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Our article focuses on testing the intertemporal substitution hypothesis (ISH) that predicts a positive relationship between hours worked and transitory changes in wages for the owners of Belarusian small and medium enterprises (SMEs). Our results demonstrate that Belarusian entrepreneurs are willing to work a fixed number of hours regardless of their businesses' performance. Additionally, it appears that females have larger labour supply elasticity than males (it should be noted that male labour supply elasticity becomes even more insignificant when we use robust standard errors). Our results are consistent with the similar findings in USA, Africa, UK and Poland, however, they cannot be generalised for larger companies, since the nature of ISH testing largely depends on the size of the company and its decision-making processes. Our findings suggest that the complicated business environment in Belarus (e.g. difficulties in establishing and running an enterprise, tight bureaucratic control and slow business dynamics) and worsening conditions of the Belarusian economy make small Belarusian entrepreneurs plan their time horizons in a uniquely short-sighted way.

Keywords: labour supply; business; elasticity; intertemporal substitution; small and medium enterprises (SMEs); Belarus

JEL classification: C23; D90; J22

1. Introduction

This article tests the intertemporal substitution hypothesis (ISH) for Belarusian small enterprises. The ISH states that workers relocate their effort intertemporally in response to anticipated wage changes – they work more when wages are high, and have more leisure time when its price (opportunity cost) is low.

It appears that there is a great variation in observed elasticity of labour supply, whether it is based on aggregate (e.g. Alogoskoufis, 1987), or individual panel data (e.g. Altonji, 1986). Moreover, these results are difficult to interpret because ISH assumes that wage changes are transitory, i.e. wage fluctuations are a relative constant within a day but uncorrelated across days, while actual wage changes are rarely

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transitory. As a result, there is a little agreement among researchers on the value of the elasticity that should be used in labour market analysis.

This article contributes to the vast body of research literature on labour supply by estimating the elasticities of labour supply in the case of Belarusian small entrepreneurs and using the empirical approach. Our focus on entrepreneurs is driven by the ability of these individuals to choose how many hours they have to work each day. Another advantage of studying small entrepreneurs is that they face daily wage fluctuations due to demand shocks (see e.g. Parker, 2007). The source of these shocks could be explained by such factors as holidays, weather, the country's economic situation, etc. According to our knowledge, the application of ISH to Belarusian small and medium enterprises (SMEs) has never been conducted in the research literature before and the research on Belarusian economy is also very scarce, although there are single studies that tackle the aspects of finance and inflation (see e.g. Korosteleva, 2007).

2. Theories of labour supply elasticity and intertemporal substitution hypothesis

One of the first researchers who emphasised the significance of studying ISH was Alogoskoufis (1987). However, the first empirical work on estimation of labour supply elasticities was *Theory of Wages* by Douglas (1934). The author used aggregated data with groups split by age and sex: for 38 US cities and examined both time series and cross-section data. He found that the elasticity of hours with respect to hourly earnings is between −0.1 and −0.2. We divide further analysis of the related literature by two groups according to used data – micro data and aggregate (macro) data.

The labour supply elasticity tells us by how much the labour supply responds to wage changes (Heckman, 1993). It appears crucial in understanding what happens on the labour market. In this case macro-estimation helps to see the aggregate behaviour of the economy. One of the first papers on the intertemporal labour supply response was the study by Lucas and Rapping (1969). Using the US annual data, they confirm the Keynesian-type assumption of a relative elastic short-run supply. Their estimated elasticity with respect to the real wage rate was 1.4. To make sure that their conclusions are robust to changes they experiment with different measures of consumption, different lists of instruments, and different frequency data, they tried various functional forms for the utility function just to be sure. The resulting short-run elasticity of leisure with respect to the current wages was from –0.0027 to –0.99, which implies the labour supply elasticity between 0.01 and 17. In contrast, Alogoskoufis (1987) showed that when applied to aggregate employment the ISH was not rejected by the US data. He used a variety of measures of aggregate labour supply – aggregate employment hours and aggregate number of employees, adjusted by working population. In the regressions for the first measure he used hourly earnings, while for the second he used three alternative wage variables, based on annual, weekly, and hourly earnings. His obtained elasticity of labour supply was between 0.5 and 1.5.

Micro-founded data studies are based on household data analysis. The representative household is defined by preferences about leisure which are measured by the labour supply elasticity. Microeconomic studies are typically reported a small real-wage elasticity for cross-sectional and panel data estimation. Ghez and Becker (1975) use cross-section data aggregated by age cohort. They obtain elasticity range from –0.68 to 0.44 by estimating the hourly earnings of employed white men aged 22 to 65. Altonji (1986) estimates panel micro data to find the intertemporal substitution elasticity for married men. His analysis based on similar work by MaCurdy's (1981). Estimated

elasticities by Altonji was between 0 and 0.35, which are in the same range as MaCurdy's results. Similar specification is used by Rogerson and Rupert (1991), except that they consider two dimensions of the labour supply decisions: weeks per year and hours per week, while Altonji and MaCurdy's use only weeks per year. Rogerson and Rupert obtain very similar result – their estimated elasticity is equal 0.2.

Another way to estimate the elasticity of intertemporal substitution is to compare anticipated changes in productivity with labour supply variations. Such approach is used for example by Fafchamps (1993) who studies African farmers' labour supply variations within a year. Assuming that weather affects the expected marginal product of labour, his result of the estimated intertemporal substitution elasticity for leisure is 20 and more.

Labour supply of cab drivers may also have predictable productivity variations. The study of New York City cab drivers by Camerer, Babcock, and Loewenstein (1997) uses a context in which wages are relatively constant within a day but uncorrelated across days, i.e. exhibited a transitory pattern. The authors argued that cab drivers' wages showed considerable variation responses on demand shocks in 'good' and 'bad' days. On a good day cab drivers typically spend less time searching for customers and thus earn a higher income. According to the ISH, they should work longer on such days to cover their loss on bad days. Using panel data from drivers' trip sheets, they estimate negative elasticities (around −1), and thus, find little evidence for intertemporal substitution. Camerer et al. suggest the income target hypothesis to explain the negative results, e.g. drivers are not willing to fall below a target income each day.

Several studies try to explain the difference in the estimated labour supply elasticities. Ericson and Flood (1997) conclude that different estimators perform dissimilar both under perfect and under imperfect conditions (with presence of measurement error). Eklöf and Sacklén (2000) have the same conclusion among their findings. Using the same estimation procedures as Hausman (1981) and MaCurdy, Green, and Paarsch (1990) they highlight how sensitive estimators to the variables constructed from raw data. In addition to these works, Chang and Kim (2006) and Rogerson and Wallenius (2009), followed by Fiorito and Zanella (2012) compare individual and aggregate elasticities of labour supply by estimating both micro and macro data. Using the fact that micro-estimates deal with individual hours of work per unit of time (intensive margin), while macro-estimates deal with total hours of work (extensive margin), they refer the macro- and micro-elasticities of labour supply to the same units in the same data-set. They find a low value (0.11) for the micro-elasticity and a relatively large value (1.06) for the macro-elasticity what is in line with empirical estimates of previous studies. The authors conclude that the difference comes from a variance in data definition mentioned before, in particular that the extensive margin explains most of the difference.

2.1. Intertemporal labour supply

In the general case, the consumer's preferences over a 'life cycle' is represented by a temporally separable utility function of the form $\sum_{t-1}^{T} U(C_t, L_t, t_t)$, where C_t, and L_t indicate respectively the consumption of physical goods and the consumption of leisure at the period t. The date t is also referred to some individual characteristic depending on the subject of study.

This dynamic model also assumes that individuals have opportunity to save with the real interest rate. For each period, the endowment of time is normalised to 1. Thus, the

hours worked during a period t are equal to $(1–L_t)$. Allow A_t to denote the agent's assets on date t. Then, for a given initial value A_0, the consumer's wealth could by described by:

$$A_t = (1 + r_t)A_{t-1} + B_t + w_t(1 - L_t) - C_t, t \geq 1 \tag{1}$$

In the equation (1) $r_t A_{t-1}$ is income from savings, $w_t(1–L_t)$ is labour income, and B_t denotes some other income on the date t.

At each period of time the consumer maximises the utility function subject to the budget constraint (1). Taking v_t for the multiplier of this equation, the Lagrangian of the consumer's problem can be written as:

$$L = \sum_{t-1}^{T} U(C_t, L_t, t_t) - \sum_{t-1}^{T} v_t[A_t - (1 + r_t)A_{t-1} - B_t - w_t(1 - L_t) + C_t]$$

By taking the derivates of this Lagrangian with respect to variables C_t, L_t and A_t we obtain the first-order conditions in form:

$$U_C(C_t, L_t, t) = v_t \text{ and } U_L(C_t, L_t, t) = v_t w_t \tag{2}$$

$$V_t = (1 + r_{t+1})v_{t+1} \tag{3}$$

From (2) we obtain that $U_L/U_C = w_t$ meaning the equality between the marginal rate of substitution and the current wage for each date t. Omitting the problem solution, the optimal allocations of consumption and leisure can be written in the following way:

$$C_t = C(w_t, v_t, t) \text{ and } L_t = L(w_t, v_t, t) \tag{4}$$

Taking a marginal utility of wealth v_t as given, equations (4) define the 'Frischian' demands for period t. Thus, the elasticity of labour supply in Frisch's sense, which is known as the intertemporal substitution elasticity, equal to the current wage elasticity of function $h(w_t, v_t, t) = 1 - L(w_t, v_t, t)$ holding v_t constant.

By taking the logarithm of equation (3), which represents the Euler equation of this model, we obtain the law of motion of v_t:

$$\ln v_t = \sum_{t-1}^{t} \ln(1 + r_t) + \ln v_0 \tag{5}$$

Equation (5) indicates that the logarithm of equals an individual fixed effect $\ln v_0$ minus an age effect $\sum_{t-1}^{t}\ln(1+r_t)$ common to all agents. As will be shown in the next sections, this equation plays a crucial role in estimating the intertemporal elasticity of labour supply.

The basic log-linear empirical model of labour supply has a form:

$$\ln h = \alpha_w \ln w + \alpha_R \ln R + x\theta + \varepsilon \tag{6}$$

This expression investigates the relation between hours h worked and hourly wage w at each date t. Here, R is a measure of income apart the current wage and x is a vector of individual's characteristics. The coefficients θ, α_w and α_w are parameters to be estimated. The error term ε designates unobserved individual heterogeneity.

As mention above, an age effect $\sum_{t-1}^{t}\ln(1+r_t)$ from equation (5) is common to all agents. It may be written in the form ρ_t, supposing that r_t is constant. To obtain the intertemporal elasticity of substitution, we take the marginal utility of wealth v_t as exogenously given and substitute $\ln v_0 + \rho_t$ for $\ln R$ in relation (6). We can eliminate individual fixed effects $\ln v_0$ by taking first-differences from the basic equation (6):

$$\Delta \ln h_t = \rho + \Delta x_t \theta + \alpha_w \Delta \ln w_t + \Delta \varepsilon_t$$

This equation allows us to estimate the intertemporal elasticity of substitution given by the coefficient α_w.

3. Economic and business situation in Belarus

Since the late 1990s, Belarusian economy is characterised by a rigid government regulation of economical process, as well as the governance controls the activity of SMEs in the country. In such conditions, SMEs in Belarus cannot grow and fully develop, which is supported by the provided statistical data from the section above. However, when this research was conducted, the government started the first steps to improve the business environment within the country. According to The World Bank's *Doing Business* (2011) report Belarus was included in top 10 reformers who made 'largest strides in making their regulatory environment more favourable to business'. But despite the intentions of the government to enter the top 30 of the ease of doing business, Belarus occupied only the 69th place.

Apart from policy restrictions the Belarusian economy had to face many other challenges in recent years. First, the global crisis affected Belarus by 2009. It led to a sharp increase of foreign debt, a decrease of the industrial sector's productivity, and a fall of exports of main Belarusian goods – products of mechanical engineering and machine-tool construction (to Russia), oil products (to Europe), and potash fertilisers (to China and India).

At the beginning of 2011, Belarus still had many serious unresolved economic problems and was facing the repayment of loans obtained from the IMF, Russia and Venezuela. This eventually resulted in the country's currency crises that began in March 2011.

These events resulted in a significant distortion of the SMEs' activities. The country was in a dilemma;. firstly, it had to stabilise the financial sector of the economy immediately, and secondly, it was still in need of further economic liberalisation.

Further, we provide the information from the survey that was handled by IPM Research Centre and conducted in March–April 2011 to reflect the state of the Belarusian business environment in 2010.

The results from the SMEs' survey show that those who evaluated their economic situation as 'bad' and 'below average' increased from 19.9% in 2010 to 25.9% in 2011. The proportion of those who evaluated their economic situation as 'stable' and 'good or above average' fell by 8.3% and 7.7% respectively.

Inflation, from the list of suggested problems, was one of the most significant barriers faced by SMEs in Belarus (41.8%). The list also included regulation of the currency market, access to finance resources, crime and theft, unstable policy, tax rates and ineffective governance). In second and third place respectively were currency market restrictions (36.4%) and access to financial resources (20.6%). It should be noted that the survey was conducted at a time when the currency crisis had just begun and its consequences were not as obvious as they were in May to August 2011. In such harsh economic conditions Belarusian SMEs required the acceleration of the liberalisation of the business environment more than ever.

With regard to the measures applied to liberalise the business environment within the country by the government, it can be shown that the reaction of SMEs to the government activity was not very positive. It can be seen that among 14 possible obstacles

for businesses as listed below more than half of the respondents indicate 'no change' to 12 of the questions. For the remaining two questions (regarding pricing and credit accessibility) almost half of respondents indicate 'no change' (44.9% and 48.9% respectively). More than the quarter of respondents think that a situation improved within business regulation (35.1%), obtaining different permissions (33.4%), administrative procedures (30.7%), pricing (27.8%), as well as the number of inspections decreasing (28.2%). It should be noted that within the pricing almost the same number (27.4%) of respondents indicated aggravation of the situation.

In general, from 407 respondents 36.6% of them think that the conditions for doing business in Belarus did not change in 2010; 27.3% of respondents think that the conditions improved slightly and only 5.7% of them indicate significant changes.

These findings bring us back to the *Doing Business* (2012) report which provides estimations of regulations affecting 10 areas in the life cycle of a business: starting a business, dealing with construction permits, getting access to electricity, registering the property, getting credit, protecting investors, paying taxes, trading across borders, enforcing contracts, and resolving insolvency. The report presents the country's economic profile and the *Doing Business* indicators for Belarus. The profile is based on data up to June 1, 2011 (except for the paying taxes indicators, which cover the period January–December 2010). Based on these indicators, the report evaluates the Belarusian economy's performance and the ease of doing business in Belarus in comparison with the other economies in the sample (the sample of countries for Belarus is Georgia, Kazakhstan, Kyrgyz Republic, Moldova, Russian Federation, and Tajikistan), as well as against the economies with good practice (i.e. best performance in the current year). For more comprehensive information the report reflects how the business regulatory environment in an economy has changed over time. There was a decline in the number of providing reforms in 2010–2011. This is in accord with the results from the previous survey's data that showed that Belarusian SMEs were faced not only with a challenging economic situation, especially in the crisis year, but also that the government was providing very poor politics for supporting small business within the country.

4.   Small and medium enterprises in Belarus

SMEs play a key role in the European economy. In most EU countries, small enterprises make up about 95% of all existing enterprises, and their share of employment and output is considerably higher (see e.g. Abrham, 2011; Wagner, 2012; or Jeníček, 2013).

According to the Trade Law of the Republic of Belarus, two types of SMEs can be identified: small- and medium-sized enterprises. Small-sized enterprises include individual entrepreneurs (sole traders), micro- and small enterprises. Micro-enterprises are enterprises that employ up to 15 people. Small enterprises employ between 16 and 100 people. Medium-sized enterprises are defined as having between 101 and 250 employees (IPM Research Center, 2011). In 2011, there were over 300,000 enterprises in Belarus (Belstat, 2012). The vast majority (72.7%) of enterprises are individual entrepreneurs (sole traders), which we do not consider in our analyses. The abundance of sole traders in Belarus might be explained by the simplicity and the scope of the business that they conduct. Moreover, it might be that many of those sole traders are employed elsewhere and do business on the side.

Among Belarusian SMEs, almost 97% are small-sized enterprises with less than 100 employees (Belstat, 2012). There are about 27,000 medium-sized enterprises, representing 3.2% of the stock. On average, an SME in Belarus provides work for 14.4 persons;

within classification of the SMEs, average enterprise size varies between 9.3 in small enterprises and about 168 in medium enterprises (Belstat, 2012).

There is a higher proportion of SMEs in the private sector – around 95% for small-sized and 66.2% for medium-sized. Within medium-sized enterprises a relative high share (30.6%) belongs to government sector. Belarusian enterprises are unevenly distributed across the industry sectors. In 2011, for instance, within small-sized enterprises the smallest number (8.2%) was engaged in agriculture, while the corresponding share (28.5%) for medium-sized enterprises was the largest. Part of the reason for the prominent representation of medium-sized enterprises in agriculture is the fact that the higher share of medium-sized enterprises belongs to the government.

Traditionally, the largest number (40.9%) of Belarusian small-sized enterprises is active in trade and catering sector. Both sizes of SMEs are relatively inactive in such sectors as industry, transport and communication.

There is also a regional difference in SMEs presence in Belarus that has a predominant urban concentration. Most Belarusian SMEs are located around large cities and urban centres. Minsk and the Minsk region account for more than half of the total number of small-sized enterprises in Belarus. These results are similar with those of many other studies conducted in different countries (see e.g. Rogerson & Wallenius, 2009; or Wagner, 2012).

Starting from about 32% in 2008, the growth rate of small-sized enterprises was only 8.7% in 2010. Howver, the number of medium-sized enterprises was slightly, but constantly, decreasing during the period 2007–2010. Altogether, the number of medium-sized enterprises had decreased by 8.6% at the beginning of 2011, the number of small-sized firms had more than doubled (by 58.3%).

While SMEs are the backbone of the neighbouring EU's economies (e.g. Poland or Lithuania), they only play an insignificant role in the Belarusian economy. In 2011, small-sized enterprises in Belarus accounted for only 12.4% of the GDP and about 18% of the average number of employees. Within medium-size enterprises these numbers are much smaller – the share of the GDP is only 7.6% and the share of the average number of employees is 10.4%.

Accounting for only 12.4% of GDP and 12.5% of total production volume of goods, works, and services, the small-sized enterprises' share of total fixed capital investment increased from 20% in 2007 to 27% in 2011. For the medium-sized enterprises this number fell from 14.7% in 2007 to 12.7% in 2011. Relatively small indicators for medium-sized enterprises can be partially explained by the fact that about one third of them belongs to the government sector which forces such enterprises to bear some additional social obligations.

Traditionally, Belarusian SMEs account a relative high share in foreign trade. Comparing the current situation with that of 2007, one can observe that the share of medium-size firms in 2010 increased by only 0.9%. For small-sized firms this number increased by 3.5% from 30.2% in 2007 to 33.7% in three years. According to Belstat (2012), the total volume of exports increased from 26% in 2007 to 42.9% in 2010, and the total volume of imports declined from 43.2% in 2007 to 37.4% in 2010.

In accordance with official statistics, the average profitability of SMEs in Belarus has a relative small increased from 10.5% in 2007 to 13.3% in 2010. However, the share of loss-making SMEs had a short decline from 22.7% in 2007 to 20.4% in 2010. Thus, the described above statistics characterise development of SMEs sector in Belarus like an insignificant and with a slow growth. This pattern can be seen over the last 10 years.

Since the end of the 1990s Belarusian economy is characterised by the existence of rigid government regulation of economical process as well as the governance controls the activity of SMEs in the country. Therefore, SMEs in Belarus cannot grow and develop to their full potential, and this is supported by the poor statistical data shown in the section above. However, in recent years the government has begun to take the first steps to improve the business environment within the country. According to the World Bank's *Doing Business* reports, Belarus ranked among top 10 reformers who made 'largest strides in making their regulatory environment more favourable to business' (The World Bank, 2011, 2012). But despite intentions of the government to enter into top 30 of 'the ease of doing business', Belarus occupied only the 69th place.

5.   Empirical model and analyses of intertemporal labour supply

5.1.   Questionnaire and data collection

The data used in this work was collected through an enterprise survey conducted during the spring and summer of 2012. The survey questioned over a 100 independent and privately owned enterprises randomly distributed over the Minsk agglomeration in the Republic of Belarus. The sample of the research questionnaire is presented in the Appendix to this article.

Typical for the data samples based on questionnaire survey, there are several limitations in our data, such as sample selection, size, geographical distribution, etc. On the other hand, primary and unique data resulting from the survey have an advantage against balance sheet SMEs data collected on the macro level, since questionnaires also detect labour market irregularities and detect various sources of informal information flows. Furthermore, it is possible to examine motivations and personal issues connected with conducting business in SMEs (see e.g. Tahal, 2013).

In total, over 350 Belarusian SMEs were initially selected for questioning. All SMEs in our sample were chosen by the stratified random sampling in urban, urban-rural and rural settlements in Minsk agglomeration in the Republic of Belarus. At first, the researchers randomly selected settlements for conducting interviews, and then the information from the SMEs register was employed in order to select streets and households on the streets (three SMEs were selected on each street). The research team and the local associates then visited the locations and established whether the SMEs' representatives fitted our profile of entrepreneurs who could substitute labour and leisure intertemporally (in case of the negative response, two other SMEs to the left and to the right were visited). By doing this, the research team ended up with a valid sample of 100 questionnaires. The questionnaires were carried out either with owner of the enterprise or with the head manager who was aware of the SMEs' economic and social situation. Each questionnaire contained questions about the respondent, the organisational structure of the enterprise where she or he works, and daily data of work hours and income within last two weeks.

5.2.   The empirical model and its main findings

According to MaCurdy (1981), the ideal test of the labour supply response to wage increases should use transitory wages, which are correlated within a given day and uncorrelated across days. Such data was made an example of for Belarusian SMEs in

our case. Entrepreneurs more often have flexible self-determined work hours and face a daily income that is highly correlated within days, but weakly correlated between days, i.e. fluctuations are transitory (see e.g. Petrakis & Kotsios, 2005). Using the data on hours worked each day and the average daily income we were able to estimate the elasticity of the labour supply and verify the ISH.

It turned out that almost all respondents obtained at least a university education. This finding is similar to Smallbone, Welter, Isakova, and Slonimski (2001) who surveyed SMEs in Ukraine and Belarus. They explain it by the high overall education level in some former Soviet bloc countries and by the limited alternative opportunity for educated people in countries with a transition economy, which force them 'to look towards business ownership both as a source of income and as a potentially satisfying occupation for their abilities'.

All surveyed firms are referred to SMEs employing between one and 100 workers with an average employment size of less than 20.

The vast majority (73%) of surveyed enterprises depend on the international market for their output, this could be explained by the high competition with government enterprises which dominate the domestic market. Therefore, it is not surprising that six respondents who answered that their market had decreased, explained the reason as the currency crises of 2011 (five out of six) and the policy restrictions. The most popular reason respondents (21 out of 33) gave for running their own business was 'to earn as much as possible'.

Other key variables included daily total revenue and daily hours worked. First we removed the days when the entrepreneur prefers to not work, and then construct an unbalanced panel data sample for 103 firms within 14 days. On average, entrepreneurs work about 8.6 hours per day and obtain around 82,000 Belarusian rubles per hour in revenue.

We estimate wage elasticities of labour supply using the daily number of hours as the dependent variable and the average wage the entrepreneur earns during that day as the independent variable (both in log form).

To investigate how wages varied across days, we calculate the median (across entrepreneurs) of the average hourly wage for each day. When we ran a regression of the median wage on day t on the median wage on day $t-1$, the regression coefficient was insignificant ($p > 0.383$). Since wages are virtually uncorrelated across days and assuming that wages are stable within days, they could be used for estimating the labour supply response to a transitory change in wage.

The relevant regression model is the firm-specific effects (FE) model controlling for time-constant effects. The results of the regressions of (log) hours on (log) wages are provided in Table 1. We also include a dummy variable for a weekend day in the regression to control for shifts in labour supply that occurs if working on a weekend day has a higher opportunity cost (because to choose leisure during that day is more pleasurable). Controlling for heteroskedasticity, we use estimators with white heteroskedasticity-consistent standard errors. In addition, panel data estimators should be checked for serial correlation, but this is not a problem for micro panel with short time period.

Table 1 provides the estimated results for both specifications: for the fixed effect model with time-constant effects in column (1) and for the random effects model in column (2).

In order to investigate whether we need the time-constant effect running FE, we perform a joint hypothesis test for the executed model. We reject the null that

Table 1. Estimation results for the fixed effect model with time-constant effects and the random effects model.

	Fixed effects (1) −0.023		Random effects (2) −0.027	
	Std. Err	$P > \mid t \mid$	*Std. Err*	$P > \mid t \mid$
Log hourly wage	0.010	0.017**	0.010	0.005**
Robust	0.014	0.099*	0.015	0.081*
Weekend day dummy	−0.287		−0.128	
	0.058	0.000**	0.031	0.000**
Robust	0.026	0.000**	0.020	0.000**
Adjusted R^2	0.837		–	
P	0.922		0.640	

Dependent variable is the log of hours worked. Standard errors are in parentheses and are corrected for heteroskedasticity in *'Robust'* rows.
*Significant at 10%;
**Significant at 5% or better.
Source: Own calculations.

coefficients for all days are jointly equal to zero ($p = 0.0005$). Therefore, control for the time-constant effect is justified. In both columns the estimated wage elasticities are negative and are significantly different from zero. In particular, the resulted elasticity is −0.023 for FE and is −0.027 for random error (RE). The estimated coefficients for weekend day dummy variables are also negative and significantly different from zero for both specifications. Coefficient ρ, knowing as the intra-class correlation, indicates the fraction of variance due to firm/entrepreneur-specific error. Comparing FE and RE, the estimated coefficient ρ is significantly larger for the FE model. Predicted coefficients for FE could be explained in words, such as: workers are willing to decrease hours worked by 2.3% and by 28% when wages are increased by 100%, i.e. in two times, and

Table 2. Estimation results for two groups of male and female.

	Male −0.038		Female −0.018	
	Std. Err	$P > \mid t \mid$	*Std. Err*	$P > \mid t \mid$
Log hourly wage	0.021	0.070*	0.010	0.068*
Robust	0.027	0.165	0.010	0.070*
Weekend day dummy	−0.012		−0.289	
	0.103	0.910	0.046	0.000**
Robust	0.049	0.813	0.226	0.000**
Adjusted R^2	0.812		0.869	
P	0.934		0.844	
Number of observations	59		44	

Dependent variable is the log of hours worked. Standard errors are in parentheses and are corrected for heteroskedasticity in *'Robust'* rows.
*Significant at 10%;
**Significant at 5% or better.
Source: Own calculations.

during weekend days respectively. Finally, 92% of the variance can be explained due to differences among entrepreneurs.

Further, we examine how the elasticities vary with gender. We estimate the regression for males and females separately using the fixed effects model with time-constant effects as before. Table 2 shows the estimated coefficients for these two groups.

Both models have the good fit – the adjusted R^2 equals 0.812 for males and 0.869 for females. The difference across male entrepreneurs explains about 93% of the variance; for female entrepreneurs this fraction equals 84%. The estimated coefficients for both groups are strongly negative. The predicted wage elasticity for men is smaller and insignificant when standard errors are corrected for heteroskedasticity. The weekend dummy for men is insignificant in both cases – when standard errors are robust and not. Therefore, male hours worked do not depend on whether they work during the week or on a weekend day, while women are willing to decrease their working hours by about 29% if they work on a weekend.

6.   Conclusion

Our research of Belarusian small entrepreneurs suggested that the ISH has no empirical evidence in the case of Belarusian SMEs. According to the research literature, these results are similar to the findings in the US, UK, Ivory costs, and Poland, namely in in the study of New York City cab drivers by Camerer et al. (1997), Ivory Cost farmers by Berg (1961), self-employed proprietors by Wales (1973) and Polish entrepreneurs by Strielkowski and Wasilewski (2011).

Most of the above studies analysed SMEs and it is therefore hard to compare or generalise ours and other authors' findings for larger companies due to the fact that managers of larger companies cannot choose how many hours they can work, i.e. they and their companies are not subjected to intertemporal substitution, a hypothesis we are trying to verify for Belarusian SMEs in the first place.

When it comes to variations by the sectors, it has to be noted that ISH holds mostly for the businesses where substitution between labour and leisure is possible and appropriate (e.g. taxi drivers working less on rainy days, small manufactures and sole traders working less when their suppliers fail to provide the necessary material to work with, or shop or café owners who do not see many customers on week days or Sundays).

Moreover, according to our survey, a large number of Belarusian entrepreneurs who responded are willing to work a fixed number of hours no matter how well their business does. We also find that females have larger labour supply elasticity than males (which perhaps accounts for the necessity to take care of children and families). In addition, it should be noted that male labour supply elasticity becomes even more insignificant when we use robust standard errors. However, the research literature typically reports larger values of the predicted elasticity for women than for men (see, for example, Blau & Kahn, 2005; Bonin, Kempe, & Schneider, 2002; Bourguignon & Magnac, 1990; Devereux, 2003; Eissa & Hoynes, 2004; Euwals & van Soest, 1999; Hausman, 1981; Hausman & Ruud, 1984).

The evidence of negative wage elasticities raises questions about the validity of the life cycle approach to labour supply analysis. However, from the rejected ISH we also have a reason to believe that entrepreneurs in Belarus are planning their time horizons in a uniquely short-sighted way.

The evidence from our survey shows that the vast majority of entrepreneurs do not see any changes in the business environment, and some may think it has got worse in

recent years. More than a quarter of the answers given by entrepreneurs about their enterprises' economic condition is 'bad or below average'. In the list of the most significant barriers for doing business they include regulation of currency market, access to finance resources, unstable policy, ineffective governance, and difficult conditions for doing business in general. In such cases, business owners have to focus on solving daily regulatory and licencing problems rather than strategy planning for longer business development. Thus, it is not surprising that this is reflected in the low contribution of SMEs to the Belarusian economy and in a lack of growth in the overall number of firms in recent years.

Overall, it has to be noted that the weakness of implementation and enforcement of existing laws and regulation in Belarus is likely to limit the successful functioning of private SMEs within the country. The lack of protection of the rights of entrepreneurs makes business owners feel vulnerable in the face of the legislative system of the country. In these circumstances, entrepreneurs are averse to making long-term investments in their business that might hypothetically be a source of economic opportunity for them and their children. Uncertainties that are related to the future force them to apply narrow time horizons for their labour supply. This suggests that entrepreneurs try to simplify their decisions by isolating them from planning for the long-term. Such behaviour could be the reason for negative wage elasticities which leads us to the rejection of the ISH for Belarusian SMEs.

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Appendix

Research survey

1. When was your enterprise/firm established?
2. What is the legal and organisational basis of your firm?

(a) Individual entrepreneur   (b) Limited company (Ltd.)
(c) Civil company   (d) Stock company
(e) Other form

3. How many employees are employed in your enterprise?

(a) None, I run family business   (b) 1–5 employees
(c) 5–10 employees   (d) 10–20 employees
(e) 20–50 employees   (f) >50 employees

4. How would you describe the market for your enterprise?

(a) Several neighbouring villages   (b) Whole district
(c) Neighbouring districts   (d) Whole province
(e) Whole country-domestic market   (f) International markets

5. Whether the market for your firm's output has changed in the last three years?

(a) Remained the same
(c) Expanded thanks to: _____
(e) Decreased thanks to: _____

6. Which sentence best describes your motive for establishing and running the firm?

(a) To make as much as possible   (b) To make enough to satisfy my family's basic needs
(c) I just follow the trend, everyone does business nowadays   (d) To show the others that I can do business
(e) Other

7. What is your firm's main strategy as it makes its daily business on the market?

(a) Work by schedule (even if there are no clients)   (b) Work only if we have clients else we don't work
(c) Other

8. Can you choose the number of hours you work each day? YES/NO
9. Do you keep records on the hours you and your employers work each day? YES/NO
10. Which sentence best describes how many hours you usually work every day?

(a) We work until we make a certain amount of money

(b) On a 'good day' try to work more and quit working early in a 'bad day'

(c) We work a fixed hours no matter how we do

(d) Other

11. How many hours did you work for in:

the past week?

Mon	Tue	Wed	Thu	Fri	Sat	Sun

the week before the last?

Mon	Tue	Wed	Thu	Fri	Sat	Sun

12. What was the total daily income/wage for:

the past week?

Mon	Tue	Wed	Thu	Fri	Sat	Sun

the week before the last?

Mon	Tue	Wed	Thu	Fri	Sat	Sun

Information about the respondent

1. Position: *owner/manager/employee*
2. Number of years in the firm: _____ *years*
3. Highest education obtained: *Primary/Secondary/Technical/University/PhD*
4. Gender: *M/F*
5. Age: _____ *years*