PRACE NAUKOWE
Uniwersytetu Ekonomicznego we Wrocławiu
RESEARCH PAPERS
of Wrocław University of Economics

Nr 375

Quantitative Methods in Accounting and Finance

edited by
Edward Nowak
Ruslan Motoryn
Marcin Wierzbiński

Publishing House of Wrocław University of Economics
Wrocław 2015

Copy-editing: Elżbieta i Tim Macauley

Layout: Barbara Łopusiewicz

Proof-reading: Barbara Cibis

Typesetting: Agata Wiszniowska

Cover design: Beata Dębska

This publication is available at www.ibuk.pl, www.ebscohost.com,
Lower Silesian Digital Library www.dbc.wroc.pl,
and in The Central and Eastern European Online Library www.ceeol.com
as well as in the annotated bibliography of economic issues of BazEkon
http://kangur.uek.krakow.pl/bazy_ae/bazekon/nowy/index.php

Information on submitting and reviewing papers is available on
the Publishing House's website
www.wydawnictwo.ue.wroc.pl

ISSN 1899-3192
ISBN 978-83-7695-427-1

The original version: printed

Printing: EXPOL, P. Rybiński, J. Dąbek, sp.j.
ul. Brzeska 4, 87-800 Włocławek

Table of contents

Streszczenia

PRACE NAUKOWE UNIWERSYTETU EKONOMICZNEGO WE WROCŁAWIU
RESEARCH PAPERS OF WROCŁAW UNIVERSITY OF ECONOMICS nr 375 • 2015

Quantitative Methods in Accounting and Finance ISSN 1899-3192

Tetiana Motoryna
Taras Shevchenko National University of Kyiv
e-mail: t.motoryna@i.ua

METHODICAL APPROACHES FOR THE CALCULATION OF INDICATORS OF FINANCIAL FLOWS IN THE HOUSEHOLD SECTOR

Summary: The article presents the concept of financial flows of economic value, the flows that reflect changes in economic value, and the accounting rules applied to the recording of financial flows. The requirements and methodical approaches for the calculation of indicators of financial flows in the household sector of the Ukrainian economy are considered. A definition of financial flows in the household sector are considered. Methodology of System of National Accounts in the part of financial flows and liabilities of households are used. Financial flows and liabilities of households and their estimation is carried out. The concepts of stocks and flows, and the development of the rules for recording the changes in their economic value as part of the System of National Accounts are considered. An estimate of the level and dynamics of the currency indexes of financial flows in the household sector of the Ukrainian economy is provided.

Keywords: System of National Accounts, accounting rules, financial flows, household sector, indicators, economy of Ukraine.

DOI: 10.15611/pn.2015.375.09

1. Introduction

The interaction of financial flows in the household sector with other sectors of the economy can be characterized as follows. According to the model of resource circulation in the private economy sector, households are the end owners of all object-based and personal production factors (Figure 1). The households supply these factors to the resource market (labor, natural resources, production facilities, and debt capital). On this market, companies and organizations purchase the above resources.

After receiving the necessary production factors, companies create goods and provide services (mainly referring to consumer goods and services), which they sell on the goods and services market. On this market, households, in order to satisfy the needs of their members, purchase the goods and services.

In purchasing goods and services, households incur consumer expenses. These expenses constitute income from the sale of goods and services for the companies that supplied such goods and services to the market. The income allows them to cover the expenses required to purchase the necessary resources. By paying for them on the resource market, companies are simultaneously paying incomes to the households for the production factors that the latter supplied to the economy (salaries for the labor provided, income for the production facilities and entrepreneurial skill provided, rent for natural resources, interest for debt capital, etc.).

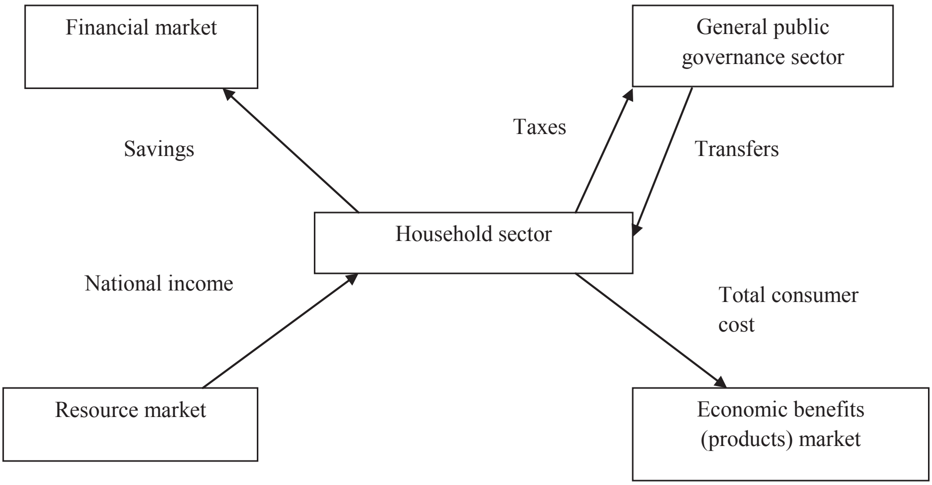

Fig. 1. Model of circulation in a closed economy, with the participation of the public sector

Source: own elaboration.

The state also takes part in the above circulation, not only through markets of goods and resources, but also by being involved with companies and households in relation to the redistribution of incomes (levying taxes from individuals and companies, and paying them transfers, such as donations, subventions, and subsidies). Furthermore, the state provides social benefits to companies and the public, free of charge or at reduced prices.

Naturally, the above circulation model (as with any scheme) is rather abstract and deviates from the particulars of objective reality. However, we believe that it provides a general description of the main monetary and material flows that reflect the relations between the main parties of a market economy.

The System of National Accounts defines a household as a small group of people that live in the same residence, pool together their incomes and property (all or part thereof), and jointly consume certain types of goods and services.

The possibilities of the System of National Accounts (SNA) as an analytical tool arise from its ability to trace the connections between numerous and varying economic events and processes, by measuring them using a single accounting unit.

The accounts of flows in the full sequence of accounts for the household sector of the Ukrainian economy include current accounts that characterize production, incomes, and the use of incomes.

The SNA does not aim to determine the utility of flows and stocks reflected in it. It measures the current market value of operations reflected on the accounts in monetary form, i.e. the value at which goods, services, labor, and assets are being exchanged or can be exchanged for money.

The aim of this paper is to discuss the methodical approaches to the calculation of the indicators of financial flows as an economic value and the accounting rules applied to the reporting of financial flows. These approaches are used to calculate the indicators of financial flows in the household sector of the Ukrainian economy. The methodology of System of National Accounts in the part of financial flows of households are used.

2. Financial operations of households and their estimation

Financial operations include all operations related to the change of title to financial assets, including the creation and liquidation of financial claims. To determine which operations are financial, the following must be distinguished:

– financial and non-financial assets,
– financial operations and other changes in financial assets,
– operations with existing financial assets and operations with nominal financial assets.

Accounting of operations with financial assets is carried out using prices at which such assets were purchased or sold.

The following are characteristics of households as institutional units, related to their participation in operations:

– they have the right to own products or assets in their own name and therefore, can exchange them;
– they can make economic decisions and take part in different kinds of economic activity, for which they are directly responsible and accountable according to law;
– they can accept financial obligations in their own name, accept other types of obligations, or future obligations, and conclude contracts.

All operations must be classified. Operations can be divided into monetary and non-monetary, operations that follow the principle of “quid pro quo” and those that do not. Often, separate identified operations are divided and re-classified to create operation categories in the SNA.

A monetary operation is an operation where one institutional unit effects a payment (receives a payment) or accepts an obligation (acquires an asset) expressed in monetary units. In the SNA, all flows are reflected in monetary form. For example, goods are acquired or sold for a certain number of monetary unit per unit of goods, or hired labor is provided in exchange for a certain number of monetary units per hour or day.

All monetary operations are carried out between institutional units, i.e. all monetary operations are bilateral.

A list of the most typical monetary operations is as follows:

– expenses for the consumption of goods and services,
– purchasing securities,
– salaries,
– interests, dividends and rent,
– taxes,
– social benefits in monetary form.

Bilateral operations, in which one party provides goods, services, labor or assets to the other party and receives a compensation of commensurate value, include expenses for consumer goods and services, the purchase of securities, salaries, interests, dividends, and rent. This type of operation is sometimes called a "quid pro quo" operation. Sometimes, such operations are called an exchange.

Taxes and social benefits are examples of bilateral operations in which one party provides the goods, services or assets to another party, but does not receive compensation in return. This type of operation is sometimes called a "quid pro nil" operation. In the SNA, it is called a transfer.

Such payments as deductions for social insurance or insurance premiums (not related to life insurance) may entitle the paying unit to certain nominal benefits in the future. The household that pays the tax may be able to consume some collective services provided by the units of the general public governance sector, but such payments are viewed as transfers, not exchange operations.

The SNA distinguishes between current and capital transfers. A capital transfer is a transfer which transfers the title to an asset (except for cash and tangible floating assets), or entails an obligation of one or both parties to acquire or otherwise use an asset (except for cash and tangible floating assets). Capital transfers redistribute wealth, but have no impact on savings. They include, for example, taxes on capital and investment grants. The rest of transfers are current. Current transfers redistribute incomes.

They include, for example, income taxes and social security taxes.

The SNA also has cases where operations viewed as single transactions by their participants are divided into two or more different classified operations. For example, payment normally paid by the lessee under a finance lease is not registered as payment for service. Instead, it is divided into two operations: payment of principal and payment of interest. The division of this payment into components is an interpretation that reflects the economic nature of the finance lease in the SNA.

A finance lease is viewed as means for financing fixed assets, and is reflected in the SNA as a loan granted to the lessee by the lessor.

Furthermore, the SNA recommends to divide the interest on deposits payable by financial mediators and interest on loans payable to financial mediators, into two components. The first component is interest as defined in the SNA, while the second component is payment for financial mediation services for which the mediators do not charge explicitly. The purpose of dividing the operation is to show the cost of the service explicitly. This procedure influences the intermediate and end consumption values in separate branches and institutional sectors, including the household sector, as well as the gross domestic product. However, the savings of all units, including financial mediators, are not influenced.

The SNA views some types of events within the scope of one unit as operations, to present a picture of production and end use that would be more useful for analytical purposes. Such operations, in which only one unit takes part, are called internal operations.

Some households, all non-commercial organizations that service households, and all institutions of the general public governance sector are simultaneously acting as producers and end consumers. When an institutional unit takes part in both sides of the operation, after the production process is complete it may decide to consume part or all of the production result. In this case, no operations are carried out between institutional units, but it is useful to reflect the operation and estimate its value in order to record production and consumption in the accounts.

Concerning households, the SNA principle is that all goods produced by persons, subsequently used by the same persons or members of the same household for purposes of end consumption and must be included in production, together with goods sold on the market. This means that there can be operations in which persons that produce the goods are viewed as suppliers of goods to themselves as consumers or to members of their own households – which is why the value of these goods must be determined, to reflect them in the accounts.

In the SNA, illegal actions that satisfy the definition of operations (in particular, the characteristic that entails mutual agreement between the parties) are reflected as well as legal actions. The production or consumption of certain goods or services such as narcotics may constitute illegal operations, which are nevertheless market operations that must be reflected in the accounts. If the expenses of households on illegal goods and services were excluded based on a certain principle, then the savings of households would be overstated, and the accounts would show that households are not receiving certain assets, which, in reality, they are receiving. Obviously, accounts as a whole will contain significant errors if monetary operations that took place were to be excluded. It may be difficult to obtain information about illegal operations, but, in principle, they must be included in the accounts if only to decrease the error in other items, including balancing items.

In the SNA, *other flows* are changes in the value of assets and liabilities that do not result from operations. The reason why these flows are not operations is that they do not possess the characteristics of operations. For example, institutional units cannot be acting by mutual agreement in case of the uncompensated seizure or confiscation of assets or the change in value may be resulting from natural disasters, for instance an earthquake, and not from purely economic events. Another example is when the value of an asset expressed in foreign currency changes because of currency exchange rate fluctuations.

Operations with financial assets and liabilities of households are registered using prices at which they are received or sold. Operations with financial assets and liabilities must be registered in prices net of any commissions, fees and taxes, regardless of whether they are explicitly included in the buyer's price or excluded from the seller's income. This is done because both the debtor and the creditor must reflect the same value of the same financial instrument in their accounts. Commissions, fees and taxes must be reflected separately from the operation with a financial asset and liability, as part of appropriate items. The estimation of financial instruments that excludes commissions is different from the estimation of non-financial assets, which includes any expenses related to the transfer of title.

The value of *other changes in the volume of assets* is calculated as the difference between the estimated value of assets before and after the change in volume, which does not result from any operations and can be viewed as the value of other changes. Other changes in the volume of financial assets and liabilities are registered as the equivalents of market prices for identical instruments. To reflect the write-off of financial instruments estimated at nominal value, the value registered in the account of other changes in the volume of assets must correspond to their nominal value before write-off. In cases of the re-classification of assets and liabilities, the values of new and old instruments must be identical.

In the SNA, operations with financial assets are registered at the time of the transfer of title. Some financial claims or liabilities, such as trade credits and advances, result from non-financial operations and are not viewed differently. In such cases, it is assumed that a financial claim arises when the corresponding non-financial operation takes place. The same rule applies in respect of financial operations between a quasi-corporation and its owner. Both parties taking part in the financial operations can record it at different dates in their accounting documents, because they acquire documents that confirm the operation at different times.

If establishing the precise date at which the title is transferred, the date at which the operation is completed (receipt of payment by the creditor) is registered.

For securities, the date of operation (time of transfer of title to securities) may precede the time of payment (the time of delivery of securities). Both parties must register such operations at the time of transfer of title, and not at the time when the financial asset is provided. Any significant difference between the date of operation and the date of payment results in the creation of accounts payable or accounts receivable.

Under the accrual method, repayment of debt is registered when it is liquidated (for example, paid, restructured or written off by the creditor). When overdue debt arises, no nominal operation is recorded; overdue debt must remain recorded as the same instrument, until the debt is liquidated. If the contract provides for possible changes in the characteristics of a financial instrument when it gets classified as overdue debt, such a change must be reflected as a re-classification, on the account of other changes in financial assets and liabilities. Re-classification applies in cases when the primary contract remains in effect, but its terms change (for example a change in the interest rate or the maturity term). If the contract is concluded anew, or if the nature of the instrument changes resulting from the change of its category (e.g. from bonds to shares), such changes must be registered as new operations.

In cases when households can both pay and receive interest, the same financial instrument can be an asset and a liability. When all elementary items are reflected on accounts at their full value, registration is done *on the gross basis*. The procedure under which the value of some elementary items reflected on one side of the account is subtracted from the value of the same elementary items on the other side of the account, or items with the opposite signs, is called registration *on the net basis*.

The terms "net change in assets" and "net change in liabilities" are used to reflect the nature of financial flows. Financial flows reflect changes as a result of all credit and debit entries during the reporting period. This means that financial flows are reflected on the "net" basis, for each asset and liability. Using these terms also simplifies data interpretation. For assets and liabilities alike, a positive value of change indicates an increase of stocks, and a negative value a decrease of stocks. Interpreting the increase or decrease in the context of credit and debit entries, however, depends on whether the increase or decrease applies to assets or to liabilities (a debit entry for an asset characterizes an increase, while a credit entry for an asset characterizes a decrease). While the debit and credit perception is not essential for the financial accounts, it is important for determining and maintaining crucial correspondence in the accounts. For instance, a credit entry always conceptually corresponds to a debit entry, while the latter relates either to an increase in an asset or to a decrease in a liability.

Operations with financial instruments (financial assets and financial liabilities) are reflected on the financial accounts through their changes, which can be presented as positive or negative values.

The highest liquidity is possessed by those financial instruments that can be exchanged for other financial assets, goods or services, on demand and without financial penalties. These include gold, cash, and deposits. Deposits are divided into transferable and non-transferable ones; the latter are less liquid.

The group of lower-liquidity financial instruments includes such securities as bills of exchange and bonds. One of the possible classification criteria for securities and loans is their payment maturity, i.e. division into short-term and long-term.

Financial assets with the lowest liquidity are insurance technical reserves and other receivables/payables.

Analyzing the financial account of the Ukrainian economy for 2011, broken down by institutional sectors, allows concluding the following (table 1).

In 2012, non-financial corporations required net borrowings of UAH 173,860 million. This resulted in the acceptance of liabilities for UAH 426,525 million, and the acquisition of financial assets for a total of UAH 232,963 million. The difference between these two values equals net borrowings.

Table 1. Financial Accounts of Ukraine, 2012 (actual prices, mil. UAH)

	Non-financial corporations	Financial corporations	General public governance sector	Households	Non-commercial organizations servicing households	Total for economy
Net lending (+), net borrowing (–)	–173,860	–4,709	–59,602	150,234	678	–87,259
Statistical discrepancy	19,702	3,745	-7,837	0	239	15,849
Net acceptance of financial liabilities	426,525	88,398	63,675	-13,553	–10	565,035
Cash and deposits		81,022				81,022
Securities, except shares	42,179	5,727	61,970			109,876
Loans and credits	79,073	–31,860	-17,111	–13,533	–11	16,558
Shares and other forms of capital interest	98,742	16,256				114,998
Insurance technical reserves		2,938				2,938
Other payables	206,531	14,315	18,816	-20	1	239,643
Net acquisition of financial assets	232,963	79,944	11,910	136,681	429	461,927
Bank gold and special borrowing rights		3,028				3,028
Cash and deposits	26,781	–24,781	–8,847	130,204	424	123,781
Securities, except shares	38,094	15,958	–	879	1.	54,932
Loans and credits		23,083	5,522			28,605
Shares and other forms of capital interest	29,172	18,243	7,000	3,685	–	58,100
Insurance technical reserves	1,524	241		1,175	...	2,940
Other receivables	137,392	44,172	8,235	738	4	190,541

Source: State Statistics Service of Ukraine.

Similarly, the financial corporations segment showed net borrowings of UAH 4,709 million, financed by net acceptance of liabilities for UAH 88,398 million and net acquisition of assets for UAH 79,944 million.

The general public governance sector required net borrowings of UAH 59,602 million. This sector accepted net financial liabilities of UAH 63,675 and acquired financial assets for UAH 11,910 million.

The household sector, where net lending amounted to UAH 150,234 million, achieved that result by accepting liabilities of UAH (13,533 million) and acquiring financial assets for UAH 136,681 million.

Non-commercial organizations servicing households showed a net lending of UAH 678 million, financed by decreasing financial liabilities accepted by UAH (10 million) and acquiring financial assets for UAH 429 million.

3. Conclusions

Therefore in 2012, net lending in the Ukrainian economy was financed mainly by the household sector. In this sector, the amount of financial assets significantly exceeded the amount of liabilities accepted compared to other sectors of the Ukrainian economy.

References

Ackley G., 1961, *Macroeconomic Theory*, Macmillan, New York.

Evans M. K., 1969, *Macroeconomic Activity: Theory, Forecasting, and Control*, Harper & Row, New York.

Friedman M., 1957, *A theory of the consumption function*, Princeton University Press, Princeton.

http://www.ukrstat.gov.ua/.

Keynes J.M., 1973, *The General Theory of Employment, Interest and Money*, Macmillan, London.

Modigliani F., 1954, *Utility analysis and the consumption function: An interpretation of cross-section data*, [in:] K. Kurihara , F. Modigliani, R. Brumberg (eds), *Post-Keynesian Economics*, New Brunswick: Rutgers University Press, pp. 388-436.

OECD, Economic Outlook № 88. StatExtracts, Acceess mode: ttp://stats.oecd.org/Index.aspx?-DataSetCode=EO88_FLASHFILE_EO88–Screentitle.

The World Bank, Access mode: http://www.worldbank.org/ – Screen title.

U.N., 2009, System of National Accounts 2008. New York, Sales No. E.08.XVII.29.

Кізима Т.О., 2010, *Фінанси домогосподарств: сучасні парадигми та домінанти розвитку*, Знання.

METODYCZNE PODEJŚCIE DO OBLICZANIA WSKAŹNIKÓW FINANSOWYCH W SEKTORZE GOSPODARSTW DOMOWYCH

Streszczenie: Wymagania i metodyczne podejście do obliczania wskaźników przepływów finansowych w sektorze gospodarstw domowych ukraińskiej gospodarki są uważane za istotne z punktu widzenia zachowania ich siły nabywczej. Autorka prezentuje w artykule metodyczne podejście do oceny sytuacji finansowej gospodarstw domowych na Ukrainie.

Słowa kluczowe: gospodarstwa domowe, ocena sytuacji finansowej gospodarstw domowych.