

The influence of macroeconomic indicators on consumer's decisions

Introduction

Every year the relationship between countries is becoming stronger. The problems of the most economically developed countries have an impact not only on neighboring countries, but also on the world in general. Often the problems of one country have impact on the whole international community. Mankind is on the verge of great changes that will take place in the near future, the changes that can be overcome only by joint efforts.

Economic situation in the country can in some way be predicted and some appropriate preparations can be made. The best predictions are made on the basis of the state's macroeconomic indicators and indicators of the related economies. In this case, a consumer faces the problem of objective analysis of macroindicators and adequate interpretation of the economic situation in the country.

1. Structure of the macroeconomic indicators of modern economy

1.1. Theoretical justification of the macroeconomic indicators.

World experience

Macroeconomics treats patterns of development of the national economy as a single whole. Economic indicators, also known as national accounts, are calculated to generalize this. The information provided by national accounts is the basis for the development and implementation of state measures forced to improve the functioning of the economy.¹

¹ S. Panchyshyn, P. Ostroverkh, *Introduction to Analytical Economy. Macroeconomics*, Kiev 2006, p. 303.

1.2. Macroeconomic indicators of the United States

The American economist Eric Naiman in his work *Investor* tried to categorize the fundamental indicators into the following three groups²:

- Leading indicators,
- Lagging indicators,
- Coincident indicators.

Essentially, leading indicators are first to show the risk of certain negative effects in the economy. With their help the experts make predictions about the future macroeconomic situation in the country. Lagging indicators confirm the negative effects of processes in the economy. Coincident indicators change almost at the same time as the whole economy, thereby providing information about the state's economy. Coincident indicators include gross domestic product, personal income and retail sales.³ Leading indicators include employment rates, and lagging — the index of industrial prices.

In the USA such set of indicators is used for the analysis of macroeconomic situation⁴:

- 1.2.1. Gross Domestic Product;
- 1.2.2. Producer Price Index;
- 1.2.3. Consumer Price Index;
- 1.2.4. Unemployment Rate;
- 1.2.5. Non-Farm Payrolls;
- 1.2.6. Personal Income;
- 1.2.7. Unemployment Rate;
- 1.2.8. Non-Farm Payrolls;
- 1.2.9. Personal Income;
- 1.2.10. Account Balance;
- 1.2.11. Trade Balance;
- 1.2.12. Retail Sales;
- 1.2.13. Housing Starts;
- 1.2.14. Index Industrial Production;
- 1.2.15. Capacity Utilization;
- 1.2.16. Factory Orders;
- 1.2.17. Durable Goods Orders;
- 1.2.18. The National Association of Purchasing Manager Index (NAPM or index of business optimism);
- 1.2.19. Leading Macroeconomic Indicators;
- 1.2.20. Money Supply (M1, M2, M3);

² E. Naiman, L. Treder, *Investor*, Kiev 2000, p. 117.

³ Ibid.

⁴ Ibid. pp. 117–135.

- 1.2.21. Federal Funds Rate;
- 1.2.22. Federal Government Surplus or Deficit.

1.3. Macroeconomic indicators that are used in Ukraine

Ukrainian macroeconomic indicators, generally in their structure are close to the US. Their complete set can be found on the official site of the National Bank of Ukraine (NBU)⁵:

- 1.3.1. Gross Domestic Product;
- 1.3.2. Producer Price Index;
- 1.3.3. Consumer Price Index;
- 1.3.4. Unemployment Rate;
- 1.3.5. Investments in Capital Assets;
- 1.3.6. External Debt Service Ratio;
- 1.3.7. Gross International Reserves;
- 1.3.8. Retail Sales;
- 1.3.9. Real Personal Income;
- 1.3.10. Final National Consumption;
- 1.3.11. Volume of Industrial Production;
- 1.3.12. Volume of Agricultural Products;
- 1.3.13. Volume of Services;
- 1.3.14. Average Nominal Wages;
- 1.3.15. Exports of Goods and Services;
- 1.3.16. Volume of Imports of Goods and Services;
- 1.3.17. NBU discount rate.

Let us have a look at the macroindicators used in Ukraine and try to compare them with the American ones.

Indicators 1.3.1–1.3.4, 1.3.8 fully meet their American analogues (1.2.1–1.2.4, 1.2.9).

American rate of personal income (1.2.6) essentially corresponds to the Ukrainian indicator of Real Personal Income (1.3.9), and Federal Funds Rate (1.2.18) corresponds to NBU discount rate (1.3.17).

US indicators 1.2.10–1.2.16 are not used in the Ukrainian practice.

Indicators 1.2.7, 1.2.8, 1.2.17 and 1.2.19 do not have analogues in the above set of Ukrainian macroeconomic indicators proposed by NBU. However, such information can be found on the website of State Statistics Service of Ukraine.⁶

⁵ <http://www.bank.gov.ua>.

⁶ <http://www.ukrstat.gov.ua>.

1.4. Macroeconomic indicators of other developed countries

Complete information on EU macroeconomic indicators can be found at the site *European Union: External links to macroeconomic reports and data*. It is a kind of database of hyperlinks to sites of leading European institutions and analytical journals.

While analyzing the economic situation in the EU, the following indicators are used⁷:

- 1.4.1. Gross Domestic Product;
- 1.4.2. Private Final Consumption in Volume;
- 1.4.3. Investments in Volume;
- 1.4.4. External Trade Balance;
- 1.4.5. Current Account;
- 1.4.6. Inflation;
- 1.4.7. Unemployment Rate — Total;
- 1.4.8. Unemployment Rate — 15–24 years;
- 1.4.9. Unemployment Rate — above 24 years;
- 1.4.10. Labour Cost Index;
- 1.4.11. Industrial Producer Prices;
- 1.4.12. Industrial Production;
- 1.4.13. Industrial New Orders;
- 1.4.14. Construction Production;
- 1.4.15. Retail Trade;
- 1.4.16. Government Deficit/Surplus;
- 1.4.17. General Government Gross Debt;
- 1.4.18. Economic Sentiment Indicator;
- 1.4.19. 3-month Interest Rate;
- 1.4.20. Long Term Government Bond Yields.

2. Structure analysis of the adequacy of macroeconomic indicators

2.1. Complete structure of the macroeconomic indicators

Let us consider in details a generalized structure of macroeconomic indicators and describe their essence. The following list of macroindicators was identified based on the above-mentioned indicators of the USA, Ukraine and the EU:

Gross Domestic Product (GDP) — a value, in market prices, of all goods and services created on the economic territory of the country for a given period, except the value of their intermediate consumption.⁸ From a macroeconomic point of view this is the most important indicator, because it reflects the

⁷ <http://epp.eurostat.ec.europa.eu>.

⁸ <http://www.zakon.nau.ua>.

situation in the country. GDP growth is accompanied by the rising of an economy and its growth compared to GDP growth rate of the other states indicates the benefits of investing in the economy of this state.⁹ It is an important hint for a private investor, who is also the consumer, in our understanding.

Producer Price Index — reflects the changes of prices in the industrial sector of economy.¹⁰

Consumer Price Index — reflects the changes of prices of the final products, including labour costs, credit resources, solvency of consumers and other macroeconomic indicators.¹¹

Unemployment Rate — is calculated as the ratio of unemployed people to the total employable population.¹²

Labour Cost Index — shows short-term change of labour cost and total cost of the employment on an hourly basis.¹³

Non-Farm Payrolls — this indicator is commonly used in the analysis, together with unemployment rate, and shows the dynamics of employment in the industry.¹⁴

Personal Income — a very important indicator for the economy of any country that shows the funds that are concentrated by people and which can be spent on buying goods and services and invested in securities, which is especially relevant for countries with developed stock market.¹⁵

Account Balance — the ratio of the entire set of revenues and payments from abroad for a certain period of time (year, quarter, month).¹⁶

Trade Balance is the ratio between the value of exports and imports during a year (or other chosen period), regardless of their terms of payment. The balance of trade is part of the account balance, because of the strong correlation which can be traced between these indicators.¹⁷

Retail Sales — indicator that shows the cost of products sold through retail trade.

Housing Starts — indicator of the number of new homes, put in use for a certain period of time, which are privately owned.¹⁸ This indicator depends on personal income and cost of credit resources.¹⁹

⁹ E. Naiman, L. Treder, op. cit., pp. 117–118.

¹⁰ Ibid., pp. 118–119.

¹¹ Ibid., pp. 119–120.

¹² Ibid., pp. 120–121.

¹³ <http://epp.eurostat.ec.europa.eu>.

¹⁴ E. Naiman, L. Treder, op. cit., p. 122.

¹⁵ Ibid., p. 123.

¹⁶ Ibid., p. 124.

¹⁷ Ibid., p. 125.

¹⁸ <http://www.en.wikipedia.org>.

¹⁹ E. Naiman, L. Treder, op. cit., p. 127.

Index Industrial Production — indicator which shows the amount of total industrial production in money equivalent.²⁰

Volume of Agricultural Products — indicator which shows total amount of all agricultural production in money equivalent.

Volume of Services — indicator which shows total amount of all services provided in the state in money equivalent.

Investments in Volume — total amount of invested funds in the state's economy for a certain period.

Capacity Utilization — indicator which shows the ratio of the actual volume of output products to all production facilities.²¹

Factory Orders — indicator which shows the amount of orders for industrial production in money equivalent.²²

Durable Goods Orders — money equivalent of ordered long-term use (more than three years) consumer goods.²³

Index of Business Optimism — special index that is used in the US which is calculated on the basis of the forecast of 250 high level management of industrial companies on the state economy. It is a subjective opinion of influential market participants about the perspectives of economic development.²⁴

Leading Macroeconomic Indicators — special index that is also used in the US. It is calculated as a set of main macroeconomic indicators weighed on weighing coefficients. The base calculations include the following indicators²⁵:

- employment rate and related labour market indicators;
- inflation and prices of commodities;
- GDP, income, wages and private consumption;
- industrial production, sales, orders of industrial goods and goods of long-term use;
- interest rates and money supply.

This indicator is used for short-term economic forecasting.²⁶

Money Supply (M1, M2, M3) — indicator which is difficult to be clearly classified, because its interpretation depends on the country to which it is applied. For example, let us use the American interpretation of the money supply. Indicator M1 — the most short-term and liquid money supply, which includes

²⁰ Ibid., p. 128.

²¹ Ibid., p. 129.

²² Ibid., p. 130.

²³ Ibid., p. 131.

²⁴ Ibid., pp. 131–132.

²⁵ Ibid., pp. 132–133.

²⁶ <http://www.en.wikipedia.org>.

traveller's cheques and deposits on demand. M2 includes M1 money supply and short-term deposits and savings accounts as well as deposits in the open money market funds. M3 includes M2 money supply, long-term deposits, and buyback agreements.²⁷

Interest Rate of the Central Bank — shows the cost of money to commercial banks that turn to Central Bank to cover short-term liquidity.²⁸

Government Deficit occurs when expenses of the state budget exceed the budget income. If income exceeds expenses, then this situation is called a surplus, but in practice it happens very rarely.²⁹

Long-term Government Bond Yields indicator, which shows the profitability of state bonds.

2.2. Quality evaluation of macroeconomic indicators

The European Statistical System (ESS) has defined the following quality criteria to be applied to statistical data: Relevance, Accessibility and Clarity, Timeliness and Punctuality, Coherence, Comparability and Accuracy. Their definitions can be found on the official website of Eurostat.³⁰

It should be noted that the IMF created Special Data Dissemination Standard (SDDS), which can be freely joined by any country of the world. This standard is obligatory to be executed by most of the leading countries of the world.³¹ One of them is Ukraine, which is committed to fulfilling the above standards for all the statistical information.

There are four parameters of data dissemination allocated in SDDS.³²

- periodicity (frequency) and timeliness of the data;
- accessibility to public;
- reliability of data distribution;
- quality of distributed data.

The criteria listed above play a significant role in the collection and distribution of statistical data also when calculating the macroeconomic indicators. Observance of these criteria by economically and politically developed countries provides public access to quality information on macroeconomic indicators.

²⁷ E. Naiman, L. Treder, op. cit., pp. 133–134.

²⁸ Ibid., p. 134.

²⁹ Ibid., pp. 135–136.

³⁰ <http://epp.eurostat.ec.europa.eu>.

³¹ International Monetary Fund, *The Special Data Dissemination Standard: Guidance for Subscribers and Users*, Washington, DC 2007, pp. 1–4.

³² Ibid., p. 1.

3. The influence of macroeconomic indicators on consumer's decisions

3.1. Macroeconomic indicators that have a direct influence on consumer's decisions

According to the list 2.1.1–2.1.24, there have been selected indicators that have direct effect on the consumer's expectations and on his decisions. Also, we have taken the information about consumption expenditures in the EU (see Figure 1) to use it in our analysis as a result of consumer's decisions. All statistical information was taken from Eurostat.

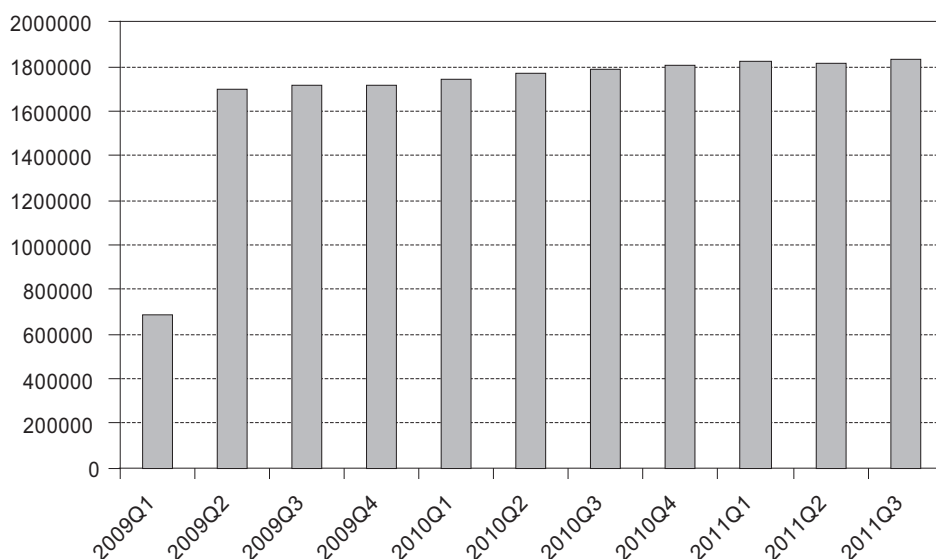


Fig. 1. Consumption expenditure in EU — quarterly data (mln EUR)

Source: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=teina020&plugin=1>.

3.1.1. Producer Price Index (PPI) and Consumer Price Index (CPI)

CPI should be considered together with PPI, because it is more important for the average consumer, since it reflects the change of value of a finished product, including labour costs and credit. We should note that the dynamics of PPI is usually ahead of CPI and it is used by many analysts as an estimate value in determining the rate of inflation.³³

³³ E. Naiman, L. Treder, op. cit., pp. 119–120.

The growth of consumer price index shows an increase in prices for consumption goods, a rational consumer will try to buy more goods than he needs at the moment to avoid increased costs in the future.

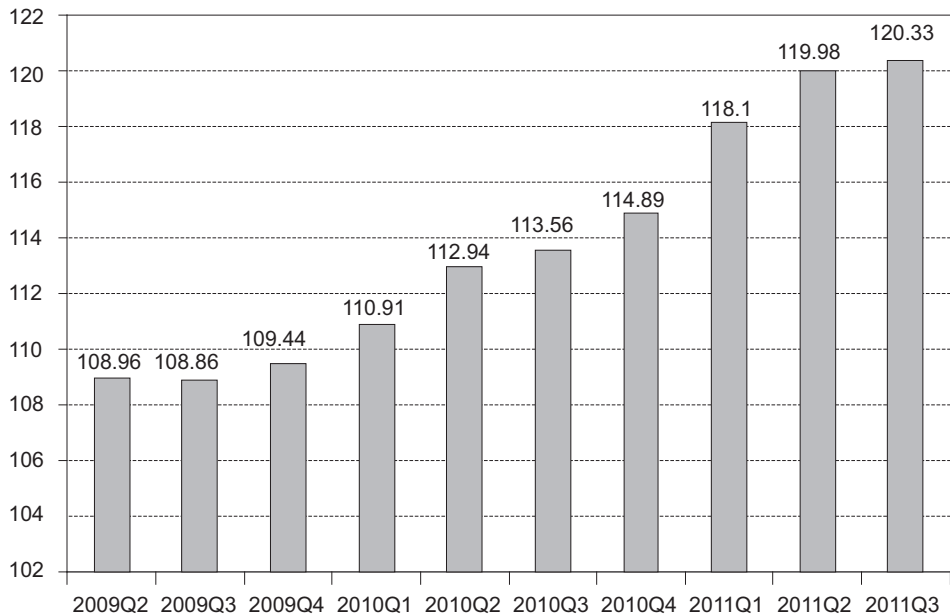


Fig. 2. Producer prices index — quarterly data

Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=sts_inpp_q&lang=en.

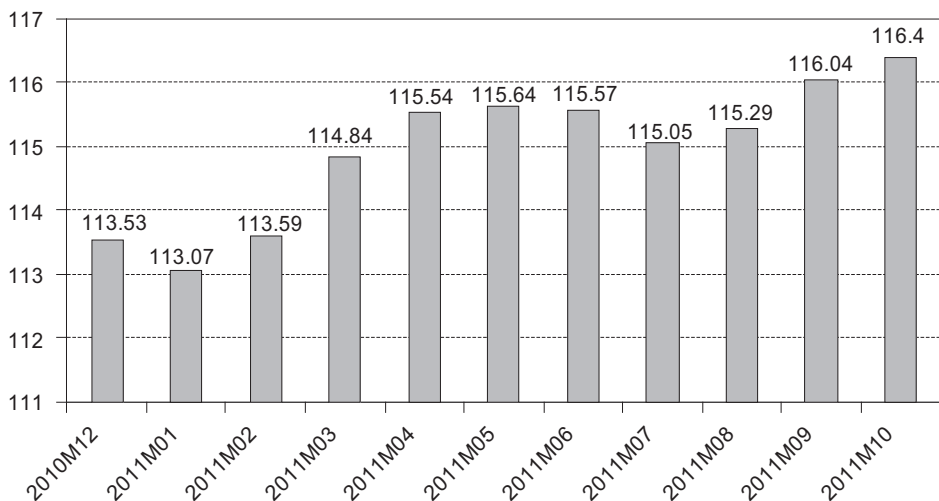


Fig. 3. Consumer prices index — monthly data

Source: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=teicp000&plugin=1>.

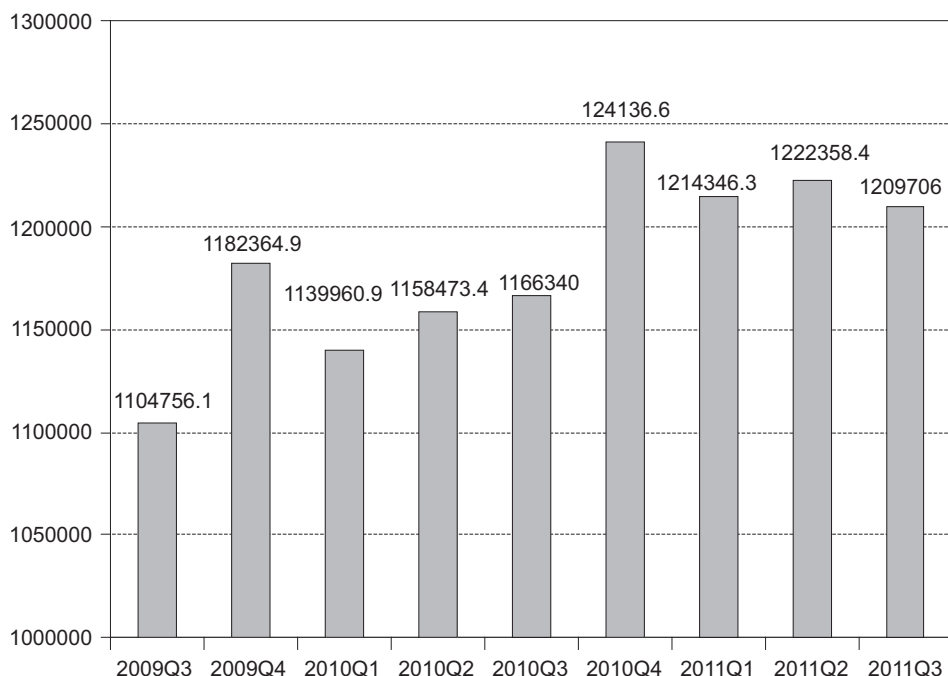


Fig. 4. Personal income — quarterly data (mln EUR)

Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=naia_q&lang=en.

A decline in consumer price index or the index of industrial prices in the modern economy is a really rare situation. With indexes value reduction consumers will attempt not to buy goods they need for as long as possible (except the cases of a great need) and wait for the lowest price. Because of this economy will suffer losses due to the reduction in the number of sold products.

If we take a look at Figure 2 (information about PPI) and Figure 3 (information about CPI), we will see that both indicators have a tendency to grow. The correlation index between PPI and consumption expenditure in the analyzed period is 0.9528, which proves our hypothesis because consumer expenditures and PPI show the same tendency.

3.1.2. Personal Income and Labour Cost Index

The level of consumption is proportional to personal income, the higher the personal income is, the greater the level of consumption will be, and if there is a tendency for an increase in personal income, then the consumption will grow even more.

Personal income consists mostly of a salary, as for the vulnerable groups it is based on social benefits from the state.

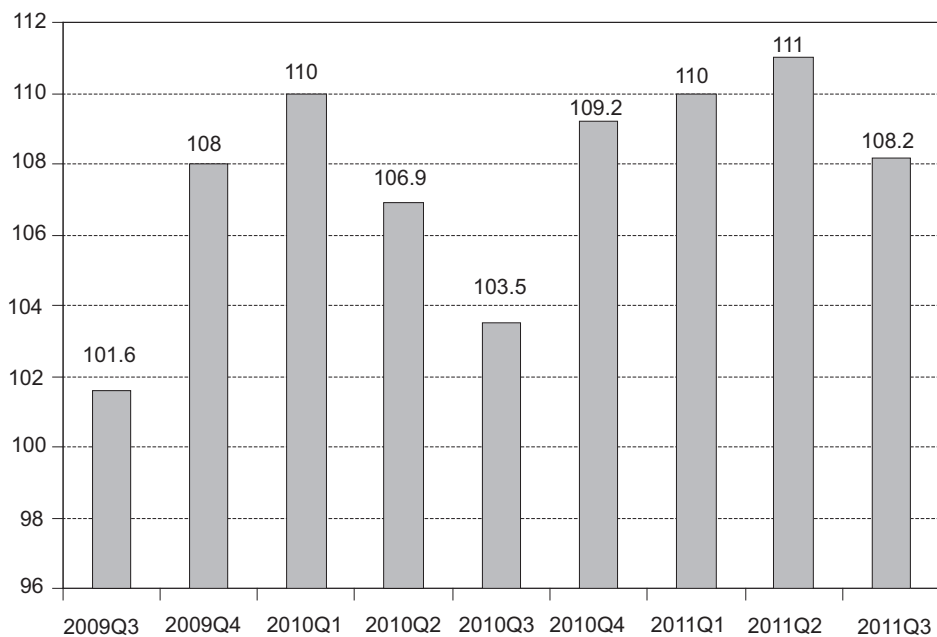


Fig. 5. Labour cost index — quarterly data

Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=lmcl_q&lang=en.

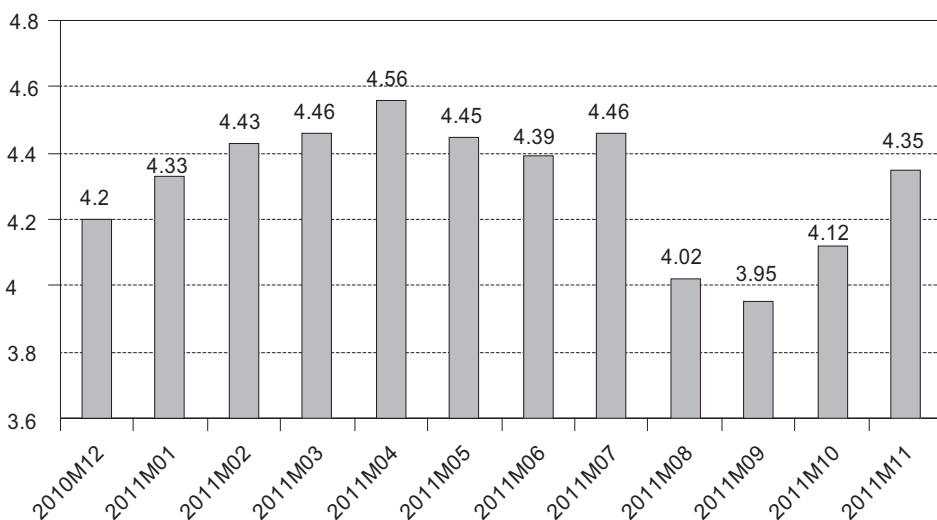


Fig. 6. Long-term government bond yields — monthly data (%)

Source: <http://epp.eurostat.ec.europa.eu/tgm/table.do?tab=table&init=1&language=en&pcode=teimf050&plugin=1>.

Labour cost index has one of the biggest influences on consumer's decisions together with the level of personal income. Even if the Labour cost index in crisis moments declines, due to the later tendency for an increase it can positively influence consumption growth, because workers have hopes for the future increase of personal income.

Let us note that the level of personal income is related to the indicator of retail sales. Retail sales do not cause consumer actions in the market; they are the result of these actions because they show purchasing possibility of a population.³⁴

In Figures 4 and 5 we can see that both indicators have a tendency to grow, which positively influences the consumption.

3.1.3. The indicator of housing starts

The value of housing starts depends greatly on the cost of credit resources.³⁵ Housing booming is possible at the time when these resources have a low price. At that moment consumers should think about the possibility of buying a new property, because usually a strong boom in the market is soon followed by the downturn, and the main thing is not to miss the right moment.

3.1.4. The volume of investments

Investments into the economy are important for both the state as a whole and for each citizen in particular. The volume of investments is interesting for a consumer because based on the structural analysis of these investments we can identify areas of the economy that will be actively developed in the near future. Therefore, considering a simple citizen as a consumer who is armed with this knowledge, he can be a successful player in the stock market. Thus, information on investments by industries, or even more — enterprises, is very important for him.

3.1.5. Long-term government bond yields

Long-term government bond yields are a kind of tool to attract additional funds to cover the budget deficit. They are among the safest types of securities for investors, but the change in profitability of such bonds brings some dangerous consequences to their owner (consumer) in time.

In case the rate on government bonds falls, it will negatively display on the personal income and of course on the level of consumption, which will fall too.

³⁴ E. Naiman, L. Treder, *op. cit.*, p. 119.

³⁵ *Ibid.*, p. 127.

However, in the situation when the profitability of long-term government bonds increases, the danger for the investor is even greater. At a first glance it seems that the holders of these securities will receive a higher income, but it is only a superficial analysis. In fact, the state raises the profitability of its bonds when there are problems in the economy and there is a great need for additional funds. Therefore, it is a signal for consumers about the negative changes in the economy that can lead to a significant decline in business activity.

So we can make a conclusion that the best situation for the consumer is when the profitability of government bond yields remains stable.

In Figure 6 we have information about long-term government bond yields (EU-27 countries) for the period between December 2010 and November 2011.

3.1.6. Interest rate of the Central Bank

Interest rate of the Central Bank determines the price of money for commercial banks, so it is directly proportional to the cost and availability of credits to the public.

The effect of interest rate works the following way. The high level of price causes an increase in interest rates, which leads to a decrease in borrowing level used to finance consumer or investment spending. Reduction of prices has the opposite effect, causing a decrease in interest rates, which in turn leads to an increase in borrowing level used to finance consumer or investment spending.³⁶

Thus, the interest rate of the Central Bank has an impact on the macroindicators, such as durable goods orders and factory production. For the average consumer of course the best situation is when the interest rate is as low as possible. It encourages him to consume more.

Although the interest rate of the Central Banks in the EU (Figure 7) has a tendency for an increase, it could not influence the consumption much, because the growth of this indicator started two quarters ago and before that it had been stable.

3.2. Macroeconomic indicators that give a general description of the economic situation in the country for the consumer

Indicators such as gross domestic product, unemployment rate, non-farm payrolls, account balance, trade balance, industrial production index, the volume of agricultural products, the volume of services, capacity utilization, index of business optimism, index of leading macroeconomic indicators, money supply and

³⁶ <http://www.amosweb.com>.

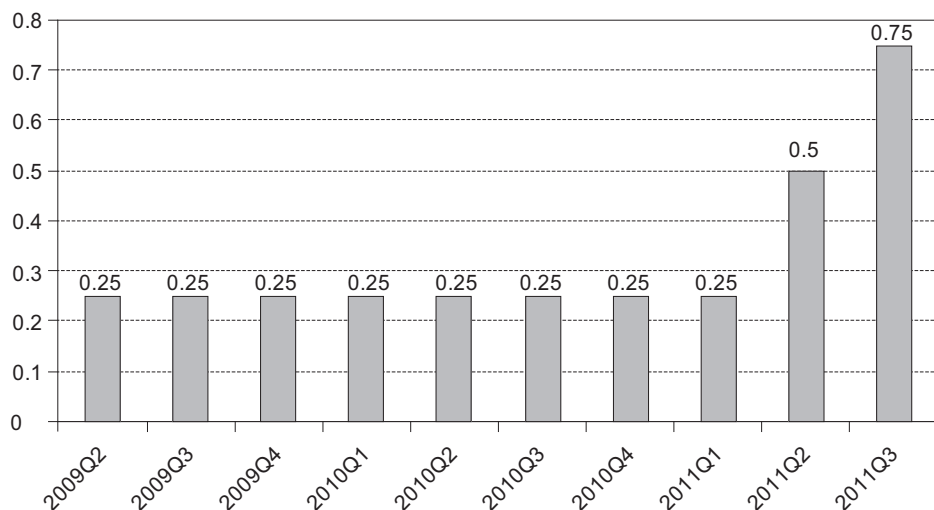


Fig. 7. Interest rate of Central Banks — quarterly data (%)

Source: http://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=irt_cb_q&lang=en.

state budget deficit — give the consumer information about the general economic situation in the country and have an impact on his psychological state. This means that the positive sense of these indicators will make consumers feel the confidence in their future and their welfare, which will positively affect the level of their consumption and certainly cause its growth.

Conclusions

Macroeconomic indicators of the world's leading economies and Ukraine were considered in this paper. The general structure of indicators and their clear definitions were formed.

From the author's point of view, ordinary consumer can make a full analysis of the macroeconomic situation of the state based on the generated list of economic indicators, sufficient enough to make the most rational decisions possible about their consumption.

Possible consumer's actions (expenses) were described which depend on values of particular macroindicators. In view of the globalization of today's world, consumers, based on the analysis of macroeconomic indicators of related economies, can develop scenarios for preventive actions of future consumption or retention of savings by changing their money into currency more stable than the national one.

References

- <http://epp.eurostat.ec.europa.eu>.
<http://www.amosweb.com>.
<http://www.bank.gov.ua>.
<http://www.en.wikipedia.org>.
<http://www.oecd.org>.
<http://www.ukrstat.gov.ua>.
<http://www.zakon.nau.ua>.
 International Monetary Fund, *The Special Data Dissemination Standard: Guidance for Subscribers and Users*, Washington, DC 2007, pp. 1–4.
 Naiman E., Treder L., *Investor*, Kiev 2000, pp. 117–135.
 Panchyshynand S., Ostroverkh P., *Introduction to Analytical Economy. Macroeconomics*, Kiev 2006, pp. 302–303.

The influence of macroeconomic indicators on consumer's decisions

Summary

The purpose of this article is to analyze the influence of macroeconomic indicators on consumer's decisions. The author tried to compile a list of macroindicators that would be most useful for a consumer in his decision making. Also, he tried to show the way these indicators influence consumption, using the example of EU statistical data.