Downward wage rigidities in Slovakia*

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The aim of this study is to assess the extent of wage rigidities in Slovakia. The concept of wage flexibility is important for the monetary policy especially when thinking about the impacts of Slovak euro adoption. We first reproduce Holden and Wulfsberg (2007) approach with data on industrial level drawn from recent decade and we include both old and new EU Member States countries. In case of Slovakia, however it is difficult to interpret results obtained from sectoral data, since too few negative observations are present in the sample. We therefore turn to micro-approach and apply slightly modified methodology on the company level data. The estimated extent of nominal rigidity is relatively small. Conclusion that hourly compensations are rather flexible supports the decision of euro adoption in 2009.

1. Introduction

Wage flexibility is an important concept for monetary policy. It enters into central banks´ thinking about optimum currency areas as well as into its thinking about optimum level of inflation and consequent setting of inflation target.

Knowing the extent of wage flexibility is therefore important in any monetary environment; while having own monetary policy or being a part of larger monetary union. In case domestic monetary policy is present, monetary authorities attempt to set inflation targets with respect to the extent of wage rigidity. If nominal wages are rigid downwards, there may be desirable to accept some inflation to buffer for wage growth especially when its nominal average is close to zero.[1] In case being a part of larger monetary union, other flexible economic policies should be set to compensate for the extent of wage rigidities. Slovakia will adopt common Euro currency on 1. January 2009. Thus knowing the degree of wage flexibility is in concern of the National bank of Slovakia.

Following extensive literature, we may distinguish two main measures of wage flexibility. The first is the sensitivity of wages to regional unemployment (so called "wage curve") and the other is aversion to wage cuts (so called "downward nominal/real wage rigidity"; further as DNWR/DRWR). In this paper we will search for an answer to the second of the two measures on Slovak micro and macro wage data.

Wage setting is in its nature a behavioral process occurring at the level of single economic agents (employees and employers).[2] Wage rigidity in the mind of single economic agent is based on loss aversion, which translates in perceived fairness of wage, which in consequence affects worker's effort (Fehr and Goette, 2000). Therefore, recent studies on wage rigidities prefer using personalized micro data of job-stayers. Since such personalized micro data are not available for Slovakia, our strategy is to start from distribution based aggregate approach and go further into the structure of wage changes in single economic units (enterprises), identify imperfections in measuring transitive economy data with these methods and produce the most plausible estimates. Since flexible component in wage (bonuses) is relatively important, the definition of wages as compensations better capture the concept of wage cost of a company

In contrast to personalized micro data, using micro data on the level of enterprises does not allow us to search, where do the rigidities come from. Instead, we will treat rigidities as exogenous, and rather provide for a prudent answer on what is their extent.

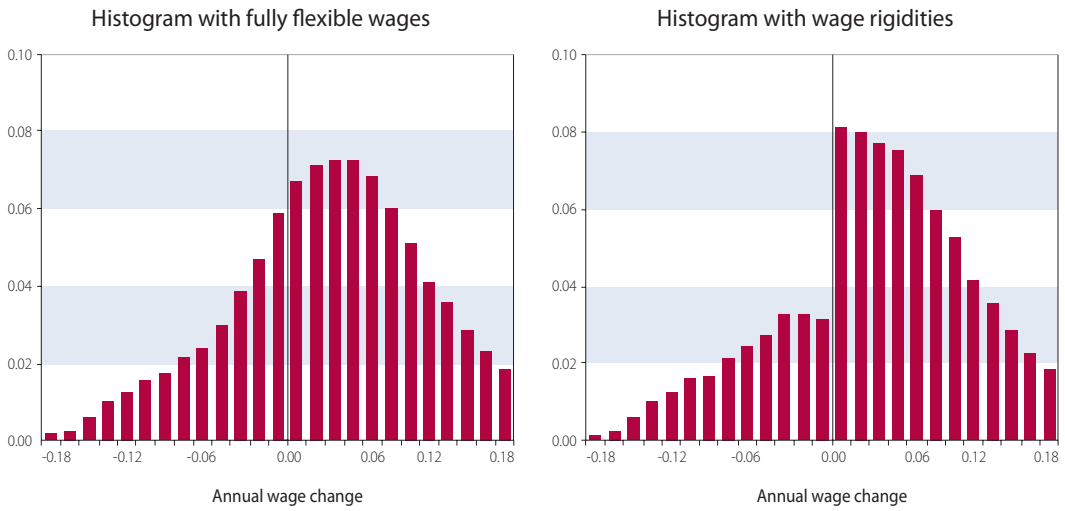
2. Downward wage rigidities – concept and literature overview

At the roots of the wage rigidities concept, literature mostly cites Tobin (1972) for his famous claim that "inflation greases the wheels of labour market". He claimed that higher inflation provides for a cushion, in which employer may manipulate wages avoiding nominal wage cuts. A counterforce called "sand effect", i.e. distortionary effects of higher inflation on price and wage fluctuations and formation of precise expectations, is then referred to Friedman (1977). A discussion on optimal level of inflation, where both these separated effects cancel out (Groshen and Schweitzer, 1997) used to be regarded as central to monetary policy, because optimum level of inflation provided effective alleviation of wage pressure and thus involving a permanent reduction in unemployment.[3]

Downward real wage rigidities are usually more relevant in periods with higher inflation, when

1 See Groshen and Schweitzer (1999) who closer elaborate on „grease" and „sand" effect of inflation.
2 These conclusions are confirmed e.g. by findings of Fares and Lemieux (2000) and of Card and Hyslop (1997).
3 Discussing optimum level of inflation, findings of Elsby (2006) needs to be considered, too. He argues and shows evidence on US and UK micro data that in case of the presence of DNWR, employers besides avoiding wage cuts tend to compress also large wage increases in case inflation is high to buffer for future. He therefore concludes that accounting for such weakening of the „grease" effect, optimum level of inflation is to be somewhat lower than previously expected.

Figure 1 General shape of distribution without/with wage rigidities



Source: Authors.

nominal growth illusion is being distorted.[4] On the other hand, institutional settings of labor market, especially those indexed by inflation are likely to make real wages more rigid.[5]

Within this paper, we understand DNWR as a certain number of wage freezes or moderate wage increases that would realize as wage cuts if wages were fully flexible (Figure 1). The rationale is that any wage cut causes loss of employee motivation, therefore some moderate wage cuts are too costly for an employer to realize. In such case, it is cheaper for employer to freeze wage or to slightly raise it.

The most common approach used to identify and measure downward wage rigidities in literature in recent decade is the histogram location approach. The problem to be coped with is to compare actual wage change distribution with a notional distribution, which reflects the no-rigidity hypothesis. It is therefore central to define, how notional distribution shall be constructed.

A rich list of literature has been devoted recently to the issue of downward wage rigidities. Histogram location approach is the most common concept to measure them. Approaches vary depending on assumptions taken for the hypothesis of no rigidity situation. Among the first approaches are the ones of Lebow et al. (1995) – focusing on tail analysis of distributions assuming symmetry and Kahn (1997) – analyzing the shape of distributions, assuming constant inflation in time.

Holden and Wulfsberg (2007) realize restrictiveness of assumptions taken in their predecessors studies and propose constructing hypothetical distribution from actual ones, which they identify as no-rigidity state. The challenge of their work is the construction of individual notional distributions from hypothetical distribution adjusting for specific median and variance. This way, the former restrictive assumptions are avoided.

Certainly the most complex and extensive yet is the paper of Dickens et al. (2006) who begins from the symmetry assumption, adjusting for different asymmetries coming from both country data and cross-country observations in wage distributions.

Many other methods, approaches were proposed and further empirical evidence provided building mainly upon the methodology developed in contributions referred to above.

To our knowledge, this is the first effort to provide estimates of downward wage rigidity for Slovak wage data. Our aim is to fill the gap and answer the question of wage flexibility with histogram location approach.

Only three studies so far used Slovak data to estimate any form of wage rigidity. Blanchflower and Oswald (2000) study uses one year (1995) micro data and finds an elasticity of wages -0,049.[6] Huitfeldt (2001) searches on regional data for effects of unemployment and labor market policies on real wages in Czech Republic and Slovakia in 1992-1998 and finds significantly less wage rigidity in Slovakia than previous study (elasticity under -0,1) as well as compared to Czech republic. Babecký (2008) studies labour market adjustments and also confirms the elasticity below -0.1 with Phillips curve estimates on 1995-1999 aggregate data. He also adds that the relationship cannot be found in the data for Slovakia after 2000 as well as for most of CEE countries. These three studies have looked for some kind of wage flexibility measure through the wage curve and Phillips curve in the past.

3. Measuring downward wage rigidities on aggregate data

3.1 Data and methodological issues

We use cross-country wage data in sectors of old EU member states extended by 8 new EU member states. The aim of this is to bring in the cross-country factor into the analysis, which allows for comparison of rigidities in wage formation internationally. To do this, we use an unbalanced panel of wage growth data in manufacturing from ILO database. Overall, we have collected 3,925 annual

4 Nickell and Quintini (2001) use U.K. NES (New Earnings Survey) data to provide for evidence that spikes at zero nominal wage change are more marked when inflation is low. Besides, they show evidence that since nominal rigidities are focused on zero nominal wage changes, it induces the more distortion in real wage changes the higher is inflation rate (the closer to average nominal wage growth).

5 Bauer, Bonin and Sunde (2004) conclude that most of the wage rigidity in Germany with central wage bargaining can be attributed to real wage rigidity, which seems to increase with inflation and centralized bargaining outcomes.

6 The estimate for Slovakia forms a part of wage curve estimation for central and eastern European countries in the period of 1990-1997. Elasticity equal to -0,1 means that an employee may expect his real wage to decrease by 1% in average if unemployment rate in the region of his workplace grows by 10%, ceteris paribus.

7 FWCP reflects the proportion of companies, which do not cut the total compensations to companies which would cut the compensations in the absence of rigidity.
8 The reason to do so originates in two sources of possible distortion. The first is coming from construction of non-rigidity hypothesis and the second from two few wage cut observations, which also arises partly due to higher median wage changes in new EU member states. Methodological issues are deeper discussed in the working paper no. 7/2008.
9 Too low empirical incidence rate makes FWCP value to be too sensitive to random disturbances in order to draw reliable conclusions (see more in the underlying working paper no. 7/2008).
10 We do not consider Norway, where there is no empirical wage cut observed, therefore FWCP is always equal to one no matter all other parameters. Testing however proves the high value of Norwegian FWCP being insignificant.
11 They includes some extra OECD countries and uses data from longer period further in history (1973-1999).

wage change observations from 20 countries (EU-25 excluding Malta, Cyprus, Luxemburg, Portugal, Greece and Italy; including Norway), forming 189 country-years in up to 11 year-on-year changes (starting 1996/1995 ending 2006/2005).

In short, the original Holden and Wulfsberg (2007) algorithm goes as follows. All wage change observations in industry ***j***, country ***i*** and year ***t*** produce a full set ***S***. Then country-years observations with top country-year median wage changes are selected and produce a subset S^{sub}. Observations within S^{sub} are normalized according to specific country-year variances and medians to a vector with overall median of S^{not} equal ***0***. This is our normalized hypothetical distribution which we suppose reflects full flexibility (no rigidity hypothesis). The shape of this normalized distribution is then laid over all country-year datasets calculating a notional incidence rate for each country-year dataset. This may be interpreted as an incidence rate of wage cuts in case no rigidity hypothesis is valid in the specific country-year set of observations. Empirical incidence rate is normally lower then notional incidence rate, because some wage cuts do not realize. This fraction of unobserved wage cuts (FWCP)[7] represents the extent of rigidity, i.e. share of missing empirical wage cuts with respect to calculated number of notional wage cuts. Thus, we will understand downward wage rigidity as a share of not realized wage cuts to all wage cuts that should occur in fully flexible environment.

Statistical significance of estimated FWCP is than derived by simulating the probability of wage cut. This is done by drawing sufficient number of times (in our case 5000 simulations) from binomial distribution of respective number of industries and the probability equal to respective notional incidence rate. We count the number of drawings, where simulated number of negative observations is higher than that of empirical and test it against the null hypothesis of no-rigidity, i.e. empirical incidence rate is equal to notional incidence rate. Such procedure helps us to test the statistical significance of nominal or real rigidity. By conducting the simulation we are able to answer the question whether the simulated extend of the rigidity is significant or not.

In order to derive a non-rigidity hypothesis we need to identify those empirical distributions, where we assume the lowest pressure on zero wage growth. This is solved by picking those empirical distributions, which have the highest nominal and real median wage changes within the sample.

3.2 Results and interpretation

Due to distinct statistical parameters of new and old EU member states wage change data, we calculate the results separately.[8]

Reported results for new EU member states are less telling than for the old EU member states as they are mostly insignificant as a whole as well as by country (Table 1). Negative or low FWCP values and low significance in most of the new EU-8 members do not suggest much interpretable results in wage flexibility. We observe either p-value to be too high, or empirical incidence rate of wage cuts (***q_emp***) being too low (case of Slovenia and Slovakia).[9]

Calculating the same for EU-15 sample yields the following:

From the above we may confirm some downward nominal wage rigidity (29%) in the full sample. Based on 5000 simulations, we observe nominal wages being significantly rigid downwards especially in Austria, France, the Netherlands and Belgium, where over 40% of wage cuts are being prevented.[10] For all the other countries no-rigidity hypothesis has not been rejected, even though U.K. and Finland also being under 10% significance level. The least downward nominal wage rigidities seemed to be present in Denmark, Germany and Spain. Overall results as well as some country results are broadly in line with other studies), whose downward nominal wag rigidity estimate of the full sample reaches 26%.[11]

For new EU-8 member states primary FWCP value suggests downward nominal wage rigidity in average of 7.6%. We are however unable to

Table 1 Downward wage rigidity – EU 10

Countries	No. of years	All Obs	q_emp	q_not	q_sim	fwcp_sim	p-val
Hungary	11	253	0.0237	0.0164	0.0165	-0.4412	0.8772
Estonia	10	172	0.0407	0.0357	0.0351	-0.1586	0.7432
Latvia	11	232	0.1336	0.1667	0.1660	0.1949	0.0792
Lithuania	10	208	0.1394	0.1486	0.1495	0.0674	0.3836
Poland	11	253	0.0435	0.0449	0.0453	0.0401	0.5204
Slovakia	11	236	0.0085	0.0442	0.0423	0.7995	0.0022
Slovenia	11	243	0.0123	0.0072	0.0072	-0.7233	0.9022
Czech Republic	10	220	0.0182	0.0167	0.0165	-0.1014	0.7032
New memeber states	**85**	**1,817**	**0.0512**	**0.0554**	**0.0515**	**0.0061**	**0.5090**

Source: Authors' calculation.
Note: AllObs – number of all observations, q_emp – empirical incidence rate, q_not – notional incidence rate, q_sim – simulated notional incidence rate, fwcp_sim – simulated fraction of wage cuts prevented, p-val – probability of significance.

Table 2 Downward wage rigididty – old EU-15

Countries	No. of years	All Obs	q_emp	q_not	q_sim	fwcp_sim	p-val
Austria	7	161	0.0186	0.0763	0.0766	0.7567	0.0006
Belgium	5	114	0.1316	0.2200	0.2213	0.4053	0.0104
Denmark	10	230	0.1043	0.1294	0.1294	0.1937	0.1400
France	9	207	0.0193	0.0434	0.0434	0.5547	0.0548
Ireland	10	120	0.0167	0.0222	0.0219	0.2386	0.5140
Finland	10	228	0.1228	0.1550	0.1556	0.2110	0.0964
Netherlands	10	190	0.0421	0.0750	0.0749	0.4375	0.0448
Norway	9	102	0.0000	0.0017	0.0017	1.0000	0.8378
Spain	7	161	0.1056	0.0960	0.0963	-0.0970	0.7102
U.K.	9	207	0.0918	0.1281	0.1276	0.2805	0.0682
Sweden	8	159	0.0377	0.0570	0.0578	0.3474	0.1772
Germany	10	229	0.0699	0.0841	0.0833	0.1609	0.2614
Old member states	**104**	**2,108**	**0.0674**	**0.0863**	**0.0944**	**0.2863**	**0.0000**

Source: Authors' calculation.

draw any clear conclusion for EU-8 wage flexibility from simulation procedure (neither for wage flexibility in Slovakia alone). Because of this and because we know that we lose much of within-sector wage information, we turn our attention to micro data. As individual chained wage data are not available for Slovakia (neither in most of the converging countries), we will use the micro data on the company level. Results of aggregate data will serve as a reference and a useful starting point to compare all the next results with.

4. Measuring wage rigidity on the company level

4.1. Data

Departing from the findings above, we put the emphasis on the analysis of the company level micro data. Since we cannot track individual wages over time in Slovak data we find business surveys conducted annually by the Statistical Office of the SR as the most appropriate data sources for this type of analysis in Slovak environment. Particularly, three surveys[12] were merged in order to obtain as representative sample as possible. We use total compensations in a company. Although small businesses (up to 19 employees) are not fully represented in the database, (this is one of the drawbacks of our data source) medium (from 20 to 99 employees) and large companies (with more than 100 employees) are surveyed exhaustively. The database used covers about half of the employees in the production sector of the economy. The dataset covers the period from 2000 to 2007. The following table compares data for the economy as a whole and the sample used.

We consider both full time and part time employees. The central variable we use is the change of average hourly compensations (in both nominal and real terms) in the company.[13] Further, we filter the database to eliminate an impact of assumed error inputs, which originate mainly from incorrectly filled in questionnaire[14].

An interesting difference between industry and company level data can be seen from Figure 2, which shows the distribution of the annual changes in total compensations. Although Slovak industry level data (used in the previous part) displays hardly any wage cuts during the whole sample, almost 30% of observed companies cut their hourly compensations.[15] Considerable different results compared to sectoral analysis are most likely a mixed effect of above mentioned aggregation issue, flexibility of employers in handling the number of hours worked.

Another interesting issue is that despite strong average wage growth of 6% to 10% during the years 2000 and 2007, almost 30% of analyzed

12 E.g.: Annual questionnaire on business statistics (ROC 1-01), Annual questionnaire in banking and non-banking financial institutions (PEN P 5-01), Annual questionnaire in insurance (POI P 5-01).

13 $\Delta wage_{t/t-1} = wage_t / wage_{t-1} - 1$. For wages we use the definition of compensations, i.e. wages including bonuses and premiums since partial components of wages are not available from this survey.

14 Annual change of more than 50% to the level of compensations is considered as incorrect input in any of the two years and such observation is therefore eliminated. Observations with missing values were eliminated, too.

15 Blinder and Choi (1990) discovered that the money wage cuts were more common in the US than they had imagined even they analyzed a time period characterized by low unemployment.

Table 3 The comparison of the data sample and the Slovak economy

	2007	2006	2005	2004	2003	2002	2001
Data set							
Number of enterprises	5,498	5,494	5,039	4,932	5,138	4,904	4,812
Respective number of employees	834,749	849,470	732,986	749,790	790,487	735,650	774,872
Slovak economy (production sector)							
Number of employees	1,766,541	1,712,702	1,668,034	1,621,704	1,616,513	1,608,622	1,607,552

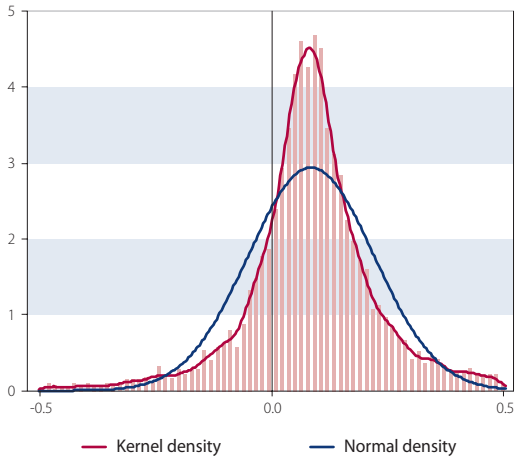
Source: Statistical Office of the SR, (SO SR), authors' calculation.

16 Since the obtained results could be affected by adjustments in the company structure (such as by substituting expensive employees by cheaper ones), Brzoza-Brzezina and Socha (2007) suggest to treat the results as the lower bound of the true DNWR at enterprise level.

17 It is important to stress that the results may be partly influenced by the business cycle. During the period studied, Slovakia recorded strong economic growth (employment growth can be found in Table 5).

enterprises cut their hourly compensations in each year. This paradox may be explained by at least the following three reasons. Firstly, changes in the composition of workforce may have changed the average compensation even if the wage rates stayed on the same level. Secondly, changes in the number of hours worked may have modified the average hourly compensation even if hourly wage remained the same. And finally, cutting bonuses in aiming to decrease total costs of the company could also lower total compensations. It has been shown by Babecky et al. (2008), that changes in bonuses, non-pay benefits and slowing down promotions belongs to potential margins used by companies to reduce labor costs. They also present survey results on the particular case of the Czech Republic that 31% of companies prefer to reduce bonuses, 9% prefer cheaper hires, 9% choose early retirements and 50% of the companies use other labor cost reduction strategy.

Figure 2 Distribution of hourly changes in total compensation. Kernel vs. normal density functions (2007/2006)



Source: Authors' calculation.

4.2 Results for Slovakia

In order to apply the original approach proposed by Holden and Wulfsberg (2007) to company level data, we slightly modify their method of choosing the hypothetical (underlying) distribution. According to our data, there is no doubt for choosing the year 2002 (both medians of nominal and real wage changes is the highest among the years observed). Nevertheless, there is still possibility, that wage rigidity was present also in 2002 data. If this is the case, the presented figures stand for the lower bound of the actual extent of rigidity.

An empirical investigation shows interesting results. Table 4 presents the outcomes of analysis of nominal rigidity in total hourly compensations. In the early years of the sample we did not find a presence of rigidity. Notional incidence rate (***q_not***) significantly exceeds empirical incidence rate only after 2005. Consequently, the fraction of wage cuts prevented rises from about 5% in 2005 to almost 10% in 2007. The estimated FWCP are statistically significant. Thus we can conclude that at least 5% out of those companies, which would cut compensations in the absence of rigidity, are affected by downward nominal wage rigidity (in 2005).[16] Another important finding is that the degree of rigidity tends to slightly increase in recent years. For the sake of simplicity we calculated shares of the companies affected by nominal rigidity and they are reported in column labeled as nominal wage rigidity (nwr). Nwr ranges from 1.5% to 2.2%, which means that at least 1.5% of companies were affected by wage rigidity in 2005.[17]

An interesting question arises about the impact of detected rigidity in total compensation on the labor market, particularly on wage growth (and consequently on inflation). The estimated impact of downward nominal wage rigidity on wage growth is relatively low and can be considered negligible. For instance, in 2006 (FWCP equals to 9.4%) downward nominal wage rigidity caused additional costs to employers in amount of Sk 296 million (EUR 9.8 mil.). If we translate this to annual wage dynamics, this amounts to 0.14 percentage points of the wage growth if compared to fully flexible environment.

Table 4 Nominal wage rigidity – Slovakia

Years	AllObs	q_emp	q_not	q_sim	fwcp_sim	nwr	p-val
2007/2006	5,498	0.194	0.214	0.214	**0.096**	0.021	0.000**
2006/2005	5,494	0.207	0.229	0.229	**0.094**	0.022	0.000**
2005/2004	5,039	0.248	0.263	0.263	**0.058**	0.015	0.006**
2004/2003	4,932	0.288	0.299	0.299	**0.036**	0.011	0.051
2003/2002	5,138	0.268	0.268	0.268	**0.000**	0.000	0.504
2002/2001	4,904	0.185					
2001/2000	4,812	0.257	0.266	0.266	**0.033**	0.009	0.085

Source: Authors' calculation.
***Note: DNWR are statistically significant at 1% level of significance.*
Note: AllObs – number of all observations, q_emp – empirical incidence rate, q_not – notional incidence rate, q_sim – simulated notional incidence rate, fwcp_sim – simulated fraction of wage cuts prevented, nwr – share of companies affected by nominal rigidity, p-val – p value.

Table 5 Nominal wage rigidity according to size of the company

Years	Small (<40 empl.)			Large (>90 empl.)		
	fwcp_sim	nwr	p-val	fwcp_sim	nwr	p-val
2007/2006	0.037	0.009	0.181	0.152	0.025	0.003**
2006/2005	0.038	0.010	0.167	0.150	0.029	0.001**
2005/2004	0.004	0.001	0.467	0.129	0.030	0.003**
2004/2003	0.007	0.002	0.434	0.077	0.021	0.031*
2003/2002	-0.055	NA	0.944	0.014	0.003	0.391
2002/2001						
2001/2000	-0.021	NA	0.730	0.115	0.022	0.011*

Source: Authors' calculation.
*** (*) Note: DRWR are statistically significant at 1% (5%) level of significance.*
Note: fwcp_sim – simulated fraction of wage cuts prevented, nwr – share of companies affected by nominal rigidity, p-val – p value.

Table 6 Nominal wage rigidity according in manufacturing and services

Years	Manufacturing			Services		
	fwcp_sim	nwr	p-val	fwcp_sim	nwr	p-val
2007/2006	0.092	0.018	0.023*	0.072	0.020	0.027*
2006/2005	0.171	0.035	0.000**	0.009	0.002	0.419
2005/2004	0.073	0.017	0.041*	0.021	0.007	0.284
2004/2003	0.042	0.012	0.135	-0.002	NA	0.527
2003/2002	0.015	0.003	0.374	-0.040	NA	0.8718
2002/2001						
2001/2000	-0.013	NA	0.630	0.023	0.007	0.289

Source: Authors' calculation.
*** (*) Note: DRWR are statistically significant at 1% (5%) level of significance.*
Note: fwcp_sim – simulated fraction of wage cuts prevented, nwr – share of companies affected by nominal rigidity, p-val – p value.

4.3 Into the attributes

The overall wage rigidity may not correspond to those in different segments of corporate sector. Next, we therefore measure the degree of rigidity in different subgroups classified by company size and sector of economic activity (according to primary NACE classification). Firstly, we split the sample into two subsamples according to the average annual number of employees in the company. Secondly we aim at rigidities in manufacturing and services.

We distinguish between small and large companies. Small companies are those, which have up to 40 employees. On the other hand, large companies have at least 90 employees. Thresholds 40 and 90 employees were set in order to split the sample into three subsamples with similar number of observations. Table 5 reports the results. Since we did not find statistically significant presence of rigidity we can conclude that small employers can better adjust wage costs according to their needs. On the other hand, we found significant nominal wage rigidities in larger companies in most of the years of the period studied (from 2004 up to 2007).

Further, we divided the sample according to economic activity. Here we report the results only for manufacturing and service (Table 6). It turns out that service companies can better adjust wage costs according to their needs, whereas manufacturing seems to be more rigid in wage formation.

5. Conclusions

Having reproduced a histogram location approach on the industrial level on extended sample and recent data, we may conclude as follows:

Nominal wages are rigid downward especially in Austria, France, Belgium and the Netherlands with wage cuts prevented in excess of 40%. On the other hand the least rigid downward are nominal wages in Scandinavia, especially in Sweden and Denmark with wage cuts prevented below 20% of industries. These findings are generally in line with other results from cross-country studies. Further it suggests that decreasing trend of downward nominal wage rigidities in time identified in Holden and Wulfsberg (2007) experienced its bottom point in the 1990s´ while since trending upwards again.

Nominal wages in new EU member states are perhaps more flexible than in old EU member states, however this cannot be confirmed by simulation. This is either because low significance of results or because of too few negative observations present in the sample (case of Slovakia and Slovenia). Countries, which did not experience wage cuts in any of the industries for several years do consequently realise a low empirical incidence rate. As incidence rate of empirical wage

cuts decreases towards zero, fraction of wage cuts prevented is much more sensitive to random disturbances and grows exponentially. Difficulties in interpretation of results urged us to carry on in assessing wage rigidities in Slovakia on company micro data.

We have identified and measured nominal wage rigidity on company micro data only in the second part of the observed period (2005-2007). Although the methodology allows us to estimate lower bound of wage rigidity, we can conclude that the extent of rigidity is small in the Slovak Republic. The computed share of companies affected by nominal wage rigidity ranges from 1.5% in 2005 to 2.2% in 2006 As a result, companies paid almost Sk 300 million (estimated number) more due to nominal wage rigidities in 2007. In macroeconomic sense this makes additional 0.14 percentage point of wage growth, which is a negligible effect.

The estimated extent of nominal rigidity following the methodology used is relatively small. Conclusion that total compensations are rather flexible supports the decision of euro adoption in 2009.

Detailed analysis shows that small companies can better adjust wage costs according to their needs. On the other hand, we found significant nominal wage rigidities in larger companies in most of the years in the period studied. We can also conclude that service companies can better adjust wage costs according to their needs whereas manufacturing seems to be more rigid in wage format.

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