

Examining the Dynamics Between Gross Domestic Product Fluctuations and Consumer Sentiment Shifts

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Abstract:

This work presents how changes in the economic climate have affected consumer sentiment. Changes in the volume of GDP, industrial production, total consumption, consumption in the household sector and capital accumulation between 2018 and 2022 were analysed on a quarterly basis. The values of the main indicators reflecting consumer sentiment are also presented: the current consumer confidence index and the leading consumer confidence index. The consumer confidence indicators are also presented at the end of the individual quarters from 2018 to 2022. The results show that consumers observe the changing economic reality and do not always assess these changes positively, even if the effect of these changes indicate an increase in GDP.

Keywords: economic growth; economic fluctuations; consumer confidence index.

JEL Classification: E21; E37.

Introduction

One of the most important measures used to illustrate economic growth is gross domestic product. The information presented by the Statistics Poland on the level of national income and its components can be helpful in carrying out further analyses and forecasts of economic development. However, in order to correctly forecast changes in the economic situation, it is worth examining how consumers assess the current situation in the economy and how they perceive the future. Consumer sentiment has a direct impact on the level of production in individual businesses, which translates into the level of output of those businesses and then, globally, into the level of GDP.

1. Business Cycle Fluctuations in The Economy. A Theoretical Approach

In a business cycle analysis, a formal-static part can be distinguished, when turning points and cycle phases are identified (Achuthan, 2022). Most business cycle analyses are conducted with more or less explicit reference to equilibrium theory. Most of the analysed indicators are compared with the immediately preceding period and, in the case of quarterly and monthly data, also with the corresponding period of the preceding year, as well as with the long-term trend. First and foremost, supply is analysed as the most synthetic expression of GDP. This measure is then broken down and the main components of supply are distinguished, such as industry, agriculture, construction, transport and services. In the case of industry, the following quantities are analysed: the volume of

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production, the value of production, the dynamics of production capacity, the utilisation rate of the production apparatus, employment, the order book, the dynamics of assured sales, i.e., the ratio of orders to the volume of production, stocks at producers, the ratio of stocks to current production (Gadomski, 2023). The importance of all the indicators listed is equally important for assessing the state of the economy, while only a few have significant forecasting value. The degree of utilisation of the production apparatus falls into this category, while inferring the prospects of the economy on its basis is not straightforward (Lubiński, 2004; Fernando, 2023).

There are also attempts in economics to study so-called economic dynamics. The definition of economic dynamics is not entirely clear. The subject of dynamics is the study of the forces that determine development. It can also be considered to reduce economic dynamics to the study of the transformation of economic variables over time: at the time of their emergence and in the course of their operation (Adamkiewicz, et al., 2023). The research aims to analyse the factors of growth, the course of growth and economic development. The active influence of the state on the economy has shown that the static Keynesian model does not explain a number of problems of long-term economic transformation (Brunnermeier, 2023). Attempts to examine and explain them more thoroughly were therefore needed. Dynamic theories took shape in three successive periods and address three main theoretical problems: the business cycle, economic growth and economic development. The earliest to develop were business cycle theories, which, while seeking to explain in greater depth the regularities of cyclical changes in the capitalist economy, have not yet investigated the nature of the economic growth process in its totality (Woźniak, 2008).

Changes in the state of the economy are not evenly distributed between the various components of domestic product. Although each cyclical episode differs in detail from previous episodes, certain regularities can be observed that accompany them. For example, fluctuations have greater amplitude in the capital goods industry than in the consumer goods industry. There are no large asymmetries between product increases and decreases; that is, product growth is fairly symmetrically distributed around its average (Aloulou, et al., 2023). On the other hand, there is an asymmetry of the other kind: namely, once the product situates slightly above its usual path, it characteristically stays above it for relatively long periods, interrupted briefly by relatively deep declines below that path. More precisely, periods of exceptionally low growth followed quickly by periods of exceptionally rapid growth occur much more frequently than the opposite cases (Romer, 2000).

The complexity of the interaction between different types of business cycle fluctuations has led modern macroeconomics to abandon attempts to interpret fluctuations as combinations of deterministic cycles of different lengths. Instead, the prevailing view is that the economy is subject to various types of disturbances at more or less random intervals. From a formal point of view, the most important place in market-economy assessment is occupied by the analysis of changes over time in economic quantities. The observation of any real economic quantity in intervals shorter than one year, i.e., monthly or quarterly, indicates a high irregularity of change (Lubiński, 2004).

Economic growth is a measurable economic category that is generally defined in terms of the increase in the value of a country's annual production of goods and services. A commonly used measure of economic growth is Gross Domestic Product, which measures the total value of goods and services produced within a country during 12 months. As an aggregate economic category expressed in monetary units, it is sensitive to price changes. Therefore, a distinction must be made between real and nominal GDP, and thus between real and nominal GDP growth. The former refers to the increase in the value of GDP, which is not the result of price increases (inflation). In economic growth theory, the most commonly used measure of economic growth is the growth rate of the economy, which is generally identified with the growth rate of production (GDP). In the short term, economic growth is assumed to depend mainly on domestic and foreign demand for consumption and investment products (goods and services), while in the long term, economic growth is determined by sufficient supply and efficiency of production factors. Factors of production are generally understood to include: land, labour, physical capital - the neoclassical approach, and more recently: human, social, intellectual and cultural capital, technical and technological progress, technology diffusion, as well as institutions (political and legal systems) (Malaga, 2009).

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Therefore, a distinction must be made between real and nominal GDP, and thus between real and nominal GDP growth. The former refers to the increase in the value of GDP, which is not the result of price increases (inflation). In economic growth theory, the most commonly used measure of economic growth is the growth rate of the economy, which is generally identified with the growth rate of production (GDP). In the short term, economic growth is assumed to depend mainly on domestic and foreign demand for consumption and investment products (goods and services), while in the long term, economic growth is determined by sufficient supply and efficiency of

production factors. Factors of production are generally understood to include: land, labour, physical capital - the neoclassical approach, and more recently: human, social, intellectual and cultural capital, technical and technological progress, technology diffusion, as well as institutions (political and legal systems) (Mishan, 1986; Callen, 2022).

2. Changes in Gross Domestic Product in Poland (2018-2022)

The Table 1 presents at what level GDP and its components developed at the end of individual quarters in 2018-2022. During this period, the economy was significantly affected by external factors such as the COVID-19 pandemic and the outbreak of war in Ukraine. The table presents data in PLN divided into seasonally adjusted and constant prices (referenced to year 2015). In addition to the primary measure, GDP, the attention is also paid to how output in industry (comprising mining and quarrying (B), manufacturing (C), electricity, gas, steam, hot water and air conditioning supply (D), water supply, sewage and waste management and remediation activities (E), total consumption, consumption in the household sector and accumulation have evolved over the period. Accumulation is an important element of the national income account, as its value includes gross fixed capital formation, the value of the increase in tangible current assets, as well as acquisitions minus disposals of assets of exceptional value (e.g., the value of precious stones, antiques and works of art, jewellery made of precious stones and metals, collector's items that are acquired as capital investment).

Table 1. Gross domestic product, seasonally adjusted (at constant price of 2015)

	GDP	Industry (sections B, C, D, E)	Final consumption expenditure	Consumption expenditure of the households' sector	Gross capital formation
	(in PLN millions)				
1 st quarter 2018	505,786.6	115,168.7	386,022.8	295,570.2	114,257.0
2 nd quarter 2018	512,864.4	116,918.4	390,575.9	298,631.9	109,240.3
3 rd quarter 2018	519,178.1	118,023.9	394,621.7	300,823.6	114,353.5
4 th quarter 2018	524,177.1	118,837.4	399,339.9	305,421.3	113,970.6
1 st quarter 2019	531,651.9	122,066.7	404,041.4	307,566.9	109,857.5
2 nd quarter 2019	536,496.8	122,594.3	406,384.2	309,015.4	118,906.7
3 rd quarter 2019	540,404.4	123,481.5	409,576.1	310,522.0	115,394.9
4 th quarter 2019	543,837.7	122,251.3	413,214.4	315,313.8	110,610.3
1 st quarter 2020	547,929.6	119,878.4	414,659.4	311,464.0	112,444.6
2 nd quarter 2020	497,612.9	104,393.0	377,093.1	275,581.5	106,456.5
3 rd quarter 2020	531,177.7	123,432.0	408,450.3	307,416.5	100,134.0
4 th quarter 2020	531,770.3	123,243.0	410,831.9	303,503.4	104,149.0
1 st quarter 2021	545,489.3	112,472.0	417,062.5	310,332.3	98,066.7
2 nd quarter 2021	557,588.8	115,867.5	422,037.3	313,097.5	128,422.1
3 rd quarter 2021	569,463.0	117,626.6	430,014.4	322,501.8	133,638.9
4 th quarter 2021	579,326.3	125,144.1	435,598.2	326,948.3	136,453.3
1 st quarter 2022	603,921.0	125,826.4	438,159.1	329,718.5	146,384.3
2 nd quarter 2022	590,563.0	126,212.4	441,481.5	332,772.2	143,831.1
3 rd quarter 2022	597,076.8	128,765.4	442,832.7	329,871.2	149,501.6
4 th quarter 2022	582,659.1	127,688.1	421,306.6	323,285.7	146,062.5

Source: compilation based on Quarterly national accounts of gross domestic product 2018–2022, Statistics Poland (2023)

It is worth noticing not only to changes in value terms of GDP, but also to analyse its changes in dynamic terms. The Table 2, below presents changes in the analysed values in percentage terms, at the end of the individual

quarters of the analysed period. The dynamics indicators show the strength of change in the analysed components of national income in terms of quarter-on-quarter of the previous year.

Table 2. Volume growth rate of gross domestic product, seasonally adjusted (at constant prices of 2015)

	GDP	Industry (sections B, C, D, E)	Final consumption expenditure	Consumption expenditure of the households' sector	Gross capital formation
	(in %)				
1 st quarter 2018	101.8	102.3	100.9	101.0	110.9
2 nd quarter 2018	101.4	101.5	101.2	101.0	95.6
3 rd quarter 2018	101.2	100.9	101.0	100.7	104.7
4 th quarter 2018	101.0	100.7	101.2	101.5	99.7
1 st quarter 2019	101.4	102.7	101.2	100.7	96.4
2 nd quarter 2019	100.9	100.4	100.6	100.5	108.2
3 rd quarter 2019	100.7	100.7	100.8	100.5	97.0
4 th quarter 2019	100.6	99.0	100.9	101.5	95.9
1 st quarter 2020	100.8	98.1	100.3	98.8	101.7
2 nd quarter 2020	90.8	87.1	90.9	88.5	94.7
3 rd quarter 2020	106.7	118.2	108.3	111.6	94.1
4 th quarter 2020	100.1	99.8	100.6	98.7	104.0
1 st quarter 2021	102.6	91.3	101.5	102.2	94.2
2 nd quarter 2021	102.2	103.0	101.2	100.9	131.0
3 rd quarter 2021	102.1	101.5	101.9	103.0	104.1
4 th quarter 2021	101.7	106.4	101.3	101.4	102.1
1 st quarter 2022	104.2	100.5	100.6	100.8	107.3
2 nd quarter 2022	97.8	100.3	100.8	100.9	98.3
3 rd quarter 2022	101.1	102.0	100.3	99.1	103.9
4 th quarter 2022	97.6	99.2	95.1	98.0	97.7

Source: Own compilation based on: Quarterly national accounts of gross domestic product 2018–2022, Statistics Poland, Warsaw 2023

The information from Table 2 makes it possible to see that GDP increased in almost every quarter analysed. Only the second quarter of 2020 and the second and fourth quarters of 2022 saw declines. The second quarter of 2020 and the fourth quarter of 2022 ended unfavourably for all categories analysed here. The value of total consumption only falls in these two periods. For industry, we see a decrease in the value of production in six periods, with the largest decrease (by 13%) occurring in the second quarter of 2020. Analysing the value of accumulation, we can see that in the analysed period it is the one that shows the largest number of declining periods. These are declines not exceeding 6%, but they occurred in 10, i.e., half of the analysed periods. Such changes in fixed capital formation may have a negative impact on future economic development.

3. Consumer Sentiment (2018-2022)

The purpose of the household condition survey is to find out the attitudes (behaviour) of consumers and to obtain indicators showing their changes over time. The unit of observation in this survey is a single or multi-person household. A household - is a group of related or unrelated people living together and supporting themselves jointly (multiperson household) or a person supporting himself or herself whether living alone or with others (single-person households). Family members living together but supporting themselves separately form separate households. The current consumer confidence index (CCCI, PL: BWUK), synthesises the current trends in individual consumption,

the leading consumer confidence index (LCCI, PL: WWUK), synthesises the expected trends in individual consumption in the coming months.

The current consumer confidence index is calculated as the arithmetic mean of the balances of responses concerning: assessments of changes in the household's situation in the last 12 months, assessments of changes in the household's situation in the next 12 months, assessments of changes in the general economic situation of the country in the last 12 months, assessments of changes in the general economic situation of the country in the next 12 months and assessments of important purchases currently made. On the other hand, the leading indicator of consumer confidence is calculated as the arithmetic mean of the balances of responses concerning: assessments of changes in the situation of the household, assessments of changes in the general economic situation of the country, the level of unemployment (with an opposite sign) and saving money in the next 12 months. Both indicators of consumer confidence can take values from -100 to +100. A positive value means a numerical advantage of optimistic consumers over pessimistic consumers, while a negative value means a numerical advantage of pessimistic consumers over optimistic consumers (<http://stat.gov.pl/>).

It is important to remember that households and their consumption expenditure accounts for more than half of the value of GDP. This is shown in Table 3. In each of the analysed periods, the share of household consumption in GDP exceeds 50%. The largest share is observed in the first quarter of 2018, with household consumption accounting for 58.44% of GDP. The smallest share is observed in the first quarter of 2022 - 54.6%.

Table 3. Share industry, consumption and gross capita formation in GDP

	Share industry (sections B, C, D, E) in GDP	Share final consumption expenditure in GDP	Share consumption expenditure of the households' sector in GDP	Share gross capital formation in GDP
	(in %)			
1 st quarter 2018	22,77	76,32	58,44	22,59
2 nd quarter 2018	22,8	76,16	58,23	21,3
3 rd quarter 2018	22,73	76,01	57,94	22,03
4 th quarter 2018	22,67	76,18	58,27	21,74
1 st quarter 2019	22,96	76	57,85	20,66
2 nd quarter 2019	22,85	75,75	57,6	22,16
3 rd quarter 2019	22,85	75,79	57,46	21,35
4 th quarter 2019	22,48	75,98	57,98	20,34
1 st quarter 2020	21,88	75,68	56,84	20,52
2 nd quarter 2020	20,98	75,78	55,38	21,39
3 rd quarter 2020	23,24	76,9	57,87	18,85
4 th quarter 2020	23,18	77,26	57,07	19,59
1 st quarter 2021	20,62	76,46	56,89	17,98
2 nd quarter 2021	20,78	75,69	56,15	23,03
3 rd quarter 2021	20,66	75,51	56,63	23,47
4 th quarter 2021	21,6	75,19	56,44	23,55
1 st quarter 2022	20,83	72,55	54,6	24,24
2 nd quarter 2022	21,37	74,76	56,35	24,35
3 rd quarter 2022	21,57	74,17	55,25	25,04
4 th quarter 2022	21,91	72,31	55,48	25,07

Source: Own compilation based on: Quarterly national accounts of gross domestic product 2018–2022, Statistics Poland, Warsaw (2023)

Table 4 below presents a statistical snapshot of the households' assessment of the current economic situation and how this situation may evolve in the near term. Changes in the household's financial situation in 2018-2019 were assessed positively. This concerned both the assessment of the current financial situation and how this situation might look in the future. During this period, households also positively rated changes in the country's overall economic situation or making important purchases. Hence, the consumer confidence index was taking on positive values in 2018-2019. Unfortunately, from the second quarter of 2020 onwards, consumers with a negative assessment of their current and future financial situation or the country's economic situation began to form the majority and the consumer confidence index took on negative values.

Table 4. Current consumer confidence indicator

	Changes in the house-hold's financial condition		Changes in general economic situation of the country		Current major purchases	Current consumer confidence indicator
	over the last 12 months	over the next 12 months	over the last 12 months	over the next 12 months		
1 st quarter 2018	-0,4	4,1	9,1	4,5	12,4	5,9
2 nd quarter 2018	0,8	4,3	9,8	4,5	13,7	6,6
3 rd quarter 2018	1,7	3,6	9,5	2,5	13,3	6,1
4 th quarter 2018	0,2	2,6	6,2	-0,2	11,9	4,1
1 st quarter 2019	2,1	5,8	7,8	2,2	13,8	6,3
2 nd quarter 2019	6	7,5	9,6	2,3	16,4	8,4
3 rd quarter 2019	5,9	7,1	12,1	2,6	18	9,1
4 th quarter 2019	5,1	4,6	9,3	-2,5	17,4	6,8
1 st quarter 2020	1,8	2	2,4	-8,7	13,1	2,1
2 nd quarter 2020	-9,5	-19,7	-32,3	-47,8	-34	-28,7
3 rd quarter 2020	-5,9	-4,6	-27,8	-21,7	-12,7	-14,6
4 th quarter 2020	-12,4	-11,5	-41,9	-38	-19,8	-24,7
1 st quarter 2021	-13,2	-8,9	-48,4	-34,1	-17,7	-24,4
2 nd quarter 2021	-8,5	-5,2	-38,6	-22,7	-11,5	-17,3
3 rd quarter 2021	-6,7	-4,3	-29,9	-20,3	-7,3	-13,7
4 th quarter 2021	-12,9	-14,6	-36,7	-33	-16,7	-22,8
1 st quarter 2022	-17,7	-25,2	-45,5	-44,5	-26,9	-32
2 nd quarter 2022	-25,1	-31,6	-56,1	-51,2	-35,1	-39,8
3 rd quarter 2022	-31,5	-34,5	-61,2	-52,6	-38,2	-43,6
4 th quarter 2022	-31,2	-34	-62,1	-52,1	-39,6	-43,8

Source: Own compilation based on: Statistic Poland.

The leading consumer confidence index (Table 5), like the current consumer confidence index, took on positive values in the period 2018-2019, indicating that the majority among consumers surveyed had a positive assessment of changes in their household's financial situation, changes in the country's economic situation or changes in the level of unemployment. Only in the area of savings were these negative assessments more numerous than the positive ones. Average ratings below zero in the area of savings occurred in as many as 12 of the analysed periods. In the overall consumer assessment for 2020-2022, the leading consumer confidence index takes on negative values. Unfortunately, the surveyed households have a negative assessment of the changes taking place in their financial situation and in the economic situation of the country.

Table 5. Leading consumer confidence indicator

	Changes in the household's financial condition	Changes in general economic situation of the country	Changes in unemployment (with inverted sign)	Propensity to save (in future)	Leading consumer confidence indicator
1 st quarter 2018	4,1	4,5	13,7	-7,1	3,8
2 nd quarter 2018	4,3	4,5	15,3	-7,4	4,2
3 rd quarter 2018	3,6	2,5	12,8	-8,4	2,6
4 th quarter 2018	2,6	-0,2	8,4	-7	1
1 st quarter 2019	5,8	2,2	8,2	-2,7	3,4
2 nd quarter 2019	7,5	2,3	11,1	0,3	5,3
3 rd quarter 2019	7,1	2,6	9,6	3,2	5,6
4 th quarter 2019	4,6	-2,5	2	2,5	1,7
1 st quarter 2020	2	-8,7	0,3	-0,4	-1,7
2 nd quarter 2020	-19,7	-47,8	-68,9	-8,8	-36,3
3 rd quarter 2020	-4,6	-21,7	-38,5	3,5	-15,3
4 th quarter 2020	-11,5	-38	-50,7	2,1	-24,5
1 st quarter 2021	-8,9	-34,1	-47,4	3,4	-21,7
2 nd quarter 2021	-5,2	-22,7	-25,6	3,3	-12,6
3 rd quarter 2021	-4,3	-20,3	-11,5	2,5	-8,4
4 th quarter 2021	-14,6	-33	-13,8	-8,4	-17,4
1 st quarter 2022	-25,2	-44,5	-17,7	-11,8	-24,8
2 nd quarter 2022	-31,6	-51,2	-16,8	-15,3	-28,7
3 rd quarter 2022	-34,5	-52,6	-19,1	-18,4	-31,2
4 th quarter 2022	-34	-52,1	-31,5	-16	-33,4

Source: Own compilation based on: Statistic Poland. Consumer tendency, December 2018-2022

Conclusion

The Polish economy, like most economies in the world, is changing. These changes are in some periods greater, whereas in others smaller. In the period presented, 2018-2022, the change in the value of GDP indicated economic growth in almost every quarter. However, households did not always assess these changes positively, as evidenced by the negative values of consumer confidence indicators. In 2018-2019, GDP growth fluctuated around 1%, but for consumers, it represented a degree of stability which translated into positive average confidence index values in the final assessment. The next analysed periods, 2020-2022, show even slightly higher GDP periodic growth (2%-4%), but this does not translate into an increase in consumer confidence. Unfortunately, events not directly related to the level of GDP (COVID pandemic, war in Ukraine) have caused a decline in consumer confidence. Both the current and the leading indicator of consumer confidence took negative values. This means that households have a negative view of what is happening (and changes that may occur in the future) in the economy and in their financial situation.

Credit Authorship Contribution Statement

Author's contributions, encompassing conceptualization, literature review, methodology, data analysis, writing, and final approval, reflect her integral role in the research process. The collaborative efforts of the author have resulted in a comprehensive examination of the dynamics between gross domestic product fluctuations and consumer sentiment shifts.

Conflict of Interest Statement

The author declares that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

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