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NEGOTIATION OF SOCIAL SECURITY FLOORS: PROBLEMS AND POSSIBLE SOLUTIONS

This paper examines the process of negotiating social security floors (SSF) in Bulgaria and analyzes its problems. The focus is placed on finding the adequate balance between the role of SSF to accumulate sufficient means in the social funds and the impact of these floors on employment. Five different systems of SSF are presented aimed at offering specific rules for their change over time. These rules ensure the lack of motivation for informal practices and for reduction of employment, and at the same time meet the need for adequate revenues for the social funds. All five systems are based on sound economic arguments, they are practically oriented and are easy to use. They may be used separately or together – in combination.
JEL: J32; J38; J46; J50

1. Introduction

Social security floors (SSF) were introduced in Bulgaria in 2003 with the purpose of bringing social security contributions to a greater extent in line with actual wages. The reason was that prior to their introduction, it was a common practice that employment contracts were formally concluded at the level of the minimum wage (or close to it), while there were additional informal remunerations with no social security payments related to them.

SSF act as an absolute minimum in terms of social security contributions.[2] In the event that the official wage is higher than the corresponding floor, social security payments are determined by the wage. In the event that the official wage is lower than the floor, then social security payments are determined by the relevant floor. SSF are determined in accordance with the economic activity and group of professions to which they relate, with 765 SSF determined every year (85 economic activities and 9 groups of professions). The specific values of SSF are agreed upon after negotiations between nationally represented employers' organizations and trade unions and are finally approved administratively by the

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[2] Social security contributions are paid by employers (60%) and employees (40%).

state authorities.[3] If no agreement is reached between the social partners, the Ministry of Labour and Social Policy places the proposal for SSF to the state authorities.

Historically, the SSF system has played and continues to play a positive role in lightening the informal economy, stimulating fair competition between producers, securing social rights for many individuals, bringing higher revenues in the social funds and limiting their deficits. At the same time, however, SSF play a dual role. On one hand they are a component of the social macro-economic policy, and on the other hand, they are also an instrument for intervention in the labour market. Such a dual role results in some contradictions and problems in the negotiations or in the administrative determination thereof when no agreement is reached between the social partners. These problems affect both procedures and negotiations, and also the characteristics of the labour market, including the most important one of them – employment.

The present paper analyzes the process of negotiating SSF in Bulgaria and highlights its problem areas. Moreover, it suggests sustainable solutions for objectifying the negotiations for SSF which are based on sound economic principles.

The paper has the following structure. Section 2 presents the formulation of the problem. Section 3 examines the negotiation procedure for SSF from administrative and organizational perspective and highlights some practical problems in the process. Section 4 raises the question of considering SSF as a tool for intervention in the labour market in theoretical and empirical aspect. The next Section 5 justifies the features that an operating SSF system should have, if such a system should take into account both the need for adequate revenues into social funds and the need for not creating incentives for informal practices and job cuts. There are five systems suggested in Section 6 possessing the desired characteristics. They reflect the vision of the dualistic nature of SSF and allow for flexibility in determining the floors. The main results are summarized in Section 7.

2. Defining the problem

While being already an established practice, the procedure for determining SSF is not well regulated and often creates problems. One of them is that in a number of cases the state administration approves SSF (after negotiations or without any negotiations) that do not correspond to the economic fundamentals in terms of the increase of producers' labour costs. This in turn creates motivation for reducing the official employment, and, respectively, for increasing the informal practices.

In this regard, the Council of the European Union (2013) made a specific recommendation to Bulgaria "... to review the social security floors to ensure that the system does not make hiring of low-skilled workers more expensive." From this perspective, raising the question for the impact of the SSF system on formal employment, and also on informal employment makes sense. This is reasonable, because if SSF raise the costs of labour it may result in

[3] Ultimately by the Parliament within the Budget of the state social security.

reducing formal employment. At the same time it may generate motivation for both employers and employees to switch to informal relations.

There is certain contradiction in the SSF system as it is currently in Bulgaria. The potential conflict results from the dual role played currently by SSF. At the time of their introduction back in 2003, SSF had a minimal impact on the labour market and on the industrial relations. At that time, the minimum wage was very low (BGN 110 per month[4]) and informal economy was widespread, manifested in the fact that many employees were not socially secured or were socially secured based on the minimum wage, though informally receiving significantly higher wages. During the first several years SSF have been perceived as a component of the social policy, as an instrument of macroeconomic policy, serving to combat the informal economy. SSF system was considered a tool to raise adequate revenues for the social funds and not as a tool for intervention in the labour market.

During this initial period SSF were relatively far from the actual wages. In such an environment, social dialogue flew smoothly and SSF increased annually at a high rate – 6-7% catching up with actual wages. This trend continued in the next few years, when the country was on the upside of the economic cycle and realized the highest growth rates in its recent history. SFF easily increased by 12-25% on an annual basis due to the continuing effect of catching up and because of rising actual nominal wages under the conditions of economic boom - growing employment, low unemployment, high rates of growth in Real GDP, high inflation.

However, this trend could not be maintained for a long period – sooner or later the economic growth slows dawn and the catch-up effect depletes. This happened in 2009 when the Bulgarian economy turned out to be "overheated" and triggered by the international financial crisis the country experienced its greatest recession since the economic decline of 1997. In 2009 the real GDP declined by nearly 5%, while SSF increased compared to 2008 by 26.6% on average.

Since then, during the years of subsequent crisis of stagnation, with practically zero or very low economic growth, it became clear that the SSF system was important not only as an element of the macroeconomic social policy, but also as an instrument for labour market interventions. These two sides of the same coin have always been available but the crisis sharpened the impact of SSF on employment.

When SSF levels become high enough, their uniform application causes a lack of flexibility in terms of labour costs. If SSF exceed productivity of labour there is no benefit for employers to hire workers, this leading to the dismissal of workers or to switching to informal employment. In other words, the level and dynamics of SSF can have an effect both on the formal employment and on the informal economy. The recommendation made by the Council of the European Union should be perceived in this very context.

The current SSF levels are a result of a significant increase over an extended period of time. During the period 2003-2014 the minimum wage increased from BGN 110 to BGN 340 – a

[4] Bulgarian Lev (BGN) is pegged against the euro at the rate of BGN 1.95583 for EUR 1.

growth of 209%, and the average SSF increased from BGN 180 to BGN 485 – a growth of 169%. These growth rates were well above the growth rate of productivity.[5] Such a differential between the growth rate of SSF and productivity causes concerns because it leads to increase of production costs and ultimately to loss of competitiveness for the Bulgarian producers. And there are already signals for this - in a number of activities for low-skilled employees wages are below their corresponding SSF. Moreover, the unemployment rate for low-paid groups of workers is very high – in 2015 it is 15.1% in rural areas and 21.6% for individuals between 15-24 years old compared to 9.1% on average (National Statistical Institute, 2016).

Under these circumstances it is reasonable to examine whether SSF have reached the limit where they might have a negative impact on the official employment. This is the reason why the SSF system should be subject to an in-depth discussion in terms of its role as a model of industrial relations for the labor market, which may have an impact on employment, on the structure of remuneration, on redistribution of income and on the motivation for the application of "gray" practices. This is not only pure theory. According to a detailed econometric study for the period 2003-2012 (Petranov, Ivanova, 2017) the increase of SSF during this period, ceteris paribus, results in an increase of informal employment. Hence there is a need for rationalizing the SSF system with the purpose that it doesn't create motivation for job cuts and gray practices.

The impact of SSF on the employment raises the question of finding a system of SSF designed to minimize incentives of employers and employees to be engaged in informal practices. Such a system would be beneficial in terms of formal employment as well. This is because the two phenomena (decrease/increase of formal employment, increase/decrease of informal employment) are connected, the connection being mainly in the most vulnerable groups – young and low-skilled workers and workers in rural areas.

3. The process of negotiating SSF in Bulgaria – best practices and existing problems

The process of negotiating SSF is annually launched by the Ministry of Labour and Social Policy. A working group is established involving representatives of the social partners – trade unions and employers' organizations, Ministry of Finance (MoF), Ministry of Labour and Social Policy (MLSP), National Social Security Institute (NSSI), National Revenue Agency (NRA), National Statistical Institute (NSI). The administration of the process of negotiation is performed by MLSP. Recommended guidelines for the conduct of the negotiation process are prepared based on the projected budget indicators for the next year.

The number of economic activities for which SSF have to be negotiated tends to grow over time. The reason for that is the need for more detailed reflection on the specifics of different economic activities on one side and on the other side the organizational arrangements by trade unions and employers' organizations in sectors that do not correspond exactly to the

[5] For the same period Nominal GDP increased by 139% (data source: National Statistical Institute).

statistical classification of economic activities by the NSI. In 2014, negotiations covered employees in 85 economic activities and 9 qualification groups of professions.

SSF are related to another arrangement on the labour market - the minimum wage. It is the lowest possible social security floor since it is valid for all economic activities and qualification groups of professions. So the minimum wage is an external limiting factor in terms of all SSF.[6]

Currently the procedure for determining SSF is not regulated by any formal regulations or by any agreed upon rules adopted by the participants in the process. There are good practices gaining ground over time that help its implementation – working groups are formed, deadlines are complied with, mutual compromises are considered. Poor formalization of the procedure can be seen somewhat as an advantage because it is a complex process with possible conflicts by its very nature and it would be difficult to be formalized entirely in details. But the flip side of the coin is that the lack of regulation may create also a motivation for opportunistic behavior by participants in the process.

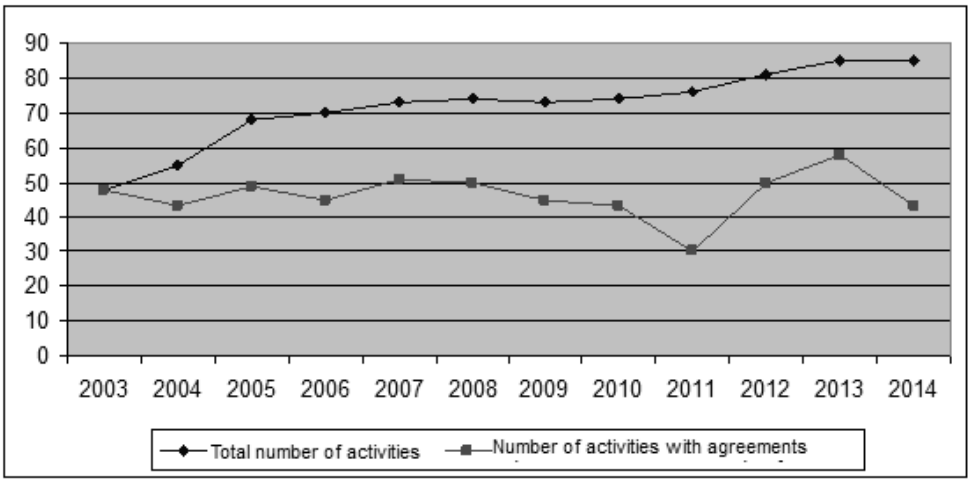
Here are some problem areas. There are economic activities that have no nationally representative employers' organizations, however, they have nationally representative trade unions. The opposite is also present – activities in which there are is no nationally representative trade unions, but there are nationally representative employers' organizations. There are activities where both trade unions and employers' associations are missing. Also, there are cases in which trade unions and employers' organizations in certain activities come to an agreement, but other trade unions and other employers' organizations registered for the same activities do not come to an agreement. This raises the question about the representativeness of the negotiations when there is more than one organization on any side of the agreement. There are even cases of negotiation between organizations that are not nationally representative or negotiations between illegitimate organizations.

The listed above problems are reflected in Figure 1. It shows the total number of economic activities subject to negotiation and the number of activities for which agreements have been concluded over time. As evident from the graph, with the exception of 2003 when there was a collective agreement by general decision, in the years thereafter there is a steady tendency of reducing the number of activities with agreements in relative terms and in some cases even as an absolute number. For example, for 2014 legitimate agreements were concluded in 43 economic activities out of 85, i.e. 50.5%.

[6] There are also some specifics concerning self-employed, individual farmers and individual tobacco growers. For them SSF are below the minimum wage. There is also an upper limit (maximum amount of social security contributions) for all individuals.

Figure 1

Total number of economic activities and number of economic activities with agreements



Data source: MLSP.

Besides the above issues, there is the behavior of the government institutions as an arbitrator of last resort, who is authorized to determine the SSF in activities for which no agreement has been reached. This behavior is not bound by any rules which leads to the potential problem that such increases of SSF might be unfounded. It has been the practice up until now that in the event of no agreement, either the average growth rate of all activities with agreement is imposed or there is no change at all. And here is the problem – since it is clear that there is no way one growth rate (defined in an administrative way) to be suitable for half of the economic activities where no agreement is reached. It is difficult a priori to believe that a growth rate from one sector will be suitable for another sector or that the zero rate is necessarily the most appropriate without conducting analysis of the objective economic fundamentals for the relevant economic activity.

Since the very beginning of SSF existence there has been no case of reducing the floor for any economic activity or a qualifying professional group even in periods of recession, even for industries which have been badly hit by a crisis. This shows up to now a lack of flexibility of this institution of the labour market, which is definitely a disadvantage. The lack of possibility SSF to be reduced in times of crisis may lead to a loss of competitiveness for companies and consequently to loss of jobs or shift to informal practices. This is definitely not beneficial to the employees or to the state[7] and therefore, it is advisable that the possibility of decreasing SSF is explicitly available particularly for industries in crisis.

[7] In a recent report based on a representative survey among employees (Ministry of Labor and Social Policy, 2014) the authors conclude that "As a result of the high unemployment rate a significant part of the employees are ready to work on a minimum wage but to keep their jobs and to receive income".

The lack of legal regulation allows for freedom in the negotiation process which is a good thing because it gives an opportunity for all the specifics of the different activities and all viewpoints to be reflected. However, it is worth considering the possibility of a "soft" regulation of the process of negotiating SSF. There is already practical experience gained during more than a decade with some good and some not so good aspects. It can serve as a basis and be reconsidered so as to create a specific "soft" regulation of the process[8]. This would help improve its efficiency.

4. Impact of SSF on employment and informal economy in Bulgaria

Generally, the impact of the SSF system on official employment and informal economy in Bulgaria is relatively poorly studied. There are a few studies published but they arrive to different conclusions. Some of the views are that SSF have no material impact on employment and informal economy. For example, the conclusion of a detailed analysis of the labour market for the period 2003-2011 published by the Ministry of Finance (2013) was that "... At the aggregate level, there is no significant negative impact of the increase in the social security floors on the number of employees who are at the minimum floor". According to an extensive survey of the Ministry of Labour and Social Policy (2014) it was found out that "At national level, the majority of both employers and employees do not perceive SSF as a factor influencing negatively formal employment and labor market". Even more - "Based on their personal experience and observations, employers at national level definitively reject the theses of the negative impact of SSF on hiring young people, on hiring and firing low-skilled workers, as well as on hiring and firing highly qualified persons." In addition, the study of the Bulgarian Chamber of Commerce (2014) concluded that "The effects of different SSF differ with respect to economic activities and qualification groups of professions, and by years and there is no clear tendency outlined."

At the same time there are opposite views, as well. Results of a survey conducted by the Institute for Market Economics (2009) show that SSF negatively affect employment. The study of Petranov, Ivanova (2017) referred to in Section 2 shows through the use of econometric models that SSF have statistically significant impact on the size and dynamics of informal employment. Increasing SSF leads to an increase in informal employment, after controlling for other significant factors. Another survey on the opinion of employers and employees conducted by the Bulgarian Industrial Capital Association (BICA, 2014) shows the perspective of employers. According to them ".... determination of the size of the SSF must be economically justified, must be based on the indicators of real economic activity of enterprises. This should take into account the industry average levels of annual profit growth, growth in productivity of labour and the average income for the previous period."

[8] For example, a number of publications in the economic literature, examining the nature of the negotiation process in collective labor negotiations in different countries, pay attention to the nonlinear relationship between the degree of centralization and employment. According to this relationship highly centralized systems and highly decentralized procedures lead to higher employment compared to procedures with intermediate (branch) level of negotiation. See. e.g. Calmfors L., Driffill J. (1988).

Particularly employers from micro and small companies suggest "... consideration of introducing differentiation of the size of SSF according to the size of enterprises, where small enterprises shall have lower social security floors."

While SSF are an instrument that is different from the minimum wage, they still have common features. Therefore, theoretically, numerous studies on the impact of minimum wages on employment and informal economy can be taken into consideration. The economic literature on the subject is rich enough. The dominating view is that the minimum wage has positive effects expressed in increasing productivity of low-paid workers (Acemoglu and Pischke, 1998) or in improved motivation of workers (Manning, 1995). However, above a certain level the negative effects prevail, because employers can not formally hire low-productive workers who then become unemployed or start working in the informal sector (Neumark, Wascher, 2003, Abowd, Kramarz, Margolis, 1999). These results were confirmed by empirical research in countries whose labour markets are similar to the Bulgarian one. For example, Fialová, Schneider (2011) demonstrated through econometric models that the increase in the minimum wage for the period 1999-2007 in the new EU Member States resulted in an increase in the number of informal workers employed without official contracts. A study of the labour market in Estonia for the period 1995-2000 (Hinnosaar, Rõõm, 2003) found out that increasing the minimum wage reduces the number of workers affected by this change (working on the minimum wage) and increases the number of those who do not comply with the official regulations.

Despite of the fact that there are arguments for the opposing view, the reports presented by Ministry of Labor and Social Policy and Ministry of Finance with respect to SSF serve as grounds to impose the idea that at this stage SSF in Bulgaria may easily be and should be increased. This is due to the institutional position of these reports on one side and on the other side to the practice since the very beginning of SSF application.

Given the initial role of SSF as an element of social policy, this is an understandable position, however one-sided. Believing that SSF do not affect the employment ultimately means believing that production costs do not affect in any way the competitiveness of companies. This, of course, can not be true. Because when production costs rise, companies are losing competitiveness and reduce their sales which leads to reduction in employment in one way or another. In terms of the economy of the enterprise, social security costs are no different than that any other expenses – for electricity, gas, rents, interest, raw materials, etc. Assuming that the size of SSF is not important as to employment means that the prices of electricity, gas, the rents and interest, the prices of raw materials are not important for the enterprises.

The question for the influence of SSF on employment (formal and informal) is currently incorrectly focused – it is considered on the base whether there is or there isn't such influence with the purpose of justifying another increase in SSF. However, at this stage, after a long period of time during which SSF were increasing faster than productivity, it cannot be automatically assumed that there is no influence of SSF on employment. Technically, it might be difficult to identify such influence, because it is combined simultaneously with the impact of other relevant factors. But the fact that the identification of such influence is technically difficult does not change the fact that SSF, as a component of production costs, inevitably have their impact on the economic viability of enterprises

and thus on employment and informal economy. The influence of SSF could be revealed by an in-depth and detailed analysis carried out using a suitable apparatus and sufficiently reliable data.

The proper understanding of SSF is that they affect employment, however, differently for different producers. At one end of the spectrum there are companies that can influence the prices of their goods and services (e.g. Financial institutions) or whose prices are regulated based on their costs (e.g. water supply and sewerage companies, companies from the sector of production and distribution of electricity, heat and gas, public administration or healthcare). As to these producers, due to their market power, it is relatively easy to directly transfer any increase in costs (including SSF) on consumer prices without substantially changing the results for the producers. I.e. increasing SSF in this case does not affect or affects producers a little, but ultimately converts into higher consumer prices. Quite naturally companies of this type would most likely answer very objectively in a survey that "... they do not perceive SSF as a factor affecting negatively formal employment and labour market."

At the other end of the spectrum there are companies that operate in sectors with a highly competitive market structure that allows only very small profit margins. They are highly sensitive to all costs and any possible increase in SSF can lead to inability to cover costs. This in turn means stopping the activity which will result in a corresponding reduction in formal employment or retaining the business, however partially switching to informal practices. The latter means again reduction of formal employment and an increase in the size of the informal economy.

Of course, there are sectors where market structure is neither monopolistic or oligopolistic, nor perfectly competitive, but intermediate. Enterprises in these sectors have relatively good profit margins and generally can absorb some increase of SSF at the expense of their own financial results. But even in this case enterprises' reaction may not be unambiguous. Some companies may respond to increased SSF by reducing other labour-related costs – on the job training, qualification, working clothes or food vouchers. Other companies may streamline their operations and cut some low-skilled or under-productive workers in an attempt to maintain their profit level by limiting labour expenditures. Some may try to meet the cost increases by applying informal practices to a certain extent. And, of course, some companies may accommodate increased costs at the expense of their profits, which will reduce however the taxes paid by them.

As evident from the above arguments, the increase in SSF, ceteris paribus, may lead to different results depending on the competitive structure of markets and the response of producers. Results can be inflation, job losses, increase in the informal economy, reduced benefits for workers, reduced profits for producers or a combination of all these in varying mixes. Obviously, such results excluding the latter case, are hardly desirable in terms of public interest.

That fact that the increase in SSF increases producer's costs and this could negatively affect inflation or employment does not mean that SSF should not be increased. It means that SSF may be increased, but this must be done carefully, according to the needs and the objective economic fundamentals.

The main purpose of the SSF system is to accumulate adequate means for the social funds supporting the pension and healthcare system. But the cost of maintaining such systems inevitably increases over time - cost of living for pensioners increases because of inflation, salaries of medical staff, prices of medicines, overheads of hospitals also increase over time. Therefore, SSF should be increased. In terms of the economy of enterprises, SSF may be increased as production costs for electricity, gas, rent or raw materials typically increase over time. This should be done after taking into account the economic fundamentals and the diverse aspects of this complex process, so that there are no (or minimum) negative effects from the reduction of formal employment or from expansion of informal economy. This is the very way that the question on the influence of SSF on employment and informal economy should be considered. The focus should not be on whether or not there is such a negative relationship (arguments above show that it exists). The focus should be how to account for such a relationship in a combination with other relevant factors, so that the increase in SSF does not lead to incentives for increase of the informal economy and therefore not to undermine the competitiveness of enterprises and official employment.

5. What are the desirable features of a SSF system?

Under the current regulations SSF by economic activities and qualification groups of professions should be agreed upon between social partners. And this is the best option possible - nothing can replace free negotiation in which all specifics of any moment and in any economic activity can be taken into account.

Nevertheless, and without limiting the freedom of negotiation, it would be useful to have a system that takes into account objective economic realities and thus providing the basis for achieving an agreement in negotiations.

To be good enough and workable a system of negotiating SSF must meet certain requirements, which are a logical result from the purpose of SSF, from conclusions made in the studies on the influence of SSF and from the analysis provided in this paper. Ideally, such a system would have the following characteristics:

1) *The system should take into account the potential impact of SSF on formal and informal employment.* As shown by the arguments in Section 4 of this paper, too large increase in SSF can generate motivation for informal practices. Increasing SSF with the sole purpose of collecting more funds without taking into account any possible effect on reducing formal employment or increasing informal employment, would have a negative outcome, because it can lead to job cuts and/or to expansion of the informal economy.

2) *The system should ensure sufficient financial means for the social funds.* This is the original purpose of the existence of SSF. There is no point in any system for negotiation of SSF if this condition is not met.[9]

3) *The system should take into account existing differences across local labour markets.* This requirement is needed due the fact that in recent years there have been tangible differences between local labour markets – wages and unemployment rates vary considerably in different places. These differences should be taken into account – there is no way the same levels of SSF are suitable for both Sofia and Vidin given the existing considerable differences in the basic characteristics of the regional labour markets.[10]

4) *The system should take into account the difference in the economic capacity of large and small enterprises.* This is a direct result from the findings of the survey conducted by BICA (2014), referred to in Section 4 of this paper. These findings suggest that employers insist on different treatment (more relaxed) in terms of SSF of small enterprises and micro-enterprises. The arguments are that these enterprises typically are exposed to more market risks, have more difficult access to credit and innovation and have lower efficiency.[11]

5) *The system should be based on objective, publicly available statistical data generated with the appropriate frequency by institutions that do not participate in the negotiation process.* If the system uses data collected and interpreted by one of the parties in the negotiation process, it is possible that such data is manipulated and the objective basis of negotiations is distorted. Also, if the system is based on non-existent data or data for which collection is difficult or is not done with the appropriate frequency, then such a system will remain only on paper just as a good intention.

6) *The system should be relatively simple to be understandable and easy to interpret and use.* A complex system can cover many details, but at the same time it will require more

[9] This means that SSF should be regularly updated at rates that are close to the rate of increase of the expenditures of these systems. Pensions have a dynamics that is legally set – the so called "Swiss rule" while the expenditures of the health care system have no such legal regulation. At the same time pensions are the largest expenditure of the social systems (pensions and compensations are about three times larger than the expenditures for health care). This is why for the purposes of this paper it is assumed that the role of the SSF system to secure means for the social funds will be adequately implemented, if SSF increase according to the "Swiss rule."

[10] For example, according to data from the National Statistics Institute (NSI) differences in average gross wage at the end of 2014 by regions are considerable: the highest average gross wage is in Sofia Capital (BGN 1131), while the lowest is in Vidin (BGN 597). Also according to NSI data the unemployment rate for persons aged between 15 and 64 for 2015 is 4.4% for Sofia Capital and 18.6% for Vidin.

[11] Unfortunately, this requirement is inconsistent with the next one, according to which the system should be based on objective statistical data available, because at this stage there is very little data collected and publicly available which take into account the size of enterprises. Therefore, the systems proposed in this paper comply with all listed requirements, except this one. Nevertheless, this requirement is retained in the text, because the scope of data collection may change in the future, and also because consideration of this aspect is important and deserves attention.

data and this can lead to difficulties and confusion. In order to be general enough while traceable and verifiable, a system should not be very complicated.

6. Possible versions of the system

6.1. Productivity is at the root

In terms of microeconomic theory in the short run labour costs must correspond to productivity of labour.[12] In particular, the marginal revenue per unit of additional labor should be equal to the marginal cost per unit of labor. In this very case there is the optimum amount of production in terms of competitive markets and maximum employment.[13] The marginal revenue per unit of labor in turn is the product of marginal physical productivity of labor and the price of production.[14] Several important conclusions can be drown from this result.

First, if labour costs, including social security contributions, change over time in line with labor productivity, other things being equal, this will not lead to a negative effect on employment. I.e. in terms of labour costs there will be no motivation for employers to cut jobs because labour costs are growing faster and go ahead of productivity. Accordingly, there will be no motivation for shifting to informal practices.[15]

Second, if productivity per unit of labour increases faster than unit labour costs, then, other things being equal, this will increase the demand for labour, because companies will benefit from increasing the employment. Conversely, if productivity per unit of labour increases more slowly than unit labour costs, this will reduce the demand for labor and will create motivation for the expansion of the informal economy.

Finally, increased labour demand can be met either by possible increase of labor supply and higher employment or by wage increases. In the latter case it should be borne in mind that in the medium and long term, companies may react also by replacing labour with more productive physical capital.

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[12] This result stems from a conceptual model describing the companies as institutions seeking to maximize their profits, which is a natural behavior for private companies. Other participants in the labor market, such as state-owned companies or public administration may not be covered precisely enough by this model.

[13] This is a standard result from the microeconomic theory on labour demand and can be found in many different publications. See for example Borjas (2010).

[14] Marginal revenue per unit of labor MRP_L is defined as the increase in total revenues generated by the increase in labor by one unit, i.e. $\Delta TR/\Delta L$. If Q stands for the amount of production, MR for marginal revenue, and MP_L for marginal physical productivity of labor, the following equation shall be in force: $MR = \Delta TR/\Delta Q$, $MP_L = \Delta Q/\Delta L$. $MRP_L=\Delta TR/\Delta L=(\Delta TR/\Delta Q) \times (\Delta Q/\Delta L)=MR \times MP_L$. The statement in the text is obtained by recognizing that marginal revenue equals the price of production and hence real labour costs should be equal to the marginal physical productivity of labour.

[15] This does not mean that the gray economy will disappear but that there will be no motivation for informal practices caused by SSF. Other factors motivating gray practices that are not connected with SSF may remain in force.

As evident from the above it appears that if SSF should not create motivation for informal practices then SSF have to be changed in parallel with the marginal productivity of labour. This clear conclusion gives grounds to suggest a SSF system based on the dynamics of the marginal productivity of labour. In order for such a system to be put into practice, however, it is necessary to make one more step.

Marginal productivity of labor is purely a theoretical concept and practically is not measured by the statistical authorities. Average productivity of labour is usually published instead. Such is the practice of the National Statistical Institute in Bulgaria (NSI) and therefore connection should be sought between marginal and average productivity of labour. This can be done by using the production function apparatus as follows:

Let Q indicates the amount of production, K the amount of capital, and L the amount of labour input in the production process. Let the production function has the following form[16]:

$$Q = AK^{\alpha}L^{\beta},\ \alpha + \beta = 1$$

For the marginal productivity of labor we have:

$$\frac{\partial Q}{\partial L} = AK^{\alpha}\beta L^{\beta-1} = \frac{\beta AK^{\alpha}L^{\beta}}{L} = \beta\frac{Q}{L}$$

I.e. marginal productivity of labor can be estimated as the average productivity of labour is multiplied by a parameter which is a number between zero and one.[17] The fact that the marginal productivity of labour is less than the average productivity of labour is due to the law of diminishing marginal productivity and to the fact that the increase in production volumes is not the result only of the increase in labour productivity, but of other factors as well involved in the production process (improvement of organization and management, investments, improved infrastructure, improved efficiency of intermediate goods such as energy, materials and resources).

Given the above conclusions, a logical SSF system based on productivity of labour would be[18]:

(6.1) $TM_{ijk}^{t+1} = \beta_i TII_{ik}^{t-1}$, where

[16] This is the so called Cobb-Douglas production function, which is widespread and most commonly used in analytical economic research.

[17] The possible values of this parameter are estimated on the basis of specific empirical data. Econometric estimates published in the economic literature show parameter values which generally fall in the range 0.5-0.7.

[18] Here growth rates of SSF are equal to growth rates of marginal productivity of labour. The later are a fraction of the average productivity of labour on the basis of the production function.

TM_{ijk}^{t+1} - annual growth rate of SSF for economic activity i, for group of professions j[19], for region k, in the year t+1;

$TП_{ik}^{t-1}$ - annual growth rate of average productivity of labour for economic activity i, region k, in the year t-1;

β_i - a parameter that is subject to empirical econometric estimation.

The formula so suggested requires certain clarifications. First, in terms of the chronological index. According to the current organization of the process of negotiating, SSF which will be valid for the year t+1, are negotiated in the middle of year t and can therefore be based only on reported data from year t-1.

Second, about the parameter β. It can be uniform for all SSF, if empirically estimated at a macro level (ie $\beta_i = \beta$) or it can be different for different sectors, if it is empirically estimated from sectoral production function models.

Finally, in terms of data on labour productivity. NSI practice is to publish indicators of labour productivity based on gross product and on gross value added at current and constant prices, on an annual and quarter basis. NSI data are calculated based on production activity (numerator) and indicators of labor input in the production process (denominator). The result of the production activity is measured by Gross Domestic Product (GDP) and Gross Value Added (GVA) and the labour production factor in the calculation of the relevant index is measured by the number of employees in resident production units of the national economy and by the time worked by them – man-hours worked.

The indicator of labour productivity based on value added[20] is more appropriate in this case. Furthermore, it is more appropriate to report labour on the basis of man-hours worked because the amount of labor input in the production process is measured more accurately thereby. Current prices should be used in terms of price base because SSF are nominal values.

The annual growth rates of labour productivity can be calculated based on annual data, which is available for the previous year in the middle of a given year – NSI publishes the data 435 days after the end of the relevant year. However, they can also be calculated based on quarterly data, taking the first quarter of the current year (when negotiating SSF) and the

[19] In this case the formula is designed so that SSF for various qualification groups of profession increase at the same rate. This is not necessarily required, it is possible that within an economic activity SSF for individual groups of professions change at different rates, but the important thing is that the growth of the average SSF corresponds with productivity growth in the sector.

[20] It is this indicator that is most frequently used in European practice in collective employment negotiations. Another possible indicator – productivity based on gross product - is less suitable in this respect, because it takes into account the production at market prices - ie includes taxes, excise duties and subsidies. An increase in excise duties or taxes, for example, would, other things being equal, result in an increase in productivity of labour under this indicator. Obviously there is no increase in productivity in the sense given to this concept in economic theory.

last three quarters from the previous year. Quarterly data are published 70 days after the end of the relevant quarter. In the second case decisions can be taken based on more recent data at the expense of some more calculations.

The formula suggested can be used in different perspectives, where the availability of disaggregated data in sector and regional perspective affects the possibilities of its application. The frequency of publishing data is different for different facets and therefore requires appropriate modifications of the suggested formula. There are four possible subversions.

The first is when the formula is applied at the macro level. In this case, it uses only the growth rate at national level and is modified as follows:

(6.1a) $TM_{ij}^{t+1} = \beta TП^{t-1}$

According to this modification, the change of SSF should be at a rate equal to a fraction from the growth rate of labor productivity at the national level.

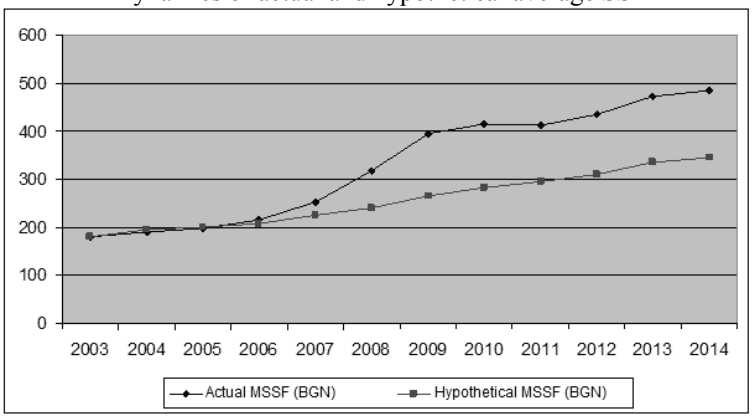
What does this actually mean? The following example may be considered an illustration of this approach. NSI data show that productivity of labour at a macro level based on gross value added per man-hour worked in 2013 and 2012 are respectively BGN 11.1 and BGN 11.0. Let's assume that after the relevant econometric procedures, the beta parameter is estimated to be 0.7. Then it turns out that SSF for 2015 should be increased compared to SSF for 2014 by a growth rate of just over half a percent. The calculations are as follows:

$$TM_{ij}^{2015} = \beta TП^{2013} = \beta \frac{11.1}{11.0} = \beta 0.91\% = 0.7x0.91 = 0.637\%$$

Another illustration is the dynamics of the hypothetical SSF, which would have resulted if this formula has been applied as of the beginning of the introduction of SSF. Figure 2 gives an idea of what could happen. It shows the dynamics of the actual SSF (average by economic activities and qualification groups of professions for the relevant year) and the hypothetical average SSF that would result under the above rule.

Figure 2

Dynamics of actual and hypothetical average SSF



The figure shows that, if the suggested rule was followed during all of the years of existence of the SSF, even at relatively high beta coefficient (in this case 0.7), the growth of SSF would be significantly lower than it currently is. I.e. during the period concerned SSF have been increasing too fast with respect to the marginal productivity of labour.

The second option is to implement the formula in a sectoral perspective. Then it shall be modified to:

(6.1b) $TM_{ij}^{t+1} = \beta_i TП_i^{t-1}$

According to data available, published by the National Statistics Institute, in this case the formula is applicable to the so call A3 format, ie economic activities are aggregated into 3 sectors - agriculture[21], industry[22], services[23]. This means that the growth rate of productivity of a sector to which a certain activity belongs will be the reference indicator for the increase of SSF in the relevant activity. Beta coefficients β_i may be specific to each sector or a single beta coefficient may be used, i.e. $\beta_i = \beta$ which is estimated at macro level and which will basically be the average between the sectoral coefficients.

The third option is to use the formula in the same form as in (6.1b), but at a more disaggregated sectoral nomenclature. I.e. the formula is

(6.1c) $TM_{ij}^{t+1} = \beta_i TП_i^{t-1}$,

but now the sectoral index refers not to the nomenclature A3, but to A10 which includes all economic activities aggregated into 10 sectors - agriculture, industry, construction and seven separate activities in the field of services. In this case, however, the data available require the use of productivity of labour based on GDP, and not based on gross value added as this is the data published by NSI in nomenclature A10.[24]

Fourth option, another option in principle, is that the formula is used both in sectoral and regional perspective. Then it shall take the following form:

(6.1d) $TM_{ijk}^{t+1} = \beta_i TП_{ik}^{t-2}$

In this case the formula is applicable across regions and across economic activities aggregated in format A3. Now reference for the increase of SSF in a given sector and in a given region will be the growth rate of labour productivity for the sector and the region concerned.

[21] Includes the following activities under NACE - agriculture, forestry, fisheries.
[22] Includes the following activities under NACE - mining, manufacturing, production and distribution of energy and fuel, water supply, sewage, waste management, restoration, construction.
[23] Includes all activities under NACE, which are classified as services.
[24] In fact, NSI does not publish data for productivity, but data for GDP, for number of employees and man-hours worked. From this data labor productivity can be calculated.

The reason for the chronological index for the rate of productivity growth to be t-2 instead of t-1 is that this kind of data (by sectors and by regions) is published 24 months after the relevant period.[25] Individual sector beta coefficients for each sector or a common beta coefficient estimated at national level can be used both in this modification of the proposed formula, as well as in the previous one.

Of course, the proposed formula has advantages and disadvantages in the light of the desired characteristics described in Section 5.

Advantages. First of all, the proposed version meets at most the requirement to provide SSF such a dynamic, which does not create incentives for informal practices and job cuts. The dynamics of SSF, corresponding to the marginal productivity of labour, other things being equal, retains employment, generates no need for job cuts and dismissal of workers and thus minimizes incentives to switch to informal practices.

Another advantage of the system is that it can take into account the differences in sectoral and regional aspect. Where productivity is low - the relevant SSF are lower and vice versa. A third advantage is that the system is based on publicly available and regularly published data included in the calendar plan of NSI.

Finally, in terms of the need for maintaining social funds. The growth rate of labor productivity in current prices may be decomposed into two components – the growth rate of physical labour productivity and the growth rate of production prices, i.e.

$$TП = TPP + TP$$

It follows from the above that

$$\beta TП = \beta TPP + \beta TP$$

I.e. if the product between beta coefficient and inflation of production prices added to the product of beta coefficient and the growth rate in physical productivity is equal or at least close to the "Swiss rule" then changing SSF according to (6.1) will secure adequate means for the social funds. In order this to happen the above sum should be equal or close to half of the sum between consumer prices inflation and the growth rate of the average social security income.[26]

The growth rate based on the "Swiss rule" and the growth rate based on the above formula are usually different, but the question is where do such differences come from and to what extent do they differ. It turns out that the differences in the long run are not very significant. In the "Swiss rule" it participates the consumer price index while in the other formula it participates the producer price index but the dynamics of these two indexes in the long term should not be substantially different. Also, in the"Swiss rule" it participates the growth of the average social security income while in the other formula the growth of physical

[25] Actually NSI does not publish data for productivity in such breakdown, but data for gross value added, for number of employees and man-hours worked. From this data labor productivity can be calculated.

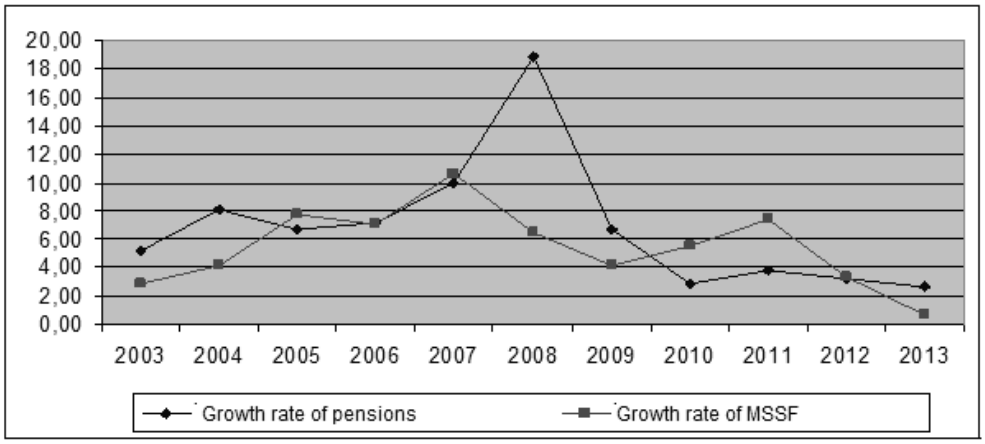
[26] This is the so called "Swiss rule". Social security income is the amount of income on the basis of which individuals pay their social security contributions.

productivity of labor is included. They practically do not coincide, but under ideal conditions productivity growth should be carried over to wage growth and hence to growth of the average social security income, so they should have similar dynamics.

The extent to which the two amounts are identical can be seen on Figure 3. It shows what would be the growth rate of pensions in the period 2003-2013 in case the "Swiss rule" applies for all the years of the period and also what would be the growth rates of SSF in case they are based on labor productivity at national level, according to the proposed formula with a beta coefficient of 0.7.

Figure 3

Contingent growth rates of pensions and SSF (%)



Source: Authotrs'calculations.

The figure shows that the two lines have a similar profile and practically coincide for the period 2005-2007. For the rest of the period, their values are similar, with the notable exception of 2008 when there is an extremely high rate for updating pensions – over 18%. It is due to the sharp rise in the average social security contributions (by 25%) and high inflation of consumer prices (almost 12%).[27] This was the last year of the boom phase of the business cycle when the economy was already overheated. For the period under consideration, the average annual growth rate for pensions is 7.0%, and this of SSF is 5.7%, but if the impact of the "unusual" 2008 is isolated, these rates would have been very close to each other. This empirical evidence gives grounds to believe that the proposed system of SSF can securely support the social funds.

Disadvantages. Of course there are disadvantages of the system. They are mainly in two directions. One is the time lag for changes in SSF. SSF in force in a given year will be based on data for labor productivity from previous years. Some variations of productivity compensate each other over time in the long run, but in the short run this may cause

[27] In reality the Ministry of Finance didn't follow the "Swiss rule" for this particular year despite the fact that this rule is stipulated in the Social Security Code.

problems. This has to be taken into account especially in times of deep recession occurring sharply when companies have difficulties with sales and have to struggle for reducing costs, while at the same time they should increase SSF because of positive indicators from previous years. This was the very situation in Bulgaria in 2009 and 2010.

Another disadvantage of the system concerns the data availability. Differentiation of the dynamics of SSF by sectors and regions is possible, but the sectors are rather aggregated - nomenclature A3 and A10, and the regional perspective is possible with a substantial lag of two years.

6.2. According to the needs of the pension system

SSF system can be constructed entirely based on the needs of the pension system. In this case, the rule would look like this:

(6.2) $TM_{ijk}^{t+1} = 0.5TCPI^{t-1} + 0.5x\frac{EM_{ijk}^{t-1}}{EM^{t-1}}TASI_{ijk}^{t-1}$, where

TM_{ijk}^{t+1} - annual growth rate of SSF for economic activity i, for group of professions j, for region k in the year t+1;

$TCPI^{t-1}$ - annual growth rate of the harmonized consumer price index in the year t-1;

$TASI_{ijk}^{t-1}$ - annual growth rate of average social security income for economic activity i, for group of professions j, for region k in the year t-1;

EM_{ijk}^{t-1} - number of employees in economic activity i, for group of professions j, for region k in the year t-1;

EM^{t-1} - total number of employees in the year t-1.

With such a system, the growth rate of SSF for an economic activity, for a given group of professions in this activity, and for a given region, is determined by the consumer price inflation and by the growth rate of the average social security income. The logic of this option is that social security floors increase at the exact rate at which pensions do under the "Swiss rule". This is evident from the very definition – consumer price inflation is directly reflected in the growth rate of SSF and the average social security income for the country is a weighted average of the average social security income by economic activities, groups of professions and regions.

The data that are necessary for the implementation of this approach are available on a monthly basis – the harmonized consumer price index and the average social security income are published 40 days after the end of the relevant month. This means that when negotiations on SSF take place (usually in July-August of the current year) it will be

possible for the current state of the economy – as of May or June of the current year to be practically taken into account in the negotiations.

Furthermore, there are another two important facts which deserve to be mentioned. Data on the average social security income is available in the most detailed nomenclature by economic activities and groups of professions, so that there is no need of aggregation in this case. In addition, data on the average social security income is available also in a regional aspect.

Here is an illustration of this approach with a calculation of the SSF for 2015. Working with annual data the increase should be based on the inflation rate and the growth rate of the average social security income in 2013 (since the decision should be taken in the middle of 2014). In this case the growth rate of the average SSF will be 2.68%:

$$TM^{2015} = 0.5TCPI^{2013} + 0.5TASI^{2013} = 0.5x0.39\% + 0.5x4.96\% = 2.68\%$$

This is the rate by which pensions have been indexed from 1.7.2014 according to the "Swiss rule". SSF will grow differently for different activities, professions and regions – above or below this average rate. But overall, the average growth rate will be 2.68%.

This approach can also be applied using monthly data for the period June 2013 – June 2014 instead of using the annual data for 2013, for estimates to fully take into account the most recent data.

The proposed approach (6.2) has its advantages and disadvantages just as the first proposal (6.1). Here they are.

Advantages

The option provides growth rates of SSF, which fully meet the rates at which pensions are indexed. Moreover, data for possible implementation of this option are publicly available in the most detailed nomenclature in breakdown by activities, professions and regions. This highly facilitates the application of the approach in detail that corresponds explicitly to the details by which SSF are negotiated. Another advantage is that the frequency of data available allows for conducting the negotiations for SSF in a way that takes into account the most recent state of the economy.

Disadvantages

There are mainly two disadvantages. On one hand, this is the lack of a direct connection with productivity of labour. Indirect connection may be present through the growth rates of the average social security income, which should be affected by the increase in labor productivity through wage formation. But as far as this relationship is indirect, it may not always be manifested, because other factors may also have influence. The extent of this mismatch is illustrated in Figure 6.2, which shows the difference in the growth rate of pensions and growth rate of productivity of labour (in the figure, these are the growth rates of SSF as there SSF are supposed to change according to productivity).

Another disadvantage, compared to the first proposed option (6.1), is that SSF, negotiated during the current year and effective next year, are determined on the basis of data from the

previous year or at best, based on data from the second half of the previous year and the first half of the current year.

6.3. A combined approach

A natural way to combine the advantages and mitigate to some extent the deficiencies of the approaches proposed in the previous two sections is to make a combination of them. In other words, it is possible to change SSF according to the following formula:

$TM = x_1 TM1 + x_2 TM2$, $x_1, x_2 \geq 0, x_1 + x_2 = 1$, where

TM – growth rate of SSF;

TM1 – growth rate of SSF, calculated on the basis of labor productivity (i.e. under any of the proposed options 6.1a-6.1d),

TM2 – growth rate of SSF, calculated on the basis of pensions' growth rate (i.e. 6.2);

x_1, x_2 - weighting coefficients expressing the relative preference for SSF to be changed according to labor productivity or according to growth rates of pensions.

The idea of this approach is to propose SSF dynamics which combines changes consistent with both labor productivity and the need for maintaining adequate revenues for pension system. Any of the components in the formula may be more or less important depending on the size of the weighting coefficients. If the x_1 coefficient is greater than x_2 (for example, 2/3 compared to 1/3), this would mean that greater importance is placed on SSF changing in accordance with labor productivity.

The formula, based on this approach can be presented analytically in the following way, the notations being the same as proposed in the above options.

(6.3) $$TM_{ijk}^{t+1} = x_1 \beta TII_{ik}^{t-1} + x_2 (0.5 TCPI^{t-1} + 0.5 \frac{EM_{ijk}^{t-1}}{EM^{t-1}} TASI_{ijk}^{t-1})$$

The formula can be applied to all cases - by activities and regions that are eligible for the above options (6.1) (with its modifications 6.1a-6.1d) and (6.2). If it is applied using data for 2013, provided that the weighting coefficients are respectively two thirds and one-third, the following growth rate for the average SSF for 2015 is obtained:

$$TM^{2015} = \frac{2}{3} 0.546\% + \frac{1}{3} 2.68\% = 1.27\%$$

<u>*Advantages.*</u> This formula combines the advantages and somewhat mitigate the disadvantages of the previous two systems. The most important characteristics of the economy relevant to the processes considered are taken into account – labor productivity, inflation, average social security income. It enables SSF dynamics to take into account both the dynamics of labor productivity and the needs of the social funds. Furthermore, an

adequate social policy may be carried out by choosing weights that attach more or less importance to any of the components.

Disadvantages. The disadvantage is the one applying to both systems - (6.1) and (6.2). Namely, that the formula is based on data from the past. Another disadvantage is that the labor productivity dynamics and the needs of the pension system are reflected, however not entirely, but only partially in an amount corresponding to the respective weighting coefficient.

6.4. A look into the future

One of the disadvantages of the previous three systems is that they are based on data from the past. According to these systems, SSF, which are valid for a given year, are based on economic indicators that have been formed an year ago or half an year ago at best. This is inevitable - if a system rests on objective data, then there is no other way except it being built on retrospection. Here the logic relies on the inertia of the economic system, on the fact that changes happen slowly and that possible deviations are smoothed over the long run.

The only way to overcome this problem is to propose a SSF system which dynamics is consistent with forecasted economic variables[28]. I.e. when negotiating and deciding, in a given year, on the changes of SSF for the next year, these changes should be consistent with economic indicators forecasted for the next year. Then, if the forecasts prove accurate enough, there will be full correspondence between the effective SSF for the current year and the actual current condition of the economy.

Such an approach is possible. But its application would be limited since on a regular basis official forecasts are prepared and published for a small number of economic indicators - mainly macro-indicators. For this purpose, medium-term forecast, prepared annually for the needs of the state budget could be used. Based on the data for the forecasted value of GDP, the following formula could be suggested:

(6.4) $TM_{ijk}^{t+1} = \beta TFGDP^{t+1}$, where:

TM_{ijk}^{t+1} - annual growth rate of SSF for economic activity i, for group of professions j, for region k in the year t+1;

$TFGDP^{t+1}$ - expected annual growth rate of gross domestic product in nominal terms for year t+1, according to the official forecast in the middle of year t;

β - a parameter that is subject to empirical econometric estimation.

This formula is an analogue to formula (6.1) but there are two differences. One is due to the desire to overcome the disadvantage of the lagging data – this formula is forward looking,

[28] The idea of SSF being based on forecasts has been proposed to the author by V. Karaivanov.

according to expectations, not backward looking, according to actual data. The second difference is that it is based on the forecast for GDP growth rather than productivity. However, these indicators would be equal or close to each other in case equal or close amount of labor has been put in production.

Using data for expected GDP growth for 2015 from the mid-term budget forecast approved by the Council of Ministers in 2014, the average growth rate of SSF in 2015, according to the proposed formula, may be calculated in the following way (with a beta coefficient of 0.7):

$$TM_{ijk}^{t+1} = \beta TFGDP^{t+1} = \beta x 5.1\% = 3.57\%$$

What are the advantages and disadvantages of this approach?

Advantages

The biggest advantage of this approach is that it is based on forecasts and thus there is full synchronization between the dynamics of SSF and the expected dynamics of the current economic system. Moreover, the calculations are quickly and easily performed based on available official data.

Disadvantages

A disadvantage is that the formula allows for calculation only of one indicator which is used as the average growth rate of SSF since no official forecasts for the expected change of GDP (or gross value added) are made in sectoral and regional breakdown. Another major disadvantage is the possible non-accuracy of forecasts. If there are significant differences between actual and expected values of GDP, this will not produce the desired synchronization between the dynamics of SSF and the dynamics of the economic system.[29] If this approach is adopted, a mechanism for subsequent adjustment in case of significant differences between forecasted and actual data will be needed to be put in place.

6.5. Future and past together

Both approaches to the SSF system (one based on actual data and one based on forecasts) have certain advantages and disadvantages. Naturally, the idea of how they might be combined in order to take the advantages of both approaches deserves consideration.

Using historical data is justified by the fact that the economy develops with inertia and results from previous periods affect those in the future. At the same time clearly it is advisable to use information about expectations. This can be done by integrating the two approaches into one formula:

$TM = y_1 TM1 + y_2 TM2$, $y_1, y_2 \geq 0, y_1 + y_2 = 1$, where

[29] Differences are inevitable between forecasted and actual values. But sometimes such differences can be quite big. For example, the forecasts on which Budget 2009 was based upon provided for economic growth, while the actual data showed very deep recession (-5.5%).

TM – growth rate of SSF;

TM1 – growth rate of SSF, calculated on the basis of forecasted data, option (6.4);

TM2 – growth rate of SSF calculated on the basis of historical data, one of the options (6.1)-(6.3);

y_1, y_2 - weighting coefficients expressing the relative preference for SSF to be in line with expectations for the future or with historical data.

Under this approach, based on the options suggested in the sections above, the general formula for SSF will look like this:

$$(6.5)\ TM_{ijk}^{t+1} = y_1 TFGDP + y_2 (x_1 \beta TII_{ik}^{t-1} + x_2 (0.5 TCPI^{t-1} + 0.5 \frac{EM_{ijk}^{t-1}}{EM^{t-1}} TASI_{ijk}^{t-1})),$$

all symbols being defined in the previous sections.

The application of the formula can be illustrated under the assumption that option (6.3) is selected for retrospection and that there is no particular preference between historical (actual) and forecasted data ($y_1 = y_2 = 0.5$). Then:

$$TM^{2015} = y_1 3.6\% + y_2 (\frac{2}{3} 0.546\% + \frac{1}{3} 2.68\%) =$$

$$= 0.5x3.6 + 0.5x1.27\% = 2.64\%$$

Advantages

The advantages of this approach are that it combines historical and forecasted data and thus fully utilizes the information available at the time of negotiations.

Disadvantages

Disadvantages of the approach are mainly related to the small amount of available forecasted data and the possible deviation of forecasts from the actual data, which are discussed in detail in the previous section.

7. Main findings and conclusions

The analysis in the paper leads to the conclusion that the existing SSF system should be considered from two pints of view. On one hand it is an element of the macroeconomic social policy aimed at lightening of the informal economy and bringing adequate revenue to the social funds. On the other hand it is also a tool for intervention in the labour market, which may have an impact on the level of employment, income distribution and motivation for informal practices.

The facts show that the SSF system has successfully performed its function as a component of the macroeconomic social policy. It has historically played and continues to play a positive role for lightening the informal economy, for stimulating fair competition among producers, for social security rights of many individuals, for collecting revenues for the social funds.

However, the other aspect of the SSF system – as an instrument of intervention in the labour market is not well studied at this stage, while there are indications that it is becoming more and more important. This requires the system to be subject to an in-depth discussion in terms of its role as a model of industrial relations for the labour market, which may have an impact on employment, on the structure of remuneration, on the redistribution of income and on the motivation for application of gray practices.

This paper fills this gap to a certain extent. It concludes that when SSF grow faster than productivity suggests, their negative impact on the labor market will increase. And it will be harder SSF to be used to combat the informal economy. Also, it will be harder good results to be achieved through the process of negotiations.

The impact of SSF on the labor market means that the lightning of the Bulgarian economy cannot be achieved only by the systematical increase of these floors. It will not be possible to achieve both significant lightening of the informal economy and positive effects on the labor market with a single instrument (SSF). In other words, it is not possible to "kill two birds with one stone." Other measures besides SSF will be needed to reduce the informal economy in Bulgaria.

The procedure for negotiating SSF can be improved. The analysis in this paper gives grounds to consider the possibility of a "soft" regulation of the process. Practical experience has already been gained for more than a decade with good and not so good aspects. It can serve as a basis to be reconsidered so as to create a specific regulation of the process to help improve its effectiveness.

The issue of the effect of SSF on employment and informal economy has been discussed in detail in the paper. It is claimed that this issue is currently wrongly focused - it is examined from the point of view whether there is such influence or not, with the purpose of justifying another increase in SSF. This is an understandable, however, one-sided point of view, based on the role of SSF as an element of macroeconomic social policy.

This is not a black and white picture. Proper understanding of SSF is that they certainly affect employment and hence the motivation for the use of informal practices. This influence is difficult to be technically identified, because it is combined with other factors while time series are relatively short. But the fact that the identification of this influence is technically difficult does not change the understanding that SSF as a type of expenditure inevitably have their impact on the economic viability of enterprises and thus on employment and on the informal economy. The influence of SSF could be revealed by an in-depth and detailed analysis carried out using suitable apparatus and sufficiently reliable data.

Increasing SSF, faster than productivity, ceteris paribus, can lead to different results depending on the competitive structure of the markets and on the response of the producers.

Results can be inflation, job losses, increase in the informal economy, reduced benefits for workers, reduced profits for producers or a combination of all these. Obviously, such results excluding the latter case, are hardly desirable in terms of a public interest.

The fact that the increase in SSF increases producer's costs and this could negatively affect inflation or employment does not mean that SSF should not be increased. It means that SSF may be increased, but this must be done carefully, taking into account the current condition of the economy. Increasing SSF should be done always with the idea that there should not be (or at least there should be minimum) negative effects in terms of reduction of formal employment or expansion of informal employment.

The paper presents five different SSF systems, which aim to propose such rules for changing SSF over time so as to ensure lack of motivation for informal practices or reduction of employment and at the same time compliance with the need for adequate revenues for the social funds. I.e. they embody the understanding of the dualistic nature of SSF and allow flexibility in determining the floors. All five systems are based on sound economic arguments, they are practically oriented and are easy to use. They may be used separately or together - in a combination.

The systems are not intended to set an "exact" rule for changing SSF but to offer evidence-based benchmarks. There is no point in creating a system for an "exact" rule for changing SSF. In the current legislation, SSF by economic activities and qualification groups of professions should be agreed upon in a negotiation process between the social partners. And this is the best possibility - nothing can replace the free negotiation where it is possible to take into account all specifics about any given moment of time and in any economic activity. However, without limiting the freedom of negotiation, it would be rational to have a system which takes into account economic fundamentals and thus provide an objective basis and orientation for achieving an agreement in the negotiations. Without such a system negotiations may prove to be very difficult.

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