

Comparison of Telework in the Czech Republic and in its Neighbouring Countries

Miroslava Vlčková, Jaroslav Vrchota, Zuzana Frantíková

Abstract: *Telework, also called homeworking or home office, arose in the USA in the seventies due to the oil crisis when the costs of oil were so high that they banned the employees from commuting to work. Since then it has become an interesting alternative for companies to organize the way their employees work bringing advantages and disadvantages on both sides. It was also very suitable form of working for the EU relating to the idea that the borders over the time should be slowly eliminated and a single work and employee market should be created. The aim of this paper is to compare the use of telework with respect to the frequency in Austria, Germany and Poland against the Czech Republic and Slovakia. The comparison is carried out according to the frequency of use (usually, sometimes and never) using the selected statistical methods. From the data obtained, the wider use of telework in the category sometimes is recorded in Austria, Germany and Poland against the Czech Republic and Slovakia. In the category of usually the use of homeworking prevails in Austria, Poland whereas in Germany and Slovakia the figures are not statistically significant comparing to the Czech Republic. The results proved that on the statistical level of 0,95 telework is more often not used by the Czech Republic than by its neighbours.*

Key words: EU Members · Homeoffice · Homeworking · Telework

JEL Classification: K31 · M54

1 Introduction

In most European countries, teleworking or homeworking is used in various forms that differ from one another by its legal regulation. In the 1990's there were experts in the EU who predicted the usage of the telework by 10 million of EU citizens by the year 2000. Those experts did really a good estimation and by the year 2000 they were 10 million of European citizens using telework. Among the top users of telework with four million of users the UK and Germany were placed (Telework in Europe, 2003). According to the European Trade Union Confederation, telework is defined as a form of organizing and/or performing work, using information technology, where work, which could also be performed at the employers' premises, is carried out away from those premises on a regular basis (European Framework Agreement, 2002 or Implementation, 2006). In the Czech version of the Implementation the words on a regular basis are missing at all, that is why they are also missing in the legal regulation. It is also surprising that the regulation of telework was not made through a directive, but through the autonomous route, in 'accordance with the procedures and practices specific to management and labour in each Member State' (Telework in the European Union, 2010).

Nevertheless, despite the differences in their legal regulation, telework should always demonstrate several common features. First in the sections below the legal definition of telework in the chosen countries will be compared.

In the Czech Republic, telework is regulated in Section 317 of Act No. 262/2006 Sb., the Labor Code. It is defined as the regime of work of an employee who does not work at the employer's place of work but, under the agreed conditions and who performs a negotiated job during the working hours he/she plans. Unlike the previous regulation (Section 267 para. 2, 3 of the Labor Code 1965), it is no longer a defining feature that it should be an employee working mostly at home. Employee can do work anywhere (outside the workplace) where it suits the nature of the work being arranged and will be agreed with the employer. Sections regarding working hours, overtime, compensation of wages, spare time off in case of overtime and compensation of wages in case of some personal obstacles at the employee's side cannot be applied in case of telework. On the other hand, employers should compensate the costs paid by the distant/home employees, however this is regulated implicitly and that's why most employers do not keep the regulation and do not

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compensate the costs employees pay by doing their work from home. Therefore, the new novelization of Labor Code counts with the implementation of new regulation consisting in the specification of the employers' duty to compensate the costs arisen on employee's side.

Regarding the data featuring the usage of telework in the Czech Republic and in Slovakia it may be presumed that the legal regulation would be rather the same. Section 52 of the Labour Code (Act No. 311/2001 Z.z., *zákoník práce*) first speaks about homework defining it as "the employment relationship of an employee who performs work for an employer at home or at another agreed place, pursuant to conditions agreed in the employment contract" or about telework defining it as "the employment relationship of an employee the teleworker as a person who performs work for an employer at home or at another agreed place, pursuant to conditions agreed in the employment contract, using information technology within the working time arranged by himself/herself." Same as in case of the Czech regulation sections regarding working hours, overtime, compensation of wages, spare time off in case of overtime and compensation of wages in case of some personal obstacles at the employee's side cannot be applied in case of telework.

Polish Labour Code (*Kodeks Pracy*) in article 67 § 1 states that "the work may be carried out regularly outside the employer's office using electronic means of communication within the meaning of the rules on electronic provision of services (Teleworking)." § 2 of the article then states that "a teleworker is an employee who carries out work under the conditions of § 1 and delivers the employer's results of his work mainly by means of electronic means of communication." Telework is not a particular type of employment that is why the legal regulation of employment relation is normally applied. The characteristics of telework that distinguish this form of organization and performance from the typical form of employment are: the regularity of the work performed under the conditions of telework, the performance of work outside the employer's workplace, the use of electronic means of communication in the sense of the regulations on electronic provision of services and the transfer of the results of the work by employers mainly by electronic means of communication.

Due to the lack of a strong tradition of collective bargaining in Czech Republic and Slovakia and the rather low density rate of social partner organizations, the choice of legislative implementation has been seen as more suitable. Unlike Poland, where telework is defined in the labour code, nevertheless the amendment was preceded by a collective agreement at national level (*Telework in the European Union, 2010*).

Unlike Czech, Slovak and Polish regulation the regulation of telework in Germany and Austria is usually regulated through company agreements. "In Germany it is the first agreement at Telekom which is dating back to 1995. The role of the national social partner organizations is limited in terms of labour regulation and, therefore, they have only been involved in the provision of information. At sectoral level, social partners in the chemical industry provided recommendations for the implementation of telework at company level (*Telework in the European Union, 2010, p. 28*)." In Austria, they use sectoral-level collective agreements for regulating telework (*Telework in the European Union, 2010*).

2 Methods

Labor market statistics, including homeworking analyzes, are the priority points of many European Union policies. Homeworking statistics can be used for a range of analyzes, both macroeconomic, if we see work as one of the factors of production, as well as for analysis of productivity, or competitiveness in the labor market. Analyzes can also be carried out from the point of view of social aspects related to diverse ways of employing workers.

The aim of the paper is to analyze the use of homeworking within the European Union. The article is primarily concerned with comparing the use of homeworking in the Czech Republic, Austria, German Poland, Slovakia and comparing these partial results with the results of using homeworking across the European Union. The partial target was the comparison of the use of homeworking with respect to the gender and frequency.

The data tested for further analysis were obtained using publicly available Eurostat data (Eurostat, 2017). The comparison was based on several aspects, with the basic division being the use of homeworking in the individual countries of the European Union, the use of homeworking by gender (men, women) and the frequency of use (usually, sometimes). The survey was attended only by employed people aged 15-64. The comparison was made using the data from the period 2007 - 2016. The newer data were not available at the date of analysis.

As regards the statistical methods used, the t-test was used for the difference test. The zero hypothesis H_0 was set that both groups are equal over against H_A , where the two samples are different.

Test data were obtained using publicly available EUROSTAT (2017) data, compared to data for the period 2007 to 2016.

In the statistical comparison of the use of homeworking, a t-test for a random sample from a two-dimensional layout was used for research purposes, with $n \geq 2$ (Budíková, 2010; Freeman, 2017). Here we denote $\mu = \mu_1 - \mu_2$ and introduce the difference random sample $Z_1 = X_1 - Y_1, \dots, Z_n = X_n - Y_n$ whose sample mean and sample variance are (Freund, 2010; Anderson, 2013):

$$M = \frac{1}{n} \sum_{i=1}^n Z_i \tag{1}$$

$$S^2 = \frac{1}{n-1} \sum_{i=1}^n (Z_i - M)^2 \tag{2}$$

Statistically, it has always been tested at a significance level of 0.05 where:

Zero hypothesis $H_0: \mu_1 - \mu_2 = 0$ against alternative hypothesis $H_A: \mu_1 - \mu_2 \neq 0$.

Before testing the hypotheses, the tests of both dispersions of both samples were always performed using the F-test. The calculation is based on the difference between the means of the two samples, the variability of the observed quantity and the size of the two samples. This statistics test is distributed according to Student t-distribution with $n_1 + n_2 - 2$ degrees of freedom (Meloun, 2012). The degrees of freedom are a t-distribution parameter. Using the Statistica software, we find the exact p-value. This probability corresponds to the probability of occurrence of such or an even more extreme value of the test criterion t assuming the validity of the zero hypothesis. If it is less than 0.05, we reject the zero hypothesis. This means that the probability that the observed differences occur only by chance is less than 5%. The classical two-sample t-test, in addition to the normal distribution of the observed variable, also assumes that variances are the same in both groups. This assumption is tested by sample estimates of the standard deviations s_1 and s_2 by the F-test (Devore, 2015; Walker, 2010).

3 Research results

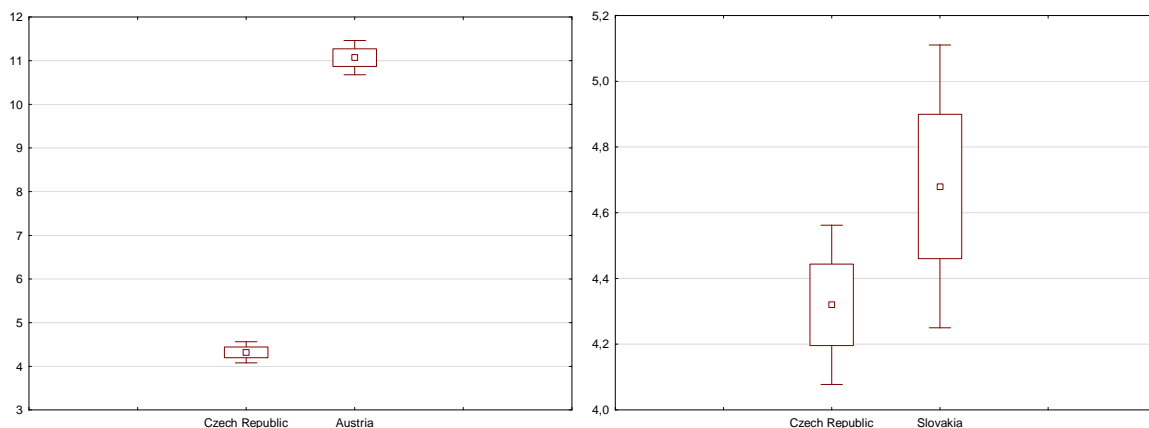
The aim of the paper to compare the approaches to homeworking between the Czech Republic and Austria, German Poland, Slovakia then to compare them with the European Union mean from 2007 to 2016. As mentioned in the methodology to test the difference between the two groups, the t-test was used. The zero hypothesis H_0 was set that both groups are equal over against H_A , where the two groups are different.

Table 1 “Sometimes category” in homeworking research

	Mean Group 1	Mean Group 2	Value t	sv	p	Stand. Dev. Group 1	Stand. Dev. Group 2	F-prop. Varian.	p Varian.
CZ S vs. EU S	4,32	8,44	-14,140	18	0,0000		0,3910	0,8343	0,0340
CZ S vs. DE S	4,32	8,56	-13,261	18	0,0000	0,3910	0,9324	5,6860	0,0163
CZ S vs. AU S	4,32	11,07	-28,646	18	0,0000	0,3910	0,6343	2,6315	0,1657
CZ S vs. SLV S	4,32	4,68	-1,428	18	0,1701	0,3910	0,6941	3,1512	0,1025
CZ S vs. POL S	4,32	8,41	-14,144	18	0,0000	0,3910	0,8266	4,4688	0,03608

Source: EUROSTAT (2017), own processing

Figure 1 “Sometimes category” in comparison Czech Republic, Austria and Slovakia



Source: EUROSTAT (2017), own processing

First the use of homeworking in the Sometimes category in the countries was tested, as it is shown in Figure 1 below, there was no statistical difference between the Czech Republic and Slovakia when p-value is 0.1701. Among other states and the Czech Republic, there was a significant difference in the use of homeworking as it is evidenced by the p-values in Figure 1.

For illustrative purposes, the Figure 1 shows a graphical distribution of the values for the Czech Republic and Austria, where the difference between 4.3 (CZ) and 11 (A) is significant. On the other hand, as the right box plot in Figure 1 shows, the differences between the Czech Republic and Slovakia can not be considered as significant.

Another comparison related to the use of homeworking shows the Usually category. In Figure 2, there are shown statistically significant differences between the Czech Republic and the EU, Austria and Poland. On the other hand, comparing the Czech Republic and Germany no significant difference was found, although the p-value of 0,0766 is very close to the alpha level of 0,05.

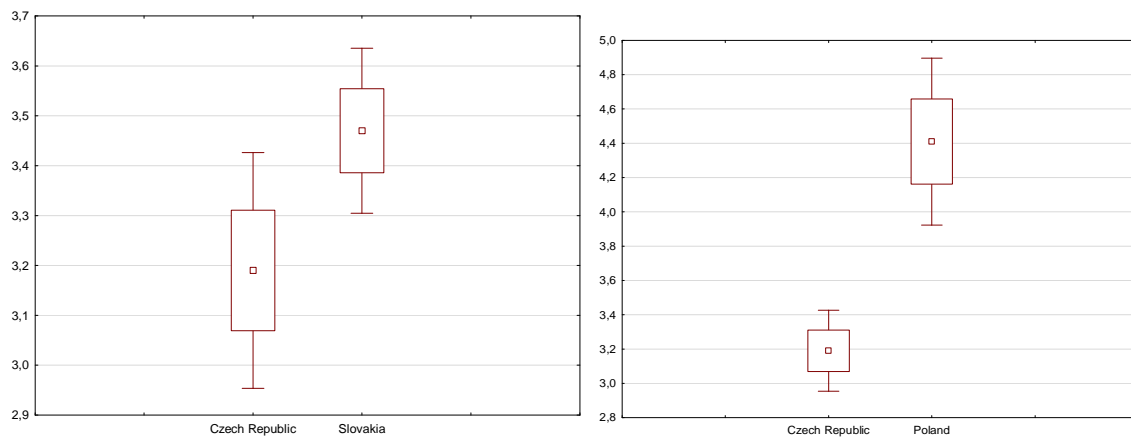
Table 2 “Usually category” in homeworking research

	Mean Group 1	Mean Group 2	Value t	sv	p	Stand. Dev. Group 1	Stand. Dev. Group 2	F-prop. Varian.	p Varian.
CZ U vs. EU U	3.19	4.76	-11.123	18	0.0000	0.3813	0.2319	2.7045	0.1544
CZ U vs. DE U	3.19	3.48	-1.878	18	0.0766	0.3813	0.3047	1.5657	0.5146
CZ U vs. AU U	3.19	10.28	-48.229	18	0.0000	0.3813	0.2658	2.0581	0.2972
CZ U vs. SLV U	3.19	3.47	-1.902	18	0.0733	0.3813	0.2668	2.0421	0.3024
CZ U vs. POL U	3.19	4.41	-4.419	18	0.0003	0.3813	0.7852	4.2391	0.0426

Source: EUROSTAT (2017), own processing

Comparison of the Czech Republic to Slovakia did not reject H0 in favor, so we continue to cling to the hypothesis that the use of HW in the Czech Republic and Slovakia is usually in the same mode, although the graphical representation in the left box plot indicates significant differences. In the right box plot, the difference between the Czech Republic and Poland is expressed, because the difference in mean values is significant.

Figure 2 “Usually category” in comparison Czech Republic, Slovakia and Poland



Source: EUROSTAT (2017), own processing

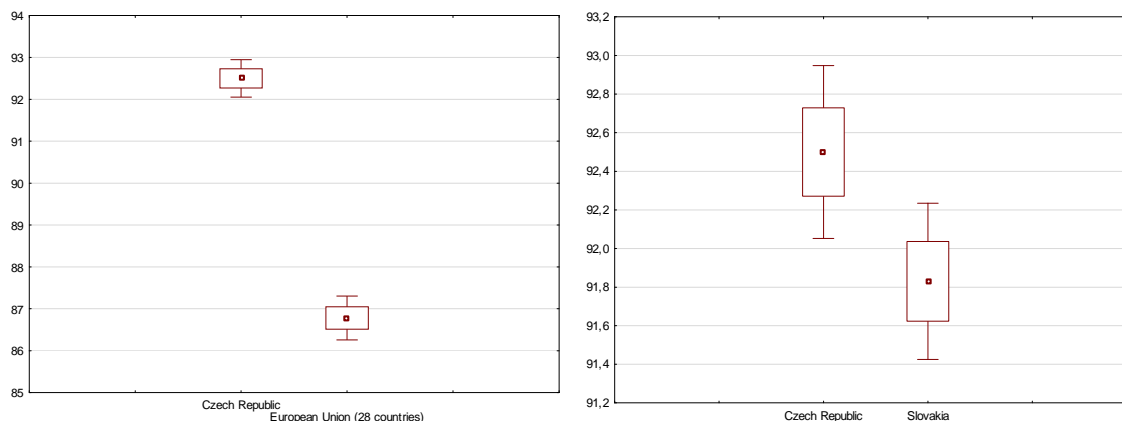
Finally, the HW data were compared in the Never category, which indicates the non-use of HW as you can see in the table 3. Within these data, H0 was rejected in all 5 cases in favor of an alternative hypothesis, where a p-value lower than that of the alpha was found in all neighboring countries and the EU average, and in many cases very close to zero. Therefore, it may be claimed that in the Czech Republic HW is not more often used than in the neighboring states at the significance level of 0.95.

This fact is evidenced by the chosen box plots shown in Figure 3. In the left box plot there is the Czech Republic and the EU average, in the right box plot there is the Czech Republic and Slovakia; in both cases the differences in the distribution of values are visible.

Table 3 "Never category" in homeworking research

	Mean Group 1	Mean Group 2	Value t	sv	p	Stand. Dev. Group 1	Stand. Dev. Group 2	F-prop. Varian.	p Varian.
CZ N vs. EU N	92.5	86.78	16.275	18	0.0000	0.7226	0.8443	1.3651	0.6504
CZ N vs. DE N	92.5	87.94	10.733	18	0.0000	0.7226	1.1325	2.4561	0.1968
CZ N vs. AU N	92.5	78.65	44.948	18	0.0000	0.7226	0.6536	1.2223	0.7697
CZ N vs. SLV N	92.5	91.83	2.174	18	0.0432	0.7226	0.6532	1.2236	0.7685
CZ N vs. POL N	92.5	87.19	9.997	18	0.0000	0.7226	1.5161	4.4019	0.0378

Source: EUROSTAT (2017), own processing

Figure 3 "Never category" in comparison Czech Republic, Slovakia and European Union

Source: EUROSTAT (2017), own processing

In practice, there are two basic telework models - complete (almost complete) and partial (sometimes). Many businesses that tested these models have concluded that when telework is complete, people are moving away from the company losing contact with colleagues and current events. Therefore, it is preferable to choose partial telework when employees work for two to three days at home and the remaining days they are at work.

The results or differences in the use of telework may be given by legislation when the Labor Code in the Czech Republic regulates this type of employment very briefly and it is therefore necessary to consider adequately and to treat the conditions under which the employee will work at home. Other aspects may include ensuring health and safety at work. The employer has the same obligations here as if the employee worked in the office. However, if we disregard legislative issues, companies are often discouraged by the limited control of its employees, lower motivation, complicated communication, or by the insufficient job discipline, as it has been described above.

4 Conclusions

Telework is more and more interesting alternatives for setting the way your employees work. It is due to the fact that it can bring many benefits, such as lowering the cost of running a job, the possibility of getting a cheaper workforce by employing people from "poorer" areas or more satisfied employees. On the other hand, this type of employment can bring about certain shortcomings, such as more demanding communication with colleagues, loss of social contacts, or difficulty in employee discipline, and the associated more demanding (Bláha, Mateicius a Kaňáková, 2005).

Nonetheless, in case of our research it is worth mentioning a few things, best of all, the differences. It is quite clear from the statistical analysis that the use of telework in the Czech Republic in the "sometimes" category is relatively comparable to its use in Slovakia. However, both countries do not reach its use to such an extent as in Germany, Austria, Poland and the average for the whole of the European Union. For the "usually" category, the development in the Czech Republic is relatively comparable to the development in Slovakia and Germany, while in case of the other countries compared and the average across the European Union, the difference is quite obvious. For the "never" category (which means not using telework), the difference between the Czech Republic and all other countries surveyed, including the average for the whole European Union, was quite evident. It means that in the Czech Republic, telework is not much used in comparison with other countries.

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