SURVEY ON SURVEY IN THE CZECH INDUSTRY SECTOR

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Abstract:
The current times are full of uncertainty. Economists and politicians are in search of information to show how the economy will develop in the future. Business and Consumer Surveys are one of the examples of the leading indicators. In this paper, we will present the main findings of the survey on survey in the industry sector in the Czech Republic. Thanks to the collected answers, we can (i) better understand the behaviour of our respondents and (ii) modify the future methodology. Thanks to these changes, respondents will find the definitions of the economic terms or a recommendation of "significant change" for the evaluation of the questions. These proposed changes improve the quality of analysis which are focused on the business cycle and the economy, respectively.

Keywords: business survey, consumer survey, composite indicator, business cycle, survey

1 Introduction

Uncertainty affects us in today's world more than we ever thought. A pandemic that has swept the world has changed the meaning of Business and Consumer Surveys. It is not only economists, journalists and the professional public that are interested in the results of the survey. Everyone is expecting a significant drop in the economy, but the question remains: What kind of decrease will it be? Everybody wants to know the answer to this question: small entrepreneurs, factory owners and ordinary citizens. The uncertainty about production and employment is increasing with the length of the constraints. As a result of the mentioned conditions, the pressure on the speed and quality of statistical results is growing - especially for the leading indicators.

Business and Consumer Tendency Surveys should supplement short-term statistics – quantitative information – and collect the subjective opinions of company leaders about their development which can help with the prognosis (Marek, Hronová, Hindls, 2019). Sorić, Škrabić, Čižmešija (2013) add that they can help with making day-to-day decisions about consumption, investments or savings.

Surveys have a lot of advantages, for example, speed of publication, a straightforward interpretation or the fact that the answers come from business persons. In the Czech Republic, we have started to ask about whether our respondents understand the questionnaires. This activity is also a reaction to questions from our primary users (Czech National Bank, Ministry of Industry and Trade, Ministry of Finance of the Czech Republic and commercial banks). Analysts from the mentioned institutions use outputs from Business and Consumer Surveys for their analysis and predictions. And they ask Czech Statistical Office employees what individual outputs mean for them. Unfortunately, the European Commission does not have a definition of

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economic terms (see the next chapter). Due to the mentioned reasons, we decided to realize a survey on survey. First, we started with industry because it is a crucial area of the economy in the Czech Republic. According to the European Commission (2020), *the industry survey is largely qualitative. The main questions refer to an assessment of recent trends in production, the current levels of order books and stocks, as well as expectations about production, selling prices and employment. In addition, the survey provides quantitative information on a quarterly basis on two variables that are not reported in conventional statistics, namely capacity utilisation and the number of months of production assured.*

The aim of the paper is to present the main outputs of the survey on survey in the industry sector.

2 Business and consumer survey

We can say that the Business and Consumer Survey is the beneficial data source force the information about the confidence in the business sector and consumers. In the Czech Republic, the Czech Statistical Office is responsible for the collection, data processing and publication of the results. At the end of the process, the individual confidence indicator and Economic Sentiment Indicator (ESI) are the main outputs of the survey. According to the survey, we collect information about the current situation and future development in the business sector - we ask about prices, demand, production, boundaries, stocks - and consumers. They answer to the question about their financial situation, product prices or savings (Czech Statistical Office, 2020). In this article, we will focus only on the business sector.

We realize the survey every month. The advantage of this survey is that we have qualitative data. It means that respondents choose (mainly) from three options:

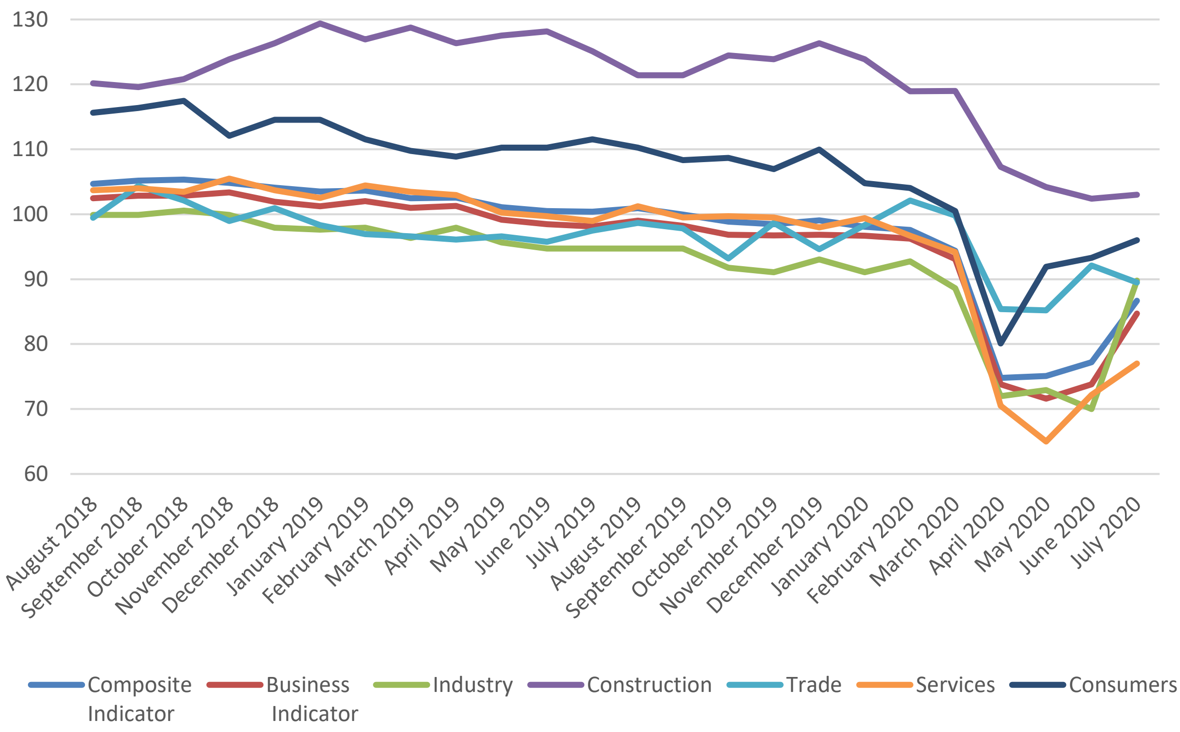
- growth
- stagnation
- decrease.

Finally, we calculate individual confidence indicators for sectors: industry, construction, trade, and selected services. The balance is calculated as the difference between the positive and negative responses. We have to mention that every sector has a different weight:

- Confidence indicator in industry (40%)
- Confidence indicator in construction (5%)
- Confidence indicator in trade (5%)
- Confidence indicator in selected service (30%)

From these confidence indicators, we calculate business confidence indicator (80%). When we add the consumer confidence indicator (20%), we have the composite confidence indicator, Economic sentiment indicator, respectively (Czech Statistical Office, 2020). The European Commission states this weight scheme because they want to compare the development of the economy across European countries.

Figure 1: Business and consumer survey in Czech Republic (2018 -2020, basic indices)



Source: Czech Statistical Office (2020)

3 Survey on survey

3.1 Motivation

The survey on survey in the industry sector is the first wave of the survey on survey in the Czech Statistical Office. Firstly, we discuss the complicated questions in the survey with crucial respondents and users. Thanks to these responses, we have discovered that a lot of respondents do not understand the economic terms in the questionnaire – they have a different meaning for each economic term. Our users include banks, ministries, the Czech National Bank or analysts who comment on the situation in the economy for newspapers or magazines. We collect the remarks and start to prepare a questionnaire about Business and Consumers Surveys. The Czech Statistical Office and the Faculty of Informatics and Statistics at the University of Economics in Prague organise this survey on survey. The survey took place at the end of 2019.

3.2 Results

We prepare the questionnaire which has nineteen questions primarily focusing on the meaning of the evaluation of economic indicators. In this chapter, I present the chosen items and the responses to them. I compare these outputs from the survey on survey with the recommendation from the European Commission or the understanding of our users.

The Czech Statistical Office recommends using the **order book for the estimation** of the level of overall demand for production in the questionnaire. Our respondents answer if they use this source of data or not. 23.8% of respondents say: totally yes, a third of respondents (33.8%) agree with this source, 6.7% do not use this source and 14.3% use another one. A fifth of the respondents (21.4%) do not use any data source. They answer the question about the production demand thanks to their subjective feeling.

After that, we ask what data source they use when they are **evaluating future production**. 47.8% of respondents use the order book; 21.1 % use another data source. They mention the forecast for the next quarter, SAP, direct orders from customers, reporting from manager accounting, the corporate information system or the production plan. The rest of the respondents use their subjective feeling for answering.

We then start to discuss what the economic indicators mention for Czech respondents in the industry sector. The **evaluation of the overall economic situation** in the company was the first term. The respondent can choose multiple answers.

They evaluate the financial situation in the company as the most important (81.9%). The results correspondent with the Polish survey on survey which presents the same results (Stefaniak, 2016). Respondents (56.2%) evaluate production demand as second. These responses are helpful because we can imagine what the balance or basis index should predict (describes) in our analysis.

Table 1: Overall economic situation (%)

	%
The financial situation in the company	81.9
Production demand	56.2
Market competitiveness	21.4
Overall economic situation in the sector	20.0
The number and qualification of employees	10.9
The development of the global economy	6.2
The general economic situation in countries which are the company's business partners	5.2
The general economic situation in the national economy	3.8
Other	0.9

* Respondents could mark multiple answers, so the sum does not add up to 100%.

Source: own calculation

Secondly, we ask respondents what **production (in the past or future)** means for them. They choose from three options:

- natural production – 35.9%
- sales/total revenue – 61.2%

- other – 2.9%

In the “other” choice, they mention sales and production together, the quantity of the contracts or the number of working hours.

Capacity utilisation is another confusing term for Czech respondents. I think that the meaning of this term will be evaluated in the upcoming years because technology is developing. On account of this, people in business and people in the industry have to react and change their equipment. The results draft the growth of the importance of qualified employees, technology or know-how. A third of respondents (31.6%) evaluate only the capacity utilisation of the facility. In the Czech Republic, there are a lot of factories. The automotive industry is still dominant in the manufacturing sector. Unfortunately, this sector is sensitive to the changes in the business cycle (Alie, Pavelkova, Dehning, 2017). The choice: *the capacity utilisation of the facility and human capital (exceptionally qualified employees)* is selected by 40.2% of the respondents. 27.2% agree with the statement: a complex level of all manufacturing factors (the capacity utilisation of the facility, human capital, materials, sub-orders, financial capital, IT technologies, know-how). 1% choose another option. Unfortunately, the European Commission does not have a definition of this term.

Everybody agrees that stagnation answers are a problem in Business and Consumer Surveys. According to Aysoy and Brand (2017), the dominant category “unchanged” is a mix of other categories‘ answers or “do not have an opinion”. They mention in their paper that the “stagnating” can be a signal for economic uncertainty – which is connected with “don´t know” behaviour. According to the paper from Ptáčková, Štěpánek and Hanzal (2018), we separate future production and future employment. They find – in the comparison Business and Consumer Survey to short-term statistics outputs on the microdata level – a significant 60% (70% respectively) change for production and 10% (20% respectively) change for employment. Table 2 describes the answers about the significant percentage of the change for selecting the different choice than “no change”. We can see that the respondents are more sensitive about employment – 43.5% of them choose a 5-10% change. For future production, the main category is 10-25% (41.8% of respondents).

Table 2: Stagnation answers (%)

	Less than 1%	1-5%	5-10%	10-25%	25-50%	More than 50%
Future production	3.4	5.3	33.7	41.8	15.4	0.4
Future employment	7.2	15.5	43.5	27.1	6.7	0.0

Source: own calculation

Respondents are satisfied with the three option **scale** (87.1%) for the current and future economic situation evaluation. When we asked about the current and future production evaluation, the share of the satisfied respondents was 90%. In the question on **the evaluation**

of the overall economic situation in the company, only 30.3% of respondents distinguished the period of three and six months (when it makes sense for the evaluation). 35.1% of respondents sometimes differentiate between the three and six month period (when it makes sense for the assessment). 34.6% evaluate the mentioned periods as the same.

Are there any **sources which influence the respondents 'response**? Do politicians, analysts or economists change their opinion about the development in the Czech Republic? Respondents read about pandemic, Brexit, the coming crisis, the trade war, various political crises or the increasing level of unemployment quickly – all this information can influence their choice during the filling in of the questionnaire.

66% of respondents say "no". They answer the questions only using internal data sources. 22.9% of respondents take economic forecasts into consideration. It is beneficial knowledge because our respondents are not manipulated by politicians or other well-known people who can change public opinions.

Table 3: Important data sources (%)

	%
Czech media	9.0
Foreign media	2.9
Economic forecasts	22.9
Geopolitical events	4.3
Branch development abroad	18.6
Outputs of the short-term statistics and BTS	2.9
Statements and political debates	1.9
Statements, debates by economics and professionals	6.2
Other	2.9
No, I only use data from the company information system, or internal data sources	66.2

* Respondents could mark multiple answers, so the sum does not add up to 100%.

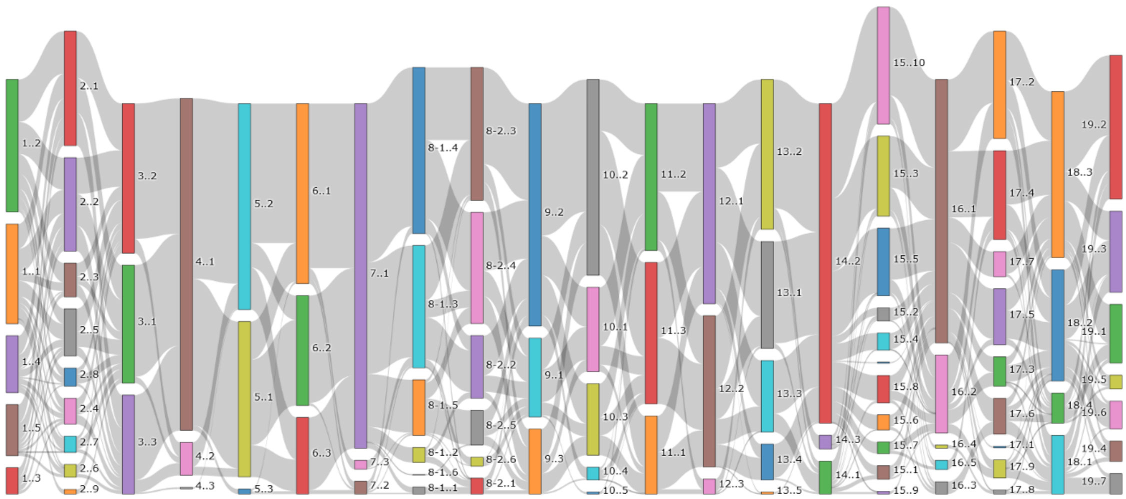
Source: own calculation

Managing summary: Mentioned results are significant for the users – thanks to them, we can know what we can use for our predictions. Business people, managers, politicians make daily decisions about the future development of their companies. The using quick published, qualitative data (on monthly base) is beneficial for their conclusions about the employees or investments. Business and Consumer Surveys are important data source about the economy – or their NACE (Nomenclature statistique des activités économiques dans la Communauté européenne) level, sectors, respectively.

3.3 Visualization

In the last part of the paper, we visualize the flow of the answers in the survey on survey questionnaire. It can be helpful to understand how the respondents think about the Business survey. We can find the differencing and similarities, respectively, the groups of respondents during the answering the questions. We prepared all ways of answering during the survey.

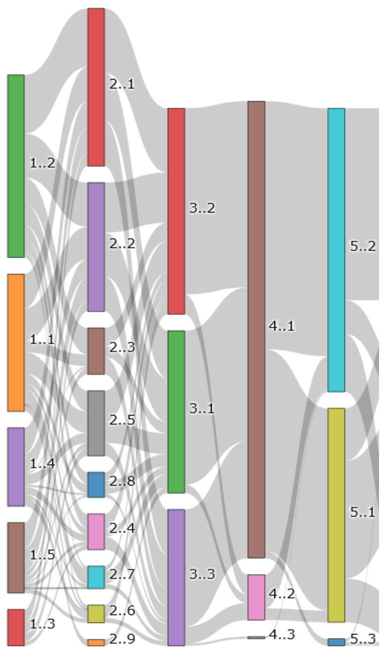
Figure 1: Answers visualization



Source: own calculation

In this article, we choose the part of it. Mentioned flows you can see at Figure 2. All computations we performed using the R language and environment for statistical computing and graphing.

Figure 2: Visualization about the answers (1 – 5)



Source: own calculation

When we try to define our Figure 2, the first question was: Are you using the order book for the estimation of the level of overall demand for production? A lot of respondents agree with the statement (at Figure 2 it is the first wave – with this wave of respondents we will continue with the describing the other answers to their questions). When we go to the next question, respondents distinguish predictions for the next three and six months (which we should evaluate separately) and define the overall economic situation in the company. Mentioned respondents answer in the second question: production demand. In the next part of the "wave", we see that respondent are satisfied with the scale, which has three option (growth, stagnation, decrease). When we focus on the evaluation of the past and future production, they evaluate sales/total revenue. For future production, they use the order book. What can we say about the mentioned group of respondents? For the answering, they use data (order book) for responding, and they are satisfied with the current scheme of the questionnaire. We can expect that their answers/predictions are correct, on the real base and not only on the subjective feelings.

We can choose another one and make describing or analysing another one. Thanks to this visualization, we can understand our respondents – the answers, the relationship between the previous answer and next response.

4 Conclusion

The survey on survey opens up the discussion about the meaning of concrete terms in the Business and Consumer Survey questionnaire. Thanks to the presented outputs, we can better understand the results from the monthly survey and better describe the near future to the public, journalists or politicians. Thanks to visualization, we can make groups of respondents which we can describe and find the significant information about them. Information from Business and Consumer Surveys are beneficial. It is the main reason why we should focus on them – especially in uncertain times. Now, when a lot of companies have stopped their production and they are worried about the future.

As the results of the survey on survey, we can open up a discussion about creating a methodology on the European/national level for respondents, which can help them with filling in the questionnaire.

In the next research, we will extend this survey on a survey to the following sectors – trade, construction and selected services.

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