VŠE / PRAGUE UNIVERSITY OF ECONOMICS AND BUSINESS

Recovery of Claims Arising from Abuse of Non-insurance Social Security Benefit System*

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Abstract

The paper presents the volume of debts incurred as part of non-insurance social security benefits in the Czech Republic from 2016 to 2020 and defines the structure of these debts by individual types of non-insurance social security benefits, where 25% is attributable to parental allowance, followed by housing allowance (17%) and subsistence allowance (20%). The analysis deals with the number of debts broken down into paid, collected, settled by other means, written off for uncollectibility or extinction of the right. The study works with unique data obtained by summarisation from the application programmes used by the Labour Office of the Czech Republic, which showed a continuous decrease in total identified claims by 46% between 2016 and 2020. An analysis of time series and a regression and correlation analysis are performed in the paper. These methods confirm a decreasing trend in the number of total debts and a decreasing proportion of paid debts over time, in contrast to the ratio of outstanding debts, which has been increasing over time. Lastly, they also identify variability in the structure of social security benefits, *i.e.*, inconsistency in the share of individual benefits over the period under review. Social expenditures are fundamental to state spending, but addressing their potential misuse is a sensitive political issue. From an economic perspective, this paradoxical situation leads to overlooking potential resources that could be potentially available through the elimination of purposeful exploitation of the social system, leaving the question of the frequency of purposeful claiming unanswered. Any potential political decision to reduce social expenditures, without an economic evaluation of the frequency and volume of purposefully claimed benefits from the social system, may not be optimal.

Keywords: Write-off, extinction of right, repayment, labour office, debt collection

JEL Classification: H21, H75, D61, G38

1. Introduction

The abuse of social security benefits is a topic that is discussed rather guardedly at the political level. Also, articles in the media describe the issues in terms of mentioning the possibility of abusing non-insurance social security benefits by claimants who are either forced to behave in this way – for example, by the black labour market – or are enabled to do so by imperfect laws. From the ordinary citizen's point of view, it is easy to come to believe that the deliberate abuse of social security benefits by claimants is an insignificant or even trivial issue that does not need to be addressed. However, the OECD (2020) summarized that frauds in social security benefits programmes can negatively influence the vital services referring to the estimated amounts of frauds realized by the state authorities of France (425 million EUR in 2014) and the United States (647 million EUR in 2015). Another study (van Stolk and Elmerstig, 2014) declared that the economic costs of social security system mistakes can be considerable, stating that in certain OECD countries, from 5% to 10% of the social support can be allocated wrongly. An older comparison (van Stolk and Tesliuc, 2010) showed that the level of frauds and errors in the social area declared by selected OECD countries (Canada, the UK, Ireland, New Zealand and the USA) lies between 0% and 7%, depending on the country and the type of social security benefit. Nevertheless, the same review (van Stolk and Tesliuc, 2010) pointed out that social support in India did not reach the intended beneficiaries in the amount from 31.6% to 53.5%.

We aware of many ways of possible abuse (*e.g.,* insufficient control of benefit use, the role of social security benefits as a substitute for insufficient use of other instruments to support the population, *etc.*), which motivates us to analyse the number of debts arising from unjustified payments of non-insurance social security benefits and the number of such payments, or more precisely to evaluate the success rate of the recovery of these social security benefits into the state budget using a case study of the Czech Republic.

The paper is divided into six sections: the Introduction explains our motivation for addressing the issues. Section 2 describes the focus of research performed in the given area worldwide, and Section 3 defines the data acquisition method, including the processing methods. This is followed by the Results section, which evaluates the total volume of debts in the specified period and compares it with the total volume of debts repaid, extinguished, written off and submitted for collection. The hypotheses defined are then tested thanks to the previous analyses of the individual benefits. The following sections characterize the research limitations and summarize the significant findings.

2. Literature Review

Following the negative impacts not only of the recent financial crisis but also of the COVID-19 pandemic on public finance in many countries, there is great interest in studying attitudes to identifying effective policies to increase the public support and social security programmes, including the aspect of benefit efficiency (Moro-Egido and Solano-García, 2020).

According to Davydov (2017), the "Welfare State" is a crucial concept in the social policy theory, which the author uses to mean the public social services of the state, and Potůček (1999), in his book titled "Social Policy", directly states that in such a state, "Each of its citizens receives at least a certain recognized minimum of social support and assistance in various life situations that potentially or currently threaten him/her or their family". The basic social policy measures of the state are legislative acts having a broad reach that influence the entire population or only specific groups (Krebs *et al.*, 1997), the identification of funding sources and organisational instruments that will implement the social policy. One of the social policy measures in the Czech Republic is the social security system, divided into insurance and non-insurance social security benefits.

The entitlement to non-insurance social security benefits in the Czech Republic does not depend on any contribution of the beneficiary to the state system; the benefits are paid from the state budget and these benefits are intended to increase the income of low-income households, to provide them with a certain standard of housing or to improve the quality of facilities for children (Maaytová *et al.*, 2015). This model can be viewed as a provision model based on broader solidarity and redistribution of resources (between the ill and the healthy, the old and the young, *etc.*) (Tomeš, 2001).

In the case of the Czech Republic, the non-insurance social security benefits include public assistance benefits in material distress (subsistence allowance, housing allowance, extraordinary immediate assistance), state social security benefits (child allowance, parental allowance, childbirth allowance, funeral allowance, housing allowance) and foster care benefits (allowance to cover the child's needs, allowance upon fostering a child, allowance upon the termination of foster care, foster parent's remuneration, allowance for the purchase of a passenger car), benefits for persons with disablement (mobility allowance, special equipment allowance) and benefits for persons dependent on the assistance of another person. Since January 2012, the Czech Labour Office has been paying all non-insurance social security benefits. The objective is to help people in difficult situations that they cannot cope with on their own. These situations are referred to by law as "social events", constituting an entitlement to the benefit and its payment (Čeledová and Čevela, 2020). However, all the laws stipulating the conditions for entitlement to a non-insurance social security benefit and its payment also impose the obligations on the claimants to comply with them during the period of entitlement to the benefit and its payment. Failure to comply with these obligations may lead to the withdrawal of the benefit, the reassessment of the entitlement to the benefit and, in the case of a benefit already paid, to an overpayment which the claimant is obliged to repay. The abuse of benefits can be regarded as deliberate abuse, where the law allows provision of a benefit to someone who was not entitled to receive it (Průša *et al.*, 2014).

The abuse of social security benefits as a principal research topic is based on the fact presented in Karl's (2001) research – namely that one of the main arguments which underlies the criticism

of benefit programmes and the call for fundamental changes stems from the assumption that many beneficiaries cheat and consequently the public acceptance of these programmes decreases. Early detection of fraud is the basis for dealing with debt collection; therefore, the intensity of auditing should automatically increase with the benefit amount (Appelgren, 2019). The parametric studies conducted by Lin et al. (2020) quantify the arguments that reducing audit errors and increasing supervision can help reduce fraud losses.

The results of the multiple regression in the study by Fijwala *et al.* (2014), carrying out research on English respondents, suggest that the recent history of unemployment was not a significant predictor of the perceived increase in benefit frauds – this is only indicative of a high Machiavellianism score. In practice, however, individuals are far more likely to condemn benefit frauds than tax evasion. In their opinion, the importance of public finance in individuals' lives, along with the perceived prevalence of illegal behaviour, is important when comparing attitudes and behaviour towards public finance crime across countries (Cullis *et al.*, 2015).

Benefit programmes have long been overlooked in social policy research (Morris, 2023). Currently, some scientific studies focus on the disproportionality in granting of social security benefits in relation to regions (Sales-Fonseca and Otero, 2023; Tervola *et al.*, 2023), on the insufficient valorization of social security benefits due to inflation (Hartmann-Cortés, 2022) or examining relationships between the level of social security benefits and financial vulnerability (Šubová, 2023). The topic of abuse of social security benefits can therefore be identified as an important scientific gap that needs to be filled.

3. Data and Methodology

The article was prepared using data as of 31 July 2021, which were synthesized from the application programmes of the Labour Office of the Czech Republic. Every Czech Labour Office was asked for available data by the authors. Nevertheless, the Labour Office of the Czech Republic currently has no comprehensive programme that would track the volume of assessed debts for the entire Labour Office and their further processing according to the settlement method and type of benefits. The benefit processing (entering applications, granting or denying the entitlement to benefits, payment of benefits and assessment of debts) is divided into two application programmes. Foster care benefits, state social security benefits and benefits for persons with disabilities are processed under the *OKcentrum* programme (with nationwide interconnection). The benefits for those in material distress and care allowances are processed under the *OKnouze/ OKsluzby* [in English they could be called *OKdistress/OKservices*] programme (only with local interconnection at one specific workplace). According to the internal service regulations, the debts are tracked and subsequently settled only at the regional workplace where they originated, which has made it necessary for the authors to synthesise data from the 14 regional branches of the Labour Office.

The data on debts incurred on individual benefits and the data on how they were settled were analysed for the period from 2016 to 2020. Within this period, the following hypotheses were tested:

H_1: The total debts show a downward trend.

H_2: The trend of repaid debts is increasing faster (or decreasing more slowly) than the trend of total debts, which indicates a higher efficiency of collecting debts.

H_3: The structure of total debts in terms of individual benefits is constant over time.

The first assumption will be verified by calculating a base index with 2016 as the base and a chain index. The base index is used to compare the development of values against the base period t_0, *i.e.,* (t/t_0); values below 100 indicate a decrease, and values above 100 indicate an increase against the base period. The chain index is used to compare the development of values compared to the previous period $t - 1$, *i.e.,* $(t / t - 1)$; values below 100 indicate a decrease, and values above 100 indicate an increase compared to the previous period (Anděl, 2019).

The time series analysis will also include a cointegration and causality test in EViews. Cointegration is a statistical property of combinations of variable time series. If two or more time series are individually integrated, but one of their linear combinations has a lower order of integration, then the series are cointegrated. The test of cointegration determines whether there is any relationship between the observed series that could be represented by the cointegration equation (Anděl, 2019). Afterwards, it is also appropriate to perform a causality test to determine whether there is a conditional relationship between the series. The following ones were performed:

a) The Engle-Granger cointegration test – this two-step test runs two regressions; the second one is run on the first differentiable variable from the first regression, and the delayed remainders are included as a regressor (an explanatory variable) (Anděl, 2019). This test was performed on all combinations of time series with the "debts" variable.

b) The Granger causality test is used to decide whether the time series influence each other. The test determines causality, *i.e.,* whether one time series helps forecast the next one, and measures the ability to predict future values of a time series using previous values of another time series. Thus, only "predictive causality" is searched for. A time series is causally related to another one if it is shown on lagged values by t-tests and F-tests that the values of the series give statistically significant information about the future values of the other series (Křivý, 2012; Srdić, 2013).

Moreover, the correlation and regression coefficients were determined and tested in the SPSS program. Correlations can be determined using the Pearson correlation coefficient, which measures the strength of the linear dependence between two quantitative variables. Its values range from −1 to +1, with extreme values indicating absolute dependence. The sign indicates the direction

(the plus sign indicates a direct correlation, while the minus one indicates an indirect correlation). The statistical significance of the coefficient, and therefore of the tested dependence, can be determined using the test and its corresponding *p*-value. If the *p*-value is lower than the selected significance level (usually 5%), the dependence measured by the coefficient is considered statistically significant. The coefficient value directly indicates the intensity of the correlation (Cleophas and Zwinderman, 2021). The regression analysis is used to observe a given dependent quantitative variable's dependence on one or more independent quantitative variables. It aims to describe this dependence using a suitable model; most often, it is an equation; thus, it is a linear model. The *F*-test determines whether the model is appropriate, by detecting whether the dependence is present at the chosen significance level α, usually 5%. Whether all variables in the model are significant is determined by individual *t*-tests on their parameters. Parameters should be excluded if they are not significant or if some variables intercorrelate highly and the multicollinearity of the input variables invalidates the model. A high-quality model is defined by the highest value of the R^2 regression coefficient, which indicates the proportion of the explained variability by the given model (Cleophas and Zwinderman, 2021). Moreover, the Durbin-Watson test was performed, which verifies the autocorrelation of residuals in a regression analysis model. The values of the test range from 0 to 4, with a value of 2 indicating no autocorrelation detected in the sample. Values between 0 and 2 indicate positive autocorrelation, while values between 2 and 4 signify negative autocorrelation. Values between 1.5 and 2.5 represent a normal state of residuals (Hindls *et al*., 2007).

4. Results

4.1 Development of debts over time

The development of total debts can be analysed in terms of the development of their values and the values of their respective components over time, namely using growth coefficients, and also in terms of the development of their structure over time.

Table 1 clearly shows that the amount of debts has been decreasing over time, as has the amount of repaid debts and other components. However, the amount remaining to be paid has been increasing. This is also evident in the development of the growth coefficients, where the base index of debts is below 100 and has been declining over time, and the base index of the item "repaid" is below 100 and has been decreasing over time faster than that of debts. However, the base index of the "remains to be paid" component is above 100 and has been increasing over time. This corresponds with the chain indices, where the chain index for debts is below 100 and has been declining year on year over time, just as the "repaid" items that are below 100 and, with the exception of 2019, have been declining year on year. However, for the "remains to be paid" component, the chain indices are always above 100 and tend to increase year on year over time. This indicates a trend where the debts are decreasing over time, and the repaid ones are decreasing by a larger amount, while the ones remaining to be paid are increasing by a larger amount.

Table 1: Development of total debts over time and its individual components in terms of settlement method

	2016	2017	2018	2019	2020
Total amount					
Debts in CZK	321,227,137	317,557,148	285,776,466	238,329,827	173,581,525
Repaid	247,129,613	221,478,536	190,765,014	175,046,025	115,116,065
Remains to be paid	14,187,341	16,912,970	20,102,668	31,325,977	42,894,764
Written off	8,525,652	9,058,291	19,883,643	3,333,955	653,084
Extinguished	13,677,383	11,323,383	6,228,389	3,586,255	1,523,695
Submitted for collection	37,707,148	58,783,968	48,796,752	25,037,615	133,939,170
%					
Debts %	100	100	100	100	100
Repaid %	76.9	69.7	66.8	73.4	66.3
Remains to be paid %	4.4	5.3	7.0	13.1	24.7
Written off %	2.7	2.9	7.0	1.4	0.4
Extinguished %	4.3	3.6	2.2	1.5	0.9
Submitted for collection %	11.7	18.5	17.1	10.5	7.7
Base index (t/t_0)					
Debts (t/t_0)		98.9	89.0	74.2	54.0
Repaid (t/t_0)		89.6	77.2	70.8	46.6
Remains to be paid (t/t_0)		119.2	141.7	220.8	302.3
Written off (t/t_0)		106.2	233.2	39.1	7.7
Extinguished (t/t_0)		82.8	45.5	26.2	11.1
Submitted for collection (t/t_0)		155.9	129.4	66.4	35.5
Chain index ($t / t - 1$)					
Debts ($t / t - 1$)		98.9	90.0	83.4	72.8
Repaid ($t / t - 1$)		89.6	86.1	91.8	65.8
Remains to be paid ($t / t - 1$)		119.2	118.9	155.8	136.9
Written off ($t / t - 1$)		106.2	219.5	16.8	19.6
Extinguished ($t / t - 1$)		82.8	55.0	57.6	42.5
Submitted for collection ($t / t - 1$)		155.9	83.0	51.3	53.5

Source: Authors' own calculations

Based on the growth coefficients, it can therefore be concluded that the proportions of all debt components such as "repaid", "written off", "extinguished" and "submitted for collection" have been decreasing over time, while the proportion of the "remains to be paid" component has been increasing. Over the five years, the proportion of repaid debts fell from ¾ to ⅔ and, conversely, the proportion of debts remaining to be paid rose from 4% to ¼, as can be seen in Figure 1.

Figure 1: Development of total debts and individual components by settlement method over time
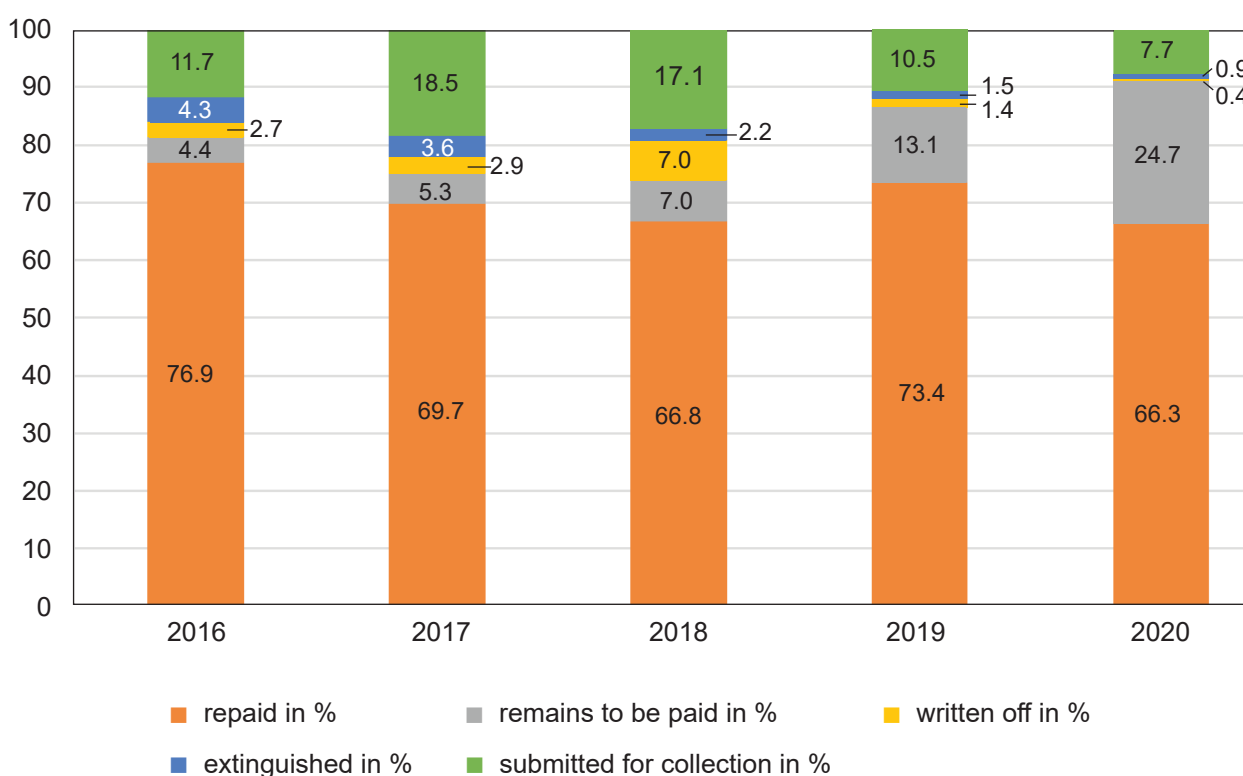
Source: Authors' own elaboration

All combinations of time series with the "debts" variable were tested using the Engle--Granger cointegration test. The null hypothesis of the absence of cointegration was not rejected anywhere, *i.e.*, one particular equation cannot be found between any of the pairs; thus, the pairs of series are not considered to be cointegrated. The paired Granger causality test tested the bilateral causality. In the case of pairs of series with the "debts" variable, only one direction of causality is always applicable, namely whether the "debts" cause any of the other series; therefore, the other directions were excluded. All the tests for cointegration that could be performed did not prove any cointegration or causality. Therefore, we further consider the time series to be mutually uncorrelated and, thus, not having the ability to predict each other's future values well.

4.2 Results of correlation and regression analysis

Since the cointegration of the individual time series combinations with the "debts" variable has not been proven, there is no cointegration correlation between the individual pairs of series, nor has the suitability of the series for predicting other values been demonstrated. Therefore, it is not possible to infer anything about the interdependence of the series by testing the correlation between the series; however, it is possible to determine the strength of the correlation coefficients between the univariate series and thus compare the strength of the similarity between the series. After that, the correlation coefficients are determined for all pairs of time series. As the normality of the data is not rejected using both the Shapiro-Wilk and Kolmogorov-Smirnov tests, we consider the condition of the normally distributed data for the Pearson correlation analysis to be satisfied.

The correlation was examined using the Pearson correlation coefficient. The coefficients marked in yellow were statistically significant (their p-value is below 0.05), but given the fact mentioned above of not confirming the cointegration of the time series, nothing can be inferred about the dependence of these series. In this case, the coefficients are used to compare their strength with each other and to compare how strong the similarity between the series is.

Table 2: Correlation coefficients for debt components

		Repaid in total	To be paid in total	Written off in total	Extinguished in total	Debt collection in total
Debts in total	Pearson correlation	0.973**	(0.996)**	0.614	0.924*	0.869
	Sig. (2-tailed)	0.005	0.000	0.271	0.025	0.056
	N	5	5	5	5	5
Repaid in total	Pearson correlation		(0.967)**	0.467	0.950*	0.737
	Sig. (2-tailed)		0.007	0.428	0.013	0.156
	N		5	5	5	5
To be paid in total	Pearson correlation			(0.665)	(0.914)*	(0.857)
	Sig. (2-tailed)			0.221	0.030	0.063
	N			5	5	5
Written off in total	Pearson correlation				0.361	0.735
	Sig. (2-tailed)				0.550	0.157
	N				5	5
Extinguished in total	Pearson correlation					0.700
	Sig. (2-tailed)					0.188
	N					5

** Correlation is significant at the 0.01 level (2-tailed), * Correlation is significant at the 0.05 level (2-tailed).
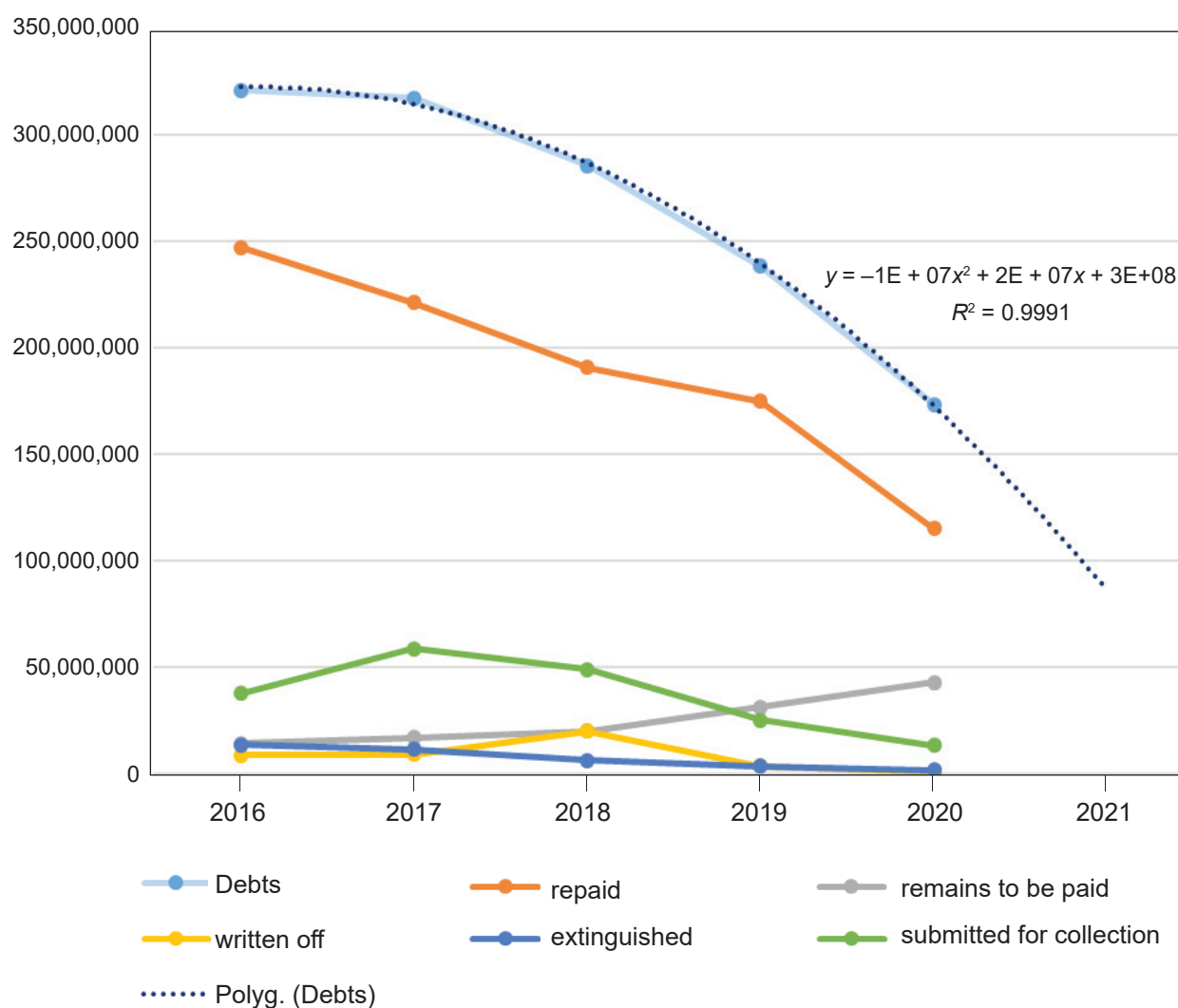
Source: Authors' own calculations

The "debts" series is most similar to the "remains to be paid" series (the coefficient is −0.996), then to the "repaid" series (the coefficient is 0.973) and also to the "extinguished" series (0.924), but there is no similarity with the others. The series mentioned above are also similar to each other, with the "repaid" item being more similar to the "remains to be paid" item (the coefficient is −0.967) than to the "extinguished" item (0.950) and the latter being even less similar to the "remains to be paid" item (the coefficient is −0.914). The positive coefficients mean a positive proportion, *i.e.*, an increase in one increases the other. Conversely, the negative coefficients mean an inverse proportion, *i.e.*, an increase in one decreases the other. Since the sum of all the other series gives the "debts", the development of the variables should complement each other. However, the interesting fact here is that logically, as "repaid" debts decrease, debts "to be paid" increase, but these also increase as "debts" decrease, so although the total amount of "debts" decreases, the "remains to be paid" item does not only decrease, but it even increases.

The regression model of the total debts trend is parabolic, which means that the regression equation is also a quadratic function, where the t-period is also in the power form of t^2. This model explains 99.9% of the variability and is appropriate according to the F-test (the p-value is below 0.05). All the beta regression coefficients are statistically significant in the model (the p-value is below 0.05) and show that the value of total debts decreases with the subsequent time unit t. The representation of the quadratic trend can be seen in Figure 2, along with the displayed prediction for one more year according to the quadratic trend function. The result of the Durbin-Watson test for autocorrelation is 2.790, indicating a slight negative autocorrelation.

The regression models of the individual debt components include, in addition to the linear function of time t, total debts as a basis (instead of the constant) from which their amount is derived. Thus the model is adjusted for the effect of changes in the amount of total debts, and the development over time can be better observed. In the case of these models, it is not essential whether all the regression coefficients are statistically significant, as we are not interested in an exhaustive model explaining all the variability of a given variable or in a trend function suitable for predictions; instead, we are interested in the trend of the individual components depending on the amount of total debts and on time. By increasing the total debts by one unit, each of the components will also increase by a certain proportion. The next period of t (year) in such a model, which is adjusted for the effect of the base amount (total debts) with a positive regression coefficient, will increase the given component and, on the other hand, decrease if the regression coefficient is negative. All components decrease over time, but debts to be settled increase.

Figure 2: Development of total debts with regression trend function predicting 1 year and development of amounts of individual debt components in terms of their settlement

$y = -1E + 07x^2 + 2E + 07x + 3E+08$

$R^2 = 0.9991$

Legend: Debts · repaid · remains to be paid · written off · extinguished · submitted for collection · Polyg. (Debts)

Source: Authors' own elaboration

Table 3: Regression models of individual debt settlement categories based on total amount of debts over time

Model	Unstandardized coefficients		Standardized coefficients beta	*t*	Sig.
	B	Std. error			
Coefficients – dependent variable: Repaid_in total					
Total debts	0.742	0.034	1.037	21.764	0
t	−2,863,760.905	2,804,673.728	−0.049	−1.021	0.382
Coefficients – dependent variable: Remains to be paid_in total					
Total debts	0.007	0.012	0.073	0.624	0.577
t	7,662,937.381	967,129.825	0.933	7.923	0.004
Coefficients – dependent variable: Written off_in total					
Total debts	0.041	0.019	1.052	2.112	0.125
t	−827,227.933	1,591,415.708	−0.259	−0.520	0.639
Coefficients – dependent variable: Extinguished_in total					
Total debts	0.044	0.004	1.392	10.192	0.002
t	−1,496,297.990	353,881.680	−0.577	−4.228	0.024
Coefficients – dependent variable: Collection_in total					
Total debts	0.166	0.032	1.131	5.232	0.014
t	−2,475,650.553	2,618,130.889	−0.204	−0.946	0.414

Source: Authors' own calculations

The model of repaid debts explains 99.8% of the variability. Each additional unit of total debts means an increase in repaid debts by 0.742 units. The regression coefficient for the period *t* (year) is negative and thus implies a decrease in repaid debts over time. The result of the Durbin-Watson test for autocorrelation is 2.172, indicating the absence of autocorrelation in the residuals. **The model of debts remaining to be paid** explains 98.5% of the variability. Each additional unit of total debts means an increase in the debts to be paid by 0.007 units. The regression coefficient for the period *t* (year) is positive and therefore implies an increase in debts to be paid over time. The result of the Durbin-Watson test for autocorrelation is 1.396, indicating a slightly positive autocorrelation in the residuals. **The write-off model** explains 73.6% of the variability.

Each additional unit of total debts means an increase of 0.041 units in the debts written off. The regression coefficient for the period t (year) is negative and therefore implies a decrease in the debts written off over time. The result of the Durbin-Watson test for autocorrelation is 2.429, which indicates the absence of autocorrelation in the residuals. **The model of extinguished debts** explains 98.0% of the variability. Each additional unit of total debts implies an increase of 0.044 units in the extinguished debts. The regression coefficient for the period t (year) is negative and therefore implies a decrease in the extinguished debts over time. The result of the Durbin-Watson test for autocorrelation is 1.550, which indicates the absence of autocorrelation in the residuals. **The model of debts submitted for collection** explains 95.0% of the variability. Each additional unit of total debts means an increase of 0.166 units in the debts for collection. The regression coefficient for the period t (year) is negative and therefore implies a decrease in the debts for collection over time. The result of the Durbin-Watson test for autocorrelation is 1.918, which indicates the absence of autocorrelation in the residuals.

Using the base and chain indices, it is clear that the amount of total debts is decreasing. Using the quadratic regression function, it has been confirmed that this is a downward trend. Therefore, hypothesis H_1 of the decreasing amount of total debts has been confirmed.

Using the base and chain indices, it is evident that repaid debts are declining slightly faster than the total debts and, conversely, that the outstanding debts are not only declining but, in fact, increasing. This is also demonstrated by the development of the structure of total debts in terms of payments, where the proportion of repaid debts is decreasing while the proportion of outstanding debts is increasing. Also, the regression function of the trend of individual components in terms of payment based on the total amount of debts and the trend over time is decreasing for almost all components; only for the outstanding debts is the function rising, indicating an increasing trend over time. Hypothesis H_2 that the process of collecting debts is getting more efficient has not been confirmed.

4.3 Development of debt structure in terms of individual benefits

The individual debts must be classified according to the type of non-insurance social security benefits and the specialized department in which they were incurred. Table 4 below shows the breakdown of debts from 2016 to 2020.

While the total amount of debts has been decreasing over time, the amount of all their components by individual benefits has not. Therefore, the structure of total debts in terms of individual benefits changes over time. Parental allowance constitutes the most significant component of debts (about ¼ and this proportion is constant over time. The other significant components are "Housing allowance" (about 17%) and also "Subsistence allowance" (about 20%) and their proportion fluctuates over time. The percentage of the "Care allowance" (about 12%) has been increasing over time, while the percentage of the "Supplementary housing allowance"

(approximately 6%) and the "Extraordinary immediate assistance" (about 2%) have been decreasing. The proportions of "Special equipment allowance" (about 7%) and "Child allowance" (about 4%) rather fluctuate over time. The other debt components account for an insignificant part of total debts.
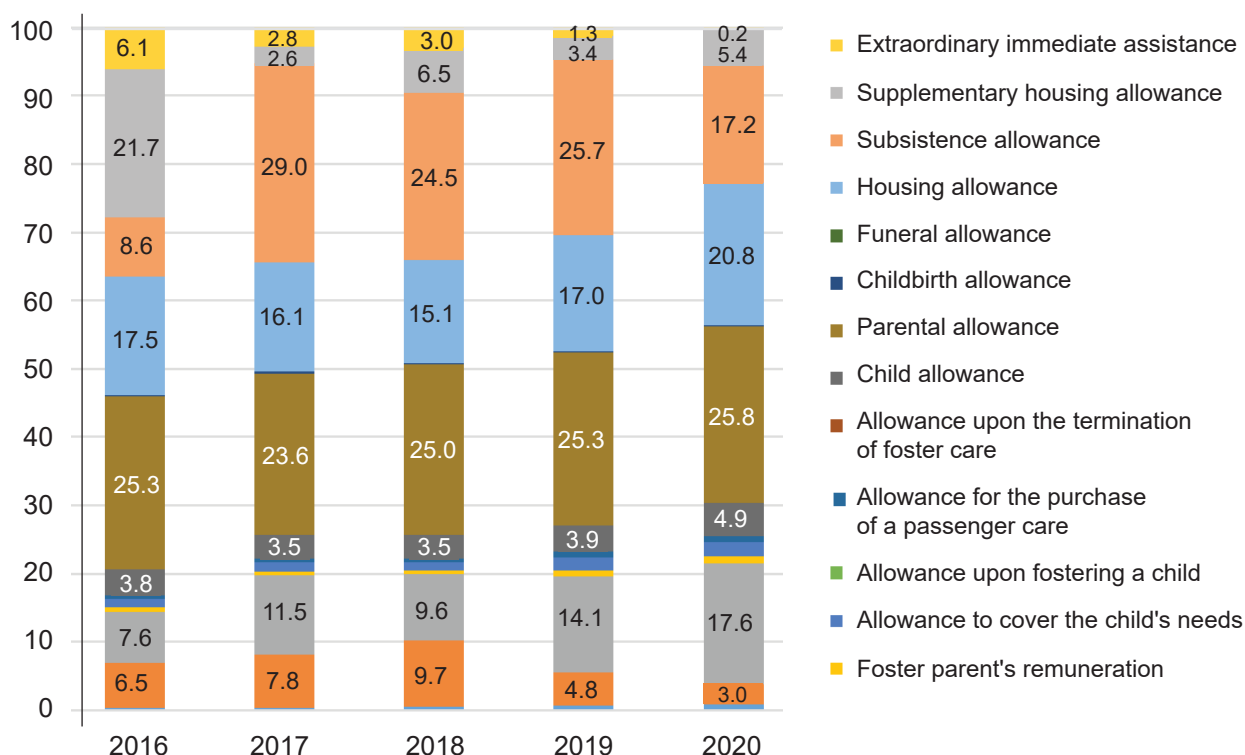
Table 4: Structure of total debts in terms of individual benefits over time (CZK)

Structure of debts	2016	2017	2018	2019	2020
Department of Benefits for Persons with Disablement and Care Allowance					
Mobility allowance	1,190,560	1,092,000	1,583,300	1,662,300	1,489,266
Special equipment allowance	20,851,852	24,788,444	27,812,132	11,381,048	5,135,365
Care allowance	24,450,456	36,675,684	27,506,764	33,619,380	30,563,072
Department of State Social Security and Foster Care Benefits					
Foster parent's remuneration	1,714,756	1,998,679	1,359,223	2,149,065	2,076,559
Allowance to cover the child's needs	4,042,563	4.089,671	3,445,560	4,429,805	3,434,557
Allowance upon fostering a child	37,000	8,000	8,000	0	0
Allowance for the purchase of a passenger car	1,637,807	1,812,696	1,715,935	1,979,258	1,591,091
Allowance upon the termination of foster care	0	25,000	0	25,000	0
Child allowance	12,090,060	11,161,682	9,912,588	9,377,938	8,427,631
Parental allowance	81,383,740	75,008,585	71,409,756	60,180,461	44,776,499
Childbirth allowance	686,000	662,000	428,000	466,000	353,000
Funeral allowance	0	5,000	0	10,000	0
Housing allowance	56,140,189	51,158,220	43,216,748	40,449,985	36,100,439
Department of Material Distress					
Subsistence allowance	27,622,567	92,149,640	70,136,100	61,294,767	29,884,613
Supplementary housing allowance	69,798,667	8,108,307	18,608,513	8,124,307	9,390,460
Extraordinary immediate assistance	19,580,920	8,813,540	8,633,847	3,180,513	358,973
Debts in total	321,227,137	317,557,148	285,776,466	238,329,827	173,581,525

Source: Authors' own elaboration based on the Labour Office of CR (2022)

The information found suggests that the highest volume of overpayments was recorded in the Department of State Social Security and Foster Care Benefits, *i.e.*, 49%. The Department of Material Distress accounted for 32% of the overpayments, and the Department of Benefits for Persons with Disablement and Care Allowance accounted for 19% of the overpayments.

Figure 3: Development of structure of total debts in terms of individual benefits over time (%)

Source: Authors' own elaboration

The graphical representation of the development of the structure of total debts in terms of individual benefits clearly shows that the structure changes over time. While the proportion of debts for some benefits remains constant, for others, it decreases over time and for yet others, it increases, indicating an uneven trend in the development of debts for each benefit. Therefore, hypothesis H_3 that the structure of total debts is constant over time has not been confirmed.

5. Research Limitations

The effort to draw attention to the issues of collecting debts arising from the abuse of the system of non-insurance social security benefits should not be seen as an attempt to delegitimize the more general objective and purpose of the welfare state. Thus it is not an attempt to question

the deservedness of social security benefits by beneficiaries in general, as Lundström (2013), for example, suggests. However, when addressing these issues, we need to be aware of the contextual interconnectedness of the social security system – in line with the results of Moro-Egido and Solano-García (2020), which suggest that policies aimed at deterring benefit frauds (such as higher penalties and more frequent benefit investigations) and focusing on effective collection of misused benefits increase the willingness of high-income earners to pay taxes, and thus the size of the welfare state. The impact of the media (national, sub-national, regional and local newspapers, mainstream television, TV documentaries, web outputs and radio) on the extent to which the public is influenced has been demonstrated in numerous studies (*e.g.*, most recently, Gavin, 2021).

This quantitative research provides a comprehensive picture of what is missing in the Czech Republic, which should be complemented by follow-up qualitative studies and similar research in other countries for the purpose of comparative analyses.

6. Conclusion

This study has shown that abuse of non-insurance social security benefits by clients does really exist. The most convincing arguments are the amounts of debts that have been assessed to clients in decisions and that have been paid, collected, or otherwise settled by the Labour Office itself.

Using the base and chain indices, it is evident that the amount of total debts from non-insurance social security benefits in the Czech Republic is decreasing and the quadratic regression function of the trend has confirmed that this is a downward trend. Repaid debts are decreasing slightly faster than the total debts and the outstanding debts are not only decreasing, but on the contrary, they are increasing. Similarly, the regression function of the individual components in terms of repayment on the basis of the total amount of debts and the trend over time has a decreasing trend for almost all components, only for the outstanding debts is the function increasing, indicating an upward trend over time.

In the period under review, the highest overall number of debts was incurred for parental allowance (CZK 332,759,041), which is a part of the system of state social security benefits. The second benefit, with a 16% lower volume of assessed debts, is the subsistence allowance from the system of material distress benefits (assessed at CZK 281,087,687). The third benefit, for which 32% fewer debts were assessed than for parental allowance, is the housing allowance (CZK 227,065,581), also from the system of state social security benefits. The proportion of debts for some benefits has remained constant, while for others, it has been decreasing over time, and for yet others, it has been increasing over time, indicating an uneven trend in the development of debts for individual non-insurance social security benefits.

The responsible institutions have implemented no sophisticated control mechanisms focused on the subsequent evaluation of abuse of the non-insurance social security benefits in the evaluated period; there have not been any system changes in the debt write-off noticed by the authors either. However, the sensitive political aspects can theoretically potentially influence the clerks' approach. Nevertheless, the main part of justification for identified trend and structural changes might be found in changing behaviour of beneficiaries under the current circumstances in the Czech Republic. This preliminary conclusion might be supported by the results of previous research (Tunley, 2011), stating that the benefit frauds are motivated by need or greed, with opportunity frequently acting as a significant stimulus. Moreover, macroeconomic aspects might be relevant too. Verification of the reasons for the achieved results, relating to the Czech case, is a challenge for future research.

References

Anděl, J. (2019). *Statistické metody*. 5th edition. Prague: Publishing MatfyzPress. ISBN 978-80-7378-381-5.

Appelgren, L. (2019). Optimal auditing of social security benefit fraud: a case study. *Empirical Economics*, 56(1), 203–231, https://doi.org/10.1007/s00181-017-1356-9

Cleophas, T. J., Zwinderman, A. H. (2021). *Regression Analysis in Medical Research: For Starters and 2nd Levelers*. Berlin: Springer Publishing. ISBN 978-3-030-61393-8.

Cullis, J., Jones, P., Lewis, A., et al. (2015). Do poachers make harsh game keepers? Attitudes to tax evasion and to benefit fraud. *Journal of Behavioral and Experimental Economics*, 58, 124–131, https://doi.org/10.1016/j.socec.2015.08.003

Čeledová, L., Čevela, R. (2020). *Laskavý průvodce po sociálních službách*. 2nd edition. Prague: Karolinum. ISBN 978-80-246-4553-7.

Davydov, S. A. (2017). Забота о благополучии подданных в ранних государствах (Zabota o blagopoluchii poddannykh v rannikh gosudarstvakh). *Journal of Social Policy Studies*, 15(4), 643–650, https://doi.org/10.17323/727-0634-2017-15-4-643-650

Fijwala, S., Palasinski, M., Shortland, N. (2014). The basic determinants of perceived increase in violent, sexual and benefit fraud crimes. *Safer Communities*, 13(4), 180–188, https://doi.org/10.1108/SC-07-2014-0010

Gavin, N. T. (2021). Below the radar: A U.K. benefit fraud media coverage tsunami – Impact, ideology, and society. *British Journal of Sociology*, 72(3), 707–724, https://doi.org/10.1111/1468-4446.12809

Hartmann-Cortés, K. (2022). Sould we uprate social security benefits for inflation as a matter of Article 1 Protocol 1? *European Journal of Social Security*, 24(4), 319–341, https://doi.org/10.1177/13882627221147276

Hindls, R., Hronová, S., Seger, J., et al. (2007). *Statistika pro ekonomy*. 8th edition. Průhonice: Professional Publishing. ISBN 978-80-86946-43-6.

Karl, A. (2001). The perception of "benefit fraud" and the acceptance of benefits for unemployed people. *Soziale Welt,* 52(3).

Krebs, V., Burdisová, J., Poláková, O., et al. (1997). *Sociální politika*. Prague: CODEX Bohemia. ISBN 80-85963-33-7.

Křivý, I. (2012). *Analýza časových řad*. Ostrava: Ostravská univerzita v Ostravě. Available at: httpss://web.osu.cz/~Bujok/files/ancas.pdf

Labour Office of the CR (2021). *Application database OKcentrum, OKnouze, OKslužby* [software]. Prague: Labour Office of the Czech Republic. Available at: httpss://socpos.mpsv.cz/posvvaclient/iokposkytovatel.html

Lin, S-Y., El-Tawil, S., Aguirre, B. E. (2020). Computational Simulation of Benefit Fraud and Community Resilience in the Wake of Disaster. *Natural Hazards Review*, 21(4), https://doi.org/10.1061/(ASCE)NH.1527-6996.0000407

Lundström, R. (2013). Framing fraud: Discourse on benefit cheating in Sweden and the UK. *European Journal of Communication*, 28(6), 630–645, https://doi.org/10.1177/0267323113502737

Maaytová, A., Ochrana, F., Pavel, J., et al. (2015). *Veřejné finance v teorii a praxi*. Praha: Grada Publishing. ISBN 978-80-247-5561-8.

Moro-Egido, A. I., Solano-García, Á. (2020). Does the perception of benefit fraud shape tax attitudes in Europe? *Journal of Policy Modeling*, 42(5), 1085–1105, https://doi.org/10.1016/j.jpolmod.2020.01.008

Morris, Z. A. (2023). A Framework for Evaluating the Adequacy of Disability Benefit Programs and its Application to the US Social Security Disability Programs. *Journal of Social Policy*, https://doi.org/10.1017/S0047279422000745

OECD (2020). *Countering Fraud in Social security benefit Programmes: Taking Stock of Current Measures and Future Directions*. Paris: OECD Publishing, https://doi.org/10.1787/71df2657-en

Potůček, M. (1999). *Křižovatky české sociální reformy*. Prague: Sociologické nakladatelství. ISBN 80-85850-70-2.

Průša, L., Víšek, P., Jahoda, R. (2014). *Alchymie nepojistných sociálních dávek*. Prague: Wolters Kluwer. ISBN 978-80-7478-530-6.

Sales-Fonseca, N., Otero, U. B., Koifman, R. J., et al. (2023). Accident and social security benefits granted to cancer patients in Brazil, 2008–2014. *Ciência & Saúde Coletiva*, 28(2), 447–458, https://doi.org/10.1590/1413-81232023282.11532022EN

Srdić, S. (2013). Applied Time Series Analysis. *Panoeconomicus*, 60(1), 133–137.

Šubová, N. (2023). Comparison of EU Countries Based on Social Policy Instruments to Mitigate Financial Vulnerability of Households. *Politická ekonomie*, 71(1), 23–45, https://doi.org/10.18267/j.polek.1377

Tervola, J., Mesiäislehto, M., Ollonqvist. J. (2023). Smaller net or just fewer to catch? Disentangling the causes for the varying sizes of minimum income schemes. *International Journal of Social Welfare*, 32(2), 133–148, https://doi.org/10.1111/ijsw.12553

Tomeš, I. (2001). *Sociální politika: teorie a mezinárodní zkušenost*. 2nd edition. Prague: Socioklub.

Tunley, M. (2011). Need, greed or opportunity? An examination of who commits benefit fraud and why they do it. *Security Journal*, 24, 302–319, httpss://doi.org/10.1057/sj.2010.5

Van Stolk, C., Elmerstig, H. (2014). *The Economic Cost of Social Security Fraud and Error. A Question of Measurement and Definition*. Cambridge: RAND Europe. Retrieved from: httpss://www.rand.org/pubs/corporate_pubs/CP806.html

Van Stolk, C., Tesliuc, E. (2010*). Toolkit on Tackling Error, Fraud and Corruption in Social Protection Programs.* RAND Europe Working Paper No. WR-746-WB. Retrieved from: httpss://www.rand.org/pubs/working_papers/WR746.html