



THE EFFECT OF EMPLOYEE INCOME ON ABSENCE FROM WORK DUE TO ILLNESS

Vlastimil Beran¹

Abstract

Illness, or the medical treatment of a family member, comprises an inherent part of human life, the occurrence of which often prevents employees from attending work. This article analyses the relationship between absence from work due to illness and the amount of an individual's income. The article further monitors the impact of the Covid-19 disease and whether it affected absence from work. In theory, it can be assumed that persons with lower incomes have higher absence rates. The data, which was analysed for the period 2014–2022, was provided by the Ministry of Labour and Social Affairs of the Czech Republic. Basic descriptive statistics and methods of structural breaks were applied to determine the underlying trends. It is possible to state that absenteeism decreases from the 6th decile and is lowest in the highest decile of the working population. Covid-19 was found to have significantly affected employee absenteeism.

Keywords

Absence, Descriptive Statistics, Incomes, Illness, Structural Breaks

I. Introduction

The aim of this article is to determine whether the amount of an employee's income affects the extent of his/her absence from work. The findings are interesting from both the micro-economic (personnel departments, company management) and the macroeconomic points of views, i.e. the state budget expenditure on sickness insurance in the context of the social insurance system. (Act. No. 187/2006) Over the last 15 years, the fiscal authorities have attempted several times to actively influence the absence of employees by changing the respective regulations. Although most of the legislative amendments addressed the revenue side of the state budget, a number also introduced changes to the expenditure side of the state budget.

This is currently a particularly important issue in view of the fact that since 1 January 2024 employees have paid sickness insurance contributions in the amount of 0.6% as part of their

¹ Research Institute for Labour and Social Affairs (RILSA), v. v. i., Dělnická 213/12, Prague 7, Czech Republic.
E-mail: vlastimil.beran@rilsa.cz.

social insurance contribution. (Act. No. 589/1992) This signal from the fiscal authority indicates that sickness insurance expenses are not corresponding to income. The increase in spending can be clearly linked to the Covid-19 disease.

From 1 January 2009, employees were no longer required to pay sickness insurance as part of their social insurance contribution. The abolition of the payment of sickness insurance by the employee was the result of the following legislative amendments: the introduction of a waiting period, the requirement for the employer to cover the first fourteen days of sick leave and the introduction of the so-called super gross wage. The employee no longer paid a 1.1% sickness insurance contribution, and that of the employer was reduced from 3.3% to 2.3%.

In 2019, a further significant change was introduced aimed at addressing employee absence from work. The waiting period was cancelled, and just the first three days of illness were unpaid. Previously, the waiting period was presented as an instrument to combat “false” short-term absence, i.e. the avoidance of attending work via the simulation of illness. The data available allows for the determination of whether the waiting period in fact worked as an instrument to combat high rates of absenteeism from work. The abolition of the waiting period was accompanied by a further reduction in the sickness insurance rate for employers from 2.3% to 2.1%. The respective explanatory report stated that the balance of the income and expenses of the sickness insurance system was in surplus to the tune of between CZK 1.3 and 5.6 billion between 2010 and 2017. Thus, the reduction in the employer’s sickness insurance contribution by 0.2% was not expected to exert an impact on the overall functioning of the sickness insurance system.

The final change relevant to this paper concerns the re-introduction of the employee sickness insurance contribution as a result of the consequences of the Covid-19 disease. The external shock brought about by the occurrence of the disease presented a “black swan” that had major repercussions for a range of state administration systems, e.g. elevated health-care costs and the need to recuperate these costs via state insurance payments. Covid-19 directly led to the increase in sickness insurance payments. The question remains as to whether the introduction of the employee sickness insurance charge of 0.6% was the ideal systemic response.

II. Theory and Methodology

The topic was addressed based on data that links remuneration for work performed and absence from work. The only such data available in the Czech Republic that covers several consecutive years concerns information available from the Salary Information System (ISP), which is administered by the Ministry of Finance of the Czech Republic, and the Average Earnings Information System (ISPV), whose data is managed by TREXIMA, spol. s r.o. The data from these two sources required for this article was provided by the Ministry of Labour and Social Affairs of the Czech Republic.

It was first necessary to edit the data. The same data adjustment was applied as reported in a study by Červenka et al. (2021). However, since this basic adjustment of the data was subsequently found to be insufficient for the needs of this article, further adjustments were made. The structure of the data provided by the Ministry of Labour and Social Affairs

of the Czech Republic covers annual incomes; thus, the monthly incomes of employees were calculated by dividing their annual income by the number of months worked. This represents a further limitation in addition to not knowing the structure of the household in which the employee lives. Moreover, it is not clear from the data when the employee or a household member was ill, nor was it possible to determine whether absence was due to injury or illness. In the case of illness, it was not possible to identify whether it was a common seasonal illness (particularly autumn and winter) or a “non-standard” illness. Despite these issues, however, it was possible to analyse whether the Czech labour market corresponds to the economic theory with respect to income and absence from work. Data was available for the period 2014 to 2022. The minimum observed number of subjects in the monitored period was over 1.5 million and the maximum almost 2 million full-time employees. Hence, it was a very robust file with a total of almost 16 million observations. A similar approach through full-time employment was also adopted by Taylor (1981). Other approaches are also known, such as *The Impact of Temporary Employment on Work-Related Sickness Absence*, but the available data do not allow for this type of analysis. (Tomba et al., 2008)

This is the only data available in the Czech Republic suitable for investigating the given topic and it has a number of limitations, the most important of which is the lack of information on the type of household the employee lives in. i.e. whether s/he lives alone or in a household with another adult or children. The number of children in the household is one of the most important factors in terms of influencing employee absence from work. Having one child results in the need to care for a family member; as the number of children increases, the likelihood of the need to care for a family member also increases. Implicit empirical evidence of this phenomenon is provided in a study by Principi et al. (2003). During the course of working life, it becomes increasingly difficult to avoid illness or the obligation to care for a family member. Therefore, absence from work must be understood as the deterioration of the health of employees that is incompatible with the performance of work or the deterioration of the health of a family member who is unable to take care of him/herself. Economists in the United States have been addressing this issue since at least the 1980s. (Taylor, 1981; Leigh, 1986)

Moreover, in addition to the health of the employee, the health factor also includes the protection of work colleagues from infection and the prevention of the further spread of the disease, i.e. the protection of public health as a whole (Act. No. 258/2000). Apart from being anchored in Czech legislation, elements of individual (explicit) and public (implicit) interest are set out in Convention No. 102/1952 (ILO, 1952) and Convention No. 130/1969 (ILO, 1969). Although the legislative side of this issue is clear, reality may differ significantly in cases, e.g. where the health aspect is less important than the economic aspect. From the economic point of view, the employee fears the loss of income, whereas the employer suffers from the loss of production and/or the failure to meet deadlines and to secure new orders. Hence, employees often fail to respect the needs of their health, even over the long term, or the health of co-workers and the general public by reporting for work while sick. The available data is suitable for analysing the decision-making processes of employees only, i.e. not those of companies.

The investigated hypothesis is built on the supposition that absence (caused by the deterioration of the employee's health or the need to care for a family member) is not distributed evenly among employees. General factors that influence absenteeism at work comprise the overall state of health and the genetic predisposition of individuals and family members, following a healthy lifestyle (a quality lifestyle, sufficient sleep and physical activity, compliance with the principles of personal hygiene, mental well-being, the prioritisation of prevention, etc.), living in a clean environment, sufficient social contact, etc. (WHO, 1999). In addition to these health and individual factors, other issues come into play, including economic factors, one of the most important of which concerns the employee's gross income. This factor forms the subject of investigation of this study. The neoclassical theory of the supply of labour by individuals identifies employees as rational economic subjects who act and make decisions based on their preferences (Brožová, 2016). If one accepts this logic, it can be expected that employees with lower incomes will be absent from work more often than higher income earners. One explanation lies in the following thesis. Employees who work on machines at the employer's workplace or on a production line are clearly unable to work from home. Some employees take automatic sick days; however, this depends on whether the employer provides this benefit to employees. Employees are generally reluctant to use their holiday entitlement for illness or for caring for a family member, since they usually only have the basic number of holiday days (20 days) per year as set out in the Labour Code. Thus, there is a high probability that employees will take sick leave even at the cost of a fall in income, since they see no other alternative. One of the factors that supports this thesis (the use of sick leave by low-income employees) concerns the settings of the Czech social system. Employees in the first wage distribution decile are usually entitled to state social benefits, particularly the housing and child allowances. Conversely, the logic indicates that employees with higher incomes will have lower absenteeism. Higher incomes are usually associated with higher expertise, responsibility, etc. and generally concern office-based professions that enjoy the option of working from home. Moreover, in addition to remote work, non-manual sectors and professions are generally associated with other benefits including automatic sick days and a higher number of holiday days than the minimum specified in legislation.

Based on a knowledge of economic theory, it can be assumed that there is a negative non-linear relationship between the amount of income and absence from work. Pfeifer (2010) reached a similar conclusion via empirical testing. Pfeifer's study is particularly interesting since it provides evidence from the German employment market of the relationship between absence from work due to illness and employee incomes. He tests the economic theory on a survey of 1,187 white-collar workers employed on a full-time basis between 1999 and 2005. The incomes of the surveyed employees were paid on a monthly basis. As previously mentioned, no detailed data is available for the Czech Republic.

A variable was created for each year that divided the file into deciles according to income. Subsequently, the average extent of absence was determined for each of the deciles. In other words, the measure of the position of the probability distribution of the random variable was determined. This statistic was supplemented with the standard deviation and

the coefficient of variation. The standard deviation was calculated applying:

$$\sigma = \sqrt{\sigma^2} = \sqrt{\sum_{i=1}^N \frac{(x_i - \bar{x})^2}{N}} \quad (1)$$

where σ is the population standard deviation, N denotes the number of values in the given set, x_i denotes the i -th value in the set and $\bar{x}$ the arithmetic mean of the data set. The standard deviation comprises one of the basic measures of variability; it expresses the average distance of the values from the centre of the set.

The coefficient of variation was calculated applying:

$$CV = \frac{\sigma}{\bar{x}} \quad (2)$$

where CV is the coefficient of variation, σ is the population standard deviation and $\bar{x}$ the arithmetic mean of the data set. The resulting value is then multiplied by 100 so as to express it as a percentage.

These basic statistical methods were applied to determine whether the economic theory matches the empirical results of the research of the Czech labour market.

The occurrence of the Covid-19 disease, which is also addressed in the article, requires a different approach. Covid-19 represented an external shock that exerted an impact that is difficult to estimate. Scientists from various research fields (economics, sociology, medicine, etc.) are unable to agree as to whether Covid-19 fulfils the requirements to be considered a black swan. Generally, a historical event is termed a black swan if it fulfils the three basic characteristics of the black swan theory: rarity, impact and rationalisation in retrospect (Taleb, 2004). It is interesting that the author of the black swan theory, N. N. Taleb, is not convinced that the Covid-19 disease was a black swan. In his opinion, the point of contention concerns the aspect of rarity, whereas he accepts the applicability of the other two characteristics. Although epidemics are frequent, the author of this article argues that the extent of the Covid-19 disease was rare and is, thus, inclined to suggest that Covid-19 was a black swan. In essence, however, whether the disease constituted a black swan is not of prime importance; in the end it concerns only whether the impact of Covid-19 is significant enough to affect the behaviour of society and its future development.

The structural breaks method was applied in this article to identify the impact of Covid-19. This method is used to identify sudden changes over time series. A structural break refers to a change in the fundamental characteristics such as trends, seasonality or volatility. For example, the authors of an article that investigated the impact of Covid-19 on the American, British and European stock markets employed structural break methods and, simultaneously, worked with the black swan theory (Ahmad et al., 2021).

In reality, changes in time series can be caused by a number of factors, for example a change in the political conditions (a change of government), technological innovation or economic crisis.

The location of the structural break is determined applying the Zivot-Andrew test (Zivot and Andrews, 1990). Model (A), which works with a change in the level constant, was employed:

$$\Delta y_t = c + a y_{t-1} + \beta t + \gamma DU_t + \sum_{j=1}^k d_j \Delta y_{t-j} + \varepsilon_t \quad (3)$$

where DU_t is an indicator dummy variable for a mean shift occurring at each possible break-date or time break.

Model (A) does not work with either “drift” or “drift and trend” changes; this approach is the simplest option. Model (A) was chosen since the time series considered in the study is relatively short. It makes no sense to search for more structural breaks, even though they are probably present in the data (Perman and Byrne, 2006).

The results chapter lists other available findings related to the absence of employees aimed at providing an overall picture of the Czech labour market.

III. Results

As mentioned previously, the lower absenteeism rates of employees with higher incomes is not due solely to leading a healthier lifestyle and to the approach to life as a whole, which is facilitated by a higher income. Employee benefits in the form of a higher number of holiday entitlement days (in excess of the statutory 20 days), remote work and automatic sick days also play a major role in the Czech labour market, especially concerning larger companies (typically more than 250 employees) and subsidiaries of foreign and multinational corporations. Moreover, entitlement varies according to the sector and profession. No detailed statistics on the Czech labour market are available on this issue even from institutions such as the Czech Statistical Office, the Czech-Moravian Confederation of Trade Unions, the Confederation of Industry and Transport of the Czech Republic, the Chamber of Commerce of the Czech Republic, etc. The only information available on this topic is that provided from isolated investigations conducted by the above institutions. An example is provided by an investigation that focused on the use of remote work arrangements conducted by the Czech Industry and Transport Union. The results revealed that following the end of the Covid-19 epidemic, all the companies surveyed introduced remote work arrangements, and the size of the company did not play a major role in this respect (SPČR, 2022). The disadvantage of such surveys is their limited value in terms of coverage of the whole of the Czech labour market.

The Czech Social Security Administration reports information on employee absences in connection with social insurance payments according to the assessment base. In addition, the data covers all sources of income for which the obligation to pay social insurance arises (including agreements to complete a job for over CZK 10,000, part-time jobs, etc.) from which the sickness insurance benefit can be determined. However, it is not known for how long employees are absent from work (how many hours or days) or the time of year. Nevertheless, the advantage of this data lies in its capturing all cases of absence

of workers in an employment relationship. The disadvantage concerns the absence of additional explanatory information.

Table 1: Number of employee absences according to the average monthly assessment base from pension insurance records in CZK in 2020

Average monthly assessment base bands taken from pension insurance records in CZK	No. of cases	%	Cumulation in %
1–9 999	427 065	9.48	9.48
10 000–19 999	922 641	20.49	29.97
20 000–29 999	1 137 292	25.25	55.22
30 000–39 999	906 495	20.13	75.35
40 000–49 999	496 155	11.02	86.37
50 000–59 999	237 926	5.28	91.65
60 000–69 999	122 501	2.72	94.37
70 000–79 999	71 974	1.60	95.97
80 000–89 999	44 737	0.99	96.96
90 000–99 999	29 813	0.66	97.63
100 000 +	106 904	2.37	100.00
Total	4 503 503	100.00	

Source: Czech Social Security Administration (CSSA) internal (non-public) data

The Czech Social Security Administration data reveals that slightly more than 86% of cases of absence fall within the average monthly income category of up to CZK 49,999, and just less than 92% fall within the income category of up to CZK 59,999. The advantages and disadvantages of the data presented in the table have already been discussed. The main problem, however, is that the data refers to 2020, which was impacted by the Covid-19 epidemic; therefore, it can be assumed that the values are biased towards higher rates of illness. More recent data is, as yet, unavailable. The data from the Czech Social Security Administration allowed for the “virtual” comparison of the values with the data provided by the Ministry of Labour and Social Affairs. The comparison is “virtual” since the two sets of data contain differing information.

The following table presents the results calculated from the basic descriptive statistical data provided by the Ministry of Labour and Social Affairs of the Czech Republic. The need for the adjustment of the data is mentioned above. Deciles were created according to monthly gross wages for each of the individual years in the monitored interval (2014–2022). Subsequently, average values of the hourly absence of employees in the year, the standard deviation (SD) and the coefficient of variation (CV) were calculated for the individual deciles.

Table 2: Average number of hours of employee absence from work, standard deviation and coefficient of variation for individual income deciles in 2014–2022

2014	Interval	Mean	SD	CV	2015	Interval	Mean	SD	CV
1	8 500–15 001	117.67	153.36	1.303	1	8 500–15 472	125.432	160.538	1.280
2	15 002–18 460	110.53	111.37	1.008	2	15 473–19 169	120.216	117.009	0.973
3	18 461–21 140	112.85	100.17	0.888	3	19 170–21 987	124.196	108.032	0.870
4	21 141–23 499	124.80	102.30	0.820	4	21 988–24 401	136.081	107.122	0.787
5	23 500–25 768	130.83	103.25	0.789	5	24 402–26 754	137.961	104.094	0.755
6	25 769–28 349	132.50	100.76	0.761	6	26 755–29 429	140.038	102.618	0.733
7	28 350–31 819	123.28	91.74	0.744	7	29 430–32 993	130.332	93.743	0.719
8	31 820–37 304	111.14	80.81	0.727	8	32 994–38 625	116.596	82.169	0.705
9	37 305–49 358	108.66	75.23	0.692	9	38 626–50 935	113.456	76.686	0.676
10	49 359 +	105.42	67.92	0.644	10	50 936 +	110.506	68.055	0.616
Total		117.77	101.63	0.838	Total		125.481	105.360	0.811

2016	Interval	Mean	SD	CV	2017	Interval	Mean	SD	CV
1	9 200–16 704	126.766	168.994	1.333	1	9 900–18 164	132.637	171.458	1.293
2	16 705–20 480	117.219	120.037	1.024	2	18 165–22 139	125.351	123.605	0.986
3	20 481–23 312	124.139	109.104	0.879	3	22 140–25 128	131.848	115.429	0.875
4	23 313–25 739	131.238	105.366	0.803	4	25 129–27 733	138.524	110.004	0.794
5	25 740–28 212	135.823	103.154	0.759	5	27 734–30 371	141.636	106.736	0.754
6	28 213–30 984	136.450	100.263	0.735	6	30 372–33 384	143.910	105.707	0.735
7	30 985–34 708	130.923	94.058	0.718	7	33 385–37 268	137.712	98.339	0.714
8	34 709–40 546	116.170	81.817	0.704	8	37 269–43 268	124.567	87.633	0.704
9	40 547–53 106	112.858	74.865	0.663	9	43 269–56 026	122.121	81.472	0.667
10	53 107 +	106.439	63.473	0.596	10	56 027 +	115.855	69.785	0.602
Total		123.803	106.200	0.822	Total		131.416	110.585	0.812

2018	Interval	Mean	SD	CV	2019	Interval	Mean	SD	CV
1	11 000–19 934	145.036	174.878	1.206	1	12 200–21 155	134.824	166.922	1.238
2	19 935–24 156	136.260	126.893	0.931	2	21 156–25 515	128.949	122.836	0.953
3	24 157–27 307	140.277	115.083	0.820	3	25 516–28 912	131.685	111.961	0.850
4	27 308–30 125	149.136	111.810	0.750	4	28 913–32 019	135.341	105.679	0.781
5	30 126–33 021	153.258	108.484	0.708	5	32 020–35 211	142.221	104.795	0.737
6	33 022–36 298	155.460	107.929	0.694	6	35 212–38 830	148.825	108.724	0.731
7	36 299–40 441	153.293	103.782	0.677	7	38 831–43 208	152.380	109.529	0.719
8	40 442–46 867	140.811	92.931	0.660	8	43 209–49 805	146.013	100.764	0.690
9	46 868–60 199	133.765	84.432	0.631	9	49 806–63 655	132.999	84.691	0.637
10	60 200 +	127.740	71.886	0.563	10	63 656 +	126.216	71.507	0.567
Total		143.504	113.284	0.764	Total		137.945	111.625	0.790

2020	Interval	Mean	SD	CV	2021	Interval	Mean	SD	CV
1	13 350–22 900	255.189	264.722	1.037	1	14 600–24 618	244.679	269.385	1.101
2	22 901–27 332	221.946	204.720	0.922	2	24 619–29 248	209.448	218.064	1.041
3	27 333–30 825	208.561	183.150	0.878	3	29 249–32 998	187.462	181.072	0.966
4	30 826–34 128	201.669	164.729	0.817	4	32 999–36 570	180.057	161.520	0.897
5	34 129–37 557	201.023	160.684	0.799	5	36 571–40 230	180.150	153.314	0.851
6	37 558–41 379	200.242	151.324	0.756	6	40 231–44 496	180.483	141.624	0.785
7	41 380–46 257	203.399	145.063	0.713	7	44 497–49 627	186.619	139.703	0.749
8	46 258–53 291	195.204	137.427	0.704	8	49 628–57 074	184.026	129.507	0.704
9	53 292–68 399	175.780	121.846	0.693	9	57 075–73 124	157.778	113.808	0.721
10	68 400 +	151.607	100.819	0.665	10	73 125 +	134.964	89.415	0.663
Total		201.462	171.136	0.799	Total		184.567	169.491	0.848

2022	Interval	Mean	SD	CV
1	15 200–26 115	168.956	209.741	1.241
2	26 116–31 055	155.482	154.252	0.992
3	31 056–34 966	154.395	133.255	0.863
4	34 967–38 572	153.950	123.187	0.800
5	38 573–42 341	156.873	120.870	0.770
6	42 342–46 753	162.428	123.038	0.757
7	46 754–52 190	168.389	121.500	0.722
8	52 191–60 394	160.540	111.805	0.696
9	60 395–78 276	139.752	93.992	0.673
10	78 276 +	122.186	71.426	0.585
Total		154.295	131.694	0.810

Source: ISPV and ISP data, own calculations

The results revealed a number of key findings, the first of which concerns the impact of Covid-19 on employee absenteeism. Covid-19 was a particularly significant external shock that clearly divides the pre-Covid and Covid period sets of total values. The data was not robust enough to draw conclusions for the post-Covid period.

The second major finding concerned the difference between the maximum and minimum average decile absence values in 2014–2019 (pre-Covid) of 28 hours, i.e. three and a half days in terms of an eight-hour working day. The difference is not so significant and there is a high probability that it was due to benefits such as automatic sick days, remote work and the entitlement to more holiday days than stipulated by the Labour Code. Persons with higher incomes usually enjoy at least one of these benefits and, in many cases, all three. Employees from the 9th and 10th deciles evinced the lowest absenteeism rates in all the studied years (2014–2022). It cannot be considered a coincidence that the lowest absenteeism from work rates refer to the highest paid employees.

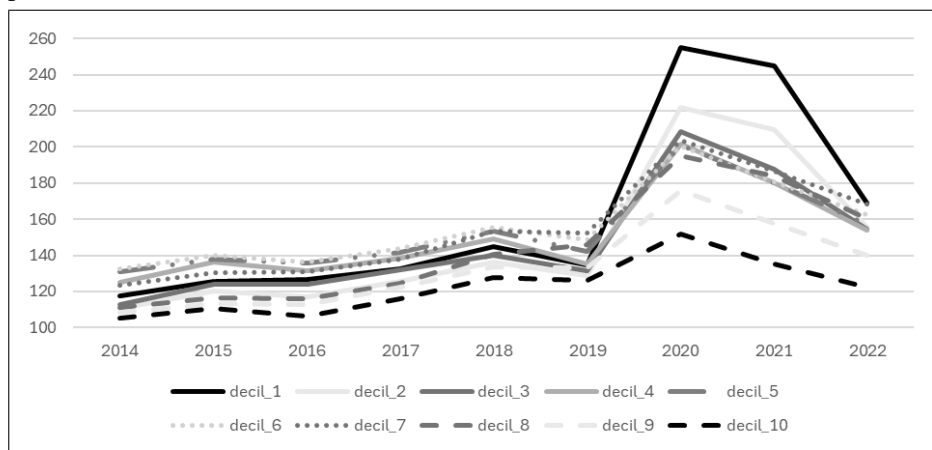
Conversely, it cannot be confirmed that the highest sickness rates were associated with the lowest income deciles in the pre-Covid period; indeed, the data indicates that employees from the 4th and 6th income deciles evinced the highest rates of absenteeism from work. In monetary terms, this interval commenced in 2014 in the amount of CZK 21,141 and was capped in 2019 in the amount of CZK 38,830. In most cases, these deciles were followed in terms of absence by the lowest three income deciles. Lower wages are associated both with unskilled work and employees without experience, whereas the remuneration of those with experience is generally higher. Since experience is related to age, it is reasonable to assume that these employees already have dependent family members, in most cases children. Thus, in addition to illness suffered by the employee, the data on absence includes the illness of family members. While this logic cannot be confirmed, another finding appears to support this suggestion. Women evince higher absenteeism rates than men since women most often provide care for sick family members. It is to be hoped that in the future data will be available that differentiates absence from work for caring for a family member. If it were possible to determine solely employee absenteeism due to his/her illness, the highest values on average would relate to the lowest income deciles.

The years 2020 and 2021 (the Covid years) exhibited different statistical characteristics. Employees from the lowest incomes had the highest absenteeism rates and absenteeism decreased with almost every increase in the deciles. The advantage of professions that could be performed from home and/or that could take automatic sick days and use their higher holiday entitlement was clear during the Covid period. Even if such employees were sick or had to care for a family member, they were not forced to claim sickness insurance benefits. The difference between the highest and the lowest decile concerning the average absence of employees was 13 days during the Covid period. 2022 is atypical in terms of its neither exhibiting the trends of the Covid years nor the trend typical of the pre-Covid era. It is currently not possible to identify the future development in this respect. The author was unable to find a reason for the development of the absenteeism of employees in the respective legislation. Thus, it will be interesting to observe the employee absence figures for 2023 once they become available.

Following the analysis of the overall average and the averages of the individual deciles, the analysis of the standard deviation and the coefficient of variation provided further interesting information. In this case, the variability of the data is more in line with the economic theory. With the exception of 2022, it is clear that the degree of the variability of the data decreased with increasing income. The first deciles exhibited considerable dispersion, with maximum coefficient of variation values of in excess of 130% in percentage terms. With higher income deciles, the values deviated less from the average. Employees in the higher income deciles were found to be more similar in terms of absenteeism from work; the coefficient of variation values are at least two times lower than those of the lower deciles. One of the explanations relates to accidents in the workplace. Occupational accidents are more often associated with work that is relatively low paid, manual and physically demanding (ÚZIS, 2022). The length of time required for recovery from an occupational accident is usually longer than the time required for the treatment of seasonal

illnesses (colds, flu, etc.). Moreover, occupational injuries occur in addition to illness, which serves to significantly increase the overall number of hours of absence from work. The following graph shows the development of the average absence of employees in the defined income deciles.

Figure 1: Development of the average employee absence values for the defined deciles in the period 2014–2022



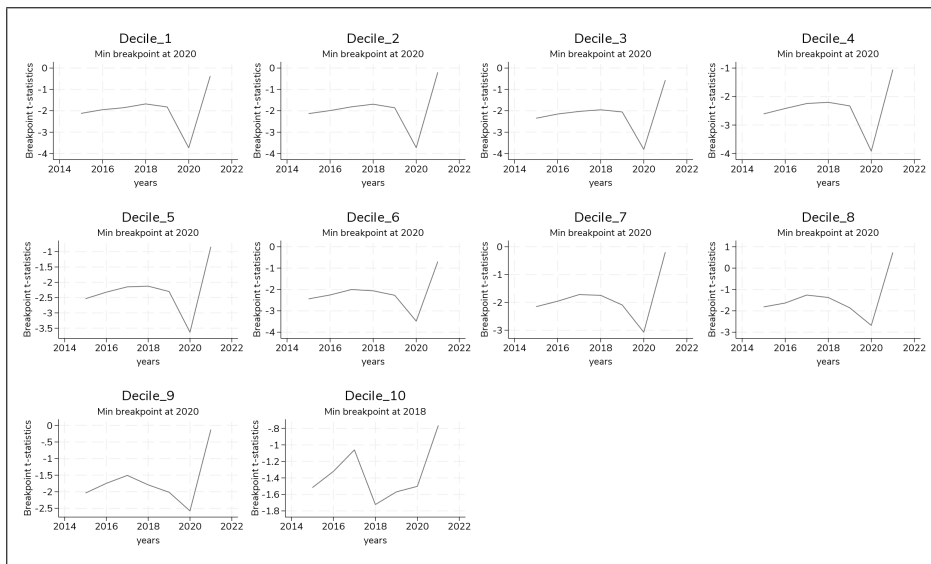
Source: ISPV and ISP data, own calculations

The graph reveals a slight increase (three working days on average) in employee absenteeism for all the deciles from 2014 to 2018. This was followed in 2019 by a decrease of half a working day. Covid-19 led to an extreme increase in absenteeism; the three lowest income deciles saw the highest increases and the three highest income deciles the lowest increases.

The structural breaks method was applied to study the impacts of Covid at the decile level. The conditions of the Zivot-Andrew test were fulfilled despite the relative shortness of the time series. For the purposes of clarity, the results for the individual deciles are shown in graph form in Figure 2.

It is possible to confirm at the decile level that Covid-19 represented a significant external shock that was unprecedented in the monitored period. Concerning deciles 1 to 9, Covid-19 represented a structural break that significantly altered the statistical properties of the time series. The structural break occurred as early as in 2018 with concern to the highest decile, for which the author was unable to determine an explanation. It is possible to state only that a factor appeared in 2018 that affected only the highest paid group of employees. It can be further stated that Covid-19 did not represent such a significant shock for the highest paid decile of employees in terms of absence from work.

Figure 2: Zivot-Andrews test for all the deciles



Source: ISPV and ISP data, own calculations

Sickness insurance is based on the insurance principle – employees pay 0.6% and employers 2.1% of the wage or salary. It is also based on solidarity – the healthy to the sick and higher-income workers to lower-income workers. As mentioned previously, employees with higher incomes tend to be healthier, a fact that has been empirically proven. Given the rapidity at which the Czech population is ageing, it can be expected that the sickness insurance system will again encounter financial problems in the relatively near future. Older working populations exhibit higher absenteeism from work rates due to poorer health (naturally, exceptions exist), which leads to the payment of increasingly higher total amounts of sickness benefits.

Several solutions are available to balancing the financing of the sickness insurance system, some of them more realistic than others, e.g. reducing sickness rates, increasing remuneration for work, increasing the percentage payment rate, reducing the percentage rate of the sickness benefit and optimising the para-fiscal system as a whole. However, the purpose of this article is not to discuss the various options, rather to point out the risks that the fiscal authorities will face in the future. Each of the options has its advantages and disadvantages, and no simple solution is available. It is, however, certain that employees will see further legislative adjustments to the sickness insurance system that will be financially disadvantageous. This statement is based on the political reality in the Czech Republic, where problems are only rarely addressed proactively; rather, solutions tend to be determined in an ad hoc way.

The latest increase in sickness insurance payments comprised merely an accounting correction aimed at balancing the sickness insurance account; it was neither systemic nor aimed at solving the problems that the Czech Republic will face in the near future in this respect. The legislative amendment was adopted in such a way that it met with the minimum of obstacles. Employers in the Czech Republic exert considerable political influence, thus there is the risk that they will oppose disadvantageous changes. Hence, the path of least resistance was chosen, i.e. through introducing employee contributions. One of the other basic principles of the sickness insurance system is the obligation to pay contributions, i.e. it does not take into account the preferences of employees. For the sake of objectivity, however, it is necessary to add that this principle balances the principle of mandatory entitlement.

It is also worth considering whether higher sickness insurance contributions will lead to the encouragement of employees to claim benefits (Henrekson and Persson, 2003), particularly for those in the lower income deciles who have no alternatives in the form of remote work, automatic sick days and more than the statutory number of holiday days. Higher contributions would reduce the disposable income of employees, which could lead to an increase in absenteeism via, e.g. the simulation of illness. One can imagine the straightforward reasoning of employees in this respect: “If I have to pay, then I might at least get something out of it; at least I can take a break from work.” This logic is not so unreasonable if one has a knowledge of the Czech character. The risk of this approach would be much lower, however, concerning those in higher income deciles since they would lose more income in absolute terms and, in addition, they have alternative options.

IV. Conclusion

This article provided an analysis of the relationship between employee incomes and absence from work due to illness or caring for a family member. A legislative overview of the sickness insurance system, especially the most significant changes that have been introduced recently, was presented in the first part of the paper. This was followed by the consideration of the Covid-19 disease, which exerted a huge impact on the sickness insurance account and which led directly to the introduction of the latest legislative adjustment of the system, i.e. the requirement for employees to pay sickness insurance contributions as part of the social insurance system.

The investigated hypothesis suggested that absenteeism from work (caused by the illness of the employee or the need to care for a family member) is not distributed evenly among employees. Based on economic theory, lower income deciles should have higher absenteeism rates than those in higher income deciles due to living a less healthy lifestyle and the unavailability of benefits such as remote work, automatic sick days and above-standard holiday entitlement. The uneven distribution was confirmed. However, it was not confirmed that the lowest income deciles evince the highest absenteeism rates; rather, employees in the 4th to 6th income deciles were found to have the highest rates, followed by the lowest three income deciles. The reason for the high absenteeism rates of employees in the 4th to 6th income deciles may have concerned the inclusion of caring for a family member in the absence data. Illness in children is influenced by factors other than those

of illness in adults. Higher absence from work rates were also identified for women, who more often than men claim sickness benefits due to having to care for a family member. In the case of the lowest income deciles, it is not possible to determine whether the consequences of leading an unhealthy lifestyle manifest themselves in old age or in the approach to retirement age. The expected new official data should serve to answer this question. The Covid-19 epidemic which broke out in 2020 represented an unprecedented external shock. Applying the structural breaks method, it was confirmed that Covid-19 indeed represented a structural break in the employee absence from work time series. Only for the highest income decile did Covid-19 not represent a structural break. This decile was found to have experienced a structural break in 2018, concerning which the author was unable to find an explanation.

The sickness insurance system will face further political pressure in the near future due to the Czech Republic having to face demographic changes for which it is not prepared. The population is ageing and no proactive steps are being taken to address the expected consequences. To a great extent, the sickness insurance balance is relieved by those in higher income deciles, who claim lower sickness benefits, be it for themselves or for caring for a family member. However, it is inevitable that the fiscal authorities will have to address this area once more via an approach that will, hopefully, be better thought out and address the sickness insurance system in a more comprehensive way.

Acknowledgements

This study was supported by institutional support for the long-term conceptual development of research organisations for the period 2023–2027 (provided to RILSA by the Ministry of Labour and Social Affairs, CZ) and forms part of the Analysis of the adequacy of the minimum wage in the Czech Republic project (no. IP70209) conducted by the Research Institute for Labour and Social Affairs in 2024.

References

- Ahmad, W., Kutan, A. M., Gupta, S. (2021). Black swan events and COVID-19 outbreak: Sector level evidence from the US, UK, and European stock markets. *International Review of Economics & Finance*, 75, 546–557.
- Brožová, D. (2016). Formování moderní ekonomiky trhu práce: O úloze institucionalistických teorií. *Acta Oeconomica Pragensia*, 24(6), 56–68.
- Červenka, F., Beran, V., Bílková, D. (2021). *Report o úpravě datových souborů pro projekt „Vliv minimální mzdy na trh práce v ČR“*. Výzkumný ústav práce a sociálních věcí, v. v. i.
- Henrekson, M., Persson, M. (2003). *The Effects on Sick Leave of Changes in the Sickness Insurance System*. Stockholm: Institute for International Economic Studies.
- International Labour Organization (1952). *Social Security (Minimum Standards) Convention, 1952 (No. 102)*. Retrieved June 10, 2024, from https://normlex.ilo.org/dyn/normlex/en/f?p=NORMLEXPUB:12100:0::NO::P12100_ILO_CODE:C102.
- International Labour Organization (1969). *Medical Care and Sickness Benefits Convention, 1969 (No. 130)*. Retrieved June 10, 2024, from https://normlex.ilo.org/dyn/normlex/en/f?p=1000:12100:::12100:P12100_INSTRUMENT_ID:312275.

- Leigh, J. P. (1986). Correlates of Absence from Work Due to Illness. *Human Relations*, 39(1), 81–100.
- Perman, R., Byrne, J. P. (2006). Unit roots and structural breaks: a survey of the literature. *Working Papers* 2006 (10), 1–23.
- Pfeifer, C. (2010). Impact of wages and job levels on worker absenteeism. *International Journal of Manpower*, 31(1), 59–72.
- Principi, N., Esposito, S., Marchisio, P., Gasparini, R., Crovari, P. (2003). Socioeconomic impact of influenza on healthy children and their families. *The Pediatric Infectious Disease Journal*, 22(10), 207–210.
- Svaz průmyslu a dopravy ČR (2022). *Flexibilní formy práce v ČR*. Retrieved June 20, 2024, from https://www.spcr.cz/images/pdf/2022_Flexibilni_formy_prace_v_CR.pdf.
- Taleb, N. N. (2004). The Roots of Unfairness: the Black Swan in Arts and Literature. *Journal of the International Comparative Literature Association*, 1–7.
- Taylor, D. E. (1981). Absences from work among full-time employees. *Monthly Labor Review*, 104(3), 68–70.
- Tompa, E., Scott-Marshall, H., Fang, M. (2008). The impact of temporary employment and job tenure on work-related sickness absence. *Occupational and Environmental Medicine*, 65(12), 801–807.
- Ústav zdravotnických informací a statistiky ČR (2022). *Zdravotnictví ČR: Ukončené případy pracovní neschopnosti pro nemoc a úraz 2021*. Retrieved June 21, 2024, from <https://www.uzis.cz/res/f/008412/uppn2021.pdf>.
- World Health Organization. Regional Office for Europe. (1999). *Healthy Living: What is a Healthy Lifestyle?*. Retrieved June 16, 2024, from https://iris.who.int/bitstream/handle/10665/108180/EUR_ICP_LVNG_01_07_02.pdf?sequence=1&isAllowed=y.
- Zivot, E., Andrews, D. W. K. (1990). Further Evidence on the Great Crash, the Oil Price Shock, and the Unit Root Hypothesis. *Cowles Foundation Discussion Papers*. 1187.
- Czech legislation: Act No. 187/2006 Coll., Health Insurance.
- Czech legislation: Act No. 258/2000 Coll., on the Protection of Public Health.
- Czech legislation: Act No. 589/1992 Coll., of the Czech National Council on social security premiums and contribution to state employment policy.