerated industrialization in the ASEAN4 and China. In this period Chinese wage increases were concealed by devaluation of the currency, and China promoted industrialization in many sectors at once. After China became a member of the WTO, its share of international trade sky-rocketed. The Japan-led Pacific Rim triangle trade regime has been replaced by a China-centric East Asian production network. Chinese rapid wage rise was finally reflected since the mid-1990s, which reduced China's



competitiveness in less sophisticated labour-intensive industries. It may allow less-developed countries to industrialize in a flying-geese pattern. Facing the collapse of the US neo-liberal capital accumulation regime, pressure to reverse the Chinese current-account surplus has increased since 2008. China has changed policies from export-led industrialization to domestic-demand-led industrialization, which may re-establish the link between wages and production growth.

The Sub-Prime Loan Crisis is a structural crisis in the neo-liberal capital accumulation regime. It requires reversing neoliberalism and restoring the link between wages and productivity growth to recover from this crisis. If development of China successfully re-establishes the new flying geese pattern of industrialization, it may become the beginning of a systemic crisis of bureaucratic capitalism.

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