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The New Keynesianism – proclamation of a consensus?

Abstract: The New Keynesianism arose in the mid -1970s and was determined by a variety of the post-war Keynesian research fields, profound changes in economic environment and growing supremacy of the neo-liberal stream in the theory and policy. Far-reaching differentiation of the New Keynesian scientific program made many modern Keynesian models very similar to the typical neoclassical structure. However, such theories as the search in the labour market or the New Keynesian Phillips Curve integrating many different elements typical of the rival schools do not seem to announce a consensus providing a better understanding of the contemporary economic systems.
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1. Introduction

Since the end of World War II till the mid-1970s there had been a commonly accepted distinction between the theories grounded on perfect competition model, reflecting the belief in self-adjusting markets, and the opposite theories applying models of economic fluctuations with heterogeneous agents, goods and transactions. The former were unanimously associated with the Monetarists and New Classicists, and the latter - with the Keynesians. There was no doubt that the ideas of rational agents maximizing their utilities and profits, neutrality of money, elasticity of prices and wages, voluntary unemployment, long-run policy of laissez-faire should be attached to the neo-liberal stream[1]. On the other hand, the Keynesian stream was distinguished by the concepts of various market imperfections that create involuntary unemployment, calling for monetary and fiscal active policies defined in terms of the short-run discretionary actions.

[1] The term neo-liberal stream will be used for the Monetarism, New Classicism and the subsequent Real Business Cycle school.

In the mid-1970s, together with the rise of the New Keynesianism, a lucid distinction between the "Keynesian model", "Monetarist model" and "New Classical model" started to lose its meaning. Although the New Keynesianism emerged as a response to the neo-liberal stream, it was not able to reject all the criticism highlighting many obvious mistakes and deficiencies of the post-war Keynesian thought. In order to bring back diminished Keynesian ideas into serious economic discussions, the New Keynesians had to incorporate the most powerful Monetarists and New Classicists' achievements. The combined elements assigned hitherto to the quite different standpoints made many New Keynesian models very similar to the typical neoclassical model. However, there is still no agreement among the New Keynesians as to which elements and assumptions typical of the neoclassical stream could be accepted. Because of that apparent fact and the far-reaching differentiation of the post-war Keynesian views, there is no unique and comprehensive New Keynesian economic model. Instead, there are plenty of the New Keynesian models resembling hybrids rather difficult to be evaluated univocally. That tendency became more apparent since the rise of the Real Business Cycle school from which the New Keynesians borrowed other crucial ideas concerning the way of modeling the economy.

The aim of the paper is to shed some light on the question of assimilating the contrasting attitudes using two specific examples – the search theory in the labour market and the New Keynesian Phillips Curve, and to evaluate the process of integration from the view of economic theory development. The paper consists of four parts. In the second part some crucial reasons for the heterogeneity of modern Keynesianism and the lack of a unique model are presented, namely: a variety of the post-war Keynesian research fields; crucial changes in economic environment causing changes in the theory; growing supremacy of the neo-liberal stream in the theory and policy. In the third part of the paper a definition of the New Keynesianism, taking into account its highly diversified character, is introduced. Next, the search theory in the labour market and the New Keynesian Phillips Curve unifying the ideas of the Monetarists, New Classicists, Real Business Cycle school representatives and Keynesians, are briefly described. In the last, fourth part an attempt is undertaken to evaluate the observed tendencies in view of the possible consensus between the rival schools .

2. The reasons for heterogeneity of the New Keynesianism

There are three mutually related causes that make New Keynesianism hard to define and classify, namely: diverse ways of the post-war Keynesian thought evolution; profound changes in economic environment; reinforcement of the position of the neo-liberal stream.

Because of unclear and inaccurate style of Keynes' *General Theory* (1936), Keynesianism started to evolve in many different ways since the very moment of its emergence. The economists that were impressed by the general idea of Keynes' book could not agree as to the meaning of its details. In result, the Keynesianism gained a great popularity and a label of an orthodoxy but started to embody a wide range of various views.

In the 1940s and 1950s the radical Keynesians became the leaders. They focused mainly on the political aspects of Keynes' considerations. Hence, they suggested enlarging the range of public control and stimulating effective demand by means of unceasingly growing expenditures. Robinson (1947), for example, advised to establish the public control of: investments in such crucial fields as house-building or infrastructure; prices (to protect the consumers from the burden of unnecessary costs, for example advertising costs); credit (to promote long-run investment plans and maintain the low interest levels). Shackle (1959) proposed progressive taxes, increasing budget deficit and public debt together with money printing. He treated the latter proposition as a method of gaining the funds for public expenditures without exhausting liquid money stocks of private agents. That view was shared also by Lerner (1951). Since many radical Keynesians represented political and administrative positions, most of their suggestions were immediately implemented into practice. However, one should underline two things. Firstly, the importance that was assigned to the public activity was far from Keynes' own intentions. Secondly, the political suggestions presented in the *General Theory* had been formulated for quite different environment than that faced by the radical Keynesians. The enforcement of Keynes' theory, perceived as a political program of continuously increasing public expenditures, in the situation of rebuilding the national economies after the war damages (precluding this way the situation of high unemployment and the lack of investments) must have resulted in high inflation. The pressure of the leftist ideology was the main reason of the crisis that the Keynesianism faced in the 1960s.

However, by the time the inflation appeared, capitalistic economies had experienced the post-war boom. The "golden age" of the 1940s and 1950s gave an impulse to the rise of the neoclassical synthesis. High economic growth and low levels of unemployment and inflation restored the belief in the classical theory diminished by Keynes and the Keynesians. The neoclassical synthesis tried to reconcile Keynes' short-run theory of economic fluctuations with the long-run Walrasian theory of general equilibrium. In result Keynes' model was treated as a special case of the neoclassical theory. The neoclassical synthesis' principal achievement was IS-LM model, formulated by Hicks (1937) and Modigliani (1944) and then developed by Samuelson (1948) and Hansen (1949, 1953). According to the IS-LM model, the crucial cause of non-clearing markets is price and wage rigidities (assumed ad hoc). Stickiness emerged as a precondition of Keynes' short-run theory of involuntary unemployment. In order to overcome the problem of unemployment and restore

the long-run state of classical equilibrium one should undertake an active policy. Although the power of fiscal policy was particularly underlined, the efficiency of monetary actions was not entirely omitted. Following the *General Theory*, the relationship between nominal wages and prices on the one hand and a real sector on the other, neglected the classical dichotomy. However, shifting the attention from the problem of insufficient effective demand to rigid prices and wages that had not played any special role in the *General Theory* weakened significantly the connections with Keynes' views.

In the 1960s when the first symptoms of inflation appeared, the IS-LM lost its explanatory power. The inflation process was a consequence of both the Keynesian expansionary policy and the first supply shocks that emerged in the post-war period. In these circumstances the IS-LM model with its given price and wage levels (exceeding the market clearing level) and the lack of well analyzed supply side was entirely useless. New circumstances inclined the Keynesians to use the empirical relationship recognized by Phillips (1958) and then completed by Lipsey (1960) as a means to save the IS-LM model. Phillips-Lipsey curve enabled to connect the changes in real variables (unemployment) with changes in nominal wages (and prices in subsequent versions), showing the possibilities for discretionary economic policy. In the Keynesians' opinion (Lipsey 1978) the integration of IS-LM with Phillips-Lipsey curve was to ensure a general model of economic system, including the behaviour of nominal and real sectors.

However, even the Keynesians themselves began to question the "success" of the integrated model very soon. It was pointed out that there is no link between Phillips-Lipsey curve and Keynes' considerations ascribing the problem of inflation only to the situation of full employment. Moreover, the representatives of disequilibrium Keynesianism that arose in the mid -1960s suggested that the neoclassical synthesis had been based on crucial faults. Clower (1965) and Leijonhufvud (1968) criticized the mechanical character of macroeconomics full of ad hoc assumptions pursued by the neoclassical synthesis. Both authors advised to reject it in favour of strong microfoundations, mainly the relations between individual price incentives, expectations and quantity adjustments. The adherents of disequilibrium Keynesianism restored the analysis of insufficient effective demand as a primary factor creating involuntary unemployment. The overproduction crisis was assigned to poor coordination of the economic system and the coordination failures were deduced from the problems with dissemination of reliable information. However, while Keynes recognized the involuntary unemployment as a phenomenon consistent with equilibrium that could persist forever unless the effective demand increases, contemporary Keynesians considered underemployment in terms of disequilibrium initiating the adjustment processes. The ideas of disequilibrium Keynesianism were followed by Barro and Grossman (1971, 1976) and Malinvaud (1977) in the rationing models. Their achievements contributed to the rise of the Keynesian thought

in the mid -1970s after the crisis caused by the Monetarists and New Classicists' counterrevolution.

The Monetarists – Milton Friedman, Karl Brunner and Allan Meltzer among others – came into prominence when the integrated model of IS-LM and Phillips curve lost its ability to explain the observed economic changes, slumpflation above all. The accomplishments of disequilibrium Keynesianism, although important, also displayed some theoretical weaknesses. Moreover, it did not gain a position strong enough to maintain the leadership of the Keynesian paradigm. In the face of declining power of the Keynesian stream the Monetarist counterrevolution emerged. The Keynesians were accused of excessive public activity, mainly expansionary monetary policy, disturbing the entire economic system. The empirical researches proved the long-run inflationary consequences of money incentives, neglecting the favourable effects of demand discrete stimulations. A more accurate analysis of the long-run policy results revealed many serious deficiencies of the "ahistorical" Keynesian models, mainly the lack of expectations and solid microfoundations. The Monetarists were the first to develop the structures replacing given agents' expectations with continuously adjusting expectations that follow all the economic changes. Such an approach enabled to show that it is possible to attain a long-run competitive equilibrium. As a result, the Monetarists denied the existence of a stable long-run tradeoff between inflation and unemployment together with its political implications. According to the Monetarists' standpoint, Phillips curve is vertical in the long-run and (given the economic structure) specifies the natural rate of unemployment level where money is neutral and expectations are fulfilled. The system always returns to this level after every unexpected monetary disturbance. As long as the effect of "surprise" remains, money can influence the real sector. However, the effect is transitory, since it results from an imperfect knowledge about the shock. As soon as the agents recognize the actual situation, the real variables return to their previous values (from before the shock) with only nominal values changed. Approaching the long-run steady state is determined by the speed of information dissemination and agents' adaptively formulated expectations. Microeconomic Monetarists' models with endogenous anticipations proved the need for a different analysis concerning the short and long run. The models based on the Walrasian structure restored the belief in self-adjusting mechanisms as a crucial means to assure a persistent economic stabilization. In the 1960s Monetarist models became a new orthodoxy and it seemed that they had ultimately defeated the Keynesian paradigm.

This impression was reinforced at the turn of the 1960s and 1970s when the New Classical Economics emerged. Robert E. Lucas Jr., Thomas J. Sargent and Neill Wallace's program was much more radical as compared to the Monetarists. New Classicists claimed that markets continuously clear, wages and prices are perfectly elastic and rational agents maximize their profits and utilities instantaneously. The equilibrium can be disturbed only by the unexpected monetary actions that could

not have been predicted by rational agents because of imperfect information. After every unexpected shock, the system returns quickly to the steady state of equilibrium, since rational individuals respond immediately with accurate wage-price adjustments counter-balancing the fluctuations. The adjustments are much faster compared to the Monetarist model, because the agents use not only past but also all the current information. In result their behaviour and anticipations change unceasingly. In the New Classicists' world the established economic policy loses its efficiency since rational agents respond to the announced actions with proportional changes in nominal values, leaving the real values unchanged. On the other hand, the policy that surprises the agents may have its effect only temporarily, until the knowledge about the shock is perfect. Obviously, in the long-run perspective such a policy would ruin the state of social expectations and the natural economic mechanisms. The New Classical models of intertemporal general equilibrium based on dynamic optimization have been regarded as a proof for the ultimate collapse of the Keynesianism.

However, a decade of the serious crisis experienced by the Keynesian thought gave rise to its renaissance in the mid -1970s in the shape of the New Keynesianism. Its appearance was a reaction to the prominence of the neo-liberal stream. The Keynesians had to admit that their previous macroeconomic models displayed many deficiencies, the lack of expectations, solid microfoundations and long-run analysis of short-run decisions above all. The New Keynesians agreed that macroeconomics must be supplemented with microfoundations based on the optimization rule. They accepted endogenously modeled anticipations, incorporating rational expectations hypothesis into the New Keynesian models. They rejected, however, the neo-liberal vision of perfectly working economic systems (at least in the short-run), sustaining this way the Keynesian character of the analyses. The New Keynesians admitted that it is possible to attain a long-run classical equilibrium where money is neutral and expectations are realized. In the short-runs, however, there are many frictions and imperfections that prevent the continuous and instant market clearing. The observed barriers suggest the need for public interventions. In the New Keynesians' opinion price and wage rigidities should be viewed as the most important source of imperfections. This means that a modern Keynesian analysis must be grounded on the pricing process, neglecting the existence of the Walrasian auctioneer.

At the beginning of the 1980s, together with the development of the New Keynesianism, Finn Kydland, Edward Prescott and Charles Plosser originated a scientific program of the Real Business Cycle school. It was a challenge not only for modern Keynesians but also Monetarists and New Classicists. On the one hand, the new school criticized the possibility of disturbing the economy by money impulses, emphasizing technology shocks instead. On the other hand, it abandoned the idea of serious frictions, mainly price and wage inelasticity, calling for public interventions. Applying the rational expectations hypothesis and optimization rule, the Real Business Cycle school representatives tried to yield a quantity explanation

of economic fluctuations caused by real (as opposed to nominal) changes within the equilibrium model of perfect competition. Such an attitude turned yet more attention to the supply side and determinants of changes in potential production. Although the Monetarists and New Classicists underlined those questions too, they focused on reactions of price and inflation expectations in the face of transitory deviations of actual supply from the given potential production level. Hence, the Monetarists and New Classicists shared the Keynesians' opinion that the observed fluctuations reflect the deviations of actual production from the potential one. The Real Business Cycle school assumed that the actual production is always equal to the potential supply. Consequently, the observed changes exhibit the fluctuations of the potential level itself, not the fluctuations about the potential level. However, the idea that money does not matter and the explanation of business cycle should take into account technology shocks excluding the market imperfections has been acknowledged as highly unconvincing by most economists. The New Keynesians took an advantage of this weakness, reinforcing their own position. They adopted stochastic dynamic general equilibrium models where the supply factors play an equal or even more important role than the demand ones, into their models with pricing and frictions restraining the rapid individual adjustments.

3. New Keynesian theories

Since the beginning of the 1970s the process of the Keynesian and neo-liberal traditions integration has become a fact. In result the term "New Keynesianism" has no specific and unanimously recognized meaning nowadays. Additionally, the post-war Keynesian thought that is a cornerstone of the modern Keynesianism, has been developing in many different ways. Thus, as Mankiw and Romer (1991, p. 2-3) stated: "Because the debate over macroeconomic theory and policy has covered so much ground since Keynes wrote *The General Theory*, the term 'Keynesian' can mean different things for different people". As there are many various views called Keynesian, the existence of some given opinions does not imply the New Keynesian character (and on the contrary). The achievements of the neo-liberal stream applied into the New Keynesian considerations made the contrast between the orthodox Monetarist, New Classical, Real Business Cycle school and Keynesian model much less clear.

Taking into account its far-reaching diversity, the New Keynesianism can be defined by the following statements:

1. The economic system is dominated by different types of frictions – nominal and/or real – reflecting the heterogeneity of individuals, goods and/or transactions bringing about the problem of imperfect information. Imperfect competition is not a precondition of the Keynesian results.

2. In the face of observed imperfections various shocks – nominal or real – are followed by sluggish adjustments generating fluctuations of output and employment.
3. The fluctuations of economic activity may take place even if agents are rational and tend to maximize their benefits.
4. After the short- and medium-run disturbances the system always returns to the long-run equilibrium. The system may achieve the equilibrium from before the shock or set a new steady state.
5. A long-run equilibrium may be characterized by unemployment. It does not have to be involuntary.
6. During the short- and medium-run disturbances money can be non-neutral. In the long-run when the expectations are fulfilled money has no impact on the real sector.
7. Persistent economic fluctuations call for some forms of interventions. The active policy concerns the supply rather than demand side.
8. All the analysis must be derived from solid microfoundations.

The above statements lead to a very broad definition of the New Keynesianism that embodies many views fringe upon alternative schools. Hence, apart from the theories commonly identified with the Keynesian paradigm, it encompasses also theories often criticized for their numerous neoclassical features. Consequently, the New Keynesian research field includes the following theories: 1. search in the labour market; 2. nominal wage contracts; 3. implicit contracts; 4. efficiency wages; 5. wage bargaining; 6. NAIRU and hysteresis; 7. nominal price rigidities; 8. customer markets; 9. input-output table; 10. dependence of quality on price; 11. strategic complementarity and externalities; 12. kinked demand curve; 13. New Keynesian Phillips Curve; 14. asymmetric information in the financial market.

Among the most controversial theories whose provenience is often questioned one could point mainly to the search in the labour market with its subsequent "structuralist" branch and – despite the name – the New Keynesian Phillips Curve (NKPC).

Search models were initiated by Alchian (1970), Holt (1970a, 1970b), Mortensen (1970) and Phelps (1970). It was assumed that workers and employers maximize their utilities and profits in the competitive labour market. However, the agents are not homogenous. The entrepreneurs offer different wage rates according to the skills required of the applicants. On the other hand, workers possess various abilities and expectations concerning the wage rates. Imperfect information about the existing vacancies, the possibilities of getting a job, available labour supply and its qualifications imply the searching and matching process. The extent of investments in obtaining the information depends on individual decision made by the maximizing agent. It is assumed, however, that the searching process is much more effective when the worker is unemployed. Hence, it is rational to quit the job, get an unem-

ployed status and devote all the time to acquiring information. The difference in search costs while employed and unemployed, as well as significant costs of changing jobs justify the agent's rejection of a low pay offer. He is aware that although the longer search increases the possibility of finding a better job, it also lengthens the period of unemployment. Optimal search is carried out until the expected gains to subsequent search equal its expected costs. The consequence of the decisions made by imperfectly informed individuals is unemployment, even under perfect competition. The longer is the search period, the more persistent the unemployment.

On the basis of the search model Phelps (1968, 1970) formulated the natural rate of unemployment. Transitory trade-off between wages and unemployment is rationalized by the lack of perfect knowledge about the labour market and the existence of adaptively formulated expectations. In the initial situation of a steady equilibrium there is a given number of unemployed workers searching for a job. Each of them has a set reservation wage and a correct notion of the wage offers distribution. An unexpected growth in aggregate demand induces workers to increase the output and employment. In order to attract more workers and discourage them for quitting the job, firms compete by means of higher wages. This gives rise to inflation. However, because of both the lags in information flow and adaptive expectations, the unemployed workers do not recognize a better wage offers distribution at once and continue to search with unchanged reservation wages. Consequently, the higher wages offered by the firms are incorrectly interpreted by workers as a result of a more successful search rather than the general wage inflation. The unemployed workers are inclined to accept the pay offer and stop searching then. Imperfect information results in higher wages and lower unemployment implied by the shorter search process. The situation is reflected by the shift along the short-run Phillips curve. However, demand and wage changes are soon correctly recognized and the anticipations are gradually adjusted to the observed circumstances. Those who have found employment revise their opinions about the actual wage distribution now and raise their reservation wages in order to maintain a constant real value of the wage income. This, in turn, induces workers to quit their jobs and start a new search. Ultimately, the employment returns to the level from before the unexpected change in aggregate demand and unemployment to its long-run equilibrium level.

The unemployment arising in the search model is of voluntary character because it results from individual decisions made by the optimizing agents. Consequently, all the unemployment represents the natural (equilibrium) level. Any public interventions aimed at lowering the unemployment level are useless, since they only create inflation without any long-run impact on the real values. The search model is consistent with the Monetarists and New Classicists' claim that public activity (mainly demand policy) disturbs market mechanisms.

The search model integrates many different elements typical of the rival schools. On the one hand, it is based on the Monetarist search models developed by Stigler

(1961, 1962). The New Keynesians applied the microeconomic analysis and derived all the phenomena from individual behaviour. The reference to the neo-liberal tradition shows also in the accepted optimization rule. On the other hand, there appear some typical Keynesian assumptions of agents' heterogeneity and imperfect information, neglecting the idea of the Walrasian auctioneer. This enabled New Keynesians to present unemployment in terms of a continuous job search conducted in the imperfect environment. However, the resulting unemployment displays the "anti-Keynesian" features, since it is entirely voluntary and points to the liberal policy in the labour market. Although the Keynesians do not deny the existence of voluntary unemployment, they are traditionally associated with the objection towards the Monetarists and New Classicists' conclusion that even very high unemployment should be judged as a result of agents' maximizing behaviour.

In the 1990s Phelps (1994) reformulated his natural rate hypothesis. It gave an impulse to the "structuralist" branch of the New Keynesianism. Phelps admitted that his theory originated in the 1960s could not explain serious and persistent activity fluctuations. In his opinion the original natural rate hypothesis suffers from two deficiencies. Firstly, the unemployment and wage bahaviour were analyzed within the partial equilibrium framework. Such a procedure omits the influence of changes in prices and quantities taking place in other markets (it ignores the effects of aggregate shocks). Secondly, it was assumed that the natural rate is a long-run steady state determined by the supply side from which the system deviates only because of unexpected monetary shocks. Therefore, it is hard to explain the persistence of the slumps. Those remarks prompted Phelps to formulate a new standpoint based on the general equilibrium model with the natural rate continuously moving under the influence of real demand and supply shocks. Instead of actual unemployment fluctuations around the given trend path, the path of equilibrium unemployment itself shifts constantly following the macroeconomic disturbances. Assuming that real factors are significant even in the short-run, the natural rate becomes endogenously determined by different non-monetary forces. Changes in: the structure of real demand and supply in particular sectors, technology, taxes, subsidies, tariffs, profitability, savings, efficiency etc. appear to be much more important for persistency of the slumps than the fluctuations in the nominal amount of money. As the natural rate is endogenously determined by the market forces and the actual unemployment tends steadily to achieve the continuously shifting equilibrium path, it may be called the equilibrium theory of unemployment movements.

Phelps integrated the partial equilibrium analysis of labour market and goods market in one dynamic general equilibrium model. The idea of structural unemployment incorporates the theory of firm's supply in the goods market (based on the three theories: customer markets, training costs, capital equipment) and the theory of employment and wages (based on the efficiency wage hypothesis). These are the changes in the real interest rate that link the behaviour of goods and labour

markets. An increase in the real interest rate discourages firms for investments in keeping or enlarging the number of regular customers, lowering the turnover costs and keeping the experienced workers, maintaining or enlarging the stock of physical equipment. An increase in the real interest rate reduces firms' demand for labour, given the payment set according to the New Keynesian efficiency wage hypothesis. Moreover, Phelps showed the influence of: individual wealth accumulation; growth in the "social wealth" produced by various public social programs; public works; rates of taxes, on employment. All those factors, given the real wage rigidities supported by the efficiency relation, determine the persistent fluctuations of equilibrium employment.

Phelps' structuralist approach adopts and joins many elements assigned to the Keynesian and neo-liberal traditions. The application of the general intertemporal dynamic optimization model where the emphasis shifts from monetary channel to the real forces should be treated as a reference to the Real Business Cycle school. In contrast to the Keynesian tradition, Phelps' model is non-monetary. Moreover, his approach corresponds to the idea of equilibrium, i.e. the market trade results from agents' decisions, not the constraints faced by them (the commitments entered under the influence of obsolete information for example). Phelps does not deny the significance of monetary factors, nominal rigidities or expectation errors as additional causes of transitory dynamic phenomena. However, in his opinion they are rather second-order, since they cannot alone explain serious persistent fluctuations of economic activity. A reference to the Keynesian tradition manifests itself in the rejection of competitive equilibrium ensuring effective allocation of resources. In Phelps' opinion markets can be equilibrated (which means that every agent engaged in the transaction maximizes his benefits using correct assumptions about the influence of other agents' decisions on his own opportunities) even if the market wage exceeds the reservation wage of unemployed workers and the market price of goods exceeds the marginal cost at which the firm could increase the supply. Those non-competitive results, mainly the inefficiency of unemployment, are implied by the agents' behaviour in the world of imperfect information. However, the lack of perfect knowledge is related to the specific individuals cooperating with a given agent, not to the general market situation (Woodford 1994, p. 1785).

It is worth mentioning here that the assumption of imperfect information grounds Lucas or Friedman's models as well. The imperfect knowledge per se is not the problem underlined only by the New Keynesians and typical only of their models. Hence, it is hardly a crucial issue drawing a distinction between the Keynesian and neo-liberal streams. This is the speed of adjustments undertaken by the agents acting in different environments that matters here. In the New Keynesian world the lack of perfect knowledge causes sluggish reactions of workers and firms reinforcing the observed disturbances, because of many other barriers (e.g. monopolistic competition, inelastic wages and prices, externalities, hysteresis). According to the

neo-liberal viewpoint, the imperfect information is a primary problem. If only it is solved, the system will quickly attain the competitive equilibrium.

From the Keynesian point of view the most serious objection to the search model and natural rate hypothesis concerns the already mentioned voluntary character of unemployment. Moreover, the critics emphasized that while search models offered a broad analysis of the supply side based on microfoundations, they did not provide a sufficient analysis of the demand side, mainly the demand for labour and wage decisions made in the face of demand fluctuations. It was a consequence of attention shifted to the hitherto ignored theoretical issues and the apparent influence of the Monetarism and New Classicism focusing on the supply factors. Irrespective of the reasons, it was emphasized that although the search models present an argument for the persistency of unemployment, they do not explain the forces which bring it about (Fallon and Verry 1988, p. 205). It is a crucial deficiency from the Keynesian standpoint. Tobin (1972, p. 7-8) also questioned the conclusion that market generates the optimal amount of search. A worker searching for a job maximizes his own utility but does not take into account the externalities. He considers the probability of getting work, ignoring the effects of his decisions exerted on the other agents' probability. In this way he lowers the chances of those who search for the same workplace that he just quitted or rejected. Also the employers' decisions generate externalities, since they can employ the applicant immediately or continue searching to recruit someone better skilled. Borjas (2000, p. 491-492) pointed out that the search theory is not able to explain a long-run unemployment that had always been in the centre of Keynesians' interest. In order to do it one would have to introduce another assumption that searching workers do not possess the skills required to fill the existing vacancies. Then the persistent unemployment would be a consequence of the long-term training and providing the unemployed workers with skills actually demanded by firms. Hence, it would be a structural unemployment resulting from the mismatch between the qualifications supplied and demanded.

Equally controversial is the behaviour of wages. Alchian (1970) proved that the search model rationalizes downward nominal wage rigidity. In his opinion the labour market characterized by: a) costs of acquiring information about all the wages offered by firms; b) costs of acquiring information about the amount of labour supply and the skills of unemployed; c) unexpected disturbances implying the additional search performed by firms and workers, cannot be cleared by continuously changing prices. On the other hand, Pissarides (1985, p. 161) claimed that there is no reason to conclude the rigidity rather than elasticity of wages in the search model. On the contrary, most of the search models imply that firms respond to demand fluctuations by means of elastic wages, not adjustments in the number of workplaces. The search model with elastic wages (e.g. Phelps 1970) is superior to the case with inelastic ones, since it is consistent with the assumption of firms' optimal behaviour. However, it generates the predictions contradictory to the observations of vacancies

and job quits. According to the search model with elastic wages the number of vacancies should be stable during business fluctuations and job quits should be counter-cyclical. In fact both variables are highly procyclical. Hence, the search model with elastic wages is not able to explain the increases in unemployment during the business cycle (Pissarides 1985, p. 178).

The second of the previously mentioned New Keynesian theories raising controversies because of numerous neoclassical features is the NKPC (Chadha *et al.* 1992; Fuhrer and Moore 1992, 1995; Roberts 1997, 1998). The NKPC refers to the New Keynesian models of staggered wage contracts (Taylor 1980), costly price adjustments (Rotemberg 1982) and stochastic price changes (Calvo 1983). The model shows the dynamic influence of aggregate demand on the inflation rate where price-making firms adjust at intervals of stochastic length. A decision concerning the change in price depends on the stochastic information (signal) about the economic disturbances received by the firm. Each firm has the same probability of receiving the signal in a given interval, independent of the last time the firm obtained it. The fundamental issue for pricing is the way of modeling the inflation expectations. In the NKPC the lagged expectations, $E_{t-1}(\pi_i)$, hitherto applied by the New Keynesians have been replaced by the forward-looking expectations, $E_t(\pi_{i+1})$. According to the new approach the current inflation depends on the expected future inflation. Firms adjusting their prices in a given period take into account the forward values, since they are aware of the possible problems with price revisions in the future (because of the stochastic nature of the signal). However, the firm that receives the signal and changes the price for next few periods takes into considerations not only the anticipated prices set by its competitors but also the expected magnitude of aggregate demand. As a result we obtain (Roberts 1995):

$$\pi_t = E_t\pi_{t+1} + \lambda Y_t + \alpha\varepsilon_t, \tag{1}$$

where: π – inflation; Y – aggregate demand; ε – random error. According to equation (1) the current inflation depends on current inflation expectations for the next periods and current aggregate demand. If the level of expected inflation is maintained, a decrease in the current aggregate demand will cause a decrease in the current inflation.

Although the NKPC provided solid microfoundations for sluggish adjustments of aggregate price level, it appeared to be of little importance from the empirical point of view. For the New Keynesians the most problematic aspects were the costless disinflations (Ball 1994) and inability to explain persistent inflations (Fuhrer and Moore 1995). Therefore, the NKPC has been modified assuming the shape of a "hybrid" NKPC. In the hybrid version the inflation depends on its both anticipated, $E_t\pi_{i+1}$, and lagged values, π_{i-1}. Hence, the optimizing problem has been redefined in line with the view that one type of agents formulates rational inflation expectations,

while the other one uses adaptive anticipations. It has also been suggested that the real marginal cost is a much more accurate variable reflecting the level of economic activity. If we assume that firms set their prices as a constant mark-up, the real marginal cost becomes a leading force driving the inflation process. With an additional assumption that labour is the only changing production input, an increase in wage costs directly influences the price inflation. Hence, the hybrid NKPC can be written as (Galí and Gertler 1999):

$$\pi_t = (1-\omega) E_t \pi_{t+1} + \omega \pi_{t-1} + \lambda mc_t, \tag{2}$$

where: ω – the fraction of agents that behave in adaptive manner; mc_t – real marginal cost defined as a labour share, i.e.:

$$mc_t = \frac{w_t l_t}{p_t y_t}, \tag{3}$$

where: w_t – nominal wage; l_t – employment; y_t – output.

The NKPC attempts to reconcile the intertemporal dynamic optimization and rational expectations hypothesis typical of the New Classical Economics and Real Business Cycle school, and Monetarist adaptive expectations with distinctive Keynesian assumptions of monopolistic competition and costly sluggish price adjustments. The model provides a basis for a simultaneous analysis of price, output and employment decisions peculiar to all Keynesians, and consumption, investment and supply factors characteristic of the New Classical Economics and Real Business Cycle school. It prompted Goodfriend and King (1997) to announce the rise of the new neoclassical synthesis. Owing to the integration of two different traditions, the NKPC is free of the criticism aimed at the original Phillips curve, namely the lack of expectations and irrational agents' behaviour (money illusion). The NKPC provides a more convincing explanation of inflation-production (unemployment) relationship and is consistent with both the New Keynesian and New Classical opinions about the efficiency of monetary policy. Because the costs of adjustments create sluggish changes in individual and aggregate prices, monetary policy can temporarily influence the real sector. It is possible to attain the optimal macroeconomic results managing the aggregate demand with particular monetary rule. In the long-run, however, there is no trade-off, the real sector is entirely determined by the supply side and monetary policy can only change the nominal values. Therefore, the authority should stabilize the path of price levels to maintain the potential level of output. Such actions can be judged as "active", since the central bank conducts the demand policy counter-balancing the output shocks coming from the supply side.

However, the NKPC is also a subject of many serious objections and questions. Karanassou and Snower (2002) criticized the implied conclusion that there is no

long-run relationship between inflation and output (unemployment) level. The NKPC becomes vertical if and only if the weights on forward-looking and lagged components are equal. The first problem is that separation of two agent fractions following different rules of expectation setting is unconvincing. There is no reasonable explanation why both fractions should behave in the assumed manner. The second problem is that the number of forward-looking and adaptive agents is stable and does not change irrespective of the boom or slump and the policy rule. If the lagged values dominated the forward-looking ones, the long-run NKPC would become negatively sloped, which means that nominal wages and prices do not follow the changes in money supply. The faster is the money supply growth, the greater the lag in nominal adjustments. Thus, the monetary growth leads to the increase in real money balances and output. On the other hand, if the forward-looking values dominated the lagged ones, the long-run NKPC would be positively sloped. Since the current prices and wages are based on the expected future money supply, the nominal values precede monetary changes. In this case monetary expansion brings about a decrease in real money balances and output.

The discussions about the NKPC concern not only the role of forward-looking and adaptive expectations but also the measure of real aggregate demand that influences the inflation in the most direct way. Galí and Gertler (1999), Sbordone (2002, 2005), Kurmann (2004) and Batini *et al.* (2005) showed that the real marginal cost explains the behaviour of inflation process in a much more accurate way than the aggregate demand used in early versions of the model. However, that conclusion was rejected by Bårdsen *et al.* (2002), Lindé (2005), Rudd and Whelan (2005), Jondeau and Bihan (2005), Neiss and Nelson (2005).

4. A consensus in economics?

In the face of the existing theories including various features of rival schools, it is natural to ask about the possible consensus in economics. Woodford (1999), for example, agreed with Goodfriend and King's opinion that the development in modern macroeconomics should be called a new neoclassical synthesis. Woodford noticed that the approach where the Keynesian theory is applied to the short-run analysis and the general equilibrium theory to the long-run is no longer used. It is rather assumed that the factors underlined by the Real Business Cycle school explain the evolution of the potential output and the transitory deviations from the potential level result from the lags in price-wage adjustments. Moreover, owing to the explicitly specified price and wage adjustments, it is possible to incorporate both the price-wage behaviour and the potential output fluctuations even into the short-run analysis. Thus, in the new neoclassical synthesis models the active monetary policy

is important, since it counteracts the disturbances caused by the insufficient price and wage adjustments to the real shocks.

Also Blanchard (2000) emphasized that some ideological and methodological differences between the modern schools still present in the 1980s, started to disappear ultimately at the beginning of the 1990s. Contemporary models are grounded on the solid structure of stochastic dynamic general equilibrium where the economic system is in a temporary equilibrium state, given the consequences of the past and anticipations of the future. They provide interpretation of the fluctuations as the outcome of shocks that are disseminated and reinforced by the imperfections observed in the labour, goods and capital markets. Therefore, in Blanchard's (2000, p. 1388) opinion such terms as 'New Keynesian' or 'New Classical' applied to the present models will be thrown – as many others – into the trash-bin of the history of economic thought soon.

Such a view has been rejected by De Vroey (2004). He claimed that the genuine synthesis manifests itself in the rival schools admitting the need for a joint standpoint. In the face of eager resistance towards the assumption of imperfect competition, it is hard to believe that the leaders of the Real Business Cycle school would admit the establishment of a unit approach of any kind. Moreover, it is scarcely possible to imagine the synthesis of perfect and imperfect competition if they are based on distinct technologies of the market trade. In De Vroey's opinion there are still two rival co-existing paradigms. Although they have some common features, they do not constitute a comprehensive program. There was no revolution resulting in either the victory of one paradigm and the downfall of the other or the creation of a quite new paradigm.

It seems that De Vroey's skepticism is more convincing than Goodfriend, King, Woodford and Blanchard's enthusiasm. It is true that there is still no agreement towards the number and standards of the assumptions indicating the traditional Keynesian character of a given model. The integration of market imperfections with the belief in efficient market mechanisms gives rise to the following questions: where does the New Keynesianism end and the Monetarism, New Classicism and Real Business Cycle school start? and Is it the proof of a better understanding of the economic systems?

Modern economists repudiate the labels identifying their affiliation to the specific paradigm or school but simultaneously they are not inclined to represent a kind of common stance. The observed differences in their views regarding the fundaments of economics clearly deny the possibility of developing a unique model. If it is so, why do the New Keynesian models adopt such strictly neoclassical elements as: reductionism; agents maximizing their beliefs; rational expectations; perfect competition; long-run neutrality of money; voluntary unemployment; dominance of the supply over the demand side; disbelief in policy efficiency, especially the demand actions?

The acceptance of some of those ideas was quite natural regarding the progress in the theory and empirical researches. It is impossible to expect that modern Keynesians would stick to the assumptions of money illusion, lack of expectations, favourable results of high budget deficit, efficiency of permanent discretionary demand policy etc. In many cases, however, the inclusion of the typical neoclassical elements into the New Keynesian models gives the impression of an advertising campaign performed only to ensure a place among the leading schools. Even at the cost of impractical conclusions, contradictory to the Keynesian tradition.

Most of the New Keynesian models seem to reflect the anxiety to equal neoliberal highly rigorous and elegant modeling style above all. Unfortunately, it often results in theoretical considerations that become irrelevant to the practical usefulness. In many cases the more and more complicated models aim at nothing but proving the formal abilities of attaining another levels of the abstract analysis. The New Keynesians are convinced that their studies are much closer to the real economic behaviour than the neo-liberal ones founded on perfect and unfailing market forces. However, it is hard to believe that complex formal notions difficult to wade through even for the specialists can be helpful in joining the theory and economic reality.

Because of the lack of a necessary time distance it is impossible to judge all the questions mentioned above. Although the New Keynesians have many valuable and undeniable achievements in some specific areas, their more and more heterogeneous research program with apparent neo-liberal features seems to be far from elucidating basic economic problems. While Keynes' theory has been acknowledged as revolutionary for it showed a convincing and simple diagnosis of the world crisis, the New Keynesians appear to lose the primary aim of their efforts, taking the reality in too many pieces and producing ambiguous conclusions hard to adopt in practice.

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