

Job Creation by Direct Financial Subsidies in the Slovak Republic – A Cost-benefit Analysis¹

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Abstract

The problem of high unemployment has stigmatized the Slovak labour market for several decades. Policy makers have espoused ambitions to solve this problem but with varyingly small degrees of success. One of the measures of labour market policy can be direct financial support directed at job creation for the unemployed. This article aims to analyse and develop a procedure useful for estimating the effective amount of state subsidies for such kinds of job creation policy. The results indicate that the proposed methodology could be a useful tool to evaluate the upper limit of subsidies.

Keywords: *costs of unemployment, labour market policy, unemployment, cost benefit analysis*

JEL Classification: E24

Introduction

The Slovak Republic has struggled with high unemployment since its establishment, and has one of the highest rates among European Union (EU) countries. This situation has heavily stigmatized the Slovak labour market, which has not been able to successfully reduce the high number of unemployed people. An intractable factor is the loss of work habits among many long-term unemployed, which complicates their return to the labour market. Although the labour market

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policy of the Slovak Republic (SR) has the long-term ambition of solving this problem, notable success has eluded various governments.

The aim of this research is, using the methodology of Cost-benefit analysis (CBA)² and the estimates of the costs of unemployment of a representative unemployed person according to Domonkos, König and Radvanský (2014), to determine the maximum amount of financial resources worth allocating to subsidizing job creation in the SR. We postulate a hypothetical situation, when a job is subsidized for twelve months and must be sustainable for at least twelve months after financial support ceases. In general, the methodology presented can be used to analyse other kinds of scenarios and not just the one mentioned above.

The costs of unemployment were analysed in the Czech Republic (CR) by Čadil et al. (2011). The methodology they used relied on estimates of the direct and indirect costs of unemployment. The indirect costs were determined by estimating the formula of Okun's law³ for the CR. The total costs per unemployed person are then subsequently quantified by using the mean length of unemployment. A slightly different approach was used by Elbona (MPSV ČR, 2006) in the CR. Alongside economic costs they also considered the social dimension of this problem. Maarten, Valsamis and van der Beken (2012) estimated the costs of unemployment for six EU countries (Germany, Belgium, Spain, Sweden, France and the United Kingdom). Compared to Čadil et al. (2011), the indirect costs are determined from an estimate of the propensity to consume instead of Okun's law. Furthermore, this methodology only uses publicly available data what makes it easily applicable and thus more suitable for cross country comparisons.⁴ The methodology used in this research paper is a combination of both approaches, that proposed by Čadil et al. (2011), and the one used by Maarten, Valsamis and van der Beken (2012). According to our knowledge, the effective amount of financial resources for job creation hasn't until now been estimated for SR.

Data, Methodology and Scenarios

The first step, when assessing the return of governmental subsidies for job creation, is the quantification of the costs of unemployment related to the person who will carry out the work in that position. It is important to note that

² *Cost-benefit analysis* is a procedure which results in the ratio of costs incurred for some activity and revenue derived from the activity.

³ *Okun's law* considers negative correlation between economic growth and unemployment. The relationship of these variables was first empirically tested on US data by Arthur Okun. Various aspects of Okun's law are discussed by Knotek (2007), Lee (2000), König and Domonkos (2014).

unemployment as such also has social consequences⁵ which are excluded from our calculations, i.e. this research focuses, in particular, on the economic losses and economic expenses associated with unemployment. The economic costs of unemployment, in terms of public finances, can be divided into direct and indirect parts:

Table 1

Components of the Economic Costs of Unemployment

| | | |
|-----------------------|-----------------------|--|
| Direct costs | <i>Loss of income</i> | Direct taxes Social insurance and health insurance contributions paid by the employer Social insurance and health insurance contributions paid by the employee |
| | <i>Expenditures</i> | Unemployment benefit (maximum length six months) Benefit in material need and allowances for this benefit (e.g. housing allowance and contribution to health care etc.) Health insurance Administration of the unemployed and active labour market policy (ALMP) ⁶ |
| Indirect costs | <i>Loss of income</i> | Decreased collection of VAT and excise taxes caused by decreased consumption of the unemployed |

Source: Based on Čadil et al. (2011) and updated according to the approach used by the authors.

The direct costs of unemployment can be divided into *loss of government revenues* affected by the decline in the collection of direct taxes, social and health contributions and into *additional expenses* represented by unemployment benefits, material need benefits, health insurance, expenses related to the administration of unemployment and ALMP costs. Indirect costs primarily cover the decline in the collection of VAT and excise taxes as a result of lower consumption caused by the reduction in income of the unemployed.⁷

According to these assumptions, we would contend that the equation expressing the monthly costs per representative unemployed person in view of the public budget can be written as follows (each component is in euros per month):

$$MECE = (L_{PIT} + L_{SaHC} + L_{SaHCE}) + (E_{HI} + E_{ADM} + E_{ALMP} + E_{UB} + E_{MNB}) + (L_{IT}) \quad (1)$$

⁴ A different approach to analyzing the costs of unemployment is presented in e.g. Stratford and Wall (2000), Helliwell and Huang. (2011).

⁵ The social aspects of unemployment are discussed by Dao and Loungani (2010), Ochsen and Welsch (2011) and Knabe and Rätzl (2011).

⁶ The efficiency of the ALMP in SR is analyzed by Dováľová et al. (2014).

⁷ For more details see Domonkos, König and Radvanský (2014), Domonkos and König (2015).

where

- L_{PIT} – the loss of public budget revenues from decreased personal income tax per unemployed person;
- L_{SaHC} – the loss of public income caused by decreased social and health contributions paid by the employer;
- L_{SaHCE} – the loss of income caused by decreased social and health contributions paid by the employee;
- E_{HI} – the expenses of the public budget caused by health insurance payments for the unemployed;
- E_{ADM} – the costs associated with the administration of the unemployed per person;
- E_{ALMP} – the expenditures associated with ALMP;
- E_{UB} – the average rate of unemployment benefit per person;
- E_{MNB} – the average per person material need benefits and allowances;
- L_{IT} – the loss associated with the decreased collection of indirect taxes (VAT and excise taxes) caused by the decreased consumption of the unemployed person.

As was mentioned above, the CBA is based on the estimate of the monthly costs of unemployment. The scenarios discussed in this research assume that the state subsidizes a job for twelve months and then this job must be sustainable for at least another twelve months. In particular, we consider the costs of unemployment per unemployed person using 2012 prices and costs. We assume that this unemployed person earned 624 euros per month before becoming unemployed. This salary is determined from the average unemployment benefit. Furthermore, we consider three different scenarios each of which varies according to the form of subsidization:

- The first assumed scenario considers a state subsidy at the level of 624 euros per month (gross salary of the created job) for twelve months, the employer must sustain the employment of the person for an additional twelve months, while the salary cannot be lower than 624 euros.
- The second assumed scenario considers the twelve-month subsidy at the level of 327 euros monthly which is equal to the minimum wage in Slovakia in 2012, the employer must sustain the employment of the person for an additional twelve months, under the condition that the salary cannot be lower than 624 euros throughout the whole time period of twenty four months.
- The third scenario assumes a twelve-month subsidy at the level of 814 euros monthly under the condition that the salary cannot be lower than 624 euros throughout the whole time period of twenty four months. The job must be sustainable for an additional twelve months. According to these rules, this investment will be returned exactly after twenty four months. We call this as neutral subsidy scenario.

Table 2

Brief Description of the Scenarios (in euros per month)

| Scenario | The state subsidy for twelve months | The gross salary paid by the employer for twelve months | Employers additional costs | Last salary of the unemployed before becoming unemployed |
|----------|-------------------------------------|---|---|--|
| 1. | 624 | 624 | Pays social and health contributions | 624 |
| 2. | 327 | 624 | Pays part of the salary and total social and health contributions | 624 |
| 3. | 814 | 624 | Pays part of social and health contributions | 624 |

Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

In the CBA we consider that the unemployed person is not entitled to receive any unemployment benefits, only material need benefits and allowances. Such a person is unemployed for at least six months. The equation for this particular case can be laid out as follows:

$$MECE_{MNB} = (L_{PIT} + L_{SaHC} + L_{SaHCE}) + (E_{HI} + E_{ADM} + E_{ALMP} + E_{MNB}) + (L_{IT}) \quad (2)$$

While analysing the return of investments in the newly subsidized job and assessing the efficiency of this investment, the following equation will be taken into consideration:

$$SUB_N = k * (L_{PIT} + L_{SaHC} + L_{SaHCE} + L_{IT}) \quad (3)$$

where

SUB_N – the neutral annual subsidy for creating a new job;

k – the ratio between the minimum length of how long the position should be sustained (twenty four months for each of the three scenarios) and the length of the time period, while the job is subsidized by the state (twelve months for each of the three scenarios).

The part $(L_{PIT} + L_{SaHC} + L_{SaHCE} + L_{IT})$ explains the income the state gains when an unemployed becomes employed.

The data used for the estimation of the costs of unemployment and for the CBA were gathered from the Statistical Office of the Slovak Republic, the Ministry of Finance of the Slovak Republic, EUROSTAT, the Social Insurance Agency of the Slovak Republic and the Central Office of Labour and Social Affairs and Family.⁸

⁸ For more details see Domonkos, König and Radvanský (2014).

We aim to determine the upper threshold of subsidies according to the above defined assumptions. Furthermore, the calculations are carried out also on regional level data (regional data at the NUTSIII level) and various specific cases are discussed e.g. a version with a person receiving unemployment benefit payments, a version with a person receiving material need benefit and allowances, and an unemployed person without any benefits.

Results and Discussion

Estimation of the Costs of Unemployment

While estimating the costs of unemployment, the key factor which determines the volume of these costs is the income the unemployed person can likely earn in case of employment. This estimation is crucial due to the largest share of total costs being composed of direct costs which depends mostly on the potential (assumed) income. This estimation has a rather uncertain nature, thus, we determined an interval of potential income. The lower threshold (LT) of this interval is calculated from the data published by the Social Insurance Agency of the Slovak Republic as a median of the last assessment base of the unemployed. The upper threshold (UT) of this interval was calculated as the weighted median wage. The weights were calculated taking into account the educational structure of the unemployed.⁹ This interval was tested by an additional estimate of the potential wage calculated on the basis of the average unemployment benefit paid in 2012 which was closer to the UT. Furthermore, special cases were analyzed e.g. minimum wage, median national wage or average national wage.

Table 3

Total Average Monthly Costs of Unemployment per Person 2012 (in euros)

| Wage | Costs of unemployment |
|---|-----------------------|
| LT of wage (438.6) | 456 |
| Wage estimated according to the average unemployment benefit (624) | 606 |
| UT of wage (649) | 626 |

Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

The estimated costs of unemployment based on the UT of the wage of a representative unemployed person were 626 euros and, based on the LT, 456 euros. The costs according to the wage estimated from the average unemployment benefit were 606 euros.

⁹ Detailed description of the calculations of the LT and the UT are in Domonkos, König and Radvanský (2014).

Table 4

Total Monthly Costs of Unemployment in 2012, Various Cases (in euros)

| Wage | With unemployment benefits | Without unemployment benefits and with material need benefits | Without any benefits |
|------------------------------|----------------------------|---|----------------------|
| 1. minimum wage (327) | 440 | 402 | 304 |
| 2. median wage (637) | 816 | 650 | 552 |
| 3. average wage (805) | 1022 | 786 | 688 |

Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

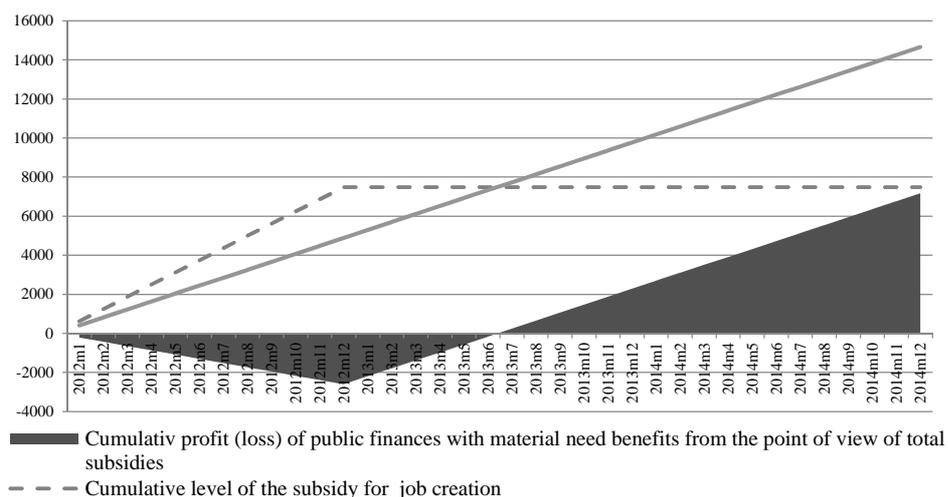
Taking a more detailed view of the results in Table 4, we can see how significantly the estimated wage can affect the size of the costs of unemployment. The costs of unemployment for a person with unemployment benefits may vary from 440 euros to 1 022 euros.

CBA – State Subsidy at the Level of Wage Determined According to the Average Unemployment Benefit in 2012

If we consider a case where the state subsidizes a job at the level of 624 euros which is equal to the gross salary on this position, the question we need to answer is how much time is needed to pay back this investment.

Picture 1

Return of Investment at the Level of Gross Salary from the Point of View of its Costs (in euros)



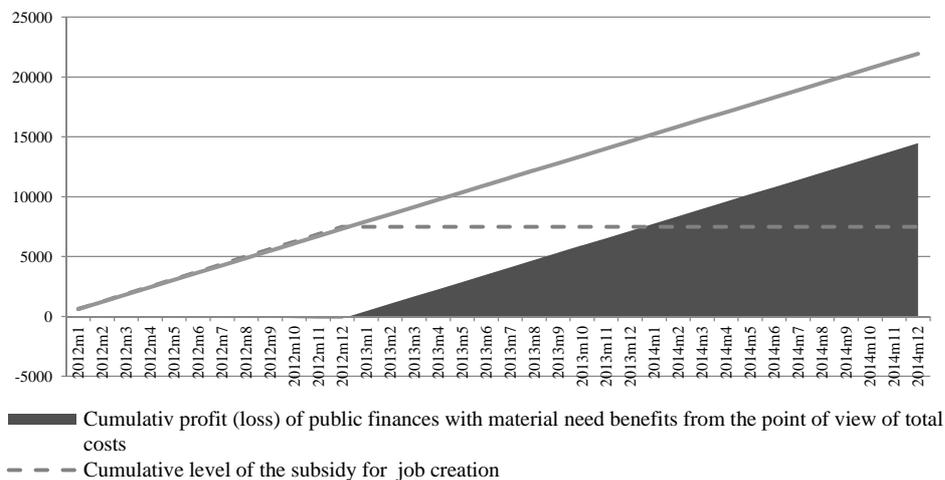
Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

The dashed line on the graph represents the cumulative expenditure on state subsidy during a one-year period. After one year, the cumulative amount of the subsidy remains constant, as the state after this period does not subsidize the job. The solid line represents the cumulative revenue of the state as a result of employing an additional unemployed person associated with social contributions and health insurance paid by the employee and the employer, taxes on personal income and the increase in collection of VAT and excise duties caused by the increased consumption of the unemployed.

At the intersection of the cumulative revenues and the cumulative expenditures, the state is in a neutral position in terms of costs and revenues. From that point, every other month during which the employed person is working and earning a salary the state will make an additional profit. The profit (loss) is expressed by the dark area, which becomes positive in the seventh month after the termination of the subsidy. This means that if the individual works for at least seven months after the termination of the subsidies, this form of investment can be neutral for the state and each additional month will mean a profit for the public finances.

Picture 2

Return of Investment at the Level of Gross Salary from the Point of View of Total Economic Costs of Unemployment (in euros)



Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

Picture 2 shows a state subsidy from different point of view. The full line represents the cumulative economic costs of the state for an unemployed person. The dashed curve represents the cumulative volume of the subsidy for job creation.

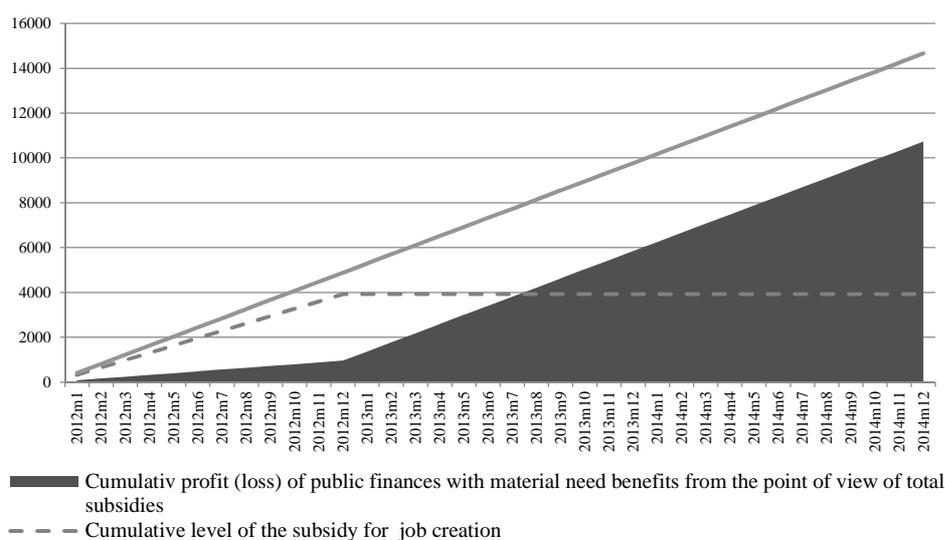
The cumulative amount of the subsidy and the cumulative costs of unemployment are almost equal for the first 12 months. The shaded area represents the earnings of the state, which is composed of income from employed people and the reduction in paid unemployment and material need benefits. Profit is generated after the twelfth month, which is the point from which the state doesn't subsidize the job.

CBA – State Subsidy at the Level of the Minimum Wage

This scenario considers a situation in which the state subsidizes job creation only at the level of the minimum wage, which was 327 euros, but the employer must undertake to provide the employee a wage at least equal to his last salary, equivalent to 624 euros, throughout twenty four months.

Picture 3

Return of Investment at the Level of the Minimum Wage from the Point of View of its Costs (in euros)



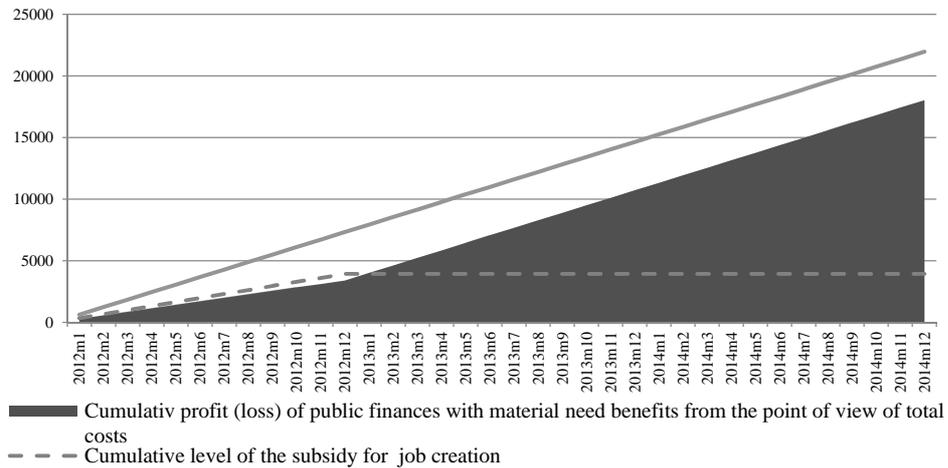
Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

Based on the results displayed in the figure above, we can conclude that the return on the subsidy in this case is immediate, since the costs incurred are immediately lower than the revenue of the state due to the employment of unemployed people.

In this case, the state gains a profit from the creation of the job immediately from the first month. This is due to the fact that the money spent on subsidies is significantly lower than the economic cost of the representative unemployed.

Picture 4

Return of Investment at the Level of Minimum Wage from the Point of View of Total Economic Costs of Unemployment (in euros)



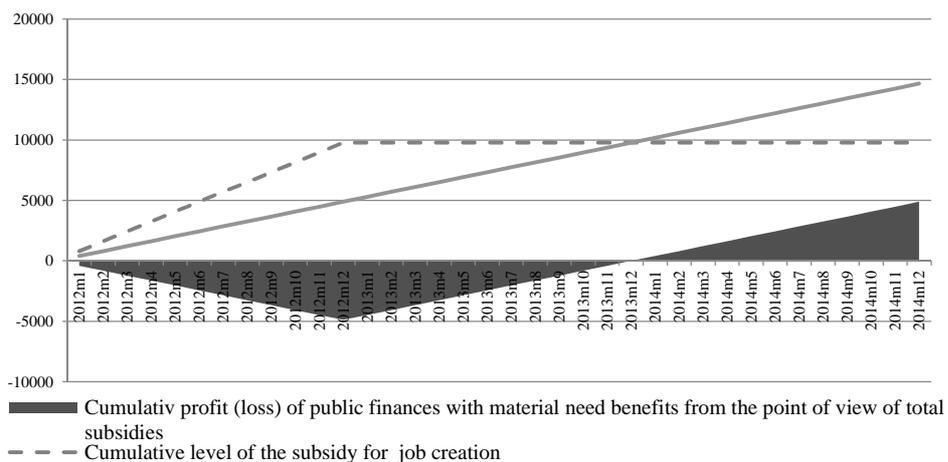
Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

CBA – Neutral Level of State Subsidy

Finally, consider a situation where the employer is committed to pay a gross salary of at least 624 euros to the newly-employed person under the same conditions where the state subsidizes the job for twelve months and then the job must be sustainable for an additional twelve months.

Picture 5

Return of Neutral Investment from the Point of View of its Costs (in euros)



Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

The question is how much can the maximum subsidy be which ensures that the investment will be returned exactly in twenty four months.

According to the results presented in picture 5, we would claim that the highest amount of subsidy for job can be 814 euros where the employer would maintain the job for one additional year after the subsidy finishes. Under these conditions, the investment will be neutral in two years. The total value of the annual subsidy in this case is 9 771 euros.

Regional Analysis

So far we have dealt with subsidizing newly created jobs only at the national level without taking into account inter-regional wage disparities. This section discusses the results of neutral subsidies at the NUTSIII regional level in Slovakia. The scenario considered relies on the assumption discussed in the last scenario. The only difference is that different regional median salaries of the unemployed person are assumed. The employer should then pay these regional specific salaries in each region during a twenty-four month period.

Table 5

Neutral Investment from the Point of View of its Costs According to Regional NUTSIII Classification in 2012 (in euros)

| Regions | BA | TT | TN | NR | ZA | BB | PO | KE | SR |
|--|-------|-------|-----|-----|-----|-----|-----|-----|-------|
| Median gross salary | 924 | 741 | 689 | 669 | 711 | 678 | 637 | 729 | 733 |
| Maximum neutral subsidy from the point of view of the costs of this subsidy (with unemployment benefits and material need benefits) | 1 243 | 992 | 890 | 837 | 924 | 893 | 815 | 935 | 963 |
| Maximum neutral subsidy from the point of view of the costs of this subsidy (only unemployment benefits) | 1 273 | 1023 | 920 | 867 | 954 | 923 | 845 | 965 | 993 |
| Maximum neutral subsidy from the point of view of the costs of this subsidy (only material need benefits) | 1 272 | 1 014 | 909 | 855 | 944 | 911 | 832 | 956 | 984 |
| Maximum neutral subsidy from the point of view of the costs of this subsidy (without unemployment benefits and material need benefits) | 1 312 | 1 054 | 949 | 896 | 985 | 952 | 872 | 996 | 1 025 |

Notes: BA – Bratislava region; TT – Trnava region; TN – Trenčín region; NR – Nitra region; ZA – Žilina region; BB – Banská Bystrica region; PO – Prešov region; KE – Košice region; SR – Slovak Republic.

Source: Authors' own calculations based on data from the Statistical Office of the Slovak Republic, Social Insurance Agency of the Slovak Republic and Central Office of Labour and Social Affairs and Family.

The highest possible level of subsidy is in the Bratislava region, as the median wage in this region is the highest at 924 euros. This wage is higher than the median wage in the SR, which is only 733 euros. The Trnava regional median wage of 741 euros is also higher than the national median one and a relatively

similar regional median wage in relation to the national median is also seen in the Košice region, namely 729 euros. The level of neutral subsidies compared to the cost of the subsidy itself according to the previous situation of the unemployed (whether eligible for benefits or not) in the Bratislava region ranges from 1 243 euros if it is a person who is entitled to unemployment benefits and up to 1 312 euros in a case where the unemployed person is not eligible to receive any benefits. The lowest cost of unemployment was in the Prešov region. The neutral level of the subsidy in this particular region can range from 815 euros for a person who is entitled to unemployment benefits up to 872 euros in the case of an unemployed who is not entitled to any benefits.

Conclusions

The policy concerning job creation in Slovakia using direct subsidies from public resources has been discussed for a considerable period of time. The discussion often concludes with the question, what is the effective amount of funding for the creation of a job which does not overprice the measure. Furthermore, this measure should be interesting to the employer and to the employee at the same time. The present article has aimed to propose a suitable and straightforward methodology to answer this question and has applied this methodology to various hypothetical scenarios. The parameters of the scenarios can be changed to evaluate specific policy proposals. The factors determining this calculation are: the estimated wage that the unemployed person is likely to earn if he is employed, which determines the amount of the costs; the length and size of the subsidy; how much time the job must be sustainable for after subsidies are terminated where there is a guaranteed level of salary paid to the employee.

If we consider the scenario where the government spends 624 euros per month in one year to create a job, then the costs associated with this activity in terms of income from employment of an additional person will be returned after seven months after the termination of the subsidy. In the case where the government spends 327 euros (minimum wage in 2012) per month in one year and the salary is 624 euros for two years, in such situation the return of this investment will be immediate from the first moment of the creation of the job. In a case where the monthly subsidy is set at 814 euros for a period of twelve months and the job remains sustainable for an additional twelve months with a salary of 624 euros, this investment will be returned exactly after two years. In this case the total costs of the measure are 9 771 euros.

The methodology and results discussed in this paper can serve as a decision making tool when determining the parameters of policy measures for job creation via subsidies. Based on the results obtained, it can be concluded that such

a labour market measure could help to mitigate the adverse situation in the labour market within a reasonable time frame and, to a certain extent, may have the potential to reduce pressure on public finances. However, such measures will require strict coordination that will be resistant to abuse to deliver the expected results.

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