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SOCIAL SECURITY FLOORS AND INFORMAL EMPLOYMENT: THE CASE OF BULGARIA

The article presents the results of an econometric study on the impact of social security floors on the informal employment in Bulgaria for the period 2003-2012. The social security floors (SSF) are an economic policy tool that has common features with the minimum wage, but it is different from the later. We analyse seven different indicators of informal employment and assess the impact on them of both SSF and a number of other macroeconomic and mesoeconomic variables. We conclude that the rise of SSF, ceteris paribus, leads to an increase in informal employment.

JEL: J32; J38; J46

1. Introduction

One of the specific features of the Bulgarian labour market is the existence of social security floors (SSF). They were introduced in Bulgaria in 2003 in order that the social security contributions made by employers and employees can conform to a greater extent with the actually received remuneration. Before their introduction, the social security contributions were proportional to the official earnings, as is the practice in many other countries. But in the same time the widespread practice was hiring people without formal contracts or declaring in the formal agreements lower than the actual wages. This led to the collection of social security contributions that did not correspond to actual incomes. Thus the system of SSF was introduced, which sets minimum levels of the social security contributions. The system operates as follows: if the official income of an employee is over the SSF, the social security contributions are calculated based on this income; if his official income is below the SSF, the calculations are based on the SSF. At the same time there exists a uniform ceiling and above it no contributions are due.

In general, SSF share common characteristics with minimum wages yet they differ from them and are not identical to them. The common feature is that they are minimum levels associated with labour costs that are determined administratively and are, therefore, a form of state intervention into the labour market. The difference consists in that, while the

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minimum wage in Bulgaria is the same for all economic activities and occupations, the SSF vary over economic activities and different professions. Moreover, the minimum wage represents an absolute minimum in terms of the income of a particular employee while with SSF it is possible the official income to be lower, in which case income taxes are calculated according to the official income, and the social security contributions are charged in line with SSF.

The raising of the minimum wage automatically increases the costs of the employer, and in the same fashion – the current income of the employees who are paid at the level of the minimum wage. As a consequence, there is often a rise in the payments for employees with higher salaries. This explains the direct interest of employees in the increasing of the minimum wage. In contrast, the raising of SSF boosts the labour costs for employers without necessarily to heighten the current income of the staff. Increasing the SSF leads to bigger social security contributions and correspondingly to extended pension rights for the personnel. But these rights are realized in the distant future, on one hand, and on the other hand, the pension system in Bulgaria is of the pay-as-you-go (PAYG) type, in which the future level of pensions is considerably uncertain.³ Thus, a jump in the SSF, other things being equal, creates larger costs for the employers, more revenues for the social security system that pays current pensions but it does not increase the current income of the employees. This in turn causes low interest of the staff in the promotion of SSF. It is logical, therefore, to consider the hypothesis that the leap of SSF will stimulate part of the staff to prefer formally low wages in order to receive the marked up social security contributions as informal payments.

The SSF in Bulgaria are determined through negotiations between nationally represented employers' organizations and trade unions, and a final approval is given by state authorities in an administrative way. While there is already an established practice, the procedure for determining SSF is not well regulated and it often poses problems. One of them is that in many cases the government administration approves levels of SSF (with or without negotiations) which do not correspond to the objective economic conditions for an increase in the labour costs for the employers. This successively creates preconditions for reduction of the official employment and upswing of the informal labour.

The influence of the SSF system on the employment in Bulgaria is relatively poorly studied and analytical studies based on econometric models in this respect are absent. The few published results are based on surveys and indirect indicators, and they do not explore all aspects of employment, such as informal employment. Furthermore, these studies are ambiguous in terms of their findings.

For example, a study of the BCCI⁴ (2014) concludes that "... the effects of different SSF vary by economic activities, by professional groups and by year, and a clear trend cannot be outlined." There are also more definitive views which, however, disagree with each other. According to an extensive survey of the Ministry of Labour and Social Policy (2014) "... on

³ Actually, part of the insured people contribute both to the PAYG system and to a capital system, the ratio between them being fixed administratively. The funds which are directed to the capital system are considerably smaller – only 28.5%. Therefore, the PAYG system is in all cases dominant.

⁴ Bulgarian Chamber of Commerce and Industry.

national level, the majority of both employers and workers/employees does not perceive SSF as a factor negatively influencing the formally declared employment and the labour market." While estimates of the Institute for Market Economics (2009) show that the SSF have reduced official employment in 2009.

The purpose of this article is to fill the gap in the analyses of the reaction of employment to movements of SSF by focusing on informal employment, and thus to give a more complete picture of the role of this instrument of economic policy. The article presents the results of a study on the effects of SSF on the labour market for the period 2003-2012 using a rigorous analytical apparatus, where the discussion is organized in the following structure. Section 2 reviews the indicators chosen to evaluate the size of the informal labour in the economy. Section 3 examines the factors potentially affecting the dynamics of the informal labour in the economy. The study methodology is explained in Section 4. The following Section 5 describes the econometric results for the estimated models. Section 6 reports the impact of the SSF and the influence of the other factors on informal employment on the basis of the obtained results. Section 7 summarizes the main conclusions of the study.

2. The informal employment in Bulgaria at the economic-activity level

A major issue in this study is the evaluation of the size and dynamics of the informal employment at the level of economic activities, as defined by NACE⁵, in the period when the system of SSF was present.⁶ Our understanding is that the assessment of the size of the informal employment by economic activities can be obtained based on seven indicators from the Labour Force Survey, conducted by the National Statistical Institute. These indicators are the proportions of the following groups of people to all people who are employed in an economic activity:

1. Employees without a contract;
2. Unpaid family workers;
3. Employed part-time;
4. Employees with fixed-term contracts;
5. Employees in small businesses – up to 10 employees;

⁵ Statistical Classification of Economic Activities in the European Community

⁶ Although the informal employment is a widely studied phenomenon there is no precise definition for it. According to the International Labour Organization the most important characteristic features of informal employment are lack of protection in the event of non-payment of wages, compulsory overtime or extra shifts, lay-offs without notice or compensation, unsafe working conditions and the absence of social benefits such as pensions, sick pay and health insurance. OECD (Huitfeldt, Jütting, 2009) considers as informal workers people in following main employment categories: Employer-owners of informal firms; Own-account workers; Informal employees (of formal and informal firms); Sub-contracted workers and wage workers for households (domestic workers); Wage workers with no fixed employer (casual day workers); Unpaid contributing family members.

6. Self-employed persons;

7. Employers.

While the first two groups clearly represent informal employment, a clarification is needed for the other groups. The third indicator (employed part-time) is used to indicate a feature of the employment contracts in Bulgaria. In the reviewed period a relatively widespread practice was to hire workers with official contracts which don't represent the actual arrangements between employers and employees. Such arrangements would include "hidden" clauses like people being officially on lower positions while informally being paid for the actual higher positions or people being officially on part-time contracts while in fact they work full time, the informal work time being paid unofficially.⁷ In this way, for the informal part of the wages the employers reduce their costs by avoiding social security contributions, and the employees avoid not only these payments but also income taxes. The same logic applies for the fourth indicator.

On the other hand, small businesses and the self-employed experience more difficult access to funding and greater market vulnerability due to their strong dependence on local markets (see eg. Fiess et. al., 2008). For them informal practices are easier to apply and at the same time harder to detect. Especially in times of crisis, small businesses have the greatest difficulties, and while struggling for existence, they often tend to use informal practices.⁸ Therefore, we can expect that the informal economy occurs to a larger degree in small businesses and with the self-employed. We expect this to be valid particularly during crisis times.⁹ Additionally, the practice in Bulgaria shows many instances of use of corporate assets for the personal needs by the owners of the companies, who also act as employers in the case of the small companies. Given these considerations, the study includes as an indicator the number of employees in micro-enterprises – these are all sole proprietorships, family businesses, and small commercial or industrial enterprises employing up to 10 people.¹⁰ The research involves also indicators for the number of self-employed and for the number of employers.

This reasoning does not mean that anyone who works part-time or is self-employed engages necessarily in the informal economy. Nor that each micro-enterprise operates necessarily entirely in the informal economy. But it is certain that the increase of the described groups leads to a bigger risk of expansion of the informal employment and, more generally, of the informal economy. This is the rationale behind considering a wider range of indicators for the informal economy. The study could have focused only on the first two

⁷ For example the Center for the Study of Democracy (CSD, 2011) estimates that for the period 2003-2010 between 30-40% of the labour contracts had "hidden" clauses, while 20-30% of the workers have no contracts at all.

⁸ See for example: Institute for Market Economy, 2006.

⁹ The period under study includes the years during and after two major crises – the international financial and economic crisis which hit the Bulgarian economy with a lag of one year (2009) and the debt crisis in the Eurozone.

¹⁰ According to the National Statistical Institute, in 2013 the share of micro-enterprises was 91.9% of all enterprises in Bulgaria.

indicators but a wider range of indicators makes it possible to judge the processes in a broader frame, to strengthen the results and to reinforce the lessons.

Some of the listed indicators have been already used in the economic literature to assess the size of the informal economy in different countries. The first, the fifth and the sixth of the above mentioned indicators are examined at the macroeconomic level in Fialova, Schneider (2011), and the second, the sixth and the seventh are surveyed at the regional level as in Comola & de Mello (2009).

3. Factors for the dynamics of the informal economy in Bulgaria

Thus far in the economic literature, there are no established factors that have been accepted to universally affect the size and dynamics of the informal economy. The scale of this phenomenon is driven by the interaction between a wide variety of factors which may be different in time and place, and by the magnitude of their effect. Some researchers even believe that the phenomenon cannot be explained with purely economic factors and emphasize the need for interdisciplinary research (Enste, 2002).

However, many studies suggest the directions in which to look for an explanation based on the experience already gained. In the context of this study, it seems logical to look for, on one hand, macroeconomic factors that relate to all economic actors and, on the other hand, for factors at the level of the economic activities insofar as this research is focused on the potential impact of the SSF, and these are determined at the level of the economic activities namely (the mesoeconomic level). At the same time, we should take into account the reality about the availability of data, the frequency, and the aggregation of the various published indicators.

3.1. Macroeconomic factors

The economic literature has identified numerous macroeconomic factors that may have impact on the size and dynamics of the informal economy – from the institutional framework of the labour market, through the quality of the economic policies and legislation, to the level of corruption in the country.

In terms of labour market, this report analyses a number of factors – the tax burden, the degree of contractual freedom according to the employment law, and the amount of funds allocated for active and passive labour market policy measures. This is logical. The tax burden on the income from labour is considered as one of the most important factors among the institutional regulations on the labour market. The size of the taxes influences the decisions of the individuals whether to offer a certain amount of labour in the formal sector or in the informal sector. The higher the taxes, or the greater the difference between labour costs and net remuneration of employees, the stronger the motivation is for concealment of income, *ceteris paribus*. High taxes can give rise to a so called vicious circle – they motivate tax evasion leading to declining tax revenues and resulting in lower levels of

public services and poor administration which in turn stimulates evasion (Johnson et. al., 1997).

The degree of contractual freedom on the labour market is also important. It is acceptable that this market is regulated because of its social specificity and therefore it is natural employees to have a certain level of protection when being hired or dismissed. At the same time, excessive restrictions on hiring and dismissal of workers impose non-productive costs for businesses which can motivate them to use temporary employment, part-time employment or even informal employment (Johnson et. al., 1997).

Labour market policies (active and passive) can also have ambiguous impact on the informal economy. The active policies are aimed at preserving and enhancing the level of human capital and in many cases they contribute to the reduction of the informal economy, for example by tackling its structural problems (OECD, 1997). Similarly, the passive policies may deter from inclusion in the informal economy by providing an income for a specified period to workers who are temporarily unemployed.

On the other hand, both active and passive policies can have a negative impact. They can contribute to the increase of the informal economy by reducing the motivation to seek formal employment and to accept job offers as well as making it relatively economically advantageous to hire informal workers who at the same time have support from social programs.

Other macroeconomic factors which may be expected to have an impact on the informal economy stem from the economic policy and the opportunities for doing business. In this analysis we allow for the influence of the overall tax burden and the general business environment since a number of studies conclude that these two are important for the formation of motivation and for the ability to impose informal practices.

We explored also factors related to the quality of economic regulation and the level of corruption. It is well known that from an economic point of view regulations and corruption mean additional direct costs (fees and/or bribes) and additional indirect costs (time, effort, loss of revenue). This means that the quality of economic regulation modifies the behaviour of companies – higher regulatory burden and higher level of corruption, other things being equal, depress economic growth and encourage informal economy (Loayza et.al., 2005).

3.2. Factors at the economic-activity level

Besides macroeconomic factors, mesoeconomic forces also affect the level of the informal economy in the different economic activities. Each economic activity has its own specificities such as market structure, practices, regulations and business conditions. Naturally, the degree of informality, for example, in the financial sector is fundamentally different from the degree of informality in the agricultural sector. Therefore, in the present research we include factors that reflect the specific conditions in the different economic activities. We consider three groups of factors.

One group are the factors linked to the price of labour – the SSF, which are the main focus of the study, and the average salary. Another group of factors are indicators for the level of

production in the different economic activities because these trajectories are not parallel. At any point in time, the business conditions in the different economic activities can vary, and some of them may experience serious difficulties while others may flourish in high spirits. Undoubtedly, the direction of the economic development shapes the employment, both formal and informal.

The third group of factors takes into account the age structure of the workers in a given economic activity. In general, the youngest and the oldest workers comprise risk groups for informal practices. This is because younger workers are not familiar with the legislation and are less engaged in the trade unions, and the elderly often have a pressing need for income or pension rights and, accordingly, in the absence of alternatives, are willing to accept proposals for informal or partial informal employment. As a result, economic activities in which these groups have high relative shares may be exposed to greater risks of informal practices.

Apart from the above factors which can exercise influence systematically, single actions or events may also have a certain effect. For example, the introduction of mandatory online connection of all cash registers with the National Revenue Agency in 2011 was a one-time measure with permanent consequences which, according to the National Revenue Agency, turned the spotlight on some of the practices of the informal economy. Other regulatory changes may have a similar effect.

4. Methodology – models and data

The empirical study is based on the estimation of a series of econometric models the general equation for which is as follows:

$$y_{it} = c_0 + c_1 M1_t + c_2 M2_t + \dots c_n MN_t + c_{n+1} MZ1_{it} + \dots c_{n+k} MZK_{it} + c_{n+k+1} RELMOD9_{it} + \varepsilon_{it} \quad (1)$$

where:

y_{it} - an indicator of the size of the informal employment in activity i in year t ;

$M1_t, M2_t, \dots, MN_t$ - value in year t of the macroeconomic factors influencing the rate of the informal employment;

$MZ1_{it}, \dots, MZK_{it}$ - value in year t of the mesoeconomic factors influencing the rate of the informal employment in economic activity i ;

$RELMOD9_{it}$ - value of the ratio between SSF for the lowest qualification group (the 9th) and the average salary in economic activity i in year t ;

c_j - model parameters estimated econometrically;

ε_{it} - random variables taking into account the deviations of the model from the empirical observations on the dependent variable y_{it} ;

n – number of the macroeconomic variables included in the model;

k – number of the mesoeconomic variables included in the model.

On the basis of the general regression equation (1), a total of 24 models were evaluated. They have the same logic and structure, the difference between them being the use of different indicators for the size and dynamics of the informal employment in the economic activities, in the time periods, and in the specific explanatory variables.

More precisely, we built models for all 7 indicators for the size and dynamics of the informal employment that were listed and discussed in Section 2. Seven of the 24 models are for the period 2003-2006, another seven describe 2003-2007, seven more are for 2009-2012 and three models cover 2009-2011.

The year 2008 is missing from the models due to the fact that a change in the statistical methodology was introduced. Before 2008, the economic-activity level data were published based on the National Classification of Economic Activities – NACE 2003; after that year, the National Classification of Economic Activities NACE 2008 was adopted. In the very year of the change the data about the workforce are under the old classification, and the rest of the data are under the new one making it impossible to include the year 2008 in the regression equations due to data incompatibility.

Within each of the periods 2003-2007 and 2009-2012, sub-periods 2003-2006 and 2009-2011 are considered in order to verify the stability of the results, and to include in the analysis variables that can be expected to have an impact on the informal economy in general but for which there are no data for 2012. According to the logic set forth in Section 2, in regression equation (1) as dependent (explained) variables are considered: the relative shares of employees without contract, of unpaid family workers, of part-time employed persons, of employees with fixed-term contracts, of employees in small (micro) businesses, of self-employed, and of employers (the notations for the listed dependent variables and the sources of all data are shown in Appendix A).

The independent (explanatory) variables in the model are macroeconomic and mesoeconomic. The macroeconomic variables $M1_t, M2_t, \dots, MN_t$ that we tested are: fiscal freedom (it is inversely proportional to the overall tax burden on business), labour freedom (manifested in the degree of regulation of the labour market), freedom of business (it sets the conditions for doing business in the country), implicit tax burden on labour (taking into account all direct and indirect taxes and social contributions upon labour costs paid by workers and employers), costs for active policies on the labour market, costs of passive policies on the labour market and quality of regulations (Notation for all macroeconomic explanatory variables and the sources of all data are shown in Appendix A).

As a special kind of macroeconomic variables, we work with time indicators. Their purpose is to take into account one-off effects of specific changes in the regulatory environment or in the inspection and administrative practices. For this purpose we use one dummy variable

for each year of the period, noted as TIME3, TIME 4 ... TIME13 for the respective years 2003, 2004, ..., 2013. If the regression coefficient in front of TIME_i proves to be significant, this will mean that there was some unmeasured (by our explicit regressors) influence in the i^{th} year. In such case the most typical explanation in the economic theory is that institutions have changed (new regulations have been introduced or new practices have been adopted by the regulatory agencies) and that changes affected the explored phenomenon.

We include in the models as mesoeconomic explanatory variables at the level of the economic activities the following: real gross value added (rate of change), hours worked by employees, real gross value added (index), number of employed persons. All these variables account for the size and the dynamics of production in a given economic activity. Besides them, we test as explanatory variables the employed persons at 15-24 years of age and the employed persons 55 and older. The aim is to take into consideration the age structure of the workforce in the economic activities in line with the arguments given in Section 3.2. (Notation for all mesoeconomic explanatory variables and the sources of all data are shown in Appendix A).

In agreement with the purpose of the study, the models have their focus on SSF. The social security floor for low-skilled workers, expressed as a percentage relative to the average annual salary (RELMOD9), participates as explaining variable in all models. The reasons for the choice of this particular SSF as basic in all models are as follows. First, the groups at highest risk of instances of the informal economy are mainly the low skilled workers.

Second, the practice is that the SSF for all professional groups are changing in parallel. When this amount changes for low-skilled workers, they change for everyone else. This is clearly seen in the tables in Appendix B. The first of them displays the average SSF for all economic activities given for the respective professional groups and years. The bottom line shows the correlation coefficients between the absolute values of SSF for low-skilled workers (RELMOD9) and the average SSF for the other professional groups. All of these correlations are very high, they range between 96.1 and 99.9%. The second table shows the correlation coefficients for the same variables but in terms of the rate of change, i.e. in dynamics. Again, the correlations are very high – between 89.3 and 98.5% – with the only exception regarding the group "Producers in agriculture, forestry and fisheries, hunters and fishermen" due to the specifics of this group that lead to a more complex dynamics. When there is a group of variables that change together in an almost similar pattern, their simultaneous inclusion in a regression model is not desirable and not needed. It is not desirable because it creates purely technical difficulties for the parameter estimation of the model – a high degree of multicollinearity enlarges the standard errors of the estimates and generates very wide confidence intervals. It is not necessary because a model can include only one variable (in this case the SSF for low-skilled employees) and through its influence on the explained variable to express the common effect of the other variables because they correlate with it. This, on the other hand, saves degrees of freedom that are necessary for power of the test.

The last argument in favour of studying particularly this variable is the nature of SSF as a nominal value. If one considers a given SSF per se, it is a nominal value and its changes reflect the dynamics of the general price level (inflation). Therefore, in the regression

equation it should be seen not as an absolute value but in relative terms compared to the average wage level.¹¹ Thus, the effects of the inflation are offset and we take into account the important for the relevant processes proportion – that is whether SSF grows faster or slower compared to the average wage. Taken on their own, both SSF and the average wage, in nominal terms, are regularly updated as a result of the inflation.

The level at which we estimate the econometric models is the economic activity. From 2003 to 2008 the SSF are stipulated in the State Social Security Budget Act (SSIBA) according to the National Classification of Economic Activities NACE 2003. There are 14 sectors, indicated with Latin letters from A to O, for which the National Statistical Institute of Bulgaria collects data for the wages. In order to estimate the relative SSF we need data both for SSF and wages and that is why we analyze only the economic activities from A to O even though in the NACE there might be more sectors defined. In the year 2008 there is a change of the statistical classification and from 2009 to 2013 the SSF are described in SSIBA according to NACE 2008. It consists of 19 sectors indicated with Latin letters from A to S for which there is data both for SSF and for wages.¹²

In the SSIBA the social security floors are set at a lower level of aggregation – the class – but the data on the other variables used in the regression analysis are collected by the National Statistics Institute (NSI) only at the economic-activity level. Thus necessarily we conducted the analysis by aggregating the SSF from class to economic-activity level using the formula of the average. More precisely, if in a particular year at the level of a particular economic activity five different SSFs are defined for five classes, we take the average of them and use it as a value in the analysis. This is the least costly way to receive data from NSI – without applying any kind of weighting – and if this proves to work in the econometric analysis, by revealing significant influence of the relative SSF, then we consider to have achieved our goal. Moreover, it is logical to expect that the SSFs within one economic activity fluctuate together (all of them increase or decrease simultaneously) and so by averaging them we do not harm the variability of the aggregate indicator that is essential in regression analyses.

5. Econometric estimates

We estimate 27 models in this empirical study and the results are given in Appendix C in three consecutive tables. In each of them the first column provides the names of the dependent (explained) variable, then the names of the independent variables follow as heads of the next columns giving the relevant regression coefficients underneath. Below the

¹¹ Such an indicator is often used in studies on the influence of the minimum wages (eg. Williams & Mills, 1998 or Askenazy, 2003). The ratio between the nominal legal minimum wage and nominal average wage is called Kaitz index.

¹² In both periods we miss the last two sectors from the NACE because there is no data for the wages. These are the sectors Activities of households as employers; Undifferentiated goods- and services-producing activities of households for own use and activities of extraterritorial organisations and bodies. We consider them, anyway, to be of very small importance for the economy of Bulgaria.

regression coefficients, we present in brackets the t-statistics which make it clear if a coefficient is statistically significant or not. The levels of significance at which the results can be interpreted are 0.01 if $|t| > 2.6$, 0.05 if $|t| > 2.0$ and 0.10 if $|t| > 1.7$.¹³ The last column shows the adjusted R^2 – a measure for the fit of the model. We choose to present the adjusted coefficient of determination because for some dependent variables there are two regressions with different number of explanatory variables and in this case the simple R^2 would always be bigger for the model with the greater number of independent variables even if these additional variables do not substantially help the explanation of the variation in the dependent variable.

We employ in Eviews 6 a balanced panel regression using the estimated generalized least squares (EGLS) method with cross-section weights. Panel regressions use datasets that have both a temporal dimension and a cross-sectional dimension. For example, in period one of our study we have 14 cross-sectional data points (these are the economic activities) and four time points for part of the regressions. Instead of having only 14 observations – if we were to run a cross-sectional regression – we can enjoy 56 observations in a panel regression.

White cross-section standard errors and covariance are used to account for heteroscedasticity. The number of observations for the different models varies between 56 and 76 depending on the number of years and the number of economic activities in a particular period.

All of the models are overall statistically significant, their F-statistics are practically zero. The coefficients of determination are very high – between 0.63 and 0.99.¹⁴ This means that the constructed models explain to a large extent the studied phenomenon – the level and the dynamics of indicators describing the informal employment in Bulgaria. In other words, the variation of the independent variables in the models (the examined factors) explain 63% to 99% of the dynamics of the informal employment, as measured by indicators discussed in the article.

6. Conclusions on the effects of the different factors

The results from the econometric estimation, disclosed in Appendix C, convince us of the following conclusions based on the factors of statistical significance.¹⁵

The share of employees without a contract is determined by several factors – SSF¹⁶, phase of the economic cycle, structure of the labour force, fiscal and business freedom, implicit

¹³ Empty cells in the tables mean that the relevant factor has been removed from the regression equation because it has been insignificant.

¹⁴ The R^2 is 0.37 only for the share of the part-time employed in the period 2009-2011.

¹⁵ Statistically significant in our interpretation are these factors (explanatory variables) that are different from zero with probability for type of error I below 10%.

¹⁶ The interpretation of the regression coefficients is as follows. For example RelMod9 (X) is measured as a share in percentage: 55 means 55%. The dependent variables (Y) are measured as shares: 0.05 means 5%. If one multiplies the regression coefficient by 100, one will get what the

taxes on labour, and policies on the labour market (DSHNOCONTR in Appendix C Tables C1, C2, C3). A bigger ratio of SSF relative to the average wage at the sectoral level leads to, other things being equal, expansion of the employment without contracts in the sector. This is indicated by the positive sign of the statistically significant regression coefficient. An upward economic cycle works reversely – it reduces the number of the people employed without a contract expressed as a share of all employed in the particular economic activity. Fiscal freedom, business freedom and freedom of labour legislation have the same impact – a bigger value of these indicators leads to fewer employees without a contract. When the proportion of vulnerable workers (young and old) steps up, this induces more employees without a contract. Implicit taxes on labour breed informal economy measured as employed without a contract, in other words, higher tax and social security rates lead to more informal economy. Active policies on the labour market reduce employment without a contract – more money for active policies makes sense because it prompts lightening of the grey economy and working without a contract decreases.

The share of people employed part-time (DSHPARTTIME in Appendix C Tables C1, C2, C3) is driven by: SSF, phase of the economic cycle, age structure of the labour force, fiscal freedom, implicit taxes on labour, and policies on the labour market. A larger ratio of SSF relative to the average wage in a given sector generates employment of part-time workers in this sector. The phase of the economic cycle is involved ambiguously and different aspects have different effects. Growth of hours worked or of the gross value added in a sector reduces the proportion of part-time work in the sector but the number of employed, in total, is associated positively with the dependent variable. This may be due to the fact that those employed part-time are part of the total employment and the natural response of employers when there are conditions to expand production is to hire more workers, both full and part-time. Fiscal freedom plays significant role during the first period (2003-2007). Obviously, the relatively low tax burden allows the employers in the upward phase of the economic cycle to hire more people full-time, and therefore fewer people part-time. As the proportion of older workers in a sector goes up, this leads to an increase of the part-time employment. Implicit taxes on labour also heighten part-time employment – higher tax and social security rates broaden the share of employed part-time. In the second period (2009-2012) active policies on the labour market reduce the employed part-time while passive policies act in the opposite direction – more funds for active policies, *ceteris paribus*, lead to a reduction of the part-time working while more funds for passive policies result in its reinforcement. In the period 2010-2012 we observe the effect of factors that are not explicitly quantified in the model. This is evidenced by the statistical significance of the time dummies. It is due perhaps to the upsurge during that period of inspections carried out

percentage point change in Y is for one percentage point increase in X. For example, if RelMod9 increases from 55 to 56%, then the Share of People with No Contract will increase (sign +) with 0.11% points, from 0.05 to 0.0511, or from 5 to 5.11%. As both variables move in the same range (from 0 to 1 translated into from 0 to 100 with the help of the multiplication), a coefficient of 0.0011 reveals a magnitude of the effect of 10 to 1: a change in RelMod9 translates to a ten times smaller change in DSHNOCONTR in case all other possible factors are kept constant. It should be noticed as well that in reality all nine SSFs are increased simultaneously and their effect on the dependent variables must accumulate and increase their burden to a degree bigger than one tenth. In the regression analysis we could not have included all of the SSFs due to multicollinearity problems.

by the General Labour Inspectorate in risky sectors which were performed according to a new methodology and also combined with tax inspections. These inspections have resulted in a significant “lightening” of the number of workers who previously were without contracts and after the inspections have switched to formal but part-time contracts.¹⁷

The share of employees with fixed-term contracts (DSHTEMPCONTR in Appendix C Tables C1, C2, C3) is influenced by a set factors which closely resembles the set of factors affecting the share of part-time employed people. As with the employed part-time, the share of the employees on fixed-term contracts is influenced by: SSF, phase of the economic cycle, structure of the labour force, fiscal freedom, implicit taxes on labour, and policies on the labour market. Moreover, labour freedom has statistically significant impact during the second period. A bigger ratio of SSF compared to the average wage in the sector adds to the share of employees with fixed-term contracts. The increase in the turnover of the economic activity reduces the share of workers with temporary contracts. Fiscal freedom is associated positively – lower taxes generate more employment opportunities for workers on temporary contracts. Freedom of the labour market participates negatively – greater freedom (i.e. less regulation on the labour market) reduces the share of employed on temporary contracts. When the proportion of younger and older workers in the sector expands, this leads to growth of the employees on fixed-term contracts. Implicit taxes on labour also increase employees with temporary contracts – larger tax and social security rates lead to expansion of their share. In the second period (2009-2012) active and passive policies on the labour market operate synchronously – more money for these policies, *ceteris paribus*, provokes a rise in the share of employees with fixed term contracts. As with the dependent variable employed part-time, in the period 2011-2012 we identify a single impact of other one-time factors beyond the systemic factors included in the model. Perhaps we detect the same phenomenon as described above.

For the share of unpaid family workers we estimate (DSHNONPAID in Appendix C Tables C1, C3) statistically significant effects of: SSF, phase of the economic cycle, structure of the labour force, fiscal freedom, and implicit taxes on labour. A larger ratio of SSF compared to the average wage in the sector increases the share of the unpaid family workers. An upward going economy operates reversely – it curtails the share of unpaid family workers. When the economy speeds up, the former unpaid family workers can now find paid work outside their circle of relatives. Fiscal freedom acts the same way – a greater value of this indicator leads to fewer unpaid family workers. When the proportion of vulnerable workers (young and old) gets bigger this produces an increase in unpaid family workers during the period 2003-2007. Implicit taxes on labour add to the informal economy (unpaid family workers) and higher tax and social security rates bring on more informal economy. Once again, in the period 2010-2012 we identify a single impact of other one-time factors beyond the systemic factors included in the model. Probably the change in the practices of the General Labour Inspectorate compelled the companies using unpaid family workers to officially register them.

¹⁷ This phenomenon is revealed in studies and reports regarding the calculation of the composite index "Economy in the spotlight", published by the Bulgarian Industrial Capital Association.

For the proportion of self-employed persons (DSHSELFEMPL in Appendix C Tables C1, C3) we find statistically significant effects of: SSF (in the second period only), phase of the economic cycle, structure of the labour force, fiscal freedom, implicit taxes on labour, business freedom and quality of regulations. A bigger ratio of SSF compared to the average wage in the sector helps the growth of the self-employed in the period 2009-2012. For the first period (2003-2007) there is not a statistically significant influence of SSF. This may be due to the fact that the first period covers years of a strong economic growth while the second period covers years of recession and stagnation in which a stronger influence of rising SSF comes naturally. The economic cycle also has a mixed effect in the two periods. In the first period it reduces the share of the self-employed apparently because the high economic activity has created favourable conditions for the opening of new jobs. In the second period, the slower rates of economic development work to proactively increase the self-employed. Probably as a result of the crisis, some individuals have sought a solution to operate independently as well as some smaller companies have shrunk to one-employee companies. In this case fiscal freedom also acts ambiguously. In the first period lower taxes (i.e. bigger fiscal freedom) contribute to the reduction of the self-employed (probably because of the greater opportunities to work organized in companies given by the economic expansion). In the second period low taxes assist the relative rise in self-employment. Similarly, in the period of crisis business freedom and quality of regulations contribute to the ascent of the self-employed numbers. When the proportion of vulnerable workers (young and old) springs up, this entails more self-employed in a given sector. Implicit taxes on labour increase the proportion of self-employed – higher tax and social security rates evoke a larger proportion of self-employed.

The proportion of people registered as employers (DSHEMLOYER in Appendix C Tables C1, C3) is influenced by: SSF, phase of the economic cycle, age structure of the workforce, implicit taxes on labour, business freedom and labour freedom. A larger ratio of SSF relative to the average wage in a given sector sparks an increase in the share of those who declare themselves as employers in the sector. This is due to the tendency of many individuals, dismissed during a crisis in which inflexible labour costs become a substantial burden, to seek a solution as farmers or sole proprietors in small family shops, cafes, restaurants and hotels. An upward economic cycle has also a positive influence on business ventures and creation of new companies, this entails the creation of the employer's position. Similarly, business freedom and labour freedom (less regulation of the labour market) create more opportunities for businesses and creation of new companies. When the proportion of young workers in a sector widens, this is accompanied by openings of new companies and the respective positions of employers. This sounds logical since many newly opened companies prefer to work with younger workers whose adventurous spirit would drive the growth of the undertaking. When the proportion of older workers in the sector is growing, the trend is reversed. Implicit taxes on labour widen the proportion of self-employed – greater tax and social security rates lead to a higher proportion of self-employed. People prefer to engage in the activity themselves rather than pay for employed labour.

The share of persons who are employed in small businesses (DSHSMALLENT in Appendix C Tables C1, C3) is affected by: SSF, phase of the economic cycle, age structure of the workforce, implicit taxes on labour, fiscal freedom, business freedom and labour

freedom. A greater ratio of SSF compared to the average wage in a given sector leads to a rise in the proportion of persons who are employed in small businesses. An economic boom also stimulates hiring more workers, including in small businesses. Business freedom and labour freedom (less regulation of the labour market) inspire an upturn in the share of workers in small businesses. Fiscal freedom functions in the opposite direction during the first period of the study (2003-2007). Apparently, relatively low corporate taxes have triggered the expansion of more medium and large enterprises. Higher-risk groups (young and older workers) tend to appear in sectors with bigger share of employed in small businesses. Implicit taxes on labour increase the share of employed in small businesses – larger tax and social security rates inflates the share of those employed in small businesses where the evasion of taxes is easier.

7. Conclusions

Our estimations show that a plethora of factors affects the informal employment in Bulgaria: SSF, phase of the economic cycle, structure of the labour force, fiscal and business freedom, labour legislation freedom, implicit taxes on labour, policies in the labour market, quality of regulations, specific individual measures to curb the grey economy. All of them are important and statistically significant in one or another form, and in one or another period. And at any given time they collectively determine the size and dynamics of the informal employment, and more generally – of the informal economy.

The influence of SSF on its own can be identified only if we reliably isolate the impact of other possible factors. Otherwise one can obtain misleading results. Having isolated the consequences of other factors through empirically estimated econometric models, we show that there is a reason to believe that a positive relationship between SSF and informal employment exists, other things being equal. Raising SSF is associated with an increase of the informal employment in some cases, or with an increase of the risk of expansion of informal employment and, more generally, of informal economy in other cases.

The particular quantification of the impact of SSF on informal employment that is measured here is the ratio of SSF to the average wage in a given economic activity (sector). An increasing ratio (i.e. faster growth of SSF compared to the average wage), other things being equal, is thought, and here quantitatively shown, to drive growth of informal employment in this sector.

The focus of the paper is on the impact of SSF. But our estimations show that other factors also have systematic impact on the informal employment. Most important among them are fiscal freedom, implicit taxes on labour and the share of older employees. More fiscal freedom and less implicit taxes on labour are associated with less informal employment, other things being equal. Larger share of the older employees is associated with larger informal employment, other things being equal.

The findings in the paper demonstrate that it is also very likely that SSF influence official employment. Once unravelled how SSF incite informal employment, it is very likely that they have impact on formal employment since the two are naturally connected. To believe

that SSF do not affect formal employment means ultimately to imply that production costs do not disturb in any way the competitiveness of the companies, and hence the employment. This, of course, would be difficult for any economist to accept. Therefore, it makes sense further research to be done on how SSF modify the dynamics of formal employment.

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Appendix A

Table A1

Data notation and sources

Role in regressions	Notation	Variable lable	Measurement units	Level of analysis	Used in period	Sources
Explained	DSHNOCONTR	Employees without a contract	Share of all employed*	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2011 2009-2012	Bulgarian NSI, Labour Force Survey
Explained	DSHPARTTIME	People employed part-time	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2011 2009-2012	Bulgarian NSI, Labour Force Survey
Explained	DSHTEMPCONTR	Employees with a fixed-term contract	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2011 2009-2012	Bulgarian NSI, Labour Force Survey
Explained	DSHEMLOYER	Employers	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2012	Bulgarian NSI, Labour Force Survey
Explained	DSHNONPAID	Unpaid family workers	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2012	Bulgarian NSI, Labour Force Survey
Explained	DSHSELFEMPL	Self-employed persons	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2012	Bulgarian NSI, Labour Force Survey
Explained	DSHSMALLENT	Employed in small businesses – up to 10 employees incl.	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2012	Bulgarian NSI, Labour Force Survey
Explaining	FISCFREE ¹	Fiscal freedom	0 - 100 points	National	2003-2006 2003-2007 2009-2012	Heritage foundation
Explaining	LABFREE ²	Labour freedom	0 - 100 points	National	2009-2011 2009-2012	Heritage foundation
Explaining	BUSFREE ³	Business freedom	0 - 100 points	National	2009-2012	Heritage foundation
Explaining	IMPLTAXLAB	Implicit tax rate on labour	Percentage of taxes and social security payments to gross income from labour **	National	2003-2006 2003-2007 2009-2011	Eurostat
Explaining	ACTLMPEXP	Active labour market policy expenditure	As % of GDP devided by % of unemployment***	National	2009-2011	Eurostat
Explaining	PASLMPEXP	Passive labour market policy expenditure	As % of GDP devided by % of unemployment	National	2009-2011	Eurostat
Explaining	REGQUAL ⁴	Regulatory Quality	Z-value, varies between -3 & +3	National	2009-2012	World Bank
Explaining	EMPLOYED	Employed	1000s of people****	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2011 2009-2012	Eurostat
Explaining	GVAVOLPRCCH	Real Gross Value Added	% change to previous year *****	NACE 2003; NACE 2008	2003-2006 2009-2011 2009-2012	Eurostat

Explaining	HOURSWORK	Hours worked	1000s of hours	NACE 2003; NACE 2008	2003-2006 2009-2011 2009-2012	Eurostat
Explaining	GVAVOLINDNUM	Real Gross Value Added	Index based in 2005*****	NACE 2003; NACE 2008	2009-2012	Eurostat
Explaining	SHEMPL1524	Employed aged 15-24 years	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2011 2009-2012	Bulgarian NSI, Labour Force Survey
Explaining	SHEMPL55	Employed aged 55+ years	Share of all employed	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2012	Bulgarian NSI, Labour Force Survey
Explaining	RELMOD9	Real social security floor for the lowest qualification group	% from the average annual salary	NACE 2003; NACE 2008	2003-2006 2003-2007 2009-2011 2009-2012	Own calculations based on publications in lex.bg and Bulgarian NSI

*for ex: 0.05 is 5%, **for ex: 35.6 is 35.6%, ***for ex: 0.37% / 9% = 0.041, ****for ex: 736.7 is 736 700 people, *****for ex: - 9.5 is a drop by 9.5%, *****for ex: 171 is with 71% more than in the base year 2005.

Appendix B

Table B1

Social security floors in BGN

Year	Legislators, senior officials and managers	Professionals	Technicians and associate professionals	Clerks	Service workers and shop and market sales workers	Skilled agricultural and fishery workers	Craft and related trade workers	Plant and machine operators and assemblers	Elementary occupations
2003	312.65	234.14	201.55	145.99	130.39	114.44	160.01	165.63	125.83
2004	329.06	251.59	214.82	153.34	140.76	124.21	171.29	172.04	135.38
2005	352.16	271.67	232.99	171.72	157.74	95.4	188	188.72	154.98
2006	373.12	284.69	244.03	181.64	163.73	101.21	192.54	201.23	166.34
2007	428.65	326.8	277.53	208.22	191.05	182.9	225.21	231.87	187.66
2008	509.14	396.67	338.63	259.64	239.73	225.04	282.41	288.65	233.49
2009	670.71	498.32	422.33	322.49	299.39	250.19	351.54	359.5	291.49
2010	694.34	521.12	442.51	337.57	311.44	256.83	367.2	375.53	302.09
2011	719.02	549.17	464.46	340.95	313.45	252.36	369.89	380	304.19
2012	752.33	575.54	485.82	360.46	331.15	272.05	389.53	400.53	321.31
2013	775.52	586.88	501.41	384.85	354.68	322.89	413.23	420.58	342.01
Correlation with SSF 9 (%)	99.7	99.7	99.7	99.9	99.9	96.1	99.9	99.9	100.0

Table B2

Social security floors as yearly change (%)

	Legislators, senior officials and managers	Professionals	Technicians and associate professionals	Clerks	Service workers and shop and market sales workers	Skilled agricultural and fishery workers	Craft and related trade workers	Plant and machine operators and assemblers	Elementary occupations
Year	SSF1	SSF2	SSF3	SSF4	SSF5	SSF6	SSF7	SSF8	SSF9
2004	5.2	7.5	6.6	5.0	8.0	8.5	7.0	3.9	7.6
2005	7.0	8.0	8.5	12.0	12.1	-23.2	9.8	9.7	14.5
2006	6.0	4.8	4.7	5.8	3.8	6.1	2.4	6.6	7.3
2007	14.9	14.8	13.7	14.6	16.7	80.7	17.0	15.2	12.8
2008	18.8	21.4	22.0	24.7	25.5	23.0	25.4	24.5	24.4
2009	31.7	25.6	24.7	24.2	24.9	11.2	24.5	24.5	24.8
2010	3.5	4.6	4.8	4.7	4.0	2.7	4.5	4.5	3.6
2011	3.6	5.4	5.0	1.0	0.6	-1.7	0.7	1.2	0.7
2012	4.6	4.8	4.6	5.7	5.6	7.8	5.3	5.4	5.6
2013	3.1	2.0	3.2	6.8	7.1	18.7	6.1	5.0	6.4
Correlation with SSF 9	89.3	91.9	94.1	98.5	97.5	18.9	95.5	96.8	100.0

Appendix C

Table C1

Regression results for the periods 2003-2006 and 2003-2007

Dependent Var.	Period	FISC FREE	IMPL TAXLAB	EMPLOYED	GVAVOL PRCH	HOURS WORK	SHEMPL 1524	SHEMPL 55	RELMOD9	Adj.R ²
DSHNOCONTR	2003 / 06	- 0.00045 (- 7.9)				-7.0E-9 (- 3.8)	0.0865 (2.4)	0.1777 (7.9)	0.00106 (8.6)	0.85
DSHNOCONTR	2003 / 07	- 0.00049 (- 21.0)	0.00022 (2.7)	- 9.8E-6 (- 3.1)			0.07787 (2.2)	0.16633 (8.9)	0.00102 (10.2)	0.84
DSHPARTTIME	2003 / 06	- 0.00012 (- 2.5)	0.00075 (22.5)					0.19979 (9.8)	0.00031 (10.9)	0.66
DSHPARTTIME	2003 / 07	- 0.00018 (- 8.5)	0.00047 (5.5)	1.7E-5 (2.7)				0.10519 (4.8)	0.00040 (5.8)	0.88
DSHTEMPCONTR	2003 / 06	0.00082 (50.7)	0.00083 (8.5)			- 3.6E-8 (28.5)	0.17586 (2.6)	0.21886 (6.1)	0.00096 (3.5)	0.73
DSHTEMPCONTR	2003 / 07	0.00061 (12.7)	0.00090 (4.5)	- 4.5E-5 (- 13.7)			0.23597 (7.2)	0.22508 (8.9)	0.00114 (8.1)	0.83
DSHNONPAID	2003 / 06	- 0.00019 (- 4.1)	0.00066 (3.6)					0.09665 (3.9)		0.97
DSHNONPAID	2003 / 07	- 9.5E-5 (- 2.4)	0.00025 (3.0)				0.09340 (3.1)	0.03279 (2.9)	0.00028 (2.6)	0.96
DSHSELFEMPL	2003 / 06	- 0.00039 (- 16.5)	0.00125 (11.9)		4.1E-5 (2.5)			0.22489 (13.3)		0.99
DSHSELFEMPL	2003 / 07	- 0.00038 (- 21.8)	0.00066 (6.4)	- 2.9E-5 (- 2.4)			0.30756 (4.3)	0.16050 (8.2)		0.99
DSHEMLOYER	2003 / 06		- 0.00056 (- 1.9)				0.19672 (5.7)	- 0.04468 (- 4.2)	0.00062 (5.0)	0.73
DSHEMLOYER	2003 / 07		- 0.00047 (- 2.7)	2.4E-5 (8.9)			0.23522 (11.6)	- 0.09502 (- 6.5)	0.00041 (4.9)	0.77
DSHSMALLENT	2003 / 06	- 0.00383 (- 10.5)	0.00467 (5.4)	0.00022 (5.2)	0.00215 (4.8)		1.46476 (7.6)	1.73668 (18.6)	0.00190 (3.3)	0.93
DSHSMALLENT	2003 / 07	- 0.00384 (- 12.5)	0.00815 (17.5)	0.00020 (5.3)			1.79393 (13.4)	1.78672 (21.6)	0.00086 (1.7)	0.91

Note: T-statistics in brackets. Regression coefficients significant at level 0.01 if $|t| > 2.6$, at level 0.05 if $|t| > 2.0$ and at level 0.10 if $|t| > 1.7$

Table C2

Regression results for the period 2009-2011

Dependent Var.	LAB FREE	IMPL TAXLAB	ACTLMP EXP	PASLMP EXP	EMPLOYED	GVAVOL PRCCCH	HOURS WORK	SHEMPL 1524	SHEMPL55	RELMOD9	Adj.R ²
DSHNOCONTR	-0.00045 (-10.0)		-0.04438 (-4.3)		0.00039 (13.6)	-0.00030 (-6.9)	-2.3E-7 (-17.0)	0.05835 (1.9)		0.00028 (3.6)	0.65
DSHNOCONTR	-0.00061 (-74.7)			-0.08042 (-4.3)	0.00039 (13.6)	-0.00030 (-6.9)	-2.3E-7 (-17.0)	0.05835 (1.9)		0.00028 (3.6)	0.65
DSHPARTTIME							-1.1E-8 (-33.4)		0.08417 (6.7)	0.00035 (9.7)	0.37
DSHPARTTIME		-0.00106 (-11.3)		0.06936 (6.3)			-1.E-8 (-32.9)		0.08749 (6.6)	0.00035 (9.5)	0.37
DSHTEMPCONTR			0.04810 (2.7)				-7.8E-9 (-2.3)	0.41740 (28.7)	0.38746 (111.5)	0.00058 (7.5)	0.88
DSHTEMPCONTR				0.08650 (6.2)			-8.2E-9 (-2.4)	0.42 (27.2)	0.38871 (115.2)	0.00058 (7.5)	0.88

Note: T-statistics in brackets. Regression coefficients significant at level 0.01 if $|t| > 2.6$, at level 0.05 if $|t| > 2.0$ and at level 0.10 if $|t| > 1.7$

Table C3

Regression results for the period 2009-2012

Dependent Var.	FISC FREE	LAB FREE	BUS FREE	REG QUAL	EMPLOYED	GVA VOL PRCCCH	HOURS WORK	GVA VOL INDNUM	SH EMPL 1524	SH EMPL 55	REL MOD9	Adj.R ²
DSHNOCONTR		-0.00054 (-34.5)	-0.00027 (-23.0)		0.00045 (16.3)	-0.00017 (-17.2)	-2.6E-7 (17.7)				0.00029 (3.3)	0.65
DSHPARTTIME*						-0.00017 (-2.4)	-1.0E-5 (-5.5)			0.11069 (5.7)	0.00037 (6.9)	0.63
DSHTEMP CONTR**		-0.01218 (-5.4)				-0.00055 (-5.2)	-6.8E-9 (-2.2)		0.44482 (27.1)	0.38501 (16.7)	0.00056 (6.5)	0.80
DSHNONPAID*					0.00064 (13.2)		-3.6E-07 (-12.6)	-1.7E-5 (-11.2)		-0.02864 (-4.6)	0.00008 (5.9)	0.80
DSHSELFEMPL	0.00027 (2.1)		0.00069 (3.3)	0.04844 (9.8)	0.00011 (1.73)					0.24048 (4.0)	0.00031 (3.3)	0.99
DSHEMLOYER		0.00084 (15.2)	0.00088 (63.4)				1.3E-8 (5.9)	0.00013 (8.1)	0.17605 (4.7)		0.00046 (3.7)	0.72
DSHSMALLENT		0.00230 (3.2)	0.00309 (3.8)				2.9E-7 (12.7)	0.00107 (12.4)	0.92811 (7.2)	0.31475 (4.6)	0.00349 (5.8)	0.68

Notes: T-statistics in brackets. Regression coefficients significant at level 0.01 if $|t| > 2.6$, at level 0.05 if $|t| > 2.0$ and at level 0.10 if $|t| > 1.7$

* TIME10, TIME11, TIME12 sign. at 0.01 with values 0.00

** TIME11, TIME12 sign. at 0.01 with values 0.04 and 0.07