
THE MAIN INTERCONNECTIONS BETWEEN BALANCE OF PAYMENTS INDICATORS AND THE MACROECONOMIC AGGREGATES RESULTS

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Abstract

In this paper, the authors present interconnections established between balance of payments indicators and the macroeconomic indicators of results. It is contemplated that the balance is reflected in the macro mode in which the interconnections mentioned above.

Thus, GDP is correlated with its structural elements. In this sense, considering the connections established between GDP and the international trade and its two components (import and export). Connections are formalized analyzed using relevant statistical and mathematical relationships. Based on these interdependencies, can extend analyzes using econometric methods. By calculating regression parameters can be estimated trends in macroeconomic indicators.

Keywords: gross domestic product, balance, national account, the aggregate economic agent.

JEL Classification: E60, F13

Introduction

Balance of Payments (BoP) can be defined, generally, as a statistical picture of international economic transactions that occur between agents resident and non-residents of a country, transactions that are carried out during a period (year, quarter, month) . Despite its name, not only interested in BP payments in the ordinary sense, but all transactions, even if some of them do not include the payment currency.

BP in a specific form, narrower - is actually an integral part of National Accounts (account 8 „rest of the world”), which is why between balance of payments indicators and key macroeconomic aggregates identifies a number of key relationships in the study of internal and external economic imbalances, their funding and their incidence on the economic situation of the country.

Literature review

Anghelache, Manole, Anghel, Popovici (2016) studies the impact of balance of payments indicators on macroeconomic outcomes. Anghelache Mitra and Voineagu (2013), Anghelache et.al. (2006), Anghelache and Capanu (2003, 2004), Anghelache and Anghel (2016) presents indicators and instruments of macroeconomic statistics. Albu (2007) describes the effect of FDI on the labor market and, by extension, on the Romanian economy. Studies on the use of models in macroeconomic analysis and forecasts can be found in Turnovsky (2000), Anghel and Diaconu (2016), Anghelache Jackal (2016), Anghelache et.al. (2016), Anghelache et al. (2015, 2015b), Bardsen, Nymagen and Jansen (2005). Censolo and Colombo (2008) study the structure of public consumption. Sokolovska and Sokolovsky (2015) deals with the connection between their behavior towards fiscal and macroeconomic indicators. Virjan and Cretu (2015) addresses a number of indicators on the employees of a certain age.

Céspedes and Velasco (2012) were the dynamics of macroeconomic indicators where developments / outliers commodity prices. Savor and Wilson (2013) analyzes the impact of macroeconomic risks on investors. The issue of macroeconomic developments and correlations was approached by Anghelache (2010), which studied the situation in Romania, Anghelache et.al. (2016), Lucas (2003). Mitroi and Oproiu (2013) focuses on a phenomenon with a major impact on the Romanian economy, namely loans for consumption, in conjunction with income borrowers. Gali and Gambetti (2015) evaluated the effect of monetary policy measures on capital market developments.

Data and methodology

Balance of Payments (BoP) can be defined, generally, as a statistical picture of international economic transactions that occur between resident agents and non-residents of a country, transactions that are carried out during a period (year, quarter, month). Despite its name, BoP is not only interested in payments in the ordinary sense, but all transactions, even if some of them do not include the payment in currency.

BoP in a specific form, a narrower form - is actually an integral part of National Accounts (account 8 „rest of the world”), which is why between balance of payments indicators and key macroeconomic aggregates there are a number of key relationships in the study of internal and external economic imbalances, their funding and their incidence on the economic situation of the country.

Consequently, BoP is an element of National Accounts which provides a comprehensive and detailed framework for collecting and presenting a country's international economic statistics.

The standard components of the BoP are grouped into two main sections:

- Current transactions:
 - Goods exported and imported (including distribution services relating to the property, made to the customs border of the country from where they are exported), therefore, the assessment of exports and imports of goods is in FOB price. This component constitutes the main element of BoP's current account (trade balance).
 - Exported and imported services (passenger and freight transport, tourism, insurance, communication, advertising, etc.).
 - Revenues inputs from abroad and ones paid abroad as labor income (wages), from investments (dividends) and property (interest).
 - Transfers without any counterpart received from abroad and transferred to foreign countries under various forms: transfers of migrant's assets, remittances from emigrants, donations, legacies, pensions, free technical assistance, scholarship, taxes, fines etc.
 - Transfers of capital and financial transfers that reflect changes in the external financial assets and liabilities, which include:
 - Transfers of capital;
 - Direct investment and portfolio (bonds, equities);
 - Loans granted and received short term, medium term;
 - Reserve assets (at BNR), which are made as a distinct category of capital consists of tough financial SDRs, convertible currencies etc.
- These are claims that monetary authorities can have a direct influence in financing of the BoP imbalances and to intervene on the foreign exchange market in order to influence the exchange rate of the national currency.
- Other items (transit accounts, clearing / barter).

There is also a third section „errors and omissions (net)” which is a residual item, due to various causes (unreliable data sources, „flee” the country's currency, etc.).

The result is the current account balance of current transactions, in which the main component is the trade balance. The capital and financial account balance is the one that shows the ways for external financing of the current account deficit, of which the most important are loans, investments and decommitments of funds from official reserves.

For the records in debit the meanings are reversed.

The BoP equilibrium equation is:

$$SCC + SF + E = 0 \quad (1)$$

or,

$$SCC = - SF - E, \quad (2)$$

where:

SCC= current account of balance of payments; Measure net transfers of real resources (goods, services, income) and the current transfers without any counterpart between the economy and the world;

SF= financial account balance of payments;

Expresses the net foreign saving, in other words, inflows of non-residents savings without the outflows of residents savings;

E= errors and omissions (net).

Between macroeconomic aggregates the results and indicators balance of payments (BoP) a series of connections is being produced, for which is necessary to highlight the review of some known relations.

The starting point is the identity between supply, demand for final goods and services. The total supply of goods and services in a year is composed of domestic output (GDP) and imports (Imp), while their distribution is given from domestic aggregate demand, CF-final consumption and gross capital-FBC) to which we add external demand (Exp).

$$PIB+Imp = Cpv + Cpb + FPCI + \Delta S + Exp \quad (3)$$

$$PIB = CF + FBC + (Exp - Imp) = CF + FBC + Exp \quad (4)$$

where:

Exp.n = Exp - Imp = the trade balance of goods and services (net exports).

As it is known, GDP is defined as the gross final production realized by the factors of production units within the country (residents and nonresidents).

The structure of the GDP after final use provides analysis of some of the most important rates (rate of consumption, investment rate, the rate of exports and imports), rate whose dynamic development highlights the supporting factors, supply growth (domestic demand, including expansion of branches dependent on supplies from the foreign market, and foreign demand).

After 1989, the net exports was permanently negative, equivalent to import of goods and services which exceeded exports permanently. This development shows that a significant part of the increase in domestic consumption was financed from external resources, a trend that becomes clearly more difficult to sustain.

Gross national product (GNP) measures the final output value realized by the national economical agents (resident) in the country and abroad, so for the GDP we need to add the income balance factors of production compared with other countries (SVFS).

$$PNB = PIB + SVFS = PIB + (VFIS - VFPS) \quad (5)$$

where:

VFIS= revenue received from abroad;

CFPS = income paid abroad.

Depending on the sign of balance, GNP may be higher or lower compared to GDP. The distinction between GDP and GNP is important when an important part of domestic production is realized by external factors, and when the Romanian economic agents obtain income from activities done abroad. National disposable income is obtained if to the net national product (NNP) we add the balance of current transfers with foreign countries (STCS).

$$VND = PNB - A + STCS = PNN + (TCIS - TCPS) \quad (6)$$

Where:

TCIS = current transfers from abroad;

TCPS = current transfers payable to abroad.

VND = is the economy and disposable income possibilities expressed economy final consumption (CF) and saving (EN). So:

$$\begin{aligned} VND &= CF + EN = PNB - A + (TCIS - TCPS) = \\ &= PIB - A + (VFIS - VFPS) + (TCIS - TCPS) = \\ &= CF + FBC + (Exp - Imp) - A + (VFIS - VFPS) + (TCIS - TCPS) = \\ &= CF + FNC + (Exp - Imp) + (VFIS - VFPS) + (TCIS - TCPS) \end{aligned} \quad (7)$$

In the end we obtain:

$$CF + EN = CF + FNC + (Exp - Imp) + (VFIS - VFPS) + (TCIS - TCPS) \quad (8)$$

or

$$EN - FNC = (Exp - Imp) + (VFIS - VFPS) + (TCIS - TCPS) = SCC = -SF \quad (9)$$

where:

SCC = current account balance and balance of payments reflects the difference between net savings and net investment;

SF = financial account balance of payments and external financing arrangements reflect. The last relationship can be written as:

$$EN + SF = FNC \quad (10)$$

Meaning net investments are funded either from domestic savings or from foreign financing (loans, foreign investment, unlocks of the national bank reserves). Saving-investment gap in national accounts indicate national income relations with balance of payments. The size of the external gap is given by the fact that domestic savings only partially cover the domestic investment.

The previous relation can be additionally sectorized, identifying specific indicators of the private sector (sector "the company" and "the Households") and the public sector. To this end we will split the final consumption and gross capital formation in two parts (CPV and Gpb respectively FBCpv and FBCpb), including in the calculation the net government revenues TX (government revenues as taxes, without taking into account government transfers to the private sector).

Eqv Epb

$$\begin{aligned} VND - (CF + FBC) &= (VND - TX - Cpv - FBCpv + (TX - Cpb) - FBCpb = \\ &= (Epv - FBCpv) + (Epb - FBCpb) = SCC = -SF \end{aligned} \quad (11)$$

It is evident that external current account deficit involves insufficient private savings relative to private investment, insufficient public savings relative to government investment or both. Therefore, the contribution to the deficit is highlighted of each sector, making it easier to analyze the causes and taking action.

The importance of this identity should be emphasized. It is the major constraint in savings accounts and suggests a relationship between the accounts of the domestic private sector, government budget and current account of the BoP. In other words, the amount of internal imbalances equals the current account imbalance. If the economy absorbs more resources ($ABS = Cpv + Cpb + FBCpv + FBCpb$) than then - inevitably produce - there will be a deficit in the current account of the country.

In domestic and international publications equilibrium relationship between saving, investment and current account balance of BoP (default balance of external funding) is often highlighted as rates by reporting each of the indicators listed in GDP or GNP.

$$\frac{EB}{PIB} - \frac{FBC}{PIB} = \frac{SCC}{PIB} \quad (12)$$

Sau

$$R_{EB} - R_{FBC} = R_{SCC}$$

Obviously, the savings rate (R_{EB}) is lower than the rate of investment (R_{FBC}) which leads to an increased pressure on BoP ($R_{SCC} < 0$).

Conclusion

By calculating the balance of the balance of payments, according to its sign, PIN and other macroeconomic indicators of results may be higher or lower compared to GDP. The distinction between GDP and GNP is important when an important part of domestic production is realized by external factors, and when the Romanian economic agents income from activities abroad.

It is evident that external current account deficit involves insufficient private savings relative to private investment, insufficient public savings relative to investment guvernamentală or both. There is, therefore, to highlight the contribution of each sector to produce current account deficit, making it easier to analyze the causes and taking action.

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Based on statistical and mathematical relations agreed analysis conducted studies on interconnection of the above indicators may be deep, using econometric methods and models, such as indices method, time series models for single or multiple linear regression. Based on these models, we can calculate coefficients (parameters) regression used in estimating the economic and financial forecasts.

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