

Inflation in macroeconomic terms

Nina Dubiel¹, Jakub Łomozik¹

¹Academy of Applied Sciences in Bielsko-Biała, Poland

Abstract— The modern economy, which dynamically responds to both internal and global changes, is exposed to fluctuations in the level of inflation, which have a significant impact on monetary policy, the stability of financial markets and consumer behavior. Understanding this phenomenon and the ability to analyze its effects are therefore becoming indispensable not only for economists, but also for every citizen operating in the realities of a market economy. The results provided important information on how respondents felt about further price increases, which may be useful for further analyses and practical recommendations. The first part of the article discusses the concept of inflation, and the next part discusses the research results.

Keywords— inflation, price, expenses

I. INTRODUCTION

Inflation is one of the key economic phenomena that significantly affects the functioning of states, businesses and the everyday lives of citizens. Although it is often associated primarily with rising prices of goods and services, its mechanism of action, causes of occurrence and effects are much more complex. In practice, inflation affects the value of money, the level of savings, investments, wages, as well as the way the state conducts monetary and fiscal policy. Inflation is a process whose effects can be both short-term and long-term. It affects not only the condition of the economy, but also the social situation and the sense of economic security of citizens.

The issue of inflation is not only current, but also extremely important in the context of economic management and economic decision-making by citizens and enterprise management.

Ensuring stability in the financial area is possible provided

that effective and efficient supervision and control are in place in this area. The basic task of the company's managers is, above all, to ensure a sense of security in relation to financial undertakings undertaken in connection with the conducted business. The methodology of dealing with risk in the company allows for more effective actions in the scope of achieving the company's goals (N. Dubiel, 2024, p.29).

The aim of this article is to analyze the inflation phenomenon and how it affects the purchasing choices of Poles.

The article uses a systematic literature review method. The research material consists of Polish literature and a survey.

The article is an introduction to further discussion and research on the effects of inflation on a macro- and microeconomic scale.

II. LITERATURE REVIEW

An increase in the level of inflation has various consequences for the economy and citizens. The main effect of inflation is a decrease in the purchasing power of money. For consumers, this means that at a given time they are able to buy less and less of a given good than before. In addition, the savings they have accumulated so far begin to lose value. Inflation increases rational behavior in consumers. "Rationality is visible not only at the level of budget planning and purchases, but also at the moment of making a purchase, as well as during use and even disposal of items" (M. Szczepańska, 2024, p. 141).

In the available literature on the subject, one can find many definitions of inflation. According to P. Samuelson, W. D. Nordhaus, inflation means "an increase in the general level of prices. The rate of inflation is defined as the rate of change in



the general level of prices" (P. Samuelson, W. D. Nordhaus, 2009, p. 402), while M. H. Spencer defines inflation as "an increase in the general level of prices of all goods and services - or equivalently, a decrease in the purchasing power of a unit of money. The general level of prices decreases in inverse proportion to the purchasing power of a unit of money" (Spencer, 1977, p. 478).

What distinguishes the definitions of inflation are their common features, which include a constant increase in prices and services in the economy that reduces the purchasing power of money. The basic determinants of the emergence of inflation include: an increase in the costs of producing goods, inappropriate monetary policy of the central bank, a faster increase in demand than the value of production, or difficulty in predicting the future.

Scientists do not agree on the clear division of the inflation phenomenon according to scale. In various publications, one can see different ways of dividing this phenomenon according to scale. The methods of division differ from each other in the number of distinguished stages and/or range thresholds.

In most countries, inflation is measured by statistical offices. In Poland, the Central Statistical Office measures inflation every month, recording the prices of 240,000 products and services. The Central Statistical Office publishes record the prices of products from the basket in stores, markets, restaurants, hotels, and on the Internet every month (E. Gatnar, 2018, p. 76). In Poland, one of the most popular ways of measuring inflation is the CPI index.

The CPI index (average price level) is the main indicator used to calculate and study the price increase phenomenon in Poland. According to E. Gatnar, "it is characterized by the fact that it shows the change in prices of the same basket of goods and services in the current year (t) compared to the base year (t - 1), while the structure of the basket is determined on the basis of a study of household budgets in the base year (t - 1). Therefore, the weights of the components of the inflation basket are modified once a year" (E. Gatnar, 2018, p. 82). Table No. 1 presents the price indices of consumer goods and services in the years 2022 - 2023.

TABLE 1. PRICE INDICES OF CONSUMER GOODS AND SERVICES IN DECEMBER 2023.

Specification	2022 (t-1)	2023 (t)	Difference [t-(t-1)]
TOTAL	106,2	100,1	-6,1
Food and non-alcoholic beverages	106,0	100,2	-5,8
Alcoholic beverages and tobacco products	109,5	100,0	-9,5
Clothing & footwear	103,3	98,8	-4,5
Use of an apartment or house and energy carriers	109,2	99,9	-9,3
Furnishing the apartment and running the household	105,8	100,4	-5,4
Health	105,2	100,3	-4,9
Transport	97,2	100,2	3,0
Connectivity	106,7	99,9	-6,8
Recreation and culture	105,5	100,3	-5,2
Education	110,3	100,1	-10,2

Specification	2022 (t-1)	2023 (t)	Difference [t-(t-1)]
Restaurants and hotels	109,9	100,5	-9,4
Other goods and services	108,2	99,8	-8,4

Source: GUS, 2024, s.1

The numerical values indicate the price indices for a given year (where 100 indicates no change from the previous year). The last column shows the difference between 2023 and 2022. Table 1 shows that the rate of price growth has slowed. Prices have decreased in some categories. The only category in which prices have increased was transport. The largest decreases in the index occurred in education, housing and household use, restaurants and hotels, and alcoholic beverages and tobacco products.

We can distinguish many types of inflation due to various factors. The most common types of inflation are analyzed due to the size of the scale of the phenomenon, the source of occurrence, and the state in which the economy currently finds itself. Division due to the scale of the phenomenon is the first of the divisions that we can apply to the phenomenon of inflation. This is a division related to the scale on which the phenomenon occurs in the economy. Table 2 lists the types of inflation due to the scale of the phenomenon.

TABLE 2. TYPES OF INFLATION ACCORDING TO THE SCALE OF THE PHENOMENON

Name of the phenomenon	Interval (%)
Creeping inflation	0 - 5%
Rolling inflation	5 - 10%
Galloping inflation	10 - 100%
Hyperinflation	pow. 100%

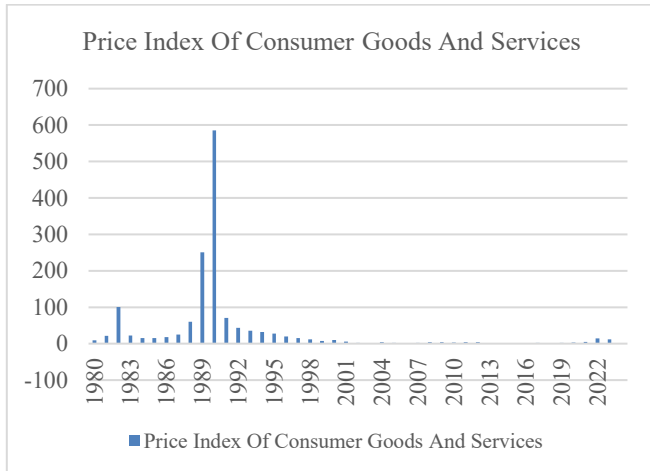
Source: Own study based on K. Barszcz, 2022, p. 2

The phenomenon of inflation and its division based on scale manifests itself in various ways and brings various consequences. From creeping inflation, which has beneficial effects on the economy, it can quickly gain momentum and start generating problems. In addition to creeping inflation, there is also trailing inflation, galloping inflation and hyperinflation. Each of these phenomena is distinguished by different effects that they cause. Trailing inflation does not cause major problems and can be controlled, in complete contrast to hyperinflation, which affects the economy, the value of money and market participants in a terrifying way, completely destabilizing the operation of the economy and paralyzing the market.

Inflation is one of the most important economic indicators, reflecting changes in the prices of goods and services in the economy. Its level affects both consumers and the business sector and public institutions. Poland, as a country with a dynamically developing economy, has experienced various stages of inflation over the years - from hyperinflation in the 1990s, through a period of relative stabilization after accession to the European Union, to the challenges related to the COVID-19 pandemic and the effects of the war in Ukraine. Chart 1 presents the annual price indices of consumer goods and services from 1980 to 2023. Since 2020, Poland has been experiencing negative economic growth. Due to the lockdown, many sectors of the economy have been exposed to serious threats. As the economic crisis in Poland intensified, inflation

also rose. In April 2022, inflation reached 12.4% according to the CPI, which gave it the name of galloping inflation. This situation was significantly contributed to by the reduction in aggregate supply through the closure of many sectors of the economy in the periods in which the government introduced lockdowns.

CHART 1. ANNUAL PRICE INDICES OF CONSUMER GOODS AND SERVICES IN THE YEARS 1980 – 2023



Source: Own study based on the Central Statistical Office, 2024

In addition, the rapid increase in inflation in that period was influenced by:

- Increase in aggregate demand during periods of easing restrictions
- Increase in administered prices (energy, waste disposal)
- Increase in the operating costs of enterprises
- Introduction of sugar tax

The most significant factor influencing the increase in inflation during that period was the multiplied prices of raw materials. The average price of crude oil in November 2021 was 80% higher than a year earlier, the average price of coal increased more than two and a half times, and the price of gas increased five times. In 2022, there were further price increases, especially of gas. This was related to Russia's aggression against Ukraine. The armed conflict caused a reduction in the supply of this raw material in most countries in Europe. In addition, agricultural raw materials also became more expensive, also due to the limited supply from Ukraine. (T. Grabia, 2022 pp. 23 – 25).

III. RESULTS

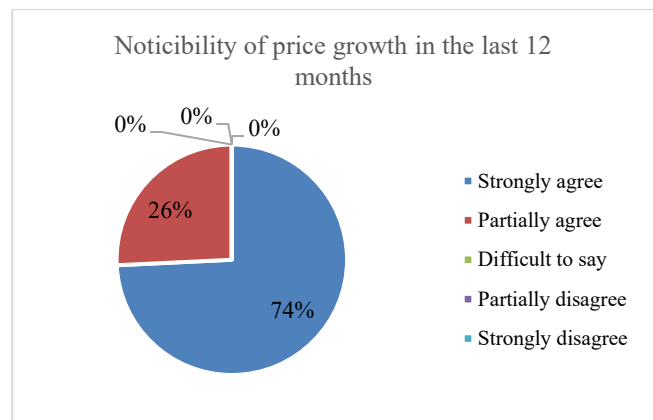
The study aims to prove that price increases caused by inflation have an impact on consumers' daily purchasing choices. Consumers were chosen as the research subject. The concept of a consumer is understood as any market participant who purchases products, goods or services that companies introduce to the market.

A survey was conducted using the CAWI/CAII (Computer-Assisted Web/Internet Interviewing) method, with 66 respondents of different sexes, ages, education levels, living in geographical areas of different sizes and in different professional situations.

The applied survey allowed for collecting information from a large number of respondents and their statistical processing. At the same time, qualitative research was used, enabling a deeper analysis of the phenomena studied, and quantitative methods, which allowed for the presentation of results in a numerical manner and allowed for statistical inference.

Survey participants were asked whether they had noticed an increase in the prices of goods in the last twelve months. The results are presented in Chart 2.

CHART 2. NOTICEABILITY OF AN INCREASE IN THE PRICES OF GOODS AND SERVICES IN THE LAST 12 MONTHS



Source: Own study

Chart 2 shows that consumers unanimously stated that in the last twelve months, the increase in the prices of goods and services was visible to them. The vast majority, 74% (49 people) chose the answer "definitely yes". The option "rather yes" was selected by 26% (17 people) of respondents. No one gave a negative answer. The next question was about how the price increase affected the respondents' consumer decisions. They were asked to mark the options that best described them. Multiple answers were possible. The results are presented in Chart 3.

CHART 3. THE IMPACT OF PRICE INCREASES ON PURCHASING DECISIONS



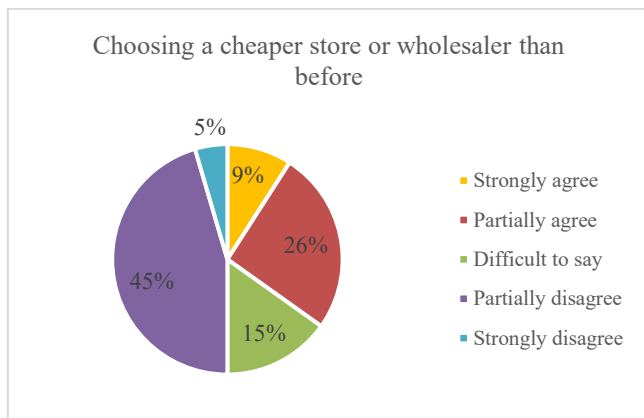
Source: Own study

Chart 3 shows that the increase in the prices of goods and

services definitely affects the purchasing decisions of the respondents. Only two people indicated that the price increase does not affect their purchasing decisions in any way. However, 64 respondents gave very different answers. The most frequently chosen option was to look for promotions and sales. This option was chosen by 56 respondents. The second most popular option among the respondents was to choose cheaper substitutes for products. This option was chosen by 27 people. The third most frequently chosen option was to reduce the frequency of eating out. This option was chosen by 23 people. The less frequently chosen options were: buying online (18 people), reducing spending on basic necessities (15 people), increasing savings in case of further price increases (11 people) and planning purchases well in advance (10 people). Of the respondents, 5 people declared that they had completely stopped buying specific types of products. In the next question, the respondents were asked to list which purchases they had decided to completely give up. Respondents indicated electronic items such as computer games and peripherals, carbonated drinks, premium clothing and cosmetics, and home decorations as their responses.

In the next question, respondents were asked whether, due to the price increase, they decided to change their place of shopping to cheaper stores or wholesalers. The results are presented in Chart 4.

CHART 4. CHOOSING A CHEAPER STORE OR WHOLESALER THAN BEFORE

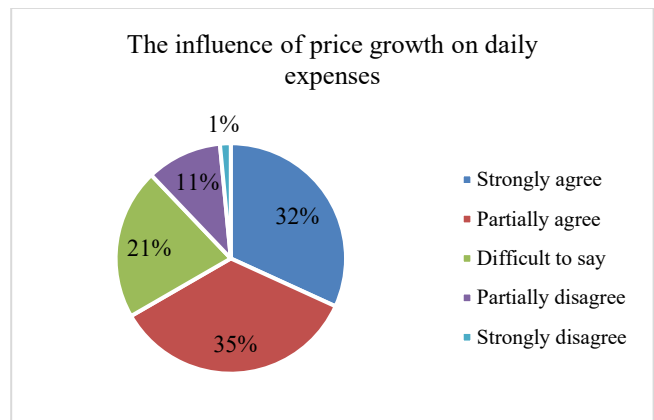


Source: Own study

Chart 4 shows that the opinions of respondents on changing their current place of shopping are divided. The most frequently chosen option turned out to be "rather not". This option was selected by 45% of respondents (30 people). In turn, the option "rather yes" was selected by 26% of respondents (17 people), making it the second most frequently chosen answer. The options "definitely yes" and "definitely not" were less popular. They were selected by 14% of respondents (9 people). The answer "hard to say" was given by 10 respondents. The results of the answers to this question imply that most respondents are not unequivocally sure whether they decided to buy in cheaper stores/wholesalers because of the price increase.

The next question was aimed at finding out whether respondents believed that inflation had affected their daily spending. The structure of the answers to this question is presented in Chart 5.

CHART 5. THE IMPACT OF PRICE INCREASES ON DAILY EXPENSES

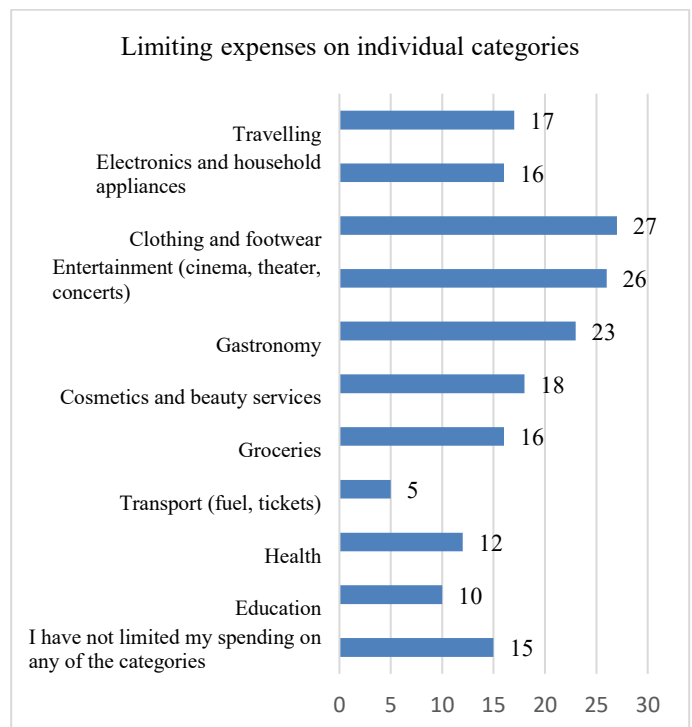


Source: Own study

Chart 5 shows that the increase in the prices of goods and services affects the daily expenses of the respondents. Out of 66 respondents, 67% (44 people) selected the answers "definitely yes" or "rather yes". 12% (8 people) of the respondents selected negative answers. The option "hard to say" was selected by 21% (14 people) of the respondents.

The purpose of the next question was to determine whether, due to rising prices, respondents had reduced their spending on any of the categories listed in the question. Respondents could select more than one answer. The results of the answers to this question are presented in Chart 6.

CHART 6. LIMITATION OF EXPENDITURE ON INDIVIDUAL CATEGORIES



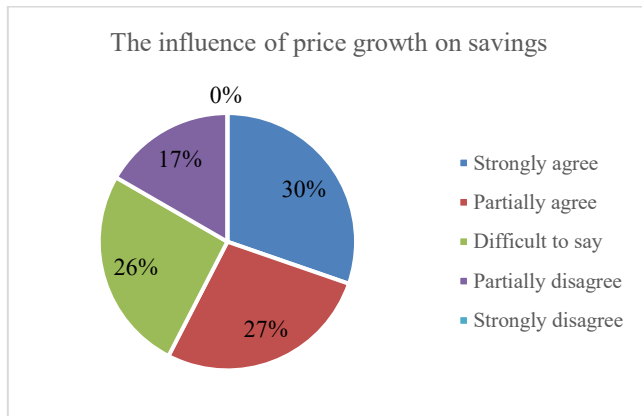
Source: Own study

Chart 6 shows that the three most popular categories that respondents reduced their spending on were clothing and footwear (27 people), entertainment (26 people) and gastronomy (23 people). Slightly less popular choices were cosmetics and cosmetic services (18 people), travel (17 people), food and electronics and RTV/AGD equipment (16 people).

each). The three least frequently chosen options were health (12 people), education (10 people) and transport (5 people). 15 respondents did not reduce their spending on any of the given categories.

The next question was aimed at examining the impact of the increase in the prices of goods and services on the savings of the respondents. The structure of the answers to this question is illustrated in Chart 7.

CHART 7. THE IMPACT OF PRICE INCREASES ON SAVINGS

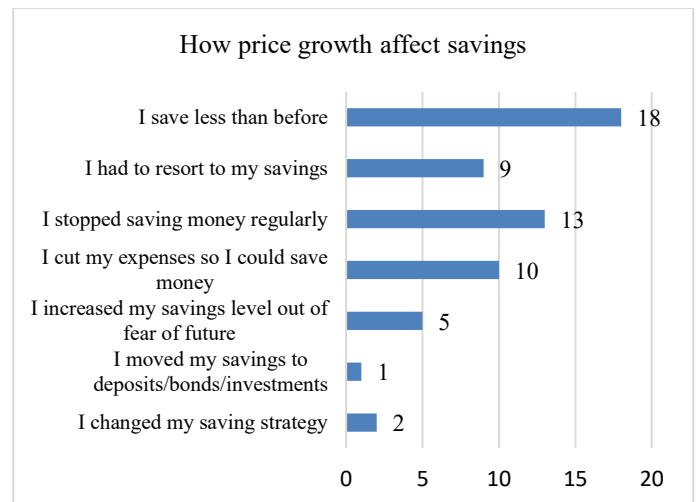


Source: Own study

Chart 7 shows that the increase in the prices of goods and services affects the savings of respondents. The most popular options among respondents were "definitely yes" and "rather yes". A total of 57% (38 people) of respondents indicated them. In turn, the answer "rather no" was given by 17% (11 people) of respondents. None of the respondents indicated the answer "definitely no". The remaining respondents indicated the option "hard to say". There were 27% (18 people).

The next question was linked to the previous one. If the previous question was answered in the affirmative, the respondents were asked to indicate how the price increase affected their savings. There were 7 answer options to choose from. The answers to this question are presented in Chart 8. Chart 8 shows that the increase in the prices of goods and services has a negative impact on the savings of respondents. The most frequently chosen option by respondents turned out to be saving less than before. As many as 13 people stopped putting money aside regularly. Ten respondents indicated that in order to continue saving, they were forced to limit their expenses. In turn, nine respondents indicated that they had to reach for the savings they had previously accumulated. The least popular options were those indicating increasing the level of savings due to fear of the future (5 people), changing the saving strategy (2 people) and transferring savings to deposits, bonds or investments (1 person). The answers provided by respondents indicate that their situation is getting worse due to the increase in prices. They save less than before, stop saving at all or are forced to reach for previously accumulated savings instead of continuing to save. Furthermore, it can be seen that among the respondents, the interest in placing savings in deposits, bonds or investing is close to zero.

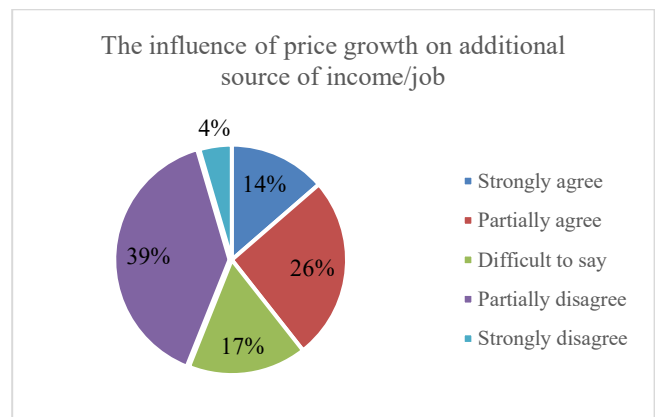
CHART 8. HOW PRICE INCREASES AFFECT SAVINGS



Source: Own study

The purpose of the next question was to check whether, due to the price increase, respondents considered an additional source of income or changing jobs. The results are presented in Chart 9.

CHART 9. PRICE INCREASE AND ADDITIONAL SOURCE OF INCOME/CHANGE OF JOB

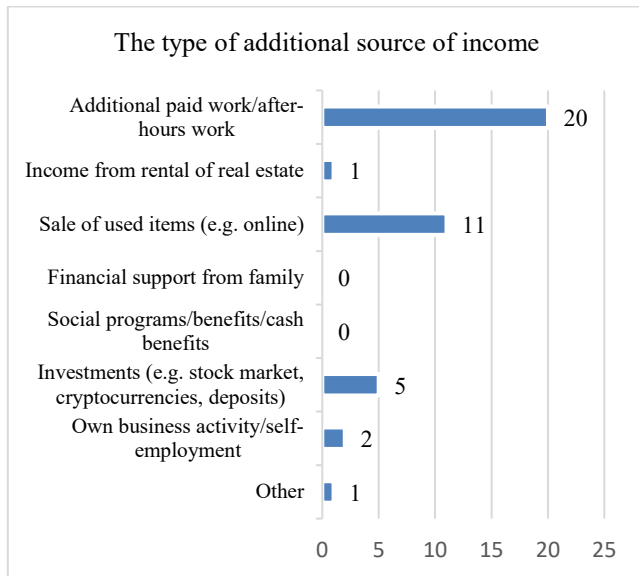


Source: Own study

Chart 9 shows that respondents most often chose the option "rather not". This option was selected by 39% (26 people). The second most frequently selected option was "rather yes". This answer was given by 26% (17 respondents). In addition, 14% (9 people) are determined to look for an additional source of income or change jobs. On the other hand, 4% (3 people) of respondents definitely do not see the need to look for additional sources of income or change their current job. Of all respondents, 17% (11 people) indicated that it was difficult for them to answer this question.

Then the question was combined with the previous question. In the case of selecting the option "definitely yes" or "rather yes" in the previous question, it was necessary to indicate what additional source of income the respondent had in mind. The respondents had several options of additional sources of income to choose from and could enter their own, short answers. The structure of the answers to this question is presented in Chart 10.

CHART 10. PRICE INCREASE AND THE TYPE OF ADDITIONAL SOURCE OF INCOME

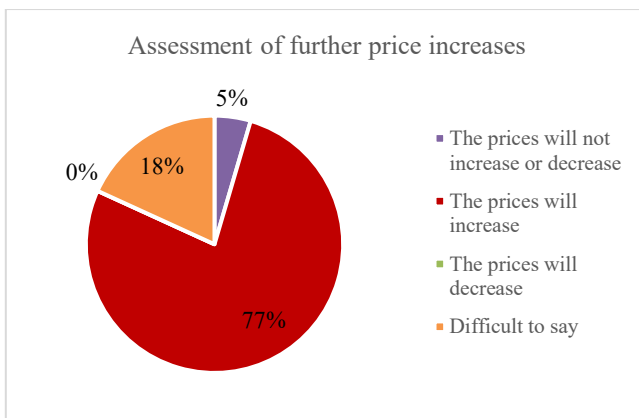


Source: Own study

Chart 10 shows that in order to obtain additional income, respondents are most willing to take up additional paid work or work after hours. This option was selected by as many as 20 respondents. The second option that respondents were most willing to select was selling used items, e.g. online. This option was chosen by 11 respondents. Five respondents indicated investments, e.g. on the stock exchange, in cryptocurrencies or deposits, as an attractive option for obtaining additional income. The options that enjoyed the least interest were their own business activity or self-employment (2 people), and income from rental (1 person). In addition, 1 person indicated that their idea for obtaining additional income was not included in the survey.

The next question was about the respondents' feelings about further price increases. The respondents were asked whether they thought prices would continue to rise, fall or remain the same in the future. The respondents' responses are shown in Chart 11.

CHART 11. ASSESSMENT OF FURTHER PRICE INCREASES



Source: Own study

Chart 11 shows that the respondents' feelings about further price increases are very skeptical. As many as 77% (51 people) of the respondents indicated that prices will continue to

increase. In turn, 5% (3 people) of the respondents indicated that prices will neither increase nor decrease. No person indicated the option regarding price decreases in the future. In addition, 18% (12 people) of the respondents considered it difficult to answer this question.

The last question was an open question and was related to the previous question. The respondents were asked to briefly justify their answer to the previous question. Below are examples of the answers provided by the respondents.

According to the respondents, prices will continue to rise because:

- Price increases are related to technological progress
- Higher prices indicate that the good is of higher quality.
- The respondents show a lack of trust in the government's assurances that prices will fall in the future
- The geopolitical situation in the world is not stable
- The United States has raised tariffs
- Inflation is a natural element of the economy
- The government is not taking appropriate actions to lower prices
- Deflation is impossible
- The minimum wage increases every year, so prices must increase as well
- Energy and production costs are rising
- Public debt is increasing
- According to respondents, prices will neither rise nor fall because:
- Everything depends on the situation in the world, politics, and the presidential elections in Poland
- The respondent doubts that anything will change in this matter soon.

In summary, the respondents definitely notice the phenomenon of price increases in Poland and its impact on their consumer decisions. Most of them managed to identify the ways in which price increases affect their purchasing choices and thus their everyday lives. The respondents are forced to look for promotions, choose cheaper substitutes for products or give up on some purchases. In addition, they notice problems with saving. They are often forced to reach for previously accumulated savings, have difficulty saving to the same extent as before or stop saving at all. Many of the respondents are looking for an additional source of income, among others, by working overtime or taking on additional work.

In addition, the respondents indicated that their opinion on further price increases is very skeptical. They justify their point of view mainly with insufficient actions of the government, the unstable geopolitical situation in the world and the rising costs of energy and production of goods.

IV. CONCLUSIONS

The following conclusions can be drawn from the analysis of the survey:

- In the last 12 months, respondents have definitely noticed

an increase in the prices of goods and services

- The increase in the prices of goods and services affects consumers' purchasing decisions, pushing them, among other things, to look for promotions, choose cheaper substitutes for products or give up certain categories of goods
- Due to inflation, most respondents reduced their spending on categories such as: clothing and footwear, entertainment, gastronomy
- Inflation has a negative impact on the savings of respondents. Respondents reported that they were saving less than before, had stopped saving at all or were forced to reach for previously accumulated savings
- The increase in the prices of goods and services makes consumers more willing to work overtime or take on additional work
- According to respondents, the main causes of inflation in Poland are mainly the government's policy and the unstable geopolitical situation in the world.

V. SUMMARY

Inflation is a phenomenon that is omnipresent in the economy. By inflation we mean the general increase in the prices of goods and services offered on the market. Among the many factors that affect the level of inflation, the most important are the increase in the costs of energy and the production of goods and services, the surplus of budget expenditure over budget revenues known as the budget deficit, and the inappropriate monetary policy of the state. The budget deficit increases, among other things, due to insufficient taxes and excessively high government expenditure. Inflation affects the economy in various ways. The most important effect of inflation is the decrease in the purchasing power of money. This means that in a given period, less of a given good or service can be purchased for the same amount of money.

The survey conducted allowed us to state that inflation is a phenomenon noticeable to the average consumer and has a negative impact on their purchasing decisions. The respondents also expressed skepticism about further price increases. They claim that prices will continue to rise due to the uncertain geopolitical situation and the constantly increasing costs of producing goods and services.

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