

# Gábor Kézdi and István Kónya: Wage setting in Hungary: evidence from a firm survey\*

*We document results from a survey of wage setting in Hungarian enterprises. The survey was developed and coordinated by the Eurosystem Wage Dynamics Network, and it was administered in 17 European countries; this allows us to put the Hungarian findings in context. The main conclusion from the survey is that while Hungarian firms operate in a quite flexible institutional environment, their wage setting practices are relatively rigid. In its wage setting outcomes, Hungary shares more similarities with Western European countries than with countries in the Central and Eastern European region. The survey provides strong evidence that the observed wage setting behaviour can be explained by internal factors related to employee motivation, perceived fairness, and firms' desire to maintain a desired wage distribution.*

## INTRODUCTION

This paper describes stylised facts about wage flexibility in Hungary, based on a survey of wage setting among Hungarian firms. The survey is part of the Eurosystem Wage Dynamics Network (WDN): it is a harmonised questionnaire administered in 17 countries<sup>1</sup> in Europe. Here we focus mainly on the Hungarian results, and only on a single issue, the flexibility of wages. We do, however, use the European findings to place Hungarian wage setting in a broader context.

The survey was implemented in a decentralised way in which each National Central Bank was responsible for carrying out the survey within its own country. The Hungarian data were collected through personal interviews. The person interviewed was preferably the Chief Executive Officer (CEO) or the Human Resource Manager of the firm. The reference year in the questionnaire was 2006, unless otherwise specified. The sample was restricted to firms having more than five employees. It included seven sectors: manufacturing; electricity, gas, water; construction; trade; business services; financial intermediation; non-business services. The Hungarian sample was representative of employment, so the sampling probability was proportional to firm size. International comparison of the results is made possible by appropriate weights provided by the WDN. Due to poor international comparability, the energy sector and non-market services are excluded from this analysis.

The questions asked can be divided into the following broad categories: (i) descriptive questions about the firm and its employees, (ii) wage setting and wage changes, (iii) wage rigidity and shocks, (iv) price setting and wages. Here we

only focus on (ii) and (iii), which relate directly to wage flexibility. For a general overview of the European results, see Babeczky et al. (2009a), Babeczky et al. (2009b), Bertola et al. (2009), and Druant et al. (2009). Kézdi and Kónya (2009) provides a comprehensive overview of the Hungarian survey.

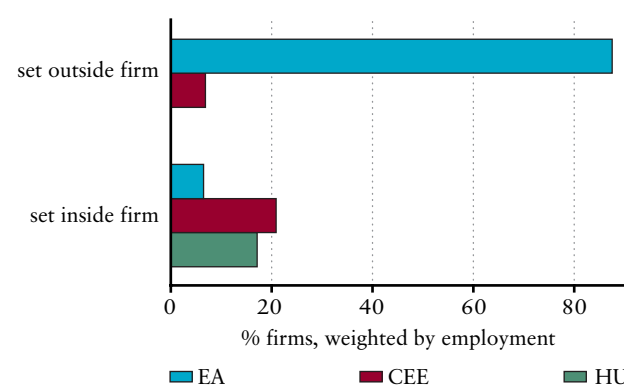
## RESULTS

### Institutions

Many countries in Europe apply collective agreement in the wage bargaining process. This can take place at the country, sector, or firm level.

As Chart 1 shows, collective wage agreements are common in the euro area countries, but they are rare in the new member states. The difference is large: the Hungarian coverage is below 20%, while in the euro area countries it is above 80%.

**Chart 1**  
Collective wage agreements



\* The views expressed in this article are those of the author(s) and do not necessarily reflect the official view of the Magyar Nemzeti Bank.

<sup>1</sup> Austria, Belgium, the Czech Republic, Estonia, France, Germany, Greece, Hungary, Italy, Ireland, Lithuania, Luxembourg, the Netherlands, Poland, Portugal, Slovenia and Spain.

Equally striking is the fact that while in the old member states collective agreements occur mostly at the country or sector level, in the Central and Eastern European (CEE) region<sup>2</sup> only firm-level agreements are present. We thus conclude that in Hungary the wage setting process takes place mostly at the individual level, similarly to other countries in the region but in stark contrast to the euro area nations.

### The structure of wages

Performance related components of the overall wage bill are usually more flexible than the wage bill. The WDN data show that in Hungary they are moderately important, comprising about 10% of the overall wage bill. Interestingly, in this respect, Hungary is more similar to the euro area with an average of 9% than to the CEE countries, where such wage components are more common, with a share of more than 16% of the wage bill.

**Chart 2**  
Wage indexation

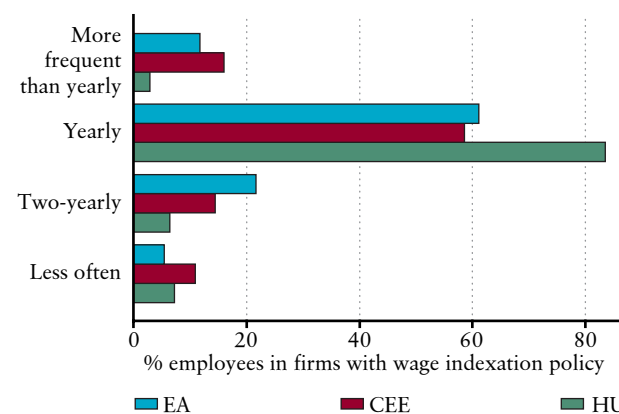


Inflation indexation is another important determinant of wage flexibility. Chart 2 shows that a significant minority of Hungarian employees work in firms with some kind of indexation. Out of these cases, the majority use implicit adjustment to inflation. Inflation indexation is less prevalent in Hungary than in other CEE countries, which may be surprising given the country's history of fairly high and volatile inflation. One explanation could be that by 2006 inflation was low enough to allow firms to move away from (implicit) indexation. The lack of centralised wage setting also implies that there are no external indexation requirements on firms. Finally, the results should be taken as a lower limit. It is possible that while firms do not have an explicit (formal or informal) policy of indexation, they nevertheless take inflation into account when adjusting wages.

### The timing of wage changes

An obvious indicator of wage flexibility is the timing and frequency of wage changes. The survey question refers to base wages, since other components are typically more flexible. Chart 3 presents results concerning the frequency of wage changes.

**Chart 3**  
Frequency of wage changes



In most of the countries the majority of wages stay fixed for one year, and the same is true in Hungary, where 80% of firms adjust their wages once a year. This proportion is even higher than in the euro area or the CEE region. In general, new member states do not appear to have more frequent base wage adjustments, even though they have more decentralised wage setting institutions.

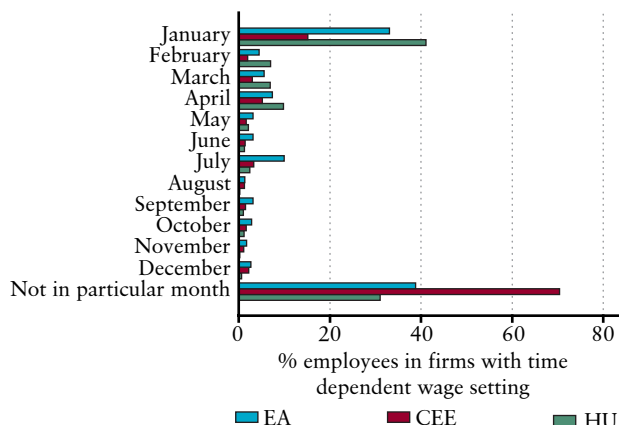
Since base wages are generally stable for an extended period, it is important to know if wage changes simply happen in predefined time periods (i.e. they are time-dependent), or respond to changes in the environment only periodically (i.e. they are state-dependent). Chart 4 shows that in Hungary, time-dependent wage setting predominates. Fully 40% of employees work in firms where wages are reset in January, and the wages of another 30% are reset in the same month of the year (other than January). These months are the ones following January, so they still correspond closely to the end of the calendar year. Anecdotal evidence suggests that even among these firms wage changes are backdated to January, but the survey does not directly ask about this kind of behaviour.

There is large heterogeneity in Europe in this respect. While new member states have much lower rates of time-dependence, euro area countries have significantly higher rates of time-dependent wage setting (although still not as

<sup>2</sup> The Czech Republic, Estonia, Poland, Lithuania and Hungary.

**Chart 4**

**Time dependence of wage setting**



high as in Hungary). January seems to be a focal point for wage setting, but much less so in the CEE region.

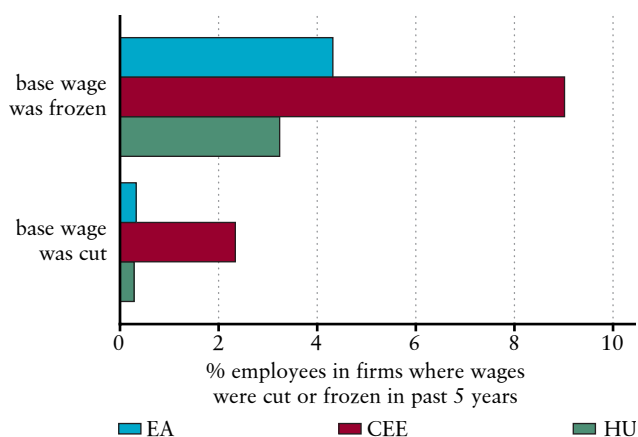
From the frequencies presented in Chart 3, it is possible to calculate average wage durations that are useful for the parameterisation of macro models with Calvo-type wage and price rigidities. Details about the construction of average durations can be found in Appendix 3 to Druant et al. (2009). Average wage duration in Hungary is 13.8 months (15 for the euro area and 14.8 for CEE), and average price duration is 10.7 months (9.6 for the euro area and 9.5 for CEE). These numbers are similar to other estimates, and the cross-country differences are not substantial. We have also calculated durations by sector and firm size, which are available from the authors upon request. In a nutshell, we found that in Hungary, sectoral and size heterogeneity is moderate, especially for the duration of wages, very similarly to other countries (see Druant et al., 2009).

**Downward nominal wage rigidity**

There is a large body of evidence that firms are reluctant to cut wages (base wages in particular). Chart 5 confirms this for Hungary and for Europe in general. In Hungary, less than 5% of employees experienced wage freezes; and essentially none experienced wage cuts. Wage cuts are rare in all of the countries, but freezes do happen: in the Czech Republic, about 10% of employees were subject to pay freeze. The difference between Hungary and the Czech Republic may be explained by the different inflation environments. While Hungary still had sizable inflation and fast average nominal wage growth in the five years up to 2006, inflation was very low in the Czech Republic in this period. Higher inflation allows firms to cut real wages by keeping nominal wages fixed (or increasing them less than the rate of inflation), while in a low inflation environment significant real wage cuts must also involve nominal wage decreases.

**Chart 5**

**Time dependence of wage setting**



**Chart 6**

**Why is it hard to cut wages?**

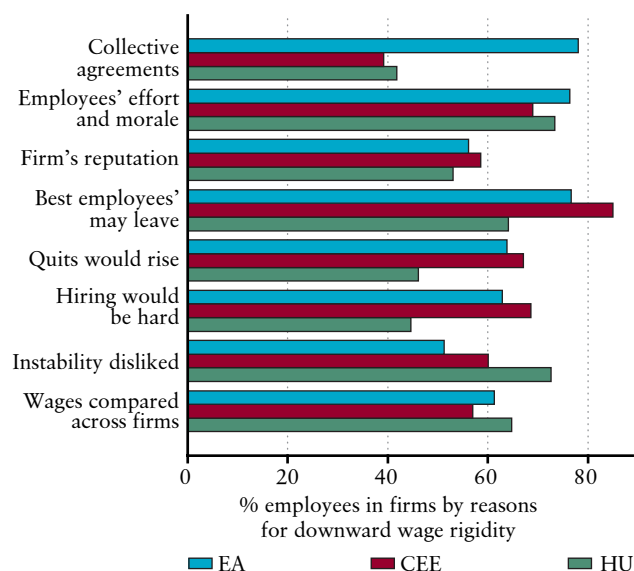


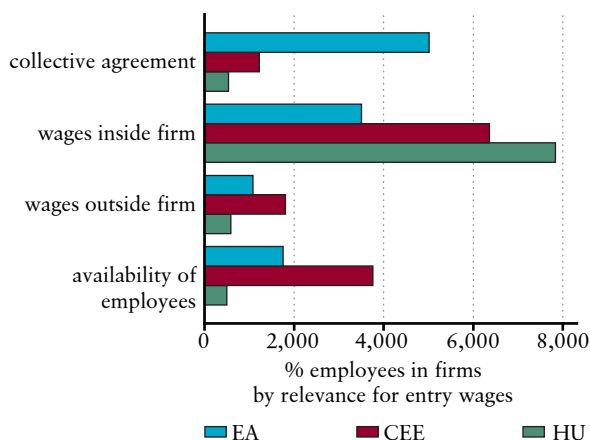
Chart 6 lists reasons why firms find it difficult to cut wages. Many factors seem to be important, with the ones related to motivation and morale being the most prevalent. Collective agreements are much less important in Hungary and the CEE region than in euro area countries, worries about hiring difficulties and worker quits are less important in Hungary, and implicit wage insurance (the intolerance of instability) is somewhat more common in Hungary than in other nations.

**Wages of new hires**

Another margin of adjustment of the overall wage bill is the wages of newly hired employees. This becomes especially important when the wages of existing employees are infrequently adjusted, as we showed earlier. There is also a

**Chart 7**

**The determination of entry wages**



growing body of theoretical and empirical evidence which underscores the importance of this issue.

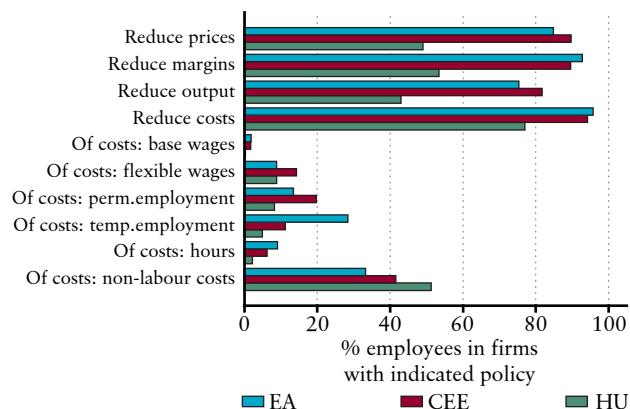
Chart 7 shows the most important factors in setting the wages of newly hired workers. In euro area countries with sectoral or nationwide wage setting these also apply to new hires. Perhaps more interestingly, however, firms in the CEE countries without such external constraints feel restricted by internal wage equity considerations. In Hungary, almost 80% of firms report that the wages inside the firm are very relevant when they determine the wages of new entrants. The same is true for CEE countries, but to a somewhat lesser extent than for Hungarian firms.

**Adjustment to external shocks**

The survey also included questions that addressed (i) the flexibility of wages in response to different types of shocks and (ii) the importance of alternative adjustment mechanisms. The hypothetical shocks under consideration were: a decline in demand, a rise in the price of an

**Chart 8**

**Adjustment to a negative demand shock**



intermediate input, and an increase in competitors' wages. Here we focus only on the first; Kézdi and Kónya (2009) has more details on the other shocks.

Chart 8 lists the most common ways firms respond when demand for their products falls. Hungarian firms mostly try to cut costs, while output, price and profit margin adjustments are common in other countries. Base wages are never cut in any of the countries, and cutting flexible wage components is not very important either. Interestingly, adjusting temporary employment is an important margin in the euro area, but not in the new member states - presumably because such work arrangements are less common in the CEE region.

**The minimum wage**

A section of the survey specific to Hungary asked about the effects of an increase in the minimum wage. The questions refer to (i) a hypothetical 20% increase in the minimum wage and (ii) the actual increase in the minimum wage in 2001–2002 (with a total increase of almost 100%). Table 1 lists the answers to the first sets of questions. The findings are consistent across the hypothetical and the actual experiments, which differ only in their magnitudes (more details below). For this reason, we report only results concerning the hypothetical minimum wage increase.

On average, around 14% of employees would earn at or below the hypothetical higher minimum wage (after the 20% increase). Thus, such an increase would represent a significant wage shock to firms. Given the magnitude of the shock, it is surprising to find that very few companies would respond by laying off workers: less than 8% indicated any possible layoffs. Those who said yes would, on average, lay off one-third of the affected workers. This implies that about 2.5% of affected employees and 0.34% of all employees would lose their jobs as a direct result of the 20% increase in the national minimum wage.

This number may seem surprisingly low: as a share of total employment it is essentially zero. While one may suspect that firms underestimate the layoffs in a hypothetical scenario, the responses to the 2001-2002 minimum wage increase are even lower. Note that such a weak response is corroborated by other estimates: Kertesi and Köllő (2003) estimated the aggregate employment response to the 2001 increase (which was nearly 60 per cent in itself) to be around 0.5%. The weaker response to the 2001–2002 minimum wage increases may be explained by the fact that they took place at a different stage of the business cycle, and they may have hit firms less than a similar or even weaker increase would in 2006. Of course, it is also possible that the minimum wage was not effective before 2001–2002. Tonin (2007) provides

**Table 1****The effects of a hypothetical minimum wage increase**

<b>By asking the following questions, we would like to learn about the consequences to your firm of a hypothetical 20 per cent increase of the minimum wage from its current level (that is to HUF 79,000).</b>	<b>mean (weighted by wl)</b>	<b>min</b>	<b>max</b>	<b>obs</b>
What fraction of your employees have earnings under the hypothetical new minimum wage (that is, under HUF 79,000)?	13.7	0	100	1,517
Due to the increase in the minimum wage, would you lay off some employees whose wages would be directly affected (i.e. whose earnings are under the hypothetical new minimum wage, that is, under HUF 79,000)? Where: 1=yes (or likely), 0=no (or not likely)	0.077	0	1	1,477
If 1 (yes or likely), what fraction are those who are affected (i.e. earn under HUF 79,000)?	31.8	1	100	85
Due to the increase in the minimum wage, would you increase wages of some employees whose wages would not be directly affected (i.e. whose earnings are above the hypothetical new minimum wage, that is, under HUF 79,000)? Where: 1=yes (or likely), 0=no (or not likely)	0.295	0	1	1,585
If 1 (yes or likely), what fraction are those (i.e. earn above HUF 79,000)	62.1	0	100	347
If 1 (yes or likely), by how much on average?	9.9	0	38	225

some evidence that tax evasion was an important reason why the reported minimum wage may not have been an effective constraint on firms in that period.

The second important finding is that firms would (and did) pass the minimum wage increase on to employees not directly affected. About 30% of the firms (weighted by their employment) gave an affirmative answer to this question, and they would raise wages for a large set of their employees. In case of a hypothetical 20% increase in the minimum wage, these firms would increase the wages of an additional 62% by around 10%. This implies that, in addition to the direct effect, the minimum wage increase would lead to a further 2% increase in the economy-wide wage rate. Again, the numbers are somewhat smaller for the 2001-2002 increase, but they are still significant.

This finding is consistent with the hypothesis that firms are concerned about the relationship among their employees and want to have a wage distribution that is perceived as 'fair'. This seems to include the keeping of a 'pecking order' of workers, where relative wages are important, in addition to absolute levels. An interesting question is the way firms would respond to maintain profitability in the face of a significant cost shock. While the survey did not ask this question for the minimum wage increase, previously we saw

that the way Hungarian companies are trying to adjust is mainly by cutting non-labour costs.

## ECONOMIC INTERPRETATIONS

After presenting the findings from the WDN wage setting survey, in this section we discuss their possible economic interpretation.

The first conclusion we can draw from the survey is that Hungarian firms are not constrained by external factors in their wage setting factors (with the important exception of the minimum wage). Collective agreements at the national or sector level are non-existent, and even within firms wages are typically set individually. On the other hand, wages are set in a fairly rigid manner. The wages of new hires conform to the wages of existing employees, and most firms reset their wages at most once a year. Base wages are never cut, and are rarely frozen, although the latter finding may be due to the sample period during which average wage growth was high.

To reconcile these findings, we need to look for wage theories that emphasise that wages may have other roles than reflecting workers' marginal product. Implicit contract theory (see, for example, Beaudry and DiNardo 1991) argues that workers receive an insurance against idiosyncratic

shocks, since firms may be better able to hedge against such risks. While infrequent wage setting and the reluctance to cut wages supports this hypothesis, the lack of inflation indexation suggests either money illusion on the workers' part or other considerations behind the stability of wages.

Another set of theories comes under the heading of 'efficiency wages'. Efficiency wage theories assume that wages may have an incentive component, so that the right wage motivates workers to work harder and more productively. Firms may use their wage setting policies to alleviate moral hazard problems (Shapiro and Stiglitz 1984), to provide workers with a 'fair' wage relative to others (Akerlof and Yellen, 1991), or to reduce costly turnover (Salop, 1979). An important empirical contribution in this area is Bewley (1999). In interviews with over 300 business leaders and human resource officers, Bewley found that employers are reluctant to cut wages because they think it would hurt morale.

The WDN survey is supportive of the Bewley (1999) findings. Firms are reluctant to cut wages even in the case of adverse shocks. This is true even for flexible wage components which should in principle act as 'shock absorbers'. It seems that bonuses are used less to accommodate outside shocks, and more to motivate individual worker effort. Employers also pay close attention to relative wages within the company, either in the case of new hires or in the case of changes in the minimum wage. Altogether, a robust conclusion seems to be that maintaining employee morale and work incentives is a key consideration in wage setting.

## CONCLUSION

In this paper we summarised findings from the 2006 Hungarian wage setting survey of the Eurosystem Wage Dynamics Network. We focused on the aggregate findings and comparisons to two country groups, the euro area and the CEE region. The main results can be listed as follows:

- Hungarian firms do not face external constraints in wage setting, with the important exception of the minimum wage.
- Despite this fact, wages appear rigid, particularly base wages. They are reset on average at most once a year, in a time-dependent fashion.
- Wages are irresponsive to temporary shocks. Firms are accommodating these shocks by cutting other costs, and to a lesser degree, by changing prices, margins and output.
- Flexible wage components are not used to absorb external shocks; rather they seem to be used for internal motivation.
- The WDN survey provides support for the time-dependent nature of wage setting. Wages are reset infrequently, mostly once a year. Many wages are adjusted in January, or in other fixed periods.
- By 2006 the minimum wage is a binding constraint for firms. A 20% minimum wage increase would spill over to other workers, and lead to an additional 2% increase in average wages.
- Overall, the Hungarian labour market is similar to other CEE countries and is institutionally flexible. In terms of outcomes, however, it is much more similar to the more rigid euro area countries.

Many other interesting questions can be investigated that we did not have the space to do in this overview - a task that we leave for future research. A particularly interesting question concerns the behaviour of firms under different circumstances. The current labour market conditions are very different from the ones in 2006 and repeating or updating the survey would provide information on how firms adapt to such changed circumstances. We hope that such an update will indeed take place, and we look forward to reporting the findings from that exercise.

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