

THE REFLECTION OF THE SHARED ECONOMY IN NATIONAL ACCOUNTING - THE CZECH REPUBLIC CASE

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Abstract

As we see the increasing importance of the shared economy nowadays, there is an objective of potential measurement of the shared economy. More, we observe the tendencies in legal restriction to the shared economy. The national accounting system in the Czech Republic is interested in the shadow economy exhaustive reflection. The shadow economy is not the same as the shared economy. More the shared economy is not even just subset of the shadow economy. These two sets overlap themselves. Further, the sharing itself between economic agents is not new. The new is the sharing for the financial profit possible thank to the new internet and communication applications.

In the article the goal is to evaluate impact of the shared economy to the national accounts outputs in the Czech Republic. The analysis itself serves for the qualified decision making about the regulation or even full prohibition of the shared economy as we see in many European cities. In contrary with these tendencies, the shared economy presents the potential for dynamic economic growth. This statement is confirmed with the European Commission in its *“European agenda for the collaborative economy – supporting analysis.”*

Key words: shared economy, dwelling services, gig economy, national accounts inventory

JEL Code: O11, O31, E61

Introduction

The observed widespread awareness of the existence of a shared economy in recent years makes it a very interesting social science phenomenon that brings great economic opportunities (Heinrichs, 2013). In principle, the market failure is traditionally described by the principle of incompatibility or inequality in consumption. This part of economic theory gains importance in the context of globalization and the liberalization of the economy, but above all the expansion of the Internet and modern communication technologies. The so-called "Start-ups" are interesting for economic theory in view of new principles and technological possibilities when

exchanging and paying for goods or services. Here we see very significantly reduced transaction costs (practically zero). Of course, we can not abstain from technological innovation. However, these are not the main points of the analysis of the common economy in this article.

A modern, shared economy makes it possible to eliminate transaction costs for both sellers and buyers of goods or services. But the question arises as to what effects a shared economy brings to public administration and public budgets. Specifically, it is more about positive effects or purely negative effects. Public administration not only at the level of the Czech Republic (but also the EU) is beginning to find that the need to register the forms of the shared economy and its outputs must form the basis for qualified decision-making. In other words, it is necessary to include a shared economy in the structural national economy research of the Czech Republic, which is currently carried out mainly by the CZSO.

The aim of this paper is to introduce the possibilities of registering a shared economy in the system of national accounts of the Czech Republic. More there is an analysis of the current situation on the basis of which recommendations will be presented for more reliable reporting of the problematic shared economy.

Sharing, shared economy as a sharing of group goods by different users who contribute financially to their financing by the owner (Vorlíček, 2016). According to Böckmann (2013), the rapid development of the shared economy is mainly seen in the sharing of ever smaller things (drilling) or things that we have not yet imagined, even our own flat (Zekanovic-Korona et al., 2014). Such sharing is possible only through the creation of online platforms for bidders. At present we observe the following main areas of the shared economy and their main chosen representatives.

- a) accommodation services - short-stay accommodation agent Airbnb,
- b) transport services - car rentals Zipcar, Drivenow,
- c) joint transport - connecting providers and customers of both passenger and freight transport on the basis of a mobile application (Uber, Mitfahrgelegenheit - carpooling.com, BlaBlaCar, Rokola bicycle rental),
- d) marketplace - lending or buying / selling of goods and services (Sharetribe, Etsy, Aukro),
- e) Financial services - linking financial loans between people without the participation of banks (Zonky, Benefi, First Club Insurance Company),
- f) housekeeping - Housekeeping or Home Repair (Supersoused Hourly Spouse);
- g) labor markets - linking supply with demand for work on Internet platforms (Jobs.cz).

1 Literature Review

In the next chapter, we will present responses to the shared economy from public authorities, but also from the media. The article "*Perspectives of the Shared Economy*" (Benda, 2016) is available in the Library of the Ministry of Finance of the Czech Republic (No. 6/2016). Here, the shared economy is defined within the "GiG" of the economy, which is the transition from fixed labor to time and local flexibility, and within the "circular" economy. The concept of the circular economy highlights the rise in raw material prices in the 21st century, while in the 20th century we have witnessed a fall in raw material prices. This simple fact leads to the need for efficient use of existing resources and waste.

The US labor market has so far shown resilience towards a shared economy, although according to JP Morgan's analysis (Farrell, Greig, 2016), there is a risk of wage dumping that does not limit the introduction of a minimum wage. Additionally, there is the concentration about the slump in the rental market and the liquidation of jobs. In the article "*Joint Stock Companies*" (Financial Times, 2014), in the context of the development of the shared economy, it is emphasized that this is primarily a cultural shift. Young people prefer to engage with friends and neighbors rather than corporations. Such a model reduces the prices of rentals or drills, which leads the lobby of traditional industries to strive for greater regulation.

In the article "*They Want to Pay Taxes, But They Can not*" (Chovanculiak, 2016), the author deals with the motivation of homeowners doing business under AirBNB not to pay a tax on accommodation. This tax applies to small amounts, but they are a tough regulation for producers. For instance the building authority must approve a change in the use of the building, which amounts to an average of 30 Euros. Additional modifications to fire protection, building approval in the Land Registry may cost up to € 50. The entire procedure lasts for at least 60 days. However, we also have to take into account the hygiene requirements at the Regional Public Health Authority (of 50 EUR) and the complications related to the change in the operating rules. In addition, the entrepreneur must register with the Czech Trade Inspection. On the contrary, the market solution is based on the reputation system, and it itself ensures high quality. So we have alternatives not only in the form of regulation or dangerous free market environment. There is also an alternative in the form of private mechanisms to ensure consumer protection and quality of service (Veber et al., 2016).

The European Commission is working with the document "*European Agenda for a Collaborative Economy*". Here are introduced guidelines for consumers, businesses, but mainly

for public administration. Public administrations in the EU countries are supposed to see above all the positive effects of a shared economy. Paradoxically, some EU countries or specific cities have begun, not only to regulate but also to ban certain manifestations of the shared economy.

The cited document states that these new models can make a significant contribution to the growth of employment in the EU if they are supported and developed responsibly.

According to the guidelines, Member States should distinguish between service providers on a casual and professional basis. For example by setting activity-based thresholds. Professional service providers should be required to obtain business licenses or licenses where this is strictly necessary to meet the public interest objectives. Platforms should not be subject to a license. Or license, where they act only as an intermediary between consumers. Absolute prohibitions of activity should only be an extreme measure.

The consulting firm PriceWaterhouseCoopers (hereafter PWC) published a shared economy analysis in the US. Only 44 % of respondents were familiar with the shared economy, 19 % had practical experience, most respondents are concerned about the shared economy, but 72 % expect to be involved in the shared economy. Typical clients are younger people in the range of 18 - 24 years, households with annual income of 50 - 75 thousand. USD, or families with children. A similar PWC analysis for the UK market describes the effect of a shared economy on GDP in 2025 of up to £ 140 billion. The five most important sectors of the shared economy - finance, housing, transport, small household services and professional services could increase twenty times compared to 2015. The shared economy in the UK is growing fastest across Europe, but the study also predicts a significant growth from the current 28 billion to 570 billion euros. It cannot be overlooked that this rate of growth is the greatest compared to other sectors or branches of the economy.

The Wharton University of Pennsylvania study broadly agrees with the findings, confirming that for more than 80 percent of respondents, sharing is now more convenient and effective. The study also comes with the statement that a shared economy is a force that will affect a number of industries, but also travel, taxi services, car rentals, and bicycles. It will also affect finance, show business, and employment.

2 Data and methods - National accounting in the Czech Republic

As part of the identification of the data base for the analysis of the shared economy, we are necessarily going to analyze the revisions of the national accounts statements. Revisions of national accounting records were made to ensure a more credible image of reality. As a matter

of fact, in addition to several methodological measures, this revision concerns the capture of the gray economy, or the capture of performances secured by its own forces, where these transactions do not pass through revenues for taxation, and thus for the reporting of the financial administration, CZSO. At a certain level of abstraction, we can trace a subset of the gray economy that we will include in the shared economy. It should be noted that a large part of the shared economy is not a gray economy and is captured in public administration reports within standard structures. Here it would be worthwhile to include it in the CZSO structural surveys separately.

In particular, we will elaborate a document describing the description and impacts of changes in methods and changes in data sources under the so-called Main Revision of Annual National Accounts (GNI Inventory, CZSO). This basic revision was published by the Czech Statistical Office on 30 September 2011 and preceded the main revision in 2014. The main motive for the revisions was to ensure greater comparability of the macro-aggregates in the Czech Republic with regard to the transition to the NACE classification. The most important conclusion of the revisions is the underestimation of the performance of the Czech economy (2 - 3 % absolute in GDP) in the past.

In the context of the revisions, the search and identification of leakages in the form of the so-called gray economy is evident. The shared economy is not exactly the same as the gray economy. However, these two sets overlap in many ways. Existing national accounting records identify the following segments selected by us regarding the Shared Economy. It's about

a) *Dwelling services*, estimating the impact of accommodation services on GDP. The problem so far has been to capture housing in one's own flat through so-called "imputed rent". At present, the item certainly includes roommate, AirBNB etc. According to the EU 1722/2005 regulation, the privately leased accommodation does not exceed ten per cent of the accommodation volume. In addition, it is mentioned that the volume of accommodation through the traditional market is at least three times higher. In this case, it is necessary to use the stratification method of the imputed rent estimation rather than the unit cost method (UCM). Currently, the CZSO is at the transition between two methods and estimates the impact and magnitude of imputed rents through their combination.

b) *FISIM*, Financial intermediation services indirectly measured, in this area the problems of the revision mainly concerned the determination of IRR (Internal Rate of Return).

c) *Capitalization of software produced on own-account*, gross capital formation before revisions included only purchased software (even at zero price), everything else was classified

as mediating consumption. After revisions, the software is also developed into gross capital formation.

d) *Producers deliberately not registering*. For shared economy issues, a group of illegal unregistered producers is certainly the most fundamental reflection in national accounting. Of course, the emerging networks of unregistered individuals have to be registered (in the Czech Republic, the questions of VAT reporting). However, across Europe and the US, environmentally favorable environments for collaborative savings are due to the socio-economic environment after 2008 (Widener, 2015).

Dwelling services - imputed rentals

As regards accommodation services, the CZSO looked at the reassessment of the method of estimating the impact on GDP. Originally, the UCM method was fully utilized, however, with the criterion of the volume of privately leased accommodation not exceeding ten percent of the accommodation volume, it was necessary to engage in the stratification method. This determines the size of the imputed rent according to a) the size of the municipality, b) the type of the building, c) the size of the dwelling, d) the equipment. Estimated value of accommodation services in GDP in 2010 (total imputed rent) is 1398.9 billion CZK. We observe very interesting dynamics over the last decade in the context of the development of imputed rent, market rent and regulated rent and in their mutual comparison.

Estimation of illegal unregistered producers

The estimate of illegal unregistered producers is based on the pilot study "*Exhaustiveness of the Czech National Accounts*". The results are presented in GNI Inventory. This is a EUROSTAT and CZSO project, which is based on a questionnaire with 249 questions and answers to these questions. Moreover, the impact of the answers is stratified by the weight of the answers. Interesting knowledge can be found by comparing the outputs of official statistics of the Labor Office and precisely on the basis of the Labor Force Survey (CZSO). We think especially in the context of the size and dynamics of the development of structural unemployment in the Czech Republic as a whole as well as in the regions of the Czech Republic.

On the basis of the analysis carried out, the CZSO determines the degree of variation in NACE sector by sector. Large enterprises are expected to have virtually zero deviations, so small and then medium-sized enterprises (CZSO outputs to 19 employees and 19 to 99 employees) need to be explored.

Tab. 1: Deviation rate of credible image in national accounts year (2010)

<i>Revenues</i>								
<i>Number of employees/ CZ-NACE</i>	A+B	D	F	G	H	I	K	M+N
<i>1-19</i>	6,67	2,78	9,59	4,26	21,31	1,25	0,68	6,77
<i>20-99</i>	1,80	0,20	7,23	0,35	1,75	1,77	0,14	1,43
<i>Material</i>								
<i>Number of employees/ CZ-NACE</i>	A+B	D	F	G	H	I	K	M+N
<i>1-19</i>	4,50	2,88	7,61	4,26	5,92	1,65	0,41	4,09
<i>20-99</i>	0,45	0,83	5,45	0,23	1,15	1,35	0,17	1,65
<i>Services</i>								
<i>Number of employees/ CZ-NACE</i>	A+B	D	F	G	H	I	K	M+N
<i>1-19</i>	1,50	2,53	8,63	4,26	6,79	4,30	0,66	4,09
<i>20-99</i>	0,45	1,17	7,39	0,14	0,70	2,02	0,40	3,99
<i>Non-reported wages</i>								
<i>Number of employees/ CZ-NACE</i>	A+B	D	F	G	H	I	K	M+N
<i>1-19</i>	4,47	1,68	8,61	9,33	15,12	14,10	2,11	4,99
<i>20-99</i>	0,45	2,00	9,13	4,14	7,75	11,00	1,66	5,16
<i>Wages as a part of other operating costs</i>								
<i>Number of employees/ CZ-NACE</i>	A+B	D	F	G	H	I	K	M+N
<i>1-19</i>	4,20	6,68	8,83	4,26	7,14	30,83	0,39	3,90
<i>20-99</i>	0,00	0,23	9,08	0,25	1,23	1,15	0,20	2,04

Source: Taken table from the GNI Inventory, CZSO

For our purposes, the most important are NACE - H (transport and storage), I (accommodation) and K (finance). For transport and storage (H), the degree of discrepancy between realities and national accounts is estimated for the CZSO needs in the following structure: income, material, services, unrecognized wages, wages and other operating costs broken down by number of employees.

For transport and storage, it is 21.31 percent of the compliance deviation for smaller businesses on revenue. For medium-sized businesses, the revenue gap is 1.75 percent. For accommodation services, the rate of non-compliance is 1.25 percent for smaller businesses and 1.77 percent for medium-sized businesses.

The relative decline of unregistered producers is linked to the decline of small and medium-sized businesses (entrepreneurs). Their volume objectively declines with respect to corporations. Those large are not the subject of a labor force sample survey. It is clear from the previous table that the area K is very small.

The estimation of the volume of the illegally registered producers is carried out in two steps (according to the "old" method). Firstly, we will include the percentages of non-registered producers by industry according to the LFS (previous table). Secondly, it is the estimate of unofficial unemployment on the basis of the labor market disparity (according to the average labor productivity in the sector). In 2010, the estimate of the deviation of 2.8% (employees in full-time equivalents) is CZK 78,513 million.

Tab. 2: Illegally Unregistered Producers

	Surveyed / gross up data	Deliberately misreporting			TOTAL	% of adjustment
		1st step	2nd step	TOTAL		
P.1 Output	7 234 789	56 609	7 990	64 599	7 299 388	0,9%
P.2 Intermediate consumption	5 260 198	-36 791	-4 553	-41 344	5 218 854	-0,8%
B.1g Gross value added	1 974 591	93 400	12 543	105 943	2 080 534	5,4%
D.1 Compensation of employees	1 120 143	14 356	4 835	19 191	1 139 334	1,7%
E.2 Other taxes on production, net	-29 369				-29 369	0,0%
B.2g Gross operating surplus	883 817	79 044	7 708	86 752	970 569	9,8%
Employees (persons in FTE)	2 842 398	47 136	31 377	78 513	2 920 911	2,8%

Source: Taken table from the GNI Inventory, CZSO

The results of "new" methods are also obtained in two phases. First, it is a comparison of generic productivity with productivity that businesses achieve credibly leading accounting. Second, again, according to the labor market disparity. The results of the second method are surprising. The deviation is 35.5 percent (103,639 million CZK) for employers and 13.4 percent (110,846 million CZK) for self-employed persons.

Tab. 3: Illegally unregistered producers - a new method

	Surveyed / gross up data	Deliberately misreporting			TOTAL	% of adjustment
		1st step	2nd step	TOTAL		
P.1 Output	681 962	86 830	81 710	168 540	850 502	24,7%
P.2 Intermediate consumption	379 056	-34 476	47 032	12 556	391 612	3,3%
B.1g Gross value added	302 906	121 306	34 678	155 984	458 890	51,5%
D.1 Compensation of employees	60 778	0	12 087	12 087	72 865	19,9%
E.1 Other taxes on production, net	4 368				4 368	0,0%
B.3g Gross mixed income	237 760	121 306	22 591	143 897	381 657	60,5%
Employees (persons in FTE)	292 267	36 366	67 323	103 689	395 956	35,5%
Self-employed persons (persons in FTE)	825 188	110 846		110 846	936 034	13,4%

Source: Taken table from the GNI Inventory, CZSO

3 Discussion

In the presented analysis we dealt with the reflection of the shared economy in the national accounting of the Czech Republic. Shared economy is a modern phenomenon. It is not to be expected that its reporting in the national accounting system will take place quickly. In general, reporting systems are in real-time delays, as evidenced by the many revisions made in economic statistics. For example, many revisions to the reported exchange value values over past ten years have practically disqualified this statistic from professional awareness.

We cannot claim that the shared economy would be the same with the gray economy that national accounts statistics are trying to predict and report on a long-term basis. We cannot even claim that a shared economy is a subset of the gray economy. Many areas of the shared economy have been part of the "clean" economy since the very beginning.

However, the common feature of Shared Economy Areas is that its producers operate non-traditional provision of services, which in a large number of cases is associated with non-compliance. Here, however, it is not just about a misdemeanor of financial management. This may be the absence of a taxi license for the transport of persons, violation of the hygiene regulations for accommodation or the violation of the rules of the home. Furthermore, the absence of a CNB license or other provision of loans. The shared economy is on the brink of the gray economy. However, it is mostly not socially harmful activities that should be prohibited by law (prostitution or drugs).

On the contrary, the shared economy is a promise of economic development and economic growth. This potential opportunity is the reason for the straightforward approach of the European Commission or the US administration to reject the forms of the shared economy.

However, many countries or cities of the EU are already banning AirBNB or UBER (namely Berlin, Budapest and Madrid).

The above considerations advocate the need to quantify both the positive and negative impacts of the shared economy on the national economy. The existence of a platform for research into a shared economy that would systematically study this complex socio-economic entity would greatly benefit the knowledge and potential regulation of a shared economy. Based on such studies, we could use the benefits of a shared economy while limiting its negative manifestations (Hexmoor et al., 2014). Short-term rentals, for example, are provided for by the Registry of Real Estate Records. Real estate that is not permanently occupied by its owner would fall under a higher rate of property tax or be more controlled. Already, many unit flat owner communities (SVJ) prohibit short-term apartment rentals in their statutes, which is evidence of a functioning, non-public regulatory mechanism.

The contribution of this article was a description of the reflection of the shared economy in national accounting. The shared economy in the national accounting system is mainly observed in the groups a) dwelling services and b) producers deliberately not registering. We strongly recommend to introduce a shared economy into the structural statistics of the Czech economy. Here we would analyze the deployment, forms and impacts of the forms of the shared economy. In addition, we would consider the extent to which private individuals are sharing free of charge (or a certain threshold of financial performance), whether they are subject to regulation or unlawful business activity. All of these spheres in the shared economy are currently in place, with no clear guidelines for producers and service providers of the shared economy who manage economic affairs very differently. Finally, let's add that the pressure from traditional producers against the shared economy is significant. This part of the company will be very hard to convince the benefits of developing a shared economy. Likewise, we must add that the shared economy is developing inadvertently thanks to the benefits to customers, which consist primarily in the saving of transaction costs.

Conclusion

The aim of this paper was to present the possibilities of registering a shared economy in the national accounts system of the Czech Republic. In particular, an analysis of the current situation should be presented, based on recommendations for more reliable reporting of the problem shared economy.

After reviewing the national accounting revisions, we identified two areas of inconsistency with national accounting statements, which certainly include forms of shared economy. Firstly, short-term leases in dwelling services and transport and other services in the category of unregistered producers. At this time, we do not claim that all carriers are unregistered, but a significant portion of them cannot be registered.

Firstly, in the context of imputed rent, the stratification method quantifies the impact of housing in its own flat or house to CZK 1398.9 billion. Using the stratification method, it is possible to quantify a concrete effect in Prague and in large cities, where the form of shared economy in the form of short-term leases (AirBNB) can be expected. The stratification method, unlike the unit cost method, considers parameters such as the size of the municipality, the type of building, the size of the flat or the equipment. In the Czech Republic, in the context of the deregulation of rents in regulated dwellings, we see a decline in market rent at real prices. Thus, there is a decrease in imputed rent in the mentioned locations.

The estimation of the unregistered producers is carried out by the statistical office according to the old and new methods. At the level of large enterprises, zero deviation from the reported value can be expected. For other enterprises by size, the national accounts revisions show a deviation in the following items. These are income, revalued material, services, unrecognized wages, and wages and other operating expenses. In the case of small enterprises (0-19 employees), the national accounts statistics show a variation of 21.31 % for NACE - H (transport and storage) (for medium - sized enterprises 20-99 employees it is 1.75 %. NACE - I (accommodation), a deviation of 1.25 % for small enterprises and 1.75 for large enterprises is reported for the NACE - K (money - lending) group, which is sub - discrepancies. - the questionnaire survey "*Exhaustiveness of the Czech National Accounts*", which is carried out on the basis of Eurostat's instructions, once again private non-financial enterprises under the control of domestic entities up to 100. We see that there are no major deviations here. Time series are more likely to be linked to a decline in the share of SMEs in GDP over time.

A tighter estimate of the unregistered business owners is obtained through the following two steps. First, according to a comparison of average labor productivity in the industry and labor productivity, a legally flawlessly run enterprise. Secondly, according to the results of the informal Labor Force Survey organized by the CZSO. If we combine the outputs of both methods, we find that employers are subject to a deviation in the reported wages and salaries of CZK 103.7 billion for employers and CZK 110.8 billion for self-employed persons in 2010. These analyzes and presented conclusions have resulted in the following recommendations in line with the objectives of the article. The level of the shared economy should be integrated into

structural surveys. Probably we are not able to capture small assistance between individuals, whether for a fee or free of charge. We should certainly think of some tax exemption for the shared economy in the minimum amount of annual income. However, for hidden entrepreneurs (natural and legal persons) who use shared economies on internet platforms, they should be penalized for not keeping their economic activity. These internet platforms record transactions for future commissions. A certain complication is the international character of these platforms.

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