

Economic fluctuation revisited

I V A N T . B E R E N D

Department of History, University of California, 405 Hilgard Avenue, Los Angeles, CA 900–95–1446, USA. E-mail: iberend@ucla.history.edu

This study discusses the various short-, medium- and long-term cycle theories and focuses on the long-term Kondratiev cycle and its Schumpeterian interpretation. It gives a summary on the economic fluctuation in the 20th century and its impact on structural transformation and regional rearrangements. The problem of ‘peripheral structural crisis’ – the destruction without creation in the relatively backward regions of Europe – is introduced.

Introduction

Economic turmoil, rising unemployment and drastically declining stock prices ended the longest period of American prosperity and frightened an integrating Europe. At the very beginning of the 21st century, it pays to look back the economic fluctuation of the 20th century and before.

The rate of economic growth in Europe was extraordinary in the 20th century. However, growth rates were rather uneven, and exhibited exceptionally extreme fluctuations. The two halves of the century represented entirely different growth trends: very slow in the first half, very rapid in the second. A structural crisis and then a deep, devastating, and tragic depression characterized the inter-war decades. An unparalleled upswing was experienced during the third quarter of the century, while a new structural crisis slowed the pace of growth during the fourth quarter.

Seven lean and seven fat years

Human history has always presented regular fluctuations. The biblical ‘seven lean and seven fat years’, related presumably to climatic cycles of rainy seasons and droughts, and belongs to the very first written observations on ‘economic cycles’. Both nomadic and agricultural societies were relatively defenceless against economic fluctuations dictated by nature. The early modern-world economy of

the 16th century was also accompanied by long price-cycles. Economic fluctuation has thus been a fellow traveller with mankind during its march throughout the centuries. The rapid and sustained growth of post-industrial Revolution Europe, however, generated some dramatic new phenomena: a complex set of short-run pulses, coexisting with regular medium-term fluctuations, all occurring against a backdrop of mysterious long-term economic cycles. These fluctuations produced the nightmare of Great Depressions, extremely turbulent times of depressed prices, steeply declining output and painfully high unemployment, which lasted sometimes for decades. These troublesome times, although devastating and often setting economies back substantially, also became a new point of departure toward even greater economic heights.

The great 18th and early 19th century theorists of capitalist market systems, including Adam Smith, did not examine the problems of instability and cyclical patterns. As early as 1801, however, the scientist Sir William Herschel suggested that changes in sunspots (stormy activities on the solar surface that generate strong ultraviolet radiation) affect the weather, crops and, consequently, prices. As was later discovered, sunspot activities do have a strict regularity. On average, it takes roughly 10 to 11 years for a cycle to run from its minimum to maximum level and back. The climatic causes of these medium-term fluctuations were the first explanations of economic cycles.

Short- and Medium-term Cycles

Modern economic theory recognises three basic types of fluctuations. The short-term Kitchin-cycles (recognised in 1923) last only three to four years and are mostly inventory investment cycles. The cause of this short-term pulsation between two medium-term Juglar cycles is explained by the ‘overshoots’ and ‘undershoots’ of business stocks. These short waves are mostly ‘growth cycles,’ i.e. they might have positive growth rates even during the quasi-recession. In postwar Germany, for example, they counted nine cycles between 1950 and 1983 with durations of between two and five years, but most of them for four years.¹ From an economic history point of view, these short-term pulsations do not attract much attention.

Much more important is the existence of medium-term cycles. In 1819, the Swiss Jean-Charles-Léonard Sismonde de Sismondi, author of *Nouveaux Principes d’Economie Politique*, explicitly noted how ‘deeply [he] was affected by the commercial crisis which Europe had experienced of late, by cruel sufferings of the industrial workers which I had witnessed in Italy, Switzerland and France ...’² The greatest impact, however, was made by a French dentist, Clement

Juglar, who published *Des Crises Commerciales et de leur Retour Périodique* in 1860. According to his interpretation, modern economy exhibits a seven- to 11-year cycle generated by investments in fixed assets. In prosperous years, entrepreneurs over-invest and create excess capacities, which leads to ‘over-production,’ while the opposite trend characterises the years of ‘commercial crisis’. Cycles are thus unavoidable consequences of the market system since entrepreneurs act solely in response to prices. A price increase in prosperous times leads to increases in investment and output and, to cite Sismondi again, ‘unfortunately this ... [decision] is made by all producers at the same time ... ignorant of how much their competitors will undertake ...’³ Modern European economic history also demonstrates, however, that the market automatically solves the problems it creates. In the declining period of ‘under-consumption’ or ‘over-production,’ when prices are falling, investment, employment, and output are restricted in the same, exaggerated and spontaneous way which, after a short while, re-establishes the balance between supply and demand, and the cycle repeats itself. Stressing the psychological reason for the Juglar-cycle, A. C. Pigou pointed to ‘optimistic errors’ and ‘pessimistic errors’ as causes of the rhythmic fluctuations that are experienced in industry. ‘Erroneous decisions have a self-generating effect and spread. When it becomes clear that optimistic over-investments have caused an excessive piling of goods, which, in turn, have caused prices to decline, this discovery generates pessimistic errors such as under investment and restriction of output. The two ‘errors,’ thus, ‘give birth to one another in an endless chain.’⁴ Although the Juglar-cycles regularly disrupted economic growth and some of them were quite severe, they did not change the general trend of rapid economic growth and, because of the automatic recovery process, regulated themselves.

The Long ‘Kondratiev’ Cycles

Some of the economic setbacks, however, were long-lasting and downswing trends or slow periods for as long as two to three decades became common. This was the case for a quarter of a century after 1873, and then twice in the 20th century. Among the first economists who discovered some long-waves in price movements was the British William Jevons. He described a 28 year period of generally rising prices (1790–1818), followed by a 31 year general price decline (1818–49). The Dutch Jan van Gelderen, in 1913, identified a second long wave of price increases and declines: an upswing between 1850 and 1873, and then a decline during the next 23 years between 1873 and 1896. Long waves became recognisable, influenced economic growth and characterized the entire modern European economy.

Nevertheless, the theory of long-cycles is connected with the name of the Russian economist, Nikolai Kondratiev, who published his first study on the topic in 1922. Using statistics exclusively on prices, he identified two and a half long waves in modern economic history. Each 50-to-60 year cycle had an upward phase, which paired rising prices with rapid growth, and a downward half of falling prices and slow rate of growth. In a most complete version of his analysis in 1926, he included aggregate output figures.⁴ The first ‘Kondratiev-cycle’ had emerged with the British Industrial Revolution in the late 1780s. Its upward phase lasted until 1814, while its downward half ended in 1849. The second long wave emerged after 1850 and went upward until 1872, followed by a downward swing that lasted until 1896. The third long wave began in the late 1890s. Its upward phase ended during the war. As Kondratiev stated: ‘According to all available data, the downward wave of the third cycle began in 1920,’⁶ and then characterized the entire inter-war period. He concluded that during the upswings, years of prosperity were more numerous, while depressions occurred mostly in the downswing periods. Agriculture suffered the most in the downswing years. Inventions characterized the downswings, while their large-scale applications were realized during the upswing phase. Output and the world market expanded in the upswing years, but this was also the age of wars and revolutions.

Although Kondratiev died in one of Stalin’s prison camps in the 1930s, the long waves moved more or less according to his timetable: the downward half of the third cycle ended with the Second World War and was followed by the fourth cycle. Its first, upward, half characterised the postwar years until 1973 and produced the greatest prosperity in modern history. The upswing curve was so steep that Juglar cycles hardly existed in the West. The Kondratiev waves, however, reached their peak, and, according to a predictable timetable, turned downward in 1973. The downswing trend characterized the next two decades, although in quite an irregular way. For the first time in history it was accompanied by a steep increase in prices rather than a decline. The new economic phenomenon was called ‘stagflation,’ and challenged ‘proven’ economic theories and governmental practices.

Kondratiev recognized some connections between his long-waves and the Juglar cycles. During the prosperous years of the long upward trend, he maintained, the regular Juglar downswings are milder, while in the troubled downward phase of the Kondratiev cycle, the Juglar downswings are very harsh and steep. He also recognized that while depression ‘affects all sectors of the economy, it does not affect all of them to the same degree. As a rule, it is more strongly manifested in agriculture ...’⁷

Kondratiev offered an ‘initial hypothesis’ to explain the long waves: ‘the rising wave of a long cycle,’ he concluded, ‘is associated with the replacement and

expansion of basic capital goods, and with the radical regrouping of, and changes in society's productive forces.' This is the period of large investments and of 'radical restructuring of the economy ... when the accumulated technical inventions are broadly applied, and new productive forces are created... The further the curve of that demand [of capital] extends, the more it begins to approach the level of accumulation curve, and even to exceed it.' At the end, 'an increasingly acute shortage of capital' follows, 'the former rate of investment in large-scale projects falls ... and prices drop.' After 'the downward trend continues ... accumulation began to function with increasing potency ... conditions favourable to an upswing are again created.' He, however, frankly confessed: 'I am not convinced that I have succeeded in finding a satisfactory explanation for [the long cycles].'⁸

Continual debates challenged the statistical methods and evidence and, consequently, the existence of long waves, or at least their strict regularity as described by Kondratiev. As Andrew Tylecote maintains, the main value of Kondratiev's (from some unfinished aspects) theory is its 'extremely persuasive endogenous' explanation of the long waves and its complexity in including both economic and extra-economic factors, which 'integrated [the latter] quite fully into' the theory.⁹ As Kondratiev stated: 'In asserting the existence of long cycles and in denying that they arise out of random causes, we are also of the opinion that long cycles arise out of causes which are inherent in the essence of the capitalistic economy ...'¹⁰

Most of the experts agree that historical evidence suggests that a long cycle of an *irregular* period is relevant to the growth process of modern economies. Some experts are more ready to accept Simon Kuznets' theory on the 'Great Depressions' of approximately 20 years rather than the Kondratiev cycle.

Schumpeter's Structural Crises

Inspired by Kondratiev's theory, Joseph Schumpeter offered a convincing interpretation of long cycles, which 'reveals the nature and mechanism of the capitalist process better than anything else.' Each long wave, he explained, is connected with 'an 'industrial revolution' and the absorption of its effects'. As he recounted the beginnings of modern long cycles from the 1780s to the 1840s, he states that the Industrial Revolution was behind it. 'Upon it heels, however, came another such revolution producing another long wave that rose in the forties ... and ebbed away to 1897, to be followed in turn by the one that reached its peak about 1911 and is now in the act of ebbing away,' noted Schumpeter during the inter-war years.

These revolutions periodically reshape the existing structure of industry by introducing new methods of production – the mechanised factory, the electrified

factory, chemical synthesis and the like; new commodities, such as railroad service, motorcars, electric appliances; new form of organisation – the merger movement; new sources of supply – La Plata wool, American cotton ... new trade routes and markets to sell in... While these things are being initiated we have brisk expenditure and ‘prosperity’ predominates [and an avalanche of consumers’ goods, articles of mass consumption and increased purchasing power] ... and while those things are being completed and the results pour forth we have the elimination of antiquated elements of the industrial structure and ‘depression’ predominates. Thus there are prolonged periods of rising and falling prices, interest rates, employment and so on, which phenomena constitute parts of the mechanism of this process of recurrent rejuvenation of the productive apparatus.¹¹

In Schumpeter’s interpretation, the ‘whole set of technological changes’ or industrial revolutions generate a pressure for adjustment. Those firms and groups representing the old technology and methods and unable to change fail and disappear in time. Readjusting is difficult and a relatively slow process, especially because demands for investments, credits, and new skills may not be immediately satisfied. This causes a period of economic turmoil and recession. John Hicks also maintained that even moderate irregularity in the rhythm of innovations gives an absolute explanation of regular conjuncture cycles.

The significant slowing down and destruction, nevertheless, are ‘creative’ since they clear the way for new technology and methods. The previously leading sectors of the economy became obsolete and the new leading sectors, based on new technology and organizational principles, are occurring and the whole process brings about a restructuring of the economy. When most sectors of the economy have been transformed by the new elements, then the wave of prosperity follows.

This interpretation suggests that the long downswings are essentially ‘structural crises’, the periods of the decline of the old and the dawn of the new technological regimes. The entire economic fluctuation is inherent in the market system and free market competition, which generate an endless inspiration and drive to introduce more competitive methods and products to conquer larger markets and achieve bigger profits. Seemingly extra-economic factors, such as wars and political upheavals, are also contributing in this process. Most of them, however, are closely connected with economic performance and might be seen as its consequences. Prosperities and crises, as Kondratiev tried to place them into his long-cycles, have their logical political impact in the international as well as the national theatres.

Economic fluctuation in the 20th century

If we look at the 20th century economic development on this theoretical basis,

we may well describe the long waves of economic fluctuation and its main reasons. After the first ‘Great Depression’ from 1873 to 1896, the 20th century began with the third Kondratiev cycle, a rising prosperity from the end of the 19th century, which actually ended at the end of the First World War. Behind this upswing we found, at the turn of the century, a new industrial revolution, a ‘whole set of technological changes’, which made the old technological regime, determined by the leading sectors of coal, iron, steel, railroad transportation and traditional engineering, obsolete. The new prosperity was based on the rapid development of electric power generation and consumption, electric engineering, the science-based chemical industry, oil extraction and processing, and the combustion engine and its applications. The First World War gave a tremendous impetus to technological development and a broad restructuring, which was due in part to the first, long mechanized war and war exhaustion, and the shocking social–political turmoil that followed generated a sharp structural crisis and a striking downswing trend during the inter-war decades.

During the Second World War and after, during the long period of the Cold War, a new industrial and communication revolution took root with the invention of nuclear fusion, the first computers, and quickly the transistor, comparable in importance to developments during the British Industrial Revolution. That was the beginning of a fourth Kondratiev cycle that characterized the second half of the century. Output and services were radically transformed. As with textiles 200 years before, electronics heralded the emergence of a new epoch. The former leading sectors declined or were entirely rejuvenated, striking structural changes occurred, and the rise of the new leading sectors of a post-industrial, communication age strengthened the position of those countries that were able to adjust. An unparalleled prosperity emerged during the ‘silver fifties’ and even more so in the ‘golden sixties’.

In 1973, however, a politically motivated ‘oil crisis,’ brutally ended the decades of prosperity and nearly a quarter of a century’s worth of new structural crisis emerged with significant slowing and economic turbulence, which gradually ended in the 1990s.

The impact of fluctuation on structural changes and regional differences

The enormous 20th-century economic fluctuation meanwhile had a great impact on both structural and regional rearrangements. During the long periods of prosperity, high growth rates and rapid development led to economic expansion and the maturity of newly risen sectors. The downswing portion of the long waves, although markedly slow and troubled, exhibited the strongest challenge for

renewal. The sclerotic sectors began declining and new innovations matured and were introduced. These were the periods of major structural change. New (old) victims have fallen and new victors have emerged. The Great Depressions of both the inter-war decades and the end of the century were simultaneously periods of decline and rise. Instability was a part of the process of renewal, and decline was linked to resurgence as shade is to sunshine.

Fluctuation was thus not only a pulsation of growth rates, successive changes of rapid and slow growth periods, but also a kind of built-in prime mover of structural change. As a consequence, the 20th-century European economy went through permanent and major restructuring. This equally characterized the ratio of the main economic sectors within the national economy, and the ratio of various branches of each economic sector. In other words, agriculture, industry and services – the so-called primary, secondary and tertiary sectors – radically changed their relative weight in the national economy. One of the leading structural trends of the century in Western Europe was the permanent decline of the role of agriculture, the dramatic decrease of agricultural employment and value added as a percentage of total employment and GDP respectively. Before the First World War, more than 40% of the active population of France, and more than one-third and one-quarter of the German and Dutch populations respectively, worked in agriculture. At the end of the century, their shares declined to 3–5%. Industrial employment and output increased their relative shares in GDP for a while, but also began declining in the later decades of the century. At the end of the century, instead of 35–40%, only 25–35% of the labour force was employed in industry. The absolute winner was the tertiary sector, which gradually became dominant: instead of 25–40% before the First World War, the share of service employees increased to two-thirds and three-quarters of total labour force.¹² Thus, a dramatic modernization accompanied economic fluctuation.

A general European trend, nevertheless, did not exist. Responses to the challenge of technological–structural revolutions and performances during prosperity and stagnation varied in different countries and regions, both in design and in success rates. Just as certain firms failed, so certain countries and regions entered periods of crisis, which some failed to solve.

Rich and powerful countries have the potential ability to be more responsive because they command ‘unlimited’ resources. Some of them, however, react too slowly and too late, basking in the comforts of their accustomed prosperity and strength. On the other hand, relatively backward countries, lacking the burden of well developed, previously advanced but now obsolete sectors, and sometimes possessing important new raw materials and human resources, may have profited from a paradoxical ‘advantage of backwardness’ and rapidly surpassed formerly thriving nations. Other backward countries and regions, needless to say, became victims of changes and could not adjust to them. Most of the cases are

exceptions and the only rule is that there are no general rules governing these adjustments.

During the periods of turbulent fluctuations, the history of 20th-century Europe, nevertheless, exhibited a sort of regularity. At least two basic patterns might be differentiated. Core countries reached better growth and developed stronger modern sectors, and thus adapted fairly well to the structural downturns and relatively easily emerged with renewed vitality. Nations on the periphery of the continent, on the other hand, lagged behind, experiencing the destructiveness of the depression yet being unable to adapt creatively to their challenges. These peripheral structural crises often broadened the gap between the core and peripheries.

Economic performances, fluctuations and structural changes were thus highly varied among the countries and regions of Europe. They reacted to 20th-century economic challenges according to their cultural, educational, and economic levels as well as to the political situation.

The core–periphery differences and relations within Europe were, of course, not a 20th century development. They had a long history dating back to the early centuries of Christian–feudal Europe. Western feudalism, as Marc Bloch maintained, consisted of a proportional, balanced mixture of ingredients taken from the social and institutional systems of Roman antiquity and German tribal culture.¹³ In the geographical peripheries of Europe, the proportion of this mixture differed from the classic Christian–feudal core and the preponderance of tribal elements created an idiosyncratic form of feudalism. Various European regions, according to certain interpretations, experienced ‘genuine differences’ even in the early Middle Ages.¹⁴ Moreover, the peripheries of the Western core lived in a frontier situation for centuries. They were open to external attack, occupation, and immigration. For centuries, Mongols, Muslim Ottomans and Arabs attacked and often conquered and ruled certain parts of Eastern, South Eastern, and Mediterranean Europe.¹⁵ They brought with them non-European forms of power and social system, a lack of private landholding, and most of the population were serfs of the state. These distinct disparities, however, might be called ‘proto-core–periphery relations’, since a world system did not then exist.

Such a system emerged only with the discovery of the Americas and the rise of modern world trade. During the 16th to 18th centuries, Western Europe became the real centre of an emerging modern world system. The West profited from the new Atlantic trade, based on mass consumption goods, accumulation of capital, and became a kind of rising industrial centre in a new system of division of labour.¹⁶ During these early modern centuries, the West European core dominated the world trade and shipping, merchant capitalism emerged together with centralized, strong absolute states, building up colonial

empires, and a gradual dissolution of feudal ties. This ultimately led to a homogenized society and the rise of the nation and nation state.

The Eastern and Southern European peripheries became parts of an emerging capitalist world system and were incorporated into it in a 're-feudalized' form, and also as food and raw material suppliers of the core. Feudal and pre-feudal structures were strengthened, nation building was halted and often led to a loss of independence and incorporation into huge, autocratic multinational empires.¹⁷ Thus, the socio-economic and political conditions of the European core and peripheries were markedly different before the industrial revolution.

Nineteenth century industrialization made the differences even sharper. The Western core emerged as the urbanized industrial centre of the world, introducing parliamentary regimes, *Rechtsstaat*, and pluralistic political systems, while the peripheries were unable to follow this path. They remained mired in the traditional rural–agrarian societies and political institutions of the *ancien régime*. Illiteracy remained predominant, authoritarian regimes were preserved, and nation building was unfinished. The contrast between the rapidly moving locomotive-driven core and the horse-driven trudging peripheries widened tremendously during the 19th century. Although reforms from above and the adoption of Western institutions during the second half of the century expressed the will to join Europe and follow in the core's footsteps, this effort – except in Scandinavia – mostly failed or, at best, was only semi-successful.

During the 20th century, regional rearrangements continued. While the Scandinavian countries became part of the Western Core, the South and the East continued in a peripheral state, and bitterly revolted against it. They sought to find separate roads. Instead of imitating and following the West, they separated from it and turned inward: instead of export-led industrialization they introduced high tariffs and turned to import-substituting industrialization. These basically failed again in the first half of the century, except for a successful Soviet industrialization drive. Central and Eastern Europe, in the framework of the Soviet Bloc, followed the same road, even in a more extreme form during the second half of the century. They successfully industrialized, but on an obsolete technological-structural base, thus they reproduced backwardness and remained in a peripheral status until the end of the century. Moreover, the gap between West and East broadened into an extreme abyss. The Soviet Union (and, after 1991, its successor states) and Yugoslavia (and its successor states), which reached nearly half of the economic level of the European Union, measured by per capita GDP, dropped to less than one-quarter; Bulgaria and Romania declined from one-third to one-quarter by 2000.

Mediterranean Europe and Ireland, however, during the Cold War decades, became incorporated into the Western world, especially from the 1960s, and then after having joined the European Union, they could relatively successfully adjust

to the technological challenges of the age and a catching up process began with the Western core. Ireland, from half of the advanced West European level in 1960, reached the French, German, Dutch and Belgian level by the end of the century. Spain and Portugal emerged from half to roughly two-thirds of it.¹⁸ Fluctuation and the rearrangement of disparities among nations went hand in hand in the 20th century.

References

1. H.-J. Braun (1990) *The German Economy in the Twentieth Century* (London: Routledge), p. 170
2. W. C. Mitchell (1927) *Business Cycles, Vol. I. The Problem and Its Setting* (New York: National Bureau of Economic Research), p. 5.
3. J. C. L. Sismonde de Sismondi (1827) *Nouveaux Principes d'Economie Politique*, Vol. I, pp. 325–326.
4. A. C. Pigou (1948) *The Economics of Welfare* (London: Macmillan), p. 833.
5. N. Kondratiev (1998) *The Works of Nikolai D. Kondratiev*, Vol. I (London: Pickering & Chatto).
6. N. Kondratiev (1984) *The Long Wave Cycle* (Richardson & Snyder), p. 38.
7. N. Kondratiev (1984) *The Long Wave Cycle* (Richardson & Snyder), p. 97.
8. N. Kondratiev (1984) *The Long Wave Cycle* (Richardson & Snyder), pp. 94–97, 89.
9. A. Tylecote (1998) Politics, technology and economics: Kondratiev's endogenous theory of long waves. In: *The Works of Nikolai D. Kondratiev*, Vol. I (London: Pickering & Chatto), pp. lxxi–lxxii.
10. N. Kondratiev (1998) *The Works of Nikolai D. Kondratiev*, Vol. I (London: Pickering & Chatto), p. 543.
11. J. Schumpeter (1976) *Capitalism, Socialism and Democracy* (London: George Allen and Unwin), pp. 67–68.
12. A. Maddison (1995) *Monitoring the World Economy 1820–1992* (Paris: OECD), p. 39.
13. M. Bloch (1970) *La société féodale* (Paris: A. Michel).
14. L. Makkai (1976) Feudalizmus és az eredeti jellegzetességek Európában, *Történelmi Szemle*, No.1–2.
15. N. Berend (2001) *At the Gate of Christendom. Jews, Muslims and 'Pagans' in Medieval Hungary, c.1000–c.1300* (Cambridge: Cambridge University Press).
16. I. Wallerstein (1974) *The Modern World System: Capitalist Agriculture and the Origins of the European World-Economy in the Sixteenth Century* (New York: Academic Press).
17. Z. P. Pach (1994) *Hungary and the European Economy in Early Modern Times* (Aldershot: Variorum).
18. United Nations (2000) *Economic Survey of Europe 2000*, No.2 (New York: United Nations) pp. 161, 175.

About the Author

Ivan T. Berend is Professor of History at the University of California, Los Angeles and was President of the International Committee of Historical Sciences between 1995 and 2000. His books include *Central and Eastern Europe 1944–1993: Detour from the Periphery to the Periphery* (1996) and *Decades of Crisis: Central and Eastern Europe before World War II* (1998).