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## ECONOMIC THEORY IN THE FACE OF THE BUSINESS CYCLE

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**Summary:** The article contains, in chronological order, the most important attempts in the history of economics as a science so far to define the business cycle, together with comprehensive descriptions of its mechanism. A hypothesis is formulated on the nature of the relationship between the business cycle and processes of sustainable economic growth. Additionally, controversies relating to the periodicity of the cycle as its principal property have been dealt with.

**Key words:** theory of economics, business cycle, periodicity of the business cycle.

### 1. Introduction

The business cycle is one of the phenomena that are characterized by a high degree of complexity. As a result, there is a multiplicity of theoretical explanations for it. Controversies begin from just trying to determine whether or not there is a business cycle at all, which would be based on a kind of an intra-system mechanism. This point of view is supported, among others, by the content of modern textbooks in the field of macroeconomics, in their sections on the identification of the causes of oscillation in the overall economic situation. In my article I assume that the argument about the existence of regularity expressed in the cyclical development of the capitalist economy is sufficiently empirically validated, although not all aspects of this regularity have been interpreted theoretically well enough as yet.

Thus, there is a problem of determining what definitions of the business cycle one can generate within various currents in economics. This should be accompanied by attempts to resolve the following:

- Which definition best captures the essence of this phenomenon? Which theory most convincingly explains its mechanism? What is the relationship between the business cycle and long-term development processes?
- Is its rhythmicity (or should it be) one of the basic properties of the business cycle? If so, there is a question as to what generates such rhythmicity.
- Does every fluctuation in the overall economic situation belong to the same class of phenomena, and therefore is it permissible to use the terms “fluctuation” and “business cycle” interchangeably in the general economic situation?

The article is, therefore, aimed at attempting to provide answers to those questions.

## 2. Defining the business cycle

Following the classics, the neoclassics were involved only in the supply-side of investing activities, excluding any possibility of a demand too small on a global scale. It was generally taken for granted that the mechanisms operating in the economy ensure full employment of factors of production. The increase in savings as a source of financing investment had always been assessed positively. Under these conditions, the entire blame for a crisis fell on exogenous stimuli or the monetary-credit system. However, the first cycle theories emerged and developed outside the mainstream in economics. These included above all Karl Marx's crises theory and Joseph Schumpeter's theory of cyclical development.

The following definition of the business cycle, enhanced with a comprehensive explanation of its mechanism, results from Marx's crises theory.<sup>1</sup> The constituting phase of the cycle is a crisis of general overproduction. The conditions behind it accumulate during the growth phases of the cycle. Production increases together with the development of productive forces, regardless of existing boundaries of the market. These limits depend on the paying capacity of society, limited by antagonistic relations of the division of the new value into wages and added value. The latter is a source of profit. The emergence of overproduction is combined with a significant increase in fixed capital, including in particular the massive setup of new businesses. The huge capacity of industry, since the introduction of machinery into production, increased rapidly the generating capacity in the pursuit of extraordinary profit, causes intensive production with the ensuing saturation of markets in turn. Their scarcity causes a crisis of overproduction. Many competent non-Marxist theorists of the business cycle put forward the view that Marx considered all the nodal components of the business cycle theory.<sup>2</sup>

According to J. Schumpeter, the main spring of cyclical development is the entrepreneurs' pursuit of profit. This makes them introduce their innovations. As innovators achieve additional gains, the spread of innovation follows. Investing activities gain their momentum and, as the investment boom prevails, the inflationary processes increase, while the dissemination of innovation eliminates extraordinary gains. The degree of uncertainty and risk is greatly enhanced, and investment activity is significantly reduced. The process of creative destruction begins and the least efficient businesses are eliminated. The return to recovery occurs when the economy

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<sup>1</sup> The issue of crises occurs continually in almost every chapter in all the volumes of the *Capital and the Theories of Surplus-Value*.

<sup>2</sup> These economists include J.A. Schumpeter, L.R. Klein, and J. Strachey. On the other hand, negative opinions of such economists as J.M. Keynes and P.A. Samuelson are also known.

comes back to equilibrium (it is then possible to manage the economic account saddled with an acceptable degree of economic risk) and when there are innovations that generate expectations of windfall profits.<sup>3</sup>

We find an outline of the theoretical structure that became part of many subsequent models of the business cycle in the paper of French economist A. Aftalion, published in 1913 [see Aftalion 1913]. The waves occurring in consumer demand entail much larger oscillations in investment demand. Satisfying the increased consumer demand in conditions of a relatively high degree of utilization of productive capacity requires a prior increase in production capacity. Investment goods are usually characterised by longer durability than consumer goods. Thus, they can be used to satisfy the increased demand over a period of at least several years. Investment activity then can show a complete withdrawal in spite of the fact that the consumer demand remains at the same level. Engaging additional production capacity requires a certain amount of time. Together with a continual increase of the demand over this period of time, this causes inflation tensions on the market. Following the period of construction, new investment facilities suddenly reverse the situation.

According to W.C. Mitchell, a representative of institutional economics, cyclical fluctuations are undulating fluctuations of economic activity, which are characterised by repeating phases of development and shrinking general economic activity over periods of time longer than one year [see Mitchell 1927]. The construction of the so-called “reference cycle” by The National Bureau of Economic Research in New York was based on this definition of the business cycle. It is constructed using the iterative technique. Its turns are located in places of accumulation of turning points of time sequences deemed economically sensitive [cf. Burns, Mitchell 1947].

The supporters of the Austrian school of economics<sup>4</sup> are convinced that the economic cycle has its roots in the expansion of credit, which leads through lowering interest rates (below the level marked by voluntary savings) to an incorrect allocation of resources. The credit expansion takes place as a result of incorrect systematic solutions in the areas of money and credit as well as improper monetary policy. Thus, the following sequence of events takes place:

- credit expansion,
- changes to the price structure,
- moving resources towards earlier production stages,
- accumulation of a large amount of incorrect investments (the interest rate is the source of misinformation),
- revealing incorrect investments,
- mass liquidation of undertakings.

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<sup>3</sup> The first version of the theory was presented by J. Schumpeter in the second decade of the last century. We find it in the form supplemented by extensive statistical and historical analysis in his work published a quarter of a century later [see Schumpeter 1939].

<sup>4</sup> Roger W. Garrison, who recently published a book *Time and Money* (Routledge, New York 2006) belongs to the better-known representatives of this school in modern economics. The book focuses on international capital structure of the economy.

The heart of M Kalecki's theory is the analysis of a cybernetic relation between profitability and investment. This mutual relationship results in investments in a given period of time possibly being eventually presented as a variable totally dependent on investments in the previous periods. The profitability of investment expenditures starts falling from a certain moment as a result of the increase of fixed capital. Within the business cycle two basic forces clash, namely the demand and supply results of investment activity. It is essential that together with an incomplete usage of production capacity investment and consumption decisions of capitalists determine their profits, and not the other way round. The increase of investment expenditures results in increased profits.<sup>5</sup>

Together with J.M. Keynes' theory, the theory of the business cycle entered the mainstream of economics. According to Keynes, as a result of holding production, employment always decreases when investments, following the changes to marginal return on equity, lag behind savings. This, in turn, triggers off a cumulative movement downwards, which ends when such a level of equilibrium is achieved at which intended investment comes up to the level of intended savings. The state of equilibrium will be then reached with a low level of use of productive capacity. A similar way of reasoning is also applicable when it comes to the reverse movement, i.e., directed upwards. Investments exceeding savings cause a demand pressure, an increase of employment and production and another demand pressure, etc. The size of the ultimate fall or increase depends on the level of the multiplier: the bigger it is, the bigger the share of consumption growth in the increase of income. Focusing on explaining the cumulative process, Keynes leaves open the problem of the main cause or the first stimulus causing cyclical oscillations.

In the neo-Keynesian trend in economics, the economic cycle is approached as a result of cooperation between the multiplier and accelerator. Investments are divided into autonomous and induced ones. There are two groups of reasons causing the breakdown of the investment boom and the economy's entering the phase of crisis and depression:

- those leading to the reduction of autonomous investment;
- changes to the marginal propensity to save, causing the weakening of cumulative multiplier-accelerator process as income grows.

The process of decline is halted when technological advances create profitable investment opportunities, which means more portions of autonomous investment. This can also occur automatically when together with the decrease of income the propensity to consume begins to grow.<sup>6</sup>

Most representatives of the modern liberal trend in economics believe that the deviations in production and employment from the so-called natural levels are caused

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<sup>5</sup> The first comprehensive presentation of the theory (model) can be found in a brochure published in 1933 by Instytut Badania Koniunktury i Cen: *Próba teorii koniunktury*.

<sup>6</sup> R.F. Harrod as one of the first presents the interaction mechanism of the multiplier and accelerator [cf. Harrod 1939].

by various types of shocks of a random nature. Actors behaving rationally adjust to these shocks faster (according to the representatives of the new classical economics) or slower (according to the monetarists). There is no business cycle understood as completely regular fluctuations, which would be based on an internal systematic mechanism. Irregular oscillations in the overall economic situation are simply the result of interplay of a variable team of factors.

As an alternative to these views there comes the school of the real business cycle, established also within the liberal mainstream, which was at its peak in the eighties and nineties of the last century. F. Kydland and E. Prescott are considered to be the developers of the basic real business cycle model [Kydland, Prescott 1982; Reading 1996; Siebert 1999]. According to them, the economy is constantly in a situation of balance in motion, continually responding to supply-side shocks of productivity. These reactions give rise to fluctuations, which are called business cycles. There is no Keynesian involuntary unemployment as such, but there are intertemporal substitutions between current and future employment. They are rational responses to changes in productivity. The ability of real business cycle models to generate “realistic” oscillations depends on two factors independent of each other:

- strong technological shocks,
- high elasticity of labour supply in relation to a real wage.

In turn, according to neo-Keynesian economists, the oscillations between the states of equilibrium at high and low levels of employment observed in the economy are a consequence of different sources of imperfect competition, such as asymmetric information, adjustment costs and heterogeneity of the labour force. Leading representatives of this trend, however, are convinced that using the concept of the business cycle is essentially without real authority, since no intra-system mechanism which would produce quite regular, and thus predictable, fluctuations in the general economic situation, operates within the economy.<sup>7</sup>

Outside the mainstream of modern economics, a group of models of the business cycle has emerged, whose authors refer directly to J. Schumpeter’s theory.<sup>8</sup> In these models, the occurrence of technological shock causes older generations of capital to be withdrawn from service. The fact that not every employee is able to adapt to the demands of new technology and that not every previous generation of capital can be adapted to work with a new one, causes the fact that technological change implies a need to reduce the available factors of production. As a result, there is a decline in production. New technology, however, is more efficient, so the more it is spread the more production increases and reaches a higher level compared to the previous cycle.

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<sup>7</sup> To compare traditional and new Keynesian theory see Greenwald, Stiglitz [1993]; Mankiw, Romer [1991].

<sup>8</sup> An example of such a model is the quality-ladder model. See Aghion, Hewitt [1998].

Summing up my presentation of the most important, complex definitions of the business cycle, the most reasonable from a theoretical point of view, and also the most common one, can be considered to be the hypothesis on the investment nature of the business cycle, with all resulting consequences.<sup>9</sup>

### **3. The relationship between the business cycle and the process of long-term growth**

Business cycle theorists generally recognize the superiority of the models explaining the whole dynamic process. In contrast, economic research practitioners use techniques of time series decomposition. Their foundations were developed in the early twentieth century by the researchers of the Harvard Institute. As a result of the popularity of the latter, in one of the most renowned European academic textbooks in the field of macroeconomics we can find the following definition of the cycle: “the business cycle is the short-term deviations of production from its trend” [Begg *et al.* 2007, p. 362].

The findings adopted above regarding the investment nature of the business cycle entail logical consequences for an opinion on the relationship between the business cycle and long-term economic growth. Namely, if it is appropriate to set a long-term trend for the analysis of direction which a given economic quantity or a set of quantities aims at, then there is no theoretical justification for the calculation of a trend using a statistical method, and then subtracting it from the original time series (or more often seasonal time series) in order to obtain a “pure business cycle”.

The cycle is a part of the long-term trend and vice versa – the trend is a part of the cycle. Introducing technical progress does not take place outside the business cycle. Investment stimulated by innovations of a certain intensity is not only, in the long run, a basis for a growing trend, but as expenses, it becomes in the short run a source of prosperity in the growing phase of the business cycle. The long-term trend is the resultant quantity from the periods of rising edge of supply over demand, and then liquidation overproduction.

### **4. Periodicity as a feature of the business cycle**

Determining whether periodicity is one of the basic features of the business cycle and what is the typical period for it is of fundamental importance to establishing it as a regularity in the development of a market economy. The denial of the periodicity of the business cycle and inability to determine its typical period inevitably leads to the conclusion that there is an accidental nature of oscillatory changes in the economy, as the result of a group of factors alternating every time.

The cycle of investment in fixed production facilities, as a basis for a periodic business cycle, was particularly demonstrated in turn by K. Marx, J.M. Keynes,

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<sup>9</sup> Sections 3 and 4 in this paper deal with them.

J. Schumpeter, and M. Kalecki. C. Juglar, who is one of the pioneers of the hypothesis of periodicity of the business cycle, looked for the causes of crises in monetary phenomena. According to him, the restriction of access to credit by banks, which follows the phase of credit expansion, generates, by increasing the interest rate, a crisis with a wave of business bankruptcies. The period of one cycle is, according to Juglar, 7-11 years. Later on, the name of “classical” or “Juglar cycle” was adopted for one of this length.

According to Marx, in times of crisis and depression, as a result of the physical and economic depreciation of fixed assets, conditions for triggering off a wave of new, large investments are developed. This creates a material basis for the next cycle of turnover of fixed capital. An average life expectancy of fixed production equipment is absolutely crucial in this situation. Marx estimated it at 10 years. It is not important here that the moments of making individual investments do not overlap with each other. It is just sufficient that an above average concentration of investment activity occurs in one of the phases of the business cycle. Then, conditions for the development of the cycle of the turnover of fixed capital, with the effects felt at the macroeconomic level, arise. The very unevenness of the process of renewal and expansion of fixed capital is a consequence of crises. This means that once the reproduction of fixed capital takes the form of motion characterised by jumps, it becomes the material basis of periodicity of the business cycle. Simultaneous mass renewal of capital becomes then, according to Marx, an objective necessity. He also mentions the possibility of occurrence of breaks in the growth phases of the business cycle, in the form of fluctuations, which he describes as partial crises. A partial crisis is not based on factors acting in a cycle always in the same way. It can be triggered off by any specific contradictions in various segments of the economy, or by non-economic phenomena. Therefore, there can be cycles without partial crises, but cycles without a general crisis of overproduction are not possible.

J.M. Keynes also included regularity in the essential features of the business cycle. He was convinced that this regularity is associated with factors affecting fluctuations in the marginal return on equity. For example, the fact that the economy leaves the phase of depression without any additional external impulses occurs when the time in which “[...] reducing the amount of capital due to wear and aging will cause its obvious lack, sufficient to increase the marginal efficiency [...]” runs out [cf. Keynes 1985, pp. 343-344]. According to Keynes, this period, being a relatively constant function of the average durability of capital in a given epoch, must have an order of magnitude and fit in with specified limits. It cannot be an accidental quantity and sometimes last a year, and at other times, ten years.

In 1939 J. Schumpeter attempted a theoretical explanation of three types of business cycles of different lengths: Kondratiew’s (54-60 years),<sup>10</sup> Juglar’s

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<sup>10</sup> N. Kondratiew [1935] was the first one to put forward the thesis on occurrence of long business cycles.

(9-11 years), and Kitchin's (*ca.* 40 months).<sup>11</sup> Based on the hypothesis of the critical importance of innovation for the cyclical development of the economy, Schumpeter explains the overlapping of these cycles with varying times that elapse between the use of different types of innovation and the moment when their effects appear on the market in the form of goods [cf. Schumpeter 1939].

The problem of determining the length of a typical business cycle is also present in one of M. Kalecki's most important works [see Kalecki 1980]. It appears mainly in connection with his undertaking an attempt to verify his own model. Kalecki was specifically trying to determine whether using in the model the actual data on the US economy in the interwar period and the adoption of the most probable delays between investment decisions and actual investments would result in a typical business cycle length. He considered to be fully justified the assumption that the delays range from half a year to one year.<sup>12</sup> The calculated theoretical cycle length was 6.3 years with half a year delay and 8.5 years with a year delay. This calculation is an argument for the hypothesis that the investment cycle cannot develop in a period shorter than 6.3 years, provided there is a very rapid implementation of investment decisions. A six-month delay adopted in this variant covers for the delay in entrepreneurs' response to factors stimulating business investment. According to Kalecki, the 8.5-year period, however, is more consistent with the results of observation of actual business cycles.

The dissemination of the results of W.C. Mitchell's and later A.F. Burns's empirical studies became the basis for contesting periodicity as a characteristic feature of the business cycle.<sup>13</sup> The results of these studies were quite quickly, and in fact widely, regarded as authoritative for the resolution of the problem of periodicity of the business cycle. The adopted definition of the business cycle and the detailed analysis of available statistical material for the USA for the period 1796-1920 led Mitchell to the following findings on the length of one business cycle [Mitchell 1927]. He found an instance of 32 cycles with a duration of one to nine years. He observed the occurrence of only one classic business cycle of 8-9 years. In relation to the UK, 22 cycles of 2-10 years were observed, with the most common period 4 years.

The situation that has developed in contemporary economic literature in the area of opinions on the issue of business cycle periodicity can be characterized as follows: the theorists began to take over from the practitioners of economic studies the view that in fact the business cycle had never lasted 7-11 years, but for a much shorter

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<sup>11</sup> The problem of singling out business cycles shorter than Juglar's was tackled by J. Kitchin and W.L. Crum [Kitchin 1923, pp. 10-16; Crum 1923, pp. 17-29].

<sup>12</sup> The validity of this assumption is proved by Kalecki [1980].

<sup>13</sup> To provide an example, based on Mitchell's studies [1927], J.A. Estey entitled one of the subsections of his work *The Absence of Evidence for Periodicity*, while in E. James in *History of Economic Thought of the 20th Century*, Warszawa 1958, pp. 459-459, we find a subchapter: "Stopniowy odwrót od pojęcia cyklu" [The gradual retreat from the concept of the business cycle].

time. Some variation of this belief is the opinion that even if there are sufficient grounds to formulate the thesis on the existence of Juglar's cycle before the war, after World War II, due to structural changes in the capitalist economy, there was a dramatic reduction in the average business cycle length. An alternative to these two views, occurring quite often, is the denial of rhythmicity as a feature of the business cycle.

A meaningful illustration of the validity of the above observations is the contents of the most popular academic textbooks, in their chapters on the business cycle. In one example, we read: "Although no economy has perfectly regular business cycles, the successive phases of crisis, recovery, prosperity and recession, creating a business cycle and lasting about 5-6 years can be observed" [Begg *et al.* 2007]. However the authors of another, equally popular textbook have no doubts that: "The term 'business cycle' is somewhat misleading, however, 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" [Mankiw, Taylor 2006, p. 682].

The divergence of views on the length of the business cycle, which occurred before World War II, is astonishing. A looming trend towards uniformity of opinion as to the period of the post-war business cycle does not seem too comforting. This unification expresses itself in accepting the thesis of the business cycle time shortened by about a half. However, there are no convincing theoretical explanations of the reasons for such a dramatic change.

Keynes expressed a rather optimistic view that the application of his concept of economic policy in capitalist countries will enable them to achieve full employment and then growth in line with the birth rate. Economic power, however, must continue to implement measures for balancing the system oscillations.

It is impossible to determine to what extent the reduction in the amplitude of the business cycle in the first post-war quarter of the century was the result of an increase in the scale of state intervention and to what extent it can be attributed to other structural changes in highly developed economies. It is extremely difficult even to approximately quantify the effects of state intervention on the business cycle. The prevailing opinion is that the incorporation of automatic stabilizers of favourable conditions in the economy became one of the most important factors in reducing the amplitude of the business cycle.<sup>14</sup>

It is significant that together with decreasing the range of counter-cyclical government intervention since the mid-seventies, the periodicity of the business cycle has become clearer. What is more, in the eighties and nineties there were no

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<sup>14</sup> According to estimates by P. Eilbott, automatic stabilizers, operating in the tax system and the system of unemployment benefits, reduced the oscillations of the American economic situation from one third to a half [Eilbott 1966, pp. 450-465].

factors that would interfere with the course of earlier investment cycles.<sup>15</sup> As a result, its duration in these two decades could be traced, in no uncertain terms, to 10-11 years.

## 5. Conclusions

As already mentioned, the present fairly comprehensive summary of ways of defining the business cycle allows us to recognize as best-justified the statement that it is based on inequalities arising in the course of the investment cycle. These disproportions can be explained in different ways. One of them is to analyse the demand and supply side effects of investing activities. The adoption of this perspective as the most appropriate one involves recognizing that:

- overproduction crises are the constitutive phase of the cycle;
- not all the fluctuations in the overall economic situation are a manifestation of the business cycle, i.e., not all of them are phenomena of the same class;
- determining which fluctuations in the overall economic situation are a manifestation of the relevant business cycle, and which are the consequence of non-cyclical phenomena requires carrying out a detailed historical analysis;
- the thesis of a change in the business cycle would have to be justified by observing the changes in life expectancy of the primary fixed production facilities and equipment. Research in this area is very difficult due to the lack of relevant statistics;<sup>16</sup>
- also some changes in the mechanics of the business cycle are a consequence of structural changes in the capitalist economy. The essential elements of this mechanism, however, remain still unchanged.

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<sup>15</sup> An analysis of the causes of these disturbances can be found in Polszakiewicz [2006, p. 175 and further].

<sup>16</sup> For example, according to estimates by S. Kuznets in the early fifties, the average durability of machinery and equipment was 13 years [Kuznets 1952, p. 518; Polszakiewicz 1989, pp. 97-103].

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## TEORIA EKONOMII WOBEC CYKLU KONIUNKTURALNEGO

**Streszczenie:** Artykuł zawiera chronologiczne uporządkowanie najważniejszych, w dotychczasowej historii ekonomii jako nauki, prób zdefiniowania cyklu koniunkturalnego wraz z syntetycznymi opisami jego mechanizmu. Sformułowana została hipoteza na temat charakteru związku, w jakim pozostaje cykl z procesami długofalowego wzrostu gospodarczego. Zmierzono się ponadto z kontrowersjami na temat periodyczności cyklu jako jego zasadniczej właściwości.

**Słowa kluczowe:** teoria ekonomii, cykl koniunkturalny, periodyczność cyklu.