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СТРАТЕГИРОВАНИЕ:
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Original article

Strategic View: why Forecasters were Wrong on Russian Growth for 2022 and 2023, and why they probably will be for 2024

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Abstract: With the start of Western sanctions against Russia at the end of February 2022, numerous catastrophic forecasts have been made about the Russian economy by both Western and some Russian economic institutions. However, neither for 2022 nor for 2023 were these predictions vindicated. Multiple errors can be traced to both technical difficulties associated with making serious forecasts in a rapidly changing situation, the nature of model used, and ideological or political bias. Even some Russian institutions demonstrated forecasting errors. The massive economic growth that started in Russia in the second quarter of 2023 obviously surprises economists. One wonders if such a situation will repeat it 2024.
Keywords: economic growth, Russia, sanctions, forecasting, forecasting errors

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Стратегический взгляд: почему прогнозы экономического роста России на 2022 и 2023 гг. провалились и почему они, по всей вероятности, провалятся и в 2024 г.

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Аннотация: Когда в конце февраля 2022 г. на Россию обрушились санкции, западные и некоторые отечественные экономические институты стали прогнозировать различные катастрофы в отношении российской экономики. Однако ни в 2022 г., ни в 2023 г. эти прогнозы не оправдались. Причины ошибочного прогнозирования могут быть связаны как с техническими трудностями, связанными с невозможностью разработать надежный прогноз в условиях быстро меняющейся ситуации, так и с характером используемой модели, а также с идеологической или политической предвзятостью прогнозистов. Однако даже некоторые российские институты не были застрахованы от ошибок прогнозирования. В результате масштабный экономический рост, начавшийся в России во втором квартале 2023 г., стал для экономистов сюрпризом. Существует ли вероятность, что такая ситуация повторится в 2024 г.?

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Ключевые слова: экономический рост, Россия, санкции, прогнозирование, ошибки прогнозирования

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战略视角：为何对俄罗斯 2022 和 2023 年的经济增长预测都失败了，为什么 2024 年也很可能失败？

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摘要：2022 年 2 月底，当实施制裁打击俄罗斯时，西方和国内经济机构开始预测俄罗斯经济将面临各种灾难。然而，无论是 2022 年还是 2023 年，这些预测都没有成真。预测错误的原因可能与技术上的困难有关，即在瞬息万变的形势下无法做出可靠的预测，也可能与所使用模型的性质有关，还可能与预测者的意识形态或政治偏见有关。然而，即使是俄罗斯机构也无法避免预测失误。因此，俄罗斯在 2023 年第二季度开始的大规模经济增长让经济学家们感到意外。这种情况是否有可能在 2024 年再次发生？

关键词：经济增长、俄罗斯、制裁、预测、预测失误

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INTRODUCTION

Since the start of the Western sanctions against Russia at the end of February 2022, numerous catastrophic forecasts have been made about Russian economy. The effect of sanctions, or more accurately "measures of economic coercion" taken against Russia since the beginning of the conflict in Ukraine, has been the topic of much discussions[1,2,3,4]. Their effectiveness has been questioned[5]. As a matter of fact, the experience of the first sanction episode against Russia (2014–2017) was not conclusive, and obviously the same applies to the second one[6,7,8,9,10].

However, another problem then emerged. The "collective West" hoped that sanctions could lead to a massive failure of the Russian economy. The actual reality was quite different with Russia suffering a moderate recession in 2022 and enjoying a strong

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growth in 2023. This leads to a specific issue, which is quite disturbing for economists: what caused the growth forecasting errors made by both international economists and Russian institutions for 2022, 2023, and 2024?

RESULTS AND DISCUSSION

Errors made on 2022

The sanctions taken by the EU or the United States have been significant[11,12]. They were imitated or taken up in part by a number of countries like Canada, Japan, Australia, Taiwan, South Korea, and Singapore. However, they were not taken up by all countries. Whether in Asia, Africa, or Latin America, many countries refuse to apply them, some of them denouncing the war waged by Russia on Ukraine. This list includes China, India, and Malaysia, as well as Mexico, Brazil, countries of the Persian Gulf, countries of the BRICS or candidates for BRICS membership, and Turkey, a country yet a member of NATO. This significantly weakens the scope of the current sanctions. The Western attempt to "isolate" Russia, either diplomatically or economically, has been at best a qualified success and, more probably, a failure.

Doomsday predictions have then been made by many, and especially by a team led by J. Sonnefeld at Yale University[13]. Their reasoning, little or badly sourced, seems to owe a lot to ideology and propaganda. Professor J. Galbraith debunked most of those arguments[14,15]. Similarly, the study carried out at the French Treasury Department by Mrs. Bénassy-Quéré provided some answers but did not avoid the bias of ideology either[16]. An overview of these forecasting errors was made in a paper published late in 2022: a team of colleagues from the Institute of Economic Forecasting of the Russian Academy of Sciences, led by professor Dmitry Kuvalin, studied the large dispersion of initial estimates[17].

The World Bank then predicted a recession of –11.2% in April 2022, and again a recession of –8.9% in June (Table 1[18]). So did some Russian institutions, e.g., the Ministry of Economic Development (–7.8% in May), the Institute of Economic Forecasting of the Russian Academy of Sciences, and the Central Bank of Russia. This study showed that the resilience of the Russian economy was largely underestimatedas showed by the actual results in late 2022 with a recession of only –2.1%.

Table 1. Forecasts and estimates of Russia's growth under sanctions in 2022

Таблица 1. Прогнозы и оценки роста российской экономики в условиях санкций в 2022 году

	OECD	World Bank	Bloomberg	IMF (WEO)	Min. of Eco. Dev, RF	VEB.RF	Central Bank of Russia	Institute of Economic Forecasting – RAS	FSGS
Apr-22		11.20%	–9.50%	–8.50%					
May-22					–7.80%	–10.20%		–7.40%	

[11] Russia's war on Ukraine: A sanctions timeline [Internet]. [cited 2023 Dec 15]. Available from: https://www.piie.com/blogs/realtime-economics/russias-war-ukraine-sanctions-timeline

[12] Fact sheet: United States, G7 and EU impose severe and immediate costs on Russia [Internet]. [cited 2023 Dec 15]. Available from: https://www.whitehouse.gov/briefing-room/statements-releases/2022/04/06/fact-sheet-united-states-g7-and-eu-impose-severe-and-immediate-costs-on-russia

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[18] Right there.

Continuation of Table 1

	OECD	World Bank	Bloomberg	IMF (WEO)	Min. of Eco. Dev, RF	VEB.RF	Central Bank of Russia	Institute of Economic Forecasting – RAS	FSGS
Jun-22	–10%	–8.90%							
Jul-22							–6.00%		
Aug-22			–4.70%						
Sept-22	–5.50%				–2.90%	–3.70%	–4.20%	–3.10%	
Oct-22				–3.40%					
Nov-22						–3.10%			
Dec-22								–2.30%[19]	
Jan-23				–2.20%				–2.20%[20]	
Feb-23									
Mar-23								–2.10%	–2.10%[21]
Apr-23				–2.10%[22]					

Finally, another study tried to resort to alternative figures, based on the hypothesis that figures provided by the Russian Statistics Agency (ROSSTAT) are either no longer reliable or rigged[23]. This study was conducted by two researchers, A. Schmith and H. Sakhno, from the European Central Bank[24]. They used partial statistics on household consumption, some of which were collected by private Russian companies. However, these data are extremely fragile. Consumption figures depend on preferences for consumption and savings, i.e., preferences that were naturally modified by the new situation. In addition, the evolution of GDP was also affected by other parameters, in particular, with regard to industry. Finally, they did not take into account the hypothesis of a shift from household consumption centered on individual consumption to consumption centered on collective goods (transport, infrastructure, etc.). This highlights the fragility of the study. Then, another paper supported the estimates computed by the two researchers. This paper relied on satellite data which showed that environmental pollution kept decreasing in some Russian regions in 2022, inferring that it proved a massive industrial recession[25]. However, the information they published was much less convincing that it sounded. Chemical industry, one of the main culprits for air pollution, was down in Russia up to March 2023 as exports to EU countries went down. The decrease was –6.7% for the second quarter of 2022, –4.6% for the third quarter, and –5.9% for the fourth[26]. This would make for the decrease in pollution detected by satellites. Chemical production, e.g., resin, plastics, coking coal, refined products,

[19] Short-term analysis of GDP dynamics: December 2022 [Internet]. [cited 2023 Dec 15]. Available from: https://ecfor.ru/publication/kratkosrochnyj-analiz-dinamiki-vvp-dekabr-2022

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etc., and metallurgy have a much higher pollution-to-GDP ratio than the industrial average. A production decrease of around –5% is generating a much more noticeable global pollution decrease. These branches had a depressed production level for a large part of 2022 and recovered only after February 2023.

Estimates for 2023 were actually following the same path as if no lessons had been learnt (Table 2[27,28,29,30,31,32,33,34,35]). In a paper published in December 2022, a Carnegie analyst predicted between three to five years of recession for Russia but gave no hard facts to support this analysis[36]. Actually, Russia emerged from the sanction-induced depression in the second half of 2023. The IMF was predicting a modest growth of 0.7% before moving up its forecasts[37]. In late March, the IEF-RAS made a forecast of –0.7%[38]. However, it revised its figures considerably on May 30, when it forecasted a 2.4% growth[39].

Table 2. Forecasts evolution range in 2023

Таблица 2. Динамика прогнозов в 2023 г.

Forecasts made in 2023 for Russian growth in 2023									
2023	**BCS Financial Group**	**IMF**	**EU commission**	**OECD**	**World Bank**	**Min. of Eco Dev. (RF)**	**VEB.RF[I]**	**CEMI-CR451**	**IEF-RAS**
January									
February									
March									**–0.70%**
April		0.71%				1.20%	**0.80%**	**1.50%**[40]	
May			0.90						**1.00%**
June				–1.50%					
July		1.50%			–0.20%		**2.30%**	**3.00%***	**2.40%**
August	2.00%								**2.50%**
September						2.80%			
October		2.25%	2.00%				**2.90%**		

[27] Russia's war economy expands more than forecast despite sanctions [Internet]. [cited 2023 Dec 16]. Available from: https://www.bloomberg.com/news/articles/2023-08-11/russia-s-war-economy-is-on-course-to-recover-from-sanctions-hit

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[29] The global recovery is slowing amid widening divergences among economic sectors and regions [Internet]. [cited 2023 Dec 16]. Available from: https://www.imf.org/en/Publications/WEO/Issues/2023/07/10/world-economic-outlook-update-july-2023

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[32] Forecast for other non-EU countries [Internet]. [cited 2023 Dec 16]. Available from: https://economy-finance.ec.europa.eu/economic-forecast-and-surveys/economic-forecasts/autumn-2023-economic-forecast-modest-recovery-ahead-after-challenging-year_en#forecast-for-other-non-eu-countries

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[37] Download WEO data...

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Continuation of Table 2

2023	BCS Financial Group	IMF	EU commission	OECD	World Bank	Min. of Eco Dev. (RF)	VEB.RF[I]	CEMI-CR451	IEF-RAS
November				1.30%		3.50%	**3.40%**	**3.30%****	
December								**3.60%*****	**3.70%**
Forecasts made in 2023 for Russian growth in 2024									
2023		**IMF**	**EU commission**	**OECD**	**Min. of Eco Dev. (RF)**		**VEB.RF[I]**	**CEMI-CR451**	**IPE-RAS**
January									
February									
March									**1.60%**
April		1.30%					**2.20%**		
May									**1.40%**
June				–0.40%					
July		1.30%					**1.90%**		
August									**2.30%**
September									
October		1.05%					**1.60%**		
November			1.60%	1.06%	**2.30%**		**1.60/1.80%**		
December								**2.40%******	**2.00%**

[I] VEB, Institute of Research and Expertise

*Average 2.5–3.5%, with 90% probability; **Average on 3.0–3.6%, 95% probability; ***Average on 3.4–3.8%, 95% probability; ****Average on 1.7–3.1%, 90% probability

By the summer, its forecasts were over 3.0%, and it ended the year of 2023 by predicting a growth of over 3.5%. The Ministry of Economic Development first published a forecast of 1.2%, which was more than the IMF predicted, followed by 2.8% in September and 3.5% in November[41]. The Central Bank of Russia was more conservative in predicting around 1.0% by April 2023 and then moved up its forecasts by 2.2% in July and 2.8% in October[42,43]. The VEB Research Institute of the Bank for Foreign Economic Activities (Vnesheconombank) went from 0.8% in April to 3.4% in November 2023[44]. On the other hand, the Russian scholar Oleg Bakun estimated that the Federal State Statistics Service (FSGS) provisional data were too conservative and gave estimates for 2023 at over 3.0%[45,46].

The spread of estimates for 2023 was then quite open. Nevertheless, it is clear that Russia's economy

[41] Russia raises 2023 GDP growth forecast, longer-term outlook worsens [Internet]. [cited 2023 Dec 16]. Available from: https://www.reuters.com/markets/europe/russian-economy-ministry-improves-2023-gdp-growth-forecast-2023-04-14

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was growing fast in 2023[47]. However, much of this growth took place in the last three quarters and obviously surprised Russian forecasters. Forecasters from Western international economic institutions were wrong about Russia's economic growth in 2023 – more or less the same way as they had been about 2022. They systematically underestimated the dynamics of the Russian economy (Table 2). This persistence of errors, and frequently serious ones, raises several questions. Nevertheless, the causes of mistakes in growth forecasting seem to be different for Russians and Westerners.

What were the main causes of growth forecast errors?

Some forecasting mistakes were certainly technical. The models used seemed uncapable of integrating sudden changes in trajectory or new econometric relationships between production, investment, and internal demand. This is particularly the case for DSGE (Dynamic Stochastic General Equilibrium) models, frequently used by international institutions and Central Banks[48,49,50]. These models are quite systematically used for forecasting growth[51]. Still, they are based on heavy microeconomic assumptions[52]. Agents have behavior patterns they cannot change[53]. However, all the microeconomic surveys carried out in Russia in 2022 demo nstrated that agents actually did change their behavior and that companies were maximizing production volumes in hope of gaining market share as a condition for future profit maximization. The use of DSGE models then proved to be an obstacle in taking into account the shift in trajectory, and particularly of the Russian economy, but also changes in economic policy[54,55].

However, technical problems cannot explain everything. Ideology certainly had an impact. It could be traced to the following disbelief, whether temporary or lasting: Western economists almost openly hold the Russian government incapable of initiative or innovative thinking.

These errors can therefore be due to ideological causes[56]. Many ideological assumptions, e.g., "Russians cannot run their economy without us Westerners" or "The corrupt Russian government can neither adapt nor react to sanctions", are widespread in western countries and specifically in the EU administration[57,58,59]. The speech made by the French Minister of the Economy, Mr. Bruno Le Maire, on March 1, 2022, about the forthcoming "collapse" of the Russian

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[58] This is obviously the case for the so-called "Yale" paper which is grounded on just these assumptions. Sonnefeld J, Tian S, Sokolowski F, Wyreblowski M, Kasprowicz M. Business retreats and sanctions...

[59] Available from: https://cepr.org/voxeu/columns/recession-russia-deepens-evidence-alternative-tracker-domestic-economic-activity

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economy obviously belonged to such assumptions[60]. The continuity of this ideology can be found in several declarations made by the US and other Western officials in 2023[61,62].

However, these "errors" could have a political cause, too, in relation to the conflict in Ukraine. They were intended to diffuse a representation of Russian weakness in order to convince Western public that the war would be easy to win, maybe, just by economic coercion, and that no hard sacrifice would be needed to support Ukraine[63]. Thus, when the OECD and the World Bank maintained their negative forecasts for 2023 as late as in June and July 2023 (Table 2), while the data on Russian economic growth had been accumulating since March-April 2023, we are right to ask ourselves which of these errors were technical and which were caused by an ideological or/and political bias.

Conversely, the IMF was characterized by a certain neutrality, which allowed its forecasts, with three revisions, to approach the actual growth results. Of course, the IMF changed its forecasts quiteslowly. But it is to be remembered that the July revisions incorporated at best the figures published in June 2023 and even, most probably, only those from May. Likewise, the publication of data for the month of October was most likely representative of the data available for August. The Moscow Institute for Economic Forecasting announced a yearly growth of 2.5% in August 2023, which made the IMF's October forecast (2.25%) entirely realistic or at least not much worse than the Russian estimates. The relative slowness of the process of publishing growth forecasts at the IMF was due, on the one hand, to the scale of the data processed and, on the other hand, to the verification procedures, both technical and political, which necessarily take time. As in 2022, the IMF was characterized within Western economic institutions by the quality of its technical work, which was relatively little influenced by ideological or political issues.

Some Russian errors, too…

Problems concerning the nature of forecasting models also explain why some Russian forecasters were also initially wrong (Tables 3[64] and 4), although to a much lesser extent than Western ones and with a much more rapid reaction during 2023 for the IEF.

Table 3. Forecasts made by the Central Bank of the Russian Federation and the IEF-RAS

Таблица 3. Прогнозы Центробанка РФ и Института экономического прогнозирования РАН

Date	Feb-23	Mar-23	Apr-23	Jun-23	Jul-23	Sept-23	Oct-23	Dec-23
CBR – Max. forecast	0.4%	0.8%	1.0%	1.9%	2.5%	3.1%	3.0%	3.6%
CBR – Min. forecast	–6.5%	–5.0%	–2.5%	–1.5%	0.7%	1.2%	1.5%	2.0%
CBR – Forecast with probability of 90%	**–0.4%**	**0.3%**	**0.8%**	**1.5%**	**2.2%**	**2.7%**	**2.8%**	**3.4%**
IEF-RAS (KAD-VVP)	–1.70%	–0.40%	0.30%[65]		3.10%	3.60%	3.60%	3.70%[66]

KAD-VVP : Short-term analysis of GDP dynamics

[60] Bruno Le Maire: "Nous allons provoquer l'effondrement de l'économie russe" [Internet]. [cited 2023 Dec 18]. Available from: https://www.bfmtv.com/economie/economie-social/bruno-le-maire-nous-allons-provoquer-l-effondrement-de-l-economie-russe_AN-202203010131.html

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Table 4. Time evolution of IEF-RAS forecasts
Таблица 4. Динамика прогнозов Института экономического прогнозирования РАН

Forecast for / Made in	Q1 – 2023	Q2 – 2023	Q3 – 2023	Q4 – 2023	2023	2024
KAD-VVP, 17/02/2023	–4.00%	–1.70%	–0.70%		–1.70%	
KP-VVP n°57, 9/03/2023[67]					–0.70%	1.60%
KAD-VVP, 20/03/2023	–2.60%	–0.40%	0.50%		–0.40%	
KAD-VVP, 11/04/2023[68]	–2.00%	0.30%	1.30%	1.30%	0.30%	
KAD-VVP, 19/05/2023		3.10%	3.90%	4.00%	2.40%	
KP-VVP n°58, 26/05/2023[69]					1.00%	1.40%
KAD-VVP, 17/07/2023		3.30%	3.80%	3.70%	2.30%	
KAD-VVP, 24/07/2023		4.10%	4.60%	4.90%	3.10%	
KAD-VVP, 17/08/2023[70]			5.40%	6.00%	3.80%	
KP-VVP n°59, 28/08/2023[71]					2.50%	2.30%
KAD-VVP, 20/09/2023			5.10%	5.70%	3.60%	
KAD-VVP, 19/10/2023			5.10%	5.60%	3.60%	
KAD-VVP, 17/11/2023				5.90%	3.80%	
KP-VVP n°60, 06/12/2023[72]					3.30%	2.00%
KAD-VVP, 11/12/2023[73]				5.80%	3.70%	
Results (ROSSTAT)	**–1.80%**	**4.90%**	**5.50%**			

KP-VVP: Quarterly GDP forecast; KAD-VVP: Short-term analysis of GDP dynamics

Indicated dates are the one of the issuing process, and not of publication

Two observations should immediately be made regarding the forecasts published by the Central Bank of the Russian Federation. First of all, the variation interval was quite considerable at the start of the period with 690 points in February 2023, followed by 580 points in March, before falling to 350 points in April and June and reaching around 150 points in October 2023. If at the very beginning of the year a large variation interval is not exceptional (usually coupled with a low probability range), it is still infrequent to be of such size. Remember that 680 points are far over an interval going from –2.1% (the actual results for 2022) to +2.5%. This indicates, at the very least, the instability in the model used by the Central Bank, which appears to have been inspired by the DSGE models, but also, most likely, an internal conflict within the forecasting team.

The data from the Institute of Economic Forecasting of the Russian Academy of Sciences (IEF-EAS) showed another problem. This institute used a different model, with no less than 2000 variables and 200 equations[74]. This model was based on a sequential

[67] Quarterly GDP forecast. Issue № 57 [Internet]. [cited 2023 Dec 20]. Available from: https://ecfor.ru/publication/kvartalnyj-prognoz-vvp-vypusk-57
[68] Short-term analysis of GDP dynamics: April 2023...
[69] Quarterly GDP forecast. Issue № 58 [Internet]. [cited 2023 Dec 20]. Available from: https://ecfor.ru/publication/kvartalnyj-prognoz-vvp-vypusk-58
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iterative calculation of forecast indicators of economic dynamics in increments of one quarter[75]. The calculation of the dynamics of macroeconomic indicators is carried out in the logic of demand: population, business, and the state.

Demand is formed depending on the income level, as well as the structure and volume of savings of economic entities. According to the estimates of the team running the model, sanctions could be compared to a massive and exogeneous macroeconomic shock, something quite similar (in principle) to the COVID-19 crisis[76,77]. The crisis features induced by the sanctions were, for the period of negative GDP dynamics, associated both with restrictions on the supply of imported products and decisions of unfriendly countries to abandon Russian energy carriers and raw materials. In such conditions, a certain period of adaptation of the Russian economy to the changes in the structure of production, income, and prices was to be required.

We understand, too, following the long-standing cooperation with colleagues of the IEF-RAS, that the Institute's researchers were wary of any optimism that would not have been really founded. Overoptimistic views are quite severely castigated among Russian economists, and for perfectly understandable reasons. This could introduce a downward bias in forecasts in Russia. If we turn to French institutions like the INSEE (National Institute for Statistics and Economic Studies) or the REXECODE (Research Center for the Expansion of the Economy and Business Development), we will find the same cautious approach, as well as some significant errors in their forecasts[78]. The INSEE is not afraid to make corrections in its forecasts and even estimates[79,80]. It is not infrequent to have results for a given quarter with changes between estimates and definitive figures by at least 50 points. The main errors in the INSEE model were those affecting the calculation of fiscal income elasticity to the economic situation[81]. On the other hand, the INSEE is much less optimistic than the Banque de France forecasts department, which, quite frequently, is making optimistic forecasts. It is clear that the IEF-RAS uses a complex model whose designers were well aware that it was potentially sensitive to significant, large-scale exogenous shocks, such as sanctions. Alexander Shirov, who led the team in charge of the model, admitted openly at the June 2022 session of French-Russian seminar that underestimating imports volume had led to a strong downward bias in the initial forecasts. For 2023, it was underestimating private investment and the amount of private consumption that again made initial forecasts largely underestimate Russian economic growth. But, to the credit of the IEF-RAS, one has to add that when the actual figures for both investment and consumption became known, the results improved quite quickly. The forecasts made by the IEF-RAS thus kept improving from the end of spring 2023 onwards, and the general trend of the Russian economy was well described by the forecasts made after May 2023.

What were the alternatives?

Problems encountered by some Russian forecasters underline both the methodological frailty of some models (like the DGSE-inspired ones) and some spe-

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cific difficulties in running a complex model in times of dramatic changes[82]. Household behavior can change rapidly, and so can enterprises when they see a new market opening. Assumptions like the stability of microeconomic behavior are one of the main defects of "classical" models[83]. Even if we could add a specification about behavior changes, the time needed to recompute a complex relation would doom the model when the rapid changes came. Actually, when the economy is quickly shifting from a given situation to another one, complex models like those used in large economic institutions are probably irrelevant.

By the way, there is another factor that has been pushing, for some time, "classical" models towards irrelevancy. It could be suspected, as early as in June 2022, that the Russian economy was much more constrained by supply than by demand[84,85]. Actually, we have seen such a situation develop in Western economies after the COVID-19 crisis. The fact that consumption has been restrained by lockdowns and that supply chains were disorganized by the pandemics created a situation where instant supply became more important than demand to control economies. Combined effects of Western sanctions and military operations in Ukraine created such a situation for the Russian economy. But, if supply was more important than demand to understand economic dynamics, it had extremely important consequences for modelling growth. These factors have pushed the CEMI-CR451 to develop a much simpler forecasting model in an attempt to overcome difficulties encountered by much more complex ones.

This relatively simple model was based on the significantly reduced numbers of relations between usable labor force and labor productivity, as well as on the impact of investments on it and production. This model has proved more robust, at least until the Russian economy settles again into a stable trajectory (where a more complex model is definitely superior) and again becomes an economy constrained by demand and not by supply. The low relevancy of classical demand factors could be deduced from the specific situation the Russian economy has faced since the end of spring 2022. Import-substitution mechanisms, demand for military hardware, and the fact that households refrained their demand for some time before increasing dramatically the way it was in France during the COVID-19 crisis – all these factors had 18 months to build up in a situation where supply was the most important factor constraining the economy. It could then be quite easily deduced, from some assumptions of the actual workforce and labor productivity, what the growth would be.

This would explain why the simple model used by the CEMI-CR451 proved apparently so effective. As early as in July 2023, the model forecasted a growth rate of 3.0% (with a variation interval of 100 points compared to 180 points for the BCR model), before settling on 3.3% (with an interval of 60 points in November), then on 3.6% (with an interval of 40 points) in December 2023. Likewise, the CEMI-CR451 forecast of December 2023 of growth for 2024 is 2.4% (with an interval of 140 points) while that of the Central Bank of Russia is 1.7% (with an interval of 150 points), while the forecast given by the IEF-ASR is 2.0%. Remember that the current forecasts from Western economic institutions are of the order of 1.0%.

The model used by the CEMI-CR451 was then effective but not fool-proof. Actually, the model severely underestimated the growth during the first quarter of 2023. It has to be explained what the reason were and why.

A real surprise

There is no dispute that colleagues from the IEF-ASR and the CEMI-451 were surprised by the events

[82] Galí J. Monetary policy, inflation, and the business cycle: An introduction to the new Keynesian framework. Princeton: Princeton University Press; 2008. 216 p.

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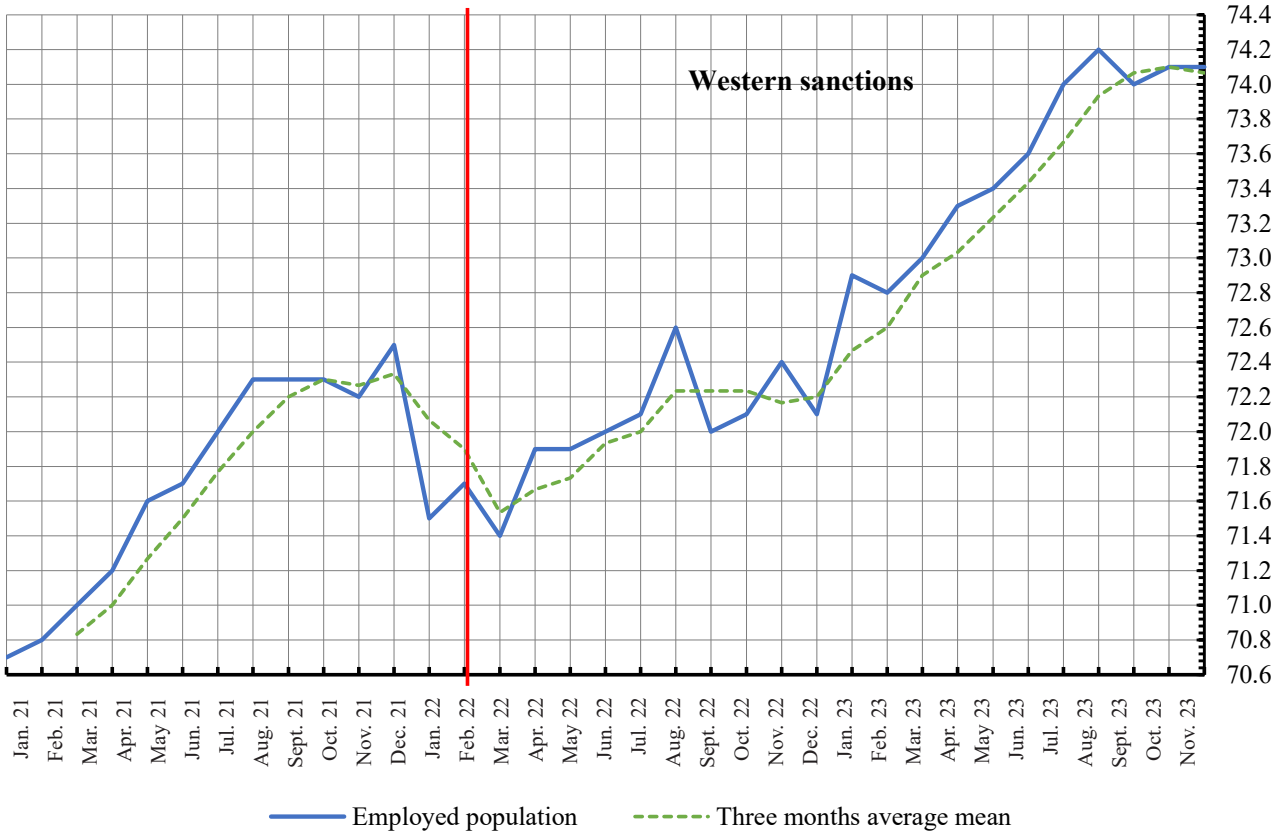

Fig. 1. Employed population (millions)

Рис. 1. Работающее население РФ, млн чел.

that took place between February and April 2023. The same can be said for the VEB research institute. If the CEMI-CR541 and our colleagues in the IEF-ASR were expecting by the winter of 2022–2023 that Russian economy would return to growth in 2023, it was forecasted that such an event would happen in the third or even the fourth quarter of 2023. The discussions held at the November 2022 session of the French-Russian seminar proved that. We were then all surprised by the strength of this recovery and by the fact that it appeared so early, at least a quarter in advance (for the most optimistic of us), and, maybe, even two. One could think in hindsight that we all underestimated the dynamics of an economy no more constrained by demand, as well as the adjustment capabilities of Russian enterprises. It is also quite probable that the cumulative effects of investments were underestimated. In the case of the CEMI-CR451, this surprise was related to two factors:

– The growth in the employed population: it increased by 2 million in the first 10 months of 2023 when only 1 million was expected – at least, by the CEMI-CR451. Alexander Shirov said at the June 2022 session of the French-Russian seminar that sanctions would make it mandatory for Russia to increase the number of people employed. However, we clearly underestimated the total number;
– The speed with which the labor productivity returned to its level of the end of 2021 and the very beginning of 2022 after a fall of –5% in the second and third quarters of 2022. This was a very positive surprise, but one that made our forecasts to be on the pessimistic side.

Figure 1[86] shows that the increase in employed population had two distinct phases. From March to

[86] Compiled according to Rosstat data.

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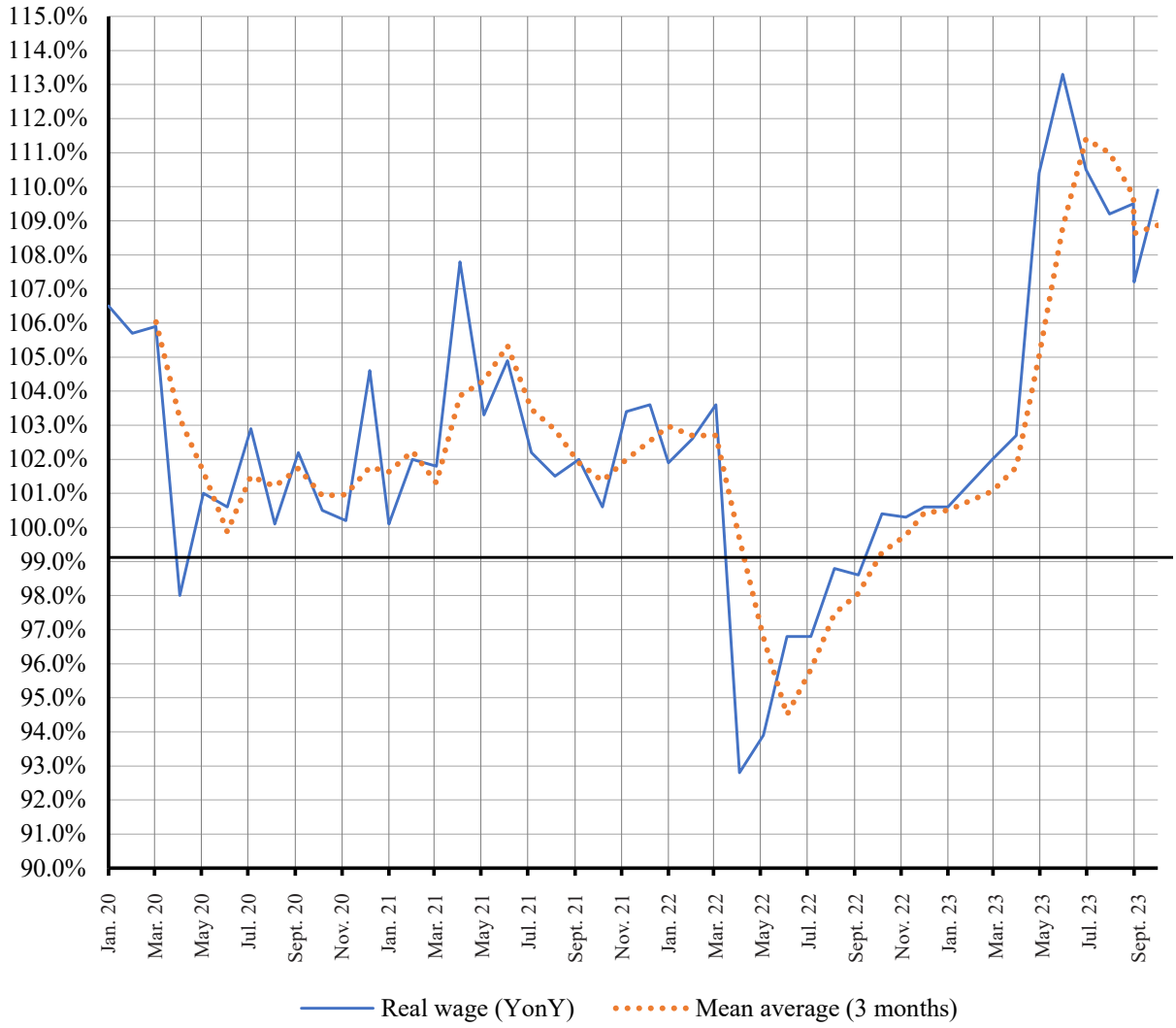

Fig. 2. Real wages

Рис. 2. Реальные доходы населения РФ

December 2022, it just recovered its December 2021 level. However, the increase that started in December 2022 was really spectacular and lasted till August 2023. The employed population growth was of 2.1 million in 8 months or 2.8%. It was expected that the employed population would grow, but certainly not in such proportions. The Russian economy had largely recovered from the COVID crisis by the beginning of 2022. As a result, this huge employed population growth came as a surprise.

This, of course, had a direct impact on the growth of real wages (Fig. 2[87]). The real wages decreased from April 2022 to October 2022 as a consequence of sanctions induced by the high inflation in the second and third quarters of 2022. The situation then improved with a sharp decrease in inflation and a strong push on nominal wages. However, the situation changed dramatically after April 2023 as the labor force reserves were probably exhausted. This was a consequence of the very strong increase in employed population we saw since December 2022.

The activity rate reached unprecedented levels, and the relation between the growth rate of real

[87] Compiled according to Rosstat data.

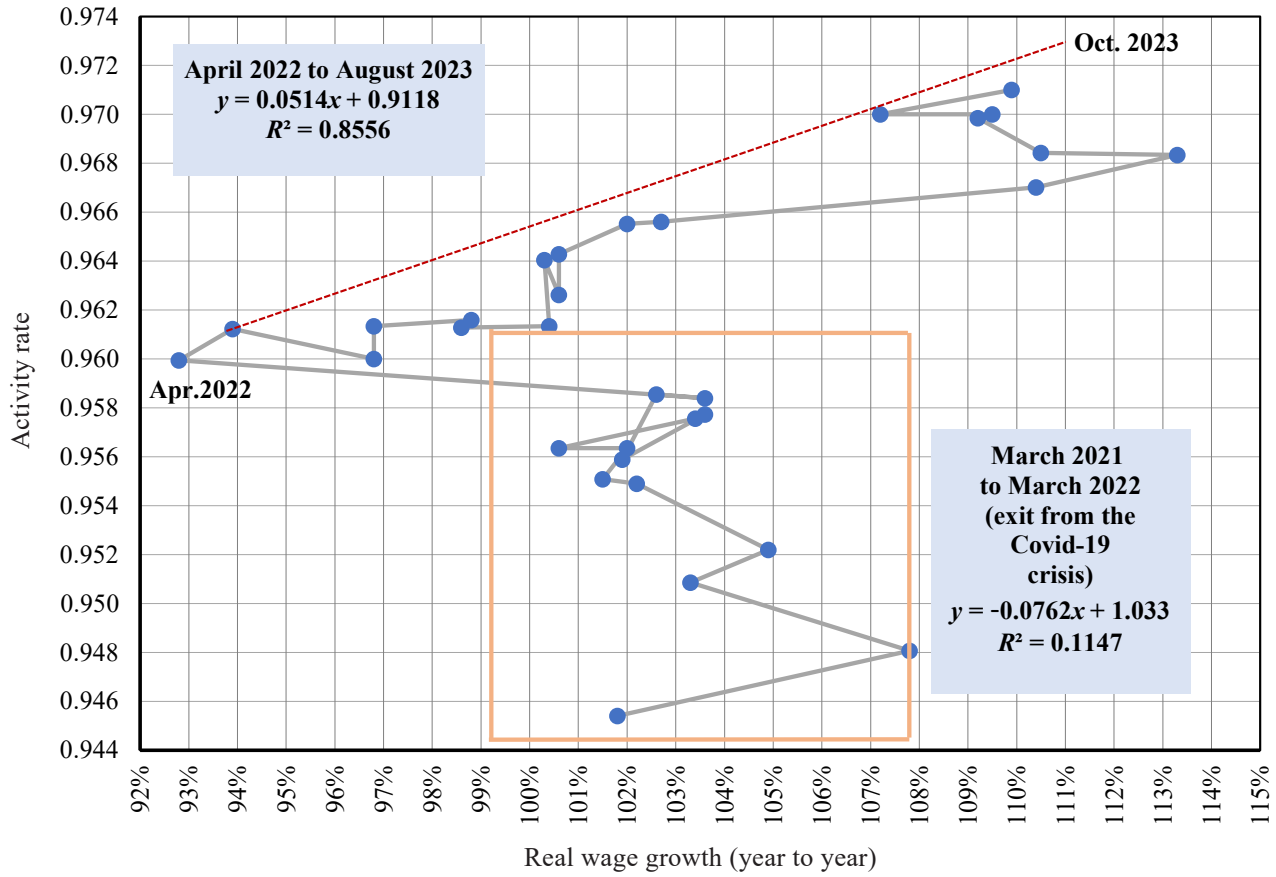

Fig. 3. Comparison between real wage growth (year to year) and activity rate (employed population vs. active population) (March 2021 – October 2023)

Рис. 3. Сравнительный анализ роста реальных доходов и экономической активности населения: работающее население и экономически активное население (март 2021 г. – октябрь 2023 г.)

wages and the activity rate changed dramatically (Fig. 3[88])[89]. Actually, this change became obvious as early as in April 2022.

As a result, we obtain a kind of relation that resembles the famed Phillips curve[90,91]. Of course, we are not comparing unemployment and inflation but searching for a relation between employment reaching new levels with an activity rate now approaching 1 and the growth rate of real wages. Studies have shown that in a "high pressure" economy the Phillips curve could well make a reappearance[92]. And quite clearly, the relation between the real wage growth and the activity rate changed from April-May 2022 to August 2023. The change of economic dynamics is clear. However, one thing that was underestimated was its cumulative nature.

To compensate for the labor productivity slump but also to develop their activities both for military purposes and for import substitution, Russian enterprises increased the number of population emp-

[88] CEMI-CR451 computation and Rosstat.

[89] Or the ratio between employed population and active population.

[90] Del Negro M, Lenza M, Primiceri GE, Tambalotti A. What's up with the Phillips curve? SSRN Electronic Journal. 2020.

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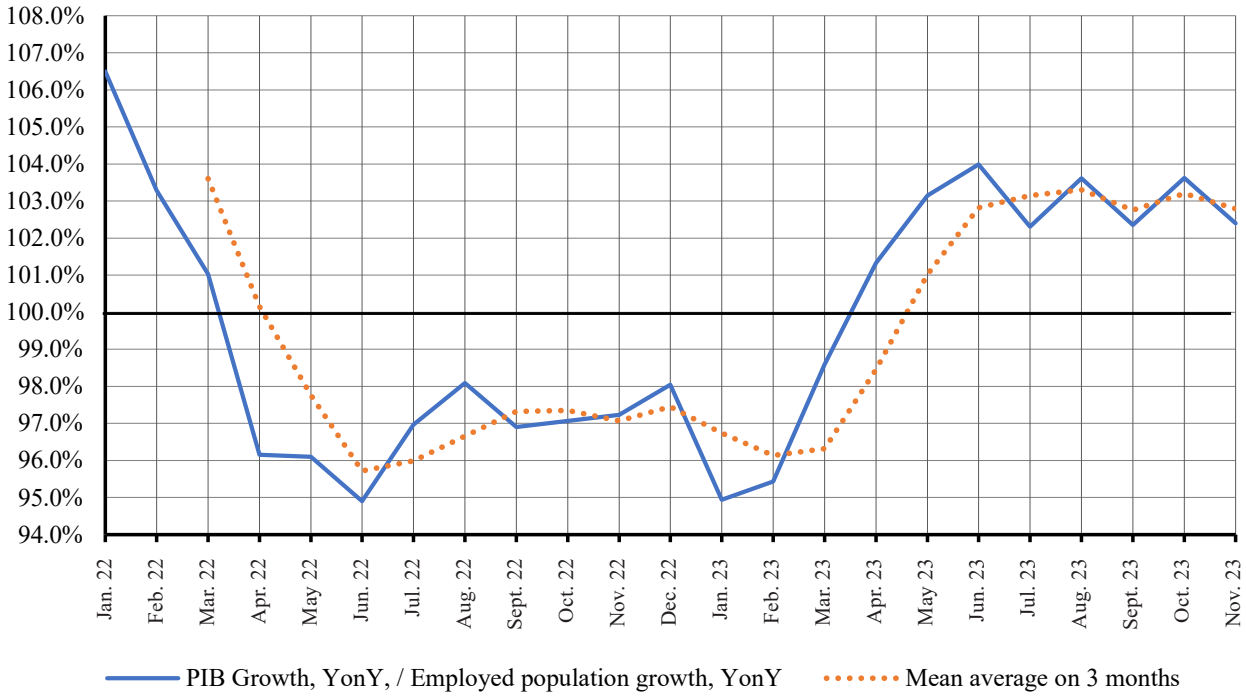

Fig. 4. Labor productivity variations

Рис. 4. Динамика производительности труда

loyed (Fig. 4[93]). By the end of 2022, they had recovered the already high activity rate of the end of 2021 and went farther.

When the activity rate went over 96.5%, the real wages began to increase sharply. When the threat of unemployment disappeared, it led to a strong increase in household consumption that went adding its weight on the activity surge. It was this increase in household consumption that "surprised" economists. However, conditions for this increase were clearly in place by December 2022 – March 2023.

Now, it is quite clear that we cannot expect a similar increase in 2024. Employed population seems to have reached its upper limit. Considering the growing immigration flow of employed population, it will be quite low for the coming year. Nevertheless, labor productivity has been growing steadily since March 2023 and is now returning to the level it showed in late 2021 – early 2022.

The combination of these two factors explains why the final results exceeded the forecasts made in the early spring or summer of 2023 and why the prospects for 2024 are reasonably good. The rapid growth in productivity demonstrated the progresses made by companies, be they private or public, in reorganizing themselves to increase production. This growth proves that the sanctions have faltered much more quickly than expected, having lost a very large part of their effects from the third quarter of 2023. We all expected this rather towards the end of the second quarter of 2024, or even by the end of 2024. Certainly, imports from China had played a certain role, but they could notexplain everything[94]. Still, the situation where the Russian economy was to be constrained by supply and not by demand is not to stay forever. That is why forecasts for 2024 are clearly less optimistic than those for 2023.

[93] CEMI-CR451 computation and Rosstat.

[94] China's exports to Russia: Overall trend and key products [Internet]. [cited 2023 Dec 22]. Available from: https://silverado.org/news/silverado-china-s-exports-to-russia

CONCLUSION

It has then to be reminded that the "2023 surprise" was not the first in Russia's economic history. Economists had already been surprised at least twice by the strength of Russia's economic recovery. The first time was after the financial crisis of August 1998[95]. The second was after the COVID-19 crisis. Now economists got surprised by its recovery after the sanctions. The two last episodes are an indirect proof of the good health of the Russian economy. In general, economy is more akin to a living organism than to a mechanism, as the late professor Viktor V. Ivanter repeatedly stated[96,97]. This is what makes the reaction capacities of the productive system in times of crisis very difficult to predict indeed. However, for economists, it is always necessary to make forecasts at the risk of being wrong. In this matter, humility and modesty are always required.

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