

MODELLING SUBJECTIVE VIEWS OF INDIVIDUALS ABOUT NATIONAL MACROECONOMIC PERFORMANCE

МОДЕЛЮВАННЯ СУБ'ЄКТИВНИХ ОЦІНОК НАСЕЛЕННЯ ЩОДО ЕКОНОМІЧНОЇ СИТУАЦІЇ В КРАЇНІ

Chugaiev O. A.

Doctor of Science (Economics), Professor of the Department of World Economy and International Economic Relations of Educational and Scientific Institute of International Economic Relations of Taras Shevchenko National University of Kyiv. E-mail: chugaiev@knu.ua

Чугаєв О. А.

Доктор економічних наук, доцент, професор кафедри світового господарства і міжнародних економічних відносин Навчально-наукового інституту міжнародних відносин Київського національного університету імені Тараса Шевченка. E-mail: chugaiev@knu.ua

Abstract. *The aim of this paper is to estimate the effect of the main macroeconomic indicators on opinion of individuals about economic situation in their country. Correlation and regression analysis was applied to the data about 43 economies in 2002-2021. The most positive subjective views of economic situation were before crisis years (in 2007 and 2016-2019).*

This paper confirms positive effect of economic growth on perceived national economic situation. The effect is stronger under high income inequality in the long run and in advanced economies in the short run. Some models suggest that acceleration of economic growth may also be important. Gross savings is another positive factor. The long-term effect of savings is stronger in countries with high income inequality and in 2013-2021 also in advanced economies. Correlation between opinion of people and current account is positive, but the regression analysis results show that this factor does not have a separate significant effect.

Unemployment influences perceived national economic situation negatively. But earlier (in 2002-2012) this effect was weaker than in 2013-2021. The long-term effect is stronger in countries with high income inequality. The effect of inflation is negative, but it existed only in the first subperiod (2002-2012) in advanced economies. Then the fear of inflation disappeared at least before 2022, when inflation increased.

Income inequality, its change and economic development level do not affect perceived economic situation themselves. But high income inequality increases sensitivity of people to trends in economic growth, unemployment and gross savings. High development level also increases such sensitivity and earlier in XXI century dependence on inflation.

Key words: *macroeconomic situation, subjective well-being, business cycles, economic growth, unemployment, gross savings, inflation, income inequality.*

Анотація. *Метою статті є оцінка ефекту основних макроекономічних показників на ставлення населення до економічної ситуації в своїй країні. Використано регресійно-кореляційний аналіз даних для 43 країн у 2002-2021 рр. Найбільш позитивні суб'єктивні уявлення щодо економічної ситуації спостерігалися в передкризові роки (2007, 2016-19 рр.).*

Підтверджено позитивний вплив приросту ВВП на оцінки громадськістю економічного стану в країні. В довгостроковому періоді вплив цього показника сильніший в країнах з вищою нерівністю доходів, в короткостроковому – в розвинутих країнах. Окремі моделі показують, що може грати позитивну роль також прискорення економічного зростання. Валові заощадження впливають позитивно. В довгостроковому періоді ефект заощаджень сильніший в країнах з вищим розширенням населення за доходами, а в період з 2013-2021 рр. і в розвинутих країнах. Кореляція поточного рахунку платіжного балансу із громадською думкою позитивна, але регресійний аналіз не показує значущого окремого впливу поточного рахунку.

Рівень безробіття впливає негативно. Проте в перший період (2002-2012 рр.) цей ефект слабший ніж у 2013-2021 рр. В довгостроковому цей ефект сильніший в країнах з вищим розширенням населення за доходами. Вплив інфляції негативний, але наявний тільки у перший період (2002-2012 рр.) в розвинутих країнах. Потім побоювання щодо інфляції зникли принаймні до 2022 р., коли інфляція зросла.

Нерівність доходів населення, її динаміка та рівень економічного розвитку самостійного впливу не здійснюють. Але високе розширення населення за доходами посилює чутливість настроїв населення щодо економічної ситуації в країні до економічного зростання, безробіття та валових заощаджень. Високий рівень економічного розвитку також підвищує чутливість до цих показників, а на початку XXI століття й до інфляції.

Ключові слова: макроекономічна ситуація, суб'єктивний добробут, економічні цикли, економічне зростання, безробіття, валові заощадження, інфляція, нерівність за доходами.

Introduction. Measuring objective macroeconomic indicators may show whether a country has a good economic performance or faces serious challenges requiring remedies in a form of policy actions. But each individual has his or her own subjective impressions about well-being. Economic situation may affect happiness of people and their confidence in future, which may influence directly their personal decisions (in labor activity, consumption behavior, investment priorities, propensity to stay or migrate etc.) and indirectly government policy (via elections or considering sentiment analysis results).

The purpose of research is to estimate the effect of the main macroeconomic indicators on opinion of individuals about economic situation in their country. First, we provide literature review of subjective well-being factors. Then we explain the choice of the variables and the way correlation and regression analysis was applied. In the last section research results are presented and robustness check is provided.

Previous literature review. Several studies have found factors affecting subjective well-being of individuals or their opinion about economic situation in their country.

Wolfers (2003) concluded that perceived well-being is negatively affected by unemployment, its volatility and inflation. Hayo & Seifert (2003) used a sample consisting of Eastern European countries in early 1990s to find a positive effect of relative income and prospects for economic improvements in future on subjective well-being, and a negative impact of unemployment and worsening economic situation relatively the past experience. Welsch (2007) suggested that people are more satisfied under economic growth and better employment ratio as well as stability. The latter is measured by low inflation or low interest rates. Malesevic Perovic (2008) further analyzed transition economies to prove that inflation, and especially unemployment and GDP growth are important for subjective feeling of economic well-being. Welsch & Bonn (2008) estimated that convergence in macroeconomic conditions and especially in inflation rates led to convergence of life satisfaction in the EU member states.

Stanca (2008) has found interaction effects. Income affects happiness stronger in poor countries, while unemployment is more important factor in developed economies with high unemployment. Pew Research Center (2012) used cross-sectional data to find a strong correlation between GDP growth and the share of people considering the situation in their country is good. Mayer (2015) proved the negative impact of job loss and reduced consumption of the main products. Welsch & Kühling (2015) wrote about a negative impact of the crisis in 2008-09 on well-being of individuals in advanced economies. The reason was drop in GDP and unemployment which were not offset by the positive effect of lower inflation experienced in several countries.

Mikucka et al. (2017) used data for developing, transition, and developed countries to conclude that income inequality reduction in advanced economies and stable social trust help to increase the positive effect of economic growth on perceived well-being. Maison et al. (2019) used a survey of Polish residents and came to a conclusion that subjective financial situation depends on making savings. Yan & Wen (2020) wrote that subjective well-being negatively depends on corruption and inequality, although there is a positive effect of inequality on the views of rural residents. Dluhosch (2021) states that a negative effect of income inequality is amplified by trade globalization.

European Commission (2022) provided a survey of the most important problems in the EU in

summer 2022 according to its residents' point of view. 34% respondents worried about inflation (+10 pp in comparison to winter), 28% – energy supply (+12 pp), 19% – general economic situation (+1pp), 13% – state of public finance (-5pp), 13% – immigration (-9pp), 5% – unemployment (-3pp), 3% – pensions (-1pp) and 3% – taxation (0 pp).

Methodology. We use two variants of a dependent variable (share of respondents who consider that the current economic situation in their country is good): static value Op in % (perceived national economic situation) and its change relatively a previous year ΔOp in percentage points (pp) according to the surveys by Pew Research Center (2022). First, Op is used to assess the general trends in sentiments worldwide (analysis of time series) and variation of economic optimism across countries (cross-sectional data analysis).

Then several independent variables were tested (data from Word Bank (2022)):

- EG – GNI per capita growth (annual %) to measure economic growth;
- Pr – Inflation, consumer prices (annual %) or price instability;
- Un – Unemployment, total (% of total labor force) (modeled ILO estimate) or scarcity of jobs;
- GS – Gross savings (% of GNI) indicating ability to earn more income than it is necessary for consumption and to use domestic resources to finance investments;
- CA – Current account balance (% of GDP) as an indicator of external competitiveness;
- GINI – Gini index measuring income inequality within a country;
- GNIpc – GNI per capita, PPP (constant 2017 thousand international \$) denoting economic development level of a country.

Independent variables marked with Δ mean change relatively a previous year in pp or pp/GDP. Change in GNIpc is not used because it duplicates information about economic growth. The analyzed period is 2002-2021 (without 2003-2006 when the data on Op is not available), which is divided into 2 subperiods: 2002-2012 and 2013-2021.

Correlation analysis is used to provide primary selection of potential factors. T-test is used to estimate significance of correlation coefficients. Possible interaction effects are also studied (we assume that Gini index or GDP per capita may affect the influence of other factors) by using products of the indicators in regression formulas.

Regression models are calculated for the entire period and 2 subperiods to see possible changes in regularities. The final models have significant regression coefficients, normal distribution of residuals, absent multicollinearity and mostly absent substantial heteroscedasticity. Serial correlation of residuals is also tested.

Since panel data is used within regression analysis, we use Hausman test for static models (when the average Op differs substantially in various countries). If it rejects the hypothesis of appropriateness of random effects estimation method, fixed effects models are estimated too. When high serial correlation of residuals is faced, we also change specification of a model by adding the dependent variable value in the previous year Op_{t-1} , which helps to eliminate dependence of residuals. Outliers are excluded in smaller samples to check robustness of results, but the coefficients remain significant and similar.

Finally, country specific correlations between the dependent variables and factors or their increases (except for change in Gini index due to lower availability of data) are calculated for countries with available data for at least 8 years.

Results. Table 1 shows the values of the dependent variable Op in several countries (the entire analyzed sample consists of 43 countries). The most positive subjective views of economic situation were before crisis years (in 2007, 2016-19). The highest economic pessimism was in 2009 (Great Recession) and around it, in 2002 (as a result of the slowdown in 2001) and in 2020 (Coronacrisis). Considering the entire analyzed period, the most optimistic countries include China, Sweden, the Netherlands, India, Philippines, Germany and Australia. The lowest average Op was registered in Greece, Ukraine (although the data for it was available only for 2014-2015 and 2019), Lebanon, Tunisia, Italy, Republic of Korea and Spain.

Table 1

The share of population who consider the current economic situation in their country to be

good, %

Year	Australia	Brazil	Canada	China	France	Germany	Italy	Japan	Korea, Rep.	Mexico	Poland	Russian Federation	Spain	Türkiye	United Kingdom	United States	Mean for 43 countries
2002			70	52	45	27	36	6	20	31	7	13		14	65	46	31.0
2007			80	82	30	63	25	28	8	51	36	38	65	46	69	50	46.9
2008	69			82	19	53		13	7	36	52	52	35	21	30	20	35.9
2009			43	88	16	28	22	10	5	30	38	28	12	24	16	20	25.3
2010		62		91	13	44		12	18	24	53	33	13	34	20	24	32.0
2011		54		88	17	67		10		30	26	29	10	49	15	18	32.9
2012		65		83	19	73	6	7		35	29	32	6	57	15	31	28.5
2013	67	59	67	88	9	75	3	27	20	38	27	33	4	53	15	33	38.1
2014		32		89	12	85	3	35	33	40	29	44	8	50	43	40	40.1
2015	55	13	57	90	14	75	12	37	16	34	38	24	18	47	52	40	41.1
2016	57		48	87	12	75	33	30			49		13		47	44	45.0
2017	60	15	59		21	86	15	41	15	28	64	46	28	65	51	58	46.0
2018	67	9	63		43	78	15	44	31	28	69	42	30		46	65	46.4
2019	66	21	72		37	79	23	37	30	49	74	35	42	40	50	60	47.0
2020	36		38		18	51	11	13	16				15		21	30	31.5
2021	74		49		26	60	12	18	28				13		44	29	41.2

Correlation analysis (see table 2) shows that static variable Op is usually associated with static values of factors, while dynamic ΔOp is likely to depend on changes in independent variables. The highest positive correlation is with economic growth and gross savings, negative – with unemployment. The positive correlation with current account is significant but lower. Inflation, income inequality and economic development level do not correlate with subjective views of economic situation.

Table 2

Correlation between positive views of economic situation and macroeconomic indicators

Variables	Op	ΔOp
Op_{t-1}	0.86*	0.19*
ΔOp_{t-1}	-0.27	-0.15
EG	0.61*	0.40*
ΔEG	-0.11	0.42*
Pr	-0.05	-0.12
ΔPr	-0.10	-0.02
Un	-0.68*	-0.02
ΔUn	-0.20*	-0.42*
GS	0.71*	0.02
ΔGS	-0.12	0.25*
CA	0.37*	0.11
ΔCA	-0.19*	-0.09

GINI	-0.03	-0.16
Δ GINI	-0.04	0.08
GNIpc	-0.08	0.07

Note. * - significant correlations at $p < 0,05$.

The first static model for the entire period S1 using random effects method demonstrates long-term effects of economic growth, unemployment and gross savings on perceived economic well-being (see table 3). The fixed effects model S2 confirms that these 3 factors affect Op with similar regression coefficients. The models S3 and S4 for the subperiods prove that the effect of GDP per capita growth and gross savings has not changed substantially, but the negative impact of unemployment became twice as stronger in the last period (2013-2021) than in the first one (2002-2012). I.e. opinion of the public nowadays depends more on unemployment than at the very beginning of the XXI century.

Table 3

Models of perceived national economic situation Op without interaction effects							
Model	S1	S2	S3	S4	S5	S6	S7
Period, years	2002-2021	2002-2021	2002-2012	2012-2021	2002-2021	2002-2012	2012-2021
Y-intercept	23.3*** (3.47)	27.9*** (3.74)	16.9*** (4.73)	28.1*** (4.73)	10.0*** (2.03)	6.55*** (1.90)	12.0*** (2.89)
Op _{t-1}					0.792*** (0.034)	0.839*** (0.059)	0.769*** (0.046)
EG	1.34*** (0.28)	1.44*** (0.30)	1.59*** (0.38)	1.27*** (0.38)	0.644*** (0.213)	0.628* (0.319)	0.635*** (0.294)
UN	-0.888*** (0.179)	-0.978*** (0.187)	-0.496* (0.286)	-1.08*** (0.224)	-0.314** (0.135)		-0.400** (0.167)
GS	0.928*** (0.122)	0.758*** (0.135)	0.831*** (0.168)	0.946*** (0.167)			
R ²	0.36	0.41/0.33	0.36	0.39	0.76	0.77	0.74
p	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	379	379	142	237	269	94	175

Note. In tables 3-6 standard errors are in brackets; significance of regression coefficients is marked by * at $p < 0,1$, ** at $p < 0,05$, *** at $p < 0,01$, according to t-test.

The advantage of these 4 models is estimation of the long-term effects. The disadvantage is existence of high serial correlation of residuals (about 0.70). As for cross sectional data analysis at each particular year, correlation between Op and economic growth varied between -0.10 in 2021 and 0.70 in 2011 (on average 0.39), with unemployment – between -0.61 in 2016 and -0.04 in 2008 (-0.35), with gross savings – between 0.25 in 2002 and 0.68 in 2014 (0.52), which proves the effect of these factors anyway.

The models without serial correlation S5, S6 and S7 demonstrate existence of short-term effect of gross savings and high inertia of public opinion considering importance of Op_{t-1} (the value of the dependent variable in a previous year). And unemployment had no significant short-term effect in 2002-2012.

Static random effects (S8) and fixed effects (S9) models for the entire period with interaction of factors show significant dependence of Op on economic growth, unemployment and gross savings in the long run (see table 4). Their effects are stronger in countries with high income inequality. Gross

savings are more important also in advanced economies. The models S10 and S11 for the subperiods prove robustness of the results in general. But the impact of unemployment is stronger and more reliable in the second period. Again these long-term effect models have high serial correlation of residuals. But in any case including interaction effects enabled to increase coefficients of determination.

Table 4

Models of perceived national economic situation Op with interaction effects

Model	S8	S9	S10	S11	S12	S13	S14	S15
Period, years	2002-2021	2002-2021	2002-2012	2002-2012	2012-2021	2002-2021	2002-2012	2012-2021
Y-intercept	15.0*** (4.42)	19.3*** (4.51)	8.28* (4.29)	21.29*** (5.05)	14.8** (6.20)	7.78*** (2.96)	9.26*** (2.56)	2.95 (4.28)
Op _{t-1}						0.765*** (0.043)	0.760*** (0.083)	0.780*** (0.057)
EG*GINI	0.050*** (0.011)	0.057*** (0.011)	0.056*** (0.012)	0.043*** (0.012)	0.055*** (0.020)		0.026* (0.013)	
UN*GINI	-0.028*** (0.0056)	-0.028*** (0.0059)		-0.018** (0.0084)	-0.035*** (0.0071)	-0.014*** (0.0045)		-0.013** (0.0054)
GS*GINI	0.024*** (0.0039)	0.016*** (0.0043)	0.019*** (0.0050)	0.020*** (0.0050)	0.029*** (0.0059)	0.0077*** (0.028)		0.012*** (0.043)
GS*GNI _{pc}	0.015*** (0.0030)	0.018*** (0.0033)	0.012** (0.0048)		0.016*** (0.0036)			
R ²	0.51	0.63/0.51	0.44	0.43	0.58	0.79	0.76	0.82
p	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
N	221	221	94	94	127	186	64	106

The models without serial correlation S13, S14 and S15 confirm a short-term effect of economic growth (especially under high income inequality), but only in 2002-2012. Unemployment and gross savings are more important since 2013 (especially under high income inequality). The interaction effect of gross savings and economic development level has not been proved in the short run. Considering coefficient of determination, the model S15 with interaction effects has better predictive power in the second subperiod than the similar model S7 without interaction effects. But using interaction effect in the model S14 provides no additional advantage in comparison to S6.

The dynamic models D1 and D2 for the entire period demonstrate significance of short-term effects: a negative one of unemployment growth and a positive one of economic growth for improvement of subjective views about current economic situation in a country (see table 5). The third factor may be either acceleration of economic growth or gross savings growth. In the first subperiod (models D3 and D4) acceleration of economic growth was the most important together with economic growth or unemployment growth. In the second period all the 4 factors turned out to be significant. At the same time, the role of unemployment growth has increased, while importance of GDP growth acceleration has abated.

Table 5

Models of changes in perceived national economic situation ΔOp without interaction effects

Model	D1	D2	D3	D4	D5
-------	----	----	----	----	----

Period, years	2002-2021	2002-2021	2002-2012	2002-2012	2012-2021
Y-intercept	1.51** (0.73)	-2.09*** (0.72)	-4.58*** (1.40)	-2.661** (1.29)	-1.24 (0.83)
EG	0.572** (0.246)	1.00*** (0.21)	0.781** (0.391)		0.753** (0.300)
Δ EG	0.702*** (0.188)		0.677** (0.315)	0.900*** (0.281)	0.447* (0.247)
Δ UN	-2.87*** (0.65)	-2.69*** (0.66)		-1.96** (0.99)	-3.58*** (0.83)
Δ GS		0.739** (0.305)			0.760** (0.415)
R ²	0.26	0.23	0.18	0.18	0.30
p	0.000	0.000	0.001	0.001	0.000
N	268	270	76	76	192

The dynamic model D6 including interaction with GINI index for the entire period shows significant positive impact of economic growth acceleration and negative effect of inflation (marginally significant) and unemployment (see table 6). But the models D6, D7 and D8 have no advantage in predictive power over the similar models without interaction effects.

Table 6

Models of changes in perceived national economic situation Δ Op without interaction effects with interaction effects

Model	D6	D7	D8	D9	D10	D11
Period, years	2002-2021	2002-2012	2012-2021	2002-2021	2002-2012	2012-2021
Y-intercept	1.29 (1.07)	-0.80 (2.73)	1.28 (0.99)	-0.71 (0.91)	-0.95 (2.00)	-1.53** (0.77)
EG*GINI		0.031** (0.014)				
Δ EG*GINI	0.026*** (0.0093)		0.034** (0.013)			
Pr*GINI	-0.010* (0.0056)	-0.028** (0.014)				
Δ UN*GINI	-0.094*** (0.021)	-0.069* (0.036)	-0.080** (0.031)			
EG*GNIpc				0.051*** (0.0067)	0.077*** (0.014)	0.044*** (0.0073)
Pr*GNIpc				-0.026* (0.010)	-0.054** (0.022)	
Δ UN*GNIpc				-0.055*** (0.018)		-0.066*** (0.022)

R ²	0.20	0.24	0.13	0.32	0.34	0.31
p	0.000	0.004	0.001	0.000	0.000	0.000
N	153	52	105	260	73	191

The model D9 including interaction effect with economic development level is better than the similar models D1 and D2 without interaction effects. It shows that economic growth, unemployment and inflation may be more important in advanced economies. The positive effect of GDP growth weakened in recent years, the negative influence of inflation was significant only in 2002-2012, and the one of unemployment – in 2012-2021. In the second period the model D11 with interaction effect has no advantage over D5. But the model D10 for the first period is better than D4.

Thus, the models S10, S11 and S12 (for the entire period, first and second period respectively) have the best predictive power among the static models for long-term effects, although serial correlation is their drawback. S5, S6 and S15 are the best choices among static models for short-term effects (considering also model complexity criterion). D9, D10 and D5 perform better than other dynamic models.

Then time series data analysis is applied to assess country-specific regularities. Table 7 provides information about correlation between Op and independent variables or ΔOp and changes in independent variables in countries with available data at least for 8 years. Economic growth, gross savings and current account affect perceived economic situation either positively or insignificantly almost in all the countries. Insignificance can be partially explained by small number of cases in time series analysis. The effect of unemployment is either negative or insignificant almost everywhere.

The effects of inflation and income inequality are usually insignificant. When these effects are significant, we see that correlations vary by their sign (+ and –). Positive correlation with income inequality exists in core Anglosphere, Mexico and Germany. The negative correlation is more typical for Southern Europe, Israel, Poland and Republic of Korea.

Table 7

Correlation between perceived economic situation and macroeconomic indicators

Country	EG	ΔEG	Pr	ΔPr	Un	ΔUn	GS	ΔGS	CA	ΔCA	GINI	N
Argentina	0.75	0.60			-0.72	0.15	-0.02	-0.14	-0.41	-0.17	-0.47	11
Australia	0.55	0.71	0.69	0.90	-0.80	-0.98	0.17	0.19	-0.16	-0.51	0.86	9
Brazil	0.73	0.53	0.17	-0.56	-0.77	-0.26	0.92	0.43	-0.43	-0.24	-0.06	9
Canada	0.45	0.66	0.39	0.64	-0.75	-0.94	0.65	0.64	0.40	0.38	0.78	11
China	-0.20	-0.03	0.35	-0.24	0.79	0.11	0.70	0.18	-0.03	-0.47	-0.25	11
Egypt	0.78	0.05	0.32	0.11	-0.51	0.76	0.84	0.40	0.77	0.25	0.53	8
France	0.17	0.45	0.43	0.35	-0.40	-0.05	0.68	0.55	0.63	0.37	-0.16	16
Germany	0.43	0.65	0.09	0.67	-0.68	-0.65	0.69	0.72	0.77	0.14	0.79	16
Greece	0.84	-0.04	0.39	0.05	-0.84	-0.45	0.31	-0.16	-0.80	0.58	-0.66	8
Indonesia	-0.17	-0.81	-0.86	-0.69	-0.80	-0.44	0.56	-0.07	-0.53	0.45	0.16	11
Israel	0.37	0.64	-0.45	-0.11	-0.82	0.58	0.63	0.79	0.03	0.28	-0.81	9
Italy	0.30	0.37	0.04	-0.14	-0.47	-0.03	0.38	0.43	-0.24	0.16	-0.32	13
Japan	0.41	0.46	0.59	0.22	-0.73	-0.45	0.38	0.36	0.28	0.30	-0.17	16
Jordan	0.31	-0.48	0.39	0.11	-0.45	-0.46	0.27	-0.03	-0.07	0.11	-0.42	11

Kenya	0.55	0.67	0.08	-0.81	0.04	-0.12	0.40	0.09	-0.38	0.36		12
Korea, Rep.	-0.06	0.04	-0.52	0.21	0.28	-0.43	0.32	-0.37	0.44	-0.48	-0.99	13
Lebanon	0.01	0.48	0.28	0.17	0.06	-0.39	0.00	0.06	0.10	0.18		12
Mexico	-0.12	-0.20	-0.38	-0.39	-0.25	-0.16	-0.03	-0.13	0.16	0.49	0.59	13
Nigeria	-0.09	0.12	-0.29	-0.55	-0.08	-0.62	-0.30	-0.19	-0.39	-0.39	0.26	8
Pakistan	0.12	0.44	-0.35	-0.30	-0.10	0.02	0.48	0.30	-0.14	-0.19	0.52	10
Poland	0.51	0.11	0.01	0.04	-0.88	-0.42	0.65	-0.37	0.34	-0.36	-0.70	14
Russian Federation	0.61	-0.75	-0.45	-0.10	-0.53	-0.62	0.15	0.39	-0.27	0.12	0.31	13
South Africa	-0.39	0.51	-0.42	-0.89	-0.54	-0.29	-0.40	0.29	-0.67	-0.49		9
Spain	0.17	0.42	0.29	0.27	-0.84	-0.70	0.58	0.75	-0.49	-0.26	-0.81	15
Türkiye			-0.54	-0.18	-0.35	-0.52	0.46	-0.13	-0.47	-0.27	0.26	12
United Kingdom	0.44	0.69	-0.36	0.00	-0.73	-0.61	0.60	0.65	-0.13	0.18	0.73	16
United States	0.27	0.51	-0.06	-0.02	-0.83	-0.59	0.71	0.59	0.26	0.20	0.58	16

Note. Correlation coefficients are significant at $p < 0,05$ if their absolute value $> 0,7$ if $N=8$, $> 0,6$ if $N=11$, $> 0,5$ if $N=16$.

A typical enough effect of the majority of factors (like in the regression models) exists in Argentina, Australia, Brazil, Canada, Egypt, Germany, Greece, Israel, Kenya, Poland, Spain, United Kingdom and United States. There is a group of countries where perceived well-being depends much less on macroeconomic indicators: Italy, Jordan, Republic of Korea, Lebanon, Mexico, Nigeria, Pakistan and Türkiye.

Conclusion. Previous literature considered a positive effect of economic growth, relative income and savings on subjective well-being of individuals or their opinion about economic situation in their country, and a negative effect of unemployment, inflation, high interest rates, corruption, problems in energy supply, unsound public finance and immigration. The effects may be modified by factors' interaction with national GDP per capita, social trust, income inequality or trade globalization.

This paper confirms positive effect of economic growth on perceived national economic situation: each additional GDP per capita growth by 1 pp leads to increase in the share of people who consider that economic situation in their country is good by 0.6-1 pp in the short run and 1.4 pp in the long run. The effect is stronger under high income inequality in the long run and in advanced economies in the short run. Some models suggest that acceleration of economic growth may also be important with similar magnitude of the effect in the short run.

Unemployment influences perceived national economic situation negatively. In 2013-2021 each additional 1 pp of unemployment decreased the share of people who consider that economic situation in their country is good by 0.4 pp in the short run and 1.1 in the long run. But earlier (in 2002-2012) this effect was weaker and existed only in the long run (0.5 pp). It is interesting that increase in unemployment leads to a larger drop in positive views about economic situation (2 pp in the first subperiod and 3.6 pp in the second one). The long-term negative effect of unemployment is stronger in countries with high income inequality.

Gross savings ratio is a positive factor. Each additional 1 pp of the savings relatively GDP improved positive public opinion by 0.8-0.9 pp in the long run, and their change – by 0.75 pp. The long-term effect of savings is stronger in countries with high income inequality, and in 2013-2021 also in advanced economies.

The effect of inflation is negative, but it existed only in advanced economies in the first subperiod (2002-2012). Nevertheless the analyzed period ends before 2022, which was a year when developed economies faced unusually higher inflation. Therefore it is too early to make a final conclusion about the effect of inflation. Correlation between opinion of people and current account is positive, but our regression analysis results show that this factor does not have a separate significant

effect.

Income inequality, its change and economic development level do not affect perceived economic situation themselves. But high income inequality increases sensitivity of people to trends in economic growth, unemployment and gross savings. High development level also increases such sensitivity and earlier in XXI century dependence on inflation.

Thus, subjective views about current economic situation mostly depend on economic growth and savings. Unemployment became increasingly important. Fear of inflation in advanced economies abated before 2022.

References

1. Dluhosch, B. (2021). The role of perceptions about trade and inequality in the backlash against globalization. *SN Business & Economics*, Springer, 1(12), 1–24. <https://link.springer.com/article/10.1007/s43546-021-00171-5>
2. European Commission (2022, summer). *Standard Eurobarometer*, 97. <https://europa.eu/eurobarometer/surveys/detail/2693>
3. Hayo, B., & Seifert, W. (2003). Subjective economic well-being in Eastern Europe. *Journal of Economic Psychology*, Elsevier, 24(3), 329–348. <https://www.sciencedirect.com/science/article/abs/pii/S0167487002001733>
4. Maison, D., Marchlewska, M., Sekścińska, K., Rudzinska-Wojciechowska, J., & Łozowski, F. (2019). You don't have to be rich to save money: On the relationship between objective versus subjective financial situation and having savings. *PLOS ONE*, Public Library of Science, 14(4), 1-15. <https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0214396>
5. Malešević Perović, L. (2008). Subjective economic well-being in transition countries: investigating the relative importance of macroeconomic variables. *Financial Theory and Practice*, Institute of Public Finance, 32(4), 519–537. https://econpapers.repec.org/article/ipffinteo/v_3a32_3ay_3a2008_3ai_3a4_3ap_3a519-537.htm
6. Mayer, A. (2015). Recession and life satisfaction in 35 countries. *International Journal of Happiness and Development*, Inderscience Enterprises Ltd, 2(2), 118–136. <https://www.inderscienceonline.com/doi/abs/10.1504/IJHD.2015.070073>
7. Mikucka, Ma., Sarracino, F., & Dubrow, J. K. (2017). When does economic growth improve life satisfaction? Multilevel analysis of the roles of social trust and income inequality in 46 Countries, 1981–2012. *World Development*, Elsevier, 93(C), 447–459. <https://www.sciencedirect.com/science/article/abs/pii/S0305750X17300049>
8. Pew Research Center (2012). *Pervasive gloom about the world economy. Faith in hard work, capitalism falter but emerging markets upbeat*. <https://www.pewresearch.org/global/2012/07/12/chapter-3-reality-check/>
9. Pew Research Center (2022, March). *Global indicators database*. <https://www.pewresearch.org/global/database/indicator/5>
10. Stanca, L. (2008). *The geography of economics and happiness* (Working Paper No. 140). University of Milano-Bicocca, Department of Economics. <http://repec.dems.unimib.it/repec/pdf/mibwpaper140.pdf>
11. Welsch, H. (2007). Macroeconomics and life satisfaction: Revisiting the “misery index”. *Journal of Applied Economics*, Universidad del CEMA, 10, 237–251. <https://ucema.edu.ar/publicaciones/download/volume10/welsch.pdf>
12. Welsch, H., & Bonn, U. (2008). Economic convergence and life satisfaction in the European Union. *Journal of Behavioral and Experimental Economics*, Elsevier, 37(3), 1153–1167. <https://ideas.repec.org/a/eee/soceco/v37y2008i3p1153-1167.html>
13. Welsch, H., & Kühling, J. (2015). *How has the crisis of 2008-2009 affected subjective well-being? Evidence from 25 OECD countries* (Working Paper No. 50). ZenTra – Center for Transnational Studies. https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2572979
14. Wolfers, J. (2003). Is business cycle volatility costly? Evidence from surveys of subjective well-being. *International Finance*, Wiley Blackwell, 6(1), 1-26. <https://onlinelibrary.wiley.com/doi/10.1111/1468-2362.00112>

15. World Bank (2021, December 22). *World Development Indicators*. <https://databank.worldbank.org/source/world-development-indicators#>
16. Yan, B., & Wen B. (2020). Income inequality, corruption and subjective well-being. *Applied Economics*, Taylor & Francis Journals, 52(12), 1311–1326. <https://doi.org/10.1080/00036846.2019.1661953>