SOCIAL SECURITY CONTRIBUTIONS AND THEIR IMPACT ON ECONOMIC GROWTH

Rudolf Macek[1]

Abstract

This article is connected to previous author´s works. None of these articles were clearly dedicated to social security contributions issue. The existence of social security systems and their various forms are necessity in all developed countries. However, these countries have to face problems like sustainability of systems, cost of systems and aging population. Therefore, aim of the article is to evaluate the impact of social security contributions on economic growth in OECD countries for chosen years. From time interval 2000-2016 there was chosen three important years 2000, 2010, 2016 and analysis of social security contribution impact on economic growth in OECD was made on these years. These years were chosen in the economic cycle existence´s logic in analyzed countries. For the article purposes taxation is expressed by tax quota which represents basic approximator of taxation. From the analysis results it is evident that social security contributions are harmful and they lower rate of economic growth.

Keywords

Social Security Contribution, Economic Growth, Tax Quota, OECD

I. Introduction

Organization for Economic Cooperation and Development (OECD) includes 36 the most developed countries in the world. It is necessary to realize that the existence of redistributive processes in these economies is necessity. In each of these countries, there exists certain health, social or retirement systems. Systems which logically belong to the developed countries. Systems which can be economically expressed through the government spending existence. Systems which have to be finance from some sources. Systems which existence are dependent on certain taxes and social security contributions existence level.

From above stated it is evident that existence of certain level of government spending, taxes and social security contributions is necessity. Any state would be not able to fulfill the elementary state´s function without these elements.

Anyway, due to problems with high mandatory/total government expenditure ratios and problems with social security systems (cost, sustainability, aging population), OECD countries will have to solve these problems with regards to long-run economic growth or social welfare in the future. There also exist different points of view among the politicians and economists about tax and government systems settings. This might be the main reason why individual tax and social systems are so heterogenous.

With regards to above stated it is necessary to realize that the optimal combination of taxation tools has to be the relevant area of exploration. The impact of social security contributions and other taxes on economic growth can be noticeable and significant. With problems as sustainability and costs of social security systems or aging population, there is visible necessity of social security contribution impact on economic growth exploration.

[1] University of Social and Administrative Affairs, V. Nezvala 801/1, 73601 Havířov, Czech Republic. E-mail: macek@prigo.cz.

Therefore, the aim of the paper is to evaluate the impact of social security contributions on economic growth in OECD countries for chosen years. Due to economic cycle existence´s logic in analyzed countries these years were 2000, 2010 and 2016.

II. Theoretical background

At the beginning of this part it is necessary to realize, that when we work with taxation impact on economic growth we have to evaluate the taxation impact on individual growth variables which are capital and human accumulation (Macek, 2018).

With regards to higher stated, it is possible to state, that the important element of economic growth investigation was approach of Solow (1956) and Swan (1956). In the long run the economy goes to steady state in which it is not possible to increase output per a worker, but only population changes and exogenous technological progress can modify steady state. According to Romer (1986) and Lucas (1988) investments into human capital can be considered as main sources of long-run economic growth. However, Aschuaer (1988) belonged among first ones who worked with productivity of government spending and their impact of economic growth with regards to their financing by various types of taxes. According to King and Rebelo (1990) national tax policies influence long run economic growth due to their impact on physical and human capital accumulation.

It is necessary to realize, that growth theories must be understood as complex theories (Macek, 2014) and therefore social security contributions are one partial part of this theory. Barro and Sala-i-Martin (2004) state that the basic growth model can derived from the Cobb-Douglas production function:

$$Y = C + \dot{K} + \delta K = A(vK)^{\alpha}\ (wH)^{1-\alpha}, \tag{1}$$

where *Y* represents total production; *C* presents private consumption; δ is the depreciation rate; *v* expressed the part of the physical capital *(K)* which is dedicated to the production; *w* expressed the part of the human capital *(H)* which is dedicated to the production; *A* is the technological level and finally the coefficient α is the rate of diminishing returns to the physical capital.

By the gradual derivation it is possible to deduce the expression (2). From this expression it is evident that labour taxes (income taxes and social security contributions) τ_w, property taxes τ_a, corporate taxes τ_π and consumption taxes τ_c negatively affect economic growth (Kotlán, Machová, Macek, 2014).

$$\gamma = \frac{\dot{\hat{k}}}{\hat{k}} = (1 - \tau_w)\left[\frac{f(\hat{k})}{\hat{k}} - f'(\hat{k})\right] + (1 - \tau_a)\left[f'(\hat{k})\,(1 - \tau_\pi) - \delta\right] - (1 + \tau_c)\frac{\hat{c}}{\hat{k}} + + \frac{\hat{t}r}{\hat{k}} - x - \frac{\dot{l}}{l}. \tag{2}$$

Social security contributions due to their social spending financing have very important role in individual tax systems of developed and also developing countries. Analysis results of Pesendorfer (2008) show that labour taxation which includes social security contributions negatively affects growth potential of Austrian economy. According to Kalaš, Mirovič and Andrašic (2017) personal income taxes and social security contributions are weakly related to gross domestic product growth. However, this is very rare result and it might be connected with shortages of correlation analysis and its application only in the case of United States. Gross domestic product of this country is mostly formed by consumption and companies' production. With using country specific VARs model relating gross domestic product, unemployment, savings and social spending the results can be different. Pereira and Andraz (2014) found out, that social spending financing by social security contributions has a negative effect in developed countries while the effects on saving is not statistically significant. Furthermore, for financing redistributive spending a less distortionary tax mix should be used. Very important is also the insurance component of the systems.

Zubriri (2006) explores the relationship between social protection and unemployment and he found out that level of unemployment is not strictly depend on level of social security contributions, but it

is related to factors as inflexibility of labour market, etc. According to Goerke (1999) it is proven, that a balanced budget shift from labour taxes to value added taxes will decrease unemployment. Also shifts from social security contributions to capital income taxes can reduce unemployment (Kunze and Schuppert, 2009). Bräuninger (2004) develops a model of overlapping generations and he states, that social security system has two components (1.) old-age pensions and (2.) unemployment insurance and both of them have an indirect negative impact on economic growth (through the unemployment existence).

However, Belletini and Ceroni (2000) state that, there exists a statistically significant relationship between social security expenditures and economic growth and this relationship is positive and larger in poor countries with relatively underdeveloped social security systems. They also find out, that social security has a positive influence on human capital formation and accumulation. However, almost all developed countries are facing to the necessity of social security reform on savings and investment due to long-run sustainability (Bosworth and Burtless, 2000). Existence of the problem of long-run social welfare and protection for economic growth and social stability is also visible in developing countries as e. g. China (Binggin, 2012). According to Lesnik, Kracun and Jagric (2014) long-run sustainability of social security system and social welfare is also dependent on the public awareness about the public services benefits. There also exist some lessons for building social security schemes and systems in developing countries and for more information see e. g. Butter and Kock (2003).

Very interesting is conclusion of Ehrlich and Jinyoung (2003) which deals with the connection between social security, demographic trends and economic growth. They used simulation analysis and panel data to find out, that pay-as-you-go (PAYG) tax measures represent a significant part of declining trends in family and fertility and also lower private savings and economic growth rates in OECD countries.

It is also possible to explore the existence of business cycle with regards to social security contributions, see e. g. Meyer-Gohde (2017) or Janků, Macek and Kliková (2016).

For completeness there must be also mentioned the impact of other types of taxes. According to Macek (2015) or Macek (2014) labour taxation is formed by social security contributions and personal income taxes. This type of taxation (labour taxation) is the most harmful for economic growth. These conclusions can be connected with entrepreneurial activities reduction (Feld and Kirchgässner, 2001) and savings decline (Leibfritz, Thornton and Bibbee,1997).

Corporate taxation is significant factor which determine the foreign direct investment inflow and also its composition (Fatica, 2013). According to Weichenrieder (2005) there is visible tax competition among countries in effort to rise foreign direct investment inflow. Bond and Xing (2010) state that corporate taxation influence capital accumulation and the empirical evidences of corporate taxation impact on economic growth show that the impact is negative see e.g. Macek and Šporková (2013) or Macek (2013). According to Lindop and Holland (2013) corporate taxation can be also understood through the dividend´s taxation, where it is necessary to work with dividend´s taxation and capital taxation impact on activity of small business transfers and start-ups (Myeonghwam, 2004).

Ferretti and Roubini (1995) state that the effects of consumption taxation on economic growth depend on the elasticity of labor supply, and therefore on the specification of the leisure activity. From the whole tax mix consuption taxes harms the economic growth in the smallest extent (Stoilova, 2017). The impact of consumption taxes on economic growth might be in some cases positive (Szarowska, 2010) and main reason of this fact lies in the effective settings of whole tax mix (Macek, 2015).

III. Empirical analysis

Aim of the paper is to evaluate the impact of social security contributions on economic growth in OECD countries for chosen years. Due to economic cycle existence´s in analyzed countries these

years were 2000, 2010 and 2016. The new growth phase of the world economy began in 2000 after the end of the Asian, Russian and Brazilian crisis. In 2010, the effects of debt crisis have been fully demonstrated not only in selected countries of the euro area or the European Union, but also in the US or other OECD countries. Year 2016 is specific with high rate of economic growth in developing and developed countries; world economy is still rising and according to several economists, the coming of a further crisis may be expected again in the near future.

According to Barro and Sala-i Martin (2004) it will be analyzed the homogenous group of countries which can be countries with similar production functions, institutional parameters etc. In our analysis the basic criterion for homogeneity is the country's membership in OECD.

The empirical analysis is based on exploration of dependence´s existence which can be seen between social security contributions and economic growth in chosen years. Taxation is expressed by tax quota which is one of the most used approximators of taxation and it expresses the share of tax revenues on gross domestic product. For the article purposes it was used tax quota category 2000 which represents social security contributions. Economic growth was expressed by gross domestic product growth per resident expressed by the amount of real GDP per capita in purchasing power parity in USD. Main econometric program was SPSS Statistics, version (25) and relationship severity is evaluated using the Spearmen and Pearson correlation coefficients.

Data necessary for analysis was drawn mainly from the OECD iLibrary Statistics and OECD Factbook Statistics.

Before the analysis will be made, it is appropriate to mention some information about social security systems in OECD countries, which are for our purposes expressed by tax quota.

Table 1 Tax Quota on social security contribution in OECD countries for referencing years

Country	2000_TQ (%)	2010_TQ (%)	2016_TQ (%)	2000-2016_TQ (%)	Δ TQ (p.p.)
Australia	0	0	0	0	0
Austria	14,311	14,059	14,851	14,187	0,664
Belgium	13,413	13,817	13,701	13,769	-0,068
Canada	4,732	4,556	4,765	4,742	0,023
Chile	1,373	1,34	1,46	1,378	0,082
Czech Republic	14,354	14,537	14,657	14,623	0,034
Denmark	0,635	0,1	0,057	0,152	-0,095
Estonia	10,915	12,771	11,615	11,107	0,508
Finland	11,563	12,105	12,814	11,954	0,860
France	15,517	16,112	16,735	16,104	0,631
Germany	14,148	13,719	14,149	13,719	0,430
Greece	10,11	10,949	10,994	10,686	0,308
Hungary	11,311	11,756	13,625	12,344	1,281
Iceland	2,798	3,925	3,597	3,244	0,353
Ireland	3,636	5,032	3,911	4,283	-0,372
Israel	5,109	5,188	5,183	5,237	-0,054
Italy	11,59	13,033	12,966	12,479	0,487
Japan	9,074	10,91	11,5	10,494	1,006
Korea	3,583	5,46	6,88	5,331	1,549
Latvia	9,768	8,662	8,347	8,547	-0,200
Lithuania	-	-	-	-	-
Luxembourg	9,631	10,832	10,636	10,592	0,044
Mexico	2,254	2,091	2,234	2,181	0,053
Netherlands	14,4	13,101	14,837	13,541	1,296
New Zealand	0	0	0	0	0,000

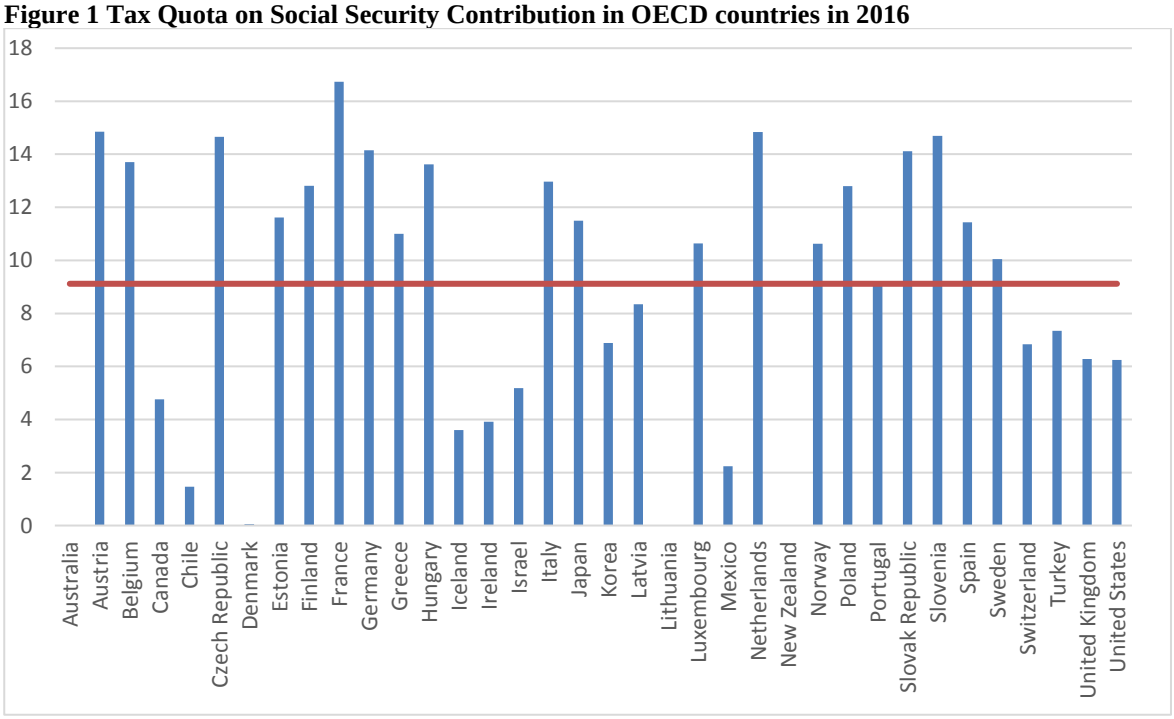
Norway	8,765	9,382	10,63	9,352	1,278
Poland	12,903	10,795	12,797	12,100	0,697
Portugal	7,915	8,59	9,159	8,498	0,661
Slovak Republic	13,952	12,066	14,112	12,920	1,192
Slovenia	13,919	14,845	14,69	14,235	0,455
Spain	11,58	11,704	11,432	11,674	-0,242
Sweden	12,896	10,928	10,044	11,374	-1,330
Switzerland	6,676	6,312	6,833	6,573	0,260
Turkey	4,419	6,181	7,344	5,961	1,383
United Kingdom	5,574	6,191	6,279	6,024	0,255
United States	6,642	6,133	6,243	6,249	-0,006

Source: OECD iLibrary (2018)

Table 1 represents tax quota on social security contributions in OECD countries for referencing years. First three columns represent the level of tax quota for years 2000, 2010 and 2016. The fourth column expresses the average level of tax quota for years 2000-2016. Last column expresses the difference between tax quota for year 2016 and average tax quota for years 2000-2016. If the calculated value is positive, the current total tax quota is higher than the average tax quota so total tax burden increased over the average. If the value is negative, then the tax burden decreased over the average.

From the table it is evident that, in the case of the vast majority of countries, the tax burden representing social security contributions has increased. The biggest growth is visible in case of Turkey and it is in the level of 1,383 p.p. On the other hand, the decrease is visible only in seven countries and the most visible decrease is in Sweden, concretely -1,330 p.p.

Figure 1 Tax Quota on Social Security Contribution in OECD countries in 2016



Source: OECD iLibrary (2018)

In case of better clarity, Figure 1 is stated in the article. This figure represents the comparison of tax quota on social security contribution in OECD countries for 2016. The horizontal line represents the average value of tax quota on social security contributions. This is the better way to see differences in level of social security contributions among the individual members of OECD and it is better to determine which countries are above, respectively below the average level of social security contributions. The average value of tax quota is at the level of 9,11% and above the average there are

countries like Austria, Belgium, Czech Republic, Estonia, Finland, France, Germany, Greece, Hungary, Italy, Japan, Luxembourg, Netherlands, Norway, Poland, Slovak republic, Slovenia, Spain and Sweden. On the other hand, Canada, Chile, Iceland, Ireland, Israel, Korea, Latvia, Mexico, Switzerland, Turkey, United Kingdom and United states are below the average level of taxation.

Results of empirical analysis is visible in table 2.

Table 2 Impact of Tax Quota on Social Security Contribution on GDP

		2000_TQ	2010_TQ	2016_TQ
2000_GDP	Pearson Correlation	-0,01		
	Sig. (2-tailed)	0,05**		
	Spearmnan´s Correlation	-0,14		
	Sig. (2-tailed)	0,03**		
2010_GDP	Pearson Correlation		-0,02	
	Sig. (2-tailed)		0,09*	
	Spearmnan´s Correlation		-0,09	
	Sig. (2-tailed)		0,1*	
2016_GDP	Pearson Correlation			-0,05
	Sig. (2-tailed)			0,1*
	Spearmnan´s Correlation			-0,06
	Sig. (2-tailed)			0,07**

*. Correlation is significant at the 0.10 level (2-tailed).

**. Correlation is significant at the 0.05 level (2-tailed).

***. Correlation is significant at the 0.01 level (2-tailed).

Source: own calculations

From the analysis results it is evident that in case of social security contributions impact on economic growth there exists negative relationship. This relationship is also statistical significant in all analyzed examples expressed with both correlation coefficients and it is at 5% or 10% significance level. The validity and complexity of negative social security contributions impact on economic growth is proven in all analyzed years. This means, that it is not important in which stage of economic cycle we are in; the impact is still negative. Role of social security contributions as automatic stabilizer of fiscal policy is not as essential as their role for financing social expenditures. Anyway is it also necessary to realize that the impact of these expenditures is also negative and we have to work with productive on un-productive government spending (see e.g. Kotlán, Machová, Macek, 2014).

Furthermore, we confirm that positive effect of taxation which is represented by increasing work effort is smaller than the negative impact of taxation on saving creation, capital accumulation and human capital accumulation. We therefore refuse conclusions of Kalaš, Mirovič and Andrešic (2017) who used same analysis method. They state that social security contributions are weakly related to gross domestic product growth. Their analysis was used only in case of United States. In case of all developed countries integrated in OECD we can claim opposite – social security contributions decrease the economic growth rate.

The role of social security contributions has to be taken into account also in less developed countries, because in the future they will be facing to the necessity of long-run sustainability of these systems.

IV. Conclusion

All developed countries are characteristics by the certain level of redistributive processes in the economy. These processes are represented by the government expenditures and taxation existence. It is not possible to fulfill the elementary state´s function without these two basic fiscal elements. Social security systems and their individual forms (health, social, retirement, etc.) are one of the basic systems which exist in developed countries. Anyway, these countries will have to face and solve problems which are related to sustainability, cost and aging population in the future.

Therefore, the aim of the paper is to evaluate the impact of social security contributions on economic growth in OECD countries for chosen years (2000, 2010, 2016). These years were chosen due to economic cycle existence´s logic (2000 – the new growth phase of world economy; 2010 – the debt crisis in European Union countries; 2016 – the approaching peak of growth phase). Analysis of this paper was based on correlation analysis.

Results of our paper are inconsistent with Kalaš, Mirovič and Andrešic (2017) who used the same method. Our results show, that between economic growth and social security contributions there exists negative relationship. Despite the social and automatic stabilizer functions of this type of taxation we can claim, that in the long-run the social security contributions slow economic growth and welfare of economic agents. This results were visible in all analyzed years, so the validity of our results can be visible. This fact might be underpinned by the impact of social government spending on economic growth, which is also in long-run negative.

Anyway, it is necessary to realize that social security contributions can influence economic growth not only in developed, but also in less-developed countries and therefore the proper setting of social security systems is necessary. Generally, these systems are very complex, but the final form of them has to represent the general consensus not among the economics and the politicians, but also the public.

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