

THE BUSINESS CYCLE AS A REGULARITY OF DEVELOPMENT OF CAPITALIST ECONOMIES

*Barbara Polszakiewicz**

Abstract

The business cycle belongs to those economic phenomena that are distinguished by extreme complexity. This results in, among other things, plurality of its theoretical interpretations, often mutually excluding themselves, which came into being during the general process of economy development. Sets of basic propositions forming paradigms in the economic theory determined the ways of perception of business fluctuations, the importance that was attached to the analysis of this phenomenon, and the recommendation concerning behaviours in their face. Owing to a difficulty in distinguishing and quantification of particular factors influencing the course of a cycle, it was often explained by means of a cause-effect chain of secondary importance. As a result, because of a multitude and high degree of abstraction of theoretical models, the practice of making business diagnoses and forecasts in principle almost does not refer to theory. This article is an attempt at explaining these important problems.

1. Introduction

The business cycle belongs to the phenomena that cause the most controversies among theoreticians of economics. The aim of this study is to answer the question if there are any grounds for ascertainment of the occurrence of a regular business cycle as a feature of the contemporary market economy. I consider the recognition of this regularity as a basic feature of the cycle to be an essential condition of including it in the regularities of the development of capitalist economy. Thus, the settlement of how much time is more or less needed for one cycle to start and finish is essential.

2. The current status of the theory of the business cycle

Three groups of theories predominate when the phenomenon of the business cycle in the contemporary economics is explained. Two of them focus on issues connected with the technological progress – the way of absorbing it by the economy and its results for the economic growth. The theories of the real

* Nicolaus Copernicus University, Torun; Poland, E-Mail: bpolszak@econ.uni.torun.pl

business cycle are included in one of the theories, whereas the second one includes the neoschumpeter type theories. The third group of the theories was generated by the new Keynesian economics.

The technological progress is an exogenous shock in the basic models of the real business cycle¹. It violates the existing conditions of balance by raising the productivity of labour and capital. Rationally behaving subjects adapt to the shocks in an optimal way. The growth of marginal capital productivity prompts its accumulation. In turn, the owners of the labour factor, in relation to the growth of real wages as the consequence of marginal productivity growth, make an interperiodical substitution of free time today and tomorrow. A growth of labour supply occurs. The production increases and it is accompanied by an increase in the value of demand. Prices are those that purify the market. When the effects of technological shocks disappear, the employees increase the share of free time in their time budget again. Basic models of the real business cycle have become the subject of further studies and various supplements. They aimed at increasing the degree of flexibility of the labour factor in them².

In all models referring to J. Schumpeter's theory the appearance of a technological shock causes that older capital generations are withdrawn from exploitation. A decline in production occurs. The new technology is more efficient, so when it spreads, the production rises to a higher level. The feature that makes Schumpeter's models distinct is the basic role of differentiating subsequent capital generations. It brings models closer to the real cyclical

¹ F. Kydland and E. Prescott are considered the authors of the basic model of the business cycle. See in particular: F. Kydland and E. Prescott, *Time to Build and Aggregate Fluctuations*, *Econometrica* 1982, Vol. 50; E. Prescott, *Theory Ahead of Business-Cycle Measurement*, Federal Reserve Bank of Minneapolis Quarterly Review 1986, Vol.10.

² For example: in models with home production the time budget that a typical consumer has at his/her disposal is divided into: the time assigned to gain income, the time assigned to home production and the time assigned to rest. The technological shock reduces the marginal utility of the time assigned to the home production, however it increases the marginal utility of the home capital. J. Benhabib, R. Rogerson, R. Wright, *Homework in Macroeconomics I: Basic Theory; Homework in Macroeconomics II: Aggregate Fluctuations*, NBER Working Paper No. 3344, Cambridge, MA, 1990 were interested in that problem. In the context of the real cycle attention was paid to the sector that produces human capital, searching on the job market, cyclical variables of utilization of production factors, building time, various production technologies of physical capital and human capital. It is worthy of paying attention to such studies as: S. Reading, *The Low-Skill, Low-Quality trap: Strategic Complementarities between Human and R&D*, *The Economic Journal* 1996, Vol. 106; R. Siebert, *Multiproduct Competition, Learning-by-doing and Price-Cost Margins over the Product Life Cycle: Evidence from the DRAM Industry*, Discussion Paper, Wissenschaftszentrum, Berlin 1999 and D. DeJong, B. Ingram, Y. Wen, C. Whiteman, *Cyclical Implications of the Variable Utilization of Physical and Human Capital*, University of Pittsburgh Working Paper, Pittsburgh 1996.

process than models of the real cycle in which the capital is homogeneous³. In the latter ones the new capital may be added to the old one.

An alternative to the above mentioned interpretations of the business cycle, formulated similarly to them within the liberal trend of economics, are the views that production and employment deviations from so-called natural levels are caused by shocks of different types of a random nature. The rationally behaving entities adjust themselves more quickly to such shocks (according to the new classic authors) or more slowly (according to the monetarists). In the issue in question new classic authors and monetarists are of the same opinion that there does not occur a business cycle understood as regular fluctuations whose base is some internal systemic mechanism. Irregular, oscillatory changes in the economy are a product of a coincidence of a variable group of factors.

Implications for the economic policy that result from the above mentioned set of three groups of views are reduced to the recommendation to refrain from interferences whose aim would be a correction of cyclical business fluctuations. In the theories of the real business cycle, cycles are the way the economy being in the state of a permanent balance goes. In the theory of neoschumpeter's type recessions (crises) are the price that must be paid for progress. However, according to the opinion of the new classic authors and monetarists the economic policy should not be a source of additional shocks. Its features should be credibility and stability, especially as the rate of money supply growth is concerned.

The view that the achievement of the macroeconomic balance is possible in the conditions of unemployment as well as in the conditions of over-employment is the feature that distinguishes the attitude towards the business cycle that is characteristic for new Keynesians. The economic reality is characterized by an imperfect competition. The plurality of cycle models worked out within this trend results from a different significance attached by individual theoreticians to such sources of the imperfect competition as asymmetric information, incompleteness of markets, heterogeneousness of labour force, costs of adjustments or problems with honesty of entities

³ The model of quality ladder is an example of an interesting contemporary reference to Schumpeter's theory. The division of technologies into basic and complementary is essential in this model. The necessity of working out complementary technologies without which the basic technology cannot be used causes the movement of some part of labour force to research-developing works. It results in a decline in production. For more see the study of the model's authors: P. Aghion, P. Hewitt, *On the Macroeconomic Effects of Major Technological Change* [in:] E. Helpman (ed.), *General Purpose Technologies and Economic Growth*, The MIT Press, Cambridge, MA, 1998.

concluding contracts⁴. There is a characteristic view that the policy of aggregate demand management is efficient.

To sum up, despite a significant effort that was put not only to the working out of subsequent theoretical models of the cycle, but also in the practical studies of the business conditions, it has not been finally agreed yet in the world of economics if this phenomenon takes place. The problem if all fluctuations of business conditions are phenomena of the same class or if regularities that should be given the name of business cycle are their basis, has not been solved yet. The following quotation by two well-known economics theoreticians from the academic textbook that has been published lately seems to be a perfect illustration of the above diagnosis:

“Fluctuations in the economy are often called the business cycle.(...) The term business cycle is somewhat misleading, because it seems to suggest that economic fluctuations follow a regular, predictable pattern. In fact, economic fluctuations are not at all regular, and they are almost impossible to predict with much accuracy. Panel (a) of Figure 33.1 shows the real GDP of the UK economy since 1971. If we define a recession as occurring when real GDP falls for two successive quarters, then we can discern four recessions over this period: one from late 1973 until mid-1975 until the end of 1975, one from beginning of 1980 until mid-1981, and one from about the quarter of 1990 until the end of 1991. Sometimes the recessions are close together, as in the 1970s. Sometimes the economy goes many years without a recession. Since the end of 1991, the UK economy has not suffered a recession at all.”⁵

The above-mentioned quotation is even more characteristic because it is taken from a textbook, and textbooks usually contain the knowledge that accepted by a significant part of the scientific community that represents the given discipline.

3. Defining the business cycle

Before making an attempt at identifying the cycle in the economic reality, an effort to formulate the definition that shows its main features should be made. In the theoretical and empirical analyses of the contemporary cycle we can find the mix of some reflexes of theories with quite a superficial description. For example, according to theoretical models it is accepted that the business

⁴ For more on the new Keynesian economics see: C. Benassi, A. Chirco, C. Colombo, *The New Keynesian Economics*, Oxford UK-Cambridge USA 1994; B. C. Greenwald, J. E. Stiglitz, *New and Old Keynesians*, Journal of Economic Perspectives 1993, Winter.

⁵ N.G. Mankiw and M.P. Taylor, *Economics*, Thomson Learning, Australia-Canada-Mexico-Singapore-Spain-United Kingdom-United States 2006, p. 682.

cumulative process once started lasts until its end, so until the reversal of the tendency. In principle the possibility of occurring an apparent turning point is not taken into consideration.

The definition used by the National Bureau of Economic Research (NBER) in New York plays a predominant role in the empirical studies of the American cycle. According to this definition, the business cycle consists of a sequence of phases of expansion and contraction that finds its reflection in the basic macroeconomic aggregate that is the volume of gross domestic product. The lasting of the absolute decline in the domestic product for at least two quarters is the criterion that serves to define a given downward fluctuation as a phase of contraction (recession)⁶.

In many German studies the definition determining the cycle as more or less regular deviations of economic activity from the rate of balanced growth is used. A balanced growth is identified with a long-wave trend of the domestic product, calculated by means of various statistical techniques.

The cycle is also defined as oscillations in the rate of utilization of production capacity⁷. A suggestion to separate the following five phases: upswing, expansion, state of high business strain, easiness and slowdown is connected with this latter definition. The first three phases form the period of growing and fully utilized production capacities, whereas the fourth and the fifth phases form the period of its decline and withdrawal of business outlook. Supporters of this definition argue that it suits better the modified form of post-war oscillation of the business outlook. The use of growth rates does not show the strains that occur in the course of a cycle. For example, the rate of growth may decline as a result of depletion of production capacity reserves, but not as a result of breaking off the period of economic expansion.

Accepting the specific definition of the cycle has significant consequences for the dating of the turning points in its course and in the determining of the length of expansion phases and the decline in the business outlook. What we can find behind the external form of business fluctuations depends on a decisive degree of the theory. The author of this study considers the following definition of the business cycle as most justified from the theoretical point of view:

Investment decisions of companies are the main driving force of a cycle. The renewal dates of an essential part of production equipment delimit the cyclical rhythm of the cycle. In this way the most typical length of life of this group of means of production designates the duration of the cycle. The cycle should then be characterized by a significant regularity if it relates to duration. It

⁶ See, for example,; "Business Conditions Digest", April 1981, p.1 and following.

⁷ See: G. J. Tichy, *Konjunkturschwankungen. Theorie, Messung, Prognose*, Berlin-Heidelberg-New York 1976, p.72. We can find this kind of definition in expert opinions of the Board of Experts of the Federal Republic of Germany.

is not important that moments of undertaking particular investments do not overlap. It is sufficient enough that in one of the phases of a cycle an above-average concentration of investment activity occurs. Then conditions for the development of a cycle of fixed capital turnover will occur with results noticed on the macroeconomic scale. A phase of upswing developing into a more or less intensive business prosperity starts every cycle. A preparation of conditions that favour overproduction occurs in these periods. The crisis of overproduction is the constituting phase of a business cycle. It appears as a result of a quicker growth of productive powers of an economy rather than the general demand. Particular phases of a cycle may be broken off influenced by adequately strong factors and processes of a noncyclical character which will be reflected in non-periodical fluctuations of general economic activity. Proper cyclical downswings should be deeper than they, as a rule. Deviations from this rule may occur as a result of a particular coincidence. These circumstances need to undergo a particularly perspicacious analysis.

The above-mentioned definition shows that although changes which are a consequence of the operation of the mechanism of investment cycle are the basis of the course of a business outlook, it is also a historical event. This means that the general economic trend which is the form in which the investment cycle occurs also accumulates and reflects the impact of many factors of a more or less random character. Not every sequence of an upward or downward movement in the general business outlook must be equivalent to the occurrence of a full business cycle.

The periodicity of development should be treated as a *regularity of development* of market economy. This means that the measure consisting in deducting a long-wave trend from analysed historical series in the aim of getting a so-called "pure cyclical component", cannot be justified. Investments boosted by innovations of a definite intensity are not only a basis for a growing trend in the long run, but as expenses they become a source of business boom in the short run. The cycle is thus a component part of a long-term trend and, conversely, the trend is an element of the cycle.

Assessing the situation that occurred in the area of views on the problem of periodicity of the cycle in the contemporary economic literature we may find a domination of the view that even if once the eight- or nine-year long Juglar-type cycles occurred, now they are shortened by more or less a half, or we cannot speak about the occurrence of the phenomenon of periodicity in the waving of the general economic activity. This view was formed not under the influence of analyses of theoreticians in the literal meaning, but by practitioners examining the level of economic activity. Although many textbooks still show the difference between the Juglar-type cycles and shorter, Kitchin-type ones, it is treated only as information from the field of the history of the economic thought. This is an obvious result of considering all oscillations as oscillations of the

same type, because their external form that manifests itself in the occurrence of a period of decline in economic activity after every phase of expansion is similar.

The attempt to verify the hypothesis concerning the periodicity of the post-war business cycle made in the article will not be easy. This is so because statistics reflect the processes connected with renewal of fixed capital only to a small degree. However, a verified hypothesis says: the period of the contemporary cycle connected with the cycle of fixed capital turnover has not changed in an essential way in comparison with the so-called the classic cycle.

An empirical analysis obviously must primarily focus on the investment activity as a basic driving force of the cycle. We will base it on the example of the economy of the Federal Republic of Germany, one of Europe's main industrial centres.

4. The analysis of a cyclical development in the economy of the Federal Republic of Germany

Table 1 shows the formation of indices in the period of post-war economic development of the Federal Republic of Germany.

Table 1. The growth of gross domestic product and investment in equipment in the Federal Republic of Germany per annum in years 1950-2006* (in %%)

Year	Gross domestic product	Investment in equipment
1950		28.0
1951	10.5	10.0
1952	8.3	7.2
1953	7.6	10.5
1954	7.4	17.9
1955	11.5	22.9
1956	6.9	4.4
1957	5.4	-1.4
1958	3.3	5.4
1959	6.7	10.3
1960	8.0	15.7
1961	5.4	11.5
1962	4.0	4.8
1963	3.4	1.9
1964	6.6	11.0
1965	5.4	10.5

Barbara Polszakiewicz

1966	2.4	-2.4
1967	-0.1	-8.2
1968	7.2	10.5
1969	8.0	22.6
1970	5.0	16.7
1971	3.1	4.8
1972	4.3	-0.1
1973	4.8	2.0
1974	0.2	-7.9
1975	-1.3	0.4
1976	5.3	6.5
1977	2.8	7.7
1978	3.0	8.2
1979	4.2	9.5
1980	1.0	2.9
1981	0.1	-3.4
1982	-0.9	-7.2
1983	1.8	6.0
1984	2.8	0.4
1985	2.0	9.0
1986	2.3	4.2
1987	1.5	4.9
1988	3.7	3.1
1989	3.6	4.8
1990	5.7	5.3
1991	5.0	4.1
1992	2.2	-4.2
1993	-1.1	-15.1
1994	2.3	-1.9
1995	1.7	1.1
1996	0.8	1.7
1997	1.4	3.7
1998	2.0	9.2
1999	2.0	7.2
2000	2.9	9.5
2001	0.8	-5.8

The business cycle as a regularity of development of capitalist economies

2002	0.1	-7.5
2003	-0.1	-0.2
2004	1.6	2.6
2005	0.9	6.1
2006	2.5	7.3
2007	2,6	8,2

*Till 1991 the area of the Federal Republic of Germany before unification, from 1992 - after unification.

Source: Statistisches Bundesamt Deutschland

Even a rough analysis of the data shown in Table 1, and in particular the dynamics of investment in equipment, allow us to distinguish the following periods in the post-war economic development of Germany⁸ (indicated in the table by blank lines):

1. 1950-1957 (8-9 years⁹),
2. 1958-1967 (10 years),
3. 1968-1975 (8 years),
4. 1976-1982 (7 years),
5. 1983-1993/94 (11 years),
6. 1994-2003 (10 years),
7. since 2004.

Two sub-periods may also be distinguished in the second period: years 1958-1963 and 1964-1967, in the third period – sub-periods that include years 1968-1972 and 1973-1975. It seems to be groundless to distinguish sub-periods in the remaining four brackets of time. The first year of expansion is considered as the beginning of each of them and the so-called bottom of decline in the investment activity as the end.

The accepted way of periodization allows us to see a clear rhythm in the economic development of Germany. The distinguished periods of subsequent cycles lasting from 7 to 11 years are similar to the duration of the classic business cycle. Obviously, an explanation of disturbances in the second and third cycle is necessary.

Let's first take into consideration the first disturbance. An upswing in the investment activity occurred at the end of 1957 and then it changed into a boom that lasted three years. Then there was some kind of slowdown of growth

⁸ The period before 1950 is considered as the period of post-war rehabilitation of the economy, significantly prolonged because of a great chaos in the financial, administrative and political fields. Absolute investment outlays exceeded the pre-war level as late as the turn of 1950.

⁹ Relative to the way of considering the year 1949.

because the so-called “full employment point” was exceeded in 1960. The number of jobs offered exceeded the number of registered job-seekers. Wage revindications became easier. For two years (1961-1962) the rate of wage growth in the industry per one man-hour was more than twice as high as the rate of growth of hourly labour efficiency¹⁰. The government response to inflationary pressures caused by this situation was undertaking activities in the deflationary policy. As a result, a cooling off of investment business outlook occurred. But already in 1964 a return to the 11% annual rate of growth of the volume of investment in equipment occurred. Symptoms of overproduction in the form of a dynamic increase of stocks started to be seen as early as late in 1965. A dynamic withdrawal of investment activity started in the third quarter of 1966. In this way the second post-war business cycle lasted from the beginning of 1958 to the end of 1967, despite some disturbances. So it lasted for 10 years.

Let us now analyze the disturbance in the course of the third cycle. The rapid economic upswing in 1968-1969 raised the degree of utilization of production powers of industry to 99.3%¹¹. The number of jobs offered exceeded the number of job-seekers over five times. Unfavourable changes in the dynamics of profits occurred. The dynamics of growth of the rate of hourly wages in the industry increased from 5.5% in 1968 to 9.9% in 1969 and to 17.6% in 1970¹². As a result, the investment business outlook was cooled off in the second quarter of 1971. A return to the broken phase of upswing occurred in the following year, but more and more commonly the state of overproduction of production powers started to be seen as a result of the investment boom in the years 1968-1970. A cyclical downturn of economic activity was reinforced by a group of phenomena connected with the crisis of the Bretton Woods currency system which was accompanied by perturbations resulting from the first oil crisis. A major economic crash started in the latter part of 1973 and lasted until the third quarter of 1975. The period of the third post-war cycle in the analyzed economy lasted 8 years. In this cycle not only a phase of business prosperity linked with reaching the achievement the ceiling of capacities occurred, but also a long phase of depression.

Even a rough analysis of the dynamics of the growth of investment volume after 1975 makes it possible to notice that the period of the fourth cycle may be determined in an unquestionable way. An undisturbed upswing of investment activity continued until the first quarter of 1980. A stagnation and then a withdrawal of investment activity lasted until the first quarter of 1983. So, the fourth cycle lasted 7 and a half years. In that cycle there was no investment boom in the literal meaning. Also, there was no slowdown of the growth

¹⁰ See: *Wirtschaft und Statistik* 1964, no. 2, p. 102.

¹¹ *Vierteljahrshefte zur Wirtschaftsforschung* 1970, No. 4, p. 259.

¹² *Wirtschaft und Statistik* 1970, No. 2, p. 84; 1972, No. 2, p. 106.

dynamics as a result of reaching the limits of production capacity by the economy in the peak point of business prosperity.

The upswing of investment activity that started in the second quarter of 1983 was stopped for a short time in 1984. It was a consequence of workers' economic protests¹³. In the following years the investment growth in equipment was quite stable. Those investments decreased in the second quarter of 1991, starting a cyclical crash. It lasted until the middle of 1994¹⁴. Thus, it may be accepted that the period of the fifth cycle lasted 11 years.

The duration of the following investment cycle may be determined in an undisputable way for 10 years. Its course was not disturbed. The upswing that started in the middle of 1994 increased gradually until 1998 and then it remained on a high level for 2 years, although without any symptoms of overheating characteristic for the second and third cycle. At the beginning of 2001 a cyclical crash began. An absolute decline in the volume of investment lasted until the middle of 2004.

5. Final remarks

The results of the conducted empirical analysis seem to testify convincingly to the fact that the investment cycle was a regularity in the post-war economic development of the Federal Republic of Germany. Its duration oscillated from 7.5 to 11 years. Shorter and longer cycles did not occur in the analysed period, but the course of normal investment cycles was disturbed sporadically by factors which were not connected with the functioning of the basic regularity.

Disturbances in the second and third cycles were caused by the reaching of the limits of production capacity¹⁵. Conditions for renewed acceleration in the investment activity occurred when the wave of new launches of investment was increasing and so called "bottlenecks" were expanding. Demand effects of this acceleration appeared to be too weak in relation of the rate of growth of production powers. Only then overproduction conditions grew ripe. This kind of disturbances did not occur in the first, fourth, fifth and sixth cycles. The dying of

¹³ The scale of these protests caused such effects that they were seen in the macroeconomic. This fact is indicated in the statistics by an appropriate note at the bottom of the tables. (See: Statistische Beihefte zu den Monatsberichten der Deutschen Bundesbank, Reihe 4, Juli 1992, No. 7, p. 2).

¹⁴ In the first part of 1994 the volume of investments in equipment decreased by 4.7%, in the second part of 1994 it increased by 2.9% (Wirtschaft und Statistik 1996, No. 9, p. 555).

¹⁵ An interesting analysis of meaning of random events for changes in the gross domestic product in Germany in the long run can be found in: R. Metz, *Stochastic Shocks and their Impact on the Development of German Gross Domestic Product from 1850-1990*, Jahrbücher für Nationalökonomie und Statistik 1998, No. 3.

the relatively weak accumulative process occurred before the economy reached its limits of production capacity. As a result, these investment cycles were developing quite consistently, causing no problems with fixing their duration.

A statement of explanations of business cycles **occurring** in contemporary economics with their real course in the German economy shows a rather weak identification of their nature by theoreticians. Another issue is obviously answering the question whether and how we should react to this regularity by instruments of stabilization policy.

References

Aghion P., Hewitt P., *On the Macroeconomic Effects of Major Technological Change* [in:] Helpman E. (ed.), *General Purpose Technologies and Economic Growth*, The MIT Press, Cambridge, MA, 1998,

Benassi C., Chrico, Colombo C., *The New Keynesian Economics*, Oxford UK – Cambridge USA 1994,

Benhabib J., Rogerson R., Wright R., *Homework in Macroeconomics I: Basic Theory; Homework in Macroeconomics: Aggregate Fluctuations*, NBER Working Paper No. 3344, Cambridge, MA, 1990,

Burns A., F., Mitchell W., C., *Measuring Business Cycles*, Studies in Business Cycles, New York 1947,

DeJong D., Ingram B., Wen Y., Whiteman C., *Cyclical Implications of the Variable Utilization of Physical and Human Capital*, University of Pittsburg Working Paper, Pittsburgh 1996,

Greenwald B., Stiglitz J. E., *New Keynesian Economics*, Journal of Economic Perspectives 1993, Winter,

Kydland F., Prescott, *Time to Build and Aggregate Fluctuations*, Econometrica 1982, Vol. 50,

Mankiw N., G., Taylor M., P., *Economics*, Thomson Learning, Australia-Canada-Mexico-Singapore-Spain-United Kingdom-United States 2006,

Metz R., *Stochastic Shocks and their Impact on the Development of German Gross Domestic Product from 1850-1990*, Jahrbücher für Nationalökonomie und Statistik 1998, No. 3,

Prescott E., *Theory Ahead of Business-Cycle Measurement*, Federal Reserve Bank of Minneapolis Quarterly Review 1986, Vol. 10,

The business cycle as a regularity of development of capitalist economies

Reading S., *The Low-Skill, Low-Quality Trap: Strategic Complementarities between Human and R&D*, The Economic Journal 1996, Vol. 106,

Siebert R., *Multiproduct Competition, Learning-by-doing and Price-Cost Margins over the Product Life Cycle: Evidence from the DRAM Industry*, Discussion Paper, Wissenschaftszentrum, Berlin 1999,

Tichy G., J., *Konjunkturschwankungen. Theorie, Messung, Prognose*, Berlin-Heidelberg-New York 1976.