**INVESTMENTS IN FIXED ASSETS**

*Investments in fixed assets* present any acquisition of fixed assets made by resident business entities aimed at obtaining new, as well as increasing the value or replacement of the existing capacities, reduced by disinvestments, i.e. disposals of fixed assets (sale, capital goods surrendered in barters and capital transfers in kind). *Fixed assets* are all produced assets used in production process for more than one year, whereby, without changing the primary form, they are gradually consumed through transferring their value onto new products and services. Fixed assets can be bought in the country and abroad, acquired by barter, received as capital transfer in kind, produced and retained for own use, or obtained via financial lease. In difference to fixed assets obtained via financial leasing, based on which the lessee acquires almost the same rights as those of the owner, the assets obtained by operational leasing (equipment and property lease) are not regarded as investments. The reduced value of fixed assets resulting from their consumption and obsolescence, as well as exceptional and catastrophic losses due to floods, fire, drought, epidemic diseases with bred animals, war devastations, etc., shall not be considered as decrease in investments.

Determining certain type of investments is of utmost importance from the point of economic policy creation and directing development trends for a national economy. Investments in machinery, equipment, software, etc. are expected to increase the national production capacity, while investments in traffic infrastructure, construction of dwellings and other buildings increase the social wealth and create the precondition for an efficiency of all other investment categories. The following types of investments in fixed assets are distinguished:

* *Investments in dwellings* – investments in buildings used entirely or primarily as residences or as casual housing (e.g. for leisure time purpose), such as family houses, dwelling buildings at rural holdings, villas, country houses, mountain huts, hunting facilities, etc, as well as residential buildings for communities;
* *Investments in other buildings and structures –* investments in non-housing buildings and other civil engineering constructions (traffic infrastructure, pipelines, communication and electricity networks, complex industrial and other not previously mentioned structures), as well as major land improvements and all land property transfer costs. Land improvements refer to the increase of exploitable land as resulting from clearing forests, rocky soil, drainage of swamps, building of embankments or drainage canals, flood or land erosion protection, building land recovery facilities, dams and barriers, etc.;
* *Investments in machinery and equipment –* acquisitions of domestic and imported transport equipment, machinery for information, communication and telecommunications (ICT equipment), as well as other machinery with assembling costs included;
* *Investments in cultivated biological resources* – investments in animal resources yielding repeated products (breeding stock, dairy cattle, sheep reared for wool and draught animals) as well as investments in trees, crop and plant resources yielding repeated products (growing of new plants, forestation of rocky and barren land, and forestation by planting, vineyards). The trees intended for cutting, annual crops and animals bred solely for slaughter do not represent fixed assets;
* *Investments in intellectual property products –* investments in development and purchase of software and large databases that are used in production process for more than one year, research and development, mining (mineral) exploration, literary and artistic originals and other intellectual property products.

The fixed assets that are invested into may be either new or existing fixed assets. Investments in *new* fixed assets include acquisitions of capital goods that have not been subject of purchase or exchange between direct users of these goods (made directly from contractors, manufacturers of equipment, or fixed assets produced under own arrangements). Included are also investments in major improvements of existing fixed assets, investments in major land improvements, property transfer costs (fees of intermediation, estimators, lawyers, engineers, auctioneer fees, taxes, etc.) for land and other non-produced assets, used equipment purchased abroad, as well as second-hand passenger cars purchased from physical persons. Major improvements of existing fixed assets include modernization, reconstruction, add-ons and enlargement that can increase production capacities and/or considerably prolong useful life of the fixed assets. Major improvements of existing fixed assets should be distinguished from regular maintenance and repair, which are not considered as investments.

Investments in the purchase of *existing* fixed assets refer to fixed assets that were not acquired directly from contractors, manufacturers of equipment, nor were produced under own arrangement. The value of purchased land is also included, while property transfer costs related to this land are regarded as investments in new fixed assets.

Investments in new fixed assets, by type of construction and investments purpose, include:

* *Investments in construction and acquisitions of new facilities –* investments in all categories of new fixed assets, as well as continued construction works or previously suspended investments;
* *Investments in reconstruction, modernization, add-ons and enlargements* of existing fixed assets – investments for altering or enlarging the existing facilities, equipment and devices with the aim to extend the size, better adapt to market needs, or to change the technical and technological solutions for production or services;
* *Maintenance of the level of existing capacities* – investments for replacing obsolete, worn-out or destroyed fixed assets.

The first two investment categories are expected to have an impact on the extension and improvement of facilities with the aim to upgrade the production process and achieve increased output. The third category presents investments with the aim to maintain the continued production, which can have an impact on the intensification and rationalization of work processes and not on the enlargement of available facilities and major changes in the existing types of products, services and work technology. This categorization is of great importance for analysing investment efficiency and defining development trends for economic subjects.

Concerning the valuation of investments, a term *realized investments*  is introduced and it represents the value of effectively realised construction, manufacture or purchase of facilities, equipment and other fixed assets, regardless of whether they have been finalised and whether the payment has been effected. The value of effected purchased investment shall include producer price, trade margin, transport costs, assembling costs, costs for studies, projects, investment proposals, expertise, technical inspection, property transfer costs, as well as all indirect duties, taxes and fees (excluding revaluation). Value added tax is included only in case when the concerning economic subject is not entitled to VAT deduction. When fixed assets are produced, i.e. constructed under own arrangement and used for own needs, they are valued at production costs. The decreased value of fixed assets resulting from sale is expressed by the value of sales agreement, with property transfer costs deducted.

*Payments for investments* show the monetary investments in fixed assets during the year when the payments were effected, irrespective of the time of the construction, manufacture or acquisition of fixed assets. Payments also include repayments of commercial loans and financial leasing used during the year, as well as costs of translation exposure paid out in the current year, regardless of their occurrence.

Two investment conceptions can be distinguished: *“gross fixed capital formation”* and *“total investment in fixed assts”*. The first concept is applicable for national accounts as the macroeconomic aggregate of crucial importance for the economic analyses of GDP use, and it mainly concerns investments in new fixed assets (total investment minus disinvestments), while the second concept is related to new and existed fixed assets. Therefore, total investment is a larger amount than gross fixed capital formation, the difference being the value of used fixed assets minus property transfer costs.

*Investments in fixed assets at current prices*

The data on total investment at current prices are based on the results of the Annual report on investments in fixed assets, which is harmonised with the international statistical standards and methodology (ESA2010, SNA2008). The main objective of the survey, apart from providing information on the national investment activity, is to ensure the estimation of investments as the aggregate of GDP use, the creation of capital accounts, etc.

Observation units are all economic subjects in the country that are direct investors, regardless of the type of ownership. The full coverage is ensured for large and medium-size legal entities. The data collection is sample based for legal entities that are classified as small, pursuant to Article 7, the Law on accounting and auditing, and for unincorporated enterprises obligated to submit annual financial statements. Investments in fixed assets of physical persons and unincorporated enterprises that are not subject to submitting annual financial statements are estimated on the basis of available data of the statistical surveys in the area of construction, agriculture, external and domestic trade, etc., however on the sections level of the Classification of Activities, by technical structure of fixed assets and for the territory of the Republic of Serbia.

Annual reports on investments are envisaged to provide data on effected payments for investments in fixed assets – by finance sources (own resources, pooled sources, loans and other funds) and data on realised investments – by technical structure and by type of construction and purpose. For the territory of the Republic of Serbia, as well as for the level of regions *(NSTJ 2)*, the data were processed on the section and division level of the Classification of Activities, and for municipalities the processing was carried out on the section level. The data were grouped according to *organizational principle* – by prevailing activity and head office seat of the investor and according to *kind of activity principle*– by purpose and location of the investment facility.

In order to provide data on gross fixed capital formation for the national accounts needs, apart from the regular survey on investments, additional estimations are required. The main sources for these calculations are official statistics of the domains of construction, research and development, external trade, retail trade, labour force, employment and salaries and wages, agriculture, national accounts, etc., as well as data from other administrative sources/institutions: the National Bank, the Serbian Business Registers Agency, the Ministry of defence, and other.

*Gross fixed capital formation at constant prices*

The data on gross fixed capital formation at constant prices are available by technical structure of investments, on the section level of the Classification of Activities. The data on investments at previous year prices within the sections are obtained by deflating each category of fixed assets separately (for certain group of capital products applied is the same deflator for all activities). For estimating investments at constant prices, the respective deflators are calculated for each aggregate.

The main data sources used for gross fixed capital formation estimation at constant prices are the following:

* Official statistics:
  + Annual report on investments in fixed assets (INV-01),
  + price statistics – producer price indices of industrial products for domestic market, producer price indices of agricultural and fishing products, producer price indices of industrial products for exports of countries where from equipment is imported and consumer price indices by COICOP,
  + data on salaries and wages,
  + national accounts data,
  + data of the survey on Structure of income and expenditure of economic subjects (SRP),
  + Annual report on research and development (R&D);
* Administrative sources:
  + annual administrative sources,
  + data on foreign exchange rate fluctuations,
  + balance of payment, etc.

*Investments in buildings and other structures* at constant prices are calculated by deflating investments at current prices. Since the total input structure/structure of expenditures for construction includes costs of building materials, energy, transport, salaries and wages, and a number of other elements, the deflator used for construction works (composite price index for buildings and other structures) is estimated by weighting the respective producer price indices of industrial products for domestic market (elements and materials for incorporating in construction, energy, motor vehicles and trailers, machinery and equipment n.e.c.) and index of average gross salaries and wages in construction.

With this approach, all cost components (material costs, consumption of fixed capital and compensations of employees) are taken into account considering their share in the total construction costs. The weights are calculated on the basis of data from annual financial statements of construction companies, as shares of each element of costs in the total expenditures of enterprises.

*Investments in domestic machinery and equipment* at previous year prices are estimated by deflating investments at current prices. Composite price index for domestic equipment is used as deflator.

The starting point for its computation presents the results of the Annual survey on investments in fixed assets that ensure detailed data on investments in domestic equipment, broken down into 10 categories of investment goods. For each of these categories, the values at current prices are deflated with the respective PPIs of industrial products for domestic market, applying the weighted share of the product group in the total investments in domestic equipment on the section level of the Classification of Activities. Separate composite price indices are derived for each section, since the structures of fixed assets vary across industries.

*Investments in imported machinery and equipment* at constant prices are calculated by deflating investments at current prices. Composite price index for imported equipment is used as deflator.

The starting point for this computation presents the results of the Annual survey on investments in fixed assets that ensure detailed data on the value of investments in imported equipment, further broken down into 10 categories of capital goods. For each of these categories, the values at current prices are deflated with the weighted PPIs of industrial products for exports of 10 major partners where from each product group is imported, corrected by the ratio of the average annual exchange rate of the respective currencies to RSD. Each category of fixed assets is taken into account proportionally to its share in the total investments in imported equipment on the section level of the Classification of Activities.

Real growth of *investments in cultivated biological resources* is estimated by deflating investments at current prices. Producer price index of agricultural and fishing products is used as deflator.

*Investments in intellectual property products* at constant prices are estimated by deflating investments at current prices with the respective composite price index:

* composite price index for research and development,
* composite price index for software, and
* composite price index for intellectual property products, excluding software and research and development.

Real growth of *investments in research and development* is calculated by deflating investments at current prices. Since the total input structure for research and development includes costs of raw materials, energy, costs of machinery and equipment and other fixed assets, salaries and wages for employees, and a number of other elements, the deflator used for research and development (composite price index for research and development) is estimated as the weighted average of the respective producer price indices of industrial products for domestic market, consumer price index (COICOP), implicit deflator of gross fixed capital formation and index of average gross salaries and wages in research and development division of the Classification of Activities.

Applying this approach, all cost components (material costs, investment costs and remuneration for employees) are taken into account in proportion with their share in the gross domestic expenditures for research and development activity. The weights are obtained on the basis of data from the surveys Annual report on research and development and Structure of income and expenditure of economic subjects.

*Investments in software* at constant prices are estimated by deflating investments at current prices. Total investments in software include investments for the purchased software and software development for own needs.

As deflator for purchased software applied is PPI for software applicable in the USA, corrected for USD exchange rate fluctuations. In accordance with the international recommendations, this deflator is applied because of the dominant position of software of the USA origin in the world market and thereby comparability of data is ensured.

Deflator for software produced for own needs (composite price index for own account software) is estimated by weighting the respective producer price indices and indices of average gross salaries and wages in computer engineering. Thereby all cost components (transport costs, energy, food, communication, consumption of fixed assets, salaries and wages for employees, etc.) are taken into account in proportion with their share in total expenditures in development software for own needs.

Deflator for software (composite price index for software) is obtained as the weighted average of the above described indices.

The starting point for estimating deflator needed for the calculations of real growth of *investments in intellectual property products, excluding software and research and development* are the data on mining (mineral) exploration, entertainment, literary and artistic originals and other intellectual property products respective from the survey on investments. The values at current prices of investments in these categories of fixed assets are deflated with the respective weighted price indices: composite price index for research and development, consumer price index (COICOP) for culture and total consumer price index (COICOP). The weights are determined by the share of each product group in total investments for the subject part of intellectual property products.

*Gross fixed capital formation at constant prices* is obtained by summing up in this way estimated values of investments in construction works, machinery and equipment, cultivated biological resources and intellectual property products. The series of investment values calculated at previous year prices cannot be used for real growth rate estimations since the data by years are not comparable (each year is valued at previous year prices). To obtain the series of comparable data, applied is the chain-linking method in order to provide chain-linked volume measures of gross fixed capital formation. Starting from 2013, in compliance with the Eurostat recommendations, the year 2010 is used as the reference year for chain-linked volume measures. As a result of converting chain-linked volume measures to monetary terms while using the reference year prices, the non-additivity problem appears because the aggregates could not be obtained by summing up its integral elements. Additivity exists only in the reference year and in the year after, as the GFCF elements in these years are valued at the same prices.