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# BUSINESS AND CONSUMER SURVEYS IN RUSSIA: FOCUS ON ECONOMIC SENTIMENT AND GDP GROWTH

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**Business and consumer surveys in Russia: Focus on  
economic sentiment and GDP growth**

Liudmila Kitrar

National Research University Higher School of Economics

Tamara Lipkind

National Research University Higher School of Economics

Kateryna Gumeniuk  
UNIDO

Georgy Ostapkovich

National Research University Higher School of Economics



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## **Abstract**

This study determines the effectiveness of using assessments and expectations of economic agents in the analysis of macroeconomic development. It tests the hypothesis of the cyclical interaction between economic growth and entrepreneurial behaviour. The authors used the composite economic sentiment indicator (ESI), which combines the confidence indicators of all sectoral business and consumer surveys of the Federal State Statistics Service and the Higher School of Economics, reflecting the aggregate sentiment and expectations of approximately 24,000 entrepreneurs and 5,000 consumers. The empirical relationship and joint cyclical sensitivity of ESI and GDP growth time series are determined based on cross-correlations, statistical filtering, a long-term linear regression, and through a two-dimensional vector autoregression model. This model is further used for GDP growth until the end of 2021. Forecasting considers the expected impact of new coronavirus-related shocks on the Russian economy, which have been increasing since March 2020, and on the aggregate economic sentiment. The forecasting results show an expected sharp decline in GDP dynamics in mid-2020 due to the coronavirus containment measures, accompanied by a tremendous drop in oil prices, followed by a slow and unstable recovery in GDP growth by the end of 2021 to the level of Q4 2019.

**Keywords:** business and consumer surveys, economic sentiment indicator, business confidence indicator, composite indicators, growth cycles, economic growth, leading indicators

JEL: C81, C82, E32, O47

## **1 Introduction**

The forecast of economic growth until the end of 2020 is very gloomy for the Russian economy, with a high probability of a sharp drop into the negative zone. The economic developments that commenced at the end of the first quarter and are associated with the shutdown of economic activity following the outbreak of the coronavirus, inevitably undermine demand and supply and affect all economic agents – enterprises, households, financial and organizations.

To address the economic and social consequences of these negative external shocks, public resources are being redistributed to control the epidemic and to prevent a recession. Financial assets to achieve the stated development priorities will inevitably decrease, while income from economic activities, especially from the export of primary goods, will no longer be replenished to the extent necessary to cover all costs, including contingencies. Events such as the closure of enterprises, delays in the resumption of trade and production activities and, consequently, disruptions in production and supply chains and budget cuts will aggravate the situation further. At the same time, the significance of measures to reduce exchange rate volatility and maintain financial stability will increase.

The sudden weakening of the financial security of businesses and households—particularly considering that the former are increasingly unable to make investment decisions, while the latter are significantly limiting consumption—poses a considerable challenge. The prospects for overcoming these negative economic developments and a subsequent rapid V-shaped recovery seem very distant today.

The growing uncertainty about future economic prospects, the new challenges for the economy and society, and the risks of a deteriorating situation compared to the preliminary “here and now” estimates over-complicate ‘flash’ quantitative measurements of current and expected economic development. Specifically, the complexity of measurements is affected by the indirect nature of the damage caused to the economy by the sharp contraction of business confidence, highly restricted targets and negative expectations. We expect such uncertainty, exacerbated by the sudden change for the worse, to continue for a long time, which will negatively affect aggregate demand. To more reliably assess the expected progress towards achieving the Sustainable Development Goals, especially under the new economic conditions, and to increase the effectiveness of the relevant statistical monitoring, we recommend focussing on information from business and consumers based on surveys of their opinions and expectations.

Based on a joint study of the cyclical dynamics of GDP growth and aggregate assessments of entrepreneurial behaviour, the key question this study addresses is to what extent the opinions of economic agents, as direct participants in industry events, can be used to analyse economic developments, especially in the context of the expected cyclical turning points and sudden impulses in sectoral development. The dynamics of national economic sentiment at the beginning of 2020 are considered as a separate case study on the short-term forecast of GDP growth.

We test the following hypothesis: short-term economic cycles are caused not only by shocks to the aggregated dynamics of economic events, but also by impulses that are generated in the business environment in response, with backward effects for the economic system, and affect the fluctuations of sectoral and macro indicators. Moreover, the opinions, intentions, expectations, uncertainty and confidence of entrepreneurs and consumers are considered as both outcomes of ongoing economic events and risk factors, the basis for making current and future economic decisions that affect real-time aggregate economic activity.

In addition to this theoretical hypothesis, there are practical considerations about the relevance of information on entrepreneurial impulses in cyclical analysis: the quality of statistical accounting, the coverage of the observed phenomena, the number and timing of information revisions, the lack of necessary data at different points in time and the possibility to replace or replenish missing data with relevant survey-based information (UN, 2015; UNECE, 2019; OECD, 2003, 2012; EC, 2019a). The problems of quantitative statistics are compounded when sudden shocks, challenges and new risks put pressure on the economy.

In the international economic community, survey-based information is perceived as viable nowcasts and predictive assessments in the analysis and forecasting of economic growth. In Russia, surveys of entrepreneurial and consumer sentiments have been conducted for over 20 years; this allows researchers to use long time series of diverse and high quality, so-called ‘soft’ statistics (Kitrar et al., 2020, 2015; Lipkind et al., 2019; UNIDO, 2017).

We recommend analysing the aggregate economic sentiments measured based on the results of sectoral business and consumer surveys (BCS) in the context of global market conditions, the main trends in domestic supply and demand, the directions of structural and institutional policies, and the challenges and risks that are relevant for a country. We believe that these factors have increasingly become not only a source of information in Russia but also main triggers of the economic behaviour, intentions and expectations of economic agents.

Over the past three years since the deep recession in Russia ended in 2016, global economic development has declined. A decrease in business activity has been observed against the background of a trade flow slowdown, an increase in global policy uncertainty and large fluctuations in oil prices. Since the beginning of 2019, extreme changes in oil prices have affected the national currencies of emerging markets. In the face of price tension, oil production in Russia directly depended on the terms of agreements on its volumes. In mid-2019, however, following an aggravation of geopolitical tensions in the Middle East and the announcement of OPEC and its partners on the extension of the agreement to limit oil production until March 2020, oil prices again increased substantially, which favourably affected all currencies in emerging economies, including Russia. Then, in mid-August, rising anticipation that global demand for oil would weaken and the escalation of trade tensions again led to a sharp deterioration in both price and currency conditions. The introduction of new ‘oil’ sanctions by the U.S. prohibiting the acquisition of Russian government bonds denominated in foreign currency by U.S. financial institutions also affected the Russian market.

In the first half of 2019, external risks for global economic growth and the development of emerging economies (including Russia) intensified. The escalation of tensions in trade and technology and a notable deterioration in the indicators of global risk appetite and vulnerability, largely because of low interest rates, disinflationary pressure and geopolitical tensions, represented the major negative shocks for trade and financial markets. These external factors undoubtedly influenced the expectations of Russian entrepreneurs (IMF, 2019).

Among the internal factors that have positively influenced the sentiments of Russian entrepreneurs in recent years were the positive sectoral events that led to a significant acceleration of GDP growth at the end of 2018, amounting to 2.5 per cent, the highest increase since 2013<sup>1</sup>. In addition to the one-off effect of completing the construction of energy facilities in the Tyumen region and holding the 2018 FIFA World Cup, positive net exports and an increase in domestic demand have become the main sources of growth in supply and demand. These events occurred against the backdrop of favourable oil prices and the growth of the global economy. Significant macro fiscal reserves, a low level of public debt, a flexible exchange rate, a budget surplus due to rising oil prices, a weakening of the ruble, improvements in tax administration, and a conservative budgetary policy limited the effects of volatility in foreign markets and mitigated the external challenges the Russian economy faced. Along with these factors, a decrease in inflationary pressures and risks was observed in the short term. Lending was not reduced, although the state

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<sup>1</sup> Source of information: Federal State Statistic Service, <https://www.gks.ru/accounts>.

continued to dominate the banking sector.

The beginning of 2019 was marked by a significant weakening of national economic growth. The factors causing the GDP growth rates to be below the potential values in the first half of 2019 were the negative effect of raising the VAT rate, achieving a budget balance within a minimum of ten years, a tight monetary policy, a decrease in demand for Russian exports, the impact of the OPEC+ agreement restricting oil production, and the pollution of the Druzhba pipeline (World Bank, 2019). The decline in the contribution of gross capital formation to GDP significantly limited economic growth. The quarterly growth rate of investments in 2019 was also lower than in the previous year. The contraction of investment activity was indirectly but noticeably affected by a slowdown in investment goods production and a simultaneous slowdown in the dynamics of investment goods imports. Weak consumer demand resulted in a decrease in the intensity of household spending on final consumption and a slowdown in the growth of retail trade and services. Annual growth in manufacturing output declined significantly, mainly due to a decrease in growth rates in investment demand sectors. The current account surplus diminished, which was largely attributable to reduced exports due to lower prices for the main export items. By contrast, the growth of non-oil revenues contributed to the emergence of a federal budget surplus. Consumer inflation declined. The key indicators credit risk and profitability generally did not change.

Until mid-2019, the economic slowdown was mainly driven by a decrease in demand in both domestic and global markets. At the same time, economic policy uncertainty intensified due to a potential escalation of trade tensions associated with falling oil prices and depreciation of the ruble by the middle of Q3 2019. The reduction in trade surplus caused by lower prices for Russia's main exports contributed to the decrease in the current account surplus. Despite the long stagnation of household incomes and, accordingly, constrained consumer demand, the consumer indicators—along with the expansion of investment demand, a slower reduction in inventories and an increase in government spending—were the main factors of GDP growth. In the second half of 2019, GDP growth accelerated and amounted to 1.3 per cent in 2019 compared to the previous year<sup>2</sup>, mainly due to the easing of monetary policy, the faster spending of state budget funds and the increasing technological effectiveness of exports. Among other factors, the recovery of industrial production, agriculture, construction and retail had the greatest impact on GDP growth (Bank of Russia, 2020).

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<sup>2</sup> Source of information: Federal State Statistic Service, <https://www.gks.ru/accounts>.

In recent years, national economic policy has focussed on stabilization, achieving inflation targets and protecting the exchange rate. After 2014, commodity price shocks, the subsequent “sanctions and counter-sanctions”, and extremely tight restrictions on borrowing in debt markets harmed the economy substantially. On the one hand, anti-crisis measures did not lead to a perceptible GDP growth that was sufficient to increase the population’s real disposable incomes and living standards, the recovery of domestic demand and investment activity. On the other hand, the measures contributed to the accumulation of over USD 570 billion in the national Reserve Fund by February 2020, i.e. extremely low public debt (not higher than 12 per cent of GDP), and the budget capacity to withstand low oil prices for a long period of time. In addition, the ongoing processes of industrial diversification significantly reduced the share of oil and gas in exports: from 70 per cent before the fall in oil prices in 2014 to 53 per cent by the beginning of 2020. These factors increased the economy’s preparedness for a potential sharp slowdown and its resilience to a global external economic downturn.

At the beginning of 2020, the Russian economy faced a new major challenge caused by a slump in external oil demand and a fall in oil prices to the lowest level in two decades. The recovering economy experienced a double shock from the energy sector and a reduction in domestic demand; the prospects for recovery of the latter are weakening due to low economic activity and a decline in household incomes. Therefore, we expect that in addition to a significant currency depreciation, an impending inflation surge, a notable decline in foreign exchange earnings, a downward trend in oil prices, and an unprecedentedly narrow demand for energy during the coronavirus epidemic, the national economy will inevitably be impacted by considerable shocks undermining weak GDP growth.

## **2 Business and consumer surveys as a measurement method and source of information**

### **2.1 Literature review**

The composite indicators of sentiment based on BCS results are widely used in international practice. These indicators, obtained by aggregating individual measures that reflect the perceptions or expectations of respondents, evaluate multidimensional phenomena, which are not covered by traditional statistics. Over the past decade, the composite sentiment indicators have increasingly been used in various areas of statistics, including business cycle analysis, measuring well-being, sentiments, confidence and expectations of businesses and households, as well as in international comparisons (UNECE, 2019).

The economic sentiment indicator (ESI), in particular, is widespread in European countries; ESI is calculated and published monthly by the European Commission (EC) at the country level, the European Union (EU) and the euro zone under the Joint Harmonized EU Programme of BCS. The economic rationale and the algorithm for its calculation are presented in the EC basic methodological recommendations (EC, 2019a). ESI is a coinciding composite indicator of business activity, as it changes synchronously with the dynamics of the reference statistic: GDP growth. ESI, which uses simple questionnaires and short data processing, is published much earlier than GDP, thus providing early signals of change in economic activity. Timeliness and a high synchronous correlation with reference statistics are the key advantages of ESI (UNECE, 2019; EC, 2019a; Kitrar et al., 2014, 2015).

A broad consensus exists on the coincident properties of BCS indicators; there is also evidence of their ability to predict the development of economic growth (Cesaroni, 2011). Recent studies have investigated the performance of survey-based composite indicators, including ESI, during recessions and crises at both the European and country levels. Biau and D'Elia (2011) find a change in the relationship between ESI and GDP growth in European countries before and after the 2009 crisis. Several studies examine the possible change in correlations between quantitative (hard) statistics and qualitative (soft) survey-based indicators after the European Great Recession of 2008-2012 (EC, 2016a; Gayer and Marc, 2018). The studies confirm the hypothesis of a level shift or 'new modesty', according to which the survey indicators rose to values that did not correspond to the post-crisis levels of the reference indicators (GDP growth, industrial production, etc.). This shift must be taken into account when interpreting survey results and formulating regression-based conclusions about economic activity.

Nonetheless, the BCS indicators are still an important tool in economic analyses and forecasting. European studies (EC, 2017) prove that the post-crisis ESI dynamics demonstrated an even higher correlation with annual GDP growth. Astolfi et al. (2016) confirm the leading nature of dated turning points based on OECD composite indicators compared to those based on national accounts during the Great Recession. Cesaroni and Iezzi (2017) note the high statistical ability of survey-based indicators to predict macroeconomic changes in the short term.

## 2.2 Methodology and data

All the results of BCS by HSE University<sup>3</sup>, which reflect the assessments, intentions and expectations of entrepreneurs in the context of the “economic growth – business confidence” model, are based on surveys conducted by the Federal State Statistics Service (Rosstat) over the past 20 years in all Russian regions and in six sectors of the economy. In 2019, a stratified sample of regular and pilot surveys covered more than 53 000 observations: 3 100 manufacturing and 500 mining industries (monthly), 6 000 construction companies (quarterly), 4 000 retail and 4 000 wholesale firms (quarterly), 6 000 services organizations (quarterly), and 5 000 consumers (quarterly). The annual survey of investment activity covers over 23 000 industrial enterprises. The annual pilot surveys collect data from around 1 000 industrial enterprises, 700 retail firm, 600 ICT firms and 1 000 investment-active industrial enterprises.

These surveys contain qualitative assessments and expectations: all respondents are asked about the current level, recent and expected changes in their business. The answers are aggregated in the form of balances, which are constructed as the difference between the percentages of positive and negative replies, that is, between an “increase” and “decrease” in the indicator compared to the previous period or the indicator level “above normal” and “below normal” in the surveyed period. The series of balances are used to build various composite indicators (EC, 2019a).

The key area of research related to the survey methodology is the development and regular publication of ESI, which summarizes all BCS results on entrepreneurial and consumer confidence in the current and expected economic situation. The high correlation between this sentiment indicator and the dynamics of GDP growth in Russia determines the practical significance of our study. In the context of the hypothesis of the “new modesty” of the current sluggish economic growth interrupted by sudden shocks, policymakers need all relevant short-term information to quickly respond to cyclical fluctuations in macro and sectoral development and to include this information in sets of big data to predict economic trends and create reliable projections.

BCS results are primarily used for the comprehensive measurement of entrepreneurial trends in various sectors of the economy. The survey methodology is based on generally accepted provisions presented in EU Guidelines (EC, 2019a), UN Guidelines (UN, 2015; UNECE, 2019) and on best European practices, taking into account the characteristics of the Russian economy.

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<sup>3</sup> Center for Business Tendency Studies of the Institute for Statistical Studies and Economics of Knowledge, Higher School of Economics.

The possibility of quantifying and aggregating respondents' opinions, comparability over time, filling in missing data, using an out-of-sample predictive assessment, user-friendly visualizations, and dissemination on online platforms are necessary criteria for the measuring short-term cyclical trends in the national economy. The unified programmes of sectoral surveys, the harmonization of samples, their stratification according to economic activities, compliance of sector classifications with international standards and recommendations, which facilitates cross-country comparisons, are necessary conditions for organizing observations. The design of sectoral samples and their coverage provide reliable and representative results for all indicators of economic sentiment.

In 2019, an updated ESI was developed, which is comparable with European counterparts, and integrates the opinions and expectations of 29 000 economic agents from all sectors of the economy and households. Currently, this is the only aggregated quantitative indicator of economic sentiment in Russia that covers a large number of sample populations of respondents and sectors of the economy.

For the ESI calculation, we use 18 indicators from regular BCS that adequately and promptly reflect the short-term cyclical fluctuations in entrepreneurial and consumer confidence in the Russian economy. These indicators include:

- The level of demand, expected changes in output and the level of stocks of finished goods in mining and manufacturing;
- The level of orders and expected changes in employment in construction;
- Current and expected changes in the economic situation of organizations and the level of stocks in retail and wholesale;
- Current and expected changes in demand for services and current changes in the economic situation of services organizations;
- Consumer confidence indicator.

Methodologically, the ESI consists of the harmonized set of components recommended by the European BCS programme, which was expanded by including three wholesale components and dividing industrial activities into mining and manufacturing. Because wholesale trade is a significant part of the Russian economy and its share reaches almost 9 per cent of total gross value added, the ESI expansion allows us to summarize the information on economic activities with a total contribution to GDP of up to 70 per cent. The breakdown of confidence indicators by type of industrial activity makes it possible to more accurately track short-term fluctuations in the dynamics of the combined information. The ESI calculation includes seasonal adjustments and

standardization of components; their weighting according to shares in GDP; and summing up the components and normalizing the result with an average value of 100 and a standard deviation of 10.

According to the rationale of the ESI construction, values of 100 or close to 100 identify a business environment that corresponds to unchanged and even uncertain economic situations of possible unstable growth and a subsequent reduction, or steady expansion. ESI values above 100 indicate a favourable business climate and the growth (even a boom) of entrepreneurial optimism; values of approximately 100 indicate a slowdown of positive trends and increasing confidence; and values significantly below 100 indicate an increase in recessionary events and gloomy sentiments.

The iterative procedure used to test the ESI dynamics for cyclical sensitivity and statistical significance in identifying the short-term cyclical movement of GDP growth is described in (Kitrar et al., 2014, 2015). The algorithm for the joint decomposition of these indicator dynamics allows us to extract unobservable long-term and short-term cyclical components with a smoothed amplitude. The empirical calculations are based on OECD recommendations (OECD, 2012; Nilsson and Gyomai, 2011). We determine that a double pass of the Hodrick-Prescott (HP) filter is suitable to apply the decomposition of Russian ESI dynamics if pessimism/optimism accumulated at certain time intervals interrupts the inherent stationarity of the time series. The first pass of the HP filter at low frequencies (with a parameter  $\lambda = 8330.69$ ) neutralizes the influence of a long-term trend (15 years), and the second pass (with a parameter  $\lambda = 6.885$ ) extracts a growth cycle, smoothing out fluctuations with an amplitude of 30 months. For stationary time series, only one pass of the HP filter at high frequencies is used. The calculation and the periods of smoothing have been established empirically in previous studies (Kitrar et al., 2014, 2015).

The statistical relationship between the ESI dynamics and the quantitative reference indicator (GDP growth) is confirmed using a two-dimensional vector autoregression model (VAR), where the behaviour of each variable depends on the past values of both the variable itself and other series included in the model (Mayr and Ulbricht, 2007). The initial time series were preliminarily tested for stationarity using the Augmented Dickey-Fuller test. The asymptotic p-values 0.0004 for GDP growth and 0.0001 for ESI allow for a rejection of the hypothesis of non-stationarity, which confirms the feasibility of VAR modelling. The optimal lag number is 2, based on the smallest values of the Akaike, Schwartz, and Hannan-Quinn information criteria (9.042, 9.331 and 9.158, respectively). The results of the VAR simulation are interpreted through impulse response functions (IRF), when a shock (equal to one standard deviation) that could have an effect

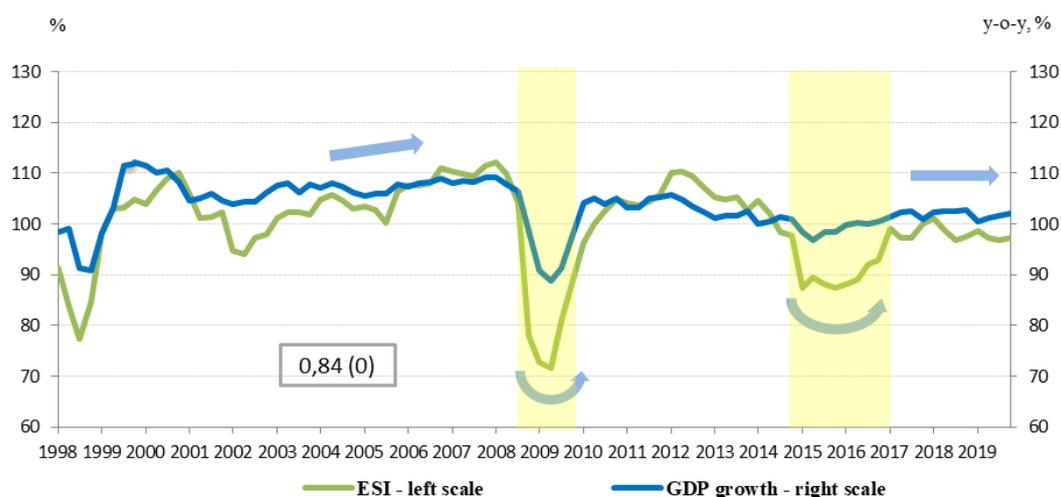
on the analysed variable dynamics has been artificially introduced in the dynamics of each variable on the right end of the studied interval. The use of IRF allows us to clarify the relationship between the series included in the model, to estimate the strength and direction of the shock, as well as the duration of the estimated series adjustment. Based on the VAR model, we perform short-term forecasting, which takes into account the retrospective relationship between two time series, and increases the efficiency and accuracy of the forecast.

### 3 Analysis and sectoral decomposition of the ESI and GDP growth dynamics

We observe the longest cyclic phase in the last decade of economic development in Russia since 2013, when economic growth clearly decelerated gradually and stagnation increased for the first time. After mid-2014, GDP began to fall, gradually entering a recession and intensifying the systemic crisis on a large scale. The lower turning point of the cyclical phase was overcome by mid-2015, followed by a long period of uneven sluggish slowdown and recession (UNIDO, 2017); a slow and fragile recovery eventually began in 2017, but only in the context of a “new modesty” of economic development.

At the beginning of 2019, the annual GDP growth rate decreased almost to the level of Q4 2017, and more optimistic estimates of its dynamics until the end of 2019 indicated a decrease in the impact of vulnerability factors. Figure 1 presents the joint movement of the ESI and GDP growth dynamics in 1998-2019.

**Figure 1 ESI and GDP growth dynamics**



*Note:* The marker indicates the coefficient of synchronous correlations between the ESI and GDP growth series.

*Source:* Rosstat, Center for Business Tendency Studies.

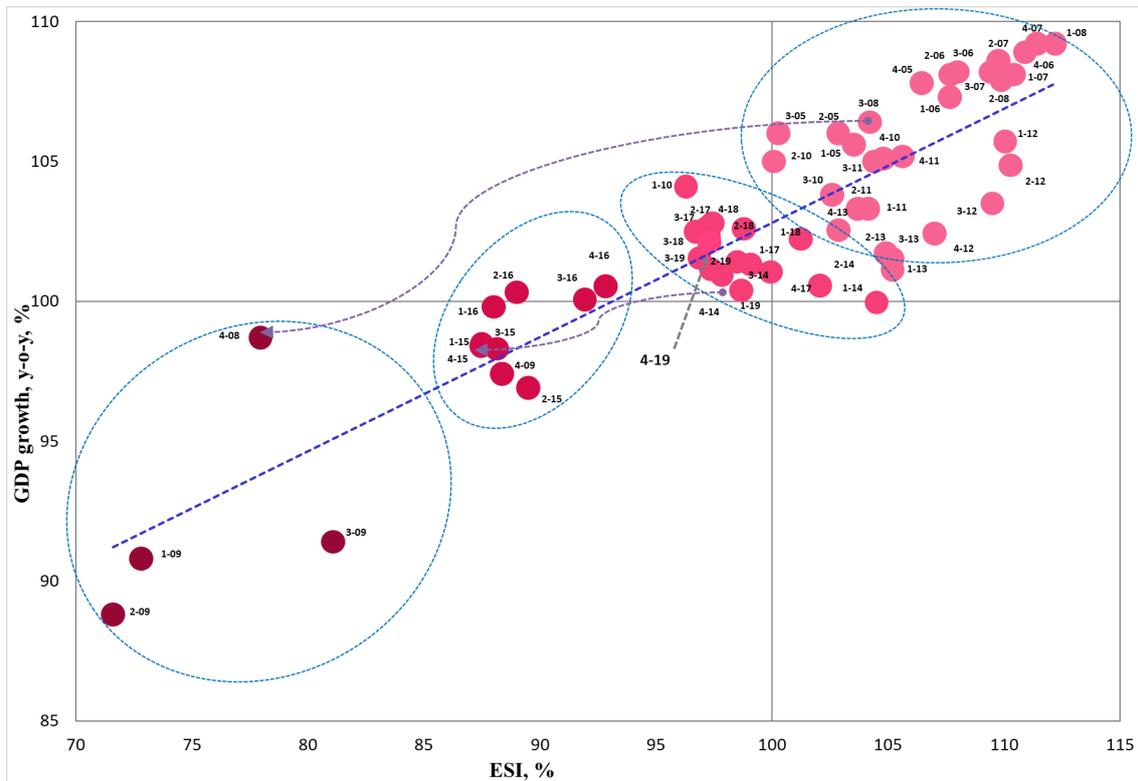
There were virtually no episodes of an easing of recession for a year and a half during the steady deterioration of economic sentiment since mid-2014. The high level of accumulated pessimism restrained the possibility of a positive reversal of the ESI; this indicator reached its minimum value of 85.9 per cent in Q1 2016. According to our estimates, this signal of the beginning of a decline in aggregate uncertainty came before the preliminary estimates of economic growth at the time. The positive trend intensified over the following quarters, but after a short peak, when the ESI increased to 99.9 per cent in Q4 2017, it was replaced again by a slowdown in growth within two quarters. We recorded the next ESI peak in Q1 2018, followed by synchronous fluctuations of all ESI components.

Large-scale changes in the ESI dynamics did not occur after the end of 2019. The uncertainty and low expectations, close to pessimism, have remained in the economy. Nevertheless, the adaptation of the national economy to the secondary effects of external challenges and internal shocks seems largely to have been caused by the consolidation of the activities of economic entities with the counter-recession measures introduced by regulators. This resulted in a more limited economic slowdown compared to previous recessions in Russia after 1998.

Given that the ESI calculation is almost two months ahead of the first quantitative assessment of GDP growth, and that the ESI and GDP growth time series show a stable synchronous correlation (0.84), it is feasible to use the ESI as an early estimate of possible changes in national economic growth.

A scatter graph illustrates the linear correspondence between the ESI and GDP growth (see Figure 2).

**Figure 2 Scatter chart of GDP growth and ESI in 2005-2019**



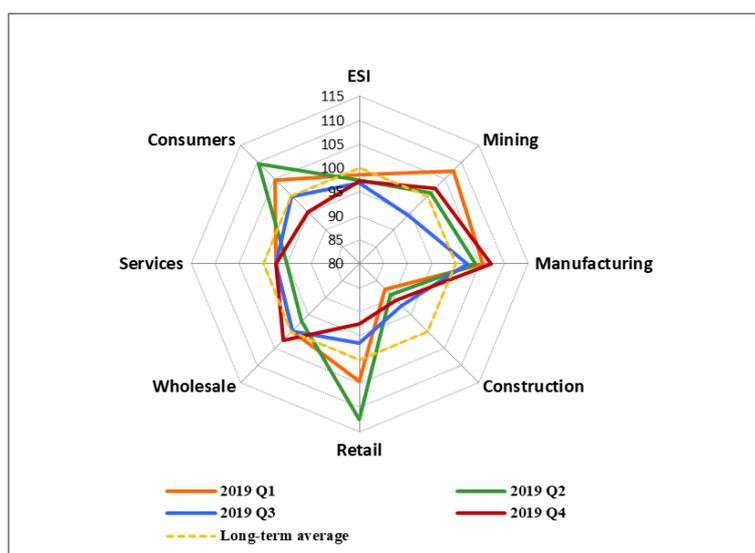
Source: Rosstat, authors' calculations.

Over the past 15 years, a pronounced long-term pattern in the dynamics of the two indicators has been observed: with an increase/decrease in ESI values, GDP changes in the same direction and (in most cases) more intensively. However, in different episodes of the cyclical development, the relationship between the levels of these time series differ. In the range of the highest values, which correspond to the periods of the most successful economic development, and especially during economic overheating, the ESI grows faster than GDP, and therefore, we can consider such fast-growing optimism as the most important trigger of GDP growth. Within the range of extremely low values, we observe an inverse dependence. A slowdown in overall economic growth leads to a more intense increase in pessimism. As economic development stabilizes, entrepreneurial opinions and intentions become more restrained compared to GDP growth rates; however, even a slight fluctuation in entrepreneurial confidence is a perceptible signal of an improving economic situation in the country. In recent years, after the recession of 2014-2016, the aggregate confidence expanded on a smaller scale relative to the intensity of GDP growth. Nevertheless, our main conclusion is consistent with the initial hypothesis: a favourable business environment and sufficient entrepreneurial confidence are necessary for successful and fast-growing economic development, while a turn towards weakening positive trends is highly likely to be accompanied by a faster deterioration of the business environment compared to the slowdown in GDP growth.

Thus, the empirical result obtained of the joint assessment of the two macro indicators shows that at the upper and lower turns of cyclical economic development, the ESI reacts more strongly and corresponds more clearly to upcoming economic events, while stabilization periods correspond to more restrained intentions of economic entities with the prevailing uncertainty of estimates.

Current trends in the annual ESI dynamics are determined by the potential and growth of its sectoral components – entrepreneurial and consumer confidence. We use so-called radar charts to analyse the quarterly deviations of each confidence indicator from its long-term average value; this simplifies a comparison of the impacts of sectoral confidence components on ESI (see Figure 3). All values are standardized in accordance with the EC recommendations (EC, 2016b); the long-term average level of all indicators for 2012-2019 is defined as 100.

**Figure 3 Radar charts of ESI and its sectoral components**

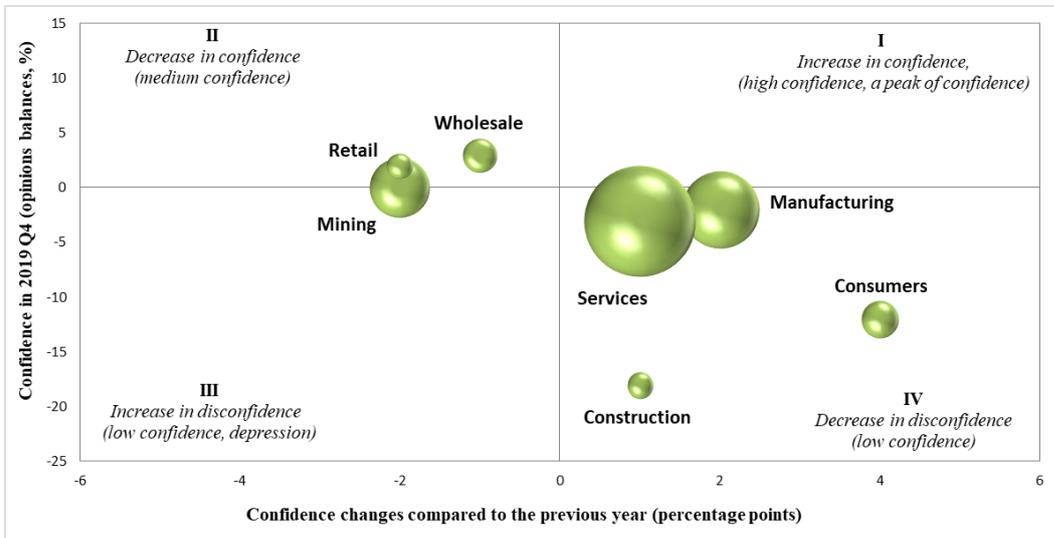


*Note:* Deviations from the radar centre shows an improvement in the confidence indicator (the larger, the more confident economic growth). Time series are normalized to 100 with a standard deviation of 10, the long-term average for 2012-2019 is defined as 100.

*Source:* Center for Business Tendency Studies, authors' calculations.

Figure 4 presents the ESI decomposition at a point in time according to the current level and annual growth of ESI components. The four quadrants of the chart characterize the direction of changes in sectoral confidence indicators, which are aggregated in ESI. The main hypothesis is that industries that not only have a high level of trust, but also expand more intensively, have significantly greater potential for entrepreneurial confidence. Other industries, even those with a high level confidence, but growing at a slower pace or stagnating, are defined as ‘catching up’ in terms of the development of aggregate optimism.

**Figure 4 The ESI decomposition: levels and annual growth of sectoral components/confidence indicators**



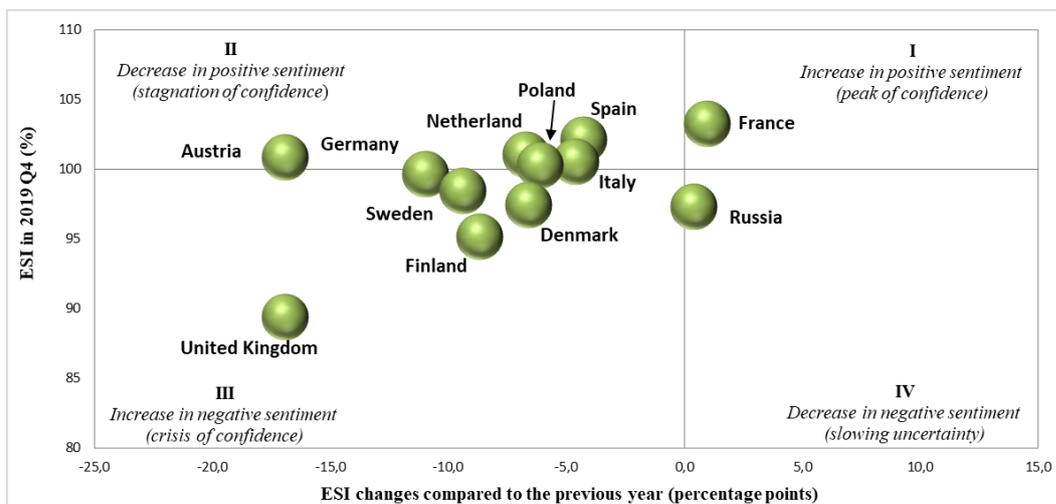
*Notes:* The highest values in quadrant I imply a boom, an increase in optimism; the lowest values in quadrant III denote a crisis sentiment. The shares of each sector in the ESI structure determine the bubble size.

*Source:* Center for Business Tendency Studies, authors' calculations.

Entrepreneurial confidence in mining, retail and, to a lesser extent, in wholesale generates, for the most part, the negative impulses for the annual change of the ESI. In construction, we observe a stagnation of confidence at a very low level. In the consumer sector, economic sentiment improves at the fastest pace, but confidence remains far from quadrant I because of its still low level. In manufacturing and services, indicators are close to the border with the cyclical phase of increasing confidence.

The results of a comparative analysis of economic sentiment in large European countries and Russia are presented in Figure 5, which shows the position of each country in a particular quadrant of ESI changes.

**Figure 5 Economic sentiment in large European countries and Russia**



*Note:* The highest values in quadrant I imply a boom, an increase in optimism; the lowest values in quadrant III denote a crisis sentiment.

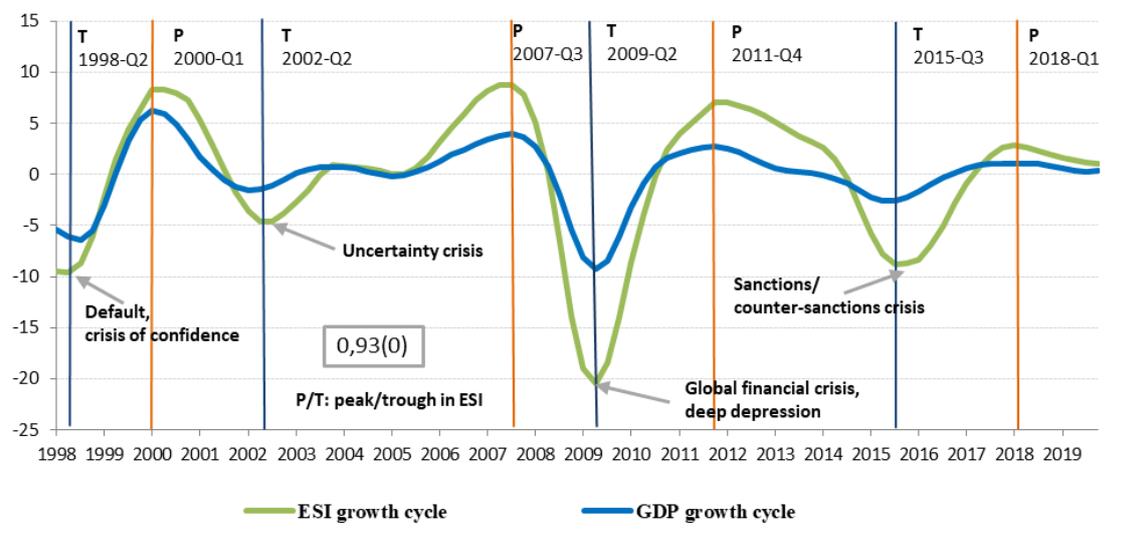
*Source:* European Commission, authors' calculations.

The period under review (i.e. before the outbreak of the coronavirus in Europe in early 2020) represents the gap between the estimates of economic sentiment in several countries and the agglomeration of these estimates in other European countries. The UK is in an extreme position both in terms of the scale of negative sentiments and of the growth rate; it is very close to falling into a recession. Russia and France clearly emerged from the crisis of confidence over the year; however, Russia still indicates low economic sentiment due to the lack of growth potential. Austria and, to a lesser extent, Germany are characterized by growing sluggishness which might evolved into a crisis of confidence in the longer term. Among the other countries, negative sentiments have clearly intensified in Sweden, Finland and Denmark.

#### 4 Joint cyclical testing of the ESI and GDP growth dynamics

Testing ESI dynamics for statistical sensitivity to short-term cycles in GDP growth is an important step in the study. The results of the time series decomposition—smoothed growth cycles in the dynamics of ESI and GDP growth in 1998-2019—are presented in Figure 6.

**Figure 6 Short-term cycles in the ESI and GDP growth dynamics**



*Note:* The marker indicates the coefficient of synchronous correlations between the ESI and GDP growth cycles.  
*Source:* Center for Business Tendency Studies, the HP filter double pass, authors' calculations.

According to the results of the joint graphical visualization and the cross-correlation analysis of the smoothed cyclical dynamics of ESI and GDP growth, a stable synchronous correlation of growth cycles is confirmed (0.94) in these time series. The turning points in the growth cycles identified through the Bry-Boshan procedure (Bry and Boschan, 1971) are almost identical.

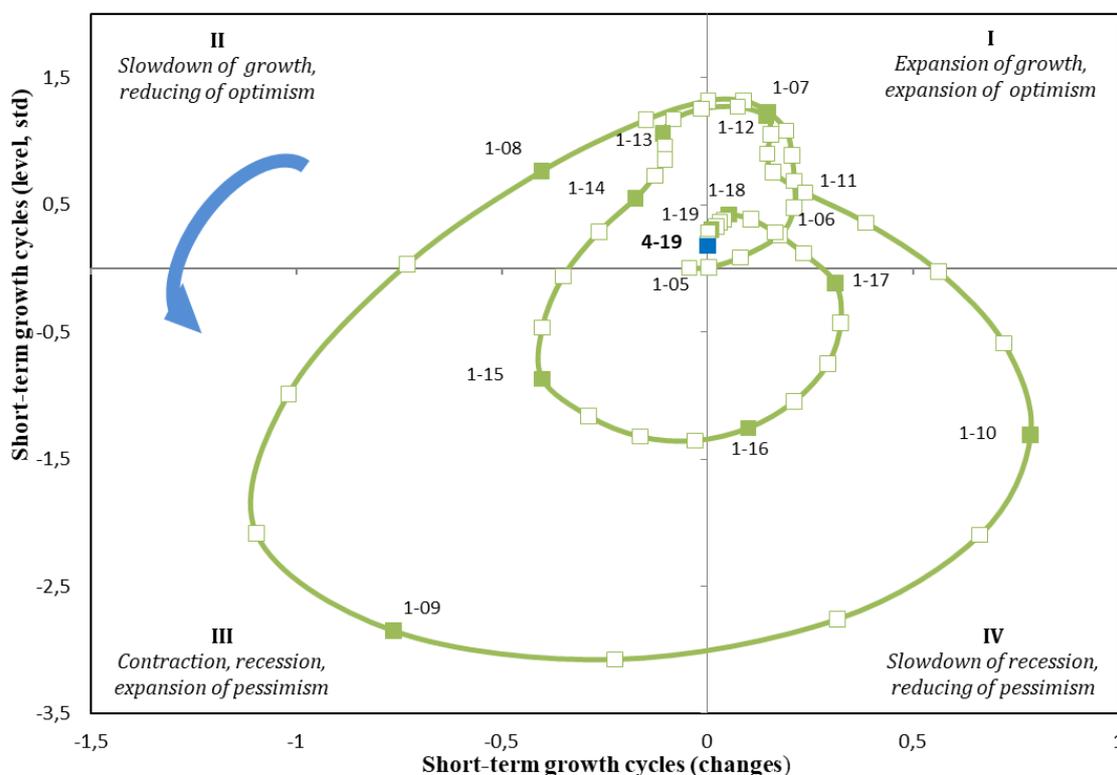
We have empirically identified the dominant three- and four-year growth cycles in the dynamics of the two indicators from the beginning of 1998 to the end of 2011. The last cycle began in 2012 after the period of economic overheating and the most optimistic sentiment of business entities. Because of a clear reversal to the stagnation phase, this cycle has become the longest in the history of the cyclical analysis of modern economic dynamics in Russia, and continues to this day. From mid-2014 to Q3 2015, the economy remained in a recessionary phase, and was characterized by crisis events and depressed economic sentiment; after passing the cyclical trough, there was a slowdown of the recession and a contraction of pessimism. The recovery phase of the growth cycle has strengthened since the end of 2017. However, for a final confirmation of signs of accelerated growth, we need additional empirical information because this new rise is too insignificant and unstable in terms of its potential and fluctuations.

Thus, the joint decomposition of the ESI and GDP growth time series with the extraction of statistically significant, mainly synchronous (smoothed with an amplitude of 30 months) growth cycles and the determination of cyclical turning points confirm the initial hypothesis on the nearly synchronous cyclical compliance of the analysed indicators. We believe that the ESI by its nature

has leading capabilities; the timeliness of its calculation allows it to be published much earlier compared to quantitative statistics on GDP growth. The hypothesis of all of our previous measurements is confirmed again: the aggregate assessments of entrepreneurial and consumer sentiments are effective and reliable as early warning signs on national economic growth due to their ability to correspond to all phases and turning points of real cyclical development.

The visualization of the cyclical movement of economic sentiments is achieved through a tracer that is based on the EC concept in terms of the diagram quadrants and the direction of the tracer movement (EC, 2019b; Gayer, 2008). However, unlike the EU approach, we construct the tracer after converting the ESI time series into a stationary form by filtering the influence of a medium-term 15-year cycle (trend), which corresponds at low frequencies to the accumulated optimism/pessimism of entrepreneurs and consumers. In the tracer, we use the residual of the unobservable dynamics after the second pass of the HP filter, smoothing the high frequency fluctuations with an amplitude of at least 30 months (Kitrar et al., 2014, 2015; Kitrar and Ostapkovich, 2013) (see Figure 7).

**Figure 7 Tracer of cyclic profile in the ESI dynamics in 2005-2019**



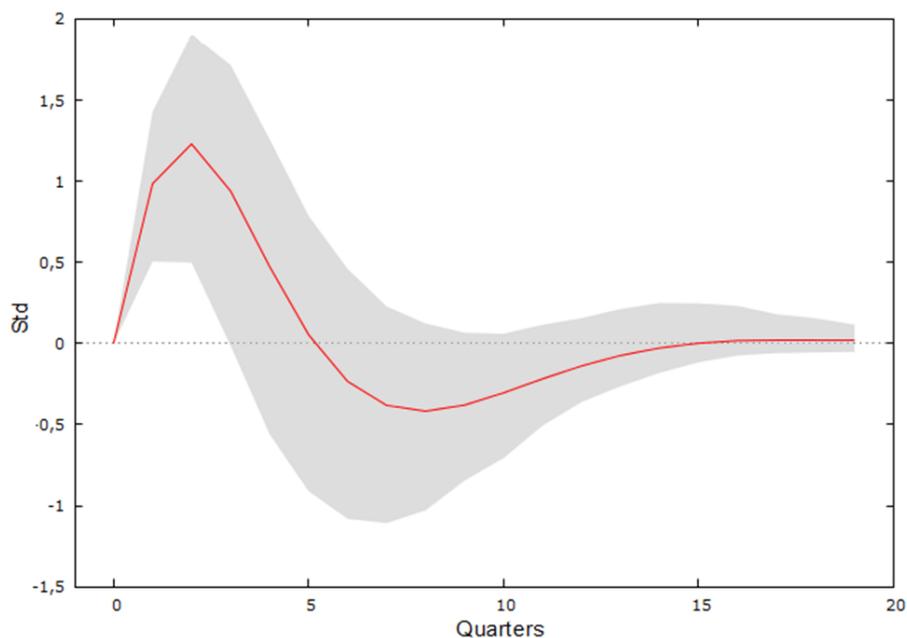
Source: Center for Business Tendency Studies, EC concept, the HP filter double pass, authors' calculations.

The tracer clearly illustrates all growth cycles in the ESI dynamics from Q1 2005 and the phase of extremely weak recovery in the last growth cycle, which began at the end of 2017. The contraction of optimism became apparent after the last cyclical peak in mid-2012, when the indicator entered a phase of growth slowdown. Since mid-2014, while recessionary events and the pre-crisis scenario in the national economy evolved, the ESI cyclical growth remained in a recessionary phase and increasing pessimism. The tracer passed a cyclical trough in the second half of 2015, when aggregate economic sentiments reached their lowest level over the past seven years. The transition of the tracer to the quadrant of slowdown in recession and contraction of pessimism in Q4 2015 reflected the beginning of the cyclical recovery in ESI growth. The phase of strengthening growth was recorded from Q4 2017 to Q4 2019; all tracer values are concentrated in the lower part of the first quadrant.

## **5 Forecasting GDP growth until the end of 2021**

A visualization of the results of the VAR simulation through IRF (see Figure 8) allows us to estimate the strength and direction of the impacts of an artificial shock (equal to one standard deviation) in the ESI series on GDP growth since 2012, and the duration of GDP growth adjustment to the shock. The results confirm a significant positive and unidirectional relationship between these two indicators and a non-linear pattern, when each upsurge (by one standard deviation) in the aggregate sentiment of economic agents (ESI) has more than twice the upward impact on economic growth (GDP), then slightly increasing over the next two quarters. Subsequently, the response of the reference indicator to the impulse in the survey indicator fades for at least five quarters, and the reference indicator gradually stabilizes at its initial level over eight consecutive quarters.

**Figure 8 Response of GDP growth to the impulse in ESI dynamics: the degree and direction of impact**

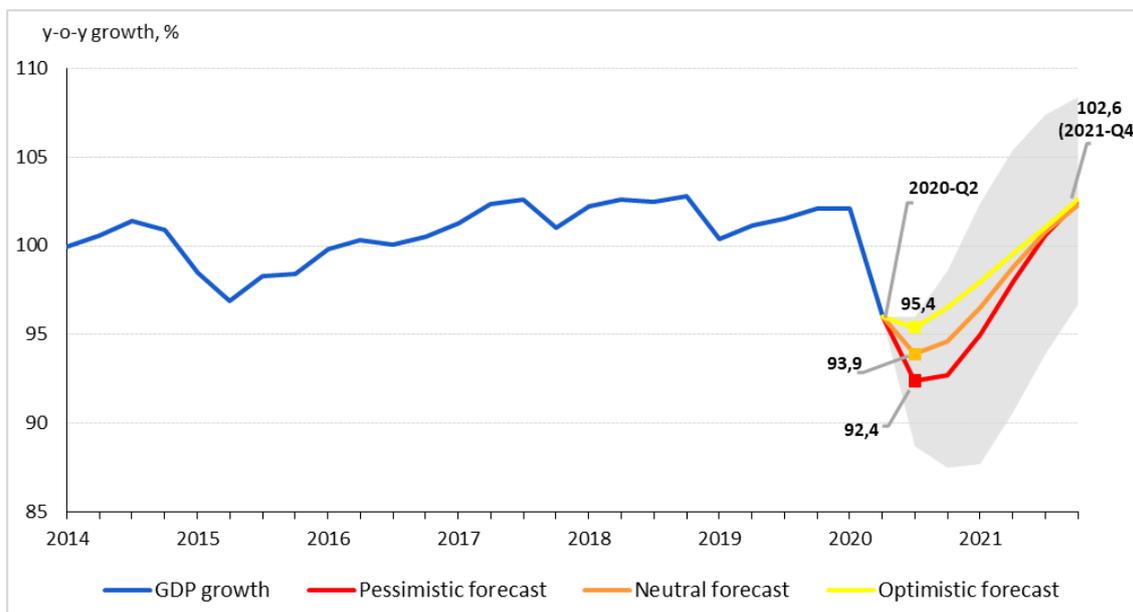


*Source:* Center for Business Tendency Studies, authors' calculations.

We use the revealed empirical pattern to forecast GDP growth as a response to the actual and potential impulses in the dynamics of economic sentiment in Russia. We calculated three scenario forecasts of GDP growth for the period up to the end of 2021, based on an expert-defined range of possible ESI values in Q2 2020, which sequentially deviate down from the long-term average value of this indicator's dynamics (100) by 0,5 standard deviation. The impulses we have introduced into the ESI dynamics are of a variant nature, depending on the strength and duration of the impact of new crisis shocks, which have been increasing since March 2020, on the aggregate economic sentiment. First of all, these shocks are related to measures to contain the coronavirus, the collapse of oil prices, and the expected depth of the corona crisis impact on various economic activities.

The first GDP scenario forecast (yellow line) is associated with a milder and optimistic version of a ESI decline by 5 points (0,5 standard deviation) in the Q2 2020 relative to its long-term average 100, or by 2 points relative to its value in Q1 2020, before coronavirus containment measures and a tremendous drop in oil prices. The second medium scenario forecast (orange line) is calculated based on ESI falling by 1 standard deviation (10 points relative to its the long-term average); the third, most pessimistic scenario (red line) is obtained after a shock of 1.5 standard deviations (15 points) relative to the long-term average was introduced into the dynamics of aggregate economic sentiment (see Figure 9).

**Figure 9 Forecasting GDP growth through a two-dimensional VAR model**



Sources: Rosstat, authors' calculations.

The forecast results, based on the obtained non-linear relationship between two series with the response of the estimated variable (GDP growth) to the given impulses in the ESI dynamics, and as a possible response of the business environment to new sectoral events in Q2 2020, indicate a clear reversal of sluggish GDP growth with a decreasing trend over the last two years. The rate of this decrease, caused initially by expert-defined impulses in the ESI dynamics, differs between the extreme forecast values of GDP growth by only three percentage points, and in Q3 2020, even with the most optimistic forecast, could reach the level below the trough of the last Russian “sanctions/counter-sanctions” crisis in 2015. Under the same scenario, without taking into account the aggravating effect of negative shocks on national economic growth, we expect GDP growth to recover to approximately the level of the end of 2019 in Q4 2021 only.

## 6 Conclusions

The main empirical results of this study allow us to make a conclusion on the sensitivity of Russian business confidence/sentiment indicators to GDP growth, their relevance for measuring sectoral drivers, business cycle phases, and the effectiveness of joint testing of business trends and economic dynamics in the context of achieving the goals of sustainable economic development in the country.

We focussed on evaluating the reliability of survey-based indicators in the analysis of short-term growth cycles. This made it possible to assess when and to what extent the collapse of confidence of economic agents becomes an important factor and a harbinger of changing cyclical phases in Russia, and the economic sentiment indicator becomes the most useful measure in the system of predictive assessments of economic dynamics. The joint decomposition of the ESI and GDP growth time series by extracting short-term growth cycles and identifying cyclical turning points confirms our hypothesis about an almost synchronous cyclical conformity of the analysed dynamics and the statistically significant predictive effectiveness of the composite survey-based indicator. Moreover, ESI is released much earlier than quantitative statistics on GDP growth.

The estimates of GDP up to the end of 2021 using a two-dimensional VAR model consider the expected impact of the new coronavirus crisis on the aggregate economic sentiment in Russia. The forecast shows the anticipated sharp decline in GDP dynamics in mid-2020, following the introduction of coronavirus containment measures and a tremendous drop in oil prices, similar to that of the global financial crisis of 2008-09, then a slow and unstable recovery in GDP growth by the end of 2021.

The results of collaborative monitoring by Rosstat and HSE University, summarizing the assessments of business and consumer sentiment in Russia over the past 23 years, provide accurate and reliable early warning signs on economic growth due to their high ability to reflect all phases and turning points of the cyclical development of the economy.

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Vienna International Centre · P.O. Box 300 9 · 1400 Vienna · Austria  
Tel.: (+43-1) 26026-0 · E-mail: [info@unido.org](mailto:info@unido.org)  
[www.unido.org](http://www.unido.org)