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**Relationships between unemployment and economic growth – the review (results) of the theoretical and empirical research**

**Abstract**

The article aims to discuss the relationship between economic growth and unemployment as well as related determinant factors based on literature review. The traditional approach presents this relationship through the prism of the effects of creation, capitalization, pool of savings and creative destruction. Nowadays, an increasing number of researchers attach more importance to the impact of institutional factors, such as minimum and efficiency wages or the flexibility of the labor market. Both theoretical and empirical research reveal both the evolution of the relevant views and the lack of consistency between the concepts explaining the relationship between economic growth and unemployment in different regions of the world and in different groups of countries.

**Keywords:** unemployment, economic growth, Okun law.

**JEL Classification:** E24, O33, J61.

**Introduction**

The relationships between economic growth and unemployment are currently a topical research theme. In view of the economic crisis, structural changes and high dynamics of technological advances, such research seems to be of significant importance and gains a new dimension. Moreover, the implementation of the EU economic programme, “Europe 2020”, implies the new quality of these relationships. The member states have adopted three mutually reinforcing priorities: intelligent growth (the development of the economy based on knowledge and innovation), sustainable growth (the promotion of the economy which is more effective, ecologi-

cal and competitive) and inclusive growth (the stimulation of high employment rates aimed at building social and territorial cohesion), the achievement of which requires higher resource efficiency (also labor resources).

Today, it is difficult to determine whether the European economy will achieve desired growth or if its character will lead to a decrease or an increase in unemployment. It is evident, however, that the insufficient use of labor resources is one of the most serious and important socio-economic problems which should be addressed as promptly as possible. Moreover, low dynamics of economic growth will result in an increased long-term unemployment rate (non-employment growth). On the other hand, high and persistent unemployment may be seen as a barrier to economic growth. Unemployment means lower global demand and lower investment in human capital. As a consequence of human capital erosion, the long-term unemployed lose their qualifications partially or completely, while their skills become obsolete in the times of rapid technological advancements. Furthermore, fiscal costs (lower budgetary revenues and higher social spending) which arise contribute to lower public investment and increased public debt and, in the long run, they hinder growth opportunities.

Hence, economists are seeking an answer to the question whether unemployment is a variable dependent on economic growth dynamics or if mutual dependencies between them are of reciprocal nature. Alternatively, whether it is advisable to treat unemployment as a variable determining an economic growth rate. Literature review indicates that researchers have not reached agreement yet.

The paper aims to discuss the relationship between economic growth and unemployment as well as related determinant factors based on literature review. The accurate identification and interpretation of these relationships may provide effective tools for building intelligent growth and reducing high unemployment, which is, in particular, characteristic of the European labor markets. On the other hand, the results of research conducted in developed economies, cannot be applied to the countries undergoing economic transformation (EU-10) or characterized with significantly lower levels of socio-economic development. It is also important to define the areas which require further research and will contribute to the understanding of changes taking place in the modern economy.

## **1. Research approaches to growth – unemployment relationship**

The subject of economic growth and the labor market is often treated as two separate research areas which deal with different issues and use different tools. Their theoretical integration has proved to be both illuminating and applicable to

economic policies. Research into the relationship between economic growth and unemployment was started in the mid-20<sup>th</sup> century by Harrod and Domar. Their contribution, however, was an isolated example, because the Solow model introduced new ideas into the debate on economic growth, at the same time relegating the studies of the growth-unemployment relationship as less relevant (Solow 1956).

In the traditional models of economic growth, under economic equilibrium, factors stimulating economic growth dynamics do not have an impact on an unemployment rate (the assumption of the full use of the production factors). On the other hand, the determinants of an unemployment rate do not influence economic growth. Only economic instability (also on the labor market) may cause a short-term negative correlation between the variables (Gruchelski 2012).

The connection between growth and unemployment was empirically confirmed and presented by Okun in 1962 (Okun 1962) and is still recognized as one of the fundamental macroeconomic laws. It defines the negative correlation between the production growth rate and the unemployment rate, which in the case of the US economy means that a 1% decrease in real production compared to its potential value leads to a 0.5% increase in the unemployment rate (Mankiw 2009). The nature of the relationship between the variables is not universally accepted by economists. Some research confirms a negative short-term correlation between economic growth and unemployment, other negates its existence either entirely or under certain conditions, questioning whether the relationship is actually a law.

In the late 20<sup>th</sup> and early 21<sup>st</sup> century, research emerged that confirmed the relationship between growth and unemployment in the EU-15, new EU member states and Asian and Arabic countries. However, it also showed its limited application due to a varying degree of correlation between economic growth and unemployment. Estimates indicate a relatively low level of the Okun coefficient (1962)<sup>1</sup> in Japan and a significantly higher one in the USA, which is caused by the differing tightness of the respective labor markets. Its varied values for developed countries have also been confirmed by recent studies conducted by L.M. Ball, D. Leigh and P. Loungani – from low in Japan (–0.15) and Switzerland (–0.24), medium in the USA (–0.45) to high in Spain (–0.85). According to the researchers, the differences reflect specific characteristics of the domestic labor markets, which remain influenced by institutional factors (Ball, Leigh, Loungani 2013). Despite the discrepancies, the authors propose that the relationship has a permanent and stable character and can still be defined as an economic law. Deviations, which are mostly

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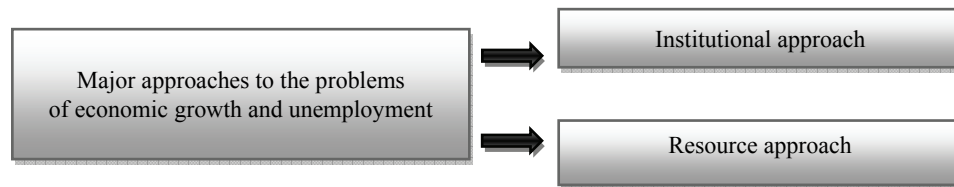
<sup>1</sup> Okun coefficient ( $1/\alpha$ ) based on the formula  $(y - y^*) = -\alpha(u - u^*)$ , where symbols in brackets mean deviation of current values of output and unemployment from their long-term values  $y^*$  and  $u^*$ . In the traditional approach, it is –0.5 for the US economy.

of short-term nature, e.g. the situation in Germany during the recession in 2008-2009, should not lead to its rejection as such, but rather inspire further research.

On the other hand, many economists still question the existence of the relationship between economic growth and unemployment or label it as ambiguous or unstable. Views and studies raising objections were particularly vocal in the 1990s and have become even stronger in the aftermath of the 2008-2009 financial crisis.

The latest research follows two major approaches to the problems of economic growth and unemployment (Figure 1), based on different determinants of the relationship between the two variables. One attaches great importance to the institutional conditions of the economy and, as a consequence, the models are politically oriented. The other approach offers models which, to a much greater extent, account for the influence of technological advances and the combination of a number of heterogeneous economic factors on the relationship between the two variables (Aricò 2003).

**Figure 1.** Approaches to the issues of economic growth and unemployment



The change in the attitude to the economic growth-unemployment relationship is of great significance for economic policies, as it may indicate a complete ineffectiveness of tools used for stimulating global demand when applied to combating unemployment, providing instead effective instruments coming from labor market policies, education and professional development.

## **2. Institutional factors as determinants of the relationship between economic growth and unemployment**

One of the approaches to studying the relationships occurring between economic growth and unemployment is the analysis of institutional conditions. In this approach, researchers indicate that the determinants of these relationships are the wage formation policies, the degree of centralization and bargaining power of trade unions, their diversification between economic sectors or worker groups with different qualification levels, and, finally, the flexibility or tightness of the labour market stemming from legal employment protection or the character of unemployment assistance systems.

The later parts of the paper discuss the main arguments used in his approach (Table 1).

**Table 1.** The determinants of the relationship between economic growth and unemployment in institutional research

Determinant	Impact on growth and unemployment	Researchers/research time
Minimum wage legislation	An increase in minimum wage leads to a rise in unemployment and a fall in production	Cahuc and Michel (1996) Daveri and Tabellini (2000) Josten (2006)
	An increase in minimum wage results in lower unemployment and stimulates a growth in production	Cahuc and Michel (1996) Ravn and Sorensen (1999)
Efficiency wages	An ambiguous effect of efficiency wage on economic growth and unemployment (different in traditional and innovative sectors as well as in high- and low-income sectors)	van Schaick and De Groot (1998) Meckl (2001)
Income tax rate	Increased tax rates under rigid wage setting mechanisms (strong trade unions) exert a negative effect on economic growth and unemployment	Daveri and Tabellini (2000)
	Increased tax rates under rigid wage setting mechanisms (strong trade unions) do not exert a negative effect on economic growth and unemployment	Imperia (2013)
Flexibility of the labor market	Increased regulation of the labor market and the strong position of trade unions do not exert a negative effect on economic growth and unemployment	Palokangas (2003), Carmeci and Mauro (2003), Herwartz and Niebuhr (2011)
	Increased regulation of the labor market and the weak position of trade unions exert a negative effect on economic growth and unemployment	Palokangas (2003)
	A negative effect on long-term economic growth and unemployment is exerted by a generous welfare system, a rigid labor market and a restrictive labor law	Carmeci and Mauro (2003), IMF (2010), Herwartz and Niebuhr (2011), Parello (2010), IMF (2010), Ball, Leigh and Loungani (2012)

Gordon argues that structural shocks, such as wage shocks, are one of the explanations of the trade-off between unemployment and economic growth in the short run (Gordon 1995). The author did not find evidence to support the existence of relationships in the longer run, stating that the relationships were weakening as a result of dynamic regulation processes.

The wage mechanism may determine the economic growth-unemployment relationship through minimum wage. Based primarily on the neoclassical theory of growth, a number of economists, e.g. Cahuc and Michel (1996), Daveri and

Tabellini (2000), or Josten (2006), posit that a minimum wage, in particular its increase, results in increased unemployment and subsequent lower output.

On the other hand, there are some studies which imply a possible positive impact of minimum wage legislation in macroeconomic terms. An interesting contribution in this area is the work of Cahuc and Michel (1996), who incorporated minimum wage into the endogenous growth model. They took into account the heterogeneity of labor resources in terms of professional qualifications and the use of the technology displaying constant return to scale and the impact of external effects generated in the process of human capital accumulation. Minimum wages, paid predominantly to unskilled workers, show the high relative demand for skilled labor. As a result, rational workers find motivation to invest in human capital in order to avoid unemployment. This reinforces positive social external effects, supporting both growth and employment (Aricò 2003). Ravn and Sorensen similarly argue that positive effects accumulate through on-the-job training (Ravn, Sorensen 1999).

Ambiguous relationships were identified by Meckl, whose studies based on the dual labor market theory indicate that higher minimum wages for unskilled workers increase the rate of growth and unemployment in this group, while simultaneously leading to a possible decrease in unemployment among skilled workers (2004).

Economists have proved that the modern economy (at least some of its sectors) is characterized with the wage efficiency mechanism. It leads to the setting of wages on a level which maximizes workers' effort and limits their turnover. Van Schaick and de Groot analyze economic growth and unemployment by reinterpreting Solow's conditions in the model of endogenous growth with efficiency-wages. The theoretical model was developed in order to study the interaction between equilibrium unemployment, long-term endogenous economic growth and competition on the market. In the model, investment in R&D is a major source of fixed costs and, therefore, of excess profits generated in imperfectly competitive markets. Due to the barriers hindering the entry of new firms, existing firms are willing to share excess profits with their workers. The model reveals a dual economy with the high-tech sector offering high-paid jobs and the traditional sector with low-paid jobs. The authors of the model propose that establishing a more competitive environment for firms (by eliminating statutory limitations on competition and other government intervention) and introducing limited wage efficiency stimulate long-term growth, improve job prospects in the high-tech sector, but this occurs at the expense of employment in the traditional sector. The economy becomes more "high-tech", but economic growth is lower. In macroeconomic terms, increased competition may, in the best case,

lead to reduced unemployment. It cannot, however, be precluded that both economic growth and employment may decrease (van Schaick and de Groot 1998).

This model was further developed in the study presented by Meckl (2001). The author questioned the unrealistic assumption made in their model by van Schaick and de Groot that wage diversification had no impact on productivity. In a longer perspective, Meckl claims, the sign of correlation between economic growth and unemployment is unclear, but always closely related to intersectoral wage differences. In more precise terms, a positive correlation between growth and unemployment occurs when the sector is characterized with high wages in the economy, while a negative one when it has low wages (Parello 2010). It can also be argued that relatively high unemployment among unskilled workers results from an unfavourable relationship between their real wages and qualifications.

Daveri and Tabellini (2000) launched their study in a different context. They developed a theoretical model which allowed them to define the relationship between economic growth and unemployment in terms of the fiscal policy. The results of their research indicate that under the rigid wage-setting mechanism, similarly to the situation of the monopolistic position of trade unions on the labor market, the fiscal policy is the determinant of the relationship between economic growth and unemployment which are characterized by the trade-off effect (Aricò 2003). The authors assume that when wages are protected by monopolistic unions, the increased taxation of labor income determines an increase in real gross wages until they reach the level of the previous net income. This means that total costs of increased taxation are incurred by firms. Increased labor costs have two consequences: (1) they lower demand for labor, which leads to higher unemployment, (2) they lead to higher capital against labor and lower the rate of return on capital (lowering the marginal productivity of capital) as well as a GDP growth rate.

Daveri and Tabellini (2000) confirm that an increase in labor taxation contribute significantly to higher unemployment and slower economic growth in the European countries. However, they are unable to explain why Sweden which has relatively high tax rates does not suffer an equally high unemployment rate and, subsequently, lower economic growth. Responding to the question why tax rates are increased, the authors propose that it stems from higher government spending, in particular, connected with financing generous pension systems. Lower spending might allow for the decrease in fiscal burdens and, as a result, a lower unemployment rate and higher economic growth (Imperia 2013).

The conclusion offered by the authors gave rise to further discussion. If a government increases an income tax rate (in order to raise pension spending), a negative effect on employment may be eliminated by lowering unemployment benefits. This is possible in the Daveri and Tabellini model because a govern-

ment controls all economic variables, including unemployment protection policies (Imperia 2013).

Palokangas had similar research results when he investigated the impact of the wage efficiency system and the centralized wage negotiation system, involving the participation of trade unions, on economic growth and unemployment. When unions are initially very strong, regulations increase an employee profit share and this does not affect employment and growth. However, when the position of unions is weak, increased labor market regulation favors economic growth, but at the expense of employment and current consumption (increased unemployment) (Parello 2010).

Empirical research undertaken recently confirms that a negative effect on long-term growth may be exerted by:

- high substitution rate, generous unemployment benefit system (e.g. Carmeci and Mauro 2003, IMF, 2010, Herwartz and Niebuhr 2011, Parello 2010)
- a high trade union membership rate, the bargaining power of trade unions (Carmeci and Mauro 2003; Herwartz and Niebuhr 2011)
- high employment protection (IMF 2010)
- a high proportion of temporary employment in total employment (IMF 2010)
- restrictive labor laws (Ball, Leigh and Loungani 2013).

The review of the most important theoretical studies and the empirical results confirm that economists not agree neither on the determinants of the relationships between economic growth and unemployment nor about their nature (positive or negative). Most researchers tend to accept the hypothesis that the development of institutional regulations for the labor market adversely affects economic growth and compound unemployment-related problems. Only few indicate that the occurrence of positive consequences, most frequently in the group of highly skilled workers stimulating growth dynamics. In terms of intelligent growth, it may be a positive signal which should stimulate the tendency to invest in human capital. If the relationships between economic growth and unemployment have a feedback effect, investment in human capital may become a stimulant for long-term growth. On the other hand, there is no sufficient evidence proving the relationship between the two variables in countries undergoing economic transformation, including Poland. This research area requires further exploration.

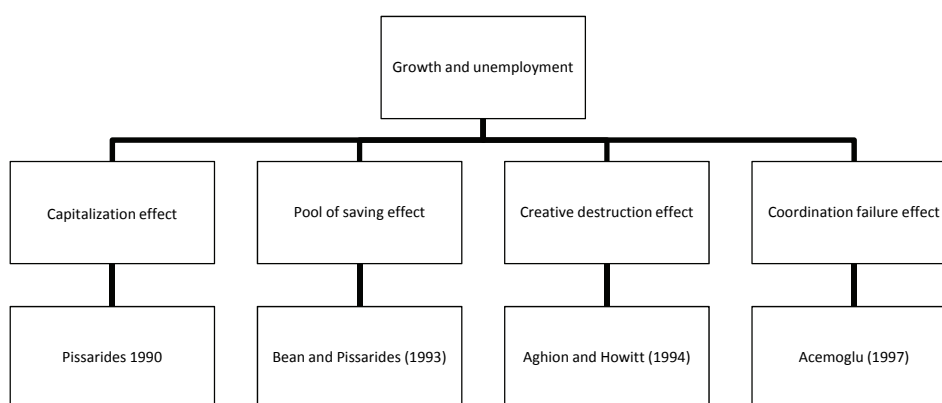
### **3. The relationship between economic growth and unemployment and the impact of technological factors**

Main mechanisms involved in the relationship between growth and unemployment in the resource approach presented Figure 2. The other school of research into the relationship between economic growth and unemployment is



represented, inter alia, by Pissarides (1990), Aghion and Howitt (1994), Hoon and Phelps (1997), Mortensen and Pissarides (1998). They indicate another channel through which economic growth affects unemployment – technological progress. The kind of technological progress may determine the direction of a change in unemployment, while its impact on economic growth seems to be relatively straightforward.

**Figure 2.** Main mechanisms involved in the relationship between growth and unemployment in the resource approach



Source: Neto, Silva (2013, p. 8).

Combining a standard matching function within a neoclassical growth model, Pissarides identified a negative correlation between economic growth and unemployment, which was later labelled a capitalization effect. This link may occur when economic growth stems from disembodied technical progress (that does not require investment in new equipment) and productivity increases at the same rate (Pissarides 1990). Pissarides defines the relationship between growth and unemployment through profits and hiring costs. In the frictionless labor market, firms are willing to invest in new vacancies in the initial stage of the growth period. In steady-state, both hiring costs and profits rise at the same rate, so a higher (lower) growth rate has two effects: increases (decreases) future profits and increases (decreases) future hiring costs. Thus, facing an increase in the growth rate, the firm's optimal choice will be hiring more today (by opening new vacancies) in order to save in future hiring costs. These costs are related to an excess in labor supply over demand. When supply is high and, as a result, the labor market is "loose", hiring costs will be lower. In other words, a higher growth rate implies a lower unemployment rate and more job vacancies.

Moreover, a negative correlation is strengthened by the pool of saving effect, which was presented by Bean and Pissarides (1993), who imply that unemployment adversely affects capital accumulation by reducing the amount of savings, which, in turn, slows down economic growth.

Aghion and Howitt (1994) reinterpret the capitalization effect and argue that a higher growth rate will affect the “effective discount rate”, which is the difference between the interest and the growth rate. Intuitively, a higher growth rate will raise the investment return rate (by lowering the “effective discount rate”), encouraging new firms to enter the market, which will lead to an increase in the number of new vacancies and, thus, a reduction in unemployment.

At the same time, Aghion and Howitt (1994) argue that the relationship between growth and unemployment may be defined as the creative destruction effect. Based on the Schumpeterian concept, they assume that innovation leads to labor force allocation, which is caused by an increased cost of human capital. If each adjustment requires specific human capital suited to the specific job which was created as a result of innovation, this implies permanent unemployment. A faster rate of implementing new technologies shortens an adjustment period. In this context, the impact of economic growth on unemployment is determined by:

- a direct creative destruction effect, which leads to an increased unemployment rate under economic growth conditions,
- an indirect creative destruction effect, which means a reduced number of job vacancies, which implies an increased unemployment rate (Gruchelski 2012).

The authors also allow for the occurrence of the capitalization effect discussed earlier in the paper. The correlation between economic growth and unemployment is presented as an inverted U-shaped relationship (assuming that the entry cost is positive, but sufficiently low). It means that stimulating growth may, at least at the initial stage, lead to increased rather than decreased unemployment. Demand-boosting policies cause that some firms replace traditional machines with numerically controlled machines or robots. As a result, employment falls (unemployment rises). Only in the long run, when the substitution of capital (with more productive one) is no longer possible, employment goes up (Gruchelski 2012). Accordingly, a low growth rate implies the creative destruction effect, whereas the capitalization effect characterizes a high rate growth. The destruction effect may be additionally reinforced by an interest rate. A higher interest rate lower the number of vacancies, while increasing an unemployment rate (Gruchelski 2012).

Correlations identified in the Aghion-Howitt (1994) model have sparked many related studies. Hoon and Phelps (1997) show that there is no correlation between an economic growth rate and an unemployment rate in the long run.

Mortensen and Pissarides (1998) develop the model which analyzes both the capitalization effect and the creative destruction effect. They imply that it is not easy to find a clear relationship between growth and unemployment. When the adaptation cost for new, more productive technologies in existing jobs is higher than the cost of creating a new job, an increase leads to creative destruction (more unemployed). In contrast, when the adaptation cost is below the creation cost, it may lead to the stronger capitalization effect (lower unemployment). Mortensen and Pissarides developed the model which assumes that firms introduce new technologies by both implementing the existing capital and reducing the one used so far. Accordingly, the costs of new solutions may vary between firms operating in a given market. Moreover, the exchange of capital and labor between sectors which does not generate costs is possible (perfect mobility of production factors). The job reallocation mechanism reduces the creative destruction effect in the long run.

Short-term correlations between growth and unemployment caused by technical progress are investigated by a number of researchers, e.g. Michelacci, Lopez-Salido (2005). Their model accounts for the neutral and capital-embodied technological shock. The implementation of new technologies requires specific qualifications which workers have to possess. In the short run, the neutral technological shock leads to a sudden creative destruction and increased unemployment. On the other hand, capital-embodied technological shock triggers increased economic activity and lowers an unemployment rate (Bukowski, Zawistowski 2008).

The positive relationship between economic growth and unemployment is reinforced by the coordination failure effect, which was introduced by Aghion and Howitt (1994) and further developed by Acemoglu (1997).

Acemoglu (1997) uses a typical matching model as a starting point, introduces heterogeneity on the labor market by considering the existence of two types of workers (skilled and unskilled) and the possibility that firms are either equipped with new technologies or not. At the same time, the model does not include the education system or the learning-by-doing mechanism, which means that an unskilled worker can only become a skilled worker if he is hired and trained by a firm.

If a firm chooses to implement new technologies and its workers are trained to use them, investment in training pays off only when a worker is hired by an innovative firm. In turn, investment is profitable for an innovative firm only if it hires a trained worker. A firm reaches equilibrium on condition that there are no information barriers or transactional costs. However, a risk of the separation of a firm and a worker may arise, which means that a firm has to look for a new worker and a worker needs to find a new job. If there are no costs involved in a labor market search, the separation does not generate any losses. But if search-

ing is expensive, matching will be imperfect. A firm investing in new technologies can never be certain that it will succeed in finding an adequately qualified worker who will be a match for a given job. The likelihood of finding the right worker and the right job is connected with the “tightness” of the labor market (the number of skilled workers, the number of job vacancies). Were it not for a separation risk, there would be no inefficiency because no interaction would occur between prospective employees and employers. Inefficiency is caused by the fact that the players make independent decision on the labor market.

The Acemoglu model (1997) shows that labor market imperfections in the process of searching and matching do not always lead to inefficiency. The costs involved create conditions allowing for a number of equilibriums. The relationship between unemployment and economic growth results from the links between unemployment levels, employer expectations and worker productivity. Facing high unemployment (loose labor market), firms predict that the likelihood of finding an unskilled worker is strong. This implies less willingness to innovate (and to hire) because such conditions cause that a worker has to be trained in order to develop target qualifications. As a consequence, growth dynamics are lower and an unemployment rate increases, which means that an agent’s expectations are met. The solution to this problem may be the introduction of the “social planner”, whose tasks can be taken over by a state or a government agency. The fact that a firm will provide training to its workers will benefit not only the firm itself, but also other firms and the economy as a whole. They will enjoy external effects, such as increased knowledge and qualifications (Acemoglu 1997).

The inversion of the causality (growth – unemployment) will not change the main results. If firms expect that all other firms will not incorporate the new innovation/technology, predicted training costs will rise, which should be seen as limiting the opportunities of profit maximization, reducing the incentives to innovate (and hire). A situation when a new technology is adopted by all firms is also possible, which will lead to reduced unemployment. In this case, the implementation of an innovation, which is undoubtedly a symptom of intelligent growth, will contribute to favorable relationship between the variables.

Even though from the theoretical point of view, the relationship between growth and unemployment is ambiguous, empirical studies often indicate that the correlation between the two variables is negative, which confirms the strength of the capitalization effect (Blanchard and Wolfers 2000 or Pissarides and Vallanti 2007 – OECD countries; Tripier 2007 – EU, USA).

Studies conducted by Langot and Moreno-Galbis (2008) imply that if heterogeneity of labor resources by age is accounted for, the result is ambiguous. In the case of older workers (aged 54 or more) the creative destruction effect pre-

vails. Firms are less interested in incorporating new solutions into the jobs held by older workers due to a short payback period (Langot, Moreno-Galbis 2008).

Similarly, if workers are classified by qualifications, the relationship between growth and unemployment may be ambiguous. If growth accelerates, workers are more willing to seek and participate in training. Accelerating a growth rate by one percentage point decrease a total unemployment rate by a greater value. This reduction mainly stems from a decrease in unemployment among unskilled workers who have been offered training and, to a lesser degree, to lower unemployment among skilled workers. In the case of workers who have not participated in training an increase may compound difficulties involved in finding a job (increase an unemployment rate in this segment of the labor market) (Moreno-Galbis 2012).

## **Conclusions**

The paper aimed to discuss the relationship between economic growth and unemployment. It presented the main approaches within theoretical and empirical research, indicating both the evolution of opinions and the lack of agreement in providing explanation for the relationship.

The basic links, such as the creation effect (a negative correlation between growth and unemployment), the creative destruction effect (a positive correlation between growth and unemployment), the pool of saving effect (a negative correlation between growth and unemployment) and the coordination failure effect (a negative correlation between growth and unemployment), were identified. Moreover, new relationships, triggered by institutional factors, were discussed: the minimum wage effect or the legal employment protection. The limited size of the paper did not allow for the presentation of all the mechanisms leading to the emergence of the correlation between growth and unemployment identified in the literature. The heterogeneity of factors which determine this relationship in the modern economy remains an inspiration for further research, which should take into account the dynamically changing conditions of economic activity on local, domestic and global markets.

Undoubtedly, it should be stressed that nowadays the source of intelligent growth is technological progress and R&D investment, which to a significant extent shape the level of structural unemployment. Another important factor which affects the markets (including the labor market) and market players is the existence of institutional factors. Limited flexibility, in particular in the European labor markets, and delays in adjustment processes are responsible for high levels of unemployment even when economic growth is accelerating.

Due to a limited number of studies which deal with the Polish economy in terms of the issues discussed here, the paper may become a starting point for empirical research into the relationship between economic growth and unemployment taking into account the character of a country undergoing systemic transformation.

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