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Productivity Growth, Wage Flexibility and Future EMU Membership in Selected EU New Member States

Background paper to the Euroframe Special Report "Convergence and integration of the new member states to the euro area"

Abstract

In this paper, we update results of Radziwill and Walewski (2005), to evaluate unemployment risk of EMU membership for EU new member states, using most recent available data. In line with earlier results, our analysis of past labour market adjustment indicates that nominal wages in the new member states are generally not flexible. Consequently, inflationary surprises and nominal exchange rate movements played some adjustment role, especially in the aftermath of the Russian crisis in 1998. This could suggest costs of joining the EMU. On the other hand at normal times, the discretionary monetary policy was more often a shock generator than shock absorber. Example of Lithuania also shows that change of monetary regime might result in more nominal wage flexibility. Finally, fast productivity growth in new member states creates the environment in which unit labour costs can adjust to negative shocks despite wage stickiness. In similar vein, experience of countries with most favourable unemployment dynamics suggest, that unit labour costs that fall across the cycle provide the best insurance against adverse economic shocks. Another interesting result is the large diversity of labour market adjustment mechanisms in this relatively homogeneous group of countries. This diversity is confirmed by the new evidence on decomposition of unit labour cost variation within countries provided in this version of the paper.

[1] This is a shortened, updated and revised version of the Chapter 6 of The Eastern Enlargement of the Eurozone by Marek Dabrowski and Jacek Rostowski (Eds.), Springer, 2006 (Dordrecht). It includes the most recent data as of January 2006, and a section on the weak/strong parity choice.

Introduction

The future membership in the European and Monetary Union (EMU) is obligatory for the EU New Member States (NMS)[2]. However, the policy discussion in the NMS has been recently somehow short-sighted in its exclusive focus on timetable of meeting Maastricht nominal and fiscal convergence criteria. We believe that more attention should be paid to factors that will decide whether membership in the monetary union proves successful in medium term with implications for the design of structural policies. In this paper, we remind that it is the structure of labour market that is of particular importance for minimizing potential costs of EMU membership. Flexibility in wages and freedom of international migrations is essential for adjustment to asymmetrical shocks, when exchange rate are irrevocably fixed, monetary policy driven by union-wide consideration and the scope for fiscal policy response is limited. We attempt to evaluate risks of increased size and volatility of unemployment in the NMS after the accession to the EMU by studying past labour market adjustment mechanisms and in particular the role played by the exchange rate movements and inflationary surprises. We conclude that risks due to EMU might be lower than commonly believed, yet that the governments have the significant role to play by actively promoting reform of labour market institutions. The remainder of this paper is constructed in following way: section 1 discusses the importance of labour market flexibility within the monetary union, section 2 presents empirical evidence on patterns of adjustments in selected NMS and section 3 concludes.

1. Theory of OCA and beyond

According to Mundell (1961) and his theory of Optimal Currency Area (OCA) flexibility of nominal wages is the perfect substitute for nominal exchange rate flexibility[3]. If in a response to rising unemployment local currency wages and consequently prices of domestic products fall, the competitiveness of the economy is improved. Therefore, the speed at which nominal wages fall determines unemployment costs of asymmetric shocks in the monetary union. Implications of OCA theory for empirical work seem to be straightforward. Countries with more flexible nominal wages are better prepared to enter the union. Countries with nominal wage rigidity should seriously consider whether benefits from the EMU participation outweigh possible costs due to labour market maladjustments. Unfortunately, the conclusion of Jackman and Savouri (1998) is that “it seems unreasonable to think that degree of wage flexibility that characterizes European labour markets

[2] This paper is updating and extending analysis presented in Radziwill and Walewski (2005).

[3] High labour mobility is another substitute for flexible exchange rates. Indeed Mundell defines OCA as the area where factors of production are mobile within but immobile outside. We do not study patterns of migration in this paper, however previous research suggests that “it is unlikely that greater mobility of labour, either within or between Member States, can ever become a major instrument of adjustment within the EU” (Patterson and Amati, 1998). Conclusions pointing in the same directions for NMS can be found in Kupiszewski’s (2002) and Firdmuc (2002).

can substitute for exchange rate flexibility". Accordingly, in view of observed rigidities, many researchers questioned net benefits and even viability of the monetary union in Europe (Feldstein, 1997). However, we believe that research strategy that would focus exclusively on econometric evaluation of wage rigidities will be unsatisfactory due to number of issues that we mention below.

Role of productivity growth

The first and simplest consideration against exclusive focus on nominal wage elasticity in the study on cost of EMU membership is that it ignores the role of productivity growth. Costs of monetary union are related to decreased competitiveness due to nominal downward wage stickiness in the absence of exchange rate depreciation (more important for more open economies) or rigidity of real wages due to low and stable inflation (more important for more closed economies) . But what matters for hiring and firing decisions are domestic and international unit labour costs (DULC and IULC) that depend also on the level of productivity. They are defined respectively as:

$$DULC = \frac{W}{P} \Big/ \frac{Q}{L}$$

$$IULC = \frac{W}{E \cdot P^*} \Big/ \frac{Q}{L} = R \cdot DULC$$

where: W is nominal wage level, Q is real output, L is employment, E is nominal exchange rate, R is real exchange rate, P and P* are domestic and foreign price levels, respectively.

When productivity grows fast (what is expected to happen as part of real convergence process) both measures of labour costs fall despite rigid wages. Accordingly, in response to the negative shock, rising productivity may by itself (without the need for reduction of wages) lead to relatively quick reduction of labour costs, what allows for restoring employment. A rarely formulated implication emerges: faster NMS are likely to be ceteris paribus more successful members of the EMU, not because of faster nominal adjustment but thanks to more favourable adjustment environment due to high productivity growth.

Doubts about benefits of flexible exchange rates and national monetary policy

Another problem of research strategy into costs of monetary union that is based on estimation of nominal wage rigidity relates to the implicit assumption about the positive adjustment role of exchange rate flexibility and independent monetary policy. First it is assumed that nominal exchange rates movements and independent monetary policy actions take place so that to help to equilibrate labour markets. And here many authors express serious doubts. Viñals (1996) has observed that "… recent experience suggests that the usefulness of the nominal exchange rate as a tool for macroeconomic adjustment within the European Union is very questionable in a world of free capital movements, where foreign exchange markets are often subject to self-fulfilling

speculative crises which take the exchange rate away for prolonged periods from where fundamentals suggest it should be." If financial shocks are important the observation by Ochel (1997) is particularly important: " Asymmetrical financial shocks can be better dealt with in a monetary union than in a system with adjustable exchange rates and are thus not an additional source of unemployment". Even more importantly, Bayoumi and Eichengreen (1994) underline the role of policy induced shocks: “Policy makers may systematically misuse policy rather than employ it to facilitate adjustment, (...) if domestic policy itself is the source of the disturbances, monetary unification with a group of countries less susceptible to such pressures may imply a welfare improvement". Invalidity of assumption about usefulness of flexible exchange rates and independent monetary policy might easily reverse implications of the theory for the role of labour market flexibility: if exchange rate movements and independent monetary policy are sources of shocks rather than useful adjustment mechanisms, the country with the least flexible wages, has the largest interest in joining the area of stable inflation[4]. Therefore, potential costs of abandoning flexible exchange rates and independent monetary policy for labour markets cannot be assessed without analysis of their effectiveness.

Secondly, in order to believe that depreciation of the currency or expansionary monetary policy can indeed reduce unit labour costs when unemployment is above its equilibrium rate and nominal wages are rigid, it is necessary to assume, respectively, that: i) nominal depreciation might lead to improved competitiveness or reduction in real EURO wages W/EP*, ii) wages are not rigid in real terms so that inflation can reduce real wages W/P. While the positive role of inflationary policy requires at least temporary money illusion, effective depreciation requires money illusion or low correlation between exchange rate movements and domestic price level, i.e. flexible real exchange rate P/EP*. It follows that high wage rigidity does not need to the argument against participation in the monetary union. If real wages W/P are rigid in the sense that nominal wage dynamics follow closely inflation, monetary regime is mostly irrelevant for labour market outcomes. The same is true for smaller countries for which there is high pass-through from exchange rates to prices (rigid P/EP*). "For small economies in which imports are so important a component of the cost of living that a reduction in real wages through nominal depreciation is rapidly feed through into domestic prices” (Obstfeld, 1985). Indeed since McKinnon (1963) one of main criteria for the choice between fixed and flexible exchange rates was the *degree of openness* in an economy, characterized by relative importance of traded to non-traded goods.

There is some evidence suggesting that nominal depreciation can be useful in improving competitiveness. First, real wage and price levels seem to fluctuate more among countries with independent currencies than in regions within currency area (De Grauwe and Vanhavebeke 1993, von Hagen and Neumann 1994)[5]. There is also number of recent episodes when devaluation

[4] This point was brought to our attention by Jacek Rostowski.

[5] There are however different factors that might contribute to this result: notably currency areas corresponded historically to countries, which through institutional set up and redistributive policies tended to compress regional wage and price differentials.

provided competitiveness boost and helped to reduce unemployment. The most often cited example is the UK withdrawal from the EMS in 1992: according to most authors devaluation and monetary expansion contributed to subsequent decade of economic recovery without visible inflationary consequences (Jackman and Savouri, 1998). Another well known episode proves that devaluations can be "a great success" even in relatively small economy: devaluation in Belgium in 1982 had strong and lasting positive impact on current account deficit and employment (De Grauwe, 2000). We are curious whether we can actually deduct similar recent episodes in NMS – their presence is crucial for the assessment of need for increasing flexibility in labour markets after their accession to the EMU.

Lucas Critique and prospect for labour market reform

The last and most fundamental problem with the exclusive focus on the measurement of nominal wage flexibility is Lucas Critique: estimates derived under one policy regime have very limited value of in predicting developments under different policy regime. When monetary policy is independent and exchange rate fluctuates, improvement in competitiveness or reduction in real wages does not necessary require nominal flexibility. Observed nominal rigidity is likely to be high, what may tempt a conclusion about undesirability of monetary union. However, change in the regime might bring in itself the change in the flexibility of the labour markets. In particular, workers that were able to accept real wage cuts in high inflation environment, might potentially accept nominal wage cuts in fully credible stable price environment. In related argument, Calmfors (1998) believe that given the constraint on active use of exchange rate and monetary policies, incentives for labour market reform would increase once the EMU is in place. If this widely held hypothesis is true, any measure of current nominal rigidity is of limited relevance for the evaluation of likely costs of EMU participation.

2. Empirical investigation

Our investigation is based on quarterly data compiled by the International Monetary Fund in its International Financial Statistics (IFS[6]) database for six countries that joined EU in 2004: Czech Republic, Hungary, Latvia, Lithuania, Poland, Slovenia and Slovakia. Unfortunately not adequate data was available for Estonia. Dataset actually used was further updated and completed with statistics from Eurostat and from national statistical offices and in general covers the period between 1996 and 2005.

From the discussion above it is clear that econometric estimation of historical wage rigidity is unlikely to give robust insights about potential costs of membership in the EMU unless the role of exchange rate, price and productivity movements are analysed at the same time. In our view, the only sensible research strategy is to understand mechanisms of adjustments in labour markets in the NMS in recent years in their complexity and then carefully discuss potential impact of EMU

[6] IMF IFS October 2005. The data for countries under this investigation is presented graphically in the Annex.

accession on these mechanisms. In line with discussion above, we define overall labour market elasticity as the response of two described measures of unit labour costs to changes in the unemployment. Adjustments might take place through nominal wages and prices that determine real wage dynamics (W/P), through improvements in productivity, as well as through deprecation of real exchange rate (P/EP*)[7]. We focus on changes rather than levels of labour market aggregates as it is very difficult to identify structural and cyclical elements of unemployment in the NMS and our preliminary econometric investigation suggested that unit labour costs reacted to changes rather than levels of unemployment[8]. We are especially interested in adjustment patterns at times of rising unemployment.

Obviously, it is impossible to completely eliminate the Lucas Critique problem: based on current situation we cannot judge well how structural aspects of labour market change after the EMU accession. Our strategy is however, at least in this respect, superior to mechanistic econometric investigation of wage flexibility, as we explicitly consider alternative adjustment channels. As an additional benefit, we can compare adjustment mechanisms in the NMS that that still conduct independent monetary policy and those with currency board or quasi-currency board regimes.

Before reporting on our results one more caveat has to be done. We do not analyse possible migration flows as the possible channel of adjustment of the NMS labour markets. There are however many problems with analysing patterns of international migration flows especially in such a special period as the moment of EU accession. Many expected that opening of “old members” labour markets for workers from new and poorer members of the EU will result in dramatic flow of workers from east to the west, flooding the Western European labour markets and inducing sharp unemployment growths there and falling employment in sending countries. After one year of opening of some countries labour markets it seems that nothing like that has really happened. For example according to British Home Office[9] (UK is the biggest country which opened their labour market for NMS workers) official estimations the total number of workers from new member states between May 2004 and March 2005 reached 176.000, many may have only stayed in the UK for short periods and most probably only part of them were newcomers and some simply officially registered the illegal jobs they had commenced earlier. On the other hand however it seems to be too early to be really able to assess the full effects of labour market opening for migrations, the experience of the first year however suggests that the overall effect might me much less sizeable than expected.

[7] We study the variation in EURO exchange rates instead effective exchange rates. The reason is that it is exactly the size and adjustment role of previous variations against the common currency that is crucial for the potential cost of joining the monetary union.

[8] These and other auxiliary econometric results are available upon request.

[9] http://press.homeoffice.gov.uk/press-releases/Eu_Workers_Continue_To_Make_A_Va?version=1

2.1 Country episodes

In our study we concentrate on period since 1996. In this period GDP growth rates were generally positive with the exception of the Czech Republic in years 1997 and Lithuania in 1999. However there was one important event that lead to uniform GDP slowdown in almost all analysed countries except Czech Republic: Russian crisis in 1998. The importance of this event is also clear from the inspection of unemployment dynamics. Average unemployment rates increased from around 8% in1998 to 12% afterwards. Also until 1998 unemployment rates in most countries seemed to converge but following Russian crisis, they started to diverge. The spread between the highest and lowest unemployment rates in our sample was around 7 percentage points in 1997 and around 12 since 2000 till 2005. In our study of labour market adjustment we will therefore naturally focus on this crisis as well as others episodes of economic meltdown specific to countries in this sample. Crisis situations provide natural experiments of reaction to adverse shocks that can be readily analysed. More importantly they relate directly to the problem at hand, as it is a fear about adverse asymmetric shock that undermines the desire to participate in the monetary union. Before conducting cross-country econometric investigation, we study in more detail different adjustment mechanisms in each country.

Czech Republic

Czech Republic experienced a long period of GDP slump in years 1996-1999 with GDP growth bottoming in mid 1997. This slump resulted in rapid unemployment rate increase from around 4 percent in the mid of 1996 to the maximum of about 10 percent in the beginning of 2000. When economic growth returned, unemployment remained at this higher level. During the initial period of unemployment growth between the second half of 1996 and mid of 1997 real wages continued to grow and did not help to ease the problem. Only for a short period in years 1997-98, sharp decline of real wages resulted in deep reduction of ULC (Unit Labour Costs) possibly preventing larger increases in unemployment. ULC than decreased sharply once again in the beginning of 2000 accompanying the reduction in unemployment growth rate. The increase of ULC in 2002 preceded the next period of rising unemployment that seem to have ended in 2004. Real wages did not seem to adjust to changes in unemployment, with dynamics exceeding the productivity changes for most of period.. Weak adjustment in real wage dynamics in Czech Republic, after the initial deep slump in 1997 seems to be strictly related to nominal wage rigidity in this country. After nominal wage growth adjustment in years 1996-1997, wages kept rising at relatively stable rate and they did not react to the pronounced unemployment increase that took place in 1999 and than in 2002-2003. We can also see that the real wage decrease during the crisis was more the effect of the inflation surprise than nominal wage adjustment. Without the inflation surprise Czech workers would not experience the fall in real wages even during the hardest period of crisis and falling productivity. On the other hand the deep inflation slowdown in year 2002-2003 has not been

accompanied by decrease of nominal wage dynamics, leading to ULC and than unemployment growth.

These observations imply that nominal wages in Czech Republic are relatively sticky. As real wages grew on average faster than productivity, and weakly responded to unemployment changes. The relative rigidity of ULC and their upward trend predict long term problems of labour market in Czech Republic, whether or not this country joins the EMU.

Hungary

Unemployment rate in Hungary was falling continuously from 10.5% in 1996 to 5.6% in 2001 than it stabilised and started to increase since mid-2003 reaching more than 7% in the end of 2004. Given such favourable trend in the first period, downward adjustments in unit labour costs were not necessary and ULC remained stable through most of the period till 2001. The increase of ULC in years 2001-2002 preceded the unemployment increase. Moderate real wage growth between 1998 and 2001, was not due to inflationary surprises but on contrary, adjustment in nominal wage dynamics was necessary due to disinflation process. Therefore, in this period classical dichotomy seemed to hold well. However, rapid ULC increase in 2002 was the result of the absence of the wage growth adjustment to fast disinflation. As a result ULC have markedly increased what probably contributed to the deterioration of unemployment situation. Nominal wage growth acceleration at the time of falling inflation was partly due to the statutory increase in minimum wages. It might suggest that it was one-time effect; especially that afterwards in years 2003-2004 nominal wage dynamics finally adjusted to falling inflation. More importantly in the context of this research, increase of ULC in 2002 illustrates also perils of volatile inflation: after two years of fluctuating at 10%, inflation fell rapidly below 5% in 2002 and this change was not reflected in nominal wage setting.

Hungary seems to have rather inflexible nominal wages. Their lagged reaction to inflation slowdown in 2001-2002 resulted in rapid ULC increases and in consequence reversed the positive unemployment trend from previous years

Latvia

Latvia is one of the two countries in this sample operating without monetary and exchange rate policy freedom. Specifically, Latvia has formally fixed exchange rate to SDR and its monetary base is permanently covered by net foreign assets at more than 100%, what leaves very limited scope for independent monetary policy. Euro exchange rate changes could not play the adjustment role suggested by the OCA theory as they were caused exclusively by changes in cross rates of world major currencies. Nevertheless, during the analysed period unemployment rate in Latvia seems to be much more stable then in other analysed countries with exception of Hungary. During the GDP slump in 1995-1996 unemployment level did not change at all, presumably partly as a result of the deep real wage adjustment that took place during that time. Unemployment started do decline before the Russian crisis in 1998 in environment of very high economic growth and this decline has

been accompanied by sharp increase of real wages. Unfortunately the Russian crisis of 1998 resulted in the sharp GDP slow down and unemployment also picked to more then 13 percent in the beginning of 1999. Since than ULC have been constantly falling till the beginning of 2003. The negative ULC dynamics since 1998 are both the effect of moderate real wage growth in years 1998-2001 and very high productivity dynamics during the entire analysed period.

Although nominal wage dynamics fell twice in Latvia leading to real wage adjustment it does not seem to be the main factor determining the relatively good and stable labour market situation in this country. These are rather general wage growth moderation combined with favourite productivity dynamics producing continuous ULC fall that facilitates declines in unemployment rates. This characteristic of the Latvian labour market, if preserved in the future, would continue to be the big advantage in case of adverse asymmetric shock after the EURO area accession of this country.

Lithuania

Lithuania is the country with the currency board regime, which implies that it cannot conduct independent monetary policies: nominal exchange rate cannot restore competitiveness and inflationary surprise may not reduce domestic unit labour costs in case of raising unemployment. Due to Lithuania's tight trade links with Russia and other CIS countries, financial crisis in Russia in 1998 sent the economy into a deep recession. Unemployment that was at the relatively low level (6-8%) increased markedly in 1998 until reaching its peak of 13% at end of 2000 and started to fall gradually ever since. Domestic unit labour costs response was not immediate but impressively strong. During last quarters before the crisis, real wages were growing much faster than productivity and real wages continued to grow moderately in 1999. However, rapid increase in unemployment finally forced very strong adjustment in 2000. As a result real wages plunged and given very low level of inflation, adjustment took place though reductions in nominal wages. Actually Lithuania is the only country in which nominal wage cut, absolute fall not only adjustment in dynamics, took place. Since that time real wages grow more slowly then productivity leading to constant ULC reduction.

The example of Lithuania shows that deep adjustment in real wages in possible under the monetary union if nominal wages are flexible enough. It is however difficult to judge, whether this flexibility is a inherent feature of the Lithuanian labour market or the necessity of dealing with crisis situation in the currency board arrangement forced flexibility on the economy. One-year lag, the actual adjustment came with is the argument for the latter being true.

Poland

Before 1998 Poland experienced high economic growth with unemployment initially stabilised and then falling. During that time the long run real wage growth followed the rise in productivity

keeping the average ULC of the Polish economy unchanged. It seems that wage moderation facilitated the fall in unemployment rate in this period. Since the year 1998 unemployment started to rise very rapidly and kept rising till 2002, than it stabilised and started to decrease in 2004. In response, ULC deeply decreased initially and kept falling thereafter as impressive improvements in productivity took place and were not reflected in higher real wage dynamics. This possibly facilitated the gradual improvement on the labour market observed since 2003. On the other hand, decrease in real wages in the second half of 2000 was mainly result of inflation surprise what is not good news from the point of view of Poland's EURO zone accession. However, the impact of high productivity growth rates on unit labour cost prevails and allows expecting rather low costs of EMU membership.

Slovakia

Unemployment rate in Slovakia was falling in 1995, bottomed out at around 11-12% between 1996 and 1998 and boosted rapidly to 19% at the end 1999. Small-scale fluctuations with overall downward trend have been observed thereafter. In Slovakia, unemployment dynamics were particularly well reflected in the unit labour costs. ULC were falling precisely at times of increasing unemployment. From our reading of evidence, the role played by the independent monetary policy in lowering ULC in response to negative shock was higher than in any other country in our sample. When in 1999 the fallout of Russian crisis coincided with initiation of rapid structural reforms to produce marked slowdown in GDP growth rates and rapid increase in unemployment, real wages were the main adjustment mechanism. But real wage cuts that took place in 1999 had much to do with the increased inflation while nominal wage growth remained stable throughout analysed period. This nominal wage inflexibility played also the role in 2002 when disinflation process led to the increase in both real wages and ULC. In 2003 on the other hand the reduction of the real wage was the result of both inflation increase and reduction of nominal wage dynamics.

Slovakia is therefore a country in which inflationary impulse was effective in pushing down real wages in reaction to rapidly increasing unemployment rate. On the other hand nominal wages were weakly responsive to disinflation. Finally improvements in productivity were not an important channel of adjustment to negative shocks, although productivity has been growing stably for the entire period analysed . These results suggest that participation in the monetary union might prove costly. However, it is also possible that nominal rigidity is due precisely to experience of active monetary policy and would be removed when the country joins the EMU, and the last experience of nominal reaction to productivity slowdown in 2003 would confirm such hypothesis.

Slovenia

Unfortunately the data from Slovenia start only in 1999. Since that time the GDP growth has been fluctuating between 3% and 5% over the stable trend. The unemployment rate has been constantly falling. ULC growth and unemployment dynamics do not seem to be related to each

other. In 2000 real wages increased rapidly as the result of lack of reaction of nominal wage dynamics to falling reversal of inflation trend, since then real wages rise more stably as the result of simultaneous fall in nominal wages and inflation. In general it seems that although both nominal and real wages are rather sticky, they follow in the long run the trend of productivity growth resulting in favourable labour market outcome. This rising productivity and moderate wage growth can decide about smooth adoption of common currency. On the other hand however this kind of adjustment mechanism may not appear favourable in case of any rapid turbulences.

2.2 Regression results

In the section above we showed in detail adjustment mechanisms in each country under investigation. Adjustment mechanism proved to be remarkably heterogeneous across countries. This observation is confirmed by results of the regression explaining annual changes in the ULC presented in Table 1. Slovakia, Lithuania and Poland have unit labour market costs that are the most responsive to unemployment changes; however we know that adjustments took place through very different channels. Flexibility in Slovakia depended predominantly on inflation surprise, while in Poland mainly on productivity growth accelerations. Lithuania adjusted through nominal wages. On contrary, labour markets in Czech Republic, Hungary and Latvia seem to be inflexible. Why the last country exhibited such positive unemployment dynamics? In our interpretation, the favourable outcomes were due to negative average labour cost growth across the cycle. Consistent real wage growth moderation below productivity dynamics proves to be a very good insurance against adverse shocks. Lithuania and Latvia generated, on average, decreasing domestic unit labour costs although in Lithuania this favourable phenomenon appears to have been triggered by very deep cuts in real (and nominal) wages after the Russian crisis.. It is worth noting, that Czech Republic exhibits not only rigid but also generally increasing unit labour costs, although some reaction of real wages to unemployment is recorded. It is somehow surprising, that Poland seems to have favourable outcomes that combines ULC flexibility with negative average ULC growth. If these observations are taken seriously, high unemployment levels in Poland are due to factors more fundamental (e.g. qualification and regional mis-matches) than lack of labour cost flexibility.

Table 1. Explaining dynamics of domestic unit labour costs

Variable	ULC growth rate at stable unemployment	Elasticity of DULC to unemployment growth*	Elasticity of real wage to unemployment growth	Elasticity of productivity dynamics to unemployment growth
Czech Republic	0.012581	-0.005827	-0.043574*	-0.006006
Hungary	0.018145	0.104463*	0.192771*	0.014787
Latvia	-0.031179	-0.009612	0.122642**	-0.035752
Lithuania	-0.047378	-0.153230*	-0.120031**	-0.012611

Poland	-0.016652	-0.093104**	-0.039403	0.063733**
Slovakia	-0.015967	-0.237359**	-0.227517**	0.029866
Slovenia	-0.009854	-0.210795	-0.053383	0.259981**

* coefficient significant at 10% significant level, ** at 5% level

Fixed effect panel estimation, quarterly 1996:1 2005:4

Source: Own calculations based on IMF-IFS data.

Table 2 indicates for very important role of real wage growth variance in total ULC growth variance in Slovakia, Lithuania, Hungary and Czech Republic. In Slovak case it results in reasonably good level of ULC responsiveness to unemployment dynamics as shown in Table1. The same applies to Lithuania. In Hungary on the other hand, the perverse reaction of real wages on unemployment and its important role in total ULC growth variance decides abut the perverse ULC reactions to unemployment. In Czech Republic real wages weakly react to changes in unemployment dynamics, resulting in insignificant reaction of ULC to unemployment changes. Productivity on the other hand plays important role in total ULC variance in Latvia and Poland. It seems to additionally reinforce the results from Table 1. In Latvia the general upward trend in productivity decides about the favourable labour market outcome. In Poland quick productivity responsiveness to unemployment changes decides about the significance of negative ULC reaction to rising unemployment.

Table 2 Explaining variations of ULC growth rates

Country	Decomposition of variance in ULC growth rates	
	Productivity	Real Wage
Czech Rep.	28%	72%
Hungary	24%	76%
Latvia	43%	57%
Lithuania	28%	72%
Poland	63%	37%
Slovakia	9%	91%
Slovenia	85%	15%

Fixed effect panel estimation, quarterly 1996:1 2005:4

Source: Own calculations based on IMF-IFS data.

We investigate further the role or real exchange rate movements for the labour market adjustments. From the Table 3, it is clear that while changes in the nominal exchange rate are strongly contemporaneously correlated with real exchange rates in most countries, after only three quarters all the effect diminishes and indeed is reversed. Therefore while it is possible to suspect

that EURO exchange rate movements provide some short-term relief, they are unlikely to play any major role in medium term adjustments.

Table 3. Correlation between nominal and real exchange rate depreciation

	Immediate	After 1 quarter	After 3 quarters
Czech Republic	0.81	0.47	-0.29
Slovakia	0.86	0.54	-0.28
Hungary	0.88	0.73	0.36
Poland	0.57	0.33	-0.08
Latvia	0.45	0.24	-0.13
Lithuania	0.19	-0.04	-0.42

Source: Own calculations based on IMF-IFS data.
* quarterly data since 1994 (1995 for Baltic States)

3. Conclusions

Summing up, our analysis indicates that with the exception of Lithuania nominal wages are not flexible in the NMS, what usually is regarded as the strong evidence against the participation in the EMU. The degree of wage rigidity varies significantly among analysed countries. It seems, however, that fast productivity growth create the environment in which unit labour can adjust despite nominal stickiness and through moderation of real wage dynamics. This structural feature would remain crucial after accession to the EMU. For example productivity in all analyzed NMS grew in 2002 at the rate between 2.7% and 4.7% annually. This implies that even at the stable inflation rate of 2% and full downward nominal wage stickiness, domestic unit labour costs can fall at between 4.7-6.7% annually. And we note that in last years, with the notable exception of adjustment following the Russian crisis, no country with independent monetary policy recorded such reductions in ULC. Moreover deeper adjustments following the Russian crisis were achieved mainly by additional improvements in productivity that was not reflected in real wages.

Inflationary surprises proved to play important role in adjustments to major adverse shocks triggering real wage adjustments that were not fully reversed afterwards. On the other hand, however, our analysis indicates that at normal times the discretionary monetary policy was more often a shock generator than shock absorber. It is also quite possible that change of monetary regime would result in more nominal wage flexibility as suggested by example of Lithuania. Nominal exchange rate movements played some role in the adjustment after the Russian crisis. In all other times, in spite of their short term impact on real exchange rates they did not seem to be correlated with labour market situation. It is therefore our impression, that theory of OCA theory does not shed much light about possible unemployment consequences of EMU membership, in particular as shocks of such depth and degree of asymmetry against current EMU members as

Russian crisis are rather unlikely to repeat, even though large fluctuation in EURO/USD exchange rates may imply severe adjustment problems for some NMS.

Finally, experience of countries with most favourable unemployment dynamics suggest, that unit labour costs falling across the cycle provide the best insurance against adverse economic shocks. There is no unanimous evidence that real wage growth lower on average than productivity growth would be more difficult to generate inside rather than outside monetary union[10]. Moreover, if bargaining is increasingly taking place at the European level, it is generally favourable for countries with better than average productivity dynamics, such as NMS, as low real wage dynamics might be imported from slow growing mature economies. This optimistic conclusion is obviously reversed if levels rather than dynamics of wages in existing EMU members start to influence wage bargainers in NMS.

In our analysis of actual adjustment patterns in selected NMS, we remain focused on our main research question: potential impact of EMU accession on labour market performance. Another interesting result of this research is however the large diversity in labour market adjustment mechanisms, even in this relatively homogeneous group of countries.

[10] Discussion of the impact of EMU participation on wage bargaining patterns is only mentioned due to the strict focus on labour market elasticity. The topic might be investigated in more details in subsequent papers.

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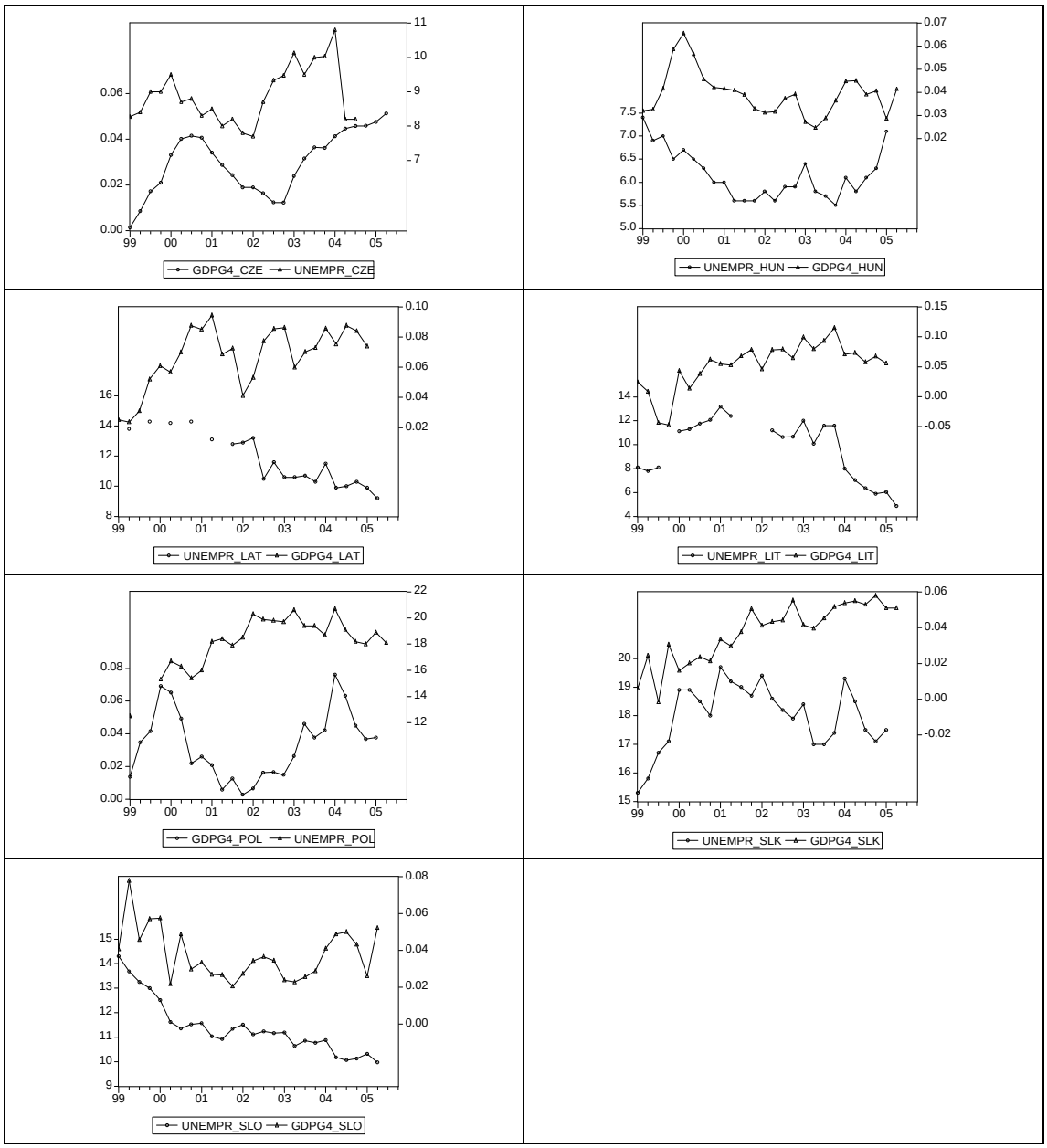
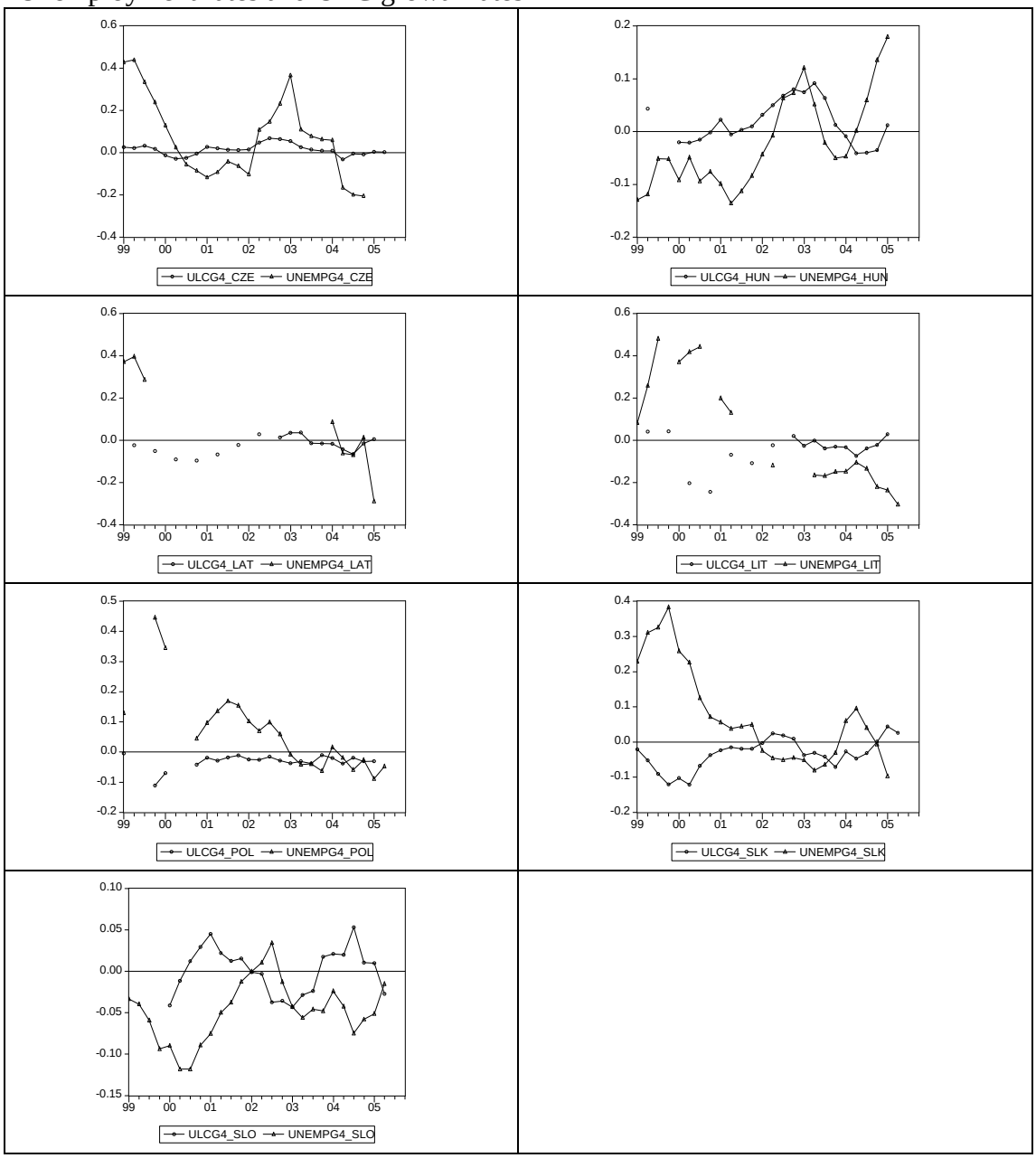
Annex. Selected economic developments related to labour market adjustments

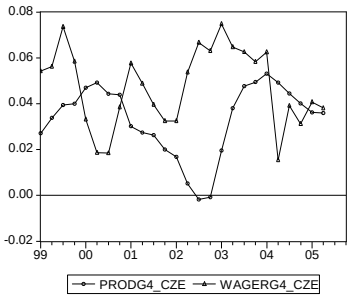
GDP growth rates and unemployment rates

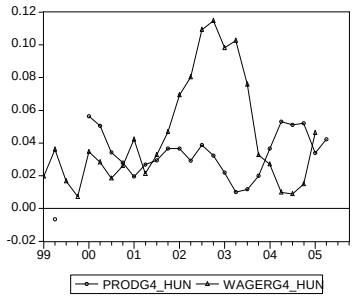


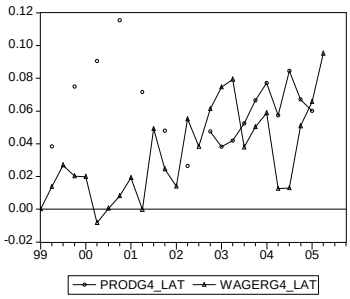
Unemployment rates and ULC growth rates

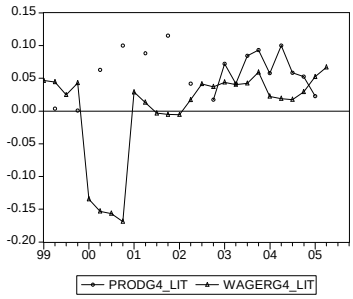


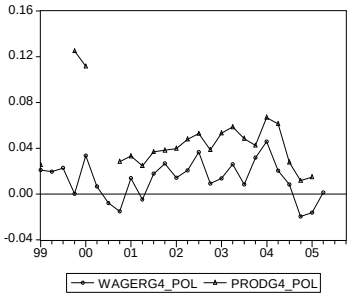
Productivity and real wage growth rates

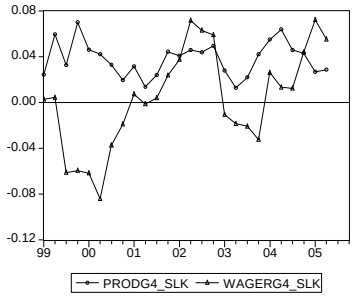


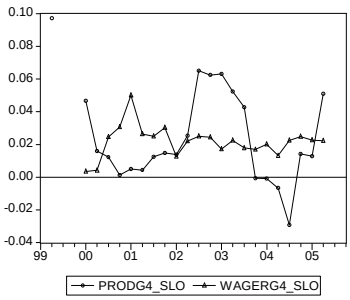












Inflation and nominal wage growth rates