

The Development of the Self-employed Sector in the Czech Republic in the Years 2006 - 2010

Vývoj sektoru osob samostatně výdělečně činných v ČR v letech 2006 - 2010

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Abstract

The aim of the article is to analyse the short term economic factors behind the growth in the number of self-employed in the Czech Republic in the period from 2006 to 2010. The article describes the main legislature changes, which affected self-employment, estimates the flows between the self-employment and the wage labour market and evaluates the development of paid tax revenue in relation to the two profit indicators - tax base and mixed income. It is shown that the economic downturn in 2009 negatively influenced the profits, however the main reason for the fall in income tax revenue is the change in legislature. In this context the two hypotheses about the short term motives for self-employment are discussed - the tax optimization and the second choice in difficult labour market situation. Based on macro level analysis the rate of unemployment is suggested as a dominant short term factor in the observed period. The change in effective tax rate does not correspond with the short term change of the self-employed numbers - the difference in the burden between employed and self-employed has a long term effect. However the changes in the rules for costs declared by percentage likely played a role as an administrative barrier removal. The article does not consider long term and non-economic factors as well as the difficult to measure tax and labour law enforcement which are suggested for further analysis.

Keywords

self-employment, self-employed, labour market, unemployment, tax revenue, economic downturn

Abstrakt

Cílem článku je analyzovat krátkodobé ekonomické faktory, které ovlivňovaly nárůst počtu sebezaměstnaných v ČR v letech 2006 až 2010. Článek popisuje hlavní legislativní změny, které ovlivňovaly situaci sebezaměstnaných, odhaduje toky mezi trhem námezdní práce a sebezaměstnání a hodnotí vývojskutečně zaplacených daní ve vztahu k dvěma přibližným odhadům zisku ze sebezaměstnání – daňovému základu a smíšenému důchodu. Je dokumentováno, že ekonomický propad v roce 2009 nepříznivě ovlivnil hospodářské výsledky, hlavním důvodem propadu ve výběru daně z příjmu z podnikání je však změna legislativy. V tomto kontextu jsou diskutovány hypotézy o dvou krátkodobých motivech pro sebezaměstnání – motivu daňové optimalizace a motivu nouzové nebo druhé volby při ztíženém uplatnění na trhu práce. Na základě rozboru údajů na makro úrovni je jako dominantní krátkodobý faktor pro výkyvy v počtu sebezaměstnaných ve sledovaném období identifikována míra nezaměstnanosti. Změna průměrné efektivní daňové sazby časově s krátkodobým vývojem počtu sebezaměstnaných nekoresponduje – rozdíl

v zatížení mezi zaměstnanci a sebezaměstnanými je spíše dlouhodobým faktorem. Nicméně rozšíření možnosti paušálního uplatňování nákladů pravděpodobně sehrálo významnou roli jako odstranění administrativní bariéry. Článek nezohledňuje dlouhodobé a neekonomické vlivy a obtížněji měřitelnou vynutitelnost daňového a pracovního práva, které by tak měly být jedním z témat dalšího zkoumání.

Klíčová slova

sebezaměstnaní, sebezaměstnaní, trh práce, nezaměstnanost, daňový výnos, ekonomická recese

JEL Codes

J4, H3

Introduction

The self-employment as a specific form of labour organization seems to play more important role in Czech economy (see Figure 1). The political opinions on the issue range from optimistic worshipping of self-employment as a solution to unemployment and labour market rigidities to condemning it for being a mere tool for tax evasion. Although this paper doesn't accept the challenge of deciding which attitude is closer to the truth it may shed some light on the problem by providing a broader context of short term economic influences behind the growth of the self-employment sector – namely the situation on the labour market and the average effective tax rates. The analysed period of 2006-2010¹ is interesting by including the changes in legislature as well as a major turn in the economic performance on macro level. The period also directly follows the previous thorough analysis summed in several publications by RILSA which ends with 2006.

The aim of the article is thus to identify the short term economic factors behind the growth in the number of self-employed in the Czech Republic in the period from 2006 to 2010. The considered short term influences are the changes in legislature and following change in tax burden along with the situation in the labour market represented by the rate of unemployment. The article describes the main legislature changes, which affected self-employment, estimates the flows between self-employment and the wage labour market and evaluates the development of paid tax revenue in relation to the two profit indicators - tax base and mixed income. In this context the two hypotheses about the short term motives for self-employment are considered - the tax optimization and the second choice in difficult labour market situation. This is done by comparing and analysing the data from the ministry of finance and surveys of Czech statistical office. The text documents two main trends in self-employment: the growth of their absolute numbers and its correlation with the unemployment rate and the simultaneous drop in the development of income tax revenue and its relation to the legislature changes.

The article cannot form a general model explaining the development of self-employment rate as it focuses on the short term development and narrowly selected set of factors.

¹ *The available information from General tax directorate was limited by 2010, more recent data from other sources are used and discussed where appropriate.*

For stronger and more general conclusions an inclusion of the long term factors, non-economic factors and a longitudinal analysis would be necessary and should follow. The text is meant to be read as an introduction to the situation with the identification of the most important trends and dependencies and with suggestions for more in-depth research along the way.

The first section after the literature summary defines the group and introduces the basic methodological context. The description begins with the summary of the relevant legislature followed by the summary of market context and reported business results. Next section of the paper concludes the developments in the numbers of self-employed and compares them to the data on unemployment and employment discussing the influence of unemployment rate on self-employment. The data summary of changes in tax and mandatory contributions revenue follow discussing the tax related motivations for self-employment.

1 Existing Literature

The situation in the self-employed segment in the Czech Republic from the beginning of the 90s until 2006 has been analysed thoroughly. A dedicated chapter about the development in the sector can be found in (Kotýnková 2006). Research Institute of Labour and Social Affairs (RILSA) conducted a thorough study in 2006 which included a dedicated survey (Průša, Bičáková, et al. 2008; Průša, Baštýř, et al. 2008; Vlach 2008). Novák published a series of articles on the topic in *Statistika* (Novák 2006, 2007, 2008, 2009). A study based on SILC and OECD data including the international perspective is in (Benáček et al. 2010), the book section also includes a longitudinal comparison. In general terms the studies document a dramatic rise in small entrepreneurship after 1990 and slower but continuous rise ever since. (Průša et al. 2009) identifies Voluntary, Economic and traditional motivation factors with the voluntary or intellectual being dominant in the Czech economy before 2006. On international level (Torrini 2002) identifies the public sector size, the product and labour market regulations and the corruption perception index as significant factors for self-employment rate inter-country differences. All these factors however would have rather longitudinal impact while we focus more on the short term development in our observed period.

This article follows up on a preliminary presentations from May 2012 (Pavliček 2012) and (Pavliček 2013). The complex problem of measuring the income situation of the self-employed is omitted here.

2 Data and Methodology

As the ambition of the article is to provide a broader picture of the situation it combines data from different sources. The article works with the data from Labour force survey (LFS) (Czech statistical office) and the Czech social security administration (Czech social security administration). These numbers differ but the trends are similar. The social security has hard evidence of all people who engaged in self-employment for even a small portion of a year. The data from LFS are based on a survey but they allow the distinction between different subgroups and control for duplicity of statuses through the main and only oc-

cupation statistics. More on the methodological issues in determining the numbers of the self-employed can be found in (Novák 2006). The data on tax bases and percentage declared costs (PDCs) were kindly provided by the General tax directorate. Even though I find these data useful for providing a general picture of the situation it is obvious that for more detailed modelling an access to the microdata would be necessary. The data are also confronted with the information from the System of national accounts (Czech Statistical Office) namely the net mixed income (MI) indicator. The MI is an estimated value but incorporates a correction for underreporting and the usage of PDCs. To have some independent measures of business results the information about number of SE registered as unemployed and the number of SE declaring a loss (data provided by the General tax directorate) are used as supplementary performance indicators - as in (Pavlíček 2013).

The combination of these data allows to describe the general picture and to draw some interesting conclusions specifically about the connection between unemployment and self-employment and about the factors behind the tax revenue drop. A more detailed modelling based on data from other available surveys like the SILC has to be left for further studies.

3 The Definition and Theoretical Concepts

The self-employment can be defined as any independent economic activity, where the person providing the work input is also the owner of the company who bears the risks and collects the profits. In reality to draw a distinct line between employment and self-employment even on theoretical level is not very easy. On an unregulated market a very broad range of organization forms between a strict owner who hires others for work to people completely dependent on some formal organization in terms of job and economic activity exists. The range includes business owners who partially participate in the management of companies, people who are employed but occasionally work for other subjects as contractors and people who switch between closer and more exclusive cooperation with one client and a broader client base, depending on project and situation on the market. Some foreign studies consider the owners of limited companies to be self-employed – e.g. (Engström, Holmlund 2009). I assume that due to an advantageous tax regime for the unincorporated SE, only the larger and potentially growing businesses profiting from the levels of limited liability move to the incorporated segment. These incorporated businesses represented mainly by the small limited companies under the Czech law are not part of the analysis here. Some studies also distinguish between the real entrepreneurs and the self-employed based on the criterion of employing other people (Lukeš 2013) – such a division is relevant for the motivations however the criterion itself is very imprecise.

For practical reasons of our analysis I choose to stick with the definition derived from the Czech legal system which draws a line much more precise than the continuous natural range which would be found on the free market. The Czech law recognizes a so called “person performing an independent earning activity” – “OSVČ”² (Czech law No. 155/1995, §9). This definition is particularly useful for the tax system analysis as the subgroup corresponds with people with income from independent activity defined in the §7 of Czech

2 „Osoba samostatně výdělečně činná“ – „OSVČ“ – further in the text referred to as OSVC.

Income tax law.^{3,4} This definition does not include the limited companies owners and corresponds thus with the unincorporated self-employment. As opposed to the international definitions and also Labour force survey guidelines the work of the members of a cooperative is considered dependent work and therefore we exclude them from the self-employed category here. The existence of a so-called bogus self-employment constitutes a significant problem but its estimation is not part of this article.

4 The Legislature Changes

The legislature concerning the OSVC underwent some significant changes in the course of the observed period. The tax regime changed couple of times and the legal definition of self-employment in the labour law has been altered effective from 2007. I shortly sum below the changes I consider significant - a list can be found in Table 1.

Table 1: Summary of major legislature changes concerning self-employment

Effective year	Measure
2006	Mandatory contributions opt-out changed to 50%
2007	New labour code
2008	Major tax reform: flat tax rate 15%, no common marriage tax, Tax discount per payer more than tripled from 7200 to 24800, mandatory contributions not discounted from tax base
2009	Major change in PDCs, special write-offs, exempt from advanced payments
2010	reintroduction of the 40% PDC, special write-offs

Source: author.

In general the Czech OSVC benefit from couple of advantages in comparison to the employees and incorporated businesses – the percentage declared costs and the 50% reduction in tax base for mandatory contributions purposes.

As the OSVC realize the so called mixed income, the state enables them to divide their business earnings and use only 50% as a base for mandatory contributions to social and health security systems calculation. The 50% left as a profit is not taxed by company tax. An example calculations of the net income comparison between employee and self-employed can be found in (Průša, Bičáková, et al. 2008). This option did not change throughout the observed period but constitutes a long term differential between employees and self-employed most importantly allowing a significant opt-out from the pension system. The existence of this major tax incentive then makes the other parametric changes of tax burden less significant.

3 Some deviations from these definitions are stated in the text. In most cases in our analysis the OSVC status corresponds with the term Self-employed (SE).

4 Distinction based on the definition of self employed as a person with positive declared income from self-employment which is bigger than the declared income from employment, which would precisely copy the labour force survey category was not available at the time of publishing.

Further they are allowed to opt-out from tax costs accounting and declare their expenses as a percentage of revenue – percentage declared costs (PDCs). The changes in the definitions of these percentages came to effect from tax year 2006, 2009, 2010 and 2011. The change was lowering the tax burden – the OSVC were able to deduce more – in 2006 and 2009, there was a light correction in 2010 and 2011. The resulting changes in usages between the different percentages between 2006 and 2010 can be seen in Table 2. The enhancement of this option stimulates self-employment in two ways – it may lure some employees into self-employment on a pure tax minimization motive but it also makes the self-employment administration less scary and more appealing even if considered tax neutral. We can assume that at least some of the new PDCs users were new entrepreneurs but the exact number is not available to the author at the moment.

Table 2: The number of people declaring their costs by fixed percentage

Year	Number of subjects				Total
	PDC percentage				
	40	50	60	80	
2006	34,740	167,652	65,966	7,181	275,539
2007	37,495	189,096	76,849	7,687	311,127
2008	40,310	218,191	90,507	7,965	356,973
2009	29	156	312,735	119,310	432,230
2010	44,399	0	288,934	130,196	463,529

Source: General tax directorate.

Furthermore there was a big change in the accelerated deducting of property amortization, which was effective in 2009 and 2010 and influenced the year 2010 in a major way – the total deduction for all individual tax reports (which are mainly our self-employed) changed from 20,276 mil. CZK in 2009 to 64,296 mil. CZK in 2010.

Effective from 2008 there was a major change in tax legislation - introduction of flat tax and changing the personal tax discount from 7200CZK to 24,800CZK – see Table 3. This does not affect only self-employed but proves critical for tax revenue as I will show below.

Table 3: Minimum unconditional untaxable amount by relevant taxation period

2006	2007	2008	2009	2010	2011	2012
7,200 CZK	7,200 CZK	24,840 CZK	24,840 CZK	24,840 CZK	23,640 CZK	24,840 CZK

Source: §35ba of the income tax law.

The opportunity for labour cost optimization connected with the OSVC status leads to certain formal shift from standard employment. The labour law prohibits such an administrative step calling it the “bogus self-employment” or “concealed employment relationship”⁵, but the legislature and legal practice concerning the issue has developed throughout the

5 In Czech context sometimes referred to as the so called „Švarc system“ named after an entrepreneur convicted for general usage of this model in the mid-1990s.

years. For the sake of our period it is important to know that the labour code novelized in 2006 and effective from 2007 loosens the definition of prohibited concealed employment relationship. This more benevolent description stayed stable for the whole period until a recent change effective from 2012. The actual level of enforcement, which is likely more important, is unfortunately very hard to measure.

5 The Business Results and the Macro-economic Context

Finding a qualitative measure of the self-employed businesses is not straightforward as most reports are biased by underreporting mainly due to tax reasons and directly by some legislature changes - more on the topic in (Pavlíček 2013). The declared profits as a qualitative measure of self-employment businesses (reported to the ministry of finance) can be seen in Table 4. It is important to note that the sudden rise in 2008 is a mere administrative move – the mandatory contributions were no longer deducted from the tax base.

Table 4: Macro-economic context

Year:	2006	2007	2008	2009	2010
Total cumulative number of OSVC registered as unemployed (CZK)	28,398	22,270	22,276	41,487	53,662
y/y%		-21.58%	0.03%	86.24%	29.35%
Number of OSVC subjects reporting a loss	117,660	111,402	89,843	95,453	96,111
y/y%		-5.32%	-19.35%	6.24%	0.69%
Average S7 tax base for subjects with +SE income and 0 income from employment	147,368	157,981	218,744	166,805	160,437
y/y%		7.20%	38.46%	-23.74%	-3.82%
Average mixed income(b3.n) per person as measured by CZSO	417,781	437,150	429,175	435,454	419,299
y/y%		4.64%	-1.82%	1.46%	-3.71%
GDP at purchaser prices (mil. CZK)	3,352,599	3,662,573	3,848,411	3,739,225	3,775,237
y/y%		9.25%	5.07%	-2.84%	0.96%

Source: General Tax Directorate, Ministry of Labour and Social Affairs, CZSO, indexes by author.

The most important change in trend is thus the significant tax base drop in 2009, accompanied by the rise in the number of OSVC declaring a loss and by the rise in the number of OSVC registering as unemployed. Both these supplemental indicators follow the development of GDP. The fact that the number of losing and closed businesses grew suggests that the OSVC segment was actually hit by the economic slump – GDP dropped by 2.84% in 2009. It is interesting to note that the total product numbers in National Accounts System indicates the opposite as the total mixed income indicator, which is sometimes used as a measure of self-employment performance, actually grew even in this period and even when considering the average to account for the growth in total number. The fact that over the whole period the growth of the average mixed income has been lower than that of the general GDP implies that the growth in SE numbers was not in general driven by profit opportunities.

6 The Total Number of Self-employed and the Labour Market Statistics

This chapter summarizes the development of the SE numbers and discusses its relation to the situation on the labour market.

The development of the number of self-employed from two sources is shown in Table 5. The Czech Social Security Administration (Czech abbreviation CSSZ) counts all people required to report their activity by the law while the LFS calculates the number based on answers of respondents in the surveyed sample. The most dynamic year according to LFS has been 2010. The own account workers grew most rapidly as opposed to the falling numbers of employers.

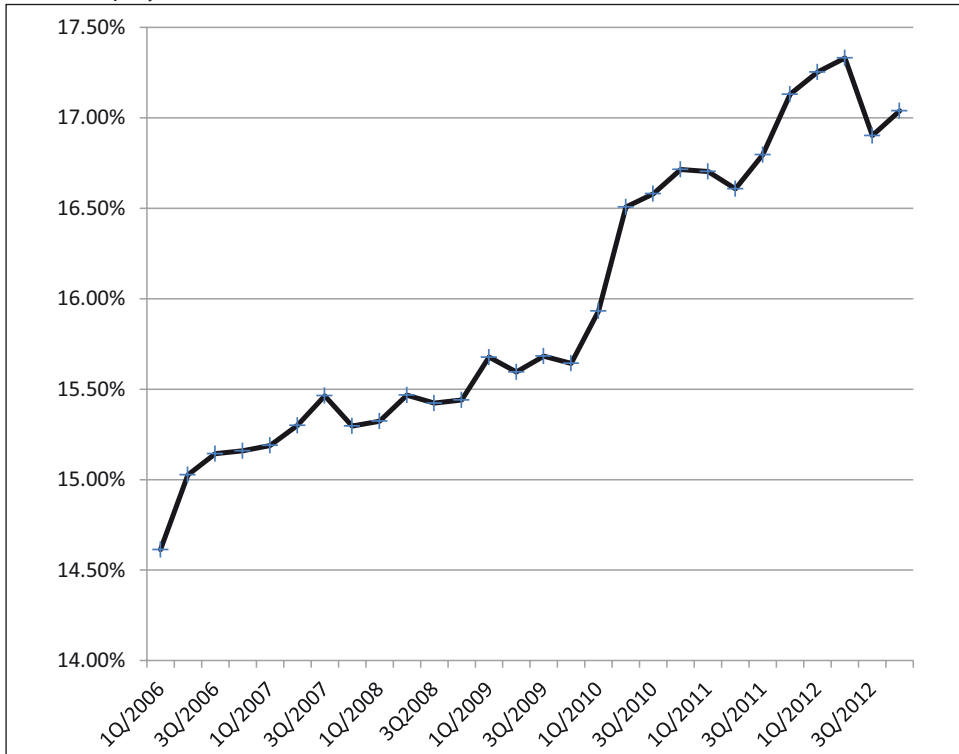
Table 5: Number and basic structure of the self-employed sector, in thousands of people

	2006	2007	2008	2009	2010	2011
The number of self-employed according to CSSZ	904	918	938	956	977	1,002
y/y%		1.55%	2.21%	1.85%	2.24%	2.53%
The total number of self-employed according to LFS	779	796	806	827	866	880
y/y%		2.16%	1.32%	2.58%	4.66%	1.57%
Employers according to LFS	196	184	179	184	178	176
y/y%		-6.08%	-2.87%	2.75%	-3.00%	-1.17%
Own account workers according to LFS	551	582	596	614	658	678
y/y%		5.71%	2.42%	3.00%	7.18%	2.96%

Source: CZSO Labour force survey, CSSZ.

Figure 1 shows that the number of registered OSVC in the Czech Republic relative to the work force grows in the long term seemingly irrespective of the business cycle. We can note here that the proportion of self-employed grew by almost three percentage points from 2006 to 2012 and that the most dynamic period has been the year 2010 during which the share grew by more than 1 percentage point.

Figure 1: Share of self-employed on labour force (employed, self-employed and unemployed)



Source: own calculation based on CZSO Labour force survey⁶.

There are two short term economic factors which contributed to this development - the opportunity for tax optimization and the danger of unemployment along the diminishing of quality jobs on the labour market. I will talk about the development of the effective tax rate in the next chapter and focus on the labour market relation in next few paragraphs.

Some people switch from employment because it does not offer the quality of jobs and self-satisfaction the self-employment can. These may be the experienced workers who strive to start their own business because it was always their plan or just because the labour market did not offer them the advancement in career they expected. This motivation would be connected to times of optimistic market sentiments. At the same time when the labour market offers top quality jobs in booming times less people would choose self-employment as an option.

The other part would be the people who were forced off the labour market by the danger of unemployment. They could be either unemployed trying to start their own business or people opening their own business as a backup plan who gradually moved to it once

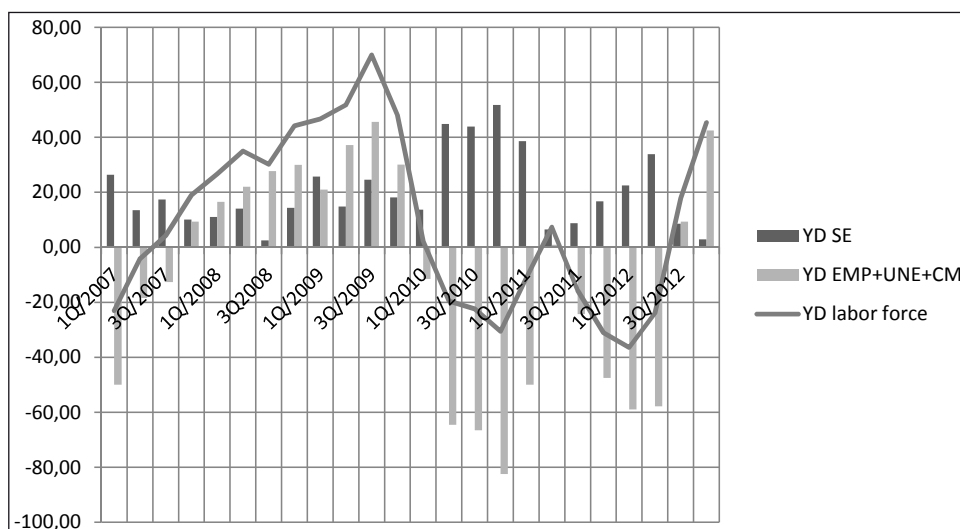
⁶ Similar graphical comparison for the period from 1999 to 2009 can be found in (Benáček et al. 2010).

their position at work became less stable. Then there would be people who actually were forced to SE by their employers who under the cost cutting pressure and in tougher product market situation prefer to hire contractors instead of employees. The added flexibility of a contractor compared to an employee will be a more important asset in tough unpredictable markets. In time of an economic slump the bargaining power of the employees diminishes as the demand goes down and thus the would-be employees are forced to accept self-employment as a job of lesser quality. Some of the economically inactive people may choose a flexible form of employment as a means to strengthen the family budget in times when the other family member is unemployed or in danger of losing a job. These motives should be highly related to rate of unemployment.

That means that there are two different non-tax economic motivations for SE – the progressive, forward looking entrepreneurial optimism which would be thriving in time of expected positive economic outcomes and the self-employment as a second choice which would be more important in times of economic crisis. Both these motives would then be strengthened by the tax difference between employees and SE.

Figure 2 shows the development of Self-employment (own account and employers) in context of the classical labour market (of employed and looking for employment – i.e. unemployed). The values represent the change over last 4 quarters (YD stands for yearly difference). The data for last four periods mean that the point 4Q /2009 describes the whole year 2009, this form allows us to abstract from the strong seasonality. All the data are based on Labour force survey of Czech statistical office and people are counted based on their declared main or only occupation to prevent duplicities.

Figure 2: Yearly changes of Self-employment and Standard labour market⁷, thousands of people per last 4 quarters



Source: Author's calculation based on CZSO Labour force survey.

⁷ Defined here as a simple sum of employed and unemployed.

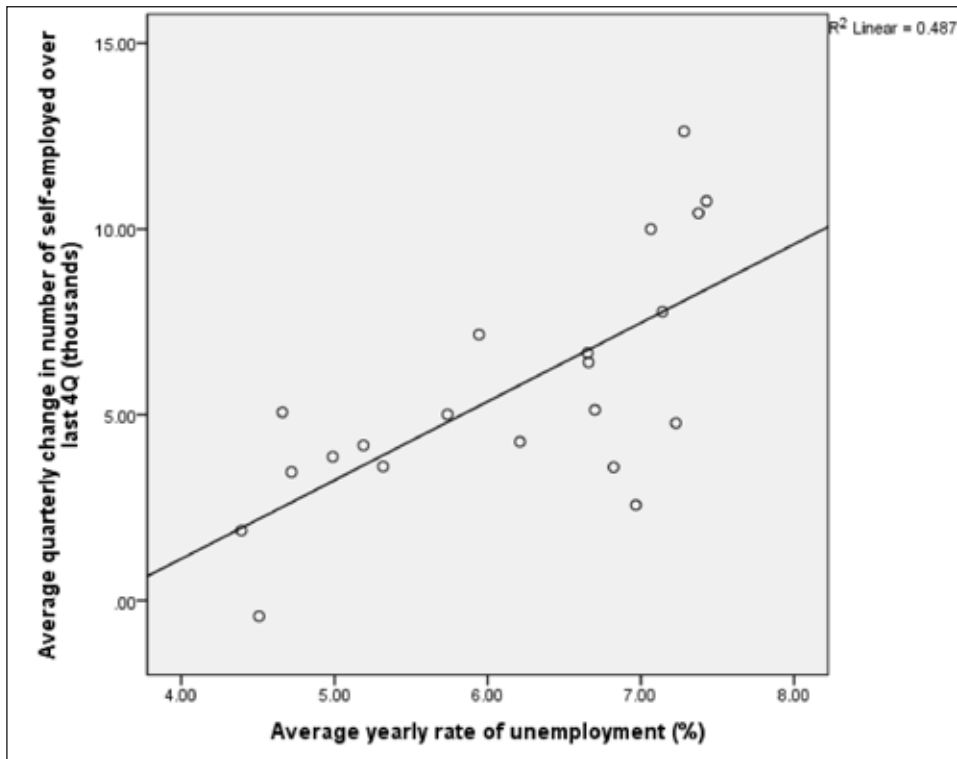
The number of self-employed has been rising for the whole period except the end of 2008 while the development of the standard labour market is rather cyclical. Even in the periods where both groups were growing, the total growth of the self-employed numbers is higher than their proportion as suggested in Figure 1. The only exception is the period from 4q/2007 to 3q/2008. We can see that in the periods where the labour market numbers were falling most rapidly, the growth in the number of self-employed accelerated suggesting a direct move from classical labour market to self-employment.

The presented data on the number of unemployed, employed and OSVC suggest that during the prosperity periods the number of OSVC grows by pulling some of the employees to the business based on optimism and tax optimization motives while in the period of economic slump the OSVC status is also a safe-haven for many who would otherwise end up in the unemployment statistics or exit the labour force. Further analysis of the development of the demographical and industrial structure of the group is needed to confirm the direct move and to determine how much of the change is caused by new entrants and retired.

The comparison of employed and would-be employed against the self-employment is chosen for analytical purpose but it does not represent a clear distinction between the classical labour market and the self-employment. The main problem with this approach is that the unemployment is a potential status common for both employed and self-employed, even the self-employed may become inactive and turn unemployed – for illustration see first row of Table 4. Unfortunately the data for the moves into unemployment are registered and not the other way around.

To further elaborate on the development we'll use the unemployment rate as another indicator of the labour market situation. It represents the competition that the workers face and as explained above should be correlated with higher moves to self-employment due to the flexibility and second option motive. Figure 3 shows that there indeed has been a moderate positive relationship between the change in self-employment and the unemployment rate in the observed period. The statistics of employers and own account workers is showed in the graph. The correlation is weaker if we count also helping family members. That is expectable – there is less opportunities for the family members to be involved in family businesses in times of crisis. The correlation is weaker also when we don't count the employers which is caused by unsystematic flow between the own account and employers subgroups mainly in 2007.

Figure 3: The correlation between the change to number of SE and the rate of unemployment, 4Q moving averages, 2006-2011



Source: CZSO LFS, author.

It is important to note, that in 2012 the latest data do not confirm this relationship as the unemployment reached very high numbers while the total number of SE dropped. The reasons for the drop in 2012 are yet to be analysed but the suggested causes may lay in stronger state repression towards “Švarc system” and tightening of related tax policy. The level of law enforcement is likely a very important factor here as it determines the amount of illegal or semi-legal tax optimization as well as administration costs but it is very hard to measure. It is also possible that the room for self-employment on the market was saturated after a long period of sustained growth. Our analysis above assumes that there actually is a demand for the SE work which seems obvious looking at the data but may not always be the case. We omitted the demographic factor which may come into play as well. As the number of economically active people goes down – people retire or go on maternity leave, some of them may use the self-employment as a flexible transitive solution. It is documented that the SE retire slightly later than employees – the SE rate in older age groups is thus higher than in the lower ones. On the other hand large numbers of small entrepreneurs who entered the business in the 90’s are growing to the retirement age now. The demographic structure thus is a necessary topic for further analysis.

Thus the relationship described above however interesting is of a mere descriptive value in relation to the specific period 2006-2011. To draw any more general conclusions the model would have to include variables for other factors discussed and be based on more observations but I believe that the rate of unemployment is a good candidate for addition and testing in the models for describing the factors behind self-employment rate development.

7 The Taxes Paid

This chapter summarizes the revenue from social security contributions (SSC) and personal income tax (PIT) from self-employed and discusses the hypothesis of tax related motives for self-employment. The development of tax revenue is shown in the first row of Table 6.

Table 6: The total tax and social security paid

	2006	2007	2008	2009	2010
Total income tax paid (bil. CZK)	17.8	17.0	18.1	7.5	9.3
Social security contributions paid (bil. CZK)	17.8	21.6	21.1	27.4	22.3
MI ETR = tax+social security / net mixed income	9.42%	9.62%	9.72%	8.38%	7.74%
TB ETR = tax+social security / tax base	29.32%	29.72%	20.72%	23.56%	22.24%

Source: statistical yearbooks of CZSO for respective years, CZSO - national accounts, author's calculation.

While between 2006 and 2008 the situation is stable, the most dramatic development is to be seen in fiscal year 2009. As explained in the previous sections, this is the year of a major macroeconomic slump, growing unemployment and a period affected by self-employment friendly change in tax rules in 2008 and 2009. Normally the results of any change in tax system or tax bases would be observed in the next term so only the 2008 change would be a factor but the government actually lowered the compulsory advanced PIT payments in expectations of worse business results in 2009 (and was proven right in their estimation according to the general tax directorate annual report for 2010 (General tax directorate 2011) – the saldo actually carried over to 2010 was very small). The fall is thus influenced by two legislature factors – the correctly expected drop in the tax base in 2009 and the change in tax calculation effective from the previous tax period.

The opposite direction of change for SSC (2nd row Table 6) in 2009 reflects the solid results of the year 2008. The reason why the tax revenue dropped to one half between 2008 and 2010 and the contributions stayed relatively stable or even grew stems from the progressivity of the income tax and the degressivity of the contributions. There is a minimum untaxable amount while there is minimum contribution defined by the law. The contributions are thus much less sensitive to drops in performance indicators. The health insurance payments unfortunately weren't available for the analysis however their dynamics should be similar to social security. The drop in SSC in 2010 then reflects the actual drop in tax bases between 2008 and 2009.

The „effective tax rates“(ETR) calculated in next two rows of Table 6 compare the two income measures with actual payments of PIT and SSC in a given year.⁸ The different sensitivities of the two payments components and the different periods which they are based mean that they work against each other in the overall effect. The overall burden thus was indeed dropping but less than the criticism based only on income tax revenue (see 1st row of Table 9) would suggest. The actual change would be even less significant if we included also the mandatory contributions to health system which follow the same pattern as the SSC.

The ETR relative to the tax base was growing in 2009 because the contributions grew while the tax base dropped. The TB values for 2006 and 2007 are less relevant as the method for calculation of TB was much different. The ETR relative to mixed income was dropping consistently from 2008. The comparison of the two income measures used can be found in Table 7.

Table 7: Spread between the mixed income as part of a GDP and the tax base from §7 in millions of CZK

Year:	2006	2007	2008	2009	2010
Total household net mixed income in national accounts (b.3n)	377,651	401,297	402,680	416,146	409,684
y/y%		6.26%	0.34%	3.34%	-1.55%
Total tax base from §7	121,386	129,868	188,854	147,978	142,473
y/y%		6.99%	45.42%	-21.64%	-3.72%

Source: CZSO - Annual national accounts, author's calculation based on General tax directorate data.

To better understand the effect that the tax changes could have had on self-employment we need to analyse the causes of the above described revenue development. To do that, we start with the analysis of the development of the tax base. As mentioned above the tax base calculation method changed in 2008 – the social and health system contributions were no longer subtracted which is the reason for the 45% rise in 2008. There are several explanations for the following drop in tax base in 2009. Firstly the PDCs structure changed for tax year 2009 allowing much more costs to be declared this way – see Table 8. However we can see that the significant drop in total tax base, which happened in 2009, could not have been caused solely by the PDCs. The absolute growth of PDCs is smaller than the actual drop and it is important to understand that not all growth of PDCs means actual growth of costs – this would be true only if the actual costs replaced by PDCs were zero. That said, it is important to look for the reasons for the tax base drop elsewhere.

Table 8: The change in tax base and the change in costs declared by percentage

Year:	2006	2007	2008	2009	2010
Change in §7 tax base Y-Y		8,482	58,986	-40,876	-5,505
Change in total PDCs Y-Y		9,778	11,159	36,804	3,982

Source: author's calculation based on General tax directorate data.

⁸ This „cash-flow“ approach is used as an approximation because of data availability.

Another explanation would be the drop in performance – see Table 4. However this explanation is not supported by the rise in mixed income calculated by the CZSO in the mixed income indicator which should include a correction for the underreporting. Considering the approximate character of the MI indicator and considering the supplement indicators mentioned in Table 4 I think that the drop in performance was partially responsible for part of the drop in tax base. This is also supported by the corresponding development of the corporate income tax (see 2nd row of Table 9) which was not a subject to the change in the PDCs but was subject to the same macroeconomic influence in 2009.

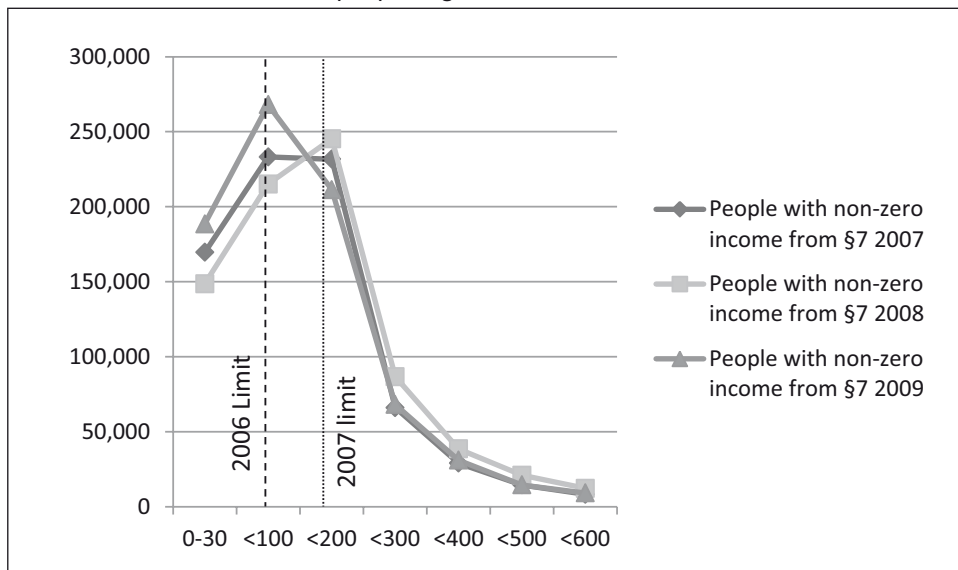
Table 9: Revenue from SE income tax

	2006	2007	2008	2009	2010	2011	2012
SE share on income tax revenue	13.02%	11.22%	12.60%	5.86%	7.13%	3.37%	3.39%
Y/Y% corporate income tax revenue		17.38%	12.74%	-32.23%	1.93%	-4.84%	8.40%
Y/Y% self-employment income tax revenue		-4.58%	6.20%	-58.64%	25.17%	-51.80%	3.17%

Source: author's calculation based on CZSO Statistical yearbooks and UFIS system.

The moves in the tax base alone however do not explain the drop in income tax revenue by itself –the average TB actually grew in 2008 and the drop in tax base in 2009 has been about 21% while the income tax revenue dropped to more than one half. The difference has to be attributed to another change in the legislature - namely the introduction of the flat 15% tax along with the rise of minimum untaxable amount shown in Table 3. Figure 4 shows the distribution of tax bases between 2007 and 2009. All people with non-zero \$7 TB are counted. The dashed line marks the interval containing the minimum untaxable amount in 2007 and the full line marks the interval with the minimum untaxable amount in 2008. As explained in the respective section, this amount more than tripled putting most of the SE in the no tax zone (see Table 3). From the limited detail data on distribution available we can assume this change by itself would result in a significant drop in tax revenue with the actual drop in tax bases only stimulating the effect.

Figure 4: The distribution of $\text{\$7}$ tax base with the minimum untaxable amounts shown, Y axis shows the number of people in given interval, X axis determines the $\text{\$7TB}$ interval



Source: author's calculation based on General tax directorate data.

The big progressivity of the income tax with a very high threshold implies a very high sensitivity of the revenue to the change in tax base when the majority of the subjects is condensed around this threshold. This was confirmed also in 2011 when the prolonged recession halved the revenue again (see last row of Table 9).

To have our analysis of fiscal effect of self-employment correct and complete we would need to estimate the amount of taxes and contributions the people moving from employment to self-employment would pay as employees and estimate the amount of cost of support for people who chose self-employment as an alternative to registering as unemployed.

We can conclude that the lowering of the average effective tax rate which we can observe in 2009 (third row of Table 6) might be one of the impulses behind the growth of the proportion of the self-employed on the labour market especially in the long but on aggregate while accounting for the mandatory contributions as well as income tax it cannot explain the sudden dynamic changes. The changes in average effective income tax rate are relatively minor to the stable advantage provided by the 50% TB for SSC and health insurance. Also the change in effective tax rate was to a large extent caused by the theoretically neutral rise in tax threshold for tax year 2008. The benevolent reporting policy expressed in the PDCs shown in rising numbers of people using them is another factor to be blamed but without the exact number of new SE using them it is difficult to quantify. Time wise – the LFS statistics registers the major growth in the numbers of self-employed in 2010, while the PDCs changes were effective from tax year 2009 and the change in the untaxable amount was effective even from 2008. Only the coincidence of these changes with the

growth of unemployment throughout the second half of 2009 is thus to be blamed for the sudden rise in the SE proportion in 2010 rather than the tax motives alone.

An important factor identified in the previous studies was the level of legislature enforcement on the labour market and in tax collection. This is only partially captured in the effective tax rate. The construction of a more complex measure of the legal enforcement is methodologically difficult but should be added to the analysis in the future. Further, as explained above, the self-employed generally pay smaller mandatory payments for social security expecting lower retirement benefits. Their choice of SE can thus be interpreted as cut on retirement savings in times of crisis which allows them to offer their work at lower price while retaining the same levels of consumption. The sentiment towards state run pension system can thus be another valid factor and the ongoing controversial pension reform may undermine it.

Conclusions

The article discussed the connections between the growth in the number of self-employed and the changes in legislature, tax burden and development on the labour market. We offered different hypotheses to be followed in the explanation of the growth of the OSVC segment for the Czech economy between 2006 and 2010. The data presented suggest that the tax system changes and the unemployment rate both influenced the growth in the numbers of OSVC with the unemployment rate being the dominant short term factor. The moderate correlation between the rise in numbers of self-employed and the rate of unemployment supports the hypothesis that the self-employment status can be a safe haven for people who are threatened by unemployment or who are forced to this status by tax optimizing employers on a low demand market. The rising difference in effective tax rates between SE and employees is a suggested long term factor for the rise in SE ratio in the labour market. The effect of the tax change could be prolonged, delayed and would be influenced by the level of law enforcement which is not measured here.

Our analysis is based on average numbers and a macro perspective though and it is likely that for specific subgroups the tax motive may have been the dominant one. Also the correlation between unemployment rate and the growth of self-employment in the limited time series, even though interesting and in line with our hypothesis, is not a proof of causality. Other factors effective especially in the long run such as demography, technological and structural change and cultural development were omitted. Both effects should thus be subjected to a further research using both longitudinal and more detailed structural data.

Besides that, we showed that the changes in tax system led to a drop in average effective tax rate. Part of the drop in tax bases has to be attributed also to business performance corresponding with the macroeconomic situation and part is caused by the extended usage of PDCs but the main cause of the drop in income tax revenue is the coincidence of a very high tax discount introduced in 2008 and the actual distribution curve of the \$7 tax bases. The changes introduced between 2007 and 2010 thus did not have a dominant immediate impact on the number of self-employed but certainly impacted the SE income tax revenue.

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Appendix

Used Acronyms:

CZSO – Czech Statistical Office

LFS – Labour Force Survey

MI – Mixed Income

OSVČ – Person Earning Money Independently (osoba samostatně výdělečně činná)

PDCs – Percentage Declared Costs

PIT – Personal Income Tax

RILSA – Research Institute of Labour and Social Affairs

SE – Self-employed, Self-employment

SSC – Social Security Contributions

TB – Tax Base