

## WAGE ADJUSTMENT PRACTICES IN RUSSIAN FIRMS

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Wage adjustments for employees are a reactive mechanism to changing market conditions and form a significant part of pay policy. Though various attempts to explore wage levels and wage differentials have been made, wage adjustment policies remain an understudied topic. This paper analyses the determinants of wage adjustments based on data from Russian companies between 2015 and 2017. The analysis is based on detailed data from an employer survey covering more than 5 000 firms in both the public and private sectors. The study adopts probit models to identify the reasons for wage revisions, which depend on both internal employer characteristics and external labour market conditions. The results are in line with previous research on the topic and suggest that both internal and external factors influence wage adjustments. A wage adjustment is a reflection of an ability to pay, meaning that revisions are often made by successful firms with high employee turnover. It was also found that institutional frameworks, especially trade union activity, also affect a firm's decision to adjust wages, despite the widely-held belief that unions play an insignificant role in Russia. This study contributes to the limited literature by analyzing the determinants of wage policies depending on a firm's characteristics and is the first study of its kind based on extensive Russian data.

*Keywords:* wage adjustment, pay policy, pay settlement, trade union, Russia.

*JEL:* D22, J01, J31, J33, J51.

Wages are a key indicator of the labour market and a significant factor in employment relations. Set by the employer, wages instantly reflect the inner value of the employee's human capital and other personal character-

istics. However, the process of wage setting is not always that obvious as the characteristics of a firm are a widely recognized as a reason for behaviour related differences (see [Suleman et al., 2013; Sgobbi, 2015], among

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others). A firm's decision to adjust wages appears to be affected by a variety of internal and external factors, including the institutional framework of the particular labour market, current macroeconomic conditions, and the financial state of the company.

At this stage, we should clarify what we mean by wage adjustments in this paper. A wage adjustment is either an increase or a decrease in the nominal base pay for an employee. A raise in performance pay does not count as an adjustment. Due to structural differences between companies, the necessity to adjust wages according to market changes can be viewed in numerous ways. Moreover, enterprises prefer to avoid revisions if market conditions remain constant as wage reconsiderations have high transaction costs, including management time and additional spending on research.

The literature either focuses on HR practices and their impact on employee performance and well-being [Wang, Seifert, 2017] or investigates wage adjustments in the context of downward nominal wage rigidity [Blanchflower, Oswald, 1988; Bewely, 1999; Babecký et al., 2010]. There are a number of studies concerning the wage behaviour of firms from the macroeconomic point of view, as the problem of wage-setting is closely linked to unemployment, inflation and other macroeconomic issues. One of the most notable studies in terms of country coverage was done by the European Central Bank and the National Central Banks in the framework of Wage Dynamics Network [Cornille, 2015; Babecký et al., 2010; Kézdi, Kónya, 2011]. The survey-based research examined the reaction of firms to economic shocks and elicited the wage setting practices used in European countries. However, there is very limited literature dedicated to the internal factors determining wage adjustments and the institutions which shape wage behaviour [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016; Forth, Millward, 2000; Ingram, Wadsworth, Brown, 1999].

Most of the literature is based on data obtained from European countries where

labour market conditions differ significantly from those in Russia, both in content and in context. Although there are academic papers dedicated to the wage determination process in Russian companies where data from a single enterprise is considered [Morrison, Swartz, 2003; Dohmen, Lehmann, Schaffer, 2007], we provide an analysis based on a large sample of enterprises functioning in current market conditions. Due to strict formal labour regulations and relatively high firing costs, Russian enterprises have a fast adjustment mechanism expressed primarily in wages. Wages are split into two tiers: base pay and variable pay. Variable pay in Russia is relatively large compared to developed countries and could be as high as 30% of overall remuneration [Gimpelson, Kapelushnikov, 2013].

While base pay is specified in the contract and can be regulated with collective agreements, variable pay almost entirely depends on the employer's decision and, accordingly, the total compensation depends on the performance of the business. Cutting variable pay allows some flexibility even though the conditions of the external labour market may remain inflexible. Adjusting variable pay is the most common response to short-term change, while adjusting base pay is the response to long-term. Evidence suggests that nearly two-thirds of Russian firms adjust base pay with some frequency.

Therefore, the research question of this paper is the following: what mechanisms force enterprises to revise the base pay? Our findings suggest that the wage adjustment mechanism of Russian enterprises is more complex than generally assumed.

This paper investigates the wage policies of Russian firms in terms of wage adjustments according to the characteristics of the employer. The study contributes to the existing literature in two main ways. First, our analysis concerns base pay while the majority of studies in the Russian labour market focus on variable pay [Commander, Dhar, Yemtsov, 1996]. As in previous research, we focus mostly on the adjustments that are systematically performed for individuals and for

groups of employees, which is sometimes referred to in the literature as pay settlements [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016; Ingram, Wadsworth, Brown, 1999]. Second, although the link between wage differentials and employer characteristics has been widely assessed by scholars [Werner, Ward, 2004], wage adjustment behaviour does not necessarily follow the same patterns.

The rest of the paper is organized as follows. Section 1 begins by reviewing the literature on wage adjustment and describes the features of the Russian labour market. Section 2 presents the data used for the study and explains the research methodology. Section 3 provides the results of the regression analysis and a discussion of the determinants of various wage adjustment policies. The last section offers a conclusion.

## 1. LITERATURE REVIEW

The first empirical works concerning the wage policies of firms can be traced back to the 1980s [Knight, Sabot, 1983]. Though human capital was perceived to be the main factor behind wage differentials, attempts to distinguish the effect of employer characteristics on wages were already being made in early literature (see [Groschen, 1991]). More recent empirical studies concerning wage policies started re-appearing again in the 2000s, mostly as a result of the world financial crisis of 2008 which, in addition to major layoffs, lead to real and nominal wage cuts in a number of countries. In particular, a great deal of attention was paid to wage adjustments as one of the core mechanisms to react to economic challenges. As labour costs form a significant part of the overall costs of any enterprise, by adjusting them in a timely manner, firms are able to become competitive and financially successful.

However, companies usually avoid wage cuts even during severe economic shocks. This phenomenon has come to be known as downward nominal wage rigidity. Pay cuts

are assumed to be undesirable as they could damage worker morale and the reputation of the firm, which could lead directly to difficulties when hiring new employees [Bewley, 1999; Kunovac, Pufnik, 2015]. In fact, wages are considered to play a motivational role for employees. Many studies have used interviews with managers in order to investigate their attitudes towards wage adjustments, including pay reductions. The results mainly revealed that fairness considerations are a core motivation in the labour market, hence, relative wages are important for wage adjustment decisions [Blinder, Choi, 1990; Blanchflower, Oswald, 1988; Agell, Bennmarker, 1995; Agell, Bennmarker, 2007]. In the majority of cases, a pay cut policy does not really pay-off: a cut may save a few jobs but that is not equal to the advantages of the layoffs [Bewley, 2007]. Thus, wages are rarely revised downwards. Also, sometimes wages do not react to temporal shocks as the firm's adjustment to new market conditions occurs through non-labour expense cuts [Kézdi, Kónya, 2012].

Wage adjustments may occur for various internal and external reasons [Blanchflower, Oswald, 1988]. In this paper, we assume that employer characteristics and the institutional framework determine the reaction of firms to any internal or external factors. We also pay attention to inflation as one external reason for wage adjustments.

### 1.1. Employer characteristics

A great deal of the literature is dedicated to the characteristics that result in higher wages. Although this is not necessarily the same as frequent wage adjustments, in wage adjustment decisions several similar mechanisms and explanations can be applied. It has been widely acknowledged that the reward system adopted by an employer varies due to the inner workings of the firm (see [Groschen, 1991]). In particular, productivity and financial success provide the employer with the ability to pay [Blanchflower, Oswald, 1988; Agel, Lundborg, 1995]. Generating greater income allows the firm to allocate resources with

relatively more freedom which, in general, can result both in a performance pay increase or a base pay increase. For non-union private firms, the market wage rate and the firm's profitability are the most important factors in wage adjustment decisions [Amirault, Fenton, Laflèche, 2013]. Characteristics such as investment and innovation activity which can be expressed either by the implementation of new managerial practices or technological tools may increase the firm's productivity and consequently their profits.

Some studies are dedicated to the link between the size of the establishment and its wage policy as large firms usually pay higher wages and offer wage posting to new employees meaning that the wage is defined in terms of duties and the employee's characteristics do not affect it [Brown, Medoff, 1989; Belfield, Wei, 2004]. The standardization of usual practices leads to wage increases and a fall in transaction costs. Larger companies are presumed to be more sensitive to work disruptions, hence, the bargaining power of employees may be greater in larger companies in order to minimize the risk of strikes and other actions [Agell, Benmarker, 2007]. In contrast, start-ups and small firms pay lower wages [Brixy, Kohaut, Schabel, 2007].

Previous research has revealed the importance of the ownership of the firm. International corporations tend to operate under different institutional conditions, and thus their pay policies reflect these differences. A smaller correlation between wages and the performance of the firm may be observed due to the broad geographical spread of the countries where they operate [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016]. Some scholars analyzing transition economies discovered that firm ownership does not have a systematic effect on employment and wages, contrary to expectations [Basu, Estrin, Svejnar, 2000].

## 1.2. Institutional framework

The correlation between institutions and labour market outcomes has been assessed in

literature [Lehmann, Muravyev, 2012]. The institutional framework plays an especially notable role in wage flexibility as it predetermines reactions when enterprises experience economic challenges (see [Ingram, Wadsworth, Brown, 1999]). Unions and collective agreements are institutional adjustment mechanisms which determine the possibility of wage bargaining and market rates. Strict institutional regulation is associated with the prevalence of external factors in the wage-setting process, while weak institutional regulation, in contrast, result in the predominance of internal factors [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016].

Trade unions, as an essential part of the institutional framework, experienced a decrease in power in the majority of developed economies at the turn of the century. Still, unions exercise workplace strength in wage determination in spite of the efforts taken to reform the system and deregulate labour markets, which is assumed to improve their performance [Lehmann, Muravyev, 2012]. Enterprises are supposed to change their wage adjustment patterns when there is deregulation, by switching their emphasis from external factors to internal. However, a study in Britain shows that this switch never occurred as inflation and comparability remained important [Ingram, Wadsworth, Brown, 1999]. Another important instrument is the national legal minimum wage. The minimum wage acts as the floor for the wage adjustment process. A low minimum wage leads to an increase in low-paid jobs. Despite the common agreement on productivity as the main factor influencing wages, the minimum wage together with other external factors may act as the main driver of wage increases [Agudelo, Sala, 2016].

Wages are also the result of collective bargaining, which depends on the distribution of bargaining powers between the employer and the employees of a particular enterprise. However, in countries with rigid institutions wage adjustment does not completely depend on the firm's decisions but on decisions taken jointly at industry and national levels.



Empirical studies show that in a post-crisis environment, companies functioning in more centralized bargaining regimes have higher wages compared to those in a more decentralized setting [Ronchi, di Mauro, 2017].

### 1.3. Russian labour market specifics

The Russian labour market has features setting it apart from many developed countries. As discussed earlier, in developed economies employers are usually hesitant to cut wages, and instead adjust labour costs by reducing the number of employees. The situation in Russia is different both in content and context. The institutional framework of the Russian labour market consists of institutions which regulate the quantitative adjustment of labour, and institutions which enable wage flexibility. Rigid labour legislation impedes employment volatility, while two-tier wages, which includes a significant variable portion linked to the results of the economic activity of the establishment, ensure labour cost adjustments [Commander, Dhar, Yemtsov, 1996; Gimpelson, Kapelushnikov, 2013]. Flexibility in terms of adjusting to crises is underscored by high wage elasticity to employment [Vakulenko, Gurchich, 2016]. The modern Russian model of the labour market, which first appeared during the transition period in the 1990s, proved to be valid during the 2008–2009 recession, when a significant proportion of private enterprises introduced cuts and freezes in nominal wages [Gimpelson, Kapelushnikov, 2013].

Russia has a complex bargaining structure, which includes national-level agreements, industry-level tariff agreements between employers' associations and sector-specific trade unions, and regional-level agreements. As variable pay is not enshrined in the contract, it is not subject to collective bargaining [Gimpelson, Kapelushnikov, 2013]. In contrast with many developed countries, trade unions and collective agreement regulation, although present, are assumed to have an insignificant influence on the wage setting process with trade unions being controlled by the government [Lehmann, Muraviev, 2012]. Wages are

usually set through informal individual bargaining without union participation [Lukiyanova, 2011]. However, collective agreements are intended to set the minimum wage level, with no institutional mechanisms for possible wage increases being recognized. Until recently, in Russia the minimum wage was determined nationally. Regional differentiation was allowed by a system of regional coefficients. However, due to substantial regional heterogeneity, most of the regional labour markets remained insensitive to this institution. After reforms were passed in 2016, a brand new system was implemented, which now combines federal- and regional-level participation. Although the legislative change led to an increase in the earnings of low-paid workers, it did not result in greater variation in minimum wages. A relatively small proportion of Russian employees are exposed to minimum wage changes [Lukiyanova, Vishnevskaya, 2016].

A large part of the literature is dedicated to the transformation period in Russia in the 1990s and demonstrates how wage setting behaviour varied with the change of the economic system and the legal status of enterprises [Basu, Estrin, Svejnar, 2000]. At the beginning of the transition period, Russian firms were unresponsive in adjusting their employment to changes while other Eastern European countries, which were also subject to communist regimes in the past, started doing this faster. As a result of these shifts in the economic structure, brand new employer-employee relations appeared as firms acquired almost complete freedom in their wage setting and employment policies.

## 2. METHOD

### 2.1. Data and sample

For the research, the Interaction of Internal and External Labour Markets survey (IELM) is used, which is carried out annually by the National Research University Higher School of Economics and contains information on

HRM techniques. The sample consists of 5,058 enterprises from 25 regions in both the public and private sector and covers their activities from 2015 to 2017. The survey provides detailed information on aspects of their economic performance, including financial position, wage revision policies and workforce. The non-panel sample is adjusted annually. The data was not intended to provide a panel, with only approximately 5% of the whole sample being panel data. Therefore, we employ pooled data and control for the year of observation in the analysis.

Enterprises differ in sectoral perspective as differences in business processes lead to different types of workers being in demand. The core segment of the economy which many researchers focus on is manufacturing — an old sector with developed bargaining mechanisms [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016; Ingram, Wadsworth, Brown, 1999]. However, we do not limit the study only to manufacturing enterprises; so included in the sample are organizations operating in mining, construction, trade, finance, and business services.

Participation in labour unions and the use of tariff wage schemes reflect the institutional framework of the labour market. In this paper we refer to tariff schemes as an institutional system which differentiates and regulates wages for particular groups of employees depending on the intensity and difficulty of the work performed, and the level of qualification of the employee. Although tariff schemes may reduce the costs of wage setting for enterprises, they increase the rigidity of wage adjustments reducing possibilities for swift reactions to external shocks. Tariff schemes are mostly used by the enterprises with a Soviet legacy and are mainly concentrated in manufacturing. In recently established enterprises, tariff schemes are rarely favoured over more sophisticated HR grade systems which allow for more flexibility. Only 11% of the enterprises in the sample have any employees participating in labour unions, and 43% of the sample use tariff schemes, with 24% taking them into consid-

eration during the wage determination process. Union participation is mostly concentrated in mining (18.1%) and manufacturing (19.5%), in large and relatively large enterprises (42.5% for firms with more than 1000 employees and 23.4% for firms 251–1000 employees, respectively).

## 2.2. Wage adjustment policies

Two questions in the survey are of particular interest for our study. The first, “Does your firm revise the level of the base wage?”, has four possible answers. Three of them mean that wage adjustments take place with some frequency: “Yes, wages are changed for everyone annually”; “Yes, wages are changed for everyone occasionally”; and “Yes, wages are changed for some workers occasionally”. One answer, “No, wages are not revised”, means that there is no observed specific pattern in wage adjustment, and such adjustments have not been performed recently. In order to provide clear, significant results, we merged the choices, leaving only two for further analysis: “Yes, wages are revised” (answers 1–3) and “No, wages are not revised” (answer 4). We do not know for sure whether the presence of revision necessarily refers to wage increases. However, due to the downward nominal wage rigidity discussed in the literature review we assume that the revisions of base pay mostly result in increases.

The second question is “What are the reasons for base pay revisions in your enterprise?”. Only those firms which gave an affirmative answer to the first were asked the second question, as it explores the pattern of wage change in more depth. There are 7 possible reasons for wage revisions covered in the question. Following [Blanchflower, Oswald, 1988], we consider the answer “Due to the improvement of the firm’s financial situation” to represent internal factors, while the answers “Due to inflation”, “Due to changes in the regional average wage”, “Due to changes in the average wage of close competitors”, “Due to changes in the national average wage”,

Table 1

## Descriptive statistics on wage adjustment, % of firms

Variable	Do not adjust wages	Adjust wages
Firm size:		
Average	38.2	61.8
< 50	45.6	54.4
50–100	34.3	65.7
101–250	30.9	69.1
251–1000	29.5	70.5
> 1000	22.2	77.8
Industry:		
Mining	42.8	57.2
Manufacturing	33.2	66.8
Construction	41.4	58.7
Trade	39.6	60.4
Transport and communication	28.2	71.8
Finance	42.6	57.4
Services	46.1	53.9
Financial position:		
Good	37.5	62.5
Satisfactory	36.9	63.1
Bad	49.8	50.2
Union:	39.4	60.6
No		
Yes	25.8	74.2
Labor costs in overall costs	35.8	33.9
Investment:		
No	43.6	56.4
Yes	29.0	71.0
Innovation:		
No	43.7	56.3
Yes	28.5	71.5
Tariff wage schemes usage:		
Yes	33.6	66.4
No, but considered	34.7	65.3
No	45.1	54.9
Real average wage:		
< 20 000	41.9	58.1
20 000–24 999	35.5	64.5
25 000–35 000	41.1	58.9
> 35 000	24.7	75.3

Table 1 (end)

Variable	Do not adjust wages	Adjust wages
Ownership:		
State-owned	35.4	64.6
Foreign-owned	25.9	74.1

“Due to changes in collective agreements with unions”, and “Due to the increase of the national minimum wage” are external factors for wage adjustment. Respondents could select more than one reason. On average, 61.8% of firms employ wage adjustments. The larger the enterprise, the higher the proportion employing wage adjustments, with 77.8% of large firms (more than 1000 employees) making changes compared to 54.4% of small firms (less than 50 employees). The transport and communications sector has the largest proportion of companies changing wages (71.8%). In contrast, in the Services sector the smallest proportion of firms do so (53.9%). There is no significant difference between firms with different financial situations. Table 1 provides more detailed data on the distribution of firms in the sample concerning their wage adjustment policy.

### 2.3. Methodology

The first aim of this analysis is to distinguish what characteristics motivate firms to employ wage adjustments. For this purpose, we use a binary outcome model (probit regression), where the dependent variable is “1” if the enterprise changes the wage for any type of employees, and “0” otherwise. We do not focus on the timing of wage adjustments, although previous research indicates the existence of a schedule in a number of countries (see e.g.: [Amirault, Fenton, Laflèche, 2013]).

The determinants for each enterprise includes several subgroups. The first subgroup is a set of variables which reflect the structural features of the enterprise, including

size, ownership, financial position (good, satisfactory or bad; self-estimated), innovation implementation, investment, price competition (which reflects the dependence of the firm’s prices on the prices of its close competitors), staff turnover, net growth of the number of employees, real average wage level in the company, and share of labour costs in overall costs. Innovation and investment are considered for the previous year, partly reflecting the overall financial performance of the enterprise. Employee turnover is calculated as the sum of hire and fire ratios (including both layoffs and voluntary resignations), while employee net growth is the difference between the number of hires and fires.

The second subset of variables includes two institutional factors: union participation and the usage of a tariff pay system. We expect that these dual factors will have a positive effect on the probability of wage adjustments of any kind. Previous research found a positive effect of centralized collective bargaining on wage levels [Plasman, Rusinek, Rycx, 2007] and on wage adjustments [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016].

The regression also contains control variables for the year of observation, the industry of activity, and the region where the enterprise is located, which is especially important considering the significant regional differentiation in Russia. The control variable for a real wage increase compared to the previous year, which is referred to in the rest of the paper as “wage growth”, is included in several specifications as well.



The second aim is to reveal the main reasons behind wage changes, depending on the enterprise characteristics discussed above. For this purpose, we run probit regressions for each of the seven reasons given for wage change that were featured in the survey (inflation, change of regional average wage, change of competitors' average wage, change of the national average wage, improvement of the company's financial situation, change in collective agreements, increase of the minimum wage) with the same set of variables as in the first regression. This allows us to examine the relevance of firm characteristics for particular wage adjustment practices.

We recognize a possible selection bias if the second set of "reason" regressions is run only on the subsample of enterprises who revised wages during the previous year. In order to deal with this problem, we consider the firms which have not introduced wage adjustments in the recent past as ones which do not recognize any of the proposed reasons significant enough to perform revisions. Hence, when running the set of "reason" regressions we also include these firms in the sample by assigning them 0 in place of the dependent variable instead of being miss-

ing. However, the results from the whole sample, presented in the next section, do not differ substantially from the results obtained in the sub-sample of firms which adjusted wages last year, which means that the concern with selection bias was excessive.

In this analysis we use robust standard errors which are heteroscedasticity-consistent. Though we recognize the possibility of the reversed causality problem, in this particular research we do not focus on it. However, reversed causality could be detected when including the wage growth variable into the analysis as wage growth can either be the result or the cause of wage revisions. For this reason, we run two separate probit models to recognize the determinants of wage adjustment, one with the variable and one without (Table 2).

### 3. FINDINGS

#### 3.1. Wage adjustment

This section examines the effects of internal and external factors on a firm's decision to adjust wages. The findings of the regression analysis are presented in Table 2.

Table 2

Determinants of wage adjustments: Marginal effects

Variable	Model with wage growth	Model without wage growth
Number of employees (RC: 30–50): 51–100	0.042* (0.025)	0.054** (0.025)
101–250	0.093*** (0.026)	0.099*** (0.027)
251–1000	0.129*** (0.028)	0.130*** (0.028)
> 1000	0.102* (0.055)	0.104** (0.055)
Financial position (RC: satisfactory): Good	–0.008 (0.020)	–0.001 (0.020)

Table 2 (end)

Variable	Model with wage growth	Model without wage growth
Bad	-0.035 (0.035)	-0.053 (0.035)
Investment (RC: No)	0.050** (0.023)	0.052** (0.023)
Innovation (RC: No)	0.035 (0.023)	0.036 (0.023)
State owned firm (RC: No)	-0.041 (0.047)	-0.046 (0.047)
Foreign-owned firm (RC: No)	0.174** (0.066)	0.202** (0.070)
Price competition	-0.001 (0.021)	0.000 (0.021)
Real average wage (RC: < 20 000): 20 000–24 999	0.021 (0.029)	0.030 (0.029)
25 000–35 000	-0.005 (0.028)	-0.001 (0.028)
> 35 000	0.087*** (0.032)	0.108*** (0.032)
Employees turnover	0.070** (0.035)	0.051 (0.035)
Employees net growth	-0.046 (0.087)	0.037 (0.085)
Labour costs in overall costs	-0.002*** (0.001)	-0.002*** (0.001)
Wage growth	0.463*** (0.074)	– –
Union (RC: No)	0.070** (0.035)	0.064* (0.035)
Tariff wage schemes usage (RC: No): Yes	0.052** (0.023)	0.057** (0.023)
No, but considered	0.037 (0.024)	0.043* (0.024)
Industry	+	+
Year	+	+
Region	+	+
Pseudo R <sup>2</sup>	0.194	0.179
N	2 266	2 299

Note: “RC” indicates a reference category; \*, \*\*, \*\*\* — statistically significant at the 0.05, 0.01 and 0.001 levels, respectively; robust standard errors in parentheses.

We start off with employer characteristics. We find that the size of the enterprise matters as the probability of wage adjustment increases with the growth of the number of employees. The same result was found in [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016] for Spanish manufacturing enterprises. The explanation here is linked to trade union activity. First, large firms are more likely to have employees participating in trade unions. Hence, they obtain more bargaining power in wage setting. Second, large enterprises are usually more common for industries where trade unions have a long-standing history, i.e. mining and manufacture. Our expectations concerning the importance of trade unions are also confirmed which will be described more in detail below.

In contrast, the relationship with the financial position, which could be assumed to be linear based on previous studies [Commander, Dhar, Yemtsov, 1996], here appears to be statistically insignificant. The same conclusion applies to innovation activities undertaken during the previous year. However, investment activity, which also describes the firm from the point of view of its financial well-being, shows statistically significant results, meaning that being invested in during the previous year leads to a higher probability of pay revisions during the current year. This finding partially confirms our expectations. Investment activity is usually present in prosperous enterprises, where expected profits will lead to investor benefits. All in all, large profits and a good financial condition does not imply wage adjustments, contrary to the ideas expressed in [Amirault, Fenton, Laflèche, 2013]. Companies with higher real average wages are also more likely to participate in wage adjustment processes. These findings show that wage adjustment policies are mostly relevant for successful enterprises with high average wages. In fact, upward wage adjustment for successful firms might be an element of corporate policy aimed at increasing worker morale [Bewley, 1999].

Regarding other structural characteristics, foreign-owned firms operating in Russia are more likely to participate in wage adjustments. The coefficient for state owned firms is, in contrast, statistically insignificant which is in line with [Forth, Millward, 2000] who found no significant difference between private and public sector adjustments for Britain. Higher employee turnover also correlates to a higher probability of wage adjustment. This finding could be attributed to the necessity of attracting new employees.

Concerning the share of labour costs, those enterprises which depend heavily on labour and spend the majority of income on wages and other labour related costs are more likely to adjust wages as their overall financial success depends on it. However, our results suggest the opposite trend in Russia. An increasing fraction of labour costs in terms of the overall costs leads to a decline in the probability of wage adjustment by 0.2%. This estimate is statistically significant.

Regarding market conditions, we find that participation in trade unions is positively related to the probability of wage adjustment, which is unexpected considering the literature dedicated to Russian labour market specifics. Despite the insignificance of unions in wage-setting and the lack of independence described in literature [Gimpelson, Kapelushnikov, 2013], institutional factors appear to correlate positively with the probability of wage adjustment. Surprisingly, union influence is insignificant in the Spanish framework, where a major role in wage adjustments is attributed to collective agreements. Spain has a centralized bargaining system with multilevel bargaining. Bargaining coverage is higher than trade union membership with approximately 98% of establishments in manufacturing being covered by collective agreements [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016].

### 3.2. Reasons for wage adjustment

We turn now to the regression analysis that deals with particular causes of wage revisions.

Table 3

## Descriptive statistics for adjustment reasons

Factor	Share of the overall sample		Share of those who adjusted wages last year	
	Mean	Std. dev.	Mean	Std. dev.
Inflation	0.27	0.01	0.35	0.48
Changes in the average regional wage	0.18	0.01	0.24	0.42
Changes in the average competitors' wage	0.09	0.00	0.11	0.31
Changes in the average national wage	0.08	0.00	0.10	0.29
Financial condition improvement	0.23	0.01	0.30	0.46
Changes in collective agreements	0.02	0.00	0.02	0.14
The increase of national minimum wage	0.14	0.01	0.18	0.38

Table 3 provides descriptive statistics for both adjustment reasons as a fraction of the overall sample and those of firms which adjusted wages at some point in the last year. According to the table, inflation and an improvement in the financial situation are the main drivers for wage adjustment. The importance of inflation was also found for Spanish and British manufacturing which was the prevailing factor despite the decentralization of the bargaining regime in Britain [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016; Ingram, Wadsworth, Brown, 1999]. Unlike in Spain, changes in collective agreements appear to be the least important external factor. In Russia this could be due to lower union coverage, and the degree of centralization which is higher in Spain. In the more decentralized framework of Britain [Forth, Millward, 2000] union representatives were often involved when positive wage adjustments were implemented.

Next, we consider the results regarding employer characteristics and market conditions. Table 4 reports the coefficients from the set of “reason” probit regressions. Small and medium enterprises appear to pay less attention to inflation compared to enterprises with 250–1000 employees. This could be due to the transaction costs associated with wage adjustments in larger establishments. By adjusting wages to the national cost of living, the em-

ployer tries to minimize those costs. The same result is obtained for Spain [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016]. Inflation is also a driver closely related to comparability [Forth, Millward, 2000]. Changes in the average regional wage, the average national wage and the average competitors' wage reflect the importance of comparability for wage adjustment decisions. Previous research also indicates that managers are focused on external wage relativities as higher competitor wages are supposed to lower the effort of workers [Agell, Benmarker, 2007]. Regarding the size of the enterprise, the importance of regional wages increases linearly while there is no such effect concerning competitors' wages or the national wage. Good financial results appear to be an especially important driver for medium-sized enterprises (with 101–250 employees) and large ones (with over 1000 employees).

As far as the firm's profitability is concerned, employers who estimate their financial condition as bad are less likely to adjust wages due to inflation or regional wages. Investment and innovation activities, which are related to the firm's performance, provide statistically significant results as far as regional and competitor wages are concerned, meaning that higher investment activity is positively related to the comparability consid-

Table 4

## Determinants of wage adjustments due to internal and external drivers: Marginal effects

Variable	Reasons for wage adjustments (%)						
	Inflation	Regional wage	Competitor's wage	Country wage	Good fin. results	Collective agreements	Minimum wage
Number of employees (RC: 30–50):							
51–100	0.042*	0.051**	0.003	0.004	0.052**	0.014	0.043**
101–250	0.034	0.071***	0.015	0.018	0.091***	0.002	0.008
251–1000	0.086***	0.081***	0.032	0.027	0.067**	0.001	–0.019
> 1000	0.066	0.130***	0.062	0.034	0.109**	0.034	0.028
Bad financial position (RC: No)	–0.117***	–0.065**	0.037	–0.033	–0.011	0.005	–0.023
Investment (RC: No)	0.027	0.036*	0.028*	0.020	0.017	–0.002	–0.008
Innovation (RC: No)	0.035	–0.000	–0.001	–0.014	0.006	0.001	0.019
State owned firm (RC: No)	0.020	–0.043	–0.116***	–0.043	–0.066	0.015	–0.002
Foreign-owned firm (RC: No)	0.067	–0.117*	–0.029	–0.150**	0.098	–†	0.031
Real average wage (RC: < 20 000):							
20 000–24 999	0.072**	–0.014	0.035*	–0.023	0.052*	–0.007	–0.031
25 000–35 000	–0.007	–0.068***	0.038**	–0.020	0.101***	–0.014	–0.046**
> 35 000	0.132***	0.002	0.072***	–0.020	0.105***	–0.013	–0.066***
Worker turnover	–0.077**	0.118***	0.068***	–0.020	0.013	0.011	0.032
Worker net growth	–0.232***	0.012	0.091	0.019	–0.022	0.027	–0.001
Labour costs in overall costs	–0,000	–0.001	–0,001	–0.001*	–0.001*	–0,000	–0.001*
Price competition (RC: No)	–0.000	–0.007	0.039**	–0.014	0.040*	–0.014*	–0.042***
Union (RC: No)	0.006	–0.043	0.066***	0.069***	0.065**	0.044***	0.022
Tariff wage schemes (No):							
Yes	0.108***	0.091***	0.018	0.038***	–0.048**	–0.001	0.047***
No, but considered	0.051**	0.064***	0.054***	0.029**	–0.046**	–0.018*	0.004
Wage growth	0.394***	0.091	0.029	0.152***	0.234***	0.059*	0.129**
Year	+	+	+	+	+	+	+



Table 4 (end)

Variable	Inflation	Regional wage	Competitor's wage	Country wage	Good fin. results	Collective agreements	Minimum wage
Industry	+	+	+	+	+	+	+
Region	+	+	+	+	+	+	+
<i>Pseudo R</i> <sup>2</sup>	0.117	0.115	0.143	0.130	0.110	0.350	0.106
<i>N</i>	2 268	2 268	2 141	2 229	2 268	1 581	2 262

Note: "RC" indicates a reference category; \*, \*\*, \*\*\* — statistically significant at the 0.05, 0.01 and 0.001 levels, respectively; † — the variable was dropped due to lack of observations.

erations in wage adjustment decisions. With respect to the average wage, high wage employers are more likely to react to inflation, competitors and an improvement in their financial position, but regional and national comparability does not affect them. Finally, the minimum wage adjustment, as expected, is not relevant for high-wage firms and high-wage employees as the increase in average wages leads to a reduction in the wage adjustment probability.

Foreign firms give less importance to regional and national wages. As mentioned in the literature review, foreign owned firms emphasize internal factors rather than external due to their multiple institutional frameworks and the market conditions they operate in. State ownership decreases the probability of adjustment to changes in competitors' wages.

The last employer characteristic included in the analysis is employee turnover. It reflects the fact that enterprises need to recruit and retain labour, which is one of the factors for pay revisions discussed in the literature [Ingram, Wadsworth, Brown, 1999; Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016]. Our results indicate that increasing worker turnover means there is a higher probability of wage adjustment due to comparability with regional and competitors' wages. As competitors usually have similar characteristics, they establish a demand for similar types of workers. By adjust-

ing wages, a firm tries to avoid any future difficulties with recruitment. Comparability reflects a standard that an employer may choose to follow. Although turnover was not considered a structural employer characteristic in previous research, the percentage of workers with a degree was a variable included in the research for that purpose [Bayo-Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016]. Inflation indexation, on the other hand, is more common among firms with lower turnover and a lower net growth of employees, which suggests that these firms are more focused on their current staff.

Finally, we analyse institutional factors which cause firms to react to external changes. Trade union activity predictably results in a higher probability of wage adjustment due to changes in collective agreements, but more importantly, it leads to the expanded role of comparability as a driver for revision. In contrast, industry, local and national comparisons in Britain became more influential after deregulation [Ingram, Wadsworth, Brown, 1999]. Similarly, in Spain the results indicate that unions protect insiders more than outsiders, which means less attention is paid to attracting employees, diminishing the importance of comparability. Regarding inflation, unions do not play an important role as there is no binding collective agreement for inflation adjustment in Russia. In countries with centralized bargaining, the cost of living appears to be of major importance [Bayo-

Moriones, Galdón-Sánchez, Martínez-de-Morentin, 2016].

Another institutional factor, tariff schemes, is the only variable which is statistically significant for almost all drivers of wage adjustment. Adjustments for inflation, comparability and minimum wage are likely to occur if pay schemes are applied, while the improvement of the financial performance is the only internal driver showing the opposite pattern. In general, our results point to significant influence both from internal and external factors which are difficult to disentangle.

#### 4. CONCLUSION

This study used data on Russian firms from 2015 to 2017 to investigate the determinants of wage adjustment decisions. We included seven internal and external drivers for pay revisions into the analysis to find out how employer characteristics and institutions influence wage adjustments. Inflation, changes in the average regional wage, changes in the average competitors' wage, changes in the average national wage, improvement in the financial situation, changes in collective agreements with unions and an increase of the national minimum wage were the factors considered in this research. We grouped the explanatory variables into two subsets: the structural features of the firms and institutional circumstances. Our analysis included sixteen independent variables, yet only a few were significant for wage adjustment decisions.

Regarding the first set of variables, size, investment and employee turnover were positively related with the probability of wage adjustments. In contrast, the financial situation or innovation activity do not tend to be statistically significant under any conditions. Ownership appeared to be significant when it comes to foreign-owned firms. In respect to the second set of variables, we found that union participation affects the weight attributed to particular wage adjustment drivers. Our results indicate that the presence of a trade union ensures that comparability plays a more notable role in wage adjustment.

Overall, our results suggest that revisions of base pay are most common for successful enterprises which offer higher wages and hire more employees. Wage adjustment is a mechanism for those who have the ability to pay. The institutional framework expressed in trade union participation and tariff pay schemes, though significant, leaves Russian firms room to manoeuvre as employers review and adjust base pay despite the flexibility introduced by variable pay in the Russian labour market.

This paper adds to the existing literature in several ways. First, it considers the Russian market which in comparison to Europe remains understudied in terms of enterprise wage policies. Second, it takes into consideration employer characteristics to describe wage setting policies. In this paper based on Russian data, we have shown that pay reviews have a number of features that reflect important facets of employer behaviour in the labour market.

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## **Практики пересмотра зарплат в российских компаниях**

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Пересмотр зарплат является важным механизмом кадровой политики в сфере вознаграждения, с помощью которого компании реагируют на рыночные изменения. В то время как значительное число исследований посвящено причинам различий в зарплатах индивидов, политика компаний в сфере пересмотра зарплат остается сравнительно малоизученной темой. В работе анализируются детерминанты пересмотра зарплат на данных о 1500 российских предприятиях частного и государственного сектора за 2015–2017 гг. Для определения внутренних и внешних факторов этого процесса в исследовании используются пробит-регрессии. Результаты соотносятся с выводами исследований по теме, демонстрируя, что и внутренние характеристики компании, и внешние условия рынка отражаются на вероятности зарплатных пересмотров. Пересмотры чаще производят успешные фирмы с высоким оборотом кадров, тем самым демонстрируя свои финансовые возможности. Вопреки расхожему мнению о бессилии профсоюзов в России, их действия направлены на принятие предприятием решения о пересмотре зарплат сотрудников. Данная статья является первым исследованием, посвященным детерминантам зарплатных практик в зависимости от характеристик фирмы, реализованным на российских данных.

*Ключевые слова:* зарплата, подстройка, пересмотр зарплат, профсоюз, Россия.

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