JOURNAL
OF EUROPEAN ECONOMY
Vol. 3 (№ 3). September 2004
Publication of Ternopil Academy of National Economy

Macroeconomics

Victor KOZYUK

THE INFLATION – UNEMPLOYMENT NEXUS IN THE LIGHT OF GLOBALIZATION AND ECONOMIC OPENNESS

Abstract

The paper outlines important globalization-related changes in the macroeconomic sphere on the basis of empiric analysis of the relationship between inflation and unemployment in the most developed countries. The discovered lack of feedback between inflation and unemployment served as a basis for proving, in the course of the last century, that, according to theoretical suppositions, the monetary policy becomes more neutral, which makes it impossible to increase the natural level of employment at the cost of factors that stimulate aggregate demand. The interdependence between inflation and unemployment varies for large and small countries. For the G-7 countries, the stagflationary interdependence between inflation and unemployment is normal; for the small open economies of OECD, this interdependence differs from the one described by the Philips curve, and it is not stagflationary. The author concludes that this situation is conditioned by differing abilities of small open economies to react to production and employment shocks in view of their higher degree of openness and sensitivity to financial upheavals.

Key words:

Monetary policy, central banks, Philips curve, inflation, unemployment, globalization, openness.

Kozyuk Victor, Candidate of Economic Sciences, Assistant Professor, Ternopil State Technical I. Pulyui University, Ukraine.

Already for several decades has the inflation-unemployment nexus been the optimization criterion of the central banks' monetary decisions. This is related to the importance of these macroeconomic variables for the market mechanism and methods of its correction through the system of cycle mitigation. Moreover, the way central banks react to the interdependence of the macrovariables continues to determine not only the operational model of monetary policy and its theoretical foundation, but also the overall positioning of monetary authorities within the system of state interference in the economy, which permits to identify different patterns of the modern mixed economy. In transforming the old ties between macroeconomic parameters of national economies, globalization had an effect on the essential reorientation of central banks towards the policy of price stability support. In many aspects, this process is governed by the changes in the nature of ties between inflation and unemployment which are not inversely related any more, as in the Philips curve, which has been and still is the symbol of macroeconomic choice of central banks. However, the direct role of globalization in the transformation of interdependence between these indices remains undefined. Worth noting is the fact that in the national literature, the epistemology of the ties between inflation and unemployment and of the above-mentioned curve is mainly educational and descriptive (which is conditioned by a certain reader-like interpretation of basic macroeconomic categories [see, for example, 6: 341–348; 7: 253–254; 2: 257–289]) or informational and analytical in nature [4; 8]. What concerns the empirical research of this phenomenon, the works of western economists focus either on the general theoretical problems of inflation-unemployment interconnection (for detailed analysis see [3]) or on revealing the patterns of the central banks' reaction to the shifts in natural unemployment level and the dynamics of output-gap [12]. In the frame of such an approach, however, the economy is examined as a closed one because the external factors (changes in world aggregate demand, formation of global reproduction systems, etc.) which form the inflation-unemployment ties fall out of the analysis. This article confirms the fact of monetary policy neutrality on the basis of empiric analysis of inflation and unemployment ties in the developed countries; substantiates its causal relationship with the processes of increasing economic openness, typical of globalization; and reveals different patterns of inflation and unemployment relationship for large and small economies.

The Inflation and Unemployment Nexus in Retrospective

The predominance of the Keynesian inversion of macroeconomic policy for several decades after the World War II, at first glance, can be considered as a universally recognized doctrine of governmental interference in the market process by means of active stimulation measures aimed at reduction of unem-

ployment and mitigation of cyclical fluctuations. The latter were examined in the light of inverse relationship between inflation and unemployment (the Philips curve), which is the case when prices increase as the economy approaches its full production capacity and decrease when the capacity is under-loaded, which means that aggregate demand is insufficient compared to the country's industrial potential. When the economy approximates its full production capacity load, inflation accelerates because of the decreasing factor productivity. Full employment is associated with the equilibrium state of the macroeconomic system; when it is lower than that, it is viewed as a precondition to the policy of demand stimulation. According to the Keynesian doctrine, inflation can not increase when employment is not full; thus, the stimulation of aggregate demand (for example, by means of interest rate reduction and enlargement of money supply) will not give rise to inflation. It will accelerate only when nearly full employment is reached again. In this case, the divergence of the economy from its equilibrium state is viewed as the result of shifts in aggregate demand, which should be mitigated in order to prevent inflation (in case when demand is excessive compared to economic potential) or unemployment (in case when there demand is inadequate).

The estimation of standard average relationships between the level of inflation and unemployment by such prominent economists as A. Oaken, P. Samuelson, and R. Sollow has started to be regarded as an imperative for the delicate macroeconomic policy. For example, Oaken proved that 1% change in the employment rate results in the 2% change in GDP; the 1% change in inflation reduces GDP by 5%; thus, the 1% decrease in inflation results in 2.5% of annual increase in unemployment. Samuelson and Sollow assert that 4.5% of inflation would allow limiting unemployment at annual 5.5%.

However, the Keynesian arguments about relationships of macroeconomic variables and methods of macroeconomic policy realization came to be seriously debated much earlier than the «pure» Keynesianism and neo-Keynesianism have completely seized to be the «mainstream» of academic favour and political and economic recipes. For example, German economist J. Gebler notes that the disappointment in the Keynesianism was dated not mid-1970s, but a decade earlier. As he puts it, «It appeared in the 60s that the Keynesian global regulatory toolkit does not work any more, and all state anticyclic measures frequently worked in favour of these cycles, that is, enhanced market fluctuations. In particular, state attempts to stimulate real income and employment through demand expansion failed, and what is more, these measures only provoked inflation» [1: 12]. Then again, during 1950-s – early 1960-s the dependence between inflation and unemployment for the majority of developed countries was practically inverse, which constituted another empiric argument in favour of the Keynesian normative doctrine, even though such a dependence was completely ruined when applied to longer time intervals [5: 574–577]. Although an inverse relationship between inflation and unemployment could be observed in major developed countries during 1979–1983, K. Clinton and J. K. Chourqui contended that this situation was generated by the market

agents' distrust in the central banks which resorted to the policy of inflation stabilization. As a result, excessively high nominal salary requirements turned into growth of unemployment [10].

The phenomenon of stagflation in the mid-1970s and the growing belief that the thesis about long–run inverse dependence between inflation and unemployment (the Philips curve) was not adequate contributed to reorientation of central banks towards inflation stabilization. In terms of monetarism, inverse relationship between inflation and unemployment is possible only in the short-run, when the real rate of inflation differs from the expected one. In view of the adaptive nature of expectations, such a situation can be a frequent occurrence. In the long-run, there will be no inverse dependence between inflation and unemployment because the economy will always be in the equilibrium state, which is accepted as the equilibrium with underemployment, or equilibrium with natural level of unemployment, which changes in response to internal processes of economic development, but not because of the changes in macroeconomic, especially monetary, policy. That is why the country cannot change its level of unemployment, but it does can «choose» its level of inflation. Such a situation reflects the neutrality of monetary policy and the direct dependence between inflation and unemployment, that is, stagflation.

The fact of stagflation is regarded as one of the fundamental factors of recent changes in the business environment of central banks. For example, the specialists of the Bank for International Settlements defined the two principal shifts in the macroeconomic environment of monetary authorities which determined their core activity for the years to come: first, financial deregulation; second, stagflation [17: 140]. Relying upon the average 1971–1996 inflation and unemployment data for 13 most developed countries, they conclude that stagflation is becoming a prevailing pattern of monetary policy. This reflects the enhancement of its neutrality and inability to influence aggregate demand to solve the unemployment problem.

Inflation and Unemployment in 1970–2002: Comparing Relationship Patterns With the Tendencies of the Globalization Age

Systemic transformation of macroeconomic environment of central banks under globalization cannot but affect the radical changes in economic processes, which calibrate certain monetary choice. In other words, theoretically, the globalization process should have an effect on essential increase in neutrality of macroeconomic, in particular monetary, policy. Under conditions of increasing openness and market integration, the magnitude of aggregate supply and the natural level of production capacity load should be defined by the factors of global demand. The meaning of the economic openness factor is fundamental,

as far as it reflects on the reproducible and functional interdependency of different economies. Such interdependency contributes to formation of globally-integrated markets, whereas their occurrence is determined by tariff reduction and removal of restrictions imposed on international capital flows. Owing to this, the internal economic dynamics will increasingly be determined by global situation, that is, by real global demand, and not by internal nominal aggregate demand, which can be influenced by national macroeconomic authorities through changes in taxes and budgetary expenditures (fiscal policy), as well as money supply and interest rates (monetary policy). As a result, the connection between the dynamics of internal aggregate demand and supply should weaken. Therefore, in theory, the Philips-curve-like ties between inflation and unemployment should come to ruin because of the following considerations: the more the economy is open, the more will its natural production capacity load (natural level of unemployment) be defined by global factors; the changes in the country's internal aggregate supply will increasingly be conditioned by the shifts in global conjuncture; the macroeconomic-policy-induced nominal changes in internal aggregate demand will produce no effect neither on GDP growth nor employment; the attempts to reduce unemployment by creating incentives to increase aggregate demand, under the conditions when its natural level in the country is set by global determinants of its participation in international exchange, will result in inflation; this will reflect the absence of connection between inflation and unemployment, that is, stagflation.

The empirical research of inflation-unemployment interdependence conducted in the developed countries[1] gives us an opportunity to distinguish several regularities (see Appendix for graphical illustration):

- First, the dispersion pattern within the unemployment-inflation coordinates for the 20 OECD countries in 1971–2002 demonstrates that there is a minor negative slope of the regression line, which can be considered as an indication of the Philips curve (Figure1). Such a regularity is also inherent to the G-7 countries for the same period (Figure 2); however, despite the regression line is negatively sloped, the way the points which indicate annual inflation and unemployment indices are dispersed demonstrates much less affinity to the Philips curve than it is inherent to all OECD countries, which can be interpreted as higher predisposition of large economies to stagflation.
- Second, the dispersion pattern for the same case, but for the period of 1991–2002, demonstrates essentially different trend in the inflation-unemployment relationship (Figure 3). Thus, the period of economic openness and globalization upsurge in the OECD countries was not

[1] The reasons for choosing developed countries for analysis were the following: first, they are more integrated into the global economy; second, the analysis of inflation-unemployment ties is traditionally conducted for this group of countries only, whereas for developing countries such an analysis is not held or is based on analyzing the ties between inflation and GDP.

characterized by the dependence which could be described by the Philips curve. The same is true for the G-7 countries (Figure 4). The slope of the regression line describing «the other» OECD countries (total OECD excluding G-7) does resemble the Philips curve, but its slope is so insignificant that we can consider it a straight line – there is a wide variation of unemployment against almost uniformly low inflation (Figure 5). Thus, the analysis of annual data revealed that during the period of growing economic openness (1991–2002), the relationship between inflation and unemployment was practically different from that of 1971–2002. This indicates essential consolidation of the stagflationary elements in the macroeconomics of the developed countries during the globalization period. Whereas the annual indicators of the previous periods taken as a whole demonstrate such a regularity that it can be interpreted as the mentioned curve in practice. Therefore, the monetary policy has really become more neutral under conditions of globalization.

- Third, the test of the connection between inflation and unemployment in the developed countries conducted on the basis of average 1991–2002 data (Figure 6) gives an opportunity to state the following: there is no similar to Philips-curve dependence between these macro–parameters. That is, the fact of stagflationary relationship between price dynamics and employment becomes a principle feature of macroeconomic system for the majority of developed countries in the world, which testifies once again to the neutrality of monetary policy and its enhancement under globalization conditions. Worth noting is the fact that the research of relationship between cumulative GDP-gap and base inflation conducted by de Lima, de Serres and Kennedy (this approach yields even more exact results, inasmuch as it eliminates sporadic shocks and inessential shifts in monetary policy) for the 11 most developed countries over the period of 1998–2001 reveals a clear stagflationary-type dependence as well [15: 52].

- Fourth, even if the non-relevance of the Philips curve is identical for both the G-7 and the other OECD countries, the nature of dependence between inflation and unemployment for each of them is different. The average data calculations show that the positive slope – which describes stagflation – is higher for the first group (Figure 7) than it is for the second group, where it is minimal (Figure 8). This agrees with differing patterns of dispersion for these groups of countries over the 1971–2002 period and especially over the 1991–2002 period. This means that for large economies, such as the G-7 countries, stagflation is more typical than it is for small economies, such as those falling under the «other OECD». For the latter, the almost horizontal line describing the connection between inflation and unemployment shows the absence of stagflation and the Philips curve at the same time.

It should be mentioned that such a difference should be explained in relation to globalization development and the associated growth of openness (the level of openness is higher for small economies[2]). If the factors of openness were unreal, the dependence between inflation and unemployment would be identical for large and small economies, whereas, in fact, it is not. In view of this and proceeding from theoretical open-economy models of inflation (models by Roemer [16] Layne [14]) and the fact that global macroeconomic situation affects small and large economies in different ways, we can conclude that these are the factors that make the inflation-unemployment dependence and policies in small and large countries potentially different.

Since small open economies of the «other OECD» group exhibit minor slope of the curve describing stagflationary dependence of inflation and unemployment (that is, the inflation variation per unit of unemployment variation is much lower, while the unemployment dispersion higher, than price dynamics indicator), we can conclude that their inclination to react to problems in the employment sphere is much weaker than that of the large economies that are normally characterized by stagflation. In other words, under conditions when globalization reflects upon the consolidation of the neutrality of monetary policy, the attempts of large economies to react to the unemployment problem result in growth of inflation. Instead, central banks in small open economies are not so apt to react to situation in the employment sphere; as a result, unemployment variation is higher compared to uniformly low inflation, which, in its turn, determines an almost horizontal position of the respective curve. It can be asserted that openness in small open economies is perceived as the factor of significant worsening of macroeconomic stability caused by discretional steps and unanticipated inflation. This is less characteristic of large economies because their degree of openness is lower, specialization not so pronounced, and consequently, their susceptibility to specific shocks is less significant. Moreover, in case of macroeconomic destabilization, large economies, endowed with larger potential and resources, are able to withstand various shocks better than small economies are; owing to large magnitude and higher level of production and consumption differentiation, their sensitivity to exchange rate changes is lower as well. On the one hand, this means that the ability to compensate for losses from shocks incites these countries to maintain a less balanced policy of responding to the problem of inflation-unemployment trade-off, in comparison to the case of small economies, which are potentially less capable of contra-posing their resources to global markets without real losses in well-being. On the other hand, the markets can realize this, and, as a result, large economies will be considered more inclined to inconsistent behaviour, thus corresponding higher inflation rates to higher levels of unemployment.

[2] This can be proved using the World Bank data [13].

Is It the Philips Curve or the Taylor Curve?

It should be noted that despite the fact that the Philips curve retained its status of the instrument of monetary analysis, the approaches to study of the inflation-unemployment trade-off at the beginning of 1990-s gained in complexity after introduction of variation indicators (dispersion) (known as the Taylor curve[3]). Both the Philips curve and the Taylor curve represent in essence the same phenomenon – the trade-off between inflation and unemployment. However, the latter of them allows to identify the nature of the central banks' reactions to changes in these indicators. The importance of this phenomenon emerges from the fact that, according to the new Keynesian doctrine of monetary policy, a more rigid reaction of the central bank to shifts in inflation inevitably leads to increased GDP fluctuations. For example, a representative of this approach, St. Fisher, views this problem in the light of an ongoing debate about the influence of the central bank's status upon macroeconomic situation. As an example, he cites the case of the USA and Germany. They exhibit significant differences in the average GDP growth and average inflation indicators, on the one hand, and they differ in the variation of these indicators, on the other hand. Thus, in 1960-1992/3, average inflation in the USA was 1.19 and 0.83 in Germany, whereas inflation variation made 0.69 and 0.43 accordingly. What concerns the GDP indicator, it was 0.73, 0.73, and 0.88, 1.42 accordingly [11: 65]. In other words, relatively lower inflation indicators in Germany (in comparison with the USA) entail lower inflation variation. At the same time, equal average GDP growth indicators entail its lower variation in the USA. In view of this, we can conclude that the Federal Reserve System is more inclined to discretional steps than is the Bundesbank, which became apparent in higher inflation variation and lower GDP variation in the USA rather than Germany.

The effectiveness of monetary policy throughout the 1990-s – early 2000-s, as measured using the variation indicators of unemployment and inflation, can be considered as substantially improved compared to that of 1970-1980s. For example, U. Backstrom, head of Ricksbank (Swedish central bank), states that the dispersion of points within the coordinates of «GDP growth dispersion» (OX axis) and «inflation dispersion» (OY axis) for the 13 most developed countries over the 1970–1990 period is much higher than that over the 1995–2000 period. This proves the decrease not only in the inflation volatility, but also in the GDP dynamics volatility as well [9].

Increasing the number of countries in the sample nevertheless confirms the thesis that the inflation and GDP variations significantly decreased during the globalization period. De Lima, de Serrres, and Kennedy, which have been already mentioned above, give the example of 15 most developed countries in four time intervals constituting the overall period of 1973–2001. Thus, in the first period (1973–1979), the dispersion of points, which reflect the correspondence

[3] Although the concept of the «Taylor curve» appeared in economic science in 1979, it became the instrument of monetary process analysis only at the beginning of the 1990-s.

between GDP variation and inflation variation, is rather significant. Its pattern demonstrates the presence of two curves of the Philips curve type – one of them located lower (G-7 countries) than the other (other countries). In the second period (1980–1989), the situation improves: the area of dispersion narrowed, and the dispersion pattern does not resemble the Philips curve. The following period (1990–1994) exhibits further contraction of the dispersion area, while the relationship between the two parameters is clearly stagflationary in character. Finally, the period of 1995–2001 reflects further improvement: inflation and GDP volatility decreased, while simultaneously, the relationship between them preserved its stagflationary nature, as in the previous period [15: 51].

What concerns the connection between inflation and unemployment volatilities, the analysis of 20 OECD countries over the period of 1971–2002 generally confirms this tendency even despite the fact that we included not GDP, but the unemployment parameter in the calculation (Table 1).

The calculation covered three time intervals and the overall 1971–2002 period (Table 1). On its basis, we can assert that the last decade accounts for essentially lower inflation and unemployment volatility in comparison with total, more than 30-year-long period. This also refers to the fact that over 1991–2002, the dispersion of inflation and unemployment was revealed to be much lower as against the previous periods. The magnitude of inflation fluctuations were the highest in the first period, while unemployment fluctuations were at peak in the third one. Thus, the essential amplitude of inflation fluctuations in the 1970-s could be related to the practice of inflationist policy and consequent sporadic discretional steps aimed against it; whereas in the following periods central banks started to pursue a moderate policy of price stability. In particular, the obvious contraction of the oscillation amplitude of these parameters gives us an opportunity to state that the effectiveness of monetary policy aimed at stabilizing macroeconomic fluctuations increased. As for the amplitude of unemployment fluctuations, their insignificant level and countercyclical monetary measures of the 1970-s have surely determined the relative stability of employment. However, the period of the 1980-s exhibited lower fluctuations in unemployment than did the following decade, which accounted for globalization processes development. Nevertheless, this does not relate to the case when the orientation of monetary policy toward inflation stabilization, especially toward increasing the magnitude of aversion to inflation variation in the central bank's reaction function, causes an increase in unemployment volatility, as it was stated within the frames of the neo-Keynesian ideas about price rigidity. The reason to it is that in many countries, the escalation of the unemployment variation indicator does not reflect its factual overall decrease (which is especially typical of Greece, Portugal, Spain, the Netherlands, and Great Britain). Such a decrease is related to economic growth in these countries and a consequent positive effect of economic openness upon the increase in factor productivity and GDP dynamics. Therefore, the analysis conducted with the help of the Taylor curve does not expose adequately the positive impact produced by globalization upon small economies and conceals positive changes in the employment sphere.

Table1

Dispersion of Inflation and Unemployment in the OECD Countries in 1971–2002

	1971–1980		1981–1990		1991–2002		1971–2002	
	DI	DU	DI	DU	DI	DU	DI	DU
Australia	45.1	3.5	3.7	2.0	19.7	1.5	32.8	4.9
Austria	10.4	0.05	2.6	1.2	1.0	0.4	8.4	3.1
Belgium	12.2	2.8	9.5	2.7	2.1	1.7	12.2	4.3
Canada	1.9	1.6	9.4	2.7	4.3	1.4	14.4	2.8
Finland	27.8	2.6	13.6	0.5	3.8	15.1	26.4	19.8
France	8.6	1.6	16.1	1.2	0.8	1.1	19.7	9.2
Germany	1.9	1.8	4.0	1.2	6.2	2.7	5.3	9.7
Greece	146.3	0.3	48.4	1.96	65.3	2.4	93.9	7.3
Ireland	55.3	1.3	61.7	9.4	1.1	14.1	50.7	17.0
Italy	27.5	0.9	26.6	1.6	2.1	2.6	37.3	5.5
Japan	37.2	0.1	1.9	0.1	1.2	0.8	27.6	0.8
The Netherlands	8.4	0.4	4.6	2.1	0.4	14.0	10.96	5.2
New Zeeland	23.4	–	101.98	1.2	3.8	2.9	83.8	3.4
Norway	17.1	0.2	6.4	0.9	2.3	1.8	12.6	2.9
Portugal	133.7	–	74.6	2.3	6.1	2.5	95.7	3.0
Spain	20.9	–	22.7	7.9	3.5	8.6	28.9	27.6
Sweden	17.95	0.03	10.1	0.3	24.1	5.7	29.6	5.1
Switzerland	22.1	0.1	9.8	0.3	3.8	2.7	12.9	2.6
Great Britain	31.9	1.7	7.6	4.8	2.6	3.8	33.0	9.1
USA	11.1	1.2	5.3	2.5	0.9	1.2	10.8	2.1

Note: DI – dispersion of inflation; DU – dispersion of unemployment.

Author's calculations based on data in [12: 1].

Conclusions

The nature of the central banks' behaviour defined by the relationship between inflation and unemployment changed significantly under the globalization conditions, reflecting the increase in the neutrality of monetary policy. This becomes apparent as the absence of inverse dependence between these parameters in the developed countries over the last decade, marked with globalization processes development, was revealed empirically. Along with that, the nature of inflation-unemployment relationship is different in large and small economies. Large economies exhibit the dependence of stagflationary type, whereas for small economies this dependence is neither of the stagflationary type nor of the Philips curve type. Such differences are not only a reflection of the increase in

the neutrality of monetary policy (otherwise, the connection between inflation and unemployment would have been identical both for large and small economies). They are also the result of different degrees of openness in large and small economies, as well as different risks and possibilities of resisting destabilization caused by the reaction of global financial markets to negative inflationary changes. Therefore, the discretional reactions to the situation in the employment sphere are less typical of the central banks in small economies, while in the large ones such reactions result in stagflation. In the age of globalization, inflation and unemployment volatility experienced a decrease as well. This can be considered as a positive consequence of the ambivalent influence of weakening cyclical fluctuations upon the need for creating inflationary incentives to increase the GDP in circumstances when the effectiveness of these measures gradually decreases under the globalization conditions. In other words, there is not even a middle-term inverse dependence between inflation and unemployment. Moreover, further globalization development will only weaken such a potential dependence, since the gap between aggregate demand and supply at the national level will broaden as global factors will increasingly influence the production capacity load.

Bibliography

1. Геблер И. Макроэкономика / Пер. с нем. – К.: НМК ВО, 1993. – 399 с.
2. Історія економічної думки / Л. Корнійчук, Н.Титаренко. – К.: Фенікс, 1996. – 416 с.
3. Козюк В. Незалежність центральних банків. – Тернопіль: Карт-бланш, 2004. – 244 с.
4. Лагутін В., Кричевська Т. Вибір стратегії монетарної політики // Фінанси України. – 2002. – 10. – С. 3–15.
5. Миллер Р. Л., Ван-Хуз Д. Д. Современные деньги и банковское дело: Пер. с англ. – М.: ИНФРА-М, 2000. – 856 с.
6. Панчишин С. Макроекономіка. – К.: Либідь, 2001. – 616 с.
7. Савченко А., Пухтаєвич Г., Титьонко О. Макроекономіка. – К.: Либідь, 1999. – 288 с.
8. Юхименко П. Монетаристські ідеї «нових класиків» і Україна: проблеми сумісності // Історія народного господарства та економічної думки України. – 2002. – Вип. 33–34. – С. 3–13.
9. Backstrom U. Perspective on the inflation target // BIS Review. – 2002. – № 22 // www.bis.org.

10. Clinton K., Chourqui J-K. Monetary Policy in the Second Part of 1980s: How much Room for Maneuver? OECD Department of Economics and Statistics Working Papers. – 1987. – № 39. – P. 1–47.

11. Fischer St. Modern Approaches to Central Banking // NBER Working Paper. – 1995. – № 5064 – P. 1–68.

12. Ihrig J., Marquez J. An Empirical analysis of Inflation in OECD Countries // FRS International Finance Discussion Papers. – 2003. – №765. // www.federalreserve.gov.

13. Integration with the global economy // World Developments Indicators. – Washington. D. C. – 2003. – P. 332–334.

14. Lane P. Inflation in Open Economies // Journal of International Economics. – 1997. – № 42. – P. 327–347.

15. Lima P. de, Serres A. de, Kennedy M. Macroeconomic Policy and Economic Performance // OECD Economic Department Working Papers. – 2003. – № 353. – P. 1–68.

16. Romer D. Openness and Inflation: Theory and Evidence // Quarterly Journal of Economics. – 1993. – № 108. – P. 869–903.

17. The evolution of central banking / BIS 67th Annual Report. – Basel, 2000. – P. 125–145.

Appendix [4]

Figure 1.
Inflation and Unemployment in the OECD Countries in 1971–2002

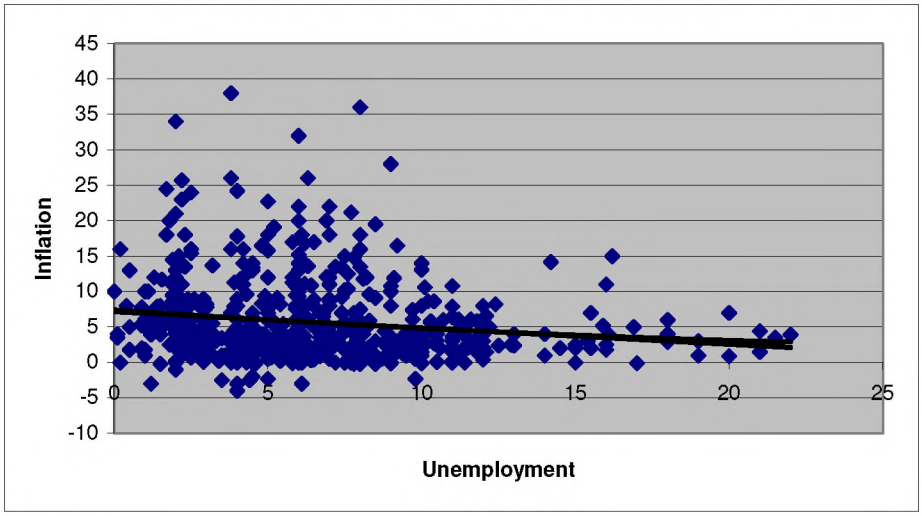
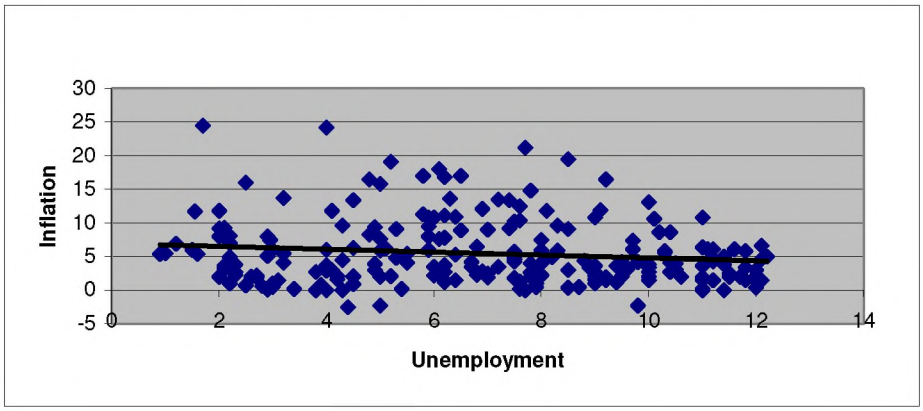


Figure 2.
Inflation and Unemployment in the G-7 Countries in 1971–2002



[4] Calculated on the basis of data in [12, Fig. 1].

Figure 3.
Inflation and Unemployment in the OECD Countries in 1991–2002

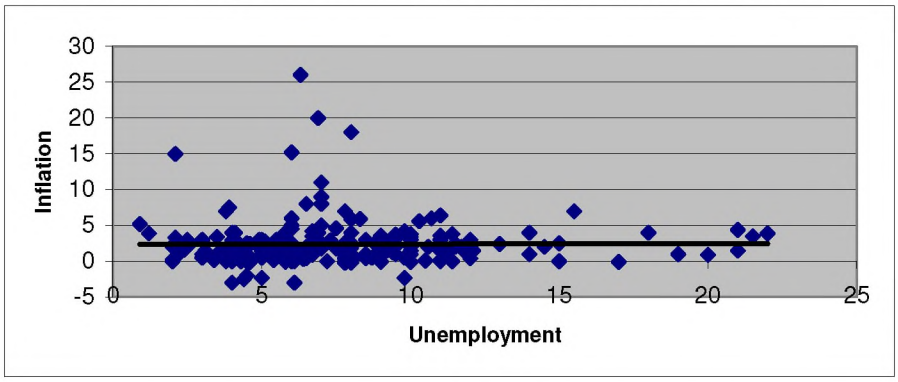


Figure 4.
Inflation and Unemployment in the G-7 Countries in 1991–2002

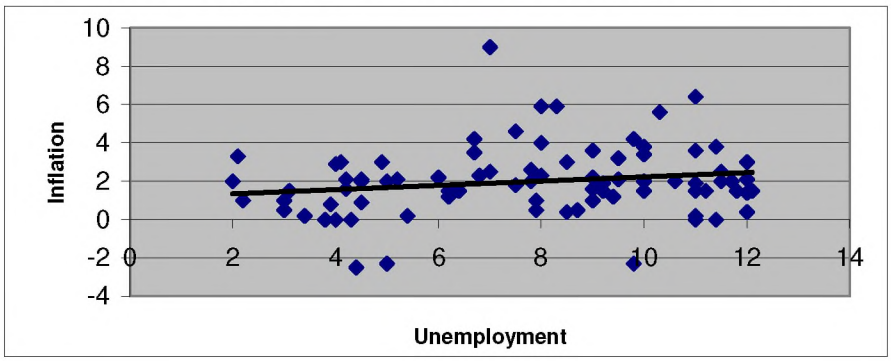


Figure 5.
Inflation and Unemployment in the Other OECD Countries in 1991–2002

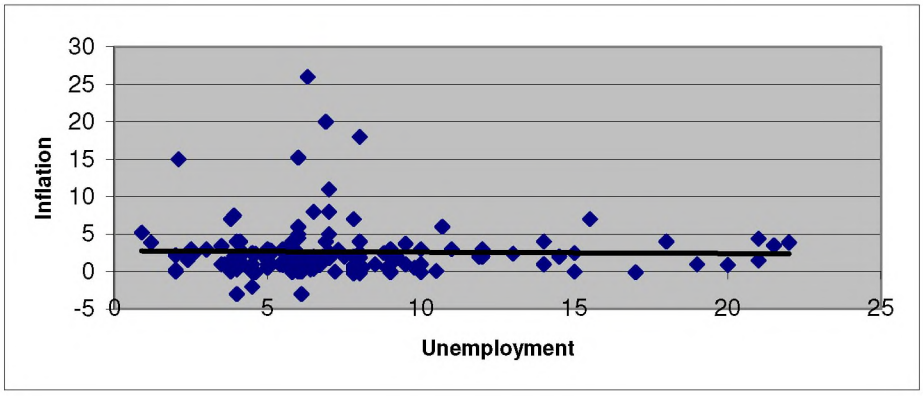


Figure 6.
Average Inflation and Average Unemployment in the OECD Countries in 1991–2002

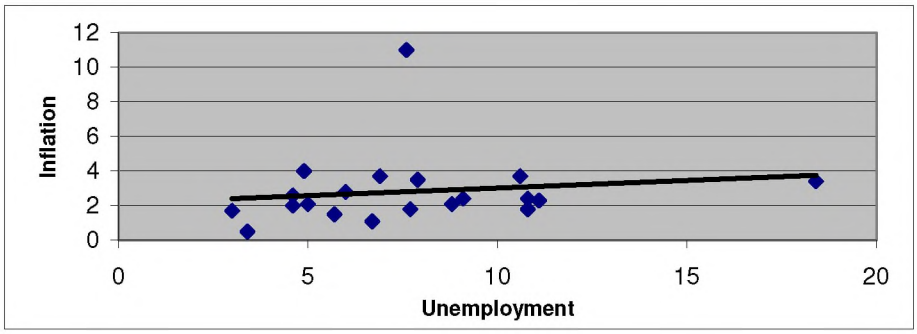


Figure 7.
Average Inflation and Average Unemployment in the G-7 Countries in 1991–2002

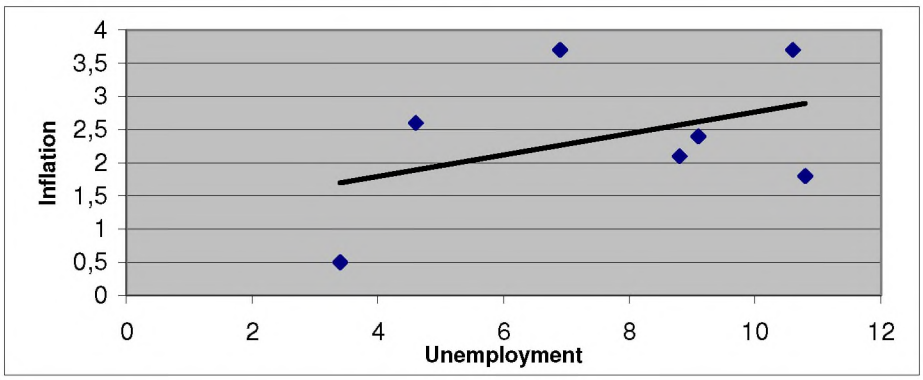
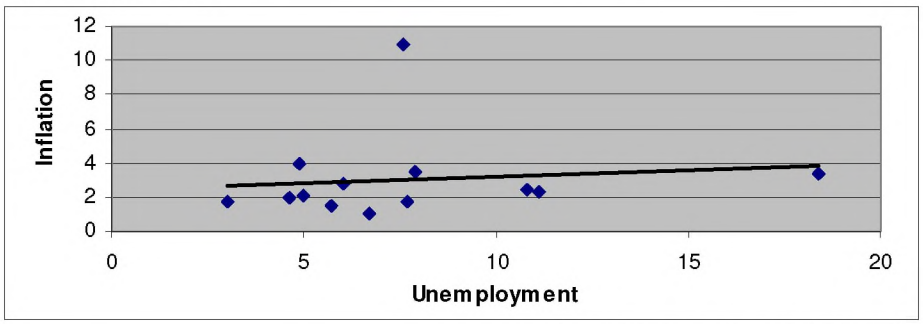


Figure 8.
Average Inflation and Average Unemployment in the Other OECD Countries in 1991–2002



The article was received on April 12, 2004.