

# ***MEASURING ECONOMIC PERFORMANCE:***

# ***THE CASE OF SERBIA***





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## FOREWORD

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**Official statistics is a significant tool for national and international policy makers, businesses and the society at large when making decisions and measuring their effect.** It is consequently an essential basis for democratic and market-oriented societies.

To ensure comparability as well as secure confidence in official statistics common guidelines should be adhered to. For the European Union (EU), Eurostat has the task to gather and publish comparable statistical information from the statistical offices in the member states at EU level. To enable this work a common statistical 'language' that embraces methods, structures and technical standards within the European Statistical System has been developed. This is formalised in numerous directives and regulations and is referred to as the *acquis communautaire* on statistics.

Official statistics that is harmonised with EU standards is a requirement in the Stabilisation and Association process and in the EU membership negotiations. Moreover it plays a dual role in these processes. Firstly, an individual chapter of the *acquis communautaire* on statistics defines the harmonisation with EU standards and has to be implemented in the pre-accession period. Secondly, official statistics serve all public management areas by providing the data for monitoring the changes and assessing the impact of the policies chosen.

After Serbia was recognised as a potential candidate country for EU accession at the Thessaloniki Summit in June 2003, the requirement to align with the EU standards including those on statistics is one that the country has to meet. Therefore, Eurostat follows with great interest the work and efforts made by the Statistical Office of the Republic of Serbia in this area.

This publication is an evidence of some of these efforts and I would like to compliment all involved on the work done. The work has however not finished therewith, and I would consequently like to take the opportunity to stress Eurostat's commitment to cooperate with the Statistical Office of the Republic of Serbia and its partners in building up a coherent and sustainable statistical system that produces official statistics in compliance with EU standards.

Luxembourg, October 2007

**Pieter Everaers**

**Director  
Eurostat  
European Commission**



## PREFACE

It is a great satisfaction for me, in my capacity of Director of the Statistical Office of the Republic of Serbia, to provide our economists, policy-makers and international partners with a product they have certainly been waiting for.

Not only should this publication help, with its detailed but clear methodological explanation, in understanding of the processes that lead to the production of Serbian National Accounts and of its main aggregates, but it should also reflect the new way in which our Office intends to communicate with its users. It is marked by full transparency and maximum efforts that are put in description and analysis of essential data.

In the light of the national accounts data presented and analysed herein, it is encouraging to observe improvements in the performance of our economy and to identify and measure the factors that have mainly contributed to our GDP growth. Our readers will also appreciate knowing where some weaker points of our economy still lie. These should represent objective and essential inputs to allow for targeted corrective measures.

Moreover, this publication is a result of a significant upgrading of our Office's structural capacity to produce reliable macro-economic indicators of good quality, which will be beneficial to all users of our data. Making our progress towards national and international requirements will much depend on how we manage this change for better. Of course, this work does not end here, and although our national accountants gave their best in this challenging project, we are aware that we have our work cut out. In any case, I would like to congratulate every member of our staff, involved in making of this publication, for their contribution.

My gratefulness extends to all those involved - more generally - in assistance to the reform and development of the Serbian statistical system. The European Union, the European Agency for Reconstruction in Belgrade and Eurostat have all provided us once again with invaluable support.

It will be difficult to mention all the persons that have taken part in the EU grant under which this publication has been accomplished - there are too many of them. However, I would like each and every of them to be aware of my immense consideration for their professional and inspirational contribution and support throughout these three years of co-operation. Nevertheless, the expert who has coordinated this publication, Enrico D'Elia, deserves special tribute. Inseparable ties are now created with statisticians from ISTAT, from Statistics Sweden and from the Central Statistical Office of Hungary, and they go far beyond the simple technical objectives of this project.

Ending without highlighting the outstanding management support provided by ISTAT and its Local Office team would be unfair. My personal thanks go to the excellent work and support provided by both, the Project Leader, Michelle Jouvenal, and the Team Leader of the project, Isabelle de Pourbaix.

**Dragan Vukmirović**

**Director**

The system of national accounts is an attempt to measure the social wellbeing, at least for the part related to economic transactions between households, businesses, general government and the rest of the world. However, national accounts ignore a number of factors which undoubtedly influence the actual standard of living, such as the quality of air and water, social cohesion, economic inequality, education level, life expectancy, etc. even though the latter are possibly generated by economic activity.

More simply, national accounting aims at measuring the total amount of resources available for individuals and institutions for consumption and for future saving without affecting the stock of goods already accrued in the past. In fact, modern national accounting distinguishes between the flow of goods and services and the stock of wealth, held as material goods or financial assets. More generally, national accounts provide a framework for economic analysis, complementing standard statistical indicators, which are not necessarily coherent. In doing so, national accounts also provide guidelines to reshape and improve the system of economic statistical surveys.

The most important aggregate of the system of national accounts is the gross domestic product (GDP) generated during the given period of time. It measures the amount of goods and services which, added to import from abroad, can be: consumed privately by the households, provided by the government as public services, invested (i.e. used to restore and improve buildings, machinery and the like), stored as inventories or exported. In other words, GDP corresponds to the total value of goods and services created in a given period of time by employing only the so called internal productive factors, i.e. national workforce and capital. It is worth noticing that GDP is not a stock of goods and services, but a flow measured with reference to a given period of time (usually a calendar year).

From the viewpoint of accounting, the value of goods and services created in a given period of time - i.e. the GDP - is also the difference between the value of total output produced within the country and the value of intermediate goods and services utilized during the production process. Finally, the latter difference corresponds to the sum of gross wage, salaries and profits remunerating national productive factors that "transformed" the intermediate input in the final output.

Actually, GDP is not influenced directly by changes in wealth and related exchanges of real assets (such as land and existing buildings) and of financial assets (such as shares, bonds, mortgage, etc.) which can be regarded as pure exchanges of assets among people and institutions, without any production of additional goods and services.

The main difference between GDP and the previous Social Product (SP) estimate is that GDP includes the value of many services provided directly to the people (such as housing, education, health services, etc.) other than those of transport and commerce. On the other hand, GDP also excludes those services employed by firms within the production process (such as engineering, advertising, banking, etc.), which were regarded as a form of income redistribution in the framework of SP. Nevertheless, current GDP estimation is generally higher than SP.

National accounts also differ from usual business accounts, even though the latter represent a fundamental source of information for the estimation of national accounts. However, the lines of national accounts cannot be calculated by mere summing up of the data from individual financial reports, since the primary aim of business accounts is determination of company's net profit and wealth, while national accounting focuses on productive capacity of national economy and on the way of distribution of value added.

An important part of national accounts is the estimation of GDP and other aggregates evaluated at "constant prices". The aim of constant price estimation (or "deflation") is to describe the evolution of "physical" flows of goods and services, depurated from the effect of pure price changes, which simply "inflate" the evaluation at current prices.



Another characteristic of national accounts is the possible occurrence of data revisions, and even of backward revision of data concerning some past years. This feature of national accounts may generate confusion among users, but is a necessary result of producing timely estimations, even if they are based on incomplete information. As information improves over time, also the accuracy of national accounts possibly gets better, thus revisions simply provide the users with more precise figures as soon as they are available.

This publication consists of three main parts, other than the present introduction. The following section aims at describing the general framework of national accounts, even if the readers interested in very technical details should refer to other publications of the Statistical Office. First of all, the next section will try to show which are the aims and scope of national accounts, that is to answer a few questions, and specially: "Who performs economic activities?", "When are the economic transactions registered?", "Where do economic activities take place?", "How are economic activities recorded and presented?" Furthermore, the main postulate of the national accounts (that is that, at a level of the total economy, the total volume of disposable goods and services equals the total volume of goods and services used) is discussed, together with the sequence of tables and "accounts" linking the various aggregates considered by the system of national accounts, such as value added, GDP, disposable income, saving, net lending or borrowing. Section 2.3 and 2.4 provide some details on the estimation of the main aggregates of national accounts at constant prices and at quarterly level. In both cases, the use of indirect indicators, instead of simple accounting rules and methods, is crucial. The last section of chapter 2 is devoted to the delicate problem of revisions. The main conclusion of this section is that, although the revisions at the level of many aggregates were generally large, they did not have too much influence on the profile of real GDP growth rate. Thus, the user should be quite confident of the robustness of the estimated dynamics of the figures describing the evolution of the Serbian economy.

The second main part of this publication presents a picture of the Serbian economy provided by national accounts. In fact, the estimates regularly provided by the Statistical Office allow measurement of the structure and the evolution of supply and demand. Moreover, the compliance of Serbian national accounts with the international standards enables comparisons between the structure and the dynamics of our and other economies.

The last section of this publication is devoted to the analysis of some special issues, often considered in the economic debate in Serbia, such as the comparison between the previous Social Product to the current GDP; the difference between business accounting and national accounts; the statistical effects of privatizations. All the three topics are delicate, and, unfortunately, are often subject to misunderstandings and polemics. Thus, this publication will, hopefully, also contribute to better understanding of some of these controversial points.

## 2.1. AIMS AND SCOPE OF NATIONAL ACCOUNTS

**It is an integrated system of accounts that provides a general overview of economy as a whole, and information about each sector within a country.** At the same time, a selection of transactions and aggregates describes the relationships among institutional sectors and their weight on the total results of economic activity.

**Measuring transactions among the economic agents requires a set of definitions, classifications, accounting relationships and recording rules.**

Measuring transactions among the economic agents requires a set of definitions, classifications,

accounting relationships and recording rules. The System of National Accounts released in 1993 and actually under revision (in short SNA 93) provides a coherent set of prescriptions, universally accepted by the scientific community, policy makers and other professional users. SNA 1993 principles are integrated and further developed in European rules for national accounts, also known as European System of Accounts 1995 (ESA 95). Those are the standards that Statistical Office of Serbia strives to attain. In particular, SNA 1993 and ESA 1995 give an answer to the following basic questions:

- Who performs economic activities, that is what are the “institutional units” involved in transactions;
- When the economic transactions are registered, that is how to collocate stock and flows on the time scale;
- Where economic activities take place, that is what is the geographical extent of economic activities considered in the system of accounts;
- How economic activities are recorded and presented, that is what are the rules to record and present the relevant transactions.

### 2.1.1. WHO PERFORMS ECONOMIC ACTIVITIES

**Economic activity involves a large number of subjects, participating in transactions in different ways, at different times, inside or outside the market. Those subjects can be grouped in relatively few “institutional units”, each characterised by different functions and goals.** There are two main types of units in SNA, namely:

- persons or group of persons in the form of households and
- legal or social entities whose existence is required by law or society independently of the persons or entities that may own or control them

An institutional unit in SNA must be able to get involved, on its own behalf, in economic activities, relations and interrelations, i.e. transactions with other units. As transactions imply transfer of ownership, an institutional unit must be an independent entity (legal body or physical person) that possesses its assets, does its business, makes decisions, undertakes financial obligations, concludes contracts, is responsible before the law and does bookkeeping. The institutional units that make up the total economy are grouped into the following institutional sectors:

- the non-financial corporations sector;
- the financial corporations sector;
- the general government sector,
- the non-profit institutions serving households sector (NPISHs),
- the household sector.

For SNA purposes, households are defined as small groups of persons that share the same dwelling, contributing to the group with their full or partial income

**Households, as institutional units, have a twofold function: that of consumers and that of producers of goods and services.**

and wealth, and spend together on the same goods and services, most commonly on accommodation and food. Households, as institutional units, have a twofold function: that of consumers and that of producers of goods and services. They are usually considered to be consumer units, but in practice, they participate in many economic activities. Thus, rural households produce agricultural goods and services for own consumption, but some are involved in provision of goods and services for the market.

**Non-financial corporations are legal entities that are founded to produce for the market and to make profit, regardless of their ownership, control or distribution of profit.**

Non-financial corporations are legal entities that are founded to produce for the market and to make profit, regardless of their

ownership, control or distribution of profit. They are held responsible before the law for their work, contracts, accounts and liabilities. They are essentially producer units and do not incur expenditures as final consumption. If such a unit acquires or provides goods and services for their employees, it is then considered as compensation in kind given to the employees or as intermediate consumption depending on the nature of goods and services.

Financial corporations principally engage in financial intermediation or in auxiliary financial activities which are closely related

**Financial corporations principally engage in financial intermediation or in auxiliary financial activities which are closely related to financial intermediation.**

to financial intermediation. The role of financial intermediation is to channel funds from lenders to borrowers by intermediating between them.

**Non-profit institutional units (NPI units) are legal or social entities founded to provide goods and services, generating surplus or loss in the production process, but they cannot share the profit with the owners or founders.**

Non-profit institutional units (NPI units) are legal or social entities founded to provide goods and services, generating surplus or loss in the production process, but they

cannot share the profit with the owners or founders. They can be involved in market or non-market production. If, wholly or partially, they produce for the market, they act as corporations, but if they provide non-market goods and services, they are non-profit (non-market) institutional units. They are usually active in the areas of health, education, culture, amateur sport, or they can be various chambers or professional associations financed from memberships, donations, subsidies, revenues from property, or from Government grants.

Government institutional units are legal entities on a state or local level, with legislative, judicial and executive authority

**Government institutional units are legal entities on a state or local level, with legislative, judicial and executive authority over other institutional units in the country.**

over other institutional units in the country. They receive revenues from the Government-controlled sources and operate funds that are accumulated from taxes, fees etc. paid by other institutional units. Government units' expenses are used to satisfy collective needs of the society (administration, security and defence, law enforcement etc.). They are provided for free, or at lower prices as goods and services for households, or are donations.

In the SNA, social care funds are, by definition, a special kind of institutional units, as they are considered as Government units. This convention has been introduced as these funds have been imposed and created by Government units and are used to provide social benefit for all members of the society. In this country, these funds are: Republican Pension and Disabled Insurance Fund of Employees, Republican Pension and Disabled Insurance Fund of Self-Employed People, Republican Pension and Disabled Insurance Fund of Agricultural Producers, Republican Health Insurance Fund and National Employment Service.

**As opposed to the above mentioned resident units, SNA considers as a separate sector the Rest of the World.**

As opposed to the above mentioned resident units, SNA considers as a separate sector the

Rest of the World (ROW), which enters into transactions and relations with resident units as well, but is located outside the territory of the country. However, by definition, ROW also contains some minor units physically located on the territory of our country, such as foreign enclaves in the form of embassies and international organizations.

### 2.1.2. WHEN THE ECONOMIC TRANSACTIONS ARE REGISTERED

SNA distinguishes between two main types of quantities: flows and stocks.

Flows are aggregated amounts of individual transactions, or of other movement of goods, services and assets, measured within a certain period of time.

**Time is an important component of economic activity, as everything happens during a period of time and carries over**

**consequences from a certain point in time.** SNA distinguishes between two main types of quantities: flows and stocks. Flows are aggregated amounts of individual transactions, or of other movement of goods, services and assets, measured within a certain period of time. They are related to the activities and their consequences that have occurred in a certain accounting period. Flows comprise a change of ownership of goods which is presented at the moment of the change, i.e. services at the moment of rendition, then production at the moment when a product is produced and intermediate consumption when materials and inventories have been used.

Stocks are related to flows, but they result from previously

**Stocks are related to flows, but they result from previously accumulated transactions and other flows.**

accumulated transactions and other flows (not resulting from transactions), representing a state at the beginning of a period. Over time, volume, value of assets and liabilities change with new transactions and other flows, causing changes in the stocks at the end of an accounting period.

**Transactions are economic flows where values are, on a basis of mutual contracts, exchanged among institutional units or within them. There is a distinction between cash and non-cash transactions.**

More generally, transactions are economic flows where values are, on a basis of mutual contracts, exchanged

among institutional units or within them and are divided into cash and non-cash transactions. Cash transactions are done in cash as one party produces, i.e. provides goods, services, labour or assets for the other party that makes payment accordingly. Cash transactions also comprise wages, taxes or pensions. There are other transactions carried out not in cash, but through bartering or in kind between or within institutional units (internal transactions, not resulting in cash flows, that have to be estimated and expressed in currency).

There is a difference between current and capital transactions.

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Capital transactions are related to distribution and redistribution of equity and assets through acquisitions, purchases and sales. They are done in cash or in kind, redistributing savings and wealth. Other transactions are current, such as: those in processes of production, exchange and use of goods and services that can be in cash or in kind and can be related to existing goods; then transaction resulting in distribution and redistribution of income and financial transactions that denote changes in financial assets.

**Other flows are changes in the volume and value of assets and liabilities that do not result from transactions.**

Other flows are changes in the volume and value of assets

and liabilities that do not result from transactions. They are for instance devastating effects of war, other political events, natural disasters (earthquakes, floods, draughts etc.), or results of discoveries or consumption of natural resources. Changes resulting from alterations in classifications are also included. Changes in assets and liabilities can be caused by price changes or by revaluation and are expressed as gains or losses of the owners.

As the System of National Accounts is integrated and harmonized, all flows and stocks, are, consequently, expressed according to the same concept, definitions and classifications. Firstly, every economic flow, or stock, is recorded in the accounts as a value and is, then, shown and reconciled through the system according to relevant rules.

As the System of National Accounts is integrated and harmonized, all flows and stocks, are, consequently, expressed according to the same concept, definitions and classifications.

### 2.1.3. WHERE ECONOMIC ACTIVITIES TAKE PLACE

In the System of National Accounts it is necessary to separate transactions made by the residents from those made by non-residents and make distinction between domestic and national concepts.

**All economic activities take place on a certain territory.**

Therefore, it is necessary to define the economic territory and make distinction between resident and non-

resident institutional unit. In the System of National Accounts it is necessary to separate transactions made by the residents from those made by non-residents and make distinction between domestic and national concepts.

Institutional units are more precisely defined by the term residency. It is applied to all units, except Governmental, but is not applied to the land or non-material property owned by institutional units. Persons that constitute households can also be residents or non-residents depending on their residence and legal status of their employment, except for the members of our diplomatic missions who remain our residents.

An institutional unit is resident if it pursues its economic interest on the economic territory of this country, i.e. it is involved in economic activities and transaction for a period of more than one year. Economic territory stretches to the geographical territory of a country that it governs and where people, goods and capital freely circulate. It comprises airspace, territorial waters and territorial enclaves of other countries, i.e. parts of geographical territory of other countries clearly established and used according to international agreements. Foreign territorial enclaves (such as embassies, consulates etc.), although geographically located on our territory, are not part of our economic territory unlike our embassies abroad.

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territory of this country, i.e. it is involved in economic activities and transaction for a period of more than one year. Economic territory stretches to the geographical territory of a country that it governs and where people, goods and capital freely circulate. It comprises airspace, territorial waters and territorial enclaves of other countries, i.e. parts of geographical territory of other countries clearly established and used according to international agreements. Foreign territorial enclaves (such as embassies, consulates etc.), although geographically located on our territory, are not part of our economic territory unlike our embassies abroad.

An institutional unit focuses its economic interest on a location – a place, or some other space (airplane, ship, duty free zone, offshore company) on the economic territory where it engages in economic activities and transactions. Ownership of land or premises on the economic territory of a country is considered sufficient for the owner to have a centre of economic interest in the country, or, at least, an intention to participate in economic activities.

**Total production is not a result of production activities going on only within geographical borders of a country (domestic economy), since part of production of resident institutional units could be done abroad in the same way as part of production within country's borders could be performed by non-resident institutional units (national concept).**

Total production, therefore, is not a result of production activities going on only within geographical borders of a country (domestic economy), since part of production of resident institutional units could be done abroad in the same way as part of production

within country's borders could be performed by non-resident institutional units (national concept). For instance, seasonal workers that work abroad (for less than a year) are considered as residents, as well as workers in border regions that cross the border every day coming back to their residence, then crews of ships and airplanes under our flag, workers in our enclaves abroad, but also our nationals permanently employed in foreign enclaves on our territory.

Final consumption expenditures of the resident households under domestic concept include expenses incurred within the borders of our country, whereas under national concept they are extended to include consumption of our residents abroad reduced by the consumption of the non-residents on our territory (tourists, business trips, administration, border and seasonal workers, students, ship and airplane crews, diplomatic and military missions).

### 2.1.4. HOW ECONOMIC ACTIVITIES ARE RECORDED AND PRESENTED

**There are some basic rules that are applied in presentation of the flows and stocks.** All the accounts in the System are based on double bookkeeping, so transactions are recorded in the account twice, by either of the participants in a transaction, i.e. a seller and a buyer. For instance, sale of a product will be shown on the seller's production account and, at the same time, as a transaction denoting the cash flow (sale for cash) or a short-term credit (sale on credit) in the financial account. On the buyer's side, the same transaction will be recorded as intermediate consumption, personal consumption, investment or a change in inventories, depending on the purpose for which the product has been purchased. In financial terms, this will result in recording of a debt on the financial account.

**Every interrelated transaction among various institutional units requires four equal and simultaneous records in the System of Accounts and is expressed at a real price valid at the time of dealing.**

Every interrelated transaction among various institutional units requires four equal and simultaneous records in the

System of Accounts and is expressed at a real price valid at the time of dealing. Market prices are a basis for valuation of production and provision of goods and services in the national accounting. In cases when there are no monetary transactions, values that would reflect those on the market are obtained through estimations. Prices that are used are either analogue to market ones (for payments in kind or for labour for own purposes) or those that cover production costs (in the case of non-market producers).

Depending on how the values are used to present taxes, subsidies, trade margins and transport costs in the value of

**Output is expressed in basic prices – an amount, received by the producer from the buyer for a unit of goods and services produced, from which all taxes on products are deducted and to which all subsidies are added.**

transactions, there are many types of market prices, since the amount paid by the buyer is not the same as that received by the producer (seller). Output is expressed in basic prices – an amount, received by the producer from the buyer for a unit of goods and services produced, from which all taxes on products are deducted and to which all subsidies are added. It is equal to a sum of costs for the goods, services or production factors consumed, per unit of goods or services produced, including profit. All transport costs are excluded as they are separately charged by the producer. Producer price contains taxes on products (including non-deductible VAT), but excludes subsidies. Prices used for valuation of purchases are purchasing prices – an amount paid by the buyer that includes all taxes, minus subsidies on products (except for deductible VAT), and transport costs separately incurred by the buyer for delivery of goods to a specified place within a specified time limit.

## 2.2. THE STRUCTURE OF NATIONAL ACCOUNTS

### 2.2.1. THE RELATIONSHIPS AMONG THE MAIN AGGREGATES

**The main postulate of the National Accounts is that, at a level of the total economy, total volume of disposable goods and services (supply) must be equal to total volume of goods and services used (uses) within the period under observation.**

**Total supply of goods and services = Total uses of goods and services**

In an open economy engaging in foreign trade, the total supply of goods and services consists of domestically produced output and imports. The use consists of intermediate consumption (IC), final consumption (FC), gross capital formation (GCF) and exports. Those goods that are not consumed are recorded as increase in inventories, which is a part of gross capital formation.

**Output + imports = IC + FC + GCF + exports**

Output, as a sum of values of all goods and services provided within a certain period, represents a result of production

**Output, as a sum of values of all goods and services provided within a certain period, represents a result of production of all resident institutional units.**

of all resident institutional units. Output is, from a producer's point of view, valued in basic prices as income generated from sales of goods and services including subsidies for products, as opposed to product taxes which are not considered to be part of producer's income since they are paid by the buyer. All the categories, in terms of consumption, are valued, from the buyer's or final consumer's point of view, in purchasing prices. Tax and subsidy rates on products are included in the value of goods and products, with taxes increasing, and subsidies reducing, the price payable by the buyer for a unit of goods or products.

**Intermediate consumption covers the products consumed in the production process (excluding the consumption of fixed assets) during the observed period.**

**Final consumption refers to the goods and services provided for the benefit of final consumers.**

Intermediate consumption covers the products consumed in the production process (excluding the consumption of fixed assets) during the observed period. Final consumption, in contrast to intermediate

consumption, refers to the goods and services provided for the benefit of final consumers. In order to ensure uniform valuation of supply and use of goods and services, it is necessary, at a level of total economy, to add total amount of tax on products reduced by subsidies. Thus:

**Output - IC + taxes less subsidies on products + imports = FC + GCF + exports**

As by definition

**Gross value added (GVA) = Output – IC**

**Gross domestic product (GDP) = GVA + taxes less subsidies**

The above mentioned equation can be rearranged to:

**GDP + imports = FC + GCF + exports**

The left-hand side of equation, showing supply at the level of total economy, consists of domestic production and external supply or imports. The right-hand side consists of domestic demand (consumption and GCF) and external demand or exports.

Equivalent form of this equation is:

**GDP = FC + GCF + exports – imports**

This expression presents GDP in current prices from expenditure approach.

It transpires from all the above mentioned that GDP in current prices from production approach, as a sum of value added of all resident institutional units increased by tax on products and decreased by subsidies on products, is equal to the sum of GDP from expenditure approach, as the sum of aggregates of the final use – final consumption expenditure (households, non-profit institutions serving households, Government), gross capital formation, the value of export decreased by the value of import of goods and services or net export.

In the national accounts, investment in capital goods, i.e. the purchase of machinery and equipment (including computer software) and buildings (offices,

**In the national accounts, investment in capital goods, changes in inventories and valuables is known as gross capital formation. This variable measures total expenditures on products intended to be used for future production.**

infrastructure, dwellings) and stock-building (inventories) as well as acquisition less disposals of valuables is also known as gross capital formation. This is major factor in changing the values of non-financial assets in the economy. When changes in inventories are excluded, the remaining part is gross fixed capital formation ("gross" means that the expenditure is measured with the consumption of fixed capital). This variable measures total expenditures on products intended to be used for future production. These types of products, also known as "fixed" capital, are, by economists, often called simply investments. However, in everyday usage the term investment mostly refers to financial investment on the stock market and a distinction should be made between the two meanings.

The next aggregate, final consumption includes goods and services that are used by households or the community to satisfy their individual and social needs, and are broken down into:

- Final consumption expenditure of households;
- Final consumption expenditure of general government;
- Final consumption expenditure of non-profit institutions serving households.

Household final consumption expenditure is well known **Household final consumption expenditure is well known among users as private consumption.**

among users as private consumption. This aggregate covers all purchases made by consumers: food, beverage, clothing, footwear, housing (rents), electricity, durable goods (cars), spending on health, transport, recreation and culture, education etc. Purchases of dwellings or major improvements to residential housing are counted as household GFCF. Consumption refers to purchases intended to be used and consumed during the respective period, while expenditures on products that will be used for future production are treated as GFCF. By convention, purchases of cars by household are classified as consumption, unlike the purchases of cars for business purposes (e.g. taxi) that are considered as GFCF.

Final consumption expenditure of general government and non-profit institutions serving households is non-market output measured by production costs less own-account capital formation less sales on the market plus expenditure on goods and services purchased to be provided for free to households (social transfers in kind).

**Balancing supply and demand is basic rule of national accounts in order to reconcile the economic model.** To summarize, final consumption and investments

are main components of macroeconomic demand. Balancing supply and demand is basic rule of national accounts in order to reconcile the economic model. GDP can also be calculated from the income approach as a sum of compensation of employees, operating surplus/mixed income and taxes less subsidies on products and production. It is another way of checking the reliability of the results obtained from production and expenditure approach. Every of the approaches of GDP estimations mentioned above, should, in theory, produce same or similar values. However, different results are obtained in practice in majority of cases. Which of the approaches will provide the most reliable results, should depend on the sources and quality of data and on the coverage. As there can be only one GDP figure for the total economy, data have to be reconciled, by combining all the approaches, producing a final estimation.

Apart from provision of information on various economic activities of a country as a whole, the system of accounts provides information on institutional sectors. The accounts are organised - according to the basic rules that are valid for all accounts - into information on the left and on the right side. The right side of accounts consists of resources, i.e. the transactions that add to economic values of units or sectors. The left side presents use of assets and is linked to the transactions that reduce economic values of units or sectors. In accumulation accounts or in assets balance sheets the right side presents changes in liabilities and the left side changes in financial and non-financial assets.

Every account has a, so called, balancing item which is the difference between the right and the left side of the account. They close the left side of the account and are carried over as initial items on the right



side of the subsequent account. In this way all the accounts are connected into a whole. A balancing item can appear as a net or a gross value. The difference between the two is the item “consumption of fixed capital” (depreciation) that is included in the gross value.

The system of accounts can be divided into three main groups:

- Current accounts – that show current transactions related to provision of goods and services, generation, distribution and redistribution of income and its use.
- Accumulation accounts – that show changes in financial and non-financial assets, liabilities and net worth during accounting period resulting from capital and financial transaction and from other flows.
- Balance sheets – that show value of assets and liabilities at the beginning and at the end of an accounting period and which change with every transaction, price change or for some other reason.

The accounts of current transactions show production of goods and services, generation of income in production and its distribution, redistribution among institutional units and its use for the purposes of consumption or saving. This is why the accounts of current transactions are further divided into production and income accounts.

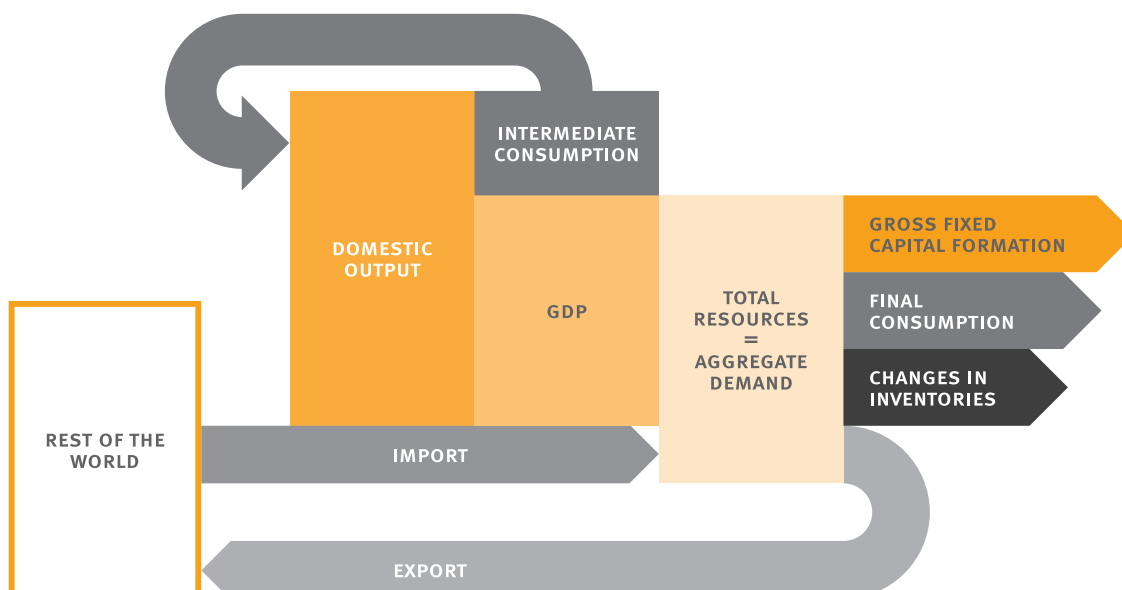
### 2.2.2. PRODUCTION, VALUE ADDED AND THE FINAL USES OF AVAILABLE RESOURCES

Gross domestic product is the main indicator of economic activity at a country level.

The first in the series of current accounts is production account, recording the

**main activities of every society.** It shows effects of production and use of goods and services in production, i.e. intermediate consumption. Its balancing item for institutional sector is gross value added which is carried over to the subsequent account of generation of income as a source of generation of primary incomes. The balancing item can appear as a net or a gross value. Gross value added is obtained when intermediate consumption is subtracted from the output and net value added when consumption of fixed capital is subtracted from gross value added. A balancing item Gross Domestic Product is, for the economy as a whole, a basic and the most commonly known aggregate from the System of National Accounts which can also be expressed in a net or a gross form. It equals the sum of values added from all resident institutional units or from all sectors, i.e. activities defined by the Classification of Activities for all the sectors of national economy.

Gross domestic product is the main indicator of economic activity at a country level. It is the centre of a set of flows starting with production and import and ending with the uses of available resources, as showed in the following flow chart.



### 2.2.3. INCOME, REDISTRIBUTION AND CAPITAL FORMATION

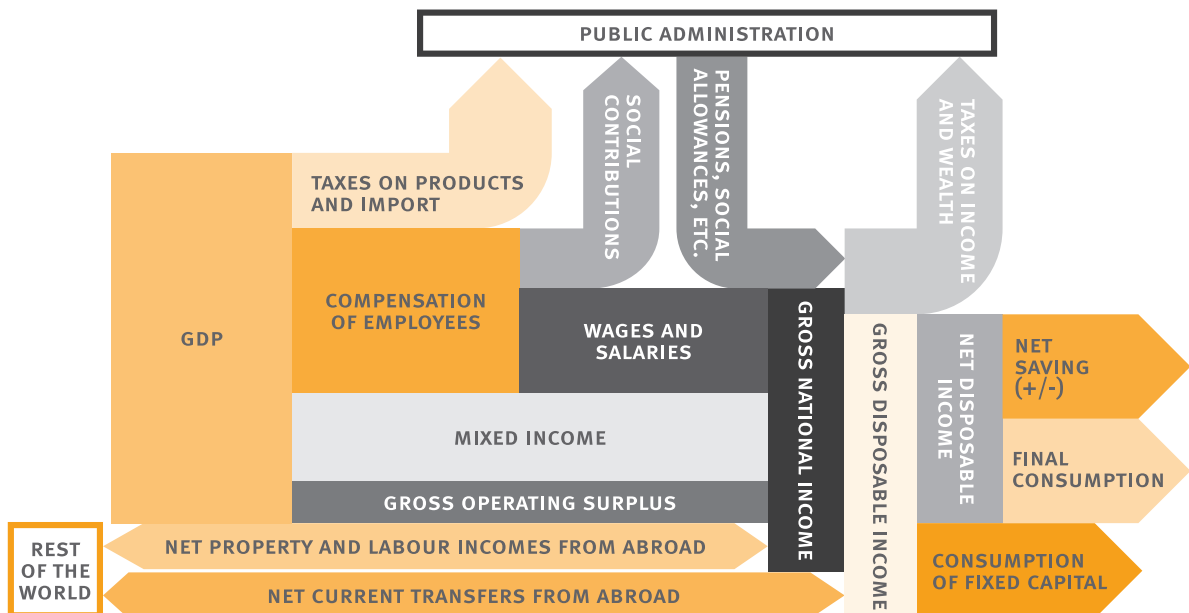
The set of current accounts continue with:

- generation of income account
- allocation of primary income account
- distribution of income account
- use of income account

There are relationships among the main flows determining income and its distribution among consumption and saving. These accounts show generation of income in

the production process and then how the income is allocated to institutional units, redistributed through transfers in cash or in kind among the sectors and how it is used or distributed to final consumption and saving among the sectors that are final consumers. Saving is a balancing item which is at the end of current accounts and is carried over to the first of accumulation accounts. In this way current and accumulation accounts are linked. Disposable income that is not consumed is used for formation of financial and non-financial assets, but in the case of negative savings, these are allocated to liabilities.

The following flow chart shows the relationships among the main flows determining income and its distribution among consumption and saving.



Accumulation accounts that show transactions of capital and financial transactions can be divided into:

- capital accounts
- financial accounts and
- other changes in assets accounts

These accounts show changes, which arise during an accounting period, in assets (own assets

Accumulation accounts show changes, which arise during an accounting period, in assets (own assets owned by units) and debts (outstanding liabilities).

owned by units) and liabilities. An important issue for definition of assets is ownership, regardless whether it is individual or collective. Ownership, disposition and use of assets should, over time, result in economic benefit. By using produced assets, machinery and equipment in the production process, for example, their owners should generate profit. Income, for the owners of financial assets or land, comes in the form of interest, rent or dividends. A right of ownership should also be enjoyed over non-produced resources obtained from nature, such as: land, ore mines, fuel reserves, forests, so that they could be included in SNA. Undiscovered ore mines and fuel reserves, uncultivated forests not yielding any benefit to owners, atmospheric layer or open seas that cannot be owned, are not of interest for SNA.

The capital account shows values of acquired or disposable non-financial assets and changes in net worth resulting from transactions or savings being sources of accumulation of assets and capital transfers. Transfers are transactions in which an institutional unit provides goods, services or assets to another unit, without receiving any goods, services or assets in return. Transfers can be in cash or in kind, current or capital. Capital transfers imply transfer of ownership of assets.

A balancing item in the capital account is net lending or net borrowing. It shows a source of lending or needs for borrowing, depending on whether it is positive or negative, and it is, as such, carried over to the last in the set of accounts – to the financial account that shows transactions of financial assets and changes in liabilities. One of the main characteristics of the System of National Accounts is equality of the balancing items in capital account and in financial account. This is so, because every transaction between two participants has to be registered as current in one of the current accounts or as capital in the capital account and at the same time as a monetary transaction in the financial account. In addition, in financial transactions some sectors appear as borrowers and others could be lenders. As resident units carry out transactions with non-residents, the sum of net borrowing and net lending of all institutional sectors presents a value on a level of economy as a whole, which for a particular country could be lending or, as in the case of this country, borrowing from abroad.

Account for other changes in assets shows the flows that are not presented as transactions between opening and closing balance sheets of the assets or in capital or financial account. They, instead, result from unanticipated events or happen without consent of the owners, contributing towards growth (discovery of an ore mine for example) or loss of assets in case of catastrophic events.

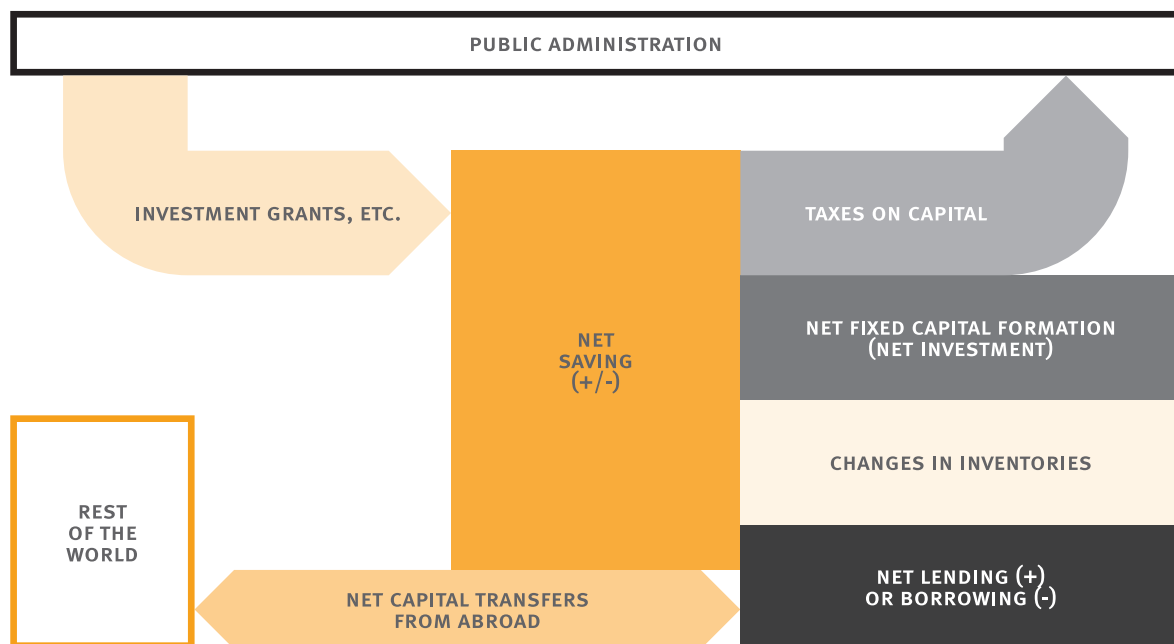
The last in the system of accounts are balance sheets of assets. They show the stock of assets, liabilities and equity in certain points in time. Consequently, there are balance sheets of assets at the beginning and at the end of an accounting period and changes in balance sheets that show the changes in assets, liabilities and equity that occur in between these two points of observation for all institutional sectors. For the total economy, they show national wealth, i.e. what our assets are and what net liabilities of our country are towards rest of the world. Accumulation accounts and balance sheets may show the same content: assets, liabilities and net worth, but they do this in a different way. The former refers to a certain period and the latter to certain points in time.

**In a response to openness of economies, national accounts have introduced a sector Rest of the World. The set of accounts for this sector shows relationships between resident and non-resident institutions for the economy as a whole.**

In a response to openness of economies, national accounts have introduced a sector Rest of the World. The set of accounts for this sector shows relationships between resident

and non-resident institutions for the economy as a whole. Imports of goods and services that represent output of non-resident units, i.e. rest of the world, are registered on the resources side. The use side shows exports of goods and services, a part of output of domestic producers supplying the rest of the world, i.e. used by the non-resident units. This account has a balancing item that shows a balance between import and export of goods and services, either a surplus or, as in the case of our country, a deficit.

The following chart shows the logical path from saving to net financial balance.



## 2.3. THE ESTIMATION OF GDP AT CONSTANT PRICES

GDP at constant prices is evaluated under the assumption that the prices remain unchanged as in a base year. It is necessary to change periodically the selected base year. According to international recommendations, base year should be changed every five years.

GDP, value added and the other aggregates of national accounts can be “deflated” in order to highlight the changes related to quantity

**factors (physical volume) only, as opposed to pure price changes.** To deflate means to estimate each item as if the prices of each good and service were the same as during a reference period. Thus, deflated aggregates are generally referred to as items evaluated at constant prices.

Gross domestic product of the Republic of Serbia at constant prices has been estimated according to the method of extrapolation on the fixed base year (2002), generally using a single indicator approach. Gross value added at constant prices has been estimated for 16 sections, that is 60 divisions of the Classification of Activities, which is harmonized with international classification NACE, Rev. 1. Gross value added at constant prices for each section has been obtained by summing up gross values added of lower levels (divisions). At the level of divisions, deflation has been performed by the method of extrapolation of the relevant indicators, expressed in the form of base indices, on the selected base year.

GDP at constant prices is evaluated under the assumption that the prices remain unchanged as in a base year. Nevertheless, in the real world, new products appear very frequently, the obsolete ones disappear, and the existing products also undergo some changes in quality. Therefore, it is necessary to change periodically the selected base year. According to international recommendations, base year should be changed every five years.

There are various methods of GDP estimation at constant prices. The method of double deflation is regarded as the most reliable, at least in theory, since it is fully consistent with the estimation of value added as the difference between output and intermediate consumption. In fact, this method uses separate deflation for output and input and provides an estimation of value added at constant prices as the difference between deflated output and deflated input. Nevertheless, this method is also more demanding in terms of the data sources.

### 2.3.1. THE ESTIMATION OF GDP AT CONSTANT PRICES IN SERBIA

**Current situation of the statistical system of Serbia only allows the application of single indicators in the process of estimation of GDP at constant prices. In fact, single indicator deflation assumes that the prices of output, intermediate consumption and, consequently, value added have exactly the same dynamics.** Thus, value added can simply be deflated by using directly an appropriate price index to original data. Single indicator methods use either price indices (of input or output), in order to deflate gross value added of the current year, or quantity indices (of input or output), in order to extrapolate gross value added of the base year. Of course, price indices used in deflation must have the same base year of the GDP.

One of the reasons for not applying the method of double deflation is that relevant price indices are not available. We have been publishing consumer price index since January 1<sup>st</sup> 2007 and this index is harmonized with methodology of retail price index computation in the EU (Harmonized Price Index). The Statistical Office of the Republic of Serbia is currently involved in the projects that refer to computation of certain price indices according to international standards. The following price indices are presently available:

- indices of producer prices of industrial products,
- indices of producer prices of agricultural and fishing products,
- indices of prices of industrial products in wholesale trade,
- price indices for catering services,
- indices of retail prices,
- consumer price indices.

Currently, other projects are in progress dealing with estimation of input and output prices in agriculture, and price indices for export, import and services.

**Estimates of gross domestic product of the Republic of Serbia at constant prices were published for the first time in November 2005 for the period 1999-2004 (at constant 2002 prices). Revised data at constant prices were published in March 2007 for the period 1999-2005, still at constant 2002 prices.**

Estimates of gross domestic product of the Republic of Serbia at constant prices were published for the first time in November 2005 in the Draft Documents number 50 "Gross Domestic Product of the Republic of Serbia,

1999-2004 (at constant 2002 prices)". After a revision of GDP at current prices, revised data at constant prices were published in March 2007, also in the Draft Documents number 57 "Gross Domestic Product of the Republic of Serbia, 1999-2005 (at constant 2002 prices)". The latest revision was also necessary since the weights of each sector in the base year (2002) had changed. The greatest changes in the estimation at current prices occurred in the following sections: financial intermediation, real estate agency activities and public administration and compulsory social insurance. Estimation at constant prices was limited to value added in each section and division of the Classification of Activities and it refers to the Republic of Serbia (excluding the data on Kosovo and Metohia). Estimation of consumption, investment and other component of aggregate demand at constant prices are still in progress.

## THE GENERAL FRAMEWORK OF NATIONAL ACCOUNTS

The table below shows the indicators used for estimation of gross value added at constant prices, by activities.

ACTIVITY		INDICATOR
<b>A</b>	Fishing Forestry Water supply	Physical volume index of agricultural production, net Physical volume index of forests usage Index of number of employees
<b>B</b>	Fishing	Index of number of employees
<b>C</b>	Mining and quarrying	Physical production volume index
<b>D</b>	Manufacturing	Physical production volume index
<b>E</b>	Electricity, gas and water supply	Physical production volume index
<b>F</b>	Construction	Working hours index
<b>G</b>	Wholesale and retail trade, motor sales and repair	Trade turnover index, at constant prices
<b>H</b>	Hotels and restaurants	Catering turnover index, at constant prices
<b>I</b>	Transport, storage and communications	Physical volume index of transport services Physical volume index of postal and communicational services Index of number of employees (section 63)
<b>J</b>	Financial intermediation	Data on deposit and credit status and number of employees
<b>K</b>	Real estate agency activities	Index of number of employees
<b>L</b>	Public administration	Index of number of employees
<b>M</b>	Education	Index of number of pupils and students
<b>N</b>	Health and social work	Index of number of visits to a physician, number of protégés in old-people homes, number of pupils and students in students' hostels ...
<b>O</b>	Other communal, social and personal services	Index of number of employees
<b>P</b>	Private households with employed persons	Index of number of employees

As regards the activities for which output indicators are available (agriculture, forestry, industry, transport), current values of the base year are extrapolated by the corresponding indices of physical volume.

For estimation of gross value added of domestic and catering trade, we firstly apply the method of deflating current turnover values by the corresponding price indices. Turnover indices at constant prices, obtained in such a way, are used for estimation of gross value added of domestic and catering trade at constant prices.

Product taxes and subsidies at current prices are obtained on the basis of administrative data sources and available indicators from retail trade statistics and CPI are used for their estimation at constant prices. Value added tax has been included since the beginning of 2005.

The most frequently used indicators for estimations of services are input indicators (indices of the number of employees).

EU-funded technical assistance (realized under CARDS programme) related to constant price estimations and, together with technical support from the International Monetary Fund, resulted in improved process of estimating Serbian GDP at constant prices. In order to improve estimation of

GDP at constant prices, particular attention was paid to the following sections and indicators:

- estimation of agriculture value added at constant prices by applying the method of double deflation,
- estimation of construction value added at constant prices by applying the method of double deflation,
- estimation of non–market output (sections of education, health care and social welfare) by applying the output indicators.

Particular attention was paid to estimation of agriculture value added at constant prices, primarily due to its relatively large share in total value added, which reached 14.4% in the base year. The unit dealing with agriculture statistics is currently working on the project of economic accounts of agriculture, according to the recommendations of EAA methodology. On the basis of currently available data, estimation of agriculture material costs at constant prices presents a huge problem. Prices statistics also deals with estimation of prices index of agricultural products input, according to international standards.

As to construction, detailed data are available (for over 100 products) on quantity and value of the consumption of building materials. On this basis, Laspeyre's index of average prices is calculated. Thus, an approximation of the method of double deflation has been applied. In particular, output was deflated by the implicit price index on the basis of consumed material and labour costs, while intermediate consumption was deflated by average price of building material. Prices statistics also plan to introduce estimation of the index of building prices. Annual estimation of value added at constant prices referring to the sections of education, health care and social welfare has been improved thanks to the possibility of applying relevant output indicators.

## 2.4. THE QUARTERLY NATIONAL ACCOUNTS (QNA)

### 2.4.1. GENERAL CHARACTERISTICS, SCOPE AND AIMS OF QUARTERLY ACCOUNTS

Quarterly accounts are estimated mainly because of the need for monitoring and analysis of the short-term movements of the economy, and also in order to implement appropriate economic policies in due time. The main purpose of QNA is to provide a picture of current economic situation more frequently than one provided by the Annual National Accounts (ANA) and more comprehensively than that provided by individual short-term indicators.

**Quarterly national accounts (QNA) are an integral part of the system of national accounts and represent a coherent set of transactions, accounts and balancing items compiled in compliance with the same principles, definitions and structure as the annual accounts (ANA).** Quarterly

accounts are estimated mainly because of the need for monitoring and analysis of the short-term movements of the economy, and also in order to implement appropriate economic policies in due time. In fact, QNA provide the basic data for business cycle analysis and for economic modelling purposes. In addition, they provide a coordinating conceptual framework for designing and collecting short-run economic indicators.

The main purpose of QNA is to provide a picture of current economic situation more frequently than one provided by the ANA and more comprehensively than that provided by individual short-term indicators. For this reason, QNA should be timely, coherent, accurate, comprehensive, and reasonably detailed.

QNA are fundamental tools serving economic analysis, decision and policy making at all state levels and within public and private enterprises. They enable monitoring

of current economic flows (production, investments, government consumption, household consumption, etc.), and are reliable for international comparisons. In particular, QNA are helpful in analysing the dynamic relationship between key economic variables within a framework that is more coherent and consistent compared to the

**QNA enable monitoring of current economic flows (production, investments, government consumption, household consumption, etc.), and are reliable for international comparisons.**

standard short term statistical indicators. As a consequence, QNA provide fundamental information for business cycle analysis, economic modelling and forecasting purposes.

**QNA are subject to seasonal adjustment, in order to make easier the detection of cyclical fluctuations not purely related to repetitive seasonal pattern.** In order to achieve the aforementioned goals, QNA are based on quarterly and

monthly data sources and are estimated and disseminated 90 days after expiry of the reference quarter. On the other hand, timeliness makes data revision obligatory. In addition, they are fully consistent with the annual accounts using benchmarking techniques. Finally, QNA are subject to seasonal adjustment, in order to make easier the detection of cyclical fluctuations not purely related to repetitive seasonal pattern.

### **QNA versus ANA**

Conceptually, QNA can be positioned amid ANA and specific short-term statistical indicators. They are commonly compiled by combining ANA data with short-term source statistics, thus providing a combination that is more frequent than that of the ANA and that has increased quality information compared with short-term statistics. QNA are usually available within three months after a quarter. ANA, on the other hand, are produced with a considerable delay. Therefore, ANA do not provide timely information about the current economic situation nor data needed for monitoring the business cycle for constructing forecasts based on up-to-date information on the current economic situation

### **QNA versus short term indicators**

Short-term indicators, such as price indices, labour market indicators, industrial production indices, and turnover data for retail trade are often available on a monthly basis, shortly after the reference period. These short-term indicators provide precious information on specific aspects of current economic developments.

On the other hand, these indicators do not provide a coherent, comprehensive, and consistent picture of the different aspects of the current economic situation. In the other words, they can't present information covering both different types of economic activities and the different sectors of the economy. In particular, short term indicators cover only specific aspects or sector of the economic activity. The classification used in different fields they cover is often not the same, and the ways in which the statistics are disseminated vary considerably. Thus they cannot provide a fully sound basis for detecting current problems and identifying potential future developments.

### **Methods of compilation, indicators and data sources**

Since detailed information from comprehensive annual surveys are not available during the compilation of quarterly GDP estimates, the compilation approach of quarterly GDP estimates differs from that for annual GDP estimates.

There are different methods used in the compilation procedure, mainly grouped in direct and indirect methods. The direct method is similar to

**There are different methods used in the compilation procedure of quarterly GDP, mainly grouped in direct and indirect methods. Direct procedures are based on the availability at quarterly intervals, with appropriate simplifications, of the similar sources as used to compile the annual accounts.**

the method used in annual GDP estimation. It can be used in the case when details, quantities or prices of quarterly and annual data are in the same or similar format, but they are reported with different periodicity (annual and quarterly). The summary of four quarters of GDP should be equal to its annual figures. The direct method means computing GDP directly from the real quarterly data in the cases of good data sources such as government expenditure, export and import, and household expenditure for some functions. Direct procedures are based on the availability at quarterly intervals,



with appropriate simplifications, of the similar sources as used to compile the annual accounts.

**Indirect methods use short-term indicators such as industrial output indices, turnover statistics, retail sales, labor inputs, etc., within the framework of a statistical model to estimate quarterly accounts.**

Indirect methods use short-term indicators such as industrial output indices, turnover statistics, retail sales, labor inputs, etc., within the framework of a statistical model to

estimate quarterly accounts. Indirect procedures are based on temporal disaggregation of the annual accounts data in accordance with mathematical and statistical methods using reference indicators that permit extrapolation for the current year. The choice between the different indirect procedures must, above all, take into account the minimization of the forecast error for the current year, in order that the provisional annual estimates correspond as closely as possible to the final figures, given, among other things, the information available at quarterly level.

### **Extrapolation method**

Extrapolation can be viewed as linking of the quarterly source data to previous annual estimates, or, as construction of forward series by adjusting the last available benchmark level according to movements in a given indicator. Each item of QGDP is extrapolated from a benchmarking quarter with its relevant indicators. This method is a standard and the most popular one. The accuracy of each item depends on the consistency between the indicator and its related QGDP aggregate. The results obtained by this method need to be coherent with the annual GDP figures when they are available. Therefore, the indicators used in each item should reflect the movement of the reference subjects. It can be applied to both the production and expenditure approaches.

**Extrapolation can be viewed as linking of the quarterly source data to previous annual estimates.**

**The current quarter indicators may be changed if they cannot reflect the real situation or if they extremely fluctuate.**

Indicators used for the current quarter estimation of any item in national accounts can be different from the previous quarter. The current quarter indicators focus on "data availability" whereas the previous quarter indicators concentrate on the correctness. Therefore, the value from previous quarter can be used as a basis for current quarter estimation. The current quarter indicators may be changed if they cannot reflect the real situation or if they extremely fluctuate. The change can be permanent and temporary, depending on the compiler's judgment. Thus, the compiler should monitor the indicators regularly, follow the economic situation continuously and develop new indicators in order to get an up-to-date version and be able to better reflect the situation. However, development of the indicators requires cooperation from other offices concerned.

The most important criteria needed in selecting appropriate indicator for each item are:

- Such indicators can reflect the changes of that item in national accounts in each quarter.
- Such indicators have to be current and can be used in the current quarter.
- Good indicators should be able to provide the sum of four quarterly values equal or nearly equal to its annual figure because the annual figure is comprehensively estimated. The difference between the two should not be higher than 10 percent of the annual figure. Compilers can insist on using an indicator even though it can lead to more than 10 percent difference. But the results from the estimation must be able to reflect the real economic situations and reasons for using such an indicator must be given.

**Past trend adjustment method** (trend extrapolation) is used for small items. It is also possible to obtain quarterly value by dividing the annual value by 4. These methods are rarely used in cases other than when small items are the subject of calculation.

### **Professional judgment method.**

In some cases, the results of the estimation cannot reflect real situations in any quarter even though good indicators are applied or adjusted. Such indicators may be inappropriate or inconsistent because most

**Quarterly estimates are compiled using mostly the benchmark-indicator method (a set of short-term economic indicators is used to represent the national accounts variables), and take into account quarterly behaviour of various sectors of the economy, at sufficiently detailed levels.**

indicators come from the administrative record which is not used as source of economic indicators. As a result, compilers may need to make some professional judgments based on current economic situation before releasing the figures to the public. Application of this method should be considered when: trends from the result are not consistent with the current situation or the trend is consistent but the level is different. Such a judgment can be applied by considering the past trend of the particular item.

Quarterly estimates are compiled using mostly the benchmark-indicator method (a set of short-term economic indicators is used to represent the national accounts variables), and take into account quarterly behaviour of various sectors of the economy, at sufficiently detailed levels. Where direct indicators are unavailable, proxy indicators that correlate well with the level of economic activity in the particular industry or aggregate have to be found or developed. For most items in the accounts, annual figures act as benchmarks for the quarterly figures providing a basis from which the quarterly figures can be interpolated or extrapolated. As majority of data will always be available only for complete years, there is no possibility of quarterly accounts ever attaining the same standards of accuracy and reliability as annual accounts, and users must recognize and be willing to accept this fact. Ideally, both quarterly and annual national accounts compilation should use the same technique. Nevertheless, different methods are unavoidable in many cases. Estimation method is directly based on characteristics of the obtained statistics.

In compiling quarterly accounts the elementary information is aggregated to obtain the figures corresponding to the single aggregates. The aggregation process usually requires expressing the elementary information in value terms. So, all the original information must be translated in value terms. To determine values, prices must be combined with volumes through some statistical elaboration and/or criteria to obtain the associated values.

Quantitative information may refer to the level of the aggregate or to the growth rates. Data on levels can be directly used in the compilation of quarterly accounts, while data on growth rates may be used as an indicator to obtain the corresponding level or in the estimation of other aggregates. If the basic data are expressed in physical quantities an evaluation process is inevitable.

Basic statistics are usually available as:

- Levels in monetary units reflecting both current prices and volume (households surveys, balance of payments data, surveys of value added, etc.); This group of statistics can be directly used as input for the compilation of quarterly accounts but the subsequent quarterly national accounts figures and basic statistics values will differ because the basic statistics are not subject to accounting constraints, whereas quarterly accounts are. The levels calculated from the basic statistics cannot then be directly introduced into the national accounts.
- Index numbers in prices, volume or values (business indices and accounts, industrial production index, consumer price index, etc.). Indices cannot be used as a direct input for the compilation of quarterly accounts as they do not define the level for the variable but they describe the growth of the variable instead. Consequently, they must be used in a preliminary step to estimate the level of the variable by extrapolating the level of the previous period or according to an indirect approach. These methods allow the estimation of the levels for the quarters of the current year. These figures must be submitted to a balancing and validation process to produce the temporal and accounting-balanced estimates of the aggregates. Price indices are used to establish the relationship between value and volume figures.

## Benchmarking the quarterly estimates to annual data

It is essential that QNA are consistent with the ANA because the differences in growth rates between quarterly and annual GDP would confuse and irritate users. Benchmarking deals with the problem of combining a series of high-frequency data

(e.g., quarterly data) with a series of less frequent data (e.g., annual data) for a certain variable into a consistent time series. The problem arises when the two series show inconsistent movements and the less frequent data are considered as the more reliable of the two. The general objective of benchmarking is to preserve the short-term movements in the source data as much as possible (because the short-term movements in the series are the central interest of QNA, about which the indicator provides the only available explicit information), under the restrictions provided by the annual data and, at the same time, to ensure, for forward series, that the sum of the four quarters of the current year is as close as possible to the unknown future annual data.

Benchmarking is generally done retrospectively when annual benchmark data become available. To understand the relationship between the corresponding annual and quarterly data, it is useful to observe the ratio of the annual benchmark to the sum of the four quarters of the indicator (the annual BI ratio). Movements in the observed annual BI ratio show inconsistencies between the long-term movements in the indicator and in the annual data.

Benchmarking has a forward-looking element in the relationship between benchmark and indicator data. This BI ratio is extrapolated forward to improve quarterly estimates for the most recent periods for which benchmark data are not yet available and produce optimal monthly/quarterly estimates consistent with annual data. Benchmarking techniques must be used in correct way – that is, individual years must not be treated in isolation from their neighbours, so the time series of quarterly data over several years should be processed using benchmarking software. In fact, effective benchmarking has both a retrospective and a forward-looking dimension, derived from common principles, and combined in the sophisticated QNA software applications. In other words, extrapolated series generally need to be retrospectively benchmarked at a later date.

In the current year, there will be no annual benchmarks for the most recent quarters. So, the challenge is to extend the series beyond the last benchmark period, anticipating future ANA estimates. Most extrapolation techniques are based on the idea that the last BI ratio, based on actual data, is projected forwards (flat) for each quarter and applied to each new quarterly estimate in real time. Following this idea, quarterly data will be treated retrospectively and subjected to continuing cycles of revisions. These revisions will arise from:

- the arrival of annual benchmarks for the most recent year
- revisions to the quarterly source data
- revisions to the annual benchmarks of the previous year

**When benchmark data for the most recent year become available, that year will be retrospectively benchmarked, and quarters in the year before (and maybe for several years before that) will also be revised.**

before that) will also be revised. This is because smoothing the series of BI ratios may require trend adjustments stretching back to more than four quarters. In other words, when new annual (year  $t-1$ ) data become available, quarters in  $t-1$  are benchmarked, and quarters in  $t-2$ ,  $t-3$  are also revised as required by revision of the smoothing function. In general, the best results will be obtained if the entire time series is revised each time new annual benchmarks become available. However, the impact on data for preceding years will gradually become smaller and smaller, and will normally become insignificant after three to four years.

There are different approaches used for benchmarking of time series and can be classified in two main types: purely

**It is essential that QNA are consistent with the ANA because the differences in growth rates between quarterly and annual GDP would confuse and irritate users. Benchmarking deals with the problem of combining a series of high-frequency data (e.g., quarterly data) with a series of less frequent data (e.g., annual data) for a certain variable into a consistent time series.**

When benchmark data for the most recent year become available, that year will be retrospectively benchmarked, and quarters in the year before (and maybe for several years

**There are different approaches used for benchmarking of time series and can be classified in two main types: purely numerical approach and a statistical modeling approach.**

numerical approach and a statistical modeling approach. The choice between the different procedures must above all take into account the minimization of the forecast error for the current year, in order that the provisional annual estimates correspond as closely as possible to the final figures. The choice between these approaches depends, among other things, on the information available at quarterly level. The use of mathematical and statistical methods does not necessarily imply a lack of basic information since these models can also be used to improve the quality of the quarterly figures.

**Eurostat follows a statistical modeling approach and has developed software named ECOTRIM since beginning of 90s. It has several versions, but the latest one is the version 1.01. ECOTRIM supplies a set of mathematical and statistical techniques to carry out temporal disaggregation.**

The statistical modeling approaches such as one developed by Chow and Lin (1971) is used for interpolation, distribution and extrapolation.

It is based on the estimation of econometric relationships which, by construction, ensures perfect coherence with the annual series and provides optimal extrapolation for the current year. Therefore, in principle, quarterly accounts have the same coverage and valuation quality as annual accounts to which they are constrained. The main idea of the approach is that indicator and target variable should satisfy a regression model that is valid both for annual and quarterly data, with the exception of the error structure. The estimates of the parameters of the regression model are derived from the available annual figures. These parameters are then applied to the quarterly model to derive the quarterly figures, including the “extrapolation” for the quarters of the current year.

Eurostat follows this approach and has developed software named ECOTRIM since beginning of 90s. It has several versions, but the latest one is the version 1.01. ECOTRIM supplies a set of mathematical and statistical techniques to carry out temporal disaggregation.

### Revisions policy

Revisions are a natural consequence of the processes used to compile the national accounts. Economic analysts and policy makers not only require accurate and timely information

**Revisions are important for quarterly data quality and accuracy improvement and are carried out for the purpose of: establishment of the new data sources, implementation of the new calculation methods, changes in classifications, changes in methodological concepts and definitions, and legal regulation modifying the existing accounting system.**

on the movements in magnitude of the principal national accounts aggregates, but they must also have confidence that these indicators are unlikely to change significantly as more complete data become available. Revisions are important for quarterly data quality and accuracy improvement and are carried out for the purpose of: establishment of the new data sources, implementation of the new calculation methods, changes in classifications, changes in methodological concepts and definitions, and legal regulation modifying the existing accounting system.

There are two basic types of revisions.

- Annual, e.g. quarterly data are revised in response to the need for consistency with annual estimates. For many aggregates, quarterly estimates are compiled by applying indicators to annual (or less frequent) benchmarks based on superior data sources. This benchmarking process typically leads to revisions over an extended period of time. Often, the first benchmarks that become available are preliminary estimates and are therefore themselves subject to revisions. Plus, whenever annual estimates are revised, the quarterly figures must also be revised to maintain consistency. Principally, benchmarks are considered ‘final’ three years after the period to which they relate has elapsed.
- Current revisions, as regular practice, are carried out for the specific characteristics of quarterly calculations and are associated to availability of improved current or new data source or the development of estimation methodology.

Entire process of publication and revision works as follows:

- First release: The preliminary quarterly estimates based on the available data and related indicators, including professional judgment, will be presented to the public. The announcement is important because it reveals the economic situation in the previous quarter. The public pay very high attention to this information. Therefore, it is not only about presenting the result of the estimation quickly, but, at least, it should also give the right direction of the economic movement.
- Second release or first revision: This is a backward adjustment from the current quarter due to a revision of the basic information by the data sources.
- Second revision: quarterly data estimated by the indirect method is usually different from the annual figures even though the indicators are good and correct. Therefore, when the annual figures have been estimated, the summation of the quarterly data needs to be harmonized to the annual. This revised quarterly data can be used as the benchmark for the next quarters' estimation. The revision can be carried out as many times as the backward change happens to the annual figures.

### Seasonal adjustment

**Seasonal adjustment is a fundamental step in the short-term analysis of time series and serves to facilitate understanding of the development of the economy over time, that is, the direction and magnitude of changes that have taken place.**

Due to the periodicity at which they are recorded, quarterly series quite often show short-term movements caused by the weather, habits, legislation, etc., which are usually

defined as seasonal fluctuations. These movements tend to repeat themselves in the same period (month or quarter) each year. Seasonal variations, irrespective of their causes, are a reflection of the fact that each period has its own characteristics with respect to other periods of the year (due to climate or administrative factors, for instance). Hence, the direct comparison of different periods of the same year is generally not statistically meaningful if the series presents seasonal variations. Seasonal adjustment is therefore a fundamental step in the short-term analysis of time series and serves to facilitate understanding of the development of the economy over time, that is, the direction and magnitude of changes that have taken place. Such understanding can be best pursued through the analyses of time series.

Seasonal adjustment is a process of time series decomposition (breaking it down into its basic components) by using various analytical techniques. Purpose is to understand time series behaviour and to obtain better analysis (to achieve better understanding of the problem). In seasonally adjusted data, the impact of all, within year, seasonal effects on time series behaviour is removed. In that way seasonally adjusted data highlight the underlying trends and short-run movements in the series.

**Seasonal adjustment is a process of time series decomposition (breaking it down into its basic components) by using various analytical techniques.**

**The non-seasonally adjusted data show the actual economic events that have occurred, while the seasonally adjusted data and the trend-cycle estimate represent an analytical elaboration of the data designed to show the underlying movements that may be hidden by the seasonal variations.**

The purpose is not to smooth the series, which is the objective of trend and trend-cycle estimates. A seasonally adjusted series consists of the trend-cycle plus the irregular component. Seasonal adjustment and

trend-cycle estimation represent an analytical massaging of the original data. As such, the seasonally adjusted data and the estimated trend-cycle component complement the original data, but, they can never replace the original data. Unadjusted data are useful in their own right. The non-seasonally adjusted data show the actual economic events that have occurred, while the seasonally adjusted data and the trend-cycle estimate represent an analytical elaboration of the data designed to show the underlying movements that may be hidden by the seasonal variations.

Time series contains at least one of the following components:

- Trend – underlying path or general direction reflected in the data generally associated with the structural causes of the phenomenon being considered over time
- Cycle – represents fluctuation of economic activity related to long-term trend.

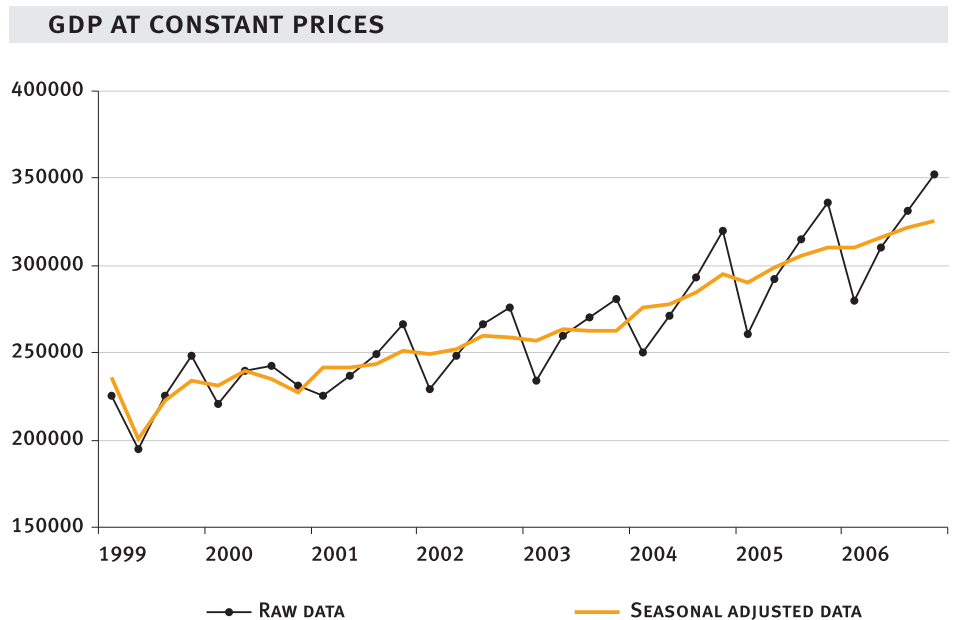
The trend and cycle components are often considered together as the combined cycle- trend component due to

the problems in separating them.

- Seasonal variations – the effect of climatic and institutional events, which repeat themselves more or less regularly each year
- Calendar effects – capture the differences determined by the calendar structure (leap year, moving holidays like the Easter effect, variations in the number of working days per month)
- Irregular component – represents unpredictable movements in regards to timing, impact and duration (natural catastrophes, strikes, unseasonable weather)

Seasonal adjustment is normally done using specialized software - one of the programmes in the X-11 family or some other programs in common use such as TRAMO-SEATS package developed by Bank of Spain and promoted by Eurostat.

An example of the effect of seasonal adjustment is provided by the following graph. It shows that seasonally adjusted time series describe in a sharper way the cyclical evolution of the Serbian economy, which would, otherwise, look "disturbed" judging directly from the original unadjusted figures.



## 2.4.2. QUARTERLY GDP ESTIMATION IN THE REPUBLIC OF SERBIA

The Serbian Statistical Office provides quarterly estimates of GDP following the production and the expenditure approaches.

**It is well known that GDP can be estimated from both the supply (or production)**

**side and the demand (or expenditure) side.** The Statistical Office provides quarterly estimates of GDP following the two approaches.

### Quarterly estimation of GDP according to the production approach

The production approach is the most common approach to measure quarterly GDP. In addition, it shows the industry composition of growth, which provides a useful perspective on economic performance.

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GDP is designed to be a measure of the contribution of an individual production unit, or a group of production units, such as an industry, to the total output of goods and services available for final use in the economy (consumption, capital formation, and net export).

The estimation at current prices is carried out for the period from the first quarter of 1995, for the level of sections and divisions of the Classification of Activity. Entire time series has been reconstructed and is based on constant price data and data from price statistics department.

From 2007 new statistical surveys will be introduced as the main data source for calculating the value added of non-financial corporations in form of the quarterly enterprise survey. The questionnaire asks for information from enterprise quarterly business accounts such as turnover (sales), goods purchased for resale, costs, own-account fixed capital, wages and salaries, changes in inventories etc.

### **The production approach at constant prices**

The estimation is carried out for the period from the first quarter 1999, for the level of sections and divisions of the Classification of Activity. For the period 1995 to 1998 time series has been reconstructed. General methodological framework of all estimations is given in the handbooks published by IMF and Eurostat.

The basic characteristics - production approach:

- Estimation is carried out according to the Classification of Activity (harmonized to international NACE Rev. 1 classification);
- For the level of sections and divisions;
- At constant prices;
- Base year is 2002;
- Extrapolation method;
- Indirect single indicator method is used as the combination of output and input indicators.

### **The estimation**

The estimation is done for the level of 16 sections and 60 divisions of the Classification of Activity. Gross value added of each section is obtained by aggregating gross value added of the lower levels (divisions) at constant prices. The sum of gross value added of each section gives the total gross value added at constant prices.

Quarterly gross domestic product is obtained as the sum of the total gross value added and the value of taxes and customs less subsidies on products at constant prices.

For the level of the divisions, the estimation is derived by multiplying indicators of each division in the form of base index (reference year is 2002) with gross value added of the base year (2002).

### **The choice of the base year**

Choice of the base year is dependant on the large number of economic and statistical factors. The recommendation is that the extreme years (years with the extreme values) are not suitable to be chosen as the base year because such years could cause lower quality and reliability of estimation. The years with extreme values are war years, years prior to war, year with the extreme inflation, etc. There are many reasons for choosing 2002 as the base year. Firstly, changes in statistical system were introduced because of the transition from the old Classification of Activity to the one harmonized to NACE Rev 1. Consequently, there are no comparable data series for the years before 1999. The other reasons are the change of the base year and new weights estimation in the industry statistics (new base year is 2002). In addition, extremely high inflation marked the period 1999 – 2001 whilst the years 2001 and 2003 were very special years for agriculture.

### **The weights in the base year**

Weights in the base year are calculated according to the share in the gross value added at basic prices of each division of the classification of activity in the total gross value added. This is general rule in creating weights. Deviation from this rule has been made for some activities. In such cases, estimation has been made from the lower level as the consequence of some indicators specific characteristics that were used in the estimations. The base year weights are used in estimation for obtaining value terms (expressed in monetary unit) of different volume indices (for different periods) at the base year prices.

### **Data sources**

The estimation of QNA takes advantage of a huge number of primary and secondary data sources, broadly

distinguished as statistical and administrative sources. In particular, the following indicators, regularly collected within the system of official statistics, are used intensively:

- Monthly data on industrial production (output indicator);
- Monthly data on forest exploitation volume (output indicator);
- Annual data on agricultural production (output indicator);
- Monthly data on turnover value in wholesale, retail trade, catering (output indicator);
- Quarterly data on construction – effective working hours (input indicator);
- Monthly data on overnight stays, transport and communications (output indicator);
- Monthly data on the number of employees (input indicator);
- Monthly data on changes in prices of: wholesale and retail trade, producers of agricultural products, catering services.

In addition, the following administrative sources are exploited during the compilation of QNA:

- Monthly data on budget revenues and expenditure (taxes on products and services, taxes on imports, subsidies);
- Monthly data on stocks of deposits and credits with the commercial banks.

### The estimation of quarterly GDP according to the expenditure approach

The quarterly expenditure-based GDP measures the total expenditures on the final use of goods and services, comprising final consumption expenditure (individual consumption

**The quarterly expenditure-based GDP measures the total expenditures on the final use of goods and services, comprising final consumption expenditure (individual consumption expenditure by households, by non-profit institutions serving households, and by government), gross fixed capital formation, changes in inventories, exports of goods and services. Imports of goods and services are excluded.**

expenditure by households, non-profit institutions serving households, by government and collective consumption expenditure by government), gross fixed capital formation, changes in inventories, exports of goods and services (plus), imports of goods and services (minus). The basic data for estimation of the expenditure categories of GDP are described in the following paragraphs. In producing quarterly GDP data, in Serbian case, there is no difference between GDP compiled from production approach and GDP compiled from expenditure approach, because changes in inventories, that cause statistical discrepancies, are treated as residual.

### The basic characteristics

The estimations are carried out for the period from the first quarter 1995 for all expenditure approach categories. Household final consumption expenditure (HFCE) has been calculated for 12 groups of the Classification of Individual Consumption According to Purpose (COICOP); Government expenditure is done according to the Classification of the Functions of the Government (COFOG); Gross fixed capital formation (GFCF) has been carried out in accordance with the Regrouping and Coding of Investments (fixed capital formation) (Pi6); Exports and imports are done by the Standard International Trade Classification. The estimations have been done at current and constant prices. The general methodological framework for all estimations is given in the handbooks published by IMF and Eurostat.

In particular, the estimation of QNA from the expenditure side uses the following indicators, regularly collected within the system of official statistics:

- Quarterly data from Household Budget Survey (HBS) (for HFCE estimation);
- Monthly data on catering turnover (for HFCE estimation);
- Quarterly data on overnight stays from tourism statistics (for HFCE estimation);
- Quarterly data on investments from regular quarterly survey on investments (for GFCF);
- Monthly data on exports and imports of goods (for GFCF and net export);
- Monthly data on the wages and salaries (government expenditure);



- Monthly data on retail trade prices and prices of catering services;
- Monthly data on industrial production (for GFCF);
- Quarterly survey on construction (for GFCF).

In addition, the following administrative sources are also used:

- Monthly data on government expenditure (Ministry of Finance);
- Monthly data on exports and imports of services from the balance of payments (National Bank of Serbia).

### **Expenditure approach at current prices**

In general, the indicators used in the estimation of quarterly demand components are evaluated at current prices. Various estimation methods are generally used to estimate the demand aggregates, but following types may be distinguished:

- Elaboration from household surveys;
- Elaboration from business surveys;
- Commodity-flow method;
- Expenditure method;
- Other methods.

### **Household final consumption expenditure**

The main source used to estimate HFCE is the quarterly HBS. HBS data (consumption of goods and services per household) are expanded to the total population living in households. It represents all the purchases of goods and services that people need for daily living – food, clothing, consumer durable goods, rent, transport, personal services, and so on; Estimation has been performed for the 12 COICOP groups. The other sources, like trade, tourism and catering statistics, have been used as well. Monthly data on realized turnover in retail trade has been used as a control instrument. The monthly data on overnight stays and the monthly data on realized turnover in catering trade have been used as an optional indicator for estimation of hotels and restaurants.

### **Final consumption expenditure of npishs**

NPISHs are institutional units that have been set up by a group of households to provide services, and occasionally goods, on a non-profit basis. NPISHs has a small share in Serbian GDP, so quarterly estimates have been extrapolated from annual values based on statistical and mathematical methods.

### **Final consumption expenditure of general government**

The final consumption expenditure of general government is estimated as non-market output. Non-market output in the general government sector by branches of economic activity is estimated by the cost components contributing to its production. In practice, output at basic prices is the sum of compensation of employees, intermediate consumption, consumption of fixed capital and indirect taxes on production. The main data source is the Ministry of Finance (finance statistics are available on a monthly basis for (i) central government, (ii) regional government, (iii) local government, (iv) the state social security fund).

A distinction is made between individual and collective final consumption expenditure of general government. This concept is adopted because, for example, in some countries, the government provides most health and education services and so they are included in final consumption expenditure by government. In other countries, households purchase most health and education services from market producers - and so they are included in final consumption expenditure by households. If this split was not done, it would give misleading comparisons of the volumes of the different kinds of goods and services actually being consumed by households in different countries.

### **Gross fixed capital formation**

Gross fixed capital formation as an aggregate of GDP distribution is related to purchase of new fixed assets. Gross investments in new fixed assets cover purchases carried out directly from construction contractor, equipment

producers or equipment produced in own production range, i.e. only those fixed assets that have still not been a subject of purchase and sale between direct users of such goods. Here are also included used equipment purchased abroad, investments into significant improvements of the existing fixed assets, investments into significant improvements of land, transfer costs of land ownership, as well as purchase of used passenger vehicles by a private entity.

For gross fixed capital formation (GFCF), the only indicators available for quarterly estimations were those for investment in construction. No indicators were available for machinery equipment, transport equipment and other capital goods data before 2006 when new quarterly statistical survey on investments was introduced.

For machinery equipment, transport equipment and other capital goods of GFCF data are obtained using the commodity-flow approach. This method implies calculation of the value of total domestic supply of consumer and capital goods. In the case of GFCF estimation, quantity of capital goods potentially available for GFCF is obtained by deducting the quantities intended for personal consumption and intermediate consumption from the total supply. Resulting data are used as an indicator for the quarterly distribution of annual data and the current year extrapolation.

Presented in equation

$$\text{GFCF} = \text{O} + (\text{I} - \text{E}) - \text{U}$$

where:

GFCF = Gross Fixed Capital Formation

O = Output

I = Imports

E = Exports

U = Supply used for Personal Consumption and Intermediate Consumption.

The main statistical sources are the annual and monthly surveys of industrial production and foreign trade data for those activities mainly linked to production and supply of machinery equipment, transport equipment and other capital goods. Estimation of the value of construction is obtained using the value of works done in building and other construction. The value of construction work done is the value of rough construction works, finishing and installation work, the value of material equipment produced and labour costs.

Categories of GFCF with small share in total, such as, products of agriculture, fisheries and aquaculture and other products are obtained using trend extrapolation method.

### **Changes in inventories**

Changes in inventories are derived as a balance with statistical discrepancies.

### **Exports and imports of goods and services**

The data on imports and exports of goods are obtained from the external trade statistics. The value of goods in external trade is shown on the basis of prices contracted. The values were calculated on the basis of free Serbia border: FOB in exports, CIF in imports (the invoiced value of goods plus transport, insurance costs, etc. to the Serbian border. The classification of exports and imports in external trade is carried out according to the Nomenclature of Statistics of External Trade, based on the Standard International Trade Classification OUN - revision 3. The data from the balance of payments are used for the exports and imports of services. The balance of payments is carried out by the National Bank of Serbia, according to the methodology of International Monetary Fund.

## 2.4.3. EXPENDITURE APPROACH AT CONSTANT PRICES

### Household final consumption expenditure

The quarterly HFCE data at constant prices are obtained from current prices data deflated by the adequate price deflators for the level of 12 COICOP groups.

The quarterly HFCE data at constant prices are obtained from current prices data deflated by the adequate price deflators for the level of 12 COICOP groups.

Price statistics collects monthly prices of the most important products and services by turnover aspects, from the selected producers and trade organizations and agricultural holdings. The price deflators are constructed using retail trade price indices obtained from the price statistics. For constant price estimation needs, a connection between each product group of the retail trade price index and the codes of the COICOP classification at three digit level has been reconstructed. The further aggregation into deflators, following the split into 12 COICOP groups, is carried out through a second weighted average.

### Final consumption expenditure of NPISHs

Final consumption expenditures of non-profit institutions serving households are estimated at constant prices by deflating each type of expenditure with relevant producer price index, consumer price index, index of average wage of public employees.

### Final consumption expenditure of general government

Final consumption expenditures by the general government sector are estimated at constant prices by deflating each type of expenditure with relevant producer price index, consumer price index, index of average wage of public employees.

### Gross fixed capital formation

The technical structure of elements and estimation of the corresponding weights is important for the estimation of gross fixed capital formation at constant prices. The weights present the share of the elements of technical structure (construction works, equipment – domestic and imported, and the rest) in the total investments. For domestically produced machinery and equipment, the appropriate producer price index (PPI) for the domestic market component is used as a deflator. For imported machinery and equipment, import unit value indices are used and for exported machinery and equipment export unit value indices are used. For construction, each main type of construction is deflated by the appropriate component of the construction cost index (appropriate producer prices indices of elements and material for incorporating in construction), i.e. for residential buildings, for non-residential buildings, and for other structures. All other components at constant prices are deflated with relevant producer price index.

### Changes in inventories

Changes in inventories are derived as a balance with statistical discrepancies.

### Exports and imports of goods and services

Estimates for exports and imports of goods and services at constant prices are conducted separately – for goods and for services.

Estimates for exports and imports of goods and services at constant prices are conducted separately – for goods and for services. Exports

and imports of goods estimates are compiled by commodity groups, deflated with relevant price indices. Export price indices are used to deflate values of goods exported and import price indices are used for deflating imports of goods. For exports and imports of services – exports of services are deflated using the relevant component of the domestic price indices. Imports of services are deflated using a weighted average of price indices of the most important trade partners and of the most important countries of destination for Serbian tourists.

### Publication and revisions

The first results of quarterly gross domestic product estimation for quarters of the current year are available 90 days after expiry of the reference quarter.

The revision policies allow for revisions at any time that improved data become available, and in practice this means that Q1- Q3 (of year t) are revised when Q4 data are published (March t+1) to give the first annual estimates for year t, all quarters are revised later in year t+1 as final annual estimates are made based on annual data.

### Benchmarking

Since annual estimates are nearly always based on more comprehensive, and, therefore, more accurate data, quarterly estimates are adjusted retrospectively to bring them in line with annual figures.

It is essential that quarterly estimates are consistent with annual estimates for any particular year. Differences

in growth rates between quarterly and annual GDP would, otherwise, confuse users and must be reconciled. Since annual estimates are nearly always based on more comprehensive, and, therefore, more accurate data, quarterly estimates are adjusted retrospectively to bring them in line with annual figures.

The methodology used to disaggregate the annual data based on quarterly data is the one proposed by Chow and Lin. It is done with recommended program by Eurostat (ECOTRIM). The approach is used for interpolation, distribution and extrapolation. It is based on the estimation of econometric relationships which, by construction, ensures perfect coherence with the annual series and provides optimal extrapolations for the current year. Therefore, in principle, quarterly accounts have the same coverage and valuation quality of annual accounts to which they are related, although they are less accurate, because of the influence of estimation and interpolation procedures.

## 2.5. THE REVISIONS IN NATIONAL ACCOUNTS

**One of the general characteristics of National Accounts is the possibility of making revisions – performing corrections not only to original estimates and preliminary results, but also to final estimations and published statistical data as necessary.** The fact is that revisions are part of the most developed statistical systems and they are done in the same way for the period of time for which the data are available (so called backward revision of time series). This way ensures consistent and comparable series of data for macroeconomic analysis and for forecasting of future trends.

So far, the way of publishing the statistical data and informing the widest user groups has always highlighted the difference between estimations and final data. At a time when complete

Revisions are implemented for annual and especially for quarterly figures, as information on quarterly level is more susceptible to changes and needs to be harmonized with annual values. Also, a change of results in current prices requires revision of data in constant prices and renewed harmonization of quarterly and annual estimations.

information is not available, the discrepancy between initial estimations and final estimations that are done on the basis of complete and updated information, is almost inevitable and requires correction. The timeline for conducting research, obtaining and publishing results imposes the timeline for data corrections that are repeatedly done during the accounting period. From a point of view of the users who have basic knowledge about the System of National Accounts, conducting revisions is understandable and acceptable. Therefore, we will only explain the main reasons for doing so.

Revisions are implemented for annual and especially for quarterly figures, as information on quarterly level is more susceptible to changes and needs to be harmonized with annual values. Also, a change of results in current prices requires revision of data in constant prices and renewed harmonization of quarterly and annual estimations.

In the System of National Accounts, revisions, generally, occur following an introduction of new data sources, improvements to the existing ones, changes to classifications, or establishment of new principles, regulations and international recommendations that represent a basic methodological framework.

**Apart from the results of statistical surveys, the most important data sources for GDP compilation, and for other macroeconomic aggregates, are administrative sources.**

Apart from the results of statistical surveys, the most important data sources for GDP compilation, and for other macroeconomic

aggregates, are administrative sources (financial reports – balance sheets, income statements, statistical annexes), data from the National Bank of Serbia, from the Ministry of Finance, from the Treasury, Tax Office, Customs Office and from other institutions. However, in order to create a statistical system of national accounts that is integrated, consistent and harmonized with the international standards and classifications, it is necessary to put in a lot of efforts, time, knowledge and skills and to invest into human resources and technical capacities.

In addition, continuing efforts should be made to introduce new, and harmonize the existing data sources with the national accounting needs since they mainly referred to, and, to a large extent, relied on the long-running statistical surveys used in the estimations according to the now obsolete material concept. The statistical information system has, despite the advances made, not been in a position to progress evenly in all areas, which, at present, leaves national accounts more developed than the system of data sources.

In addition to simultaneous improving and updating of databases, the statisticians from the National Accounts Department should, on the one hand, be tasked with identification of relevant indicators for indirect evaluation methods and, on the other, with making improvements to the coverage, bridging the differences and obtaining more reliable data that will be corrected every time in case of discrepancies or any sort of errors.

## **2.5.1. PRELIMINARY ESTIMATIONS AND CURRENT REVISIONS**

**Statistics is expected to demonstrate tangible activities in addressing an ever expanding list of requirements in reporting, data submission and publishing in international journals and publications.**

**Therefore only the results published by the Republican Statistical Office can be considered official with compulsory quoting of the source when they are used.**

On its way to positioning itself in the international community, our country, that has been going through a period of development

during transition, must fulfil certain conditions. Statistics is expected to demonstrate tangible activities in addressing an ever expanding list of requirements in reporting, data submission and publishing in international journals and publications. Deadlines are shorter, but are never too short for the needs of domestic users and concerned public. We have to come to common understanding that impossible – making conclusions about the state of an observed phenomenon or its movements during a longer period of time, much before the end of an accounting period, on a basis of assumptions and incomplete information and publishing them as official and sustainable – should not be expected. Publishing of unchecked data, arbitrary and unfounded views and making comparisons on a basis of incomparable indicators are often misleading and may result in criticism addressed to statistics for giving a distorted picture of economic reality. Anyway, it is only the results published by the Republican Statistical Office that can be considered official with compulsory quoting of the source when they are used.

Statistics is often faced with groundless criticism for being late, i.e. for delaying provision of final results that refer to a period under observation. However, it should be said that this timeline is determined not only by a logical sequence of certain phases, as provided by programmes for conducting researches, but also by awareness of data providers and other stakeholders to the need of statistical reporting and their positive attitude towards the responsibility of providing information as inputs for production of statistical data.

Preliminary estimates are usually done at a high level of aggregation, and are based on currently available, incomplete data and assumptions. As deadlines for compilation, analysis and verification of results become tighter and shorter, discrepancies between preliminary estimates and final estimations are inevitable, despite our professional work. Then follow current revisions (corrections) of estimated, preliminary and final results that the users are already accustomed to. Thus, the first estimates of the annual value of GDP for year "t"-1 can, on a basis of GDP estimates in constant prices and price indices available for year "t"-1, be made at the beginning of the year "t".

Following the quarterly GDP compilations in current prices, the first annual results, as a sum of the quarters, will be available within 90 days from expiry of the reference period at latest. Data for three quarters of the year under observation are subject to revision until publishing of the results for the fourth quarter of the same year. Reconciliation of the quarterly and annual data series is done every year after publication of annual data, with revisions performed for all quarterly values in the series. The deadline for establishment of the preliminary results for annual estimations at current prices ranges from "t"+ 9 months for previous year, as is the case in most countries, to "t"+ 12 months. Preliminary data can be corrected within the interval from "t"+ 24 months up to "t"+ 36 months depending on availability of supply and use or input and output tables in the system, which, in the case of our system of national accounts, is planned in the near future.

As opposed to current revisions (corrections) that are performed when new, better and more complete statistical information becomes available, the reasons for periodic general revisions in National Accounts are:

- establishment of new data sources or inability to continue using old, previously available sources;
- introduction of new or improved existing estimation methods;
- new, internationally adopted rules, definitions and classifications;
- amendments to legislation as was the case with migration to international accounting standards.

### 2.5.2. THE MAIN RESULTS OF THE LATEST REVISION

**The Republican Statistical Office of Serbia has, so far, performed only one general revision in the area of National Accounts that took place in 2006 for the complete time series of data available.** The results of the revision have appeared in the publication "System of National Accounts of the Republic of Serbia, 1997 – 2004".

GDP estimations and compilations of macroeconomic aggregates for the Republic of Serbia, in line with the internationally recognized standards, have been performed since 1997, the year from which published data are available. The fact is that, going through phases of political and financial instability, sanctions, extreme inflation rates and ownership and organizational transformation, we have, in the past period, been through major changes in the accounting system and in economy as a whole. A dramatic turning point in development of our country has, certainly, had its influence as changes in the movement and structure of certain aggregates in the System of National Accounts have, year after year, become more erratic and variations much more extreme than in the case of well functioning systems. This has necessitated a new evaluation of quality, completeness and reliability of statistical information from a variety of sources as well as checking of the methods and assumptions applied and verification of estimations and calculations done.

## General revision of the Serbian data series mainly concerned Government and Household Sectors.

A more consistent application of methodological solutions, together with migration to international standards of financial reporting in accounting systems used for bookkeeping and composition of financial reports and with improvements in statistical databases used for compilation of national accounts, have necessitated a major, general revision of the data series calculated and published in this area so far. The change of results has mostly been affected by two major corrections.

One was done in the Government Sector where output, gross value added and final consumption, including defence expenses, were calculated according to expenditure approach and not according to the method of collectible taxes, as had been the case previously. The same principle was applied to non-profit institutions serving households (NPISHs). In previous estimations of the Government Sector, wages and salaries were registered as net values, whereas, all taxes and contributions to wages and salaries should be included (gross principle) in accordance with the new methodology.

Another major change was done in the Household Sector. The individual consumption expenditure was calculated by direct estimation of all costs according to the Classification of Individual Consumption by Purpose (COICOP). Previously, the value of individual consumption had been obtained as a residual item. The value of imputed rent was estimated by a, so called, User Cost Method, which is a Eurostat standard, and is used for estimation of total costs for dwelling services in owner occupied dwellings. The corrections performed for all institutional sectors and sub-sectors and compilation of basic macroeconomic categories in line with SNA93 and ESA95 methodologies have, in direct or in indirect way, affected, to a larger or lesser extent, the value of GDP, i.e. its increase in comparison to previously published data.

<b>CHANGES IN GDP IN CURRENT PRICES, 1997 – 2004</b> (in million Dinars)				
	previously published data	revised data	absolute difference	% difference
<b>1997</b>	104.399,8	126410,6	22.010,8	21,1
<b>1998</b>	140.926,1	169516,7	28.590,6	20,3
<b>1999<sup>1)</sup></b>	177.625,2	210.232,3	32.607,1	18,4
<b>2000</b>	355.168,0	397.655,6	42.487,6	12,0
<b>2001</b>	708.422,8	783.896,7	75.473,9	10,7
<b>2002</b>	919.230,5	1.020.116,5	100.886,0	11,0
<b>2003</b>	1.095.402,2	1.171.563,8	76.161,4	7,0
<b>2004</b>	1.310.300,0	1.431.313,1	121.013,1	9,2

1) Since 1999 excluding data for Kosovo and Metohia

This has also affected estimation of GDP in constant prices, as current values changed together with weights in base year of 2002. The data for quarterly estimation of GDP in constant prices, starting from the first quarter of 1999, had to be revised as well in line with annual estimations in constant prices.

<b>CHANGES OF GDP GROWTH RATES</b>			
	previously published data	revised data	% difference
<b>2000</b>	5.2	4.5	- 0.7
<b>2001</b>	5.1	4.8	- 0.3
<b>2002</b>	4.5	4.2	- 0.3
<b>2003</b>	2.4	2.5	0.1
<b>2004</b>	9.3	8.4	- 0.9
<b>2005</b>	6.8	6.2	- 0.4
<b>2000-2005</b>	5.6	5.1	- 0.5

REVISED WEIGHTS IN 2002		
	old weights	new weights
<b>Agriculture, hunting and forestry</b>	16.9	14.8
<b>Fishing</b>	0.1	0.1
<b>Mining and quarrying</b>	1.9	1.7
<b>Manufacturing</b>	21.5	18.5
<b>Electricity, gas and water supply</b>	4.1	3.5
<b>Construction</b>	3.9	3.4
<b>Wholesale, retail trade, repair of motor vehicles</b>	9.2	8.1
<b>Hotels and restaurants</b>	1.2	1.1
<b>Transport, storage and communications</b>	9.2	8.0
<b>Financial intermediation</b>	7.0	5.6
<b>Real estate, renting and business activities</b>	10.0	15.7
<b>Public administration, defence, compulsory social security</b>	4.1	7.9
<b>Education</b>	3.4	3.7
<b>Health and social work</b>	4.7	5.6
<b>Other community, social and personal services</b>	2.6	2.4
<b>Private households with employed persons</b>	0.1	0.1

The figures presented in the tables above show that, although the revision of GDP level and of the sectoral composition of VA were generally large, they did not influence too much the profile of real GDP growth rate. In fact, growth rates were revised at most by -0.9% and, what is more, only between 2000 and 2001 the new profile shows acceleration instead of deceleration suggested by the preliminary estimates of GDP.

**Users should know the reasons for correcting the results and should accept this as a general standard and a routine in statistical practice.**

General revisions are a truly huge and very complex job that requires a high level of expertise and responsibility for making decisions about a final measure of macroeconomic categories which, as is often the case, produce inconsistent results depending on which data sources or estimation methods are applied. Users should know the reasons for correcting the results and should accept this as a general standard and a routine in statistical practice. What could be misleading for them at first sight is the impression that the work of National Accounts is never brought to an end. Introduction of new methods, classifications, definitions and conventions paves the way for complete harmonization with European standards. Benefiting from the practice and experience of other countries and from technical assistance provided by international organizations and experts that participate in various projects, we are confronted with new possibilities and new knowledge that we try to implement in practice.

Taking into account all the reasons that can determine frequency of the revisions, we can expect that changes in the

existing Classification of Activities (NACE Rev.2) that will be implemented in the statistical system from 2008, and in National Accounts from 2011, will, together with amendments to the SNA93 methodology, require another revision. An additional reason will be introduction of supply and use tables and continuing participation in international projects mainly aimed at further development

**Changes planned at international level in the existing Classification of Activities (NACE Rev.2) from 2008, and in National Accounts from 2011, will, together with amendments to the SNA93 methodology, require another revision.**



of our statistical system in line with national accounting needs. Constitution of a statistical business register, new administrative and statistical registers, new methods of reporting, free exchange of data and agreements on the cooperation protocol with authorized institutions will serve as pillars in this process.

Steps to be taken in further development of National Accounts will require a number of new revisions, perhaps in longer time intervals, but it will happen, and a decision to do it will be made, whenever it is deemed necessary for professional needs and purposes.

A new phase in Serbia's social and economic development began at the end of year 2000. The analysis of the level and dynamics of the national accounts aggregates fully confirm a positive change of the economic context, and introduction of new conditions for businesses resulted in a significant increase in economic activity and in establishment of macroeconomic stability.

**A new phase in Serbia's social and economic development began at the end of year 2000.** The end of the economic and political sanctions was followed by a period of transition and

integration of our country in world's economic flows. A change of ambience and introduction of new business conditions resulted in a significant increase in economic activity and in establishment of macroeconomic stability, which is fully confirmed by analysis of the level and dynamics of the national accounts aggregates.

GDP per capita increased more than twice between 2001 and 2005, from 1574 USD in 2001 to 3525 USD in 2005. High growth

**Serbian GDP per capita increased more than twice between 2001 and 2005. In that period the cumulative growth of GDP in constant prices of the base-year 2002 amounted to 23% and real growth of GDP amounted to 5.3% per year on average.**

of economic activity was followed by two-digit inflation which fell down to 16.5% (annual average) after an enormously high rate of 91.8% in 2001. Stability of general price levels was based on the stability of exchange rate, on constant growth of hard currency reserves and on a rigid monetary and fiscal policy. However, as the movement of prices in the period under observation reflected on the value of GDP in current prices, only an analysis of constant price indicators could show what progress had been made. In the period from 2002 to 2005 a cumulative growth of GDP in constant prices of the year 2002 amounted to 23%. A real growth of GDP amounted to 5.3% per year on average.

**The greatest growth rate of 8.4% was recorded in 2004, resulting from a significant increase of agricultural and industrial production and services. Another significant real growth of 6.2% was recorded in 2005 with largest contribution coming from the services sector and especially from trade and transport, warehousing and communications.**

The greatest growth rate was recorded by transport and communications (12.5%), trade (16.3%) and financial intermediation (12.0%). The greatest growth rate of 8.4%

was recorded in 2004, resulting from a significant increase of agricultural and industrial production and services that were functioning with great difficulty under the conditions of isolation of the national economy. A significant real growth of 6.2% was recorded in 2005 with largest contribution coming from the services sector and especially from trade and transport, warehousing and communications. Nevertheless, 2005 was a bad year for agricultural production that recorded negative growth rate of -4.9%. In 2000, 2002 and 2003 a drop in agricultural production on the one hand, and a significant share of this activity in GDP formation on the other, slowed down the total economic growth.

Consolidation and privatization of the banking system also had effect on movements in the

**Consolidation and privatization of the banking system had positive effect on movements in the financial sector, whose growth and average share in GDP is increasing.**

financial sector which includes the National Bank of Serbia, commercial banks and other financial organizations and insurance companies. Their average share in the total GVA in constant prices amounted to 6.2% in the period from 2002 – 2005. Following a negative growth rate and negative contribution to the real GDP in previous years, the transformation of certain commercial banks and of the insurance sub-sector resulted, as of 2002, in a period of a more stable and more significant growth that reached an average of 12% by the year 2005. In this period, a number of banks was brought down by half to 40 with renewed confidence in the banking system that generated a sevenfold increase in new hard currency savings in 2005 compared to 2001. Real GDP growth rate in the past period was followed by a negative balance of current transactions and by a high unemployment rate, which had an unfavourable effect on macroeconomic stability and slowed down economic growth.

## 3.1. THE STRUCTURE AND EVOLUTION OF PRODUCTIVE SECTORS

### 3.1.1. THE MAIN RESULTS OF THE ESTIMATES AT CURRENT PRICES

On average, annual GDP nominal growth rate in the period from 2002 to 2005 amounted to 22.2%. The largest contribution was from services (12.6 percentage points per year) within which trade contributed with 2.7 percentage points, real estate with 3.2 points and transport and communications with 1.9 points. A contribution of 2.8 points from manufacturing industry was also significant. Manufacturing also has the largest weight in the structure of value added, even if it is declining from the 18.5% of nominal value added in 2002 to the 16.9% in 2005.

<b>STRUCTURE OF GVA BY ACTIVITIES</b> (as percentage of GVA at current prices)					
	2002	2003	2004	2005	average 2002-2005
<b>Agriculture, hunting and forestry</b>	14.8	13.1	13.7	11.9	13.2
<b>Fishing</b>	0.1	0.0	0.0	0.0	0.0
<b>Mining and quarrying</b>	1.7	1.7	1.9	2.2	1.9
<b>Manufacturing</b>	18.5	16.7	17.2	16.9	17.2
<b>Electricity, gas and water supply</b>	3.5	4.1	4.4	4.1	4.1
<b>Construction</b>	3.4	4.2	4.7	4.5	4.3
<b>Wholesale, retail trade, repair motor vehicles</b>	8.1	8.9	9.7	12.2	10.0
<b>Hotels and restaurants</b>	1.1	1.1	1.1	1.2	1.1
<b>Transport, storage and communications</b>	8.0	8.0	7.9	8.6	8.2
<b>Financial intermediation</b>	5.6	5.1	4.0	4.0	4.5
<b>Real estate, renting &amp; business activities</b>	15.7	15.5	15.7	15.8	15.7
<b>Public admin., defence, compulsory social security</b>	7.9	8.8	7.0	5.5	7.1
<b>Education</b>	3.7	4.5	4.2	4.4	4.2
<b>Health and social work</b>	5.6	5.6	5.8	5.7	5.7
<b>Other community, social &amp; personal services</b>	2.4	2.6	2.5	2.8	2.6
<b>Private households with employed persons</b>	0.1	0.1	0.1	0.1	0.1
<b>GROSS VALUE ADDED (GVA)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

## A PICTURE OF THE SERBIAN ECONOMY PROVIDED BY

<b>GROWTH RATE OF NOMINAL VALUE ADDED BY ACTIVITIES</b>					
	2002	2003	2004	2005	average 2002-2005
Agriculture, hunting and forestry	-5.9	0.0	27.3	5.6	6.1
Fishing	3.0	-27.1	3.2	38.0	1.7
Mining and quarrying	63.5	15.7	36.4	38.7	37.5
Manufacturing	5.9	1.8	25.9	19.2	12.8
Electricity, gas and water supply	269.2	30.9	31.9	12.3	63.6
Construction	33.4	38.9	38.7	14.4	30.9
Wholesale, retail trade, repair motor vehicles	34.7	24.4	32.7	52.7	35.7
Hotels and restaurants	46.9	19.5	18.8	32.7	29.0
Transport, storage and communications	38.4	13.1	20.1	32.4	25.6
Financial intermediation	81.7	2.3	-2.9	19.1	21.1
Real estate, renting & business activities	19.7	11.2	23.5	22.7	19.2
Public admin., defence, compulsory social security	39.1	25.4	-3.3	-4.0	12.8
Education	63.6	36.7	16.4	26.5	34.7
Health and social work	49.7	14.5	24.7	20.6	26.7
Other community, social & personal services	59.4	23.1	20.5	36.0	33.9
Private households with employed persons	16.7	10.1	11.5	16.4	13.6
Gross value added (GVA)	25.5	12.8	22.0	21.3	20.3
Net taxes on products	66.4	26.7	22.9	27.3	34.8
<b>GROSS DOMESTIC PRODUCT (GDP)</b>	<b>30.1</b>	<b>14.8</b>	<b>22.2</b>	<b>22.3</b>	<b>22.2</b>
<b>CONTRIBUTION TO THE GROWTH OF NOMINAL VALUE ADDED BY ACTIVITIES (in percentage points)</b>					
	2002	2003	2004	2005	average 2002-2005
Agriculture, hunting and forestry	-1.16	0.01	3.58	0.76	1.20
Fishing	0.00	-0.01	0.00	0.01	0.00
Mining and quarrying	0.82	0.26	0.63	0.74	0.48
Manufacturing	1.29	0.33	4.31	3.30	2.79
Electricity, gas and water supply	3.22	1.09	1.30	0.55	0.76
Construction	1.07	1.32	1.62	0.68	0.99
Wholesale, retail trade, repair motor vehicles	2.61	1.97	2.90	5.09	2.68
Hotels and restaurants	0.43	0.21	0.21	0.36	0.27
Transport, storage and communications	2.78	1.05	1.61	2.56	1.86
Financial intermediation	3.16	0.13	-0.15	0.77	0.82
Real estate, renting & business activities	3.24	1.76	3.63	3.55	3.15
Public admin., defence, compulsory social security	2.80	2.02	-0.29	-0.28	0.92
Education	1.79	1.35	0.73	1.12	0.98
Health and social work	2.32	0.81	1.39	1.19	1.24
Other community, social & personal services	1.10	0.54	0.53	0.91	0.63
Private households with employed persons	0.02	0.01	0.01	0.02	0.02
<b>Gross value added (*)</b>	<b>22.62</b>	<b>10.98</b>	<b>18.50</b>	<b>17.90</b>	<b>18,03</b>
<b>Net taxes on products (*)</b>	<b>7.52</b>	<b>3.87</b>	<b>3.67</b>	<b>4.40</b>	<b>3,94</b>

## THE NATIONAL ACCOUNTS

Note: The contribution of the value added of the  $j$ -th sector in the period  $(t-1, t)$  (i.e.:  $VA_{t,j}$ ) to the total VA growth (GVA) is evaluated as  $100 \times (VA_{t,j} - VA_{t-1,j}) / GVA_{t-1}$ , or, equivalently, as the percentage change of  $VA_{t,j}$  weighted by the ratio  $VA_{t-1,j} / GVA_{t-1}$ .  
 (\*) Contribution to the GDP growth

The contribution of agriculture to nominal value added and its weight on total production vary a lot, year by year, depending on significant effects of climate. On average, its contribution to nominal value added growth between 2002 and 2005 has been 1.2 percentage points per year. Nevertheless, it picked up to 3.6 points in 2004 and fell to a minimum of -1.2 in 2002. Its weight on nominal value added decreased from 14.8% in 2002 to 11.9% in 2005. On the other hand, the weight of services increased steadily (from 58.1% in 2002 to 60.4% in 2005), demonstrating the modernization of Serbian economy.

### 3.1.2. THE MAIN RESULTS OF THE ESTIMATES AT CONSTANT PRICES

The general picture of the main trends of Serbian economy provided by national accounts at current prices is basically confirmed by the estimates at constant prices, which take into account and eliminate the influence of pure price increases on value added and GDP.

STRUCTURE OF GROSS VALUE ADDED BY ACTIVITIES (as percentage of GVA at constant prices)					
	2002	2003	2004	2005	average 2002-2005
<b>Agriculture, hunting and forestry</b>	14.8	13.6	15.0	13.5	14.2
<b>Fishing</b>	0.1	0.1	0.0	0.0	0.1
<b>Mining and quarrying</b>	1.7	1.7	1.6	1.6	1.7
<b>Manufacturing</b>	18.5	17.1	17.2	16.3	17.2
<b>Electricity, gas and water supply</b>	3.5	3.6	3.3	3.3	3.4
<b>Construction</b>	3.4	3.7	3.6	3.4	3.5
<b>Wholesale, retail trade, repair motor vehicles</b>	8.1	8.9	9.6	11.1	9.5
<b>Hotels and restaurants</b>	1.1	1.0	1.0	0.9	1.0
<b>Transport, storage and communications</b>	8.0	8.6	9.2	10.8	9.2
<b>Financial intermediation</b>	5.6	6.0	6.1	6.8	6.2
<b>Real estate, renting &amp; business activities</b>	15.7	15.9	14.9	14.6	15.2
<b>Public admin., defence, compulsory social security</b>	7.9	8.1	7.7	7.3	7.8
<b>Education</b>	3.7	3.6	3.4	3.2	3.4
<b>Health and social work</b>	5.6	5.5	5.1	4.9	5.2
<b>Other community, social &amp; personal services</b>	2.4	2.4	2.2	2.1	2.3
<b>Private households with employed persons</b>	0.1	0.1	0.1	0.1	0.1
<b>GROSS VALUE ADDED (GVA)</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

## A PICTURE OF THE SERBIAN ECONOMY PROVIDED BY

REAL GROWTH OF VALUE ADDED BY ACTIVITIES					
	2002	2003	2004	2005	average 2002-2005
Agriculture, hunting and forestry	-3.2	-7.0	19.1	-4.9	0.5
Fishing	2.4	-6.1	4.7	-0.3	0.1
Mining and quarrying	-0.2	5.1	1.3	3.4	2.4
Manufacturing	-2.9	-6.0	8.7	-0.1	-0.2
Electricity, gas and water supply	-1.6	3.1	-0.1	5.3	1.6
Construction	-7.4	10.8	3.5	2.0	2.0
Wholesale, retail trade, repair motor vehicles	14.9	11.6	17.0	22.0	16.3
Hotels and restaurants	0.6	-1.8	-0.6	-2.8	-1.2
Transport, storage and communications	2.3	9.5	15.8	23.4	12.5
Financial intermediation	11.8	9.1	9.9	17.4	12.0
Real estate, renting & business activities	1.8	2.5	1.4	3.5	2.3
Public admin., defence, compulsory social security	1.7	3.5	2.8	0.4	2.1
Education	3.3	-0.4	1.6	-1.5	0.7
Health and social work	0.6	-0.2	1.1	0.9	0.6
Other community, social & personal services	1.9	2.0	0.1	3.2	1.8
Private households with employed persons	-1.3	1.7	0.8	4.2	1.3
<b>GROSS VALUE ADDED (GVA)</b>	<b>1.1</b>	<b>1.3</b>	<b>8.3</b>	<b>5.5</b>	<b>4.0</b>
Net taxes on products	27.9	9.5	9.3	10.2	14.0
<b>GROSS DOMESTIC PRODUCT (GDP)</b>	<b>4.2</b>	<b>2.5</b>	<b>8.4</b>	<b>6.2</b>	<b>5.3</b>

## THE NATIONAL ACCOUNTS

CONTRIBUTION TO THE REAL GROWTH OF VALUE ADDED (at 2002 constant prices in percentage points)					
	2002	2003	2004	2005	2002-2005
<b>Agriculture, hunting and forestry</b>	-0.50	-1.03	2.59	-0.74	0.07
<b>Fishing</b>	0.00	0.00	0.00	0.00	0.00
<b>Mining and quarrying</b>	0.00	0.09	0.02	0.06	0.04
<b>Manufacturing</b>	-0.56	-1.10	1.49	-0.02	-0.04
<b>Electricity, gas and water supply</b>	-0.06	0.11	0.00	0.17	0.06
<b>Construction</b>	-0.27	0.37	0.13	0.07	0.07
<b>Wholesale, retail trade, repair motor vehicles</b>	1.06	0.94	1.51	2.11	1.16
<b>Hotels and restaurants</b>	0.01	-0.02	-0.01	-0.03	-0.01
<b>Transport, storage and communications</b>	0.18	0.76	1.36	2.16	0.99
<b>Financial intermediation</b>	0.60	0.51	0.60	1.06	0.61
<b>Real estate, renting &amp; business activities</b>	0.28	0.39	0.22	0.51	0.35
<b>Public admin., defence, compulsory social security</b>	0.13	0.28	0.23	0.03	0.17
<b>Education</b>	0.12	-0.01	0.06	-0.05	0.03
<b>Health and social work</b>	0.03	-0.01	0.06	0.04	0.03
<b>Other community, social &amp; personal services</b>	0.05	0.05	0.00	0.07	0.04
<b>Private households with employed persons</b>	0.00	0.00	0.00	0.00	0.00
<b>Gross value added (*)</b>	0.94	1.12	6.99	4.62	3.51
<b>Net taxes on products (*)</b>	3.29	1.38	1.44	1.59	1.65

Note: The contribution of the value added of the  $j$ -th sector in the period  $(t-1, t)$  (i.e.:  $VA_{t,j}$ ) to the total VA growth (GVA) is evaluated as  $100 \times (VA_{t,j} - VA_{t-1,j}) / GVA_{t-1}$ , or, equivalently, as the percentage change of  $VA_{t,j}$ , weighted by the ratio  $VA_{t-1,j} / GVA_{t-1}$ .  
 (\*) Contribution to the GDP growth

Net of price increase, the average growth rate of GDP between 2002 and 2005 was 5.3% per year, with a minimum in 2003 (only 2.5%, which is still higher than the best growth rates in most Western European countries) and a maximum in 2004 (8.4%).

**On average, between 2002 and 2005, the largest contribution to the growth of real value added came from Services.** On average, between 2002 and 2005, the largest contribution to the growth of real value added came from Services (3.4 percentage points out of 4). About one third of the total contribution of Services is due to trade (1.2 percentage points), and more than one fourth to Transport (1.0 percentage point). Also financial services gave a large contribution to the growth (0.6 percentage points on average). The latter figures confirm the driving role played by Services in the Serbian economy.

On the other hand, the estimates at constant prices show that the contribution of Manufacturing was almost negligible (-0.04 percentage points on average), contradicting the results of the estimates at current prices. Indeed, Manufacturing seems to have contributed more to inflation than to real growth, since its contribution to increase of nominal income was about 3 points higher than the one to the real growth. In addition, the value added produced by this sector was very fluctuating, contributing to the general growth from a maximum of 1.5 points in 2004 (i.e. more than 17% of total GDP growth), to a minimum of -0.6 points in 2002. In particular, the contribution of Manufacturing was negative from 2001 to 2003 becoming positive, but not so significant, again in recent years, as industrial production was increasingly suited to market needs.

The contribution of agriculture changed very much year to year in the period 2002-2005: in average it had almost nil value but this sector contributed to the boost of general growth considerably in 2004. At the contrary, the bad results of Agriculture recorded in the remaining years reduced the GDP growth by an amount ranging from -0.5 to -1.0 points.

Also the contribution of agriculture changed very much year to year: on average it was almost nil, but this sector contributed to the boost of general growth considerably

in 2004 (2.6 percentage points, i.e. almost one third of the overall growth). At the contrary, the bad results of Agriculture reduced the GDP growth by an amount ranging from -0.5 to -1.0 points in the remaining years. As a result, the share of value added produced by Agriculture was fluctuating also by looking at the estimates at constant prices. In particular, the value added of agriculture shows continuous drop in its contribution to total GVA from 2.4 percentage points in 2001 to 0.7 points in 2005, with an exception in 2004 which recorded a particularly high growth rate compared to the previous year, causing our economy to be less dependant on notably volatile movements of this, still significant, activity. It is noticeable that the average contribution of Agriculture at constant prices is about 1.1 percentage points lower than at current prices, which results from a faster dynamics of price components in the structure of value.

The weight of Services on real value added increased steadily during the period 2002-2005 (from 58.1% to about 62%, with minor differences compared to the corresponding estimates at current prices). In particular, Trade and Transport show permanent growth within the period under observation, resulting from opening up of our country, expansion of private sector and an increasing number of vehicles (especially passenger vehicles). In addition, investments in the system of fixed telephony, and primarily, an intensive development of mobile telephony, as the most profitable telecommunication segment, made their mark on the constantly positive growth rate, which recorded an exceptionally high rate of 23.4% in 2005, with transport and trade reaching 22.0%. Nevertheless, the weight of Industry and Construction fell from about 27% to less than 25% (strengthening the results of the corresponding estimates at current prices). At the same time, as investments in education, healthcare and social care grew, these activities also recorded growth with increased share in the GVA structure.

## 3.2. THE STRUCTURE AND EVOLUTION OF DEMAND

**During the period 2002-2005, final consumption expenditure was the main component of aggregate demand in Serbia, accounting for 94.1% of nominal GDP on average.** Within consumption, households (and NPISH) absorbed 73.8% of nominal income for private consumption. The expenditure for individual services provided by the governmental sector and collective services, accounted for about 20% of GDP.

In turn, gross fixed capital formation (i.e. investment) absorbed 16.1% of GDP and the external component of aggregate demand (i.e. export) accounted for about 23% of total nominal income produced in Serbia. Under such conditions, import played a fundamental role in satisfying the aggregate demand, so that it reached 45.9% of GDP. As a consequence, the external deficit of Serbia picked up to 23.2% of GDP.



## THE NATIONAL ACCOUNTS

THE STRUCTURE OF AGGREGATE DEMAND (percentage ratio to GDP at current prices)					
	2002	2003	2004	2005	2002-2005
<b>Final consumption expenditure</b>	103.5	98.9	90.5	88.2	94.1
<b>Individual consumption expenditure</b>	91.6	87.0	81.6	81.5	84.6
<b>Households and non-profit institutional units serving households</b>	81.2	76.4	70.7	70.3	73.8
<b>Government sector</b>	10.4	10.6	10.8	11.1	10.8
<b>Collective consumption expenditure</b>	11.9	11.9	8.9	6.7	9.4
<b>Gross fixed capital formation</b>	11.8	16.1	17.7	17.3	16.1
<b>Changes in inventories</b>	5.5	6.6	20.1	16.1	13.1
<b>Exports of goods and services</b>	19.9	20.6	22.2	26.0	22.7
<b>Imports of goods and services ( – )</b>	40.7	42.2	50.6	47.6	45.9
<b>GROSS DOMESTIC PRODUCT</b>	100.0	100.0	100.0	100.0	100

During the years 2002–2005, investment in fixed capital and governmental expenditure for individual consumption were the most dynamic components of demand (respectively 38.8% and 29.1% per year on average, to be compared to an increase of nominal GDP by 22.2%). At the opposite, collective consumption increased at a very moderate pace (7.1% per year).

THE DYNAMICS OF AGGREGATE DEMAND (annual growth rate at current prices)					
	2002	2003	2004	2005	2002-2005
<b>Final consumption expenditure</b>	30.1	9.7	11.8	19.1	17.4
<b>Individual consumption expenditure</b>	29.5	9.1	14.5	22.1	18.6
<b>Households and non-profit institutional units serving households</b>	27.2	8.0	13.1	21.6	17.2
<b>Government sector</b>	50.9	17.5	24.9	25.5	29.1
<b>Collective consumption expenditure</b>	35.0	14.6	-7.8	-7.9	7.1
<b>Gross fixed capital formation</b>	48.2	56.7	34.1	19.2	38.8
<b>Changes in inventories</b>	..	..	..	..	..
<b>Exports of goods and services</b>	19.2	18.9	32.0	43.1	27.9
<b>Imports of goods and services</b>	28.4	18.9	46.7	14.9	26.6
<b>GDP (for comparison)</b>	30.1	14.8	22.2	22.3	22.2

The increase of consumption expenditure was initially the same as GDP, but it was reduced as compared to GDP pace until 2004. Within consumption, only governmental expenditure increased faster than GDP in all the four years.

**Gross fixed capital formation showed a strong acceleration compared to GDP.**

**Also export increased at a pace far faster than GDP since 2003, showing that Serbian products are getting more competitive and appreciated in the international market.**

Also export increased at a pace far faster than GDP since 2003, showing that Serbian products are getting more competitive and appreciated in the international market. At the same time, import, after having risen at very fast rates until 2004, finally showed an increase lower than GDP in 2005, indicating that the restructuring of Serbian economy is improving the capacity of national firms to satisfy the aggregate demand.

**The progress of Serbian aggregate demand during the period 2002-2005 was mainly driven by consumption, whose dynamics contributed by 18.1 percentage points to the overall increase of nominal GDP.**

Gross fixed capital formation showed a strong acceleration compared to GDP (picking up to about four times GDP increase in 2003) with the only exception of 2005, confirming the leading role of investment in Serbian growth.

As expected, the progress of Serbian aggregate demand during the period 2002-2005 was mainly driven by

consumption, whose dynamics contributed by 18.1 percentage points to the overall increase of nominal GDP (accounting for about 82% of the total growth). Its contribution fell in 2003 and 2004, and went back to 17.3 percentage points in 2005. Within consumption, collective consumption made a negative contribution to the GDP growth in the last two years. Also, the contribution of export and investments was significant (6.1 and 4 percentage points respectively, on average), even if the role of capital formation was relatively reduced in the last two years.

The contribution of the changes in inventories was very fluctuant during the period under examination. In particular, it was strong and positive in 2004, contributing to the acceleration of GDP after the slow down in 2003, while it was slightly positive in 2002 and 2003 and almost neutral in 2005. The accumulation of inventories in 2004 is likely to be related to exceptionally large import of goods in view of the upcoming introduction of VAT in 2005.

**The most important sectors of our economy are still oriented towards import to a large extent. During the first four years of transition, foreign trade had an unfavourable trend with higher growth of import over export of goods.**

During the first four years of transition, foreign trade had an unfavourable trend with higher growth of import over

export of goods. In 2005 export significantly increased and import decreased in comparison to the previous year, resulting in reduction of deficit from 28.4% in 2004 to 21.6% of GDP in 2005. During the period from 2002 to 2005, an average share of import in GDP was 45.9% of nominal GDP, confirming the fact that the most important sectors of our economy are still oriented towards import to a large extent. During previous years, predominant imports were from Russian Federation, Italy, Germany, China, Hungary, Austria and Turkey, as our biggest export partners were traditionally Italy, Bosnia and Herzegovina, Germany, Montenegro, Slovenia, Macedonia, France and Austria. The structure of export and import by purpose is dominated by raw materials. The most imported goods are oil and its derivatives, natural gas, chemical and textile products, machines, appliances, road vehicles, whereas export is dominated by iron and steel, cereals, fruits and vegetables, food, chemical products, clothing and footwear. A more dynamic growth of export over import that was recorded in 2005, adjustment of economic structures to domestic demand, a policy of stimulating export and development-driven import in the upcoming period are all basic measures for reduction of the imbalanced foreign trade and for further growth of GDP.

It is worth noticing that the (negative) contribution of import to the nominal GDP growth was very significant only in 2004 (when it reduced the potential GDP increase by about 20 percentage points), while its relevance was reduced in the last years, helping the recovery of the Serbian trade balance.

THE CONTRIBUTION TO THE GROWTH OF NOMINAL GDP (percentage points)					
	2002	2003	2004	2005	2002-2005
<b>Final consumption expenditure</b>	31.1	10.1	11.7	17.3	18.1
<b>Individual consumption expenditure</b>	27.1	8.4	12.6	18.0	17.1
<b>Households and non-profit institutional units serving households</b>	22.6	6.5	10.0	15.3	14.3
<b>Government sector</b>	4.5	1.8	2.6	2.8	2.6
<b>Collective consumption expenditure</b>	4.0	1.7	-0.9	-0.7	0.8
<b>Gross fixed capital formation</b>	5.0	6.7	5.5	3.4	4.0
<b>Changes in inventories</b>	1.5	2.0	18.1	-0.5	3.3
<b>Exports of goods and services</b>	4.2	3.8	6.6	9.6	6.1
<b>Imports of goods and services</b>	-11.7	-7.7	-19.7	-7.5	-11.0

## THE NATIONAL ACCOUNTS

Economic and social problems of the population and low standard of living were, to a great extent, overcome by remittances from abroad sent by our Diaspora. On average, during the period 2001-2005, remittances accounted for about one tenth of GDP at current prices.

Economic and social problems of the population and low standard of living were, to a great extent, overcome by remittances from abroad sent by our Diaspora. The data from the balance of payment indicate that

the amount of registered remittances constantly grows, which is even more likely to be the case with the part that is not registered. It is an estimate of the National Bank of Serbia that more than twice as much money is brought into the country, through unofficial channels and in “pockets and envelopes”, as is officially registered. The estimate was made on the basis of transactions in exchange offices, new savings in hard currency and on a correction of the data about purchase of hard currency from foreign tourists which is, under the methodology, considered to be income from tourism. Remittances as additional income of households contribute to their consumption or savings and represent an important source of investments, speaking a lot, on the other hand, about a country’s economy. On average, during the period 2001-2005, remittances accounted for about one tenth of GDP at current prices and 22% of import, contributing to the increase of domestic demand (excluding inventories) by 2.2 percentage points per year and to the growth of final household consumption by 3.1 percentage points. In particular, the contribution to the increase of household’s expenditure was largest in 2004 (picking up to 38% of the overall increase).

REMITTANCES FROM ABROAD						
	2001	2002	2003	2004	2005	average 2001- 2005
<b>in million Dinars</b>	77.514	95.567	102.502	147.121	193.737	123.288
<b>per capita in Dinars</b>	10.353	12.751	13.705	19.733	26.018	16.512
<b>in million USD</b>	1.168	1.484	1.780	2.520	2.904	1.971
<b>per capita in USD</b>	156	198	238	338	390	264
<b>in % of GDP</b>	9,9	9,4	8,7	10,3	11,1	9,9
<b>in % of import</b>	24,0	23,0	20,7	20,3	23,3	22,3
<b>contribution to the increase of domestic demand (*)</b>		2,0	0,6	3,3	3,0	2,2
<b>contribution to the increase of households final consumption</b>		2,8	0,8	5,0	4,6	3,1

Source: National Bank of Serbia

(\*) Excluding the changes in inventories

### 3.3. THE SHORT-RUN DYNAMICS OF SERBIAN ECONOMY

The quarterly estimates of GDP and other national accounts aggregates enable more precise identification of the cyclical phases that the Serbian economy has gone through. The calculation of GDP at constant prices, applying the production approach, provides an opportunity to measure and present the individual share of each specific activity or group of activities in the overall economic growth.

In the seasonally adjusted terms, the short-run profile of the GDP growth was mainly driven by agriculture production, transport and communication and financial sector. From the demand side, GDP cycle was mainly shaped by consumption expenditure.

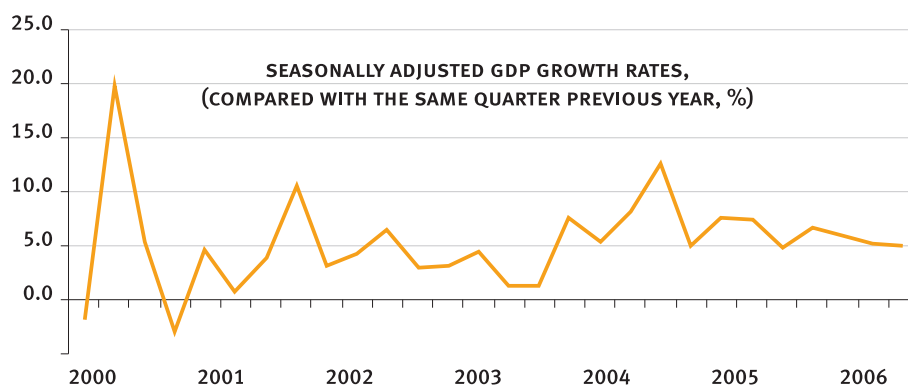
Observing first quarterly estimates of the main GDP production aggregates at constant prices (2002) in the seasonally adjusted terms, the short-run profile of the GDP growth was mainly driven by agriculture production,

## A PICTURE OF THE SERBIAN ECONOMY PROVIDED BY

transport and communication and financial sector. From the demand side, GDP cycle was mainly shaped by consumption expenditure. Furthermore, the changes of inventories tended to anticipate the turning points in Serbian economy.

After the large oscillations and rebounds in the critical period of 1999-2000, the Serbian economy experienced a sharp acceleration of the annual growth rate, picking up to a maximum of 10.5% in the last quarter of 2001, which can also be interpreted as a rebound in respect to the fall that occurred just in the last quarter of 2000. Later, the growth decelerated until the last two quarters of 2003, when it recorded the minimum of 1.3%. The ensuing recovery continued until the last quarter of 2004, when the growth rate picked up to 12.6%, (about 2.1 points more than during the previous upturn), and later the Serbian economy experienced a prolonged period of steady and robust growth, with annual rates oscillating around 6%.

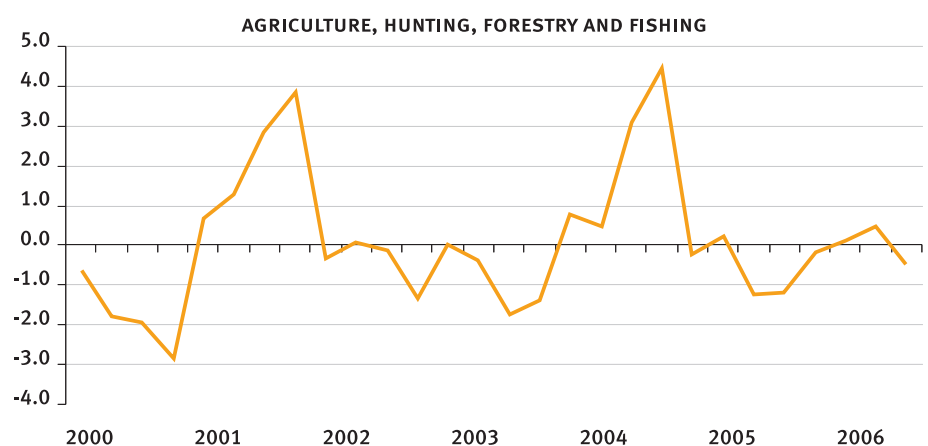
### THE QUARTERLY DYNAMICS OF GDP AT CONSTANT PRICES



From the supply side, the short-run profile of GDP growth was strongly influenced by the oscillation of agricultural production.

From the supply side, the short-run profile of GDP growth was strongly influenced by the oscillation of agricultural production, which contributed to the peaks in the last quarters of 2001 and 2004 by about 3.8 and 4.4 points respectively, then to the fall in the last quarter of 2000 by 2.9 points and to the slowdown in the in the second half of 2003 by about 1.5 points.

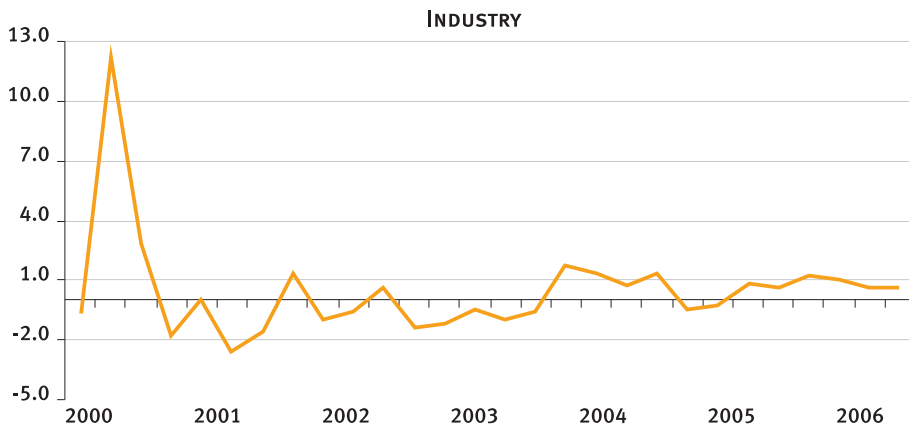
### CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS



On its turn, unexpectedly, the contribution of Industry (including Mining and quarrying, Manufacturing and Electricity, Gas and Water Supply) had very moderate cyclical oscillation, apart from the boost in the second quarter of 2000.

# THE NATIONAL ACCOUNTS

**CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS**

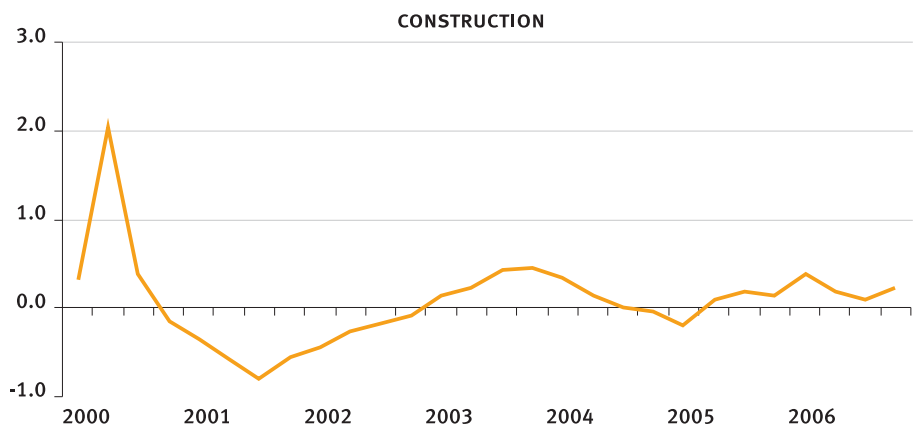


Construction had even a countercyclical effect on GDP growth, moderating both the boom of the last quarter of 2001 and during 2004, and the slowdown in the second half of 2003.

GDP growth was also strongly influenced by the oscillation of activity Wholesale and Retail Trade, Repair.

GDP growth was also strongly influenced by the oscillation of activity Wholesale and Retail Trade, Repair, which contributed by about 1.7 points to the peak in the last quarter of 2001 and 2 points to the significant GDP growth in the fourth quarter 2004; by 0.2 points to the fall in the last quarter of 2000. The biggest contribution (about 2 points) to the GDP growth, this activity had in the second and third quarter 2005.

**CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS**



**CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS**

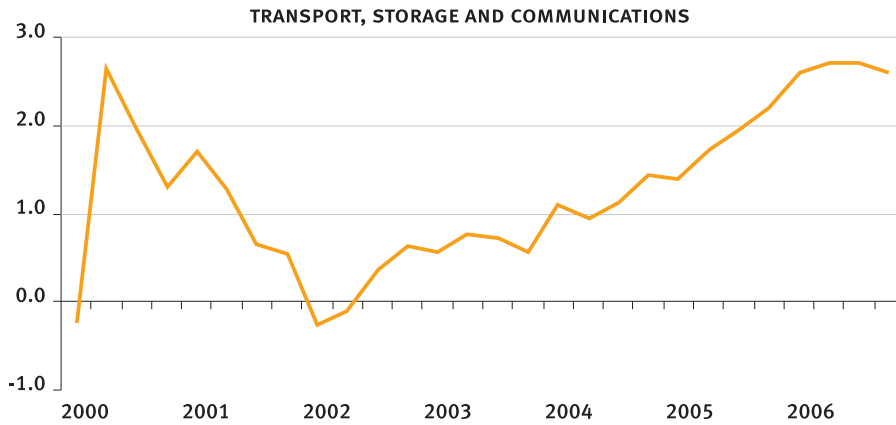


Transport and Communications had a strong and increasing contribution to the GDP growth since the middle of 2002, without any cyclical oscillation, helping to stabilize the general development of Serbian economy.

Transport and Communications had a strong and increasing contribution to the GDP growth (from 1 to about 3 percentage points) since the middle of 2002, without any cyclical oscillation, helping to stabilize the general development of Serbian economy. Only during the first half of 2002, this sector had a negative contribution to the growth.

## A PICTURE OF THE SERBIAN ECONOMY PROVIDED BY

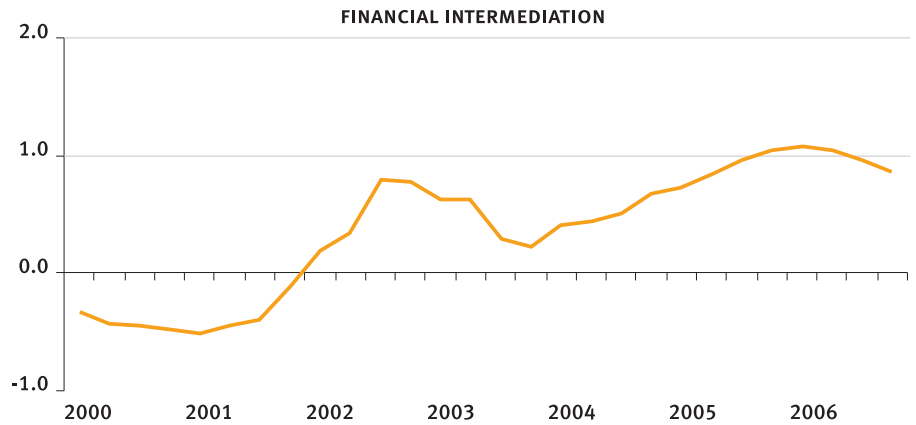
**CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS**



2003, this activity started to give a strong and increasing contribution to the GDP growth.

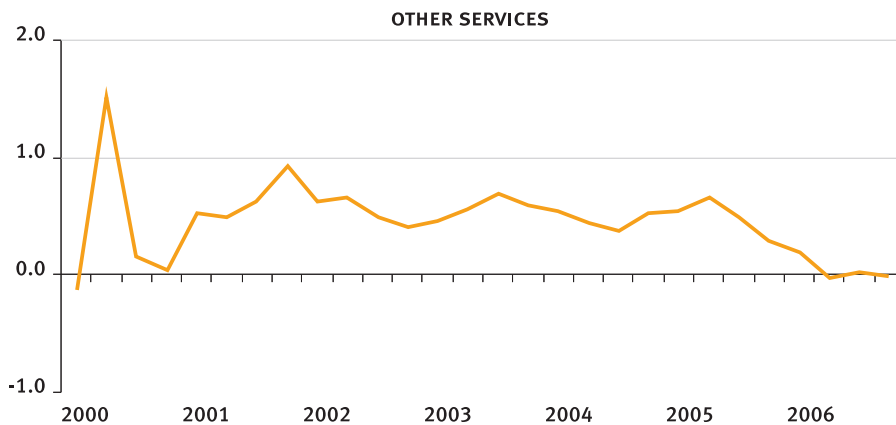
Contribution of Other Services to the GDP growth was quite stable and not significant. Apart from the boost in the second quarter of 2000, they had very stable movement throughout entire observed period.

**CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS**



Until the first half of 2002, the impact of short term movement of Financial Intermediation sector had negative influence on the GDP growth. Later, after the recovery of banking system in Serbian economy, and decelerated growth till the last quarter

**CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS**



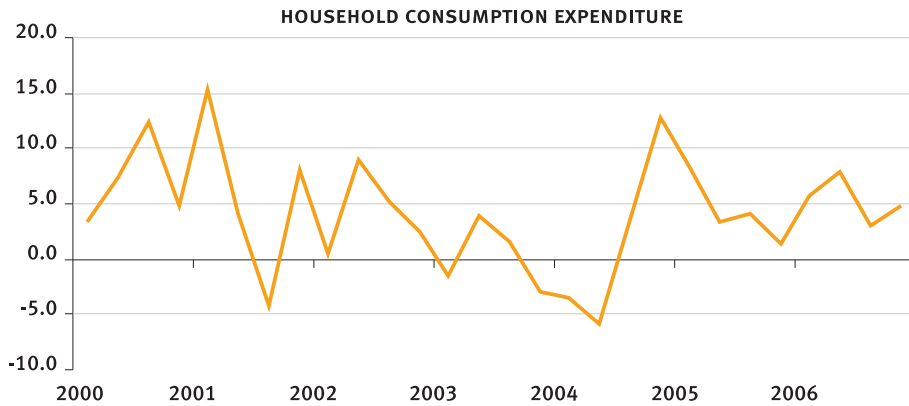
The short-run profile of annualized GDP growth was mainly driven by households' consumption expenditure.

growth was mainly driven by households' consumption expenditure. In addition, the contribution of export and gross fixed capital formation was also significant.

Households consumption expenditure contributed by about 8.1 points to the peaks in the last quarter of 2001 and 12.8 points in the last quarter 2004; by 4.9 points to the GDP fall in the last quarter of 2000; and by about 1.4 points to the slowdown in the last quarter of 2005.

# THE NATIONAL ACCOUNTS

## CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS

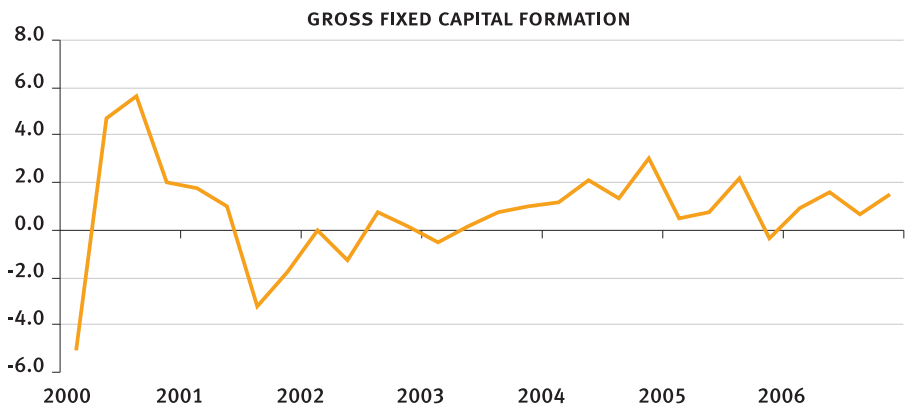


As a result of the recovery in the 1999-2000, a critical period in Serbian economy, the Gross fixed capital formation showed a sharp acceleration in the third quarter of 2000, contributing to the quarter's GDP growth rate with 5.7 percentage points. Later, the growth decelerated until the third quarter of 2001, when it recorded the minimum, negatively contributing to the quarter's GDP growth with 3.2 percentage points.

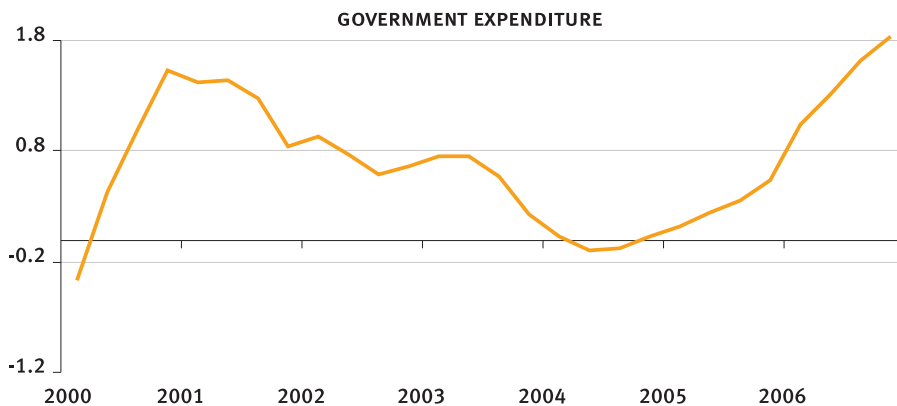
The ensuing recovery continued until the last quarter of 2004, when the Gross fixed capital formation contributed to the quarter's GDP growth rate with 3.0 percentage points. In the fourth quarter of 2005, it recorded the minimum, negatively contributing to the GDP growth with 0.4 percentage points.

Government expenditure had quite stable and small contribution to the GDP growth through entire observed period. In any case, it contributed to smoothing of the oscillation of GDP, especially in 2001 and in 2004. After the maximum in the fourth quarter of 2000, the growth decelerated until the second and third quarter of 2004, when it recorded the minimum and had negative contribution to the GDP growth of 0.1 percentage points. In the later quarters there was a constant positive contribution.

## CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS



## CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS



The contribution of export had very moderate cyclical oscillation over entire observed period. After the fall in the first quarter 2004 when it recorded the minimum, negatively contributing to the quarter's GDP growth with 2.4 percentage points, export showed acceleration contributing to the GDP growth rate significantly in the later quarters. On the other hand, the short-run profile of GDP growth was strongly influenced by the oscillation of import of goods

and services, which contributed negatively by about 10.3 points to the peaks in the fourth quarter of 2001 and 17.2 in the last quarter 2004. Import's growth slowdown in all four quarters of 2005 recorded minimum in the last quarter. In the first quarter 2006 it had negative contribution to the GDP growth with 10.0 percentage points.

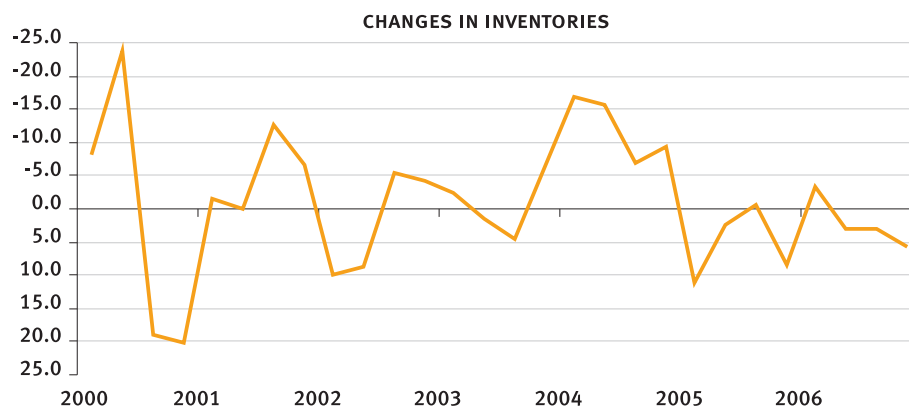
## CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS



Since data on changes in inventories are very limited, this aggregate in the Serbian national accounts is treated as residual between estimation of total GDP and the sum of other components of GDP by expenditure. i.e. the sums of household consumption expenditure, government consumption expenditure, gross fixed capital formation, and net export.

As expected, the contribution of the changes in inventories (also including statistical discrepancy recorded in economic sectors and other components) was very fluctuant during the period under observation. In general, the cycle of inventories tended to anticipate by about 1-2 quarters the turning points of GDP growth rate. In particular, the changes of inventories contributed by about 6.7 points to the peaks in the last quarter of 2001 and 9.3 points in the last quarter 2004; by 20.3 points to the fall in the last quarter of 2000; and by about 8.5 points to the slowdown in the last quarter of 2005.

## CONTRIBUTION TO THE GDP GROWTH, PERCENTAGE POINTS



### 3.4. INTERNATIONAL COMPARISONS

**As long as the SNA provides common rules for the description of the economy, the national accounts represent the best database for economic international comparisons.** Nevertheless, it should be noted that, when comparing the data among different countries, there will always be certain obstacles. Statistical systems of different countries are not at the same level of development, which means that the data are not of the same quality. In addition, comparison among different countries is made difficult by institutional differences and different currencies and prices levels.

One of the basic and most frequently used indicators of economic development is per capita gross domestic product. Ideally, it represents the total amount of goods and services produced on average



## THE NATIONAL ACCOUNTS

by each inhabitant within a country. It is both a measure of productivity, and of the goods and services at disposal for consumption and saving for each citizen.

PER CAPITA GDP IN EURO				
Country	2002	2003	2004	2005
<b>EU-25</b>	21500	21800	22700	23500
<b>EU-15</b>	24500	24800	25800	26500
<b>Albania</b>	1521	1622	1881	2095 <sup>1)</sup>
<b>Bosnia &amp; Herzegovina</b>	1713	1794	1953	2100
<b>Bulgaria</b>	2100	2300	2600	2800
<b>Hungary</b>	6961	7376	8144	8815
<b>FYR of Macedonia</b>	1981	2025	2128	2296
<b>Romania</b>	2200	2400	2800	3700
<b>Slovenia</b>	11866	12461	13146	13807
<b>Serbia</b>	2242	2407	2643	2837
<b>Croatia</b>	5500	5900	6500 <sup>1)</sup>	7000 <sup>1)</sup>
<b>Montenegro</b>	2109	2245	2654	2864

Sources: Eurostat and national statistical offices

<sup>1)</sup> Estimation or preliminary data

Looking at the per capita GDP, we can conclude that this aggregate is at a significantly lower level in the countries of South-East Europe when compared to EU-25. The situation is better in Croatia, Hungary and Slovenia (the latter two countries are members of EU-25 from 2004). Nevertheless, in general, the gap between the richest and poorest countries tends to reduce over time: it was about 107% of EU-25 GDP in 2002 and fell to 104% in 2005. This evidence is consistent with convergent processes among the Balkan economies. In any case, there are still great differences in economic structures internationally.

THE STRUCTURE OF THE AGGREGATE OF DEMAND AS % OF GDP (average 2002 – 2005)				
Country	Final household consumption <sup>1)</sup>	Final government consumption	Gross capital formation	Net exports
<b>EU-25</b>	58.2	20.8	19.8	1.2
<b>EU-15</b>	58.2	20.8	19.6	1.4
<b>Albania</b>	76.2	11.0	36.9	-24.1
<b>Bosnia &amp; Herzegovina</b>	91.5	23.5	20.1	-35.1
<b>Bulgaria</b>	70.2	18.4	23.5	-12.0
<b>Hungary</b>	55.0	22.5	25.1	-2.6
<b>FYR of Macedonia</b>	77.5	20.4	20.7	-18.6
<b>Romania</b>	68.5	17.4	22.6	-8.5
<b>Slovenia</b>	55.2	19.6	25.3	-0.2
<b>Serbia</b>	73.8	20.2	29.2	-23.2
<b>Croatia</b>	58.6	20.6	30.5	-9.7
<b>Montenegro</b>	74.7	28.1	16.2	-19.0

Source: Eurostat and respective statistical offices

Including non-profit institutions serving households

First of all, the share of final household consumption expenses is, in comparison to the EU average, lower in Slovenia and Hungary, and approximately at the same level of EU average in Croatia. However, the share of these expenses in GDP is predictably high in the countries of South-East Europe. The differences among the countries under observation are lesser when it comes to the final government consumption expenses (individual and collective). The exceptions are Albania, where the average share of expenses for the final government consumption in GDP is mere 11% and Montenegro where this share is 28.1%. Looking at Serbia, the average share of the final government consumption expenditure in GDP is 20.2% and is within the EU average. Typically, the share of gross capital formation in GDP is relatively larger in transition countries – over 20%. An exception is Montenegro where the average share of gross capital formation in GDP, during the period under observation, is mere 16.2%, which is lower than in other countries in the South-East Europe and lower than the EU average. Finally, all the countries shown have a foreign trade deficit, which is contrary to the EU-25 average that shows surplus. Particularly high foreign trade deficit that is recorded in the countries of South-East Europe results from underdevelopment and inability to produce certain goods and services. This necessitates increased import from other countries, which is insufficiently covered by exports from these countries.

Also the growth rates of GDP at constant prices differ among the different countries.

REAL ANNUAL GROWTH RATE OF GDP				
Country	2002	2003	2004	2005
<b>EU-25</b>	1.2	1.3	2.4	1.7
<b>EU-15</b>	1.1	1.1	2.3	1.6
<b>Albania</b>	4.2	5.8	5.7	5.8 <sup>1)</sup>
<b>Bosnia &amp; Herzegovina</b>	5.5	3.0	6.0	5.5 <sup>1)</sup>
<b>Bulgaria</b>	5.6	5.0	6.6	6.2
<b>Hungary</b>	4.4	4.2	4.8	4.1
<b>FYR of Macedonia</b>	0.9	2.8	4.1	4.1
<b>Romania</b>	5.1	5.2	8.5 <sup>1)</sup>	4.1 <sup>1)</sup>
<b>Slovenia</b>	3.5	2.7	4.4	4.0
<b>Serbia</b>	4.2	2.5	8.4	6.2
<b>Croatia</b>	5.6	5.3	3.8	4.3
<b>Montenegro</b>	1.7	2.4	4.2	4.0

Sources: Eurostat and relevant statistical offices

<sup>1)</sup> Estimation or preliminary data

In general, the real GDP growth rates in the countries of South-East Europe are higher than those recorded in EU-25. On the one hand, it is explained by high growth rates of industrial production which, in these countries, has a large share in GDP formation and, on the other, by already mentioned high foreign trade deficit. The deficit results from liberalization of foreign trade following many years of crisis, which, subsequently, fuels demand for imported products of superior quality.

Serbia recorded lower growth rates in 2002 and particularly in 2003. It resulted from negative growth rate in agriculture and manufacturing industry that had large share in GDP formation. In 2004 and 2005 Serbia found itself among top countries under observation according to the recorded GDP growth rates.



## 4.1. MATERIAL PRODUCT SYSTEM (MPS) VERSUS SNA 1993

**In the Republic of Serbia Material Product System (MPS) is well known as the old standard in national accounts used before 1997, as was the case in all of former Yugoslavia.** It was perfectly able to describe Serbia's economic and social system that existed at that time. A complete series of Serbian economic balances, main aggregates and additional tables compiled according to MPS is available for a period from 1967 until 1998, being the last year for which the results were published according to the old concept.

The year 2005 marked the end of a long data series on social product (SP) in Serbia. Since calculation of this main macroeconomic aggregate belonging to the methodological frame of the MPS ceased, it is worthwhile to highlight the main conceptual differences between social product (SP) and GDP.

SP was devised for an economic system where, on the one hand, government supplied a very large amount of the services to enterprises and households and, on the other, withdrew the value added produced by economic operators (mainly through tax, relatively low wages, goods and services purchased from government at administratively fixed prices, profits withdrawn from state hold businesses, etc.), also providing for the amortization of consumed machinery, buildings, and other capital goods. Of course, within this framework, the net contribution of government and of most services to the total product disappeared. For instance, as long as government provided directly health services for free, consumption of such services and the related value added possibly generated in the health sector were cancelled out from the strict viewpoint of an account. Within this conceptual framework, wages and salaries paid to physicians and nurses were regarded simply as a redistribution of value added generated within the "material" sectors, such as manufacturing and agriculture. On the other hand, as long as material sectors used health services as an intermediate input (e.g.: for quality controls on products), the related cost was completely ignored.

In fact, compared to the previous SP estimation already inclusive of transport and commerce, GDP now includes the value of many services provided directly to the people (such as housing, education, health services, etc.). It also includes those services employed by firms within the production process (such as engineering, advertising, banking, etc.), which were regarded as a form of income redistribution in the framework of MPS. In addition, tax on production (e.g.: excises on spirits and oil) and on turnover (e.g.: VAT) were almost neglected in the material product system. Finally, SP also considered as common production those costs related to the substitution of obsolete buildings, plants, machinery, etc., which are regarded as a component of investment by GDP nowadays.

During the period of central planning (1950-1990) the Central and Eastern European (CEE) countries were operating a specific accounting system known as MPS. It originated in the USSR during the early 1920s. After World War II it was introduced in all countries of the, so called, socialist bloc of centrally planned economies (CPEs). From the beginning of the 1970s onwards the MPS and SNA were equally treated in the international statistics, occupying a central place in the statistical system of a country where they were applied, and coexisted throughout several decades. In fact, the MPS was the official statistical standard used for measurement of economic performance and development for nearly seven decades in the USSR and three decades in 15 other CPEs (These countries were: Albania, Bulgaria, China, Cuba, Czechoslovakia, East Germany, Hungary, Cambodia, Korean Democratic Republic, Laos, Mongolia, Poland, Romania, Vietnam, and Yugoslavia.)

This means that all economic data of the former CPEs available in national and international yearbooks or other statistical publications were compliant with the definitions and classifications of the MPS.

Mutual influences were never a threat to coexistence of the two accounting systems which continued to develop separately and jointly with, even, some links between them. In the 1970s and 1980s some of the former socialist countries introduced, in parallel to the MPS calculations, some basic indicators of the SNA. With the collapse of the CPEs in the CEE the MPS was to be phased out and gradually replaced by the System of national accounts (SNA).

Indeed, MPS and SNA are both consistent accounting systems, providing definitions, classifications and rules that are applied not only within these systems, but also extend to other parts of the statistical system. Pointing out to the needs for certain data, they identify deficiencies in existing databases in the statistical system and work towards their constant improvement. They are also used to control data quality and consistency of certain parts of the statistical system.

A point that both macroeconomic systems have in common is the fact that they provide summarized, but also a detailed, framework for systematic and integrated linking of statistical data about the economic process, through all its phases and by basic participants (carriers of economic activities). They are capable of taking into account all the relevant transactions. Production in MPS corresponded to consumption, investment and export, exactly as GDP does in SNA. Nowadays, after the transition to market economy, SNA is more capable of playing the same role. In addition, SNA makes international comparisons easier and more reliable.

Comparisons between countries using different accounting systems (SNA versus MPS) are simply not feasible without a major research effort to convert one system to the other. For example, if one country using MPS reported economic growth at a rate of 5% and the other using SNA at 4%, it is impossible to say which country actually had a higher growth rate without putting both in the same perspective. The first country's material production might grow by 5% while the growth of non material production such as services - hospitals, education, government administration, professional services, etc. - might be zero. These statistics give growth rate of 5% to MPS but measured by SNA principles, it might be only 3% when compared to the other country's growth rate of 4% according to SNA. Great caution is needed in interpretation of results.

Material Product System (MPS) is primarily a system of tables balancing some of the major components such as: "The balance of production, consumption and accumulation of the gross social product," "The balance of distribution, redistribution and final use of the gross social product," "The balance of labour resources," and "The balance of fixed assets." Although seemingly same to those of SNA, the functions of MPS are essentially different.

MPS classifies the economic activities into spheres: the sphere of material production and the sphere of non-material services. Only the former creates national income while the latter consumes that income. MPS and its main aggregates Social Product and National Income cover only material production (industry, agriculture, construction) i.e. production of material, tangible goods, including material services that bring material consumer goods from producers to consumers (transport and trade) and maintenance of the capital stock (maintenance and repairs). Non-material services, such as activities of financial intermediation, health, education, administration and defence, business, and personal services, are not treated as productive activities. These sectors are defined as users of national income i.e. of the surplus created in sphere of material production. SNA proceeds from a wider concept of production, which, in addition to material production, includes all types of services – also the non-material ones.

What social product presents in the MPS – one of the most important macroeconomic aggregates and a country's basic measure of economic activity during the year – that is gross domestic product (GDP) in the SNA. Just like social product, it denotes a measure of final production, that is, on the side of use, distributed to personal consumption, collective consumption, investments and exports (minus imports). It is, however, quantitatively bigger as it also includes into the calculation of production those activities that are, according to the methodology of the MPS, considered to be non-productive. The structure of the use of gross domestic product differs from that of the social product and it can be said that it pictures consumption of a country, by types and by final users, in a more complete and realistic way. The value of gross domestic product is, therefore, larger in comparison to the social product.

COMPARISON BETWEEN GDP AND SOCIAL PRODUCT AT CURRENT PRICES					
	2000	2001	2002	2003	2004
<b>GDP (in million Dinars)</b>	397.656	783.897	1.020.117	1.171.564	1.431.313
<b>Social product (in million Dinars)</b>	315.389	553.304	701.473	808.012	1.029.423
<b>% difference</b>	26,1	41,7	45,4	45,0	39,0
<b>GDP per capita (in million Dinars)</b>	52.905	104.472	136.015	156.614	191.784
<b>Social product per capita (in million Dinars)</b>	40.711	71.606	93.480	107.268	137.934
<b>% difference</b>	30,0	45,9	45,5	46,0	39,0

Awareness of the need to migrate to the new system of National Accounts was, as part of a general reform of ex-Yugoslav statistics, conceived during the '80s. Unfortunately, the work on introduction of the SNA was abruptly stopped as events led to the dissolution of Yugoslavia and constitution of new independent states. After several years of hyperinflation, isolation and breach of all official communications with the World, came political changes and a dramatic turn in development of our country. The years that followed were crucial for the development of Serbian statistics. Important projects were launched in an attempt to develop it further and harmonize it with the international standards. Adoption and implementation of new NACE Rev. 1 classification paved the way for further development of national accounts in accordance to SNA93 and ESA 95 methodologies. However, a new approach in compilation of national accounts was, at first, based on the available data sources that were tailored for, and inherited from, the MPS.

Transition to the free market economy in our country and adaptation of its economic system to the systems of developed countries, had instilled a need for harmonization of our statistical system with these changes. That meant, not only a move from the old macroeconomic system of data presentation – MPS to the new one – the SNA, but also a reorganization of already existing data sources and introduction of new ones. At this stage Serbian macroeconomic accounts reached international standards, which in turn reflected in a rapid development of transitional and market economy in Serbia which was followed by deregulation and privatization of state owned (“socially owned”) property.

Since 2000 Republican Statistical Office of Serbia officially introduced the SNA standard, extending it gradually in statistical practice. In that year the System of National Accounts of the Republic of Serbia for 1997 and 1998 was published for the first time in accordance with SNA93 and ESA95. Subsequently, Statistical Office phased out the old MPS in compilation of macroeconomic balances, but social product and national income as basic macroeconomic aggregates, measures of economic productivity and regional development expressed as per capita values remained most “popular” indicators among wide circle of users.

Some “bad practices” concerning MPS also encouraged the migration from MPS to SNA. For instance parts of the MPS that had been developed independently one from the other resulted in inconsistent application of certain definitions and classifications in different parts of the system. Problems in compilation of balances became bigger and bigger, and particularly evident during reconciliation of production and expenditure side. Regular balancing of accounts was also disabled by a major error in relation to treatment of taxes and subsidies, i.e. by an untenable supposition that faulty inclusion of subsidies into social product, even though they resulted from re-distribution, was compensated by faulty exclusion of duties from social product, being a part of indirect taxes – so social product was not compliant to any of known definitions, from the aspect of prices used for calculation.

In any case, the prices used in the two systems are different. In market economies, prices are regulated by supply and demand of goods and services, whereas in CPEs prices are regulated by central

planning authority. In order to encourage investments over consumption, they are in the case of capital goods relatively lower than in the case of consumer goods. The problem of pricing is particularly evident at constant price calculations when price indices are used to deflate current price values.

Another substantial (but not conceptual) difference between MPS and SNA is that revision of data and backward recalculation of the time series were non-existing in MPS: once declared to be final, data remained as they were, even though they could be improved subsequently. Unlike in MPS, users of NA should nowadays expect some revision/improvement of data after the first dissemination of new data.

At the moment, GDP is calculated only at the level of the economy as a whole. The social product is calculated and expressed at the level of municipalities according to the territorial principle or location of establishments, which is also stated as the main reason for its existence in the statistical system in recent years. General determination to cease with these calculations was previously prevented by legal obligation of publishing the data on social product per capita at the level of municipalities until the year 2005, since, as prescribed by the law, it presented one of the basic indicators of development of municipalities.

## 4.2. BUSINESS ACCOUNTING VERSUS NATIONAL ACCOUNTS

The use of business accounting data in national accounts is not a novelty and it was the standardization of business accounting, together with introduction of compulsory plan of accounts first in Germany, Sweden and France during the 30's of the 20<sup>th</sup> century, and later in the countries of planned economy, that opened great possibilities for derivation of macroeconomic aggregates and for creation of a comprehensive picture of national economy, which, in fact, is a basic role of national accounting. The use of business accounting and bookkeeping records in macroeconomic analyses and estimations is particularly evident in the countries of so called Franco-German accounting tradition, including Serbia. Its methodological solutions and practice, as opposed to Anglo-Saxon tradition, are characterized by a higher degree of standardization in financial reporting, by existence of the plan of accounts and by mostly taxation-based aspect of determination of a financial result.

There are many advantages in using business accounting for national accounts. Firstly, financial statements – balance sheet and income statement – contain certain already prepared elements required for estimation of GDP and compilation of national accounts. This means, as far as these data are concerned, relaxation of the burden imposed on economic subjects to complete questionnaires, and reduction of costs and time in organizing and conducting statistical surveys. Secondly, application of the plan of accounts facilitates macroeconomic estimations, providing uniformity in registration of business transactions and data consistency. In addition, financial reports for enterprises and entrepreneurs, which are forwarded to Statistical Office of Serbia by the National Bank, enable almost complete coverage of all economic subjects, whereas checks, which are conducted by the National Bank and Taxation Office, and compulsory audit for large and medium enterprises, enable greater level of data reliability and quality in comparison to statistical surveys. Financial reports can also be used for estimation of basic indicators for those enterprises which are not covered by statistical surveys or for those where data is not available. At the end, it should be pointed out that, for enterprises with diverse product portfolio and extensive organizational structure, information provided by cost accounting is invaluable for more complete coverage of enterprises' secondary activities and for allocation of managerial, administrative and auxiliary activity costs to relevant kind-of-activity units, which is very important for compilation of input/output tables and estimation of gross value added by various activities.

However, application of business accounting in estimation of GDP and compilation of national accounts has its limits. The elements of national accounts cannot be calculated by mere summing up of the data from individual

financial reports. A primary intention behind financial reports is determination of net income, i.e. of company's profit which will be a basis for taxation and source of income for company owners, i.e. investors and creditors. On the other hand, national accounting focuses on productive capacity of national economy and on the way of distribution of value added. Therefore, financial reports can never provide all the data at a level of detail required for national accounting needs. National accounts require, apart from the data provided by business accounting, a whole set of data from company's other than accounting records and certain data are inevitably obtained through statistical surveys, especially when it comes to GDP compilation from expenditure approach. Moreover, the content of certain balancing items does not fully meet the requirements imposed to statisticians by SNA. Another problem are the differences in valuation between MPS and SNA, which will be discussed later. In further text some of the main differences between concepts, standards and methods of business and national accounting will be highlighted.

Firstly, a difference between turnover, which appears in company's income statement, and output (value of production) that represents one of the principal categories in the system of national accounts, will be elaborated. Business accounting, as opposed to national accounting, does not deal with the concept of output. Its focus is on sales and cost of goods sold in order to measure net income of a company. Turnover represents a total value of goods and services of a company or a group of companies sold to customers in a certain period. The point with this indicator is that it concerns the goods sold by the producers in exchange of money or receivables. Turnover is a principal measure of success in meeting the customers' needs and market position of a given company. In addition, the value of turnover is in direct proportion to the level of operational profit generated, which is of utmost interest to the company owners, creditors and tax authorities. On the other hand, as it has been already mentioned, the focus of national accounting is not the company's profitability, but its production capacity, i.e. its ability to create and add new value to the national wealth. Therefore, for national accounts, the main indicator of company's economic activity is the value of production, i.e. output.

Namely, in theory, a company need not produce a single new product during the accounting period under observation, but it can generate turnover by selling products from the stocks of goods accumulated during previous accounting period. In much the same way, the value of products produced in the same accounting period could be bigger than turnover generated which can also in theory be equal to zero, although the company has in reality produced a certain amount of products and has created certain value added. It is for this reason, i.e. for estimation of output and gross value added (GVA) that the value of turnover generated is adjusted in the intermediary accounts by the changes in inventories of finished goods and work in progress. Difference between turnover and GVA can be best understood if we look at the way business is done in companies engaged in commercial intermediary services that include dealing with merchandise, money or other funds, such as financial intermediation. As a rule, these enterprises calculate and charge the cost of their services or their production (output) by adding a certain amount for margin (markup) or commission to the value of goods traded. In this way, for trading companies, the value of production, i.e. output represents the difference between the turnover of goods sold and the purchase price of the goods sold. This is so called commercial margin used by traders to pay for their business costs (overheads) and to create profit. When it comes to financial intermediation services, the estimation of output requires even more detailed adjustments so that the real value of production (output) could be derived from the amounts that are paid to this type of producers for services provided to their customers. Thus, output of insurance companies or private pension funds is only a small fraction of premiums or contributions paid by the users.

The next question related to the differences between business and national accounting, which will be elaborated, is the difference between profit and value added. The difference between them is



not only in the way of estimation, but is also in the concept and in components of these two indicators. Value added is, as the term explains, value that a company, or a group of companies, “adds” to the value of inputs used in production of its products or provision of services. Those inputs are called “intermediate consumption” and include, apart from materials and raw materials, all types of industrial and non-industrial services required for running of the production process, except for wages and salaries and other personnel costs that are not considered as intermediate consumption, but as part of value added. Thus, value added is what is added to those inputs by the owners of production factors engaged in production process – employee wages, entrepreneurial income of business owners working in their enterprise and payments for using capital of other persons – rents for use of land, interests on borrowed capital and dividends paid to investors. All of these constitute value added as opposed to profit which in its essence is a growth of own enterprise capital, i.e. equity.

Profit as a net income of the company owner is a difference between all costs and expenses (including employee wages), on the one hand, and all sorts of income on the other. National accounts have in focus not equity of stockholders but the production process of national economy that creates incomes for not only the owner of company but for owners of all inputs used in production i.e. employees and other stakeholders, including government, in the form of taxes and social contributions. The total of all those incomes created in national economy, which, in terminology of national accounts are called “primary incomes”, is equal to gross domestic product. Apart from what is stated above, various sorts of non-operational and extraordinary income and expenditure, which are acknowledged, from the point of view of taxation and accounting rules, as components of profit, are considered neither as part of production value nor as intermediate consumption in the system of national accounts.

In relation to this, it should be pointed out that the rents of land or premises are not treated, in terms of estimation of value added, in the same way as in business accounting where they, together with other rental costs, represent current expenses which are balanced with turnover and other revenues of the company. Talking about renting of non-produced capital goods, it is assumed that renting of land does not create additional output of national economy nor it, on the other side, constitutes an element of intermediate consumption for a user of land. Rent is, in this way, property income of an owner of land resulting from the ownership and, as such, it constitutes an element of value added.

Another difference between business and national accounting is the treatment of company’s tax obligations. Business accounting, being oriented towards determination of company’s profit, treats all sorts of tax payments (except tax on profit) as regular company expenses that have to be paid from the revenues. However, the system of national accounts treats taxes in a different way and makes clear distinction between taxes on products, taxes on production and other taxes and levies. When calculating value added, national accounts are only concerned about those taxes that are directly linked to the production process, i.e. those that are paid according to quantity or value of the goods and services provided (VAT, excise duties, and customs and other import duties). Other taxes, such as tax on property, various local taxes and fees are not directly linked to the production process and it is considered that they are paid from value added.

Here we talk about taxes on production. A distinction is made when it comes to tax counterparts in the system of national accounts – subsidies – which are registered in business accounting in the same way irrespectively of the purpose of support that an enterprise receives from government. However, only those subsidies which are directly linked to the production process are entered into estimation of value added in the system of national accounts. Government support, for example, for purchase of capital goods has different treatment and is not considered as subsidy for products or production, as it is, instead, a capital transfer from government to company and will appear in the system of national accounts in Capital Account which shows sources of financing of an increase in capital goods of national economy.

Investments in capital goods or fixed assets (gross fixed capital formation) are another point of dispute between business accounting and national accounts. At a micro level of an individual enterprise, any purchase of fixed assets is an investment whether it is new or used equipment, vehicles, or land where objects, to be used for business purposes, will be built. Business accounting will register all above mentioned purchases as an increase

in company's fixed assets, whereas national accounts do not treat all purchases of fixed assets in the same way. Namely, under "investments" national accounts mean only formation of newly created or produced capital goods, i.e. capital investments. Gross fixed capital formation includes only those capital goods which increase capacity of national economy to create more goods and incomes in the future. For example, purchase of land which is an investment in fixed assets for the company, does not represent an investment for national accounts, as this commercial transaction does not result in an increase in capital goods in national economy. Land, as non-produced capital good cannot be either increased or produced, or imported from abroad. This purchase will be cancelled out by reduction of capital goods owned by the land seller who will register a decrease of value of fixed assets in his balance sheets. It is much the same with used fixed assets – an investment of the purchasing company is so called de-investment of the selling company. With regard to used or existing assets, gross fixed capital formation includes only various fees and costs related to ownership transfer. Moreover, national accounts treat capital lease as purchase i.e. as fixed asset bought by company and include it in gross fixed capital formation irrespectively of the fact that this transaction does not imply transfer of ownership.

At the end, we will look at the most delicate point of difference between business and national accounting, relating to valuation of assets which is, at the same time, one of the most complicated tasks that statisticians could face in the system of national accounts. The problem is valuation of inventories of current assets and capital goods as presented by business accounting and the estimation of related costs and consumption of fixed capital. Company assets are valued and presented in business accounting according to historical, purchase prices, i.e. according to the production costs as in case of final products. However, changes in prices levels during the accounting period result in a difference in prices of certain asset elements at the end of the accounting period as compared to the beginning of the accounting period, which is particularly evident in economies of high inflation. That produces so called holding gains or losses which make distortions in measurement of output, intermediate consumption, gross fixed capital formation, depreciation costs and finally GDP in the system of national accounts which requires elimination of capital gains from output, as they do not result from productive activity of national economy.

An SNA rule concerning inventories is that inputs must be valued at the prices current at the time they are consumed, and outputs at the prices when they are produced which is equivalent to the situation when goods in question do not spend any time in inventories and which ensures that intermediate consumption and output do not include any holding gains or losses. Thus, changes in inventories reflect only the value of physical change, not the price movements.

The situation, with regard to fixed assets, is much more significant and complicated, taking into account long duration and total value of fixed assets in national economy and effect of taxation rules on the estimation of depreciation in accounting books. Valuation of capital goods at historical, bookkeeping value is incompatible with the SNA which requires valuation at market prices i.e. current acquisition costs. So, accounting value of fixed assets cannot be used in balance sheets of national accounts. As a statistical standard for estimation of value of fixed assets and depreciation costs, it is recommended to use so called Perpetual Inventory Method. It is, in fact, a mathematical model of estimation of gross capital stock at market prices at the end of accounting period and of realistic value of consumption of fixed capital used in creation of gross value added. This mathematical model requires a whole set of data, starting with structure of fixed assets in national economy, their age and life span, through price indices for certain types of capital goods in order to revalue stocks and investments to the level of market prices, to many others. In addition, this model implies a selection of a hypothetical depreciation, retirement and mortality functions.

## 4.3. THE STATISTICAL EFFECTS OF PRIVATIZATION

Transition towards a full functioning market economy implies the privatization of many companies previously held by the government. Privatization is a complex process which carries a number of economic and social consequences, both in the short and in the long run.

In general, putting on the market a state-held company expectedly affects GDP and productivity positively, at least in the medium and long run, since private investors are assumed to use more efficiently the technical and human endowments of the firm, in order to maximise turnover and profit. In addition, privatization is usually followed by the modernisation of plants that requires a huge flow of investment, which further fuels GDP. Finally, the possible distribution among the households of the company's shares and their likely revaluation over time increases their financial wealth, which, in turn, stimulates private consumption.

However, it should be noted that the strict application of the rules of national accounting may tend to balance the positive effects of privatization on GDP. Here, the main point is that the value added of a company is measured in a different way if it belongs to the market sector or not. Two cases are relevant in this respect: in the first one the state-held company is included in the market sector since it sells products at economically significant prices, that is prices covering more than a half of production costs (including intermediate goods and the cost of labour), possibly taking into account public subsidies on products.<sup>(1)</sup> Such a company was already considered outside the non-market sector (including government and non-profit institutions), thus its (positive or negative) value added was already included in GDP correctly. Therefore, with everything staying the same, its possible privatization would be neutral in computing the total amount of value added and its dynamics over time. In fact, during the year in which privatization occurred national accounts would record only the likely positive real effects on productivity and total demand.

Quite reversely, if the state-held company did not charge economically significant prices on its products, it was included in non-market sector, and thus its value added was conventionally measured as the sum of incomes distributed by the firm to the productive factors employed (mainly gross salaries). As soon as such a firm is put on the market, it is obliged to raise prices closer to the production costs in order to survive, but it is likely to make losses, at least in the first few years. Of course, until the value of production is less than the cost of intermediate inputs, value added is negative yet, paradoxically, the simple change of the company status may entail a reduction of GDP in the year of privatization and possibly in the few following periods, until it recovers the economic equilibrium.

Indeed, this is a pure statistical effect, since such a firm already produced a negative value added when it belonged to the non-market sector, but simply the losses were hidden before the privatization and were compensated by subsidies financed by public deficit or taxes levied on the value added produced in other sectors. Nevertheless, in similar circumstances, GDP paradoxically falls or grows slower just during the privatization of most inefficient firms.

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<sup>(1)</sup> SNA93, in par. 6.45, defines prices economically significant if they have a significant influence on the amounts the producers are willing to supply and on the amounts purchasers wish to buy. ESA95, in par. 3.27- 3.40, further specifies that output is sold at economically significant prices when more than 50% of the production costs is covered by sales. In addition, enterprises owned by households are always considered to sell their products to other institutional units at economically significant prices by convention.

**The system of national accounts, now available for Serbia, intends to be a fundamental basis for economic analysis.** Indeed, national accounts estimates have an outstanding advantage over all other standard statistical indicators, since they are the only ones that provide a consistent and coherent set of data and that are able to make a synthesis from virtually all available information about economic transactions and the financial situations of economic agents. Hopefully, national accounts will also provide a commonly agreed framework for public debate on economic policy.

Nevertheless, correct understanding of the meaning and scope of national accounts estimates requires a high degree of knowledge and experience. Therefore, this publication has an ambition to provide the general public or policy makers, researchers, economic analysts, journalists, students, etc. with a simple guide to the intriguing and tricky world of national accounts. Of course, interested readers are strongly invited to go into the details of the methodology of national accounts by referring to the official handbooks and other technical publications.

Adoption of the new standard of national accounts, instead of the outdated system of indicators on social product, is not only a pure methodological issue, since it marks the transition of Serbia towards a functioning and modern market economy. Indeed, the main innovation of the new system is proper inclusion of the characteristics and the dynamics of the most innovative and fastest growing sector of the Serbian economy – services. Only by measuring correctly the activity of this branch it is possible to describe and explain tremendous improvement in the economic structure and the standard of life in Serbia over the last few years. The extraordinary growth rate of gross domestic product since 2001 and onwards simply gives a numeric synthesis of the latter facts.

This publication does not provide the reader only with a description of the methodology of national accounting. Its other ambition is to give some guidelines to, and examples of, the correct treatment and interpretation of national accounts estimates, by using the appropriate statistical tools and a proper language and style. In a sense, it intends to become a benchmark for the description and analysis of, and comments about, the results of national accounts. On the other hand, this publication has also the aim of limiting the scope of national accounts, warning the reader that they are not the only yardstick for development. Indeed, as Robert Kennedy once observed, gross domestic product "measures everything, in short, except that, which makes life worthwhile", while a poet Thomas Eliot considered culture "simply as that, which makes life worth living", and the value added of Serbian culture and passion is likely much larger than its GDP.

Unlike other partial statistical indicators, the national accounts are not restricted to providing a single aggregate measure of a piece of the economic activity. National accounts also indicate to what extent what is produced or imported satisfies the demand for consumption and investment, and how people obtain their earnings from the production and from the redistribution of available resources. Virtually all the relevant economic activities are described by national accounts, from production and consumption and saving, to taxation and from provision of public services, pensions and the like, to trading with the rest of the world.

In addition, this publication includes for the first time the main results of the estimation of quarterly indicators, useful in detecting, interpreting and analysing the cyclical fluctuations of the Serbian economy. Hopefully, this publication will help the professional and general users of statistical data to become more familiar with this new set of indicators.

National accounting, like all other scientific disciplines, never ends. It is a process of accumulating knowledge about national economy. As, typically, this process includes a continuing improvement of available information and possible refinements of methodologies and procedures, it is sometimes susceptible to inaccuracies as well. Therefore, provisional estimates and following revisions should be regarded as an integral part of national accounting. In no way should revisions be considered as a drawback of the system, but rather as one of its strongest points. As an old Indian maxim says, the

wise man is simply the one able to recognise his errors and to amend himself. In any case, the size of revisions will, hopefully, tend to decrease as the statistical system of Serbia strengthens.

**This publication is a result of a close and productive co-operation between statisticians from:**



**The Italian National Institute of Statistics**

Under the direction of Filippo MOAURO, and by (in alphabetical order):

Ludovico BRACCI

Maria Assunta FUGNITTO

Maria Liviana MATTONETTI



**Hungarian Central Statistical Office**

Under the direction of Csak LIGETI, and by (in alphabetical order):

Zsuzsanna BOROS

Gizella CSONKA

Krisztina DUDÁS

Gizella FARKAS

Mária FORGON

Antónia HÜTTL

Kornélia MURA-MÉSZÁROS

Éva PAPP

János POLONKAI

Pál POZSONYI

Ádám TAMÁS

Balázs TÓTH



**Statistiska centralbyrån**  
Statistics Sweden

**Statistics Sweden**

by (in alphabetical order):

Christer ANDERSSON

Mats HAGLUND

Birgitta MAGNUSSON

Christian SCHOULTZ

And from:



**The Republican Statistical Office of Serbia**

Under the direction of Andra MILOJIĆ, and by (in alphabetical order):

Jovan BIŠEVIĆ

Milan BURZANOVIĆ

Rade ĆIRIĆ

Katarina DIKIĆ  
Dušan GAVRILOVIĆ  
Svetlana JELIĆ  
Nada JEVTIĆ  
Ana JOVANOVIĆ  
Suzana KARAMARKOVIĆ  
Zorica MISOJČIĆ  
Marina PAVLOVIĆ  
Dragan POPOVIĆ  
Goran RADISAVLJEVIĆ  
Dragana RATKOVIĆ  
Vesna SIMONOVIĆ  
Mirjana SMOLČIĆ  
Bojka STEVANOVSKI  
Marija ŠOBOTOVIĆ  
Vesna ZLATANOVIĆ

**Publisher:**

Republican Statistical Office of Serbia  
5 Milana Rakića, Belgrade

**Tel:**

+381 11 241 29 22

**E-mail:**

stat@statserb.sr.gov.yu  
pub@statserb.sr.gov.yu  
biblioteka@statserb.sr.gov.yu

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