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Summary and Keywords

In 1937, the Japanese economist Kaname Akamatsu discovered specific links between the rise and decline of the global peripheries. Akamatsu's theory of development describes certain mechanisms whose working results in the narrowing of the gap between the level of development of the economy of developing and developed countries, and, thus, in the re-structuring of the relationships between the global core and the global periphery. Akamatsu developed his model on the basis of his analysis of the economic development of Japan before World War II, with a special emphasis on the development of the Japanese textile industry. Akamatsu's catch-up development includes three phases: import of goods, organization of the production of previously imported products, and export of those goods. This model proved to be productive for analyzing the development of many other developing countries, especially in East Asia, making the theory of flying geese popular among the economists of these countries, as well as the whole world. The "flying geese" model produces certain swings that may be denoted as Akamatsu waves. Akamatsu waves may be defined as cycles (with a period ranging from 20 to 60 years) that are connected with convergence and divergence of core and periphery of the World System in a way that explains cyclical upward and downward swings (at global and national levels) in the movements of the periphery countries as they catch up with the richer ones.

Keywords: empirical international relations theory, core—periphery relations, Kaname Akamatsu, Nikolay Kondratieff, center—periphery cycles, world development, the "flying-geese", theory, Akamatsu waves, import, domestic production, export

The System of Economic Cycles, and the Place of Akamatsu Waves Within Them

Before the 1920s, the economic literature hardly knew any cycles other than ones (called industrial, commercial cycles, and so on) with a characteristic period of between 7 and 11 years, which are now known as middle term cycles or Juglar cycles.

Juglar cycle (or *business cycle*) is a medium-term economic cycle with a characteristic period between 7 and 11 years. Juglar cycles may be regarded as macroeconomic fluctuations when economic growth and boom is replaced by economic downturn, which is regularly followed by a new period of economic growth (thus starting a new economic cycle). This cycle can be subdivided into four phases: a) phase of recovery, when, after the fall of production and stagnation, economic growth begins; b) expansion phase, when economic growth is accelerating up to an economic boom; c) phase of recession, during which the euphoria of prosperity is replaced by panic accompanying collapse, and after that comes the economic downturn; 4) phase of depression or stagnation, during which a balance is achieved: the decline has stopped, but any pronounced growth is absent yet.

In the 1920s and 1930s, one could observe, within the field of economics, the formation of an idea of a whole system of economic cycles.

In 1922, in his book *The World Economy During and After the War*, Nikolay Kondratieff first formulated the basic tenets of the theory of long cycles (Кондратьев, 2002). He introduced one more type of economic cycles—the long ones, which now are known as Kondratieff cycles or waves.

Kondratieff waves (Kondratieff cycles, long waves, long economic cycles) are repeated fluctuations of important economic variables, with a characteristic period of about 40–60 years, within which at one (upswing) phase, growth rates of indicators tend to accelerate, and at the other (downswing) phase they tend to slow down.

In such situations, Kondratieff quite logically called Juglar cycles “short cycles” (Кондратьев, 2002, p. 323). However, already in 1925 in the “Big Cycles Of Conjuncture” (Кондратьев, 1925, 1993, pp. 25, 26), he began to call them “medium cycles.”[1] Why? The fact is that in those years a British businessman and statistician Joseph Kitchin (1923) discovered some cycles (with a characteristic period between 3 and 4 years) manifested in fluctuations in inventories that could be denoted as truly “short cycles.” Later, they became known as Kitchin cycles. The Kitchin cycles (with a period between 40 and 59 months) are believed to be manifested in the fluctuations of enterprises’ inventories.[2]

Because the medium-term cycles often have internal ups and downs, National Bureau of Economic Research, headed by Wesley Mitchell, started to consider cycles statistically. They did not consider the logical causes or intensity of cycles, but rather measured them by the presence of recessions, from one recession to another recession, regardless of the fact that recessions may be significantly different as regards their strength and nature. As a result, they also detected some cycles with a period of between 3 and 4 years (that to a certain extent coincided with Kitchin cycles).

Somewhat later, Nobel laureate Simon Kuznets discovered construction cycles lasting 17–30 years (Abramovitz, 1961; Kuznets, 1930, 1958; see above with respect to the nature of Kuznets cycles). These are known as *Kuznets swings* (see e.g., Abramovitz, 1961, p. 226; Diebolt & Doliger, 2006; Solomou, 2008). Kuznets himself first connected these cycles with demographic processes, in particular with the inflows and outflows of immigrants and the changes in construction intensity that resulted from these demographic in and out flows. That is why he denoted them as “demographic” or “building” cycles or swings. However, there are a number of more general models of Kuznets swings. For example, Forrester connected Kuznets swings with major investments in fixed capital, whereas he accounted for the Kondratieff waves through the economic and physical connections between the sectors producing capital and the sectors consuming capital (Forrester, 1977, p. 114; Румянцева, 2003, pp. 34–35). Note also the interpretation of Kuznets swings as infrastructural investment cycles (e.g., Shiode, Li, Batty, Longley, &Maguire, 2004, p. 355).

Kuznets swings (with period in the range of between 15 and 25 years) are connected with infrastructural investment or other changes in economy. However, there is no agreement regarding the nature of such changes; they can be connected with oscillation in technologies, long-term investments in infrastructure, construction, or other spheres.

In 1937, the Japanese economist Kaname Akamatsu discovered specific links between the rise and decline of the global peripheries (the so-called “flying geese” model) and associated swings. These types of swings may be denoted as *Akamatsu waves* (for the definition of them, see below).

It seemed logical to consider the different cycles as having a single nature. Such an attempt was made by Joseph Schumpeter in his monograph *Business Cycles* (Schumpeter, 1939).[3] However, because he considered the structure of the long wave to be identical with the structure of the medium-term cycle, his attempt to create a general theory of cycles failed (for more detail see Grinin, Korotayev, & Tausch, 2016, pp. 1–22). Note, on the other hand, that it is due to Schumpeter that the medium term cycles are known now as “Juglar cycles” after the French economist Klement Juglar, whereas the long-term cycles are denoted now as “Kondratieff waves.”

Kaname Akamatsu Biography

Kaname Akamatsu was a contemporary of Nikolay Kondratieff, only four years younger than he. They observed many of the same economic and political events—though from different angles of the World System. However, because Kondratieff started his scientific carrier quite early, and his theory was published in English and German, it happened that Akamatsu became a follower of Kondratieff. While his ideas were finding new supporters, Kondratieff was slowly dying in the Suzdal prison. It seems deeply symbolic that, a year

before Kondratieff's death, the famous work of Akamatsu was published in Japanese, and a year after Kondratieff's death, Schumpeter published his book, in which long cycles received the name of Kondratieff.

So, there was a great admirer of Nikolay Kondratieff in distant Japan. What do we know about him? How long was the *pilgrimage*[4] of the son of an impoverished rice retailer from the southern Japanese island of Kyushu to his intellectual encounter with the great Kondratieff, at a time when Nikolai Kondratieff already suffered in the cold of the Gulag, and when Akamatsu, a critical spirit, and well familiar with European philosophy and economics, especially the work of Marx, had to work under the stifling intellectual atmosphere of expansionist imperial Japan which had already begun its policies of occupation in Asia?

Kondratieff cycle research owes a debt of gratitude to Korhonen (1994), who presented some biographical facts about this important follower of Kondratieff, whose life, very much like Kondratieff's own life, was not free from bitter experiences.

As Ozawa (2013) correctly remarks, it is the only Japan-born economic theory that has, so far, been well-recognized outside Japan: "The 'flying-geese' (FG) theory of economic development is now known the world over, having gained some respectability in the academia and wide popularity in the media—especially against the backdrop of a series of catch-up economic successes across Asia during the last few decades of the 20th century. The speech made by Saburo Okita (1914–1993), former Japanese Foreign Minister, referring to the theory at the fourth Pacific Economic Cooperation Conference in Seoul in 1985, made policymakers and the mass media aware of it. It is the only Japan-born theory that has so far been well recognized outside Japan. It is also accepted as a major doctrine of catch-up development strategy, along with the 'big-push' theory and the 'import substitution' approach" (Ozawa, 2013, p. 2).

Kaname Akamatsu was born in 1896, into a very poor family in what was then the poorest part of the Japanese archipelago. As Korhonen could establish from documents only accessible in the Japanese language, Kaname was so poor that, during his student days at Kobe, he "wore the same clothing for four years until they turned to rags and a friend replaced them, which aroused in Akamatsu an interest in Marxism" (Korhonen, 1994, p. 93). Besides Marxism, Akamatsu studied mainstream economics and became interested in German philosophy, especially in the works of Nietzsche, Schopenhauer, and Kant. He became a university teacher, and in 1924, he went to Germany to continue his studies there. In early 1926, Akamatsu left Heidelberg and, as Korhonen shows, "travelled to London to pay his respects at the grave of Karl Marx. He was shocked to find it neglected; indeed, he even had trouble locating it" (Korhonen, 1994, p. 94). Respect for the ancestors is one of the deepest layers of Japanese culture, and the visit to Highgate Cemetery must have deeply impressed the researcher, who was now 30 years old. Later on, during his foreign trip in the same year, he had a chance to visit the National Bureau of Economic Research in Boston, where he studied the new approaches in empirical and statistical economic research; this visit would radically change his scientific approach.

After his return to Nagoya, Akamatsu began to study empirically the mechanisms of import substitution and the history and development of the Japanese woolen and cotton textile industry. Akamatsu's statistical investigations established, as Korhonen shows, a pattern of economic development in one product category after the other.

From there on, a journey up the ladder of success set in, not without dangers, and not without perils and temptations of its own. While Kondratieff had the bad luck that the powerful political elite, in the person of Joseph Stalin himself, contradicted his theories, it was Akamatsu's bad luck that Imperial Japan fully endorsed his theories and used them as a justification of its brutal expansionist policy of occupation in many Asian countries, to an extent unforeseen and not wished by Akamatsu. In 1939, Akamatsu became professor at the Tokyo University of Economics; in 1940, he was elevated to the post of Director of Research in the East Asian Economic Research Centre. In 1943, Akamatsu was finally conscripted into the military and was placed under military command and sent to Singapore to direct research on the economy of Southeast Asia under Japanese rule. As Korhonen states:

> The flying geese theory had meanwhile become part of Japanese war propaganda aimed at nations of the Greater East Asian Co-prosperity Sphere as a way of lending intellectual legitimacy to Japanese claims of bringing freedom, development and prosperity to the nations of Asia. It seems that Akamatsu himself did not write such papers, but confined himself as much as possible to the academic field as a scholar. In his autobiography, he recalls that in this respect life was easier in Singapore than in Tokyo. If he had stayed in Tokyo he would probably have been drafted to write propaganda for the war effort, whereas in Singapore he was able to concentrate relatively freely on research. It is true that Akamatsu was a nationalist, and once the nation had chosen a warlike course, he contributed to the war effort, even though as a scholar he was well aware of the economic realities in respect to Japan's ability to win the war. On the other hand, Akamatsu seems to have had nothing against the principle that Asia should free itself from Western colonialism. He travelled around the area and became acquainted with Malay and Indonesian leaders such as Sukarno and Hatta.
>
> (Korhonen, 1994, p. 94)

In 1946, Akamatsu was interrogated as a possible war criminal, in part because of his troubles with the authorities in the context of his doctoral dissertation, where some of his words were interpreted by the censors as being disrespectful to the Emperor himself, and which were considered to be subversive in 1943. Charges against him were dropped.

In 1953, Akamatsu became the Dean of the Faculty of Economics at Hitosubashi University and could finish many additional works and could peacefully retire from his job at the University. Today, there is a vast debate on the flying geese model or FGM, as it is

sometimes referred to, evidenced by the fact that more than 700 articles in “Google Scholar” refer to Akamatsu, 1961.[5]

Akamatsu Waves

Akamatsu's theory of development ("the flying geese" model) describes certain mechanisms whose working results in the narrowing of the gap between the level of economic growth of developing and developed countries, and, thus, in the re-structuring of the relationships between the global core and the global periphery. Some economists believe that Akamatsu's model "will remain a driving force in the international politico-economic relations and peace processes of the Asian Pacific area" (Korhonen, 1994, p. 93), as well as in other regions. Akamatsu himself did not denote explicitly "the flying geese pattern of development," (*gankoo keitai hattenron*, in Japanese) as a wave pattern, but he implied this in his 1961 article (Akamatsu, 1961). First, in the article, he explicitly uses Kondratieff long-wave theory as a methodological basis for his analysis of structural and innovative development of the world economy. Second, Akamatsu demonstrates that his three-phase catch-up mechanism (import—domestic production—export, see below) generates wave dynamics: "Development or growth is the process creating stimulating discrepancy … In the world economy also, an industrial innovation occurring in some nation is primarily a discrepancy … On the other hand, diffusion of an innovation means the resolving of a discrepancy, but the development becomes stagnant. In this manner, economic growth or development comes out not along a smooth trend, but shows *long-term and short-term waves* …" (Akamatsu, 1961, p. 215, our emphasis).[6]

Kaname Akamatsu, in his theory of economic waves, hinted at the connection between national and international center-periphery structure cycles. His most well-known tribute to Kondratieff (Akamatsu, 1961) specifically links the rise and decline of the global peripheries to the larger Kondratieff cycle.

Analyzing the data on convergence and divergence of real incomes of the countries of the world in the international system, it appears that, for the most part, they do not exhibit linear upward movements of the poorer nations to catch up with the richer countries, but rather that there are strong cyclical upward and downward swings, which we can observe in Akamatsu cycles (though in the recent "Great Convergence" decades we do observe a general catching up trend [Grinin & Korotayev, 2015]).

Akamatsu cycles may be defined as cycles (with a period ranging from 20 to 60 years) connected with convergence and divergence of the core and periphery of the World System and by explaining cyclical upward and downward swings (at global and national levels) in the movements of the periphery countries to catch up with the richer ones. It means that it gives opportunity to find out "dual" or even "triple" structure of Akamatsu cycles—global ups and downs, national ups and downs, and ups and downs in the relative position of countries in the global economy. The great amplitude in duration of cycles points out that, on this level, such long waves in every country and epoch would be rather diverse regarding the length of waves as well as their strength and apparency.[7] (For an

analysis of “Akamatsu cycles” on the basis of the well-known Maddison data series, see Grinin, Korotayev, & Tausch, 2016, pp. 111–142).

Akamatsu foresaw the huge discrepancies in the structure of the world economy caused by imports to the periphery, which lead to discrepancies in the balance of payments, and the pressure to increase exports of primary products to improve the balance. Discrepancies will also lead to a shift of production away from domestic industries in the underdeveloped country toward the export sector. This leads to problems of excessive supply capacities in the underdeveloped country.

Akamatsu’s “Flying Geese” Model

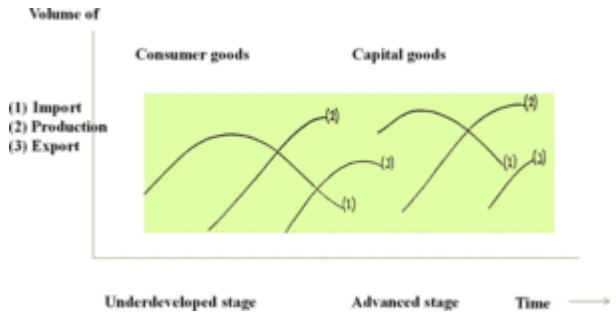
In Akamatsu’s theory, there are important links between his “flying geese” (*Gankō Keitairon*) model and Kondratieff’s ideas. This “flying geese” model was first proposed in a long and far-reaching tribute to Kondratieff’s theory, published internationally in 1961, but it was originally published in imperial Japan in 1937 (shortly before the onset of the Second World War). It specifically links the rise and decline of the global peripheries to the larger Kondratieff cycle. The very essence of the “flying geese” and the K-cycle is that the two processes are intractably linked together, and that one cannot separate the two.

Now let us briefly relate the basic connection between Akamatsu’s theory and the contribution by Kondratieff.

The clearest link to Akamatsu’s own theory is the following quotation, which also refers to an article written by Akamatsu in Japanese, in 1937, where he had already established the statistical pattern of “flying geese” in Japanese import substitution:

> In the foregoing pages, I have discussed how innovations in advanced industrial nations bring about differentiation of the world economy and cause expansion and liberalization of international trade; how these innovations are at length diffused to other industrial nations, resulting in uniformization of the world economy and leading to stagnation of international trade and protective policies; and how new innovations arise from this stage. I have shown how the international economy has grown by describing structural waves. Nevertheless, in the process by which underdeveloped countries which have not yet reached the level of industrial nations grow, a somewhat different pattern is found. I call this the “wild-geese-flying pattern” of economic growth, which is a literal translation of a term coined in Japanese … Wild geese are said to come to Japan in autumn from Siberia and again back to north before spring, flying in inverse V shapes, each of which overlaps to some extent …”
>
> (Akamatsu, 1961, pp. 205–206).

Figure 1 describes the original scheme, as it was presented by Akamatsu, in his publications, all referring to the sequence of development stages along Kondratieff cycles. The graph has been adapted the for the purpose of the present article.



Click to view larger

Figure 1. The Akamatsu model of flying geese.

Source: Authors' adaption from Akamatsu, 1961, p. 206.

Akamatsu's new input into the Kondratieff cycle debate is that he puts the "differentiation" of the world economy into the center of his theoretical developments (Akamatsu, 1961, 1962). The differentiation of the world economy leads to the rapid diffusion of new techniques to rising industrial nations, which starts with the import of new commodities by these nations. In time, techniques and capital goods are imported as well, and homogenous industries are established. According to Akamatsu, the uniformization of both industry and agriculture gave rise to the fierce and conflictive competition between Europe, the United States, and Japan in the last quarter of the 19th century. When an innovation occurs in an industry, in an advanced nation, investment is concentrated there, causing a rise in the trade cycle. Innovation leads to an increase in exports, and the nation's prosperity creates and increases the import of raw materials and foodstuffs. Akamatsu sees a counter-movement in other parts of the world, centered on the rising production of gold, which, according to him, leads to an increase in effective demand and further stimulates exports of the innovating nation. In that way, world production and trade expand, prices increase, and a world-wide rise in the long-term trade cycle results (see Arrighi, Silver, & Brewer, 2003; Kasahara, 2004; Krasilshchikov, 2014; Ozawa, 2004, 2013; Schroeppel & Nakajima, 2002).

Quite similar to Kondratieff (1935, p. 111), as well as to Schumpeter (1939), for Akamatsu, innovations occur mainly at the end of an old and waning economic cycle, and are put into practice during the new emerging economic cycle. Akamatsu notes that innovation occurs first in an industry of an advanced industrial nation, investment is concentrated there, causing a rise in the trade cycle. Innovations increase exports. Rising exports of the advanced nation increase prosperity, causing an increase in the import of raw materials and foodstuffs. Increased gold exports from other regions increase effective demand and further stimulate exports of the innovating nation.

However, innovations spread from the innovating nations to other nations, leading to the development of industries in those countries, with the result of a conflictive relationship with the industries of the innovating nation. Exports of the innovating nation become stagnant, and on the world level, there is a tendency toward overproduction, prices turn downwards, and the rates of growth of production and trade fall. What later K-cycle research tended to call the upswing A-phase of the cycle, will be according to Akamatsu,

a period of differentiation in the world economic structure, while the “falling period” (or B-phase of the cycle) will, Akamatsu argues, coincide with a process of uniformization in world economic structure.

In the 19th century, Akamatsu sees the following major tendencies at work:

- The innovations of the first wave of the Industrial Revolution began, with the respective differentiation in the world economy.
- The B-phase after the Napoleonic Wars brought about a re-uniformization.
- Uniformization, especially of European agriculture, and innovation in the iron industry after 1850; England became a prime exporter of railroad materials and textiles. The discovery of gold in California and Australia increased global demand.
- Decline began around the time of the Franco-Prussian War in 1870, with rising mercantilism and imperialism.

For Akamatsu, imperialism, with its tendencies to develop “complementary” economic structures instead of homogenization, together with its financial expenditures, led toward the third expansion wave. New industries, such as the electric industry and the automobile industry, were born, and the center of the world economy shifted toward the United States of America. The third long-term wave began from the 1900s onward, and again the spread of industrial innovations to other regions, and the accompanying uniformization of the world economy played a major role in the path toward a depression, which culminated in the 1930s. The depression of the 1930s was caused, Akamatsu argues, not only by uniformization, but also by the reduction of arms expenditures after World War I, the gold standard, and the policies of deflation in force in the 1920s and early 1930s. Gold production showed a marked decrease during this era. High tariff policies and the world-wide race to depreciate the exchange rate after England’s suspension of the gold standard, in September 1931, additionally deepened the recession, giving rise to control measures such as exchange control and quantitative restrictions on trade.

According to Akamatsu’s analysis in 1961, the fourth wave started in 1933 (and continued at least up until the early 1960s, when this analysis was performed), with the aircraft industry and the synthetics industry as the leading new sectors. Going off gold, carrying out devaluations of currencies, and raising the world price of gold, were additional elements in the new upswing. In addition, military expenditures increased effective demand. In contrast to the 1920s, Akamatsu thinks that successful policies were continued by the United States after 1945, now in the lead with atomic power, electronics, and innovations in consumer durables (Akamatsu, 1961). Development aid by America, and the strengthening of labor unions, the increase in military expenditures after the Korean War, and the policies of full employment and social security all contributed toward the stability of the post-war economic expansion. At the end of Akamatsu’s lengthy analysis of the Kondratieff cycle in 1961, he expresses the hope that

national and international economic policies will prevent the recurrence of a world depression like that of the 1930s.

For Akamatsu, the characteristic structure of the Center-Periphery relationship, which he analyzes more deeply in his publication (Akamatsu, 1962), is characterized by the fact that the underdeveloped nation will export primary products and will import industrial goods for consumption (see Arrighi, Silver, & Brewer, 2003; Grinin & Korotayev, 2015; Kasahara, 2004; Krasilshchikov, 2014; Ozawa, 2004, 2013; Schroeppel & Nakajima, 2002). However, the role of foreign capital received little attention in Akamatsu's model, as he worked out his theory proceeding from the observations of the textile industry development in Japan (then still a developing rather than a developed country), during the period of 40–50 years, starting from the late 19th century. The underdeveloped nation would attempt to produce goods that were hitherto imported, first with consumer goods, and later on with capital goods. At the fourth stage of the process, the underdeveloped nation would attempt to export capital goods. There would be a tendency toward "advanced" differentiation in the world economy, however, because the capital goods industries in advanced nations would advance still further, giving rise to "extreme differences of comparative costs." The wild-geese flying pattern includes three sub-patterns: the first is the sequence of imports—domestic production—exports. The second is the sequence from consumer goods to capital goods and from crude and simple articles to complex and refined articles. The third is the alignment of advanced nations with backward nations according to their stages of growth (see Arrighi, Silver, & Brewer, 2003; Krasilshchikov, 2014; Ozawa, 2004).

However, there is a darker and more somber nature to these cycles as well—the condition of discrepancy will be met, Akamatsu argues, by means of imports, leading to discrepancies in the balance of payments, and the pressure to increase exports of primary products to improve the balance. Discrepancies will also lead to a shift of production, away from domestic industries in the underdeveloped country, toward the export sector; leading, in the end, to problems of excessive supply capacities in the underdeveloped country (see Kasahara, 2004; Krasilshchikov, 2014; Schroeppel & Nakajima, 2002).

At the end of the day, Akamatsu believes in a Hegelian dialectic between the three basic discrepancies, characterizing the process of development: the discrepancy of development, the cyclical discrepancy between the rich and poor countries, and the structural discrepancy. At this stage, Akamatsu does not formalize his arguments any further.

However, the development of Japan between the 1950s and the 1980s, then of the newly industrialized countries (like Korea and Taiwan), and later China, Thailand, and Malaysia, in which the role of foreign capital and the export sector had become fundamentally different, allowed many Japanese and foreign scientists to expand and modernize Akamatsu's paradigm. They included the factors of foreign direct investment (FDI) and TNC in their analyses and demonstrated how the technological and financial transfers

promote economic progress in developing countries (Kojima, 2000; Ozawa, 2009, 2010; Shinohara, 1982; see also Ginzburg & Simonazzi, 2005; Ito, 2001; Korhonen, 1998).

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Notes:

(1.) Incidentally, this is Kondratieff, who appears to be the first economist to call those cycles "medium-term."

(2.) “The logic of this cycle can be described in a rather neat way through neoclassical laws of market equilibrium and is accounted for by time lags in information movements affecting the decision making of commercial firms. As is well known, in particular, firms react to the improvement of commercial situations by increasing output through the full employment of the extent fixed capital assets. As a result, within a certain period of time (ranging between a few months to two years), the market gets ‘flooded’ with commodities whose quantity becomes gradually excessive. The demand declines, prices drop, the produced commodities get accumulated in inventories, which informs entrepreneurs of the necessity to reduce output. However, this process takes some time” (Румянцева, 2003, pp. 23–24). Currently, due to the development of logistics and information technologies, Kitchin cycles lost their importance.

(3.) But of course, Schumpeter did not know about Akamatsu waves.

(4.) The term *pilgrimage* might be allowed here, because Akamatsu himself used it in his essay, which was published after his death (1974) in the year 1975; see the bibliographical reference contained in Schroeppel & Nakajima, 2002. The bibliographical reference would be: Akamatsu, K. (1975). *Gakumon henro*. In K. Kojima (Ed.), *Gakumon henro. Akamatsu Kaname sensei tsuit ronshu* (pp. 1–68). Tokyo, Japan: Sekai Keizai Kenkyu Kyokai. [Academic pilgrimage. Commemorating volume on Professor Akamatsu Kaname].

(5.) The union catalogue of all Japanese research libraries—the so-called CINII books catalogue—lists today under his author name, CiNii Akamatsu no less than 71 works, and only two of them are listed in Western languages: his essay in 1961 and his 1924 essay for the German Philosophical magazine *“Archiv für Geschichte der Philosophie und Soziologie, 38*,1–4, 1928*(Neue Folge, 31),”* which appeared under the title *“Wie ist das vernünftige Sollen und die Wissenschaft des Sollens bei Hegel möglich? Zur Kritik der Rickertschen Abhandlung “Über idealistische Politik als Wissenschaft,”* in 1924. One of the few major academic libraries in the world, where this essay is available today, is Fordham University in New York City, one of the leading Jesuit Universities in America. It is truly notable that Akamatsu could publish an original article in one of the leading German language journals of philosophy, written in German, on a central issue of German philosophy at the time. The *Stanford Encyclopedia of Philosophy* dedicates a lengthy article on Heinrich Rickert, for many decades a liberal German philosopher, on whom Akamatsu’s essay was centered.

(6.) Note also that Akamatsu followers connect the flying geese model with inter-industry cycles exhibiting the development of a new industry, e.g., from textiles to steel to shipbuilding to autos to computers, or from consumer goods to capital goods (see Kojima, 2000, pp. 379–380 for detail).

(7.) In the framework of our re-analysis (Grinin, Korotayev, & Tausch, 2016), we have found new empirical evidence on the existence of such Akamatsu cycles of around 20 years length or less in Australia, Chile, Denmark, Germany, Norway, Spain, Sweden, Switzerland, and Uruguay. Akamatsu cycles of around 30–40 years length were found in Belgium, Brazil, Canada, Denmark, Finland, France, Germany, Greece, India, Indonesia, Japan, Netherlands, New Zealand, Norway, Peru, Portugal, Sri Lanka, Sweden, Switzerland, and the United Kingdom. Akamatsu cycles of around 60 years length were found in Colombia and Russia. Our freely available documentation, Korotayev/Grinin// Tausch, *Economic Cycles, Crises, and the Global Periphery* further underlines this case, with similar materials for all the 31 countries, covered by the Maddison data set.

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