

Long waves of economic growth in Asia and Western Europe, 1950-2020: are there any circular-cumulative causation and contradiction aspects?

Ondas longas de crescimento econômico na Ásia e na Europa Ocidental, 1950-2020: existem aspectos de causalção e contradição circular-cumulativa?

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RESUMO: Este artigo discute algumas análises comparativas entre o padrão de desempenho econômico na Ásia e na Europa Ocidental durante os anos 1950-2020 através da perspectiva das economias políticas. Os desempenhos econômicos da Ásia e da Europa Ocidental são investigados por meio de alguns fatos estilizados no sentido de fatores econômicos. Três análises são usadas para explicar o padrão geral dessas regiões. Em primeiro lugar, este estudo examina o padrão de crescimento do PIB per capita durante os anos 1950-2020, com

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foco em vários países dessa região. Em segundo lugar, a análise captura o padrão de vínculos de variáveis econômicas nesta região relacionadas ao princípio da Causação Circular e Cumulativa (CCC) e contradição. Em terceiro lugar, a análise emprega uma perspectiva histórica sustentada pelos resultados da segunda análise. Esta terceira análise é crucial para apreciar o desempenho econômico global da Ásia e também o processo de deterioração do fenômeno ocidental por meio de ondas longas, incluindo a ocorrência de recessão e crises financeiras. As instituições da globalização e do neoliberalismo que colocaram o poder do capital promoveram várias vezes uma crise financeira durante as décadas de 1980-2020. A crise financeira é retratada por contradições nas ligações estruturais entre os fatores econômicos na Europa Ocidental durante o período.

PALAVRAS-CHAVE: Economia política; crescimento econômico; onda longa; causalidade circular e cumulativa; contradição.

ABSTRACT: This paper discusses some comparative analysis between the pattern of economic performances in Asia and Western Europe during 1950s-2020s through political economies perspective. The Asian and Western European economic performances are investigated through some stylized facts in the sense of economic factors. Three analyses are used to explain the general pattern of these regions. First, this study examines the pattern of GDP growth per capita during the 1950s-2020s, focusing on several countries in this region. Second, the analysis captures the pattern of linkages of economic variables in this region related to the principle of Circular and Cumulative causation (CCC) and contradiction. Third, the analysis employs a historical perspective underpinned by the results in the second analysis. This third analysis is crucial to appreciating Asia's global economic performance and also the process of Western deterioration phenomenon through long wave, including the occurrence recession and financial crises. The institutions of globalization and neoliberalism that put the power of capital promoted a financial crisis several times during the decades of 1980s-2020. The financial crisis is depicted by contradictions in the structural linkages among economic factors in Western Europe over the period.

KEYWORDS: Political economy; economic growth; long wave; circular and cumulative causation; contradiction.

JEL Classification: B15; B52; P48.

INTRODUCTION

The global institution represents the keyway in which core regions maintain their supremacy in various aspects of the world system, which, according to Boulding (1984) consists of economic, social, environmental, and political systems. This global institution can be understood from two perspectives (Dunn and Lawrence 2011; Dicken 2011). The first perspective views global institutions as tools to accelerate structural linkages among the regions of the world system. The second perspective focuses on the implications of a dominant ideology in the world system. This dominant ideology often arises as a result of the interplay among the major ideologies in the core regions. In this context, a group of core regions uses a global institution to overcome the structural linkages of the core and periphery. Even

though these perspectives have differences, both emphasize the structural linkages of the core and the periphery.

The long-term endogenous process of structural linkages between core and peripheral regions leads to the core countries overwhelming the peripheral countries by means of the global institution (Dutt 2002; Arrighi, Silver and Brewer 2003). Although the global institution frequently benefits the core components of the world system, it periodically generates disadvantages – not only to the peripheral regions but also to the core regions. Several facts indicate that global institutions characteristically generate both debt crises and financial crises (Suter and Stamm 1992; O’Hara 2006a; and Kotz 2008). During the periods considered in this study, the semi-peripheral and peripheral regions characteristically underwent periods of debt crises, whereas financial crises were experienced by the core regions of the world system.

Given this introduction, this paper seeks to investigate some stylized facts that are linked with the pattern of economic performance in core and semi-peripheral regions under global institutions. The long-term pattern of economic factors is important because it enables the examination of trends in economic growth in these regions. Specifically, this study investigates some characteristics that are linked with the pattern of economic performance in Western Europe and Asia. To investigate these regions, this study employs three main analyses. In the first analysis, the pattern of GDP growth per capita is analyzed the general characteristics during long waves. This first analysis intended the second analysis to scrutinize the process of circular and cumulative causation (CCC) and contradiction. This leads to the third analysis that examines specifically the process of Western deterioration in economic performance through the long waves, including recession and financial crisis.

LITERATURE REVIEW

Long wave of economic growth

The perspective of the long wave examines institutional transformations, which determine the performance of multiple factors at different levels that lead to long-wave upswings or long-wave downswings (O’Hara 2008a; Kotz 2008). Long wave is a term to explain a long-term dynamic phase of the evolution of capitalist development. The concept of long wave is based on an economic structure experiencing a change over time and evolving into a complex pattern. The economic structure covers fixed capital, human capital, innovation and technology, institutions, and spatial distribution.

The long wave covers a long-term period of capitalist development experiencing very rapid development (booming), followed by the phase of recession and economic instability. The duration of a long wave is 40 to 60 years with very rapid economic growth occurring for 20 to 40 years, followed by 20 to 40 years of recession and economic instability.

The various instabilities in political economic performance have led to much discussion regarding institutional changes over the long wave. A review of the literature suggests institutional changes in the social structure of accumulation (SSA) occur over the long wave (Gordon, Bowles, and Weisskopf 1983; Kotz 1987; Lipit 2006; O'Hara 2006b, 2007b; 2008b). The SSA theory presumes that the foundation of a beneficial set of institutions maintains the stability and certainty required for sustained investment during long-wave upswings.

SSA proposes four major initial frameworks. First, SSA identifies institutions as the cornerstones influencing socioeconomic performance under capitalist economies through long-wave economic change and development. The long-term interplay of the links among investment, demand, and rate of growth can be influenced by stability and certainty at differing levels.

Second, evolution and transformation occur in institutions through long waves. Institutions experience maturation, transformation, and renewal to stimulate systems and environments for sustained upswings. According to O'Hara (2006a, 2008b), in SSA theory, the process of institutional transformation involves flexible periodicity and structures of change. For instance, labor productivity tended to be higher in the long-wave upswing of the 1950s and 1960s; it then declined through the long-wave downswing through the 1970s and 2000s. In this case, the power of capital increased continuously relative to labor to reduce operational costs, while the rate of economic growth decreased in the same period.

The third framework is linked to the demand side. In SSA theory, GDP per capita growth identifies the degree of demand at differing levels throughout the long waves. O'Hara (2006b, 2007b, 2008b) classifies long waves based on GDP per capita growth, including the long-wave upswing (GDP per capita growth above 2.5 percent for at least 15 years), borderline (between 2.01 and 2.5 percent growth per capita) and long-wave downswing (GDP per capita growth below 2.0 percent). As a demand proxy, the rate of growth per capita is important for the critical evaluation of the long-term economic performance of capitalist economies.

The fourth framework is that, on a broader level, SSA theory proposes to closely examine economic performance under capitalist economies that are linked with social and environmental performance through long waves. SSA empirics link GDP per capita growth with patterns of environmental and social factors. For instance, relationships between capital and environmental factors can be institutional, affecting long-term socioeconomic performance. The capital-environmental accord deteriorates as business sectors challenge capital through depletion of natural resources and their ecological footprint increases. Moreover, relationships in the capital-social factor can be viewed in conflict between capital and trust. Social trust may decline in several countries that have increased rates of growth per capita. It is important to stress that SSA theory may capture interrelationships among factors in the world system as a whole.

Considering historical patterns of change, SSA theory posits that GDP growth per capita as a critical proxy for identifying conditions in demand and market capital. In terms of SSA empirics, GDP growth per capita is a function of the level

of economic stability and the efficacy of institutions. It enables global performance to be critically investigated along with long-wave upswings, borderline period, and long-wave downswings.

Table 1 below, provides an outline of how long wave will be examined at the global, regional, national, and sub-national levels. There are seven classes of GDP growth per capita that can capture economic growth at different levels. For instance, global or regional/country condition is classified into low long-wave upswing (LLWU) if it has GDP growth per capita in the range of 2.51-3.50 percent. Slight long-wave downswing/slight downswing (SLWD) refers to global, regional or country conditions of GDP growth per capita between 1.01 percent and 2.00 percent. This classification is crucial for investigating the pattern of economic performance at different levels.

Table 1: Long-wave Taxonomy for GDP growth per capita

Major Upswing	Medium Upswing	Low Upswing	Borderline	Slight Downswing	Medium Downswing	Major Downswing
>4.50% Growth	3.51-4.50% Growth	2.51-3.50% Growth	2.01-2.50% Growth	1.01-2.00% Growth	0.00-1.00% Growth	0.00%> Growth
<i>MLWU</i>	<i>MDLWU</i>	<i>LLWU</i>	<i>B</i>	<i>SLWD</i>	<i>MDLWD</i>	<i>MLWD</i>

Source: O'Hara (2007); this study extends the classifications, making them different from those in the source.

Circular and Cumulative Causation

This section seeks to discuss the principle of circular and cumulative causation (CCC) as well as the relation of this principle to uneven development. The CCC principle captures the structural linkages of multiple factors, which either rise or fall in certain periods. The performance of these factors affects the performance of the entire system (Kaldor 1957, 1972; O'Hara 2008a, 2010; Berger 2008c). Circular and cumulative causation (CCC) describes a relationship between a change of an independent variable and a change of a dependent variable. The dependent variable changes in accordance with change in the independent variable, in a similar direction. More broadly, this answers the question of when a change in a variable causes a significant change in other variables in the socioeconomic system. Therefore, a small change in the variables in the socioeconomic system will experience magnification where there is an income divergence at the global, regional, state, and individual levels.

The CCC concept raises some questions and discussions on whether the CCC process occurs naturally or as a collective action. In answering such a question, discussion on CCC is directed toward the circularity aspect that becomes the core focus of the cumulative process. To illustrate, when a change in variable A causes a change in variable B, but variable B's change does not give feedback to variable A, this process maintains an equilibrium in the system until the variable A's change

ends. Conversely, an effect is cumulative when feedback moves and experiences magnification in the original variable (McCombie and Roberts 2009; Berger 2009b). This process is an evolution that can generate positive and negative effects on the social economic system.

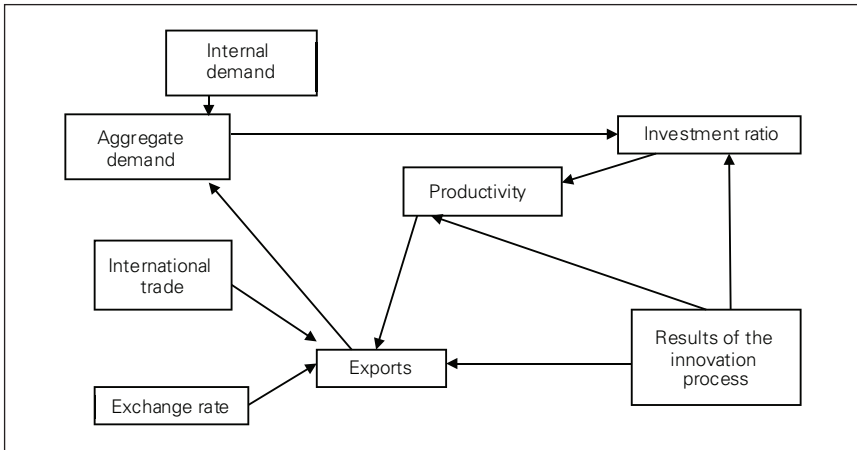
Myrdal (1944) investigates racial inequality in the United States. He argued that African-Americans have a low education level, more children, less economic asset, and are risk averse. These characteristics lower African-Americans' wage levels, and they subsequently face difficulties in obtaining a decent educational level and savings access. The result is supported by Myrdal's research in 1968; his analysis showed that low wage levels caused low nutrition and health. Accordingly, such a condition caused a low productivity level of the African-Americans, which often led to a low level of income.

Myrdal argues that access to a decent educational level would enable African-Americans to gain the opportunities to increase their living standard. The improved education level would increase health, productivity, and income levels, and would decrease decreasing the social gap in society. This process is magnified when the education level is higher and in turn also develops health, productivity, and income. This concept becomes the model for developing and under-developing countries to view education as an aspect that brings about a positive cumulative impact on social and economic development.

Turning to economic factors, the effect of increasing return in one area of a country is a stimulating aspect for circularity and growth (Argyrous and Bamberry 2009; Toner and Butler 2009). When the demand of output increases due to elastic price, the producer can manage the production means at a low-cost production level. In this case, the low-cost level will increase demand as well as decrease the production cost level (Allyn Young 1928). This circularity process is supported by the increase of demand and market scale that is influenced by the division of labor. Young (1928) argues that an area that produces goods with elastic prices will experience faster growth and not the other way around. To illustrate, a country that focuses on investment in manufacturing industry will tend to have the opportunity to keep the circularity of economic variables that support economic growth.

As displayed in Figure 1, Nicholas Kaldor elucidates the role of the productivity of the manufacturing industry as a stimulus for economic growth. Kaldor emphasizes the export of manufacture industries by elaborating Verdoorn's Law (Kaldor 1957; King 1994; McCombie and Roberts 2009). Kaldor explains that during its growth, output is related to labor productivity. Investment in the manufacturing industries increases their productivity in two ways: innovation and labor productivity. When industry productivity increases, exports increase. Export growth promotes national income increase. Countries that have potential export products are able to increase national income and expand products to increase economic scales. In this process, the increase of the economic scale reliably increases demand and investment.

Figure 1: Kaldor's Model of Circular and Cumulative Growth



Source: Adapted from Pini 1995, p. 10.

RESEARCH METHOD

The method is best summarized in six dimensions, as shown below:

Table 2: Research Method of Uneven Development

Geography	Dimensions	E.g., Data	Principles Linked to Uneven Development	Methods	Data Limitations
Regions/ Continents	Economic	GDP	Long Waves, CCC	Maddison [History, Phases]	Multiple Data Sets

Source: Authors.

Methodologically this study is interested in six elements. First, geographically this study seeks to comprehend the patterns of long wave motion through complex historical phases of transformation. This can only be satisfactorily done when the patterns are differentiated between the world, continents and regions, nations and sub-nations. No serious view of the world can ignore complex core-periphery-semiperiphery dimensions at the continental, national, and sub-national levels as well as the global.

Secondly, this study transcends purely economic factors to develop a holistic analysis of how the economic links to or is different from social, environmental, and political patterns. Many have tried to fuse these four dimensions into a single index (e.g., GPI), but the work of Brennan (2009) has clearly shown this to be a contradictory process as it leads to ahistorical, mechanical, statistically problematical, and conceptually disingenuous scientific discourse. Drawing on the work of

K.W. Kapp this study highlights the heterogeneous nature of the dimensions and the need to embed history and complexity into the analysis.

Thirdly, this study uses an array of statistics and data to illustrate the four main dimensions of economic, social, environmental, and political processes. The Literature Review, which is still in process, will delineate many of the data sources utilized, but at this stage, it is crucial to point out that a multitudinal set of different indicators will be used. At the economic level, if indeed such an independent thing exists, this study will use rates and levels of GDP per capita, but where possible this will be supplemented by many others (where necessary) such as the components of GDP in the form of investment and consumption demand. The period 1950-2010 will be the target for the study, but many gaps and other problems will arise, especially since the WDI data do not always fit well with this period *as a whole*.

In terms of general methods, this study is influenced by the work of Angus Maddison, whose path breaking analysis of phases of capitalist development and collections of economic data going back to 1000AD have made an economic history approach much more explanatory than previously possible. But this study seeks to go beyond Maddison by adding social, environmental, and political data as well.

This study delimits the scope of the timing to 1950 since it represents the start of long wave upswing in the 1950s and the downswing (in the Western World) commencing in the 1970s and going through to the present, as well as including the magnificent industrialization process in China and other parts of Asia in more recent decades.

This study also incorporates Immanuel Wallerstein's tool of core – periphery – semi-periphery, or at least starting from this simple typology, to stimulate specificity and pay attention to the structural elements linking these regions of the world, continents, nations, and sub-nations. Also useful in his conceptual toolbox is the concept of hegemony, including the power relations that evolve among nations and regions vis-à-vis commerce, finance, production, and military activities.

Phillip O'Hara's principles of political economy will be used in this study as a way of developing operational hypotheses applicable to the four main regions. Historical specificity is a useful principle, especially when linked to the non-deterministic analysis of long waves through successive decades of growth and decline.

Circular and cumulative causation will be used to examine the statistics to show, firstly, their interaction and the need for a holistic study, and secondly, to illustrate how factors often tend to be amplified and magnified as growth rises or declines through time. The principle of contradiction helps hypothesis formulation and historical investigation by recognizing that often the economic, social, political, and environmental data move in different directions in a structural relationship involved. In other words, one way of promoting growth is to reduce (use) the stock

of ecological resources or to commodify social relationships (household production, women's work, enjoyment) to stimulate growth and profit.

A further source of inspiration is provided by Kenneth Boulding, by differentiating the process of investment from consumption (see O'Hara 2001). In the analysis of the data and the historical investigation, this study will utilize the concept of investment to mean the building up of durable structures (capital); e.g., of economy, society, polity, and environment. For instance, while GDP is usually seen as a flow when decades of GDP data are averaged and followed through time, these can be seen as relatively durable structures of likely structural change. Here this study is not talking about aggregate effective demand but rather the non-monetary building and destruction of durable capital. This theory of Boulding is potentially very useful for analyzing changes in heterogeneous data and making some conceptual sense of the historical record.

RESULTS

The Asian Experience: Consistent Upswing 1950-2020

This section discusses the pattern of economic performance in Asia. The discussion is based on three in-depth analyses. The first examines the pattern of GDP growth per capita in Asia during the 1950s-2000s, focusing on certain countries in this region. The second analysis captures the pattern of the linkages of economic variables in this region in relation to the principle of circular and cumulative causation (CCC) and contradiction. The third analysis uses the results of the second analysis to provide a historical perspective, which is crucial to appreciating Asia's global economic hegemony.

The first analysis considers some patterns linked with GDP growth per capita during 1950-1973 and 1974-2020. These are depicted in Table 3b. GDP growth per capita is also indicated for every decade, which is useful for understanding long-wave performance. Table 3b also shows averages for the periods of the 1950s-1970s and the 1980s-2000s. These are crucial for examining the level of change in economic growth between periods in global and regional capital markets (Boulding 1984; O'Hara 2008a). The level of economic change refers to the average GDP growth per capita in the 1980s-2000s minus the average GDP growth per capita in the 1950s-1970s.

Table 3a: GDP Growth per capita: Asia, 1950-2020 (%),
Period Annual Averages

	1950-1973	1973-2010	1950s	1960s	1970s	1980s	1990s	2020s
Asia	3.11	5.08	2.68	3.36	3.72	3.73	5.47	6.16
Japan	8.33	1.96	7.18	9.69	4.64	3.06	1.87	0.64
China	7.10	7.96	5.34	8.01	6.09	8.56	8.44	8.99
India	1.51	3.64	1.68	1.62	1.75	2.34	3.54	5.61
Indonesia	2.11	4.45	1.00	1.90	5.39	4.07	5.35	3.38
Korea Rep	4.99	5.63	5.46	3.92	7.00	6.34	5.35	4.35
Singapore	4.63	4.68	0.99	6.07	7.92	5.43	4.62	3.51
Thailand	3.70	4.65	2.26	4.89	4.97	4.57	5.75	3.15
Pakistan	1.89	2.50	-0.01	3.79	1.82	3.85	1.66	2.26
Nepal	1.01	1.73	2.17	0.38	0.45	1.45	2.39	1.90

Source: GDP growth per capita 1960s-2000s are calculated using period annual averages based on World Bank (2010); GDP growth per capita 1950s is calculated using period annual averages based on Maddison (2003). Note: All Asian countries in this Table 3a have complete time series data during 1950-2020.

Table 3b: Change in GDP Growth per capita: Asia, 1950-2020 (%)

	Δ (1950-1973) – (1974-2010)	Δ (1950s-1970s) – (1980s-2020s)
Asia	63.44	57.29
Japan	-76.40	-74.12
China	12.10	33.70
India	141.40	127.80
Indonesia	111.28	54.45
Korea Rep	12.73	-2.08
Singapore	1.10	-3.73
Thailand	25.73	11.13
Pakistan	32.24	38.90
Nepal	70.95	91.28

Source: Same as Table 3a.

In general, Asia consistently experienced upswings from the 1950s onward. During 1973–2020, the average GDP growth per capita was higher than during 1950–1973. This region’s long-wave upswing of the 1950s climbed even higher through the 1980s–2020s. A medium upswing occurred in the 1950s, 1960s, and 1970s when GDP growth per capita was between 2.68 and 3.72 percent. A medium upswing in the 1970s continued in the 1980s, followed by a period of major up-

swing in the 1990s and 2020s. The stability of market growth in Asia between the long-wave upswing of the 1950s–1970s and the long-wave downswing of the 1980s–2020s is also indicated by a 57.29 percent level of positive economic change.

For the second analysis, this study investigates the linkage of economic factors in Asia. This is to analyze the pattern of those factors associated with the principle of CCC and contradiction. This study proposes four economic factors: GDP growth per capita, investment growth (gross capital formation growth), productivity (value added growth in the industrial sector) and export minus import growth (net export growth). These factors are derived from Kaldor's dynamic circular and cumulative causation model (Kaldor 1972; Pini 1995; Toner 1999; O'Hara 2006a). The relational patterns are then analyzed through the elasticity function. The results of elasticity for each set of variables are crucial to identify CCC and contradiction among these factors.

Technically, the investigation of CCC and contradiction refers to the model of CCC and contradiction on economic factors. The models show four quadrants that determine pairs of economic factors based on the Kaldorian CCC. The four-quadrant model of economic factors follows the circularity of economic factors in Kaldor's model. For instance, the change in aggregate demand (GDP per capita) causes the change in investment alongside the circularity of Kaldor's model. This circularity generates the elasticity of GDP growth per capita in relation to investment growth. The model notes that elasticity is calculated only by pairs of factors that have direct structural linkages through the circularity. For instance, the relationship between GDP per capita and investment has direct structural linkage, whereas the relationship between investment and net exports has indirect structural linkage.

There are four elasticity functions that can represent the direction of the structural linkages among the factors, namely the elasticity of GDP growth per capita to investment, the elasticity of investment to productivity, the elasticity of productivity to net export growth, and the elasticity of net export to GDP growth per capita. As an example, the structural linkages between GDP per capita growth and investment can be defined through the elasticity function. This function measures the percentage change of investment determined by the percentage change of GDP per capita. Similarly, other elasticity functions also represent the relationship among other factors.

The pattern of CCC and Contradiction in terms of factors and periods can be identified from the elasticity among these economic factors. The relationship of all economic factors represents CCC in a region if elasticity among these factors is positive (+). CCC may also occur in a region if all elasticity generated is negative (-) for all economic factors. By way of contrast, a contradiction may be identified in a region if there is a combination of (+) and (-) in elasticity among the factors. For instance, the pattern of CCC occurs in the relationship between GDP growth per capita and investment when the elasticity of GDP growth per capita to investment is positive. A contradiction occurs in the relationship between these two factors when the elasticity between them is negative.

The results of the elasticity among economic factors in Asia during 1950s-

2000s are shown in Table 4. Note, the time series data are available from the 1960s-2000s.

Table 4: CCC in Asia Using Elasticity of Economic Factors, 1960s-2020s

	1960s-1970s	1980s-2000s	1960s	1970s	1980s	1990s	2020s	Contradiction-years
Asia								
E Inv, GDP per capita	3.15	2.21	3.99	1.91	2.52	1.90	2.31	-
E Prod, Inv	0.83	0.59	0.61	1.23	0.74	0.49	0.55	-
E NX, Prod	0.85	0.98	0.86	0.83	0.44	1.61	1.03	-
E GDP per capita, NX	0.45	0.79	0.47	0.51	1.20	0.66	0.76	-
CCC and Contradiction-factors	CCC	CCC	CCC	CCC	CCC	CCC	CCC	-

Source: Data is calculated using period annual average based on World Bank (2020). Note: GDP/cap = GDP per capita (% growth), Inv = investment (% growth), Prod = industrial productivity (% growth), NX = net-export (% growth).

The results of the elasticity among economic factors in Asia during the 1950s-2000s are displayed in Table 4. Note that the time series data are available from the 1960s-2000s. Table 5.a shows two important aspects linked to the elasticity analysis. The first aspect captures the results of elasticity among economic factors. In the second aspect, the results are revealed in every decade. The last row in Table 4 shows that CCC and contradiction may occur in every decade. The column of contradiction by years reveals decades in which a region has contradiction as a result of elasticity among economic factors.

The long-term pattern of CCC in Asia suggests that the interrelationship among economic factors is likely to have been a critical contributor to the sustained upswing. The results support Halevi and Kriesler (2007), Ocampo and Vos (2008), Toner and Butler (2009), and O'Hara (2008a, 2012a). As Table 4 illustrates, no negative elasticity was found in the relationship among economic factors during the 1950s-1970s and the 1980s-2000s. These economic factors even have an increasing pattern in elasticity. For instance, productivity elasticity to net export is slightly increased from long-wave upswing to long-wave downswing. This suggests that industrial capital was in relative accordance with financial capital. Expanding productivity propelled the basis of exports. Hence, the elasticity of GDP growth per capita with respect to net export growth in the 1980s-2000s was higher than in the 1960s-1970s. This suggests that Asia managed to prevent any overcapacity problems in its export products.

The neoliberal perspective on this period might claim that financial liberaliza-

tion removed restrictions on the mobility of global capital. As Wolfson (1990) contends, financial liberalization may have led to capital inflows to Asian countries during the 1980s-1990s; however, these may have generated financial fragility. This was also a period in which capital outflows determined declining currency values. Moreover, in the sub-section discussing temporary economic growth, this study reveals that some Asian countries underwent temporary downswings as financial crises occurred in the 1990s.

Western Deterioration: Western Europe, North America and Parts of Oceania and the Pacific

This section investigates some characteristics of the pattern of economic performance in Western regions such as Western Europe, North America, and parts of Oceania-Pacific. This study employs three main analyses to investigate these regions. In the first analysis, the pattern of GDP growth per capita is analyzed to identify general characteristics during a long wave. This is then developed in the second analysis using the principle of CCC and contradiction. The third analysis specifically examines the process of Western deterioration through long wave, including the occurrence of recession and financial crises.

The first analysis captures the pattern of GDP growth per capita in several advanced countries in Western Europe, North America, and parts of Oceania-Pacific. These patterns are revealed in Table 5, which displays average GDP growth per capita during the 1950s-1970s and the 1980s-2010s. Decade averages of GDP growth per capita are also shown to identify the taxonomy of long-wave economic growth in every decade. The gap between average GDP growth per capita in the 1950s-1970s and the 1980s-2000s is used to identify the rate of change (Boulding 1984; O'Hara 2008a). This is useful for recognizing capital market growth.

Table 5a: GDP growth per capita: Western Europe, North America, and Oceania (Selected Advanced Countries) 1950-2020 (%), Period Annual Averages

	1950-1973	1974-2010	1950s	1960s	1970s	1980s	1990s	2020s
Western Europe	3.87	2.03	3.58	4.36	3.67	2.38	2.08	1.17
France	4.12	1.46	3.40	4.56	3.45	1.75	1.45	0.53
Germany	6.29	1.61	7.08	7.37	3.01	1.87	1.90	0.50
Italy	4.99	1.45	5.47	4.99	3.50	2.48	1.19	-0.23
United Kingdom	2.47	1.70	1.95	2.54	2.27	2.29	1.95	0.99
Netherlands	3.64	1.65	2.91	4.36	2.48	1.59	2.56	0.79
Finland	4.32	1.81	3.45	4.48	3.67	3.09	0.87	1.29
Norway	3.26	2.34	2.59	3.74	3.84	2.40	2.82	0.95
Sweden	3.08	1.40	2.32	3.82	2.06	2.02	1.06	1.09

North America	3.48	1.78	3.15	3.77	2.76	1.64	1.49	1.72
Canada	2.92	1.49	2.78	3.18	2.38	1.80	1.29	0.93
United States	3.51	1.59	3.57	3.84	2.26	2.12	1.93	0.64
Oceania	3.29	0.87	1.63	2.57	2.95	0.24	0.97	0.97
Australia	2.45	1.74	1.88	2.87	1.88	1.92	1.89	1.83
New Zealand	2.22	1.07	1.67	2.53	1.29	1.18	0.89	1.64

Source: Same as Table 3a.

Table 5b: Change in GDP growth per capita: Western Europe, North America and Oceania 1950-2020 (%), Period Annual Averages

	Δ (1950-1973) – (1974-2020)	Δ (1950s-1970s) – (1980s-2020s)
Western Europe	-47.69	-51.54
France	-64.59	-67.33
Germany	-74.35	-75.56
Italy	-70.95	-75.33
United Kingdom	-31.36	-22.66
Netherlands	-54.62	-49.39
Finland	-58.19	-54.75
Norway	-28.22	-39.27
Sweden	-54.63	-49.18
North America	-48.94	-49.96
Canada	-49.12	-51.81
United States	-54.79	-51.26
Oceania	-79.74	-70.46
Australia	-29.03	-14.95
New Zealand	-42.43	-23.49

Source: Same as Table 5a.

In general, the patterns of economic performance in most advanced nations substantially determined the world economic pattern during the 1950s-2020s. As advanced regions, Western Europe, North America, and parts of Oceania experienced a long-wave upswing during the 1950s-1960s, then borderline in the 1970s and a long-wave downswing during the 1980s-2000s. The level of negative economic change during the 1950s-2020s in these advanced regions was 51.54 percent in Western Europe, 49.96 percent in North America, and 70.46 percent in Oceania, as markets' potential declined due to economic instability and institutional disarray. This declining market growth is illustrated by the difference between average growth in the 1950s-1970s and that in the 1980s-2020s.

The second analysis examines the relationship of economic factors in Western regions, including GDP growth per capita, investment growth, productivity, and net export growth. These economic factors are investigated through their elasticity.

Following Kaldor’s dynamic cumulative and causation model, this study presents four pairs of elasticity function that are crucial for identifying the principle of CCC and contradiction among economic factors.

Table 6 reveals several results for the elasticity of economic factors in Western regions during the 1950s-2000s. As noted previously, the time series data is available from the 1960s to the 2000s. In Table 6, the elasticity of economic factors is given as an average for the period of the 1950s-1970s and that of the 1980s-2000s. The results are also displayed in decade averages during the 1960s-2000s. The far-right column or “contradiction-years column” shows decades in which a contradiction occurred in a region. The last row reveals that CCC and contradiction may occur for every decade in a region.

In general, the phenomenon of a contradiction in relation to economic factors for the Western region mostly occurred during the long-wave downswing of the 1980s-2000s. On the other hand, there was no negative elasticity among those factors identified in the long-wave upswing of the 1950s-1960s and the borderline position of the 1970s. This suggests that the institution of neoliberalism generated more contradiction than the institution of Fordism. As displayed in Table 6, the four-pair elasticity of economic factors exhibited no negative results in the period of the 1960s-1970s; these were followed by some negative results in the period of the 1980s-2000s. The relationship among economic factors generating negative results in North America occurred in the 1980s, 1990s, and 2000s. Western Europe had contradictions in the relationships between net export and GDP growth per capita in the 1980s and the 1990s. Parts of Oceania exhibited contradictions similar to those in Western Europe in the 1980s and 2020s.

Table 6: Contradiction and CCC in the Core Regions Using Elasticity of Economic Factors, 1960s-2020s

	1960s-1970s	1980s-2000s	1960s	1970s	1980s	1990s	2020s	Contradiction-years
Western Europe								
E Inv, GDP per capita	0.85	1.19	0.99	0.69	1.37	1.53	0.20	
E Prod, Inv	1.19	1.06	1.19	1.18	0.71	0.83	9.19	
E NX, Prod	0.17	-0.19	0.18	0.17	-0.43	-0.41	0.30	1980s, 1990s
E GDP per capita, NX	5.54	-3.97	4.66	7.15	-2.35	-1.96	1.78	1980s, 1990s
CCC and Contradiction-factors	CCC	NX, Prod, GDP/cap	CCC	CCC	NX, Prod, GDP/cap	NX, Prod, GDP/cap	CCC	

North America								
E Inv, GDP per capita	1.52	1.79	1.46	1.59	2.26	4.29	-0.84	2000s
E Prod, Inv	0.85	0.67	0.99	0.68	0.56	0.36	-0.94	2000s
E NX, Prod	0.60	-0.35	0.58	0.63	-0.57	-0.55	0.32	1980s, 1990s
E GDP per capita, NX	1.28	-2.36	1.17	1.45	-1.37	-1.15	3.86	1980s, 1990s
CCC and Contradiction-factors	CCC	NX, Prod, GDP/cap	CCC	CCC	NX, Prod, GDP/cap	NX, Prod, GDP/cap	Inv, GDP/cap	
Oceania								
E Inv, GDP per capita	1.48	3.83	2.26	0.88	21.17	3.93	6.98	
E Prod, Inv	0.60	0.53	0.53	0.77	0.64	0.63	0.38	
E NX, Prod	0.82	-0.81	0.90	0.69	-0.62	0.37	-2.15	1980s, 2000s
E GDP per capita, NX	1.31	-0.32	0.92	2.11	-0.12	1.07	-0.17	1980s, 2000s
CCC and Contradiction-factors	CCC	NX, Prod, GDP/cap	CCC	CCC	NX, Prod, GDP/cap	CCC	NX, Prod, GDP/cap	

Source: Same as Table 3a.

Further, in the Western regions, the relationship between industrial productivity to net export and that of net export to GDP per capita experienced contradictions during the long-wave downswings of the 1980s-2020s. These contradictions are suggested by negative results in these two pairs of elasticity in Western Europe, North America, and part of Oceania. For instance, the elasticity of industrial productivity in relation to net export growth was -0.43 in the 1980s for Western Europe, meaning that a one percent change in the average industrial productivity decreased net export growth by 0.43 percent. The decline of GDP growth per capita was 2.35 percent as net export growth increased one percent in Western Europe, defined by the negative elasticity between net export and GDP growth per capita. This suggests that the contradiction in the long-wave downswing that occurred in Western regions was due to the institution of neoliberalism-globalization promoting capital inflows and imports. Capital inflows and import significantly weaken the relationship of productivity, net exports, and GDP growth per capita.

The third analysis investigates the linkage of contradiction and major recessions as well as financial crises during long-wave downswings. This study finds that most contradictions in the core regions arose in the 1980s, 1990s and 2020s. These

findings concur with those of Wolfson (2000), Halevi and Kriesler (2005), Kotz (2008) and Kriesler (2009), who revealed that core or advanced regions experienced a series of recessions in the mid 1970s, early 1980s, early 1990s, and early 2000s.

In North America for the 2000s, the elasticity of productivity with respect to investment was negative, as shown in Table 6. This suggests a contradiction between financial capital and industrial capital, triggered by domestic deregulations, especially in the United States. Domestic deregulations directed foreign financing of real stock, which could have stimulated speculation (Wolfson 2000). This speculation indicated that financial capital exceeded industrial capital, which affected industrial productivity. Increasing stock prices stimulate rising real estate prices, promoting the issuing of sub-prime mortgages. The result was a financial crisis (Kotz 2008).

Throughout the 1990s and the 2000s, a contradiction also occurred in productivity-net exports and net exports-GDP growth per capita. As shown in Table 6, the elasticity of productivity to net exports was negative in Western Europe, North America and part of Oceania. This contradiction was derived from global factories or transnational corporations (TNCs), which interrupted the accordance of productivity and net exports. The development of global factories stimulated overcapacity, which dampened the outlook for exports and increased interest in financial investment. This also contributed to decreased demand due to negative net export elasticity to GDP per capita in these core regions. As Crotty and Dym-ski (1998) suggest, overcapacity in the global market is determined by declining demand as lower wages and an increasing supply of goods occur in the same period.

During the 1970s-2000s under the neoliberal institution, financial liberalization prevailed, in an attempt to promote capital inflows and capital outflows. Throughout the same period, TNC and global factories rapidly developed and generated overcapacity in the production process. A contradiction between productivity and net exports arose in North America when exports could not respond to productivity due to overcapacity occurring in global trade. Financial fragility led to a contradiction between net export and GDP growth per capita, as capital inflows dominated net exports. Finally, while capital inflows increased rapidly, capital outflows were also increased in an attempt to decrease the value of the currency. The outcome in each case was a financial crisis.

Declining domestic regulatory controls were a part of financial liberalization. Rapidly, increasing bank credit contributed to the dominance of financial capital. Speculation, therefore, arose in financial markets, such that they exceeded the level of industrial capital. For instance, in the 2000s, over-inflated US stock prices contributed to increasing real estate prices, pushing up the operational costs for the economic sector, i.e., creating an economic bubble. This bubble began to influence the US economy in the early 2000s. Housing prices further increased with the decline in the construction industry. Mortgages spiked, which spread globally through collateralized debt. Hence, in over-simplified terms, the financial crisis began. The

crisis thus precipitated the bankruptcy of some of the largest banks in Western nations, especially in the US and Western Europe.

The rise of private sector debt influenced production in the industrial sector, which was interrupted as firms sought to restrain debt by decreasing the proportion of their investment in labor productivity and technological change.

Declining labor productivity was determined by the static wage, while lower innovation decreased output. Declining output discourages economic surplus and market expansion, which leads to a decline in net exports and aggregate demand. Decreasing aggregate demand in turn interrupts capital accumulation, which decreases investment. Aggregate demand is therefore not sufficient on its own to provide the opportunity for market expansion.

Households also feel the impact of private sector debt. When aggregate demand does not fully provide for investment, the labor wage becomes static or decreases, thereby reducing households' opportunity to survive and thrive. Household income decreases, on average impacting social welfare, such as education and health. Moreover, the average prices of goods increase, as industrial sectors have high production costs. Thus, households have to deal with higher prices of goods while suffering a decrease in income.

CONCLUSION

This study exhaustively investigated long waves of economic growth at the global, regional, national and sub-national levels during 1950-2020. In order to examine long-wave performance, this study surveyed GDP growth per capita for 25 countries in Asia and 22 countries in Western Europe. There are two main conclusions in this study. The first conclusion identifies that the world, most regions and countries experienced long-wave upswing during 1950-1973; and followed by long-wave downswing during 1974-2020. This first conclusion also posited that institutional-consumption and investment occurred in Asian and Western European countries from long-wave upswing to long-wave downswing. The second conclusion captures some of the interrelationship among economic factors during the long waves in these regions.

The first conclusion suggests that the world and most regions typically experienced a long-wave upswing during 1950-1973 and a long-wave downswing 1974-2020 as the percentage of upswing and borderline countries in the period of the 1950s-1970s is larger than percentage of downswing countries in the period of the 1980s-2020s. In particular, the results in Western Europe partly determined the performance pattern of the world economy as institutional consumption of GDP (market) growth occurred in the world and in the Western regions. In contrast, the Asian region is the only region that underwent a long-wave upswing over the past fifty years. Institutional investment in market growth took place in Asia, and it generated the positive development of institutions from the 1950s to the 2000s.

The second conclusion concerns some contradictions on the interrelationship

among technical (political-economy) economic factors in the Western regions as the elasticity of those factors generated negative values, especially in the long-wave downswing of the 1980s–2010s. Some contradictions in these economic factors partly determined the deterioration of Western Europe’s economic performance. For instance, the negative elasticity of productivity to net-export and net-export to GDP per capita suggests that a dependency upon capital inflow would not have contributed to upswing.

By contrast, the Asian region evinced some interrelationships among economic factors, including GDP growth per capita, investment growth, productivity growth and net-export growth. The direction of these interrelationships remained similar over time. Asia experienced CCC during the 1950s-1970s and the 1980s-2000s, seen in the fact that the technical economic factors had positive elasticity in these periods.

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