IMPACT ASSESMENT CONCERNING ADOPTION OF THE TAX EXEMPTION ON THE SALARY OF RESEARCHERS

SORIN MIRCEA AXINTE, BOGDAN ADRIAN CIOCANEL, GABRIELA IVANUS

PhD Romanian Association for Innovation Bucharest, ROMANIA
PhD-student Transilvania University of Brasov IMT Bucharest Brasov, ROMANIA
E-mail: sorinaxinte@yahoo.com, gabriela.ivanus@yahoo.com

Abstract- The study hereby took into account the pressure exercised by the need (2016-2020) to increase on medium-term the research & development expenses in Romania up to 2% of GDP. The study represents an assessment of the economic impact of changing the tax policy regarding the salary tax in the case of researchers, namely: salary tax exemption of this category of staff. The direct impact consists in increasing of the researchers number and increasing of R&D costs, and the indirect impact consists in increasing of GYR per capita at regional level and of the share of exports of high technology products out of the total exports

Keywords- impact, tax exemption, researchers salary

I. INTRODUCTION

The study hereby took into account the pressure exercised by the need (2016-2020) to increase on medium-term the research & development expenses in Romania up to 2% of GDP. The study represents an assessment of the economic impact of changing the tax policy regarding the salary tax in the case of researchers, namely: salary tax exemption of this category of staff.

In determining the purpose and the issue tree (evaluation of hypotheses concerning economic effects) it was started from the idea that researchers are not an unprivileged group to be supported by the State budget but from the fact that they need to be stimulated during the period of maximum creativity.

Regardless the approach, at the microeconomic level and at the macroeconomic level, the research-development is the engine of progress and consequently will be considered main directions having a positive approach. The study takes into account a similar measure agreed in the case of IT specialists which generated a powerful positive impact to the Romanian economy.

This analysis shall be limited to the impact of this policy on the State budget, on the development of the research sector and the number of jobs. Also the outsourcing aspect this measure might generate will be considered.

1.1. Elaboration of scenarios regarding the effects on the net income of the researcher

The measure concerning the income tax exemption on the researchers' salary will cause the employer to choose, in case of a researcher, one of the following situations:

a) increasing the net income of the researcher;

b) net income of the researcher remains unchanged.

Depending on the option of the the employer, we will assess the impact of those two situations on the State budget further the adopting of the measure in question.

1.2. Modeling the impact of the effects of the two scenarios on the State budget

Increasing the net income of the researcher

In case the monthly net income of the researcher increases by eliminating the income tax, then the average monthly gross income of the researcher remains the same and, in this situation, the new income will be given by the following formula:

$$V_2 = V_1 + (S - S * 0{,}165) * 0{,}16 \quad (1)$$

$$V_1 = S - S * 0{,}165 - Income\ tax \quad (2)$$

$$Income\ tax = (S - S * 0{,}165) * 0{,}16$$

where:

- V_2 is the net monthly average income per researcher after taking this measure;
- V_1 is the initial net monthly average income per researcher (before taking this measure);
- S is the gross monthly average income per researcher.

The immediate impact is given by the fact that the net income of the researcher increases by the income tax amount which was eliminated and the State budget loses the eliminated tax by the adopted measure.

The net income of the researcher remains unchanged.

If the net income of the researcher remains unchanged by eliminating the income tax, then the total expense of the employer with the researcher will drop by 16% compared to the total initial expense (as showed by the calculations) and, in this case, the gross monthly average income of the researcher will represent 84% of the initial gross average income:

$$S_2 = 0{,}84 * S_1 \quad (3)$$

where:

- S_2 is the gross monthly average income after taking this measure
- S_1 is the initial gross monthly average income (before taking this measure)

The revenue collected to the State budget for the initial situation and the current one are given by the relations:

$$T_1 = S_1 * 0{,}165 + S_1 * 0{,}22814 + (S_1 - S_1 * 0{,}165) * 0{,}16 \quad (4)$$

$$T_2 = S_2 * 0{,}165 + S_2 * 0{,}22814 \quad (5)$$

where:

- T_1 is the initial monthly average income (before taking this measure) to the State budget (including all insurances)
- T_2 is the monthly average income to the State budget (including all insurances) after taking this measure)

The loss to the State budget being given by the relation:

$$T_1 - T_2 = S_1 * (0{,}165 + 0{,}22814 + 0{,}835 * 0{,}16) - S_2 * (0{,}165 + 0{,}22814) =$$
$$= S_1 * 0{,}52674 - S_2 * 0{,}39314 =$$
$$= S_1 * (0{,}52674 - 0{,}33023) =$$
$$= S_1 - 0{,}1965 \quad (6)$$

The immediate impact is given by the fact that the net average income of the researcher remains unchanged and the State budget is losing an amount equivalent to 19.65% of the initial gross average income of the researcher.

1.3. Remarks

Any other case is in between the above mentioned situations, this means that the net income of the researcher changes between the actual net income and net income combined with the income tax:

$$V \in [V_1, V_1 + S_1 * (1 - 0{,}165) * 0{,}16]$$
$$\leftrightarrow V \in [V_1, V_1 + S_1 * 0{,}1336]$$

And the loss to the State budget (T) varies between $S_1(1) * 0{,}1336)$ and $[(S]_1 * 0{,}1965)$;

$$T \in [S_1 * 0{,}1336, S_1 * 0{,}1965];$$

where: S_1 is the initial monthly gross income

II. SCENARIO ANALYSIS

2.1. SWOT Analysis

1st Scenario: Net income increases with the tax amount

Strengths	Weaknesses
The net income of researchers increases with the tax amount The level of satisfaction of the researchers is high The increasing of the number of researchers by migrating from other functions Increased attractiveness of the R&D&I sector	The loss to the State budget exists but is smaller than in case of the 2nd scenario The lack of savings for other expenses
Opportunities	**Threats**
Requiring of an increased productivity (Turnover / researcher, Profit / researcher, Income / researcher, etc.) Increasing of R&D&I costs	Other professional categories who will become frustrated

2nd Scenario: Net income remains unchanged

Strengths	Weaknesses
Lowering the R&D costs for the current staff and the possibility of hiring other researchers only from the generated savings (one more researcher job could be established for 6 existing researchers jobs). The existence of some savings for other expenses. The increasing number of researchers through the establishment of new posts Increased attractiveness of the R&D&I sector	The loss to the State budget higher than in the case of the 1st scenario
Opportunities	**Threats**
Requiring of an increased productivity (Turnover/researcher, Profit / researcher, Income/ researcher, etc.) Increasing of R&D&I costs	The greater number of researchers not to bring an added value at the level of units / sector

2.2. Analysis of the loss recovery to the State budget

Considering that the greatest loss to the State budget is registered within the 2nd scenario, we orientated at first the assessment towards this situation in order to establish a breakeven threshold for the analysis of the interaction between the costs and revenues from the budget so that the current budget allocated to the R&D&I to be at least equal to the current one.

The equation that represents the basis of calculating the breakeven threshold for a R&D unit (in the 2nd situation) is given by the cover of the loss to the State budget by paying the profit tax, namely:

$$n * 12 * S_1 * 0{,}1965 = 0{,}16 * P \quad (7)$$

where:

- n is the number of researchers in the unit
- S_1 is the initial gross monthly average income (before taking this measure) per researcher
- P is the annual gross profit (gross profit of the fiscal year) of the unit

$$\frac{P}{n} = 14{,}7\, S_1$$

The equation that represents the basis of calculating the breakeven threshold for a research and development unit (in the 1st situation) shall cover the loss to the State budget by paying the profit tax, namely:

The breakeven threshold will be given by the formula:

$$n * 12 * S_1 * 0{,}835\ 8\ 0{,}16 = 0{,}16 * P \quad (8)$$

where:

- n is the number of researchers in the unit
- S_1 is the initial gross monthly average income (before taking this measure) per researcher
- P is the annual gross profit (gross profit of the fiscal year) of the unit

The breakeven threshold will be given by the formula:

$$\frac{P}{n} = 10\, S_1$$

Note: Estimates related to new jobs or dividends have not been taken into account

It is obvious that a unit that reaches the breakeven threshold for the 2nd situation will achieve it for the 1st situation as well. The statistical data analysis obtained through the statistic survey aiming the activity of the R&D in Romania (2014), lead to the following result: 27.3% of companies assessed by the survey, which stated that they have R&D costs, are reaching this breakeven threshold. In other words, if we extend the results to the entire number of companies performing R&D activity in Romania, we can estimate that this rate of about 27% is maintained. Regarding the breakeven threshold for the 1st situation, this is reached by about 30% of the companies assessed by the survey.

2.3. Remarks

Without making estimates on the increase potential of the number of researchers, of the incomes generated by the research sector by introducing this measure and without including in the analysis the tax on dividends (no data available), we can say that in the case of application of the measure for the companies whose annual gross profit per researcher is at least equal to 14.7 monthly average gross salaries of an employed researcher, the share of the State budget allocated to the research activity will not decrease and taking into account of a spill-over effect which this measure can have on increasing of the R&D costs and the number of researchers, the impact will be positive

The 1st scenario is valid from the point of view of the employed researcher while the 2nd scenario is valid from the point of view of the employer, a weighted average of the two thresholds would reflect a situation more probable on the research market, in this case obtaining a threshold of a number of 12 monthly average gross salaries of an employed researcher (28% of companies stated that research costs in 2014 met this threshold).

The breakeven threshold will be given by the formula:

$$\frac{P}{n} = 12\,S_1$$

where:

- n is the number of researchers in the unit
- S_1 is the initial gross monthly average income (before taking this measure) per researcher
- P is the annual gross profit (gross profit of the fiscal year) of the unit

For the companies that can support out of the annual profit the payment of the gross revenues of the researcher staff for the entire year, we can't talk of losses to the State budget by applying the measure of the tax exemption on the income of researchers. Taking into account the spill-over effect on which this measure might have on increasing of the R&D costs and the number of researchers, the impact will be positive.

The results of applying these scenarios for each research sector are presented below.

Scenario	I. The net income of the researcher increases with the removed tax	II. The net income of the researcher remains unchanged
Researchers (full time equivalent)	5.244	5.244
Loss to the SB by applying the measure[1]	3.152.993	4.637.007
Revenues from profits tax to the SB[2]	311.652.206	311.652.206
The breakeven threshold[3] **at company level**	$\frac{P}{n} = 10\,S_1$	$\frac{P}{n} = 14{,}7\,S_1$
No. units which are over breakeven threshold[4]	30%	27%
Estimated number of new researcher positions[5]	524	874
Revenue from SB for the new researcher positions	927.024	1.546.220
Loss to the SB considering the increasing number of researchers	2.225.669	3.090.787
Total expenditure growth in the sector required to cover loss	2.225.669	+ 0,3%

Scenario	I. The net income of the researcher increases with the removed tax	II. The net income of the researcher remains unchanged
Researchers (full time equivalent)	12.787	12.787
Loss to the SB by applying the measure[1]	7.687.544	11.306.905
Revenues from profits tax to the SB[2]	1.278	2.131
The breakeven threshold[3] **at company level**	2.260.948	3.770.017
No. units which are over breakeven threshold[4]	5.426.596	7.536.888
Estimated number of new researcher positions[5]	+ 0,37%	+ 0,51%

Scenario	I. The net income of the researcher increases with the removed tax	II. The net income of the researcher remains unchanged
Researchers (full time equivalent)	78	78
Loss to the SB by applying the measure[1]	46.894	68.972
Revenues from profits tax to the SB[2]	8	13
The breakeven threshold[3] **at company level**	14.153	22.998
No. units which are over breakeven threshold[4]	32.741	45.974
Estimated number of new researcher positions[5]	+ 0,35%	+ 0,49%

CONCLUSIONS

1. The analysis performed shows that in the case of business sector, the measure can be applied insofar to the companies that can cover the gross average incomes of the researchers out of the annual profit (in 2014, 28% of the companies have complied with this condition). For the companies that do not meet this condition, the losses to the State budget could be compensated for those companies that grow their R&D expenses with 0.25% and are committed to create 10% new positions in the research sector compared to the existing positions in the year the measure was applied.
2. In the case of the public sector, losses to the State budget could be compensated for the public sector units that grow their R&D expenses with 0.44% and are committed to create 10% new positions in the research sector compared to the existing ones during the year the measure was applied.
3. In the case of the non-governmental sector, losses to the State budget could be compensated for the non-governmental sector units that grow their R&D expenses with 0.42% and are committed to create 10% new positions in the research sector compared to the existing positions in the year the measure was applied.
4. Aggregating business sector with the non-governmental sector leads to estimate a positive impact for applying this measure.
5. The direct impact in the above mentioned cases consists in increasing of the researchers number and increasing of R&D costs, and the indirect impact consists in increasing of GYR per capita at regional level and of the share of exports of high technology products out of the total exports[1].

REFERENCES

[1]. Ciocanel A.B. "The contribution of innovation to regional development", Ph.d. thesis, Romanian Academy, 2015
[2]. Elliot,D.,Swartz,E.,Herbane,B.,(2010),Business Continuity Approach.A Crisis Management Approach.,Routledge.NY,USA,(www.e-Bookstore.tandf.co.uk.).
[3]. Herbane,B.,Elliot,D.,Swartz,E.,(Oct.2004), Business Continuity Management: time for a strategic role?, Long Range Planning,Vol.37,Issue 5,pp.435-457.

★★★