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Inventory of methods used to estimate Switzerland's GDP and GNI

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1. Introduction

A valuable statistical summary, annual national accounts (NAs) provide a macroeconomic overview of all economic activity within a country over the course of a year. Since September 2014, the Swiss national accounts have been compiled in accordance with the European System of Accounts 2010 (ESA 2010),¹ a standardised system of accounts used by European Union Member States, ensuring harmonisation in the production of national accounts. This document focuses on two indicators central to economic analysis, gross domestic product (GDP) and gross national income (GNI), in the aim of facilitating their interpretation and application by all who make use of them.

To that end, the chapters that follow are principally concerned with the practical aspects of calculating GDP. These aspects include a description of the sources used, the variables taken into account and the adjustments made in order to adhere as closely as possible to national accounting concepts. This document is aimed at the informed reader with knowledge of national accounts and, more specifically, of ESA 2010. However, some conceptual aspects are covered, where necessary, in the descriptions of the individual components of GDP. Finally, this publication cannot be regarded as an instruction manual that will enable the reader to work out GDP values on the basis of public data. In the first place, some data necessary to calculate GDP are confidential or may need to be used in a specific way. Secondly, the basic data and the results of the different stages of calculation are subject to ongoing critical analysis by the officers responsible and adjusted, if required, in the light of various information (including statistical corrections, experience with previous calculations and consideration of qualitative aspects).

1.1 Definition

1.1.1 Gross domestic product (GDP)

GDP can be defined and estimated according to three approaches (ESA 2010, p. 273):

a) Production approach

GDP measures the total output of goods and services by resident producer units, in so far as that output is not used in the production of other goods and services. In other words, it is the sum of the gross value added created by resident units. The value added is what companies are left with after deducting the value of the products consumed during the production process (intermediate consumption). Output is valued at basic prices, i.e. at 'ex-factory' prices, which include subsidies on products and exclude taxes on products. GDP, meanwhile, is valued at market prices, which means that it needs to be *adjusted to basic prices* by adding the taxes and subtracting the subsidies on products.

b) Expenditure approach

GDP is the sum of final uses of goods and services by resident units (actual final consumption and gross capital formation) plus exports of products and minus imports of products. Expenditure is valued at purchasers' prices, i.e. at basic prices with taxes added, minus the subsidies on products.

c) Income approach

GDP also corresponds to the sum of uses in the total economy generation of income account (compensation of employees, taxes on production and imports less subsidies, gross operating surplus and mixed income of the total economy).

This document explains the methods of estimating GDP solely according to the 'production' and 'expenditure' approaches.

Both approaches are based on the following macroeconomic balance equation:

¹ The ESA 2010 is available at: <http://ec.europa.eu/eurostat/en/web/products-manuals-and-guidelines/-/KS-02-13-269>.

Supply = Use

$$P + M + TP - SP = IC + FC + GCF + X$$

also written as

$$GVA + TP - SP = FC + GCF + BT$$

Both sides of the equation correspond to GDP at market prices,

where:

- P: Production
- IC: Intermediate consumption
- TP: Taxes on products
- SP: Subsidies on products
- FC: Final consumption by all economic agents
- GCF: Gross capital formation
- X: Exports of goods and services
- M: Imports of goods and services
- GVA: Gross value added
- BT: Balance of trade

1.1.2 Gross national income (GNI)

According to ESA 2010, gross national income (GNI) represents 'total primary income receivable by resident institutional units: compensation of employees, taxes on production and imports less subsidies, property income (receivable less payable), (gross or net) operating surplus and (gross or net) mixed income. Gross national income (at market prices) equals GDP minus primary income payable by resident institutional units to non-resident institutional units plus primary income receivable by resident institutional units from the rest of the world' (ESA 2010, p. 273).

In the Swiss national accounts, GNI is not worked out independently of the 'production' and 'expenditure' approaches on the basis of uses in the total economy generation of income account but is estimated according to GDP and the income received from and paid to other countries. The transition from GDP to GNI is made by adding to GDP the investment and labour income received from other countries after subtracting the investment and labour income paid to other countries. The methods used to estimate GNI are set out in part 4 of this document.

1.2 National accounts

While GDP is a key aggregate in economic analysis, it is just one component of a wider system, that of national accounts. These constitute a statistical summary giving a quantifiable overview of all economic activity within a country over the course of a given year. This economic activity consists of different types of flows:

1. Transactions in goods and services

Transactions that describe the origin (domestic production or import) and possible uses (consumption, investment etc.) of the product in question. GDP is the final result of transactions in goods and services.

2. Distributive transactions

Transactions that show how the value added generated by production is distributed between labour, capital and government. They indicate the process by which income and wealth are redistributed by means of taxes and transfers.

3. Financial transactions

Transactions that describe the net acquisition of financial assets or the net increase in liabilities by type of financial instrument.

4. Other flows

Consumption of fixed capital (depreciation) and acquisitions less disposals of non-financial non-produced assets.

These different transactions are recorded in an articulated set of accounts, the sequence of accounts, which describes the economic cycle from generation of income through to its accumulation in the form of assets, via its distribution and redistribution. The sequence of accounts identifies various reference aggregates, such as value added, disposable income, saving and net lending (or borrowing), for the economy as a whole and for the different institutional sectors of which it is composed. GDP is the balancing item for the first in the sequence of accounts, the production account, which groups together production and intermediate consumption transactions (goods and services).² GDP is the starting point for the various distributive transactions that result in disposable income, the subsequent use of which through transactions in goods and services (consumption and investment), and, to a lesser extent, additional distributive transactions, indicates the net lending (or borrowing) for the economy as a whole.

'Institutional units', that is units that have decision-making autonomy and keep a complete set of accounts, occupy a central role in the national accounts.³ An institutional unit therefore corresponds approximately to an enterprise (legal unit), as opposed to an establishment (local unit). Institutional units are grouped into 'institutional sectors' based on the type of producer they are and depending on their principal activity and function, which are considered to be indicative of their economic behaviour. A sector is divided into subsectors according to criteria relevant to that sector; this allows a more precise description of the units' economic behaviour.

1.3 Price/volume breakdown

A major concern in economic analysis is the measurement of economic growth in volume terms. It is necessary, therefore, to distinguish in the value changes for certain economic aggregates – essentially the individual components of GDP – between those arising solely from price changes and those due to a 'volume' component, referred to as 'changes in volume'. In principle, price components should include only those changes resulting from price variations, while all other changes (affecting quantity, quality and composition) should be classed as volume components. Price and volume measures should be provided for each aggregate of transactions in products, so that:

$$\text{value index} = \text{price index} \times \text{volume index}$$

Goods and services, and the circumstances in which they are sold, change over time. These changes may be the result of alterations to their composition or properties, the rules governing their use or delivery, or even to the conditions under which they are supplied. Price variations that arise from these qualitative changes are classed as **changes in volume** and should be recorded as such in the national accounts. For example, if the engine in a car is replaced by a more powerful version and the ensuing price rise reflects the superior quality, this price difference should be regarded as a change in volume rather than a change in price. At aggregate level, that means that the increase in the output value of a good, the price of which has risen following an improvement in quality, should not be considered a price effect but a volume effect. In principle, therefore, it is possible to identify three distinct components of the volume index:

- fluctuations due to changes in product quantity;
- fluctuations due to changes in product characteristics;

² At the institutional sector level, the value added is the production-account balancing-item. The sum of this value added is distinguished from GDP by a different valuation method, which is explained in more detail in Chapter 2.6.

³ Households do not necessarily keep a complete set of accounts but are considered by convention to be institutional units.

- fluctuations due to changes in the composition of an aggregate.

The price and volume measures for each aggregate are ultimately subject to the same overall balance requirement as the nominal values. In this context, it is essential for the concepts of price and volume to be defined consistently in order to ensure the balancing of the production and expenditure approaches. Moreover, separating the national accounts into their price and volume components provides an opportunity to carry out additional checks. Using a set of price and volume indices, developed separately, it is possible to compare changes in the different aggregates within a standardised framework (in volume terms).

In the Swiss national accounts, the aggregates in question are estimated at current prices and at the previous year's prices. This is done either by deflating the values at current prices with price indices or by extrapolating the values at current prices from the previous year with a volume index. This stage allows annual changes in volume to be identified for each aggregate and set of aggregates. Changes in volume over longer periods are calculated by chain-linking, i.e. by multiplying the volume indices for each year. Nevertheless, this method presents the problem of non-additivity, as the aggregates calculated in this way are no longer equal to the sum of their components.

All the amounts listed in this document are in CHF millions and relate to 2011, which is the reference year for the national accounts.

2. Production approach

Any explanation of the methods of estimating GDP according to this approach must centre on the institutional sectors, as the estimates are based on concepts and processes specific to each sector. As stated previously, under the production approach GDP is the sum of the value added of resident institutional units. GDP should be valued 'at market prices', whereas production and value added should be calculated at basic prices. It is necessary, therefore, to add taxes on products to and deduct subsidies on products from *GDP at basic prices* in order to obtain *GDP at market prices*.

The production account records transactions resulting from gross production and intermediate consumption. The balancing item for this account is gross value added, which, plus taxes on products minus subsidies on products, corresponds to *GDP at market prices*. The following table shows the production account by institutional sector (2011, in CHF millions).

Institutional sector/subsector	Sector code	GVA	Share of GDP
Non-financial corporations + Households (employers and producers)	S.11 S.141-142	461 571	74.6%
Financial corporations	S.12	61 670	10.0%
Financial corporations (excluding insurance corporations)	S.121-127	34 642	5.6%
Insurance corporations and pension funds	S.128-129	27 028	4.4%
General government	S.13	63 085	10.2%
Confederation	S.1311	11 733	1.9%
Cantons	S.1312	32 284	5.2%
Municipalities	S.1313	18 689	3.0%
Social security funds	S.1314	379	0.1%
Non-profit institutions serving households (NPISHs)	S.15	9 819	1.6%
Total GVA		596 145	96.4%
Taxes on products		35 106	5.7%
Subsidies on products		-12 927	-2.1%
GDP		618 325	100.0%

The table below shows the production account by economic division (2011, in CHF millions). The 'Sector' column indicates the institutional sectors to which the economic activities correspond. The abbreviations used are as follows:

NOGA: General Nomenclature of Economic Activities. The NOGA currently in use is NOGA 2008, which corresponds to the European Union's NACE Rev.2.

Sector: Institutional sector

OV: (Gross) output value

IC: Intermediate consumption

VA: (Gross) value added

NOGA	Name of activity	Sector	OV	IC	VA	Share of GDP
01-03	Agriculture, forestry and fishing	S.11-S.14	11 047	6 715	4 332	0.7%
05-09	Mining and quarrying	S.11-S.14	1 907	1 101	806	0.1%
10-12	Manufacture of food products and tobacco	S.11-S.14	37 660	25 118	12 542	2.0%
13-15	Manufacture of textiles and wearing apparel	S.11-S.14	3 597	2 279	1 318	0.2%
16	Manufacture of wood and of products of wood and cork	S.11-S.14	8 451	5 186	3 265	0.5%
17	Manufacture of paper and paper products	S.11-S.14	3 757	2 527	1 230	0.2%
18	Printing and reproduction of recorded media	S.11-S.14	4 270	2 066	2 204	0.4%
19-20	Manufacture of coke and refined petroleum products and of chemicals and chemical products	S.11-S.14	20 458	14 198	6 259	1.0%
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations	S.11-S.14	69 327	46 259	23 068	3.7%
22	Manufacture of rubber and plastic products	S.11-S.14	7 914	4 998	2 916	0.5%
23	Manufacture of other non-metallic mineral products	S.11-S.14	7 280	4 456	2 824	0.5%
24	Manufacture of basic metals	S.11-S.14	6 176	4 200	1 976	0.3%
25	Manufacture of fabricated metal products	S.11-S.14	20 257	10 507	9 750	1.6%
26	Manufacture of computer, electronic and optical products; manufacture of watches and clocks	S.11-S.14	59 195	36 534	22 660	3.7%
27	Manufacture of electrical equipment	S.11-S.14	21 505	15 757	5 748	0.9%
28	Manufacture of machinery and equipment n.e.c.	S.11-S.14	32 335	20 207	12 128	2.0%
29	Manufacture of motor vehicles, trailers and semi-trailers	S.11-S.14	2 254	1 400	854	0.1%
30	Manufacture of other transport equipment	S.11-S.14	4 937	3 109	1 827	0.3%
31	Manufacture of furniture	S.11-S.14	2 905	1 674	1 231	0.2%
32	Other manufacturing	S.11-S.14	6 563	3 635	2 929	0.5%
33	Repair and installation of machinery and equipment	S.11-S.14	4 461	2 890	1 571	0.3%
35	Energy supply	S.11-S.14	42 475	33 739	8 736	1.4%
36-39	Water supply; waste management	S.11-S.14	5 882	3 789	2 093	0.3%
41-43	Construction	S.11-S.14	70 843	40 146	30 696	5.0%
45	Wholesale and retail trade and repair of motor vehicles and motorcycles	S.11-S.14	12 917	5 887	7 030	1.1%
46	Wholesale trade	S.11-S.14	119 442	60 905	58 537	9.5%
47	Retail trade	S.11-S.14	39 955	14 726	25 229	4.1%
49-51	Land transport and transport via pipelines, water and air transport	S.11-S.14	49 281	33 663	15 618	2.5%
52	Warehousing and support activities for transportation	S.11-S.14	14 987	10 027	4 959	0.8%
53	Post and courier activities	S.11-S.14	7 558	3 235	4 323	0.7%
55	Accommodation	S.11-S.14	8 151	4 249	3 902	0.6%
56	Food and beverage service activities	S.11-S.14	15 175	8 030	7 145	1.2%
58-60	Publishing, audiovisual and broadcasting activities	S.11-S.14	9 064	5 369	3 696	0.6%
61	Telecommunications	S.11-S.14	15 491	7 800	7 691	1.2%
62-63	IT and other information services	S.11-S.14	23 774	11 280	12 494	2.0%
64	Financial service activities	S.12	58 652	24 010	34 642	5.6%
65	Insurance	S.12	41 676	14 647	27 028	4.4%
68	Real estate activities	S.11-S.14	9 643	3 635	6 008	1.0%
69-71	Legal and accounting activities, management consultancy activities and architectural and engineering activities	S.11-S.14	55 660	25 299	30 361	4.9%
72	Scientific research and development	S.11-S.14	16 924	11 473	5 452	0.9%
73-75	Other professional, scientific and technical activities	S.11-S.14	8 459	5 042	3 416	0.6%
77-82	Administrative and support service activities	S.11-S.14	28 815	13 955	14 860	2.4%
84	Public administration and defence, compulsory social security	S.13	89 513	26 429	63 085	10.2%
85	Education	S.11-S.14	6 196	2 985	3 211	0.5%
86	Human health activities	S.11-S.14	42 523	13 624	28 899	4.7%
87-88	Residential care and social work activities	S.11-S.14 - S15	19 380	6 271	13 109	2.1%
90-93	Arts, entertainment and recreation	S.11-S.14 - S15	7 952	4 388	3 564	0.6%
94-96	Other service activities	S.11-S.14 - S15	14 027	5 290	8 737	1.4%
97	Activities of households as employers of domestic personnel	S.14	1 928	-	1 928	0.3%
98	Undifferentiated goods- and services-producing activities of private households for own use	S.14	50 357	12 099	38 257	6.2%
Total before adjustments			1 222 954	626 809	596 145	96.4%
Taxes on products					35 106	5.7%
Subsidies on products					-12 927	-2.1%
GDP			1 222 954	626 809	618 325	100.0%

2.1 The non-financial corporation and household sectors (S.11 and S.14)

Data sources

Description	Produced by
Business Census (BC)	Federal Statistical Office (FSO), Neuchâtel
Employment statistics (STATEM)	FSO, Neuchâtel
Statistics on output and value added	FSO, Neuchâtel
Primary-sector economic accounts	FSO, Neuchâtel
Hospital statistics	FSO, Neuchâtel
Health system costs and financing	FSO, Neuchâtel
Research and development (R&D) in private companies	FSO, Neuchâtel
Home-care statistics (Spitex)	FSO, Neuchâtel
Basic pension fund (AVS) statistics	FSO, Neuchâtel
Accounting statistics for small businesses	Swiss Union of Small Businesses (USAM), Bern
Structural Business Statistics (STATENT)	FSO, Neuchâtel
Producer Price Index (PPI)	FSO, Neuchâtel
Import Price Index (IPI)	FSO, Neuchâtel
Consumer Price Index (CPI)	FSO, Neuchâtel
Construction Price Index	FSO, Neuchâtel
Swiss Wage Index (SWI)	FSO, Neuchâtel
Other (reports by businesses and organisations)	

The non-financial corporations sector (S.11) consists of '*institutional units which are independent legal entities and market producers, and whose principal activity is the production of goods and non-financial services*' (ESA 2010, p. 34). From a production point of view, the household sector (S.14) groups together '*entrepreneurs producing market goods and non-financial and financial services (market producers) provided that the production of goods and services is not by separate entities treated as quasicorporations. It also includes individuals or groups of individuals as producers of goods and non-financial services for exclusively own final use*' (ESA 2010, p. 45).

Sectors S.11 and S.14 cover the majority of economic divisions (see the production account by economic division). The *Statistics on Value Added*⁴ are the main source of information for estimating the value added of these two sectors. These statistics are compiled on the basis of a survey that illustrates, using accounting results, the structure and evolution of business activities in a given sector of the economy. Above all, they enable structural data and microeconomic ratios to be calculated for each economic division, but they also make it possible to estimate the main macroeconomic aggregates for the production account.

⁴ In 2009, the *Statistics on Value Added* were revised and various changes were made from the statistics for previous years. These chiefly concerned the introduction of the new General Nomenclature of Economic Activities (NOGA 2008), an increase in the sample size, a questionnaire relating to businesses' accounting systems, methodological and technical updates to the survey and the annual updating of the sample.

The table below outlines the main characteristics of the *Statistics on Value Added*.

Statistic type	Sample survey
Units questioned	Enterprises established in Switzerland employing a minimum of three persons
Sectors concerned	Secondary and tertiary, excluding banking and insurance
Legal forms concerned	Partnerships (sole proprietorships), limited companies (public limited liability companies, partnerships limited by shares, limited liability companies and cooperatives) and public enterprises
Characteristics recorded	Microeconomic results, balance-sheet structure and income statement by economic division (non-extrapolated)
Sample size	20 000 businesses
Response rate	90% for large enterprises, 70% for medium enterprises and 60% for small enterprises,

Some economic divisions belonging to sectors S.11 and S.14 require sources other than the *Statistics on Value Added*, however. The methods used to estimate the value added for these divisions are explained in Chapter 2.1.2.

Estimates at current prices

2.1.1 Economic divisions covered by the *Statistics on Value Added*

Output

The gross output value for sectors S.11-S.14 corresponds to market output plus output for own final use. In the first instance, estimates of this value are dependent on a number of accounting items recorded in the *Statistics on Value Added*.

Net turnover of output sold	Net turnover of output sold
Net sales of services	+ Net sales of services
Other operating income	+ Use by third parties, energy transit + Installation for third parties, net + Other installation income + Licensing and patent income + Gross property income
Changes in finished goods	+ Finished goods (inventory stock at year end) + Finished goods (inventory stock at year beginning)
Gross margin	+ Net sales of merchandise - Net merchandise costs + Changes in inventories of goods
Output for own final use	+ Output for own final use
	= Gross output value

At this stage, the output obtained for each economic division is derived from a purely statistical approach. The *Statistics on Value Added* are compiled from a sample-based survey, for which the reference variables

are obtained by means of extrapolation.⁵ It is necessary, therefore, to check the data obtained in this way against other information in order to verify their plausibility. This 'plausibility check' involves comparing the changes in output recorded in the *Statistics on Value Added* with those in other indicators, the main ones being:

- Price: the nominal change in an aggregate from year t to year t+1 depends on the change in price and change in volume. The year-to-year price change⁶ in goods within an economic division is consequently a highly useful piece of information when carrying out the plausibility check.
- Volume: volume indicators are available for the following activities:
 - rail transport (passenger and freight);
 - air transport (passenger and freight);
 - water collection and supply;
 - manufacture of refined petroleum products;
 - basic metal production;
 - manufacture of paper;
 - electricity supply;
 - sale of new cars.
- Employment: the change in the number of full-time equivalents is taken into account, particularly in the case of labour-intensive economic activities.
- Exports: for divisions in which a large share of output is exported, exports are a reference indicator.
- Expenditure approach aggregates: an attempt is made to balance the expenditure approach aggregates with the production approach aggregates to which they correlate. For instance, changes in construction investment is a good indicator of changes in output of the construction industry.

Alongside these additional indicators, other information is taken into consideration, such as the annual reports of companies with a large share of the sector in which they operate, reports by umbrella organisations or economic publications by particular institutes.

Based on these various sources of information, adjustments can be made to the variables arising from the *Statistics on Value Added* in order to rectify any inconsistencies or implausible data.

Special treatment of head offices

According to international recommendations,⁷ the output of head offices (NACE 70.1) should be treated differently, i.e. based on the sum of the costs. Output consists of the sum of compensation of employees and intermediate consumption. No estimate is made of consumption of fixed capital. The compensation of employees figures are taken from the basic pension fund (AVS) statistics. The figures concerning the intermediate consumption of head offices are drawn from the *Statistics on Value Added*.⁸ These raw data are adjusted on the basis of the plausibility check carried out with regard to intermediate consumption within division 70. The output for division 70 is obtained by adding the output for NACE group 70.1 to that of NACE group 70.2, which is calculated using the standard model.

Intermediate consumption excluding FISIM

In the first instance, estimates of intermediate consumption excluding *financial intermediation services indirectly measured* (FISIM)⁹ are based on a number of items recorded in the *Statistics on Value Added*. Intermediate consumption is calculated from the following accounting items:

⁵ Rudi Peters, Jean-Pierre Renfer and Beat Hulliger, *Statistique de la valeur ajoutée 1997-1998. Procédure d'extrapolation des données*, Federal Statistical Office, Neuchâtel, 2001.

⁶ This year-to-year price change acts as a deflator.

⁷ The UN and European Central Bank, *Financial Production, Flows and Stocks in the System of National Accounts*, New York, 2014.

⁸ The *Statistics on Value Added* also provide variables at the three-digit NACE level.

⁹ For more detailed information about FISIM, see Chapter 2.2.2.

Material costs	Net cost of raw materials + Net cost of third-party services - Changes in inventories of raw materials + Materials for works carried out for own use + Rights to use facilities
Miscellaneous intermediate consumption	Temporary staff costs + Other staff costs + Rents payable on third-party premises, rental and + leasing costs + Land rents + Licensing and patent costs + 0.34 x insurance premiums + Maintenance and repair costs + Other operating expenses
	= Intermediate consumption excluding FISIM

For conceptual reasons, insurance premiums are not taken into account in full. Indeed, only part of the (indemnity) insurance premium paid can be classed as consumption of insurance services and, accordingly, as intermediate consumption. The remainder or net premium is a simple redistribution of funds between those paying the premiums and victims of damage or injury.

As with output, intermediate consumption is obtained by means of sample-based extrapolation. It may undergo adjustments in order to rectify inconsistencies.

To calculate total intermediate consumption, FISIM must be added to the intermediate consumption excluding FISIM. The amount of FISIM is derived from the estimates for sector S.122 (see Chapter 2.2.2). This FISIM figure is added to the intermediate consumption of each economic sector.

2.1.2 Economic divisions not covered by the *Statistics on Value Added*

The economic divisions below require sources other than the *Statistics on Value Added*.

NOGA		Sources:
01	Crop and animal production, hunting and related service activities	Primary-sector economic accounts
02	Forestry and logging	Primary-sector economic accounts
03	Fisheries and aquaculture	Primary-sector economic accounts
86	Human health activities	- Hospital statistics - Health system costs and financing - Home-assistance and -care statistics (Spitex) - Accounting statistics for small businesses
97	Activities of households as employers of domestic personnel	Household final consumption expenditure (see Chapter 3.1.1)
98	Goods- and services-producing activities of private households for own use	Household final consumption expenditure (see Chapter 3.1.1)

01 Crop and animal production, hunting and related service activities

02 Forestry and logging

03 Fishing and aquaculture

The output and intermediate consumption of divisions 01-03 are calculated in the context of the *primary-sector economic accounts*¹⁰ and left unchanged.

86 Human health activities

The *Statistics on Value Added* do not cover any part of this division.

Output

a) General care hospitals and special clinics

The output value is estimated on the basis of *Hospital statistics* data. It is based on the following:

- Income from medical, nursing and therapy services;
- Fixed-rate medical treatment;
- Other fixed-rate hospital treatment;
- Other income from the provision of patient care.

The estimated output value for medical practitioners, dentists, physiotherapists, psychotherapy, medical tests and other paramedical activities is based on the data recorded in the *Health system costs and financing* statistics. In this case, the output value corresponds to the turnover of the various medical service providers.

b) General and specialist medical practice activities

To begin with, the output value for a single medical doctor is estimated on the basis of his or her average turnover, after deducting incapacity benefit allowances. Next the output value for all doctors is obtained by multiplying the average turnover figure by the number of doctors in private practice, which is increased by 3% in order to take account of practitioners who are not members of the Swiss Medical Association (FMH). The consistency of this method is checked annually with reference to basic health insurance (LAMal) costs and the Consumer Price Index. A trade margin is added to the revenues of the medical services in order to take account of the sale of medicines at medical practices.

c) Dental practice activities

First, the output value for a single dentist is estimated on the basis of his or her average turnover. The output value for all dentists is then obtained by multiplying this average turnover figure by the number of dentists.

d) Psychotherapy, psychology, physiotherapy, other paramedical activities, medical laboratories, radiology, medical transport and emergency assistance

To begin with, the output value for each of these healthcare providers is estimated on the basis of the turnover figure listed in the 1995 *Business Census*. Unless there is a more relevant indicator, the extrapolation for subsequent years is done using health insurance figures, subject to consistency checks.

e) Nursing and district nursing

The output value is derived from the *Home-assistance and -care statistics* (Spitex). It is based on the following:

- Revenue from basic home assistance and care services (provision of care, home assistance and meals);
- Revenue from other services (social services, parental counselling, therapy and transport);
- Other revenue (members' contributions, donations, other revenue).

¹⁰ Franz Murbach et al., *Les comptes économiques du secteur primaire: méthodes - une introduction à la théorie et à la pratique*, FSO, Neuchâtel, 2008, <http://www.bfs.admin.ch/bfs/portal/fr/index/themen/00/07/blank/02.Document.110456.pdf> (in French).

Intermediate consumption excluding FISIM

The *Health system costs and financing* statistics do not provide any information regarding the intermediate consumption of healthcare providers. For that reason other sources are used.

a) General care hospitals and special clinics

Intermediate consumption is estimated on the basis of *Hospital statistics* data. It consists of the following:

- Medical equipment
- Food costs
- Housekeeping costs
- Maintenance and repairs
- Energy and water costs
- Financial expenses
- Administration and IT costs
- Other patient-related costs
- Other non-patient-related costs.

b) General and specialist medical practice activities, physiotherapy

The structure of intermediate consumption is based on that used in the *Accounting statistics for small businesses*. Initially, the intermediate consumption is calculated for those businesses that completed the survey. It consists of the sum of the following:

- Material, merchandise and service costs
- Occupancy costs
- Maintenance, repairs and replacements
- Vehicle and transport costs
- Property insurance, duties, taxes, licences and patents
- Energy and waste disposal costs
- Administration and IT costs
- Advertising costs
- Other operating costs.

The intermediate consumption of the businesses surveyed is compared with their turnover to obtain a ratio. This ratio is then applied to the total output value for doctors and physiotherapists in order to calculate their intermediate consumption.

c) Dental practice activities

Information on the average intermediate consumption of a dental practice is supplied by the Swiss Dental Association (SSO). It covers the following:

- Equipment (including dental prostheses)
- Property rental and service charges
- Financial expenses
- Insurance
- Other expenses (administration, training, maintenance, repairs and vehicles)

The *intermediate consumption/turnover* ratio is then applied to the output value for dentists in order to calculate their intermediate consumption.

d) Psychotherapy and psychology, other paramedical activities and medical laboratories

Intermediate consumption is obtained by applying a ratio to the output value. This ratio has been defined on the basis of various sources.

e) Nursing and district nursing

Intermediate consumption is derived from data provided by the Swiss Home Care Association (Spitex). It consists of operating costs and expenses relating to the provision of this service:

- Rent
- Vehicle costs
- Equipment
- Administrative costs.

Adding together the intermediate consumption of the various medical service providers gives the intermediate consumption excluding FISIM of economic division 86.

97 Activities of households as employers of domestic personnel

The output value for division 97 is identical to the estimated household final consumption expenditure for sub-purpose 5.6.2 (see Chapter 3.1.1). By convention, the output value and value added are also assumed to be identical and no estimate of intermediate consumption is made.

98 Goods- and services-producing activities of private households for own use

Division 98 covers private rental services provided by households as owners of dwellings as well as the imputed rental value of owner-occupied dwellings. These notional rents appear under sub-purpose 4.2 of the final consumption expenditure (see Chapter 3.1.1).

Output

An estimate drawn from data gathered in the 2000 *Population Census* serves as a basis for the calculations. Detailed data are available on the number of dwellings owned by households and the rent paid according to the number of rooms. By combining these two elements an estimate can be made of the output value generated by households as owners of dwellings. For subsequent years, each component of these calculations is extrapolated on the basis of specific indicators.

- Number of dwellings by number of rooms: indicator based on the *Building and Housing Statistics* (a combination of data on new constructions, demolitions, conversions and vacant dwellings);
- Rent by number of rooms: CPI code 'rent'.

Intermediate consumption excluding FISIM

Intermediate consumption is determined by applying a ratio to the estimated output value, based on data from the annual reports produced by the Swiss National Accident Insurance Fund (Suva).

2.1.3 Final adjustments

At this stage, the estimates for sectors S.11 and S.14 are still incomplete. On the production side, they have yet to take account of R&D activities or subsidies on products (D.31) or, as far as intermediate consumption is concerned, of financial intermediation services indirectly measured (FISIM) or intermediate consumption connected to R&D activities.

a) Research and development (R&D) output

With the introduction of ESA 2010, the concept of produced assets, i.e. tangible or intangible goods used repeatedly or continuously in production for more than a year, was widened to include intangible assets resulting from research and development (R&D).¹¹ This has the implication that own-account R&D must be recorded as output and, accordingly, added to the output value already calculated (see above). The survey '*Research and development in private companies*' provides data on R&D expenditure in these companies. 'Gross domestic expenditure on R&D' (GERD) is the starting point for the capitalisation of R&D. This aggregate is composed of the following three elements:

- Labour costs cover wages, annual salaries, associated R&D labour costs and various benefits, such as bonuses, paid leave, pension contributions and other social security contributions (gross amounts).

¹¹ Pierre Sollberger, *Des données de la recherche et développement aux agrégats de la comptabilité nationale*, FSO, 2013.

- Other current expenditure refers, with the exception of depreciation, to all spending on materials, supplies and equipment that are not classed as capital expenditure (buildings, facilities and R&D equipment) and rents and leases etc.
- Capital expenditure is expenditure incurred on the purchase of land, buildings and major instruments and equipment used in R&D work. This spending also covers the acquisition of separately identifiable computer software for use in the performance of R&D. If these purchases are also used for other purposes, an estimate of the proportion of use attributable to R&D will be made.

To obtain the R&D output value, the GERD must be adjusted as follows:

Gross domestic expenditure on R&D
- R&D acquisition intended for use as an input in R&D production
- Capital expenditure on R&D
- Consumption of fixed capital used in R&D production
+ Operating surplus contained in R&D output measured at basic prices
+ Other taxes
- Other subsidies on R&D production
= <u>R&D output value</u>

The R&D output value is estimated for each economic division and added to the output obtained for the relevant economic divisions following the plausibility check.

b) Subsidies on products (D.31)

Output should be valued at basic prices, which is why it is necessary to add *subsidies on products* (D.31) to the output of the economic divisions in question. This flow is explained in Chapter 2.6.2.

c) FISIM

FISIM are calculated in the estimates for sector S.12 (excluding insurance corporations and pension funds) (see Chapter 2.2.2). The FISIM allocated to sectors S.11 and S.14 are added to the intermediate consumption of the economic divisions in proportion to their output value, with the exception of the FISIM relating to S.14 mortgages, which are attributed directly to division 98.

d) Intermediate consumption of R&D

While the performance of R&D should be recorded as output, R&D purchased by companies specialising in the provision and sale of R&D to third parties (extramural expenditure by companies operating in the 'research and development' sector) should be included in intermediate consumption. Accordingly, the subcontracted R&D is added to the intermediate consumption of the economic divisions in question.

Estimates at the previous year's prices

Output

Two types of method are used to estimate output by units within sectors S.11 and S.14 at the previous year's prices:

- a) Deflation: the values at current prices are divided by a 'deflator' (in other words, 'deflated') that consists of an index representing pure price changes from year t to year t+1.
- b) Extrapolation by volume: the values at the previous year's prices are obtained by applying a volume index to the values at current prices for year t-1.

Listed below are the methods for measuring volume for each division within sectors S.11 and S.14.

1-3 Primary sector

Values at the previous year's prices are drawn from the primary-sector economic accounts.

8 Other mining and quarrying

Method: deflation

Index: Producer Price Index (PPI), product code: 8

10 Manufacture of food products

Method: deflation

Index: Producer Price Index (PPI), product code: 10

11 Manufacture of beverages

Method: deflation

Index: Producer Price Index (PPI), product code: 11

12 Manufacture of tobacco products

Method: deflation

Index: Producer Price Index (PPI), product code: 12

13 Manufacture of textiles

Method: deflation

Index: Producer Price Index (PPI), product code: 13

14 Manufacture of wearing apparel

Method: deflation

Index: Producer Price Index (PPI), product code: 14

15 Manufacture of leather and related products

Method: deflation

Index: Producer Price Index (PPI), product code: 15

16 Manufacture of wood and of products of wood and cork, except furniture

Method: deflation

Index: Producer Price Index (PPI), product code: 16

17 Manufacture of paper and paper products

Method: deflation

Index: Producer Price Index (PPI), product code: 17

18 Printing and reproduction of recorded media

Method: deflation

Index: Producer Price Index (PPI), product code: 18

19 Manufacture of coke and refined petroleum products

Method: deflation

Index: Producer Price Index (PPI), product code: 19

20 Manufacture of chemicals and chemical products

Method: deflation

Index: Producer Price Index (PPI), product code: 20

21 Manufacture of basic pharmaceutical products and pharmaceutical preparations

Method: deflation

Index: Producer Price Index (PPI), product code: 21

22 Manufacture of rubber and plastic products

Method: deflation

Index: Producer Price Index (PPI), product code: 22

23 Manufacture of other non-metallic mineral products

Method: deflation

Index: Producer Price Index (PPI), product code: 23

24 Manufacture of basic metals

Method: deflation

Index: Producer Price Index (PPI), product code: 24

25 Manufacture of fabricated metal products, except machinery and equipment

Method: deflation

Index: Producer Price Index (PPI), product code: 25

26 Manufacture of computer, electronic and optical products

Method: deflation

Index: Producer Price Index (PPI), product code: 26

27 Manufacture of electrical equipment

Method: deflation

Index: Producer Price Index (PPI), product code: 27

28 Manufacture of machinery and equipment n.e.c.

Method: deflation

Index: Producer Price Index (PPI), product code: 28

29 Manufacture of motor vehicles, trailers and semi-trailers

Method: deflation

Index: Producer Price Index (PPI), product code: 29

30 Manufacture of other transport equipment

Method: deflation

Index: Producer Price Index (PPI), product code: 29

31 Manufacture of furniture

Method: deflation

Index: Producer Price Index (PPI), product code: 31

32 Other manufacturing

Method: deflation

Index: Producer Price Index (PPI), product code: 32

33 Repair and installation of machinery and equipment

Method: deflation

Index: Producer Price Index (PPI), product code: 33

35 Electricity, gas, steam and air conditioning supply

Method: deflation

Index: Producer Price Index (PPI), product code: 35

36 Water collection, treatment and supply

Method: extrapolation by volume index

Index: Annual change in drinking water collection in millions of m³. This information is provided by the Swiss Gas and Water Industry Association (SVGW/SSIGE) on the basis of data from 281 centres supplying 55% of the population.

37 Sewerage

Method: extrapolation by volume index

Index: Annual change in drinking water collection in millions of m³. This information is provided by the Swiss Gas and Water Industry Association (SVGW/SSIGE) on the basis of data from 281 centres supplying 55% of the population.

38 Waste collection, treatment and disposal activities; materials recovery

Method: Deflation

Index: implicit index derived from the weighting of different price indices. First, the most appropriate index is selected for each NOGA group (third level). Next the indices are weighted according to the number of FTEs in the associated classes.

NOGA	Description	Index	Code
38.1	Waste collection	PPI	Total
38.2	Waste treatment	PPI	Total
38.3	Materials recovery	PPI	Recovery of materials

39 Remediation services and other waste management services

Method: Deflation

Index: Producer Price Index (PPI), product code: 'total'

41 Construction of buildings

Method: deflation

Index: Construction Price Index, product code: buildings

42 Civil engineering

Method: deflation

Index: Construction Price Index, product code: civil engineering

43 Specialised construction activities

Method: deflation

Index: implicit index derived from the weighting of different Construction Price Index items. The most appropriate price index for each NOGA type (sixth level) is selected, then weighted by the number of FTEs in the associated classes.

45 Wholesale and retail trade and repair of motor vehicles and motorcycles

Method: deflation

Index: implicit index derived from the weighting of different CPI items. The most appropriate price index for each NOGA group (third level) is selected, then weighted by the number of FTEs of the associated NOGA groups.

NOGA code	Name of activity	CPI code	
451	Sale of motor vehicles	7002	Purchase of cars, motorcycles and bicycles
452	Maintenance and repair of motor vehicles	7113	Repair services and work
453	Sale of motor vehicle parts and accessories	7082	Spare parts and accessories
454	Sale, maintenance and repair of motorcycles and related parts and accessories	7062	Motorcycles

46 Wholesale trade, except of motor vehicles and motorcycles

The volume measure for output by this sector consists of the following two components:

- Transit trade: this component is taken from the calculations made in respect of exports of goods (see chapter 3.4.1).
- Output excluding transit trade: initially, the transit trade value at current prices is subtracted from the output of division 46. The balance is then deflated by an implicit index derived from the weighting of the following indices:
 - 'intermediate goods (raw materials and semi-finished products)' PPI;
 - 'merchandise' CPI;
 - implicit deflator of gross fixed capital formation.

The weighting is based on the proportion of FTEs employed in the different types of wholesale trade activities. Trading activities at NOGA level 6 are grouped by type of goods, i.e. intermediate goods,

consumption goods or capital goods. The FTEs for each activity are then allocated to the relevant goods type, allowing a weighting by type of goods to be calculated.

47 Retail trade, except of motor vehicles and motorcycles

Method: deflation

Index: implicit index derived from the weighting of different CPI items. First, the most appropriate CPI is selected for each NOGA class (fourth level). For some items, more than one CPI is taken into account. Activities for which no appropriate CPI can be found are not given a weighting. The CPIs assigned to the NOGA classes are then weighted according to the number of FTEs in the associated classes.

49 Land transport and transport via pipelines

Method: deflation

Index: implicit index derived from the weighting of different price indices.

First, the most appropriate index is assigned to each NOGA subcategory (sixth level).

The CPIs assigned to the NOGA subcategories are then weighted according to the number of FTEs of the associated NOGA subcategories. Subcategories for which no appropriate index can be found (494200 and 495000) are not given a weighting.

NOGA	Description	Index	Code	
491000	Passenger rail transport, interurban	CPI	7210	Public transport: direct services
492000	Freight rail transport	PPI	Rail transport	
493100	Urban and suburban passenger land transport	CPI	7220	Public transport: tariff associations
493200	Taxi operation	CPI	7320	Taxi
493901	Non-regular passenger land transport	CPI	7210	Public transport: direct services
493902	Regular regional and interurban passenger transport	CPI	7220	Public transport: tariff associations
493903	Passenger transport by cableways, funiculars and ski-tows	CPI	9420	Mountain railways and ski lifts
494100	Freight transport by road	PPI	Road transport	
494200	Removal services	-		
495000	Transport by pipeline	-		

50 Water transport

Method: deflation

Index: Nominal Wage Index, 'transport and warehousing' code (49-52)

52 Warehousing and support activities for transportation

Method: deflation

Index: implicit index obtained from the weighting of the indices used as an output deflator for sectors 49, 50 and 51.

53 Postal and courier activities

Method: deflation

Index: Consumer Price Index (CPI), code 8001 (postal services)

55 Accommodation

Method: deflation

Index: Consumer Price Index (CPI), code 11170 (accommodation)

56 Food and beverage service activities

Method: deflation

Index: Consumer Price Index (CPI), code 11001 (catering services)

58 Publishing activities

Method: deflation

Index: implicit index obtained from the weighting of indices

59 Motion picture, video and television programme production, sound recording and music publishing activities

Method: deflation

Index: Swiss Wage Index, codes 58-61 (publishing, audiovisual and broadcasting activities, telecommunications)

60 Programming and broadcasting activities

Method: deflation

Index: Swiss Wage Index, codes 58-61 (publishing, audiovisual and broadcasting activities, telecommunications)

61 Telecommunications

Method: deflation

Index: Consumer Price Index (CPI), code 8014 (telecommunication services)¹²

62 Programming and broadcasting activities

Method: deflation

Index: Swiss Wage Index, codes 62-63 (IT and other information services)

63 Information service activities

Method: deflation

Index: Swiss Wage Index, codes 62-63 (IT and other information services)

68 Real estate activities

Method: deflation

Index: implicit index derived from the weighting of different price indices. First, the most appropriate index is selected for each NOGA subcategory (sixth level). Next the indices are weighted according to the number of FTEs of the associated NOGA subcategories.

NOGA	Index	Code
681000	Property prices (Swiss National Bank – SNB)	Index weighted by type of good
682001	CPI	Rent
682002	CPI	Rent
683100	Property prices (SNB)	Index weighted by type of good
683200	Rent	Rent

69 Legal and accounting activities

Method: deflation

Index: Swiss Wage Index, codes 69-75 (professional, scientific and technical activities)

70 Activities of head offices; management consultancy activities

Method: deflation

Index: Swiss Wage Index, codes 69-75 (professional, scientific and technical activities)

71 Architectural and engineering activities; technical testing and analysis

Method: deflation

Index: Producer Price Index (PPI), 'architectural and engineering firms' item

72 Scientific research and development

Method: deflation

Index: Swiss Wage Index, codes 69-75 (professional, scientific and technical activities)

73 Advertising and market research

Method: deflation

Index: Swiss Wage Index, codes 69-75 (professional, scientific and technical activities)

¹² From 2013, Producer Price Index (PPI), temporary work.

74 Other professional, scientific and technical activities

Method: deflation

Index: Swiss Wage Index, codes 69-75 (professional, scientific and technical activities)

75 Veterinary activities

Method: deflation

Index: Consumer Price Index (CPI), code 9340 (veterinary services)

77 Rental and leasing activities

Method: deflation

Index: Swiss Wage Index, codes 77-82 (administrative and support service activities)

78 Employment activities

Method: deflation

Index: Swiss Wage Index, codes 77-82 (administrative and support service activities)¹³

79 Travel agency, tour operator reservation service and related activities

Method: deflation

Index: Swiss Wage Index, codes 77-82 (administrative and support service activities)

80 Security and investigation activities

Method: deflation

Index: Producer Price Index (PPI), monitoring and security

81 Services to buildings and landscape activities

Method: deflation

Index: implicit index derived from the weighting of different PPIs. First, the most appropriate index is selected for each NOGA subcategory (sixth level). Next the indices are weighted according to the number of FTEs of the associated NOGA subcategories. The subcategories for which no appropriate index can be found (812201) is not given a weighting.

NOGA		Code
811000	Combined facilities support activities	Cleaning of buildings
812100	General cleaning of buildings	Cleaning of buildings
812201	Chimney sweeping	-
812202	Other building cleaning activities	Cleaning of buildings
812900	Other cleaning activities	Cleaning of buildings
813000	Landscape service activities	Gardens

82 Office administrative, office support and other business support activities

Method: deflation

Index: Swiss Wage Index, codes 77-82 (administrative and support service activities)

85 Education

Method: deflation

Index: Consumer Price Index (CPI), code 10 (education)

86 Human health activities

Method: deflation

Index: implicit index derived from the weighting of different CPIs. First, the most appropriate index is selected for each NOGA subcategory (sixth level). Next the indices are weighted according to the production of the associated NOGA subcategories. Subcategories for which no appropriate index can be found (869001, 869004, 869005 and 869007) are not given a weighting.

¹³ From 2013, Producer Price Index (PPI), temporary employment.

NOGA	Description	CPI	
861001	General care hospitals	6059	Hospital services
861002	Special clinics	6059	Hospital services
862100	General medical practice activities	6031	Medical services
862200	Specialist medical practice activities	6031	Medical services
862300	Dental practice activities	6036	Dental services
869001	Psychotherapy and psychological treatment	-	
869002	Physiotherapy	6051	Other health services
869003	Nursing and district nursing	6051	Other health services
869004	Midwifery	-	
869005	Other paramedical activities	-	
869006	Medical laboratories	6051	Other health services
869007	Other human health activities n.e.c.	-	

87 Residential care activities

Method: deflation

Index: Consumer Price Index (CPI), code 6059 (hospital services)

88 Social work activities without accommodation

Method: deflation

Index: Consumer Price Index (CPI), code 12190 (specialised establishments)

90 Creative, arts and entertainment activities

Method: deflation

Index: Consumer Price Index (CPI), code 9450 (theatres and concerts)

91 Libraries, archives, museums and other cultural activities

Method: deflation

Index: Swiss Wage Index, code 9450 (arts, entertainment and recreation, other service activities)

92 Gambling and betting activities

Method: deflation

Index: Swiss Wage Index, code 9450 (arts, entertainment and recreation, other service activities)

93 Sports activities and amusement and recreation activities

Method: deflation

Index: implicit index derived from the weighting of the CPIs 9352 'sports attractions' and 9400 'sports and recreation activities', according to their prominence in the CPI.

94 Activities of membership organisations

Method: deflation

Index: Swiss Wage Index, code 9450 (arts, entertainment and recreation, other service activities)

95 Repair of computers and personal and household goods

Method: deflation

Index: Consumer Price Index (CPI), code 9120 (repairs and installations)

96 Other personal service activities

Method: deflation

Index: implicit index derived from the weighting of different PPIs. First, the most appropriate index is selected for each NOGA class (fourth level). Next the indices are weighted according to the number of FTEs of the associated NOGA classes. Classes for which no appropriate index can be found (9603, 9604, 9609 and 9609) are not given a weighting.

NOGA	Description	Code	
9601	Washing and (dry-)cleaning of textile and fur products	3198	Textile care
9602	Hairdressing and other beauty treatment	12003	Hairdressing services and beauty salons
9603	Funeral and related activities	-	

9604	Physical well-being activities	-	
9609	Other personal services n.e.c.	-	

97 Activities of households as employers of domestic personnel

Method: deflation

Index: Consumer Price Index (CPI), code 5220 (goods and services for routine household maintenance)

98 Undifferentiated goods- and services-producing activities of private households for own use

Method: deflation

Index: Consumer Price Index (CPI), code 4001 (rent)

Subsidies on products (D.31)

Subsidies on products are deflated by the output deflators for the divisions benefiting from the subsidies.

R&D output

Since R&D output is based on the sum of the costs, calculating the volume measure involves deflating the costs and then aggregating the deflated costs.

The table below shows the indices used by type of cost

Type of cost	Index	Code
Labour costs	SWI	Professional, scientific and technical activities
Current expenditure	CPI	Rent (30%)
	CPI	Energy (20%)
	PPI	Total supply – domestic market (50%)
Extramural expenditure by sector 72	SWI	Professional, scientific and technical activities
Consumption of fixed capital and return on capital	Implicit deflator of flow P.51c	

Intermediate consumption

Calculating the volume measure of intermediate consumption in sectors S.11 and S.14 entails first deflating the intermediate consumption figure obtained for each economic division following the plausibility check, then adding the FISIM in volume terms and intermediate consumption of R&D in volume terms.

Using the intermediate consumption matrix contained in the input-output table, an intermediate consumption structure can be calculated for each economic division. The intermediate consumption of each division is breaking down using this structure. The intermediate consumption figures obtained this way is deflated by the deflator of output, which are used as intermediate consumption.

This method can be expressed as the following formula:

$D1$ = deflator of total IC of sector 1

$C1$ = total nominal intermediate consumption (IC) of sector 1

$a1_i$ = share of IC of sector i in the IC of sector 1

b_i = output deflator for sector i

$$D1 = \frac{C1}{\sum_{i=1}^{76} \frac{C1 a1_i}{b_i}} 100$$

$X1$ has no bearing on $D1$ and can be replaced by 1. It can therefore be written as follows:

$$D1 = \frac{1}{\sum_{i=1}^{76} \frac{a1_i}{b_i}}$$

FISIM

FISIM in volume terms are calculated in the estimates for sector S.12 (excluding insurance corporations and pension funds) (see chapter 2.2.2). As with the estimates at current prices, the FISIM allocated to sectors S.11 and S.14 are added to the intermediate consumption of the economic divisions in proportion to their output value, with the exception of FISIM relating to S.14 mortgages, which are directly attributed to division 98.

Intermediate consumption of R&D

Intermediate consumption of R&D at current prices is deflated by the implicit deflator of own-account R&D output.

2.2 Financial corporations excluding insurance corporations and pension funds

According to ESA 2010, the sector financial corporations excluding insurance corporations and pension funds comprises the following seven subsectors:

1. The central bank (S.121);
2. Deposit-taking corporations except the central bank (S.122);
3. Money market funds (MMFs) (S.123);
4. Non-MMF investment funds (S.124);
5. Other financial intermediaries, except insurance corporations and pension funds (S.125);
6. Financial auxiliaries (S.126);
7. Captive financial institutions and money lenders (S.127).

In the Swiss national accounts, these financial corporations are split across three groups.

- The Swiss National Bank (S.121);
- Other monetary financial institutions (S.122);
- Other financial corporations, financial auxiliaries (S.123 to S.127).

This sector incorporates the whole of economic division 64 as published, and also includes activities auxiliary to financial services (NOGA 661), and fund management activities (NOGA 663) with the exception of insurance and pension funds.

Since the various components of the value added are calculated at the level of subsectors S.121 and S.122, they are described separately later on in the chapter. Their relative importance is shown in the table below (2011, in CHF millions).

Subsectors	Output	Intermediate consumption	Value added	Share in GVA
S.121	375	197	178	0%
S.122	48 068 ^a	18 419	29 649	86%
S.123 to S.127	10 208	5 392 ^b	4 816	14%
Total	58 651	24 008	34 643	100%

^a Including correction of the value added for branches abroad.

^b Including FISIM consumed.

2.2.1 Swiss National Bank (S.121)

Data sources

Description	Produced by
Annual banking statistics, 'Banks in Switzerland'	Swiss National Bank (SNB), Zürich
Annual Reports	SNB, Zürich
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

In view of the special nature of the Swiss National Bank (SNB), its total output value is estimated by the sum of its costs, with a distinction then drawn between market output and other non-market output. Market

output is the amount of commission received by the SNB, while other non-market output is obtained by residual.

The table below shows SNB output by accounting item (2011, in CHF millions).

Accounting item	ESA 2010 flow code	In CHF millions	Proportion
Commission expenses ^a	P.2	32	9%
+ Other operating expenses ^a	P.2	165	44%
+ Staff costs	D.1	129	35%
+ Depreciation on fixed assets (adjusted)	P.51c	49	13%
= Total output	P.1	375	100%
- Commission income		14	4%
= Other non-market output	P.132	361	96%

^a Including those of the SNB's stabilisation fund StabFund.

Not regarded as a unit in its own right, the SNB company StabFund¹⁴ was consolidated within the SNB from 2008 to 2012. Some expense items in the banking statistics must therefore be increased to reflect the amounts paid by SNB StabFund. An overall estimate of consumption of fixed capital is made for subsector S.121/122 (see Chapter 2.7.2), then classified according to the different bank types recorded in the banking statistics on the basis of the accounting item 'depreciation on fixed assets'. If need be, the latter can be corrected on the basis of individual data taken from annual reports.

Intermediate consumption

Intermediate consumption is the sum of commission expenses and other operating expenses (see 'Output').

Estimates at the previous year's prices

Output

Each component is deflated by the following indices:

- Commission expenses: Swiss Wage Index, NOGA division 64;
- Other operating expenses: other operating expenses deflator for S.122 (see Chapter 2.2.2);
- Staff costs: Swiss Wage Index, NOGA division 64;
- Depreciation: see Chapter 2.7.2.
- Market output: Swiss Wage Index, NOGA division 64.

Intermediate consumption

Each component is deflated by the following indices:

- Commission expenses: Swiss Wage Index, NOGA division 64;
- Other operating expenses: other operating expenses deflator for S.122 (see Chapter 2.2.2).

2.2.2 Other monetary financial institutions (S.122)

Subsector S.122 groups together the majority of units subject to the Swiss Federal Law on Banks and Savings Banks. According to the classification used in the banking statistics produced by the SNB, they fall into the following categories:

¹⁴ A limited partnership for collective investment set up during the UBS bailout in 2008 in order to purchase toxic assets. UBS bought back StabFund from the SNB in 2013.

Type of establishment	NOGA
Institutions with a special field of business	641901
Cantonal banks	641902
Big banks	641903
Regional banks and savings banks	641904
Raiffeisen banks	641905
Commercial banks	641906
Stock exchange banks	641907
Foreign-controlled banks	641908
Branches of foreign banks	641909
Other banking institutions	641911
Consumer credit banks	649201

Data sources

Description	Produced by
Annual banking statistics, 'Banks in Switzerland'	SNB, Zürich
Monthly Bulletin of Banking Statistics	SNB, Zürich
Monthly Statistical Bulletin	SNB, Zürich
Quarterly survey of interest, commission and trading operations between offices in Switzerland and customers and banks in other countries	SNB, Zürich
'Prices and Salaries/Wages' survey	SNB, Zürich
Annual reports	Various banks
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

Three types of output can be identified for units in S.122: financial intermediation services indirectly measured (FISIM), net income from trading operations with foreign counterparties¹⁵ and other services (output excluding FISIM).

Components	2011, in CHF millions	Share
FISIM	21 106	42%
Net trading income	1 185	2%
Output excluding FISIM	28 431	56%
Total	50 722	100%

a) FISIM¹⁶

FISIM refer to the services provided by financial intermediaries for which customers are not charged. Financial intermediaries reimburse themselves for these services through the interest rate margin between customer deposits and customer loans.

FISIM output is restricted to services relating to deposits and loans within subsector S.122. Some institutions are excluded from the calculations:

- Institutions with a special field of business whose activities are of an essentially interbank nature.

¹⁵ The income a bank records in its capacity as a broker for foreign customers and which is not subject to the reimbursement applicable to commission should be listed under this heading. Such trading operations include transactions in securities, currency, raw materials and precious metals.

¹⁶ The concept of FISIM is explained (in French) in the publication *Services financiers: une nouvelle mesure des services indirectement mesurés*, Neuchâtel, 2007, <http://www.bfs.admin.ch/bfs/portal/fr/index/themen/04/22/publ.Document.99475.pdf>.

- Institutions outside S.122. There are no data available for the majority of units making up subsector S.123/124, including those likely to produce FISIM (e.g. financial leasing companies).

The only source of information on FISIM produced and consumed by resident sectors is the annual or monthly banking statistics, which indicate the amounts banks have granted or received in loans or deposits over a three-month period, with the counterparties in question broken down by sector. The relevant balance sheet items, from which interbank transactions are excluded,¹⁷ are as follows:

Category	Balance sheet item
Deposits	Amounts due to customers in savings or deposit accounts
	Other amounts due to customers
Loans	Mortgage loans
	Amounts due from customers

Through ad hoc use of the banking statistics data, the SNB can estimate the quarterly interest rates applicable to each balance sheet item listed above. However, these data do not reflect any differences in conditions between sectors for the same item, with the exception of the special treatment of amounts due from customers applicable to sector S.13. When the method was introduced in 2007, average rates were available only for amounts due to customers in savings or deposit accounts and for mortgage loans. Rates for the other items had, therefore, to be established on the basis of hypotheses. Finally, the amount of interest by sector is obtained through the combination of the amounts lent or deposited by sector and the estimated interest rates for each category of deposit or loan.

International trade in FISIM is based on the data recorded when establishing the balance of payments¹⁸ for interest, and on the data included in the annual/monthly banking statistics for the amounts lent or deposited. These two sources allow data to be obtained for the same headings as those taken into consideration for domestic FISIM, with information also available concerning interbank transactions. No data are available, however, on deposits by or loans to non-bank resident units in respect of non-resident banks, making it impossible to estimate imports of FISIM.

FISIM are calculated at disaggregated level (instrument/counterparty) on the basis of the following considerations:

- Internal reference rate: average of the average rates observed on loans to and deposits by (non-bank) residents;
- External reference rate: average of the average rates observed on loans to and deposits by (non-bank) non-residents;
- Exclusion of cross-border interbank transactions.

The decision to use a reference rate that differs from European practice in this regard was motivated by the implausible results obtained in certain experimental calculations based on the use of an interbank rate. These statistical aberrations included, in particular, frequent reallocations between intermediate consumption and final consumption. One explanation for these problems could be the marked divergence between the characteristics of a reference rate based on interbank transactions and the assets or liabilities to which it is supposed to be applied. On the internal market, interbank transactions tend to have excessively short maturities (the majority less than one month), while the assets under consideration predominantly consist of mortgage loans. Their average maturity is generally long (more than one year)

¹⁷ By convention, no FISIM are produced in the case of interbank transactions.

¹⁸ Quarterly survey of interest, commission and trading operations between offices in Switzerland and customers and banks in other countries.

and they are increasingly subject to fixed rates. The alternative chosen was the one offering the most straightforward and transparent solution.

The results obtained by instrument and by sector ultimately enable a specific flow type to be assigned, as summarised in the following table (2011, in CHF millions).

Instruments	Counterparty	Flow	In CHF millions	Share
Deposits	S.2	Exports	2 642	12%
	S.14	Final consumption expenditure	4 400	21%
	S.11, S.12, S.13, S15	Intermediate consumption	3 373	16%
Loans	S.2	Exports	1 480	7%
	S.11, S.12, S.13, S.14, S.15	Intermediate consumption	9 210	44%

The FISIM assigned to sectors S.11 and S.14 are distributed among the economic divisions in proportion to the output value of each division, with the exception of the FISIM relating to S.14 mortgages, which are directly attributed to division 98. For other sectors, there is a direct correspondence with the divisions:

- Intermediate consumption by S.123/127: direct allocation to division 64;
- Intermediate consumption by S.128/129: direct allocation to division 65;
- Intermediate consumption by S.13: direct allocation to division 84;
- Intermediate consumption by S.15: distribution among the divisions of S.15.

b) Net trading income

This is the income a bank records in its capacity as a broker for foreign customers and which is not subject to the reimbursement applicable to commission. Such trading operations include transactions in securities, currency, raw materials and precious metals.

c) Output excluding FISIM

The value of output excluding FISIM corresponds to the commission received by these units ('commission income' item). Its share in the total output value can fluctuate, in particular according to stock market developments, reaching a high of 63% in 2007, for instance.

Intermediate consumption

Intermediate consumption is obtained by adding the banking statistics variables already mentioned in respect of S.121 ('commission expenses' and 'other operating expenses'), to which the estimated non-market output value for S.121 is also added, which is considered to have been consumed in its entirety by S.122.

Correction for offices abroad

The estimates of output value and intermediate consumption are based on data that include foreign branches¹⁹ of the institutions listed, particularly in the case of the big banks. As these branches are not considered to be part of the national accounts universe, a correction is applied to the value added before extracting them. Working on the assumption that the foreign branches generate a gross operating surplus of zero, this correction corresponds to the compensation of employees paid by these branches. This value is estimated on the basis of the following:

- Employment in Switzerland/abroad by the banks concerned (banking statistics);

¹⁹ Foreign branches, while legally dependent on their head office, are considered (notional) resident units of the country in which they are located. Conversely, branches of foreign banks established in Switzerland are included in the calculations of GDP.

- Total compensation of employees by the banks concerned ('staff costs', banking statistics);
- Average gap between wages paid in Switzerland and abroad calculated on the basis of the *Prices and Salaries/Wages* survey (UBS).

Finally, a qualitative assessment is made with regard to the change in the corrected value added, based on various financial indicators (e.g. the volume of loans granted by the banks, the value of securities in bank custody accounts, stock market indices, turnover on different stock exchanges and the annual reports of different banks etc.).

Components	2011, in CHF millions
Output value	50 722
- Correction for offices abroad	2 653
= Corrected output value	48 068
- Intermediate consumption	18 420
= Corrected value added	29 649

Estimates at the previous year's prices

Output

- Output value excluding FISIM and net trading income: deflation using the annual variation in the Swiss Wage Index, NOGA division 64.
- FISIM: direct calculation of values at the previous year's prices, carried out for the total loans or deposits and for each relevant subsector. The nominal values for the previous year are extrapolated by the change in the amount of loans or deposits, deflated by the implicit deflator of final domestic demand²⁰ excluding FISIM. An additional correction is made to the amounts of loans to or deposits by foreign customers that are held in foreign currency in order to reflect the impact of exchange rate variations in their deflation.

Intermediate consumption

- Commission expenses: deflation by the annual variation in the Swiss Wage Index, NOGA division 64;
- Other operating expenses: deflation using an implicit deflator consisting of the weighted sum of different CPIs. To begin with, a calculation is made of the average overhead structure noted in the annual reports of a number of banks selected so as to ensure that most bank categories are covered. This structure, in turn, provides a weighting for the relevant CPIs. The structure and the elements of the CPI correspond as follows:

Overhead structure	CPI	Description
Rent	4002	Housing rental
Rental/maintenance of machinery/equipment	4020	Housing maintenance/repair services
IT and other subcontracted activities	9120	Repairs and installations
Telecommunications and transport costs	8001 8014	Weighted average of the following CPIs: - Postal services - Telecommunication services
Administrative costs	9500	Books, newspapers and stationery
Travel and leisure		Weighted average of the following CPIs:

²⁰ Final consumption expenditure + gross fixed capital formation.

	7201 11	- Public transport services by rail and road (40%) - Restaurants and hotels (60%)
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- Other non-market output by S.121: see output for S.121.

2.2.3 Other financial corporations, financial auxiliaries²¹ (S.123 to S.127)

The subsectors S.123 to S.127 cover the remainder of the institutions with a special field of business included in the SNB statistics (central mortgage bond institutions, SIX SIS Ltd, SIS x-clear Ltd and Clientis Ltd), along with the units in NOGA divisions 64, 661 and 663 not included in S.122.

Data sources

Description	Produced by
Annual banking statistics, 'Banks in Switzerland'	Swiss National Bank (SNB), Zürich
Business Census (BC)	FSO, Neuchâtel
Employment statistics (STATEM)	FSO, Neuchâtel

While the annual banking statistics cover units belonging to institutions with a special field of business (641901), only employment and payroll data are available for the other units in the subsector. Those units are regarded as not covered, as shown in the table below (2011, in CHF millions):

Units	GOV	IC	GVA	Share
Covered	250	185	65	1%
Not covered	9 958	5 207 ^a	4 751	99%
S.123-124 total	10 208	5 392	4 816	-

^a Including FISIM consumed.

Estimates at current prices

Output

For the units covered by the banking statistics, the output value is equivalent to the sum of the costs²² for the central mortgage bond institutions and Clientis, i.e. staff costs, commission expenses, other operating expenses and depreciation. For SIX SIS and SIS x-clear, the output value corresponds to the commission charged. No FISIM are estimated for these units.

For those units not covered, the output value is obtained by extrapolating from the 'commission income' item recorded for the 'private bankers' category. This extrapolation is based on payroll data from the STATEM statistics. Accordingly, the ratio between the payroll recorded for the units belonging to the NOGA types not covered by the banking statistics and the payroll observed for private bankers is applied to the relevant item of the banking statistics.

Intermediate consumption

- Units covered by the banking statistics: intermediate consumption is obtained by adding together the items 'commission expenses' and 'other operating expenses'.

²¹ Excluding insurance and related activities.

²² This decision was taken in order to avoid negative value added in the long term. In practice these institutions serve as a sort of central bank for a group of banks. They consequently had negative value added, which is hard to explain over the long term.

- b) Units not covered by the banking statistics: intermediate consumption is obtained by extrapolating from the items 'commission expenses' and 'other operating expenses' observed for the 'private bankers' category. The extrapolation method is the same as that used for output.

The FISIM attributed to the intermediate consumption of subsectors S.123 to 127 are added to these elements.

Estimates at the previous year's prices

Output

See the output value excluding FISIM for S.122.

Intermediate consumption

- Commission expenses: see the commission expenses for S.122;
- Other operating expenses: see the other operating expenses for S.122;
- FISIM: see the FISIM output for S.122.

2.3 Insurance corporations (S.128) and pension funds (S.129)

According to ESA 2010, the **insurance corporations** subsector (S.128) consists of 'all financial corporations and quasi-corporations which are principally engaged in financial intermediation as a consequence of the pooling of risks mainly in the form of direct insurance or reinsurance' (ESA 2010, p. 42). The subsector **pension funds** (S.129) consists of 'all financial corporations and quasi-corporations which are principally engaged in financial intermediation as a consequence of the pooling of social risks and needs of the insured persons (social insurance). Pension funds as social insurance schemes provide income in retirement, and often benefits for death and disability' (ESA 2010, p. 43).

No estimate has been made in respect of branches of foreign reinsurance corporations located in Switzerland, as they do not come under the responsibility of the Swiss Financial Market Supervisory Authority (FINMA). 'Captive' reinsurance corporations are subject to the supervision of FINMA, however, and are therefore taken into account in the estimates.

The following table shows the different institutional units belonging to S.128 and S.129 and indicates the NOGA type to which they correspond:

Institutional units	NOGA 2008
Life insurance	6511
- Private insurance corporations supervised by FINMA and providing life-insurance	651100
Non-life insurance	6512
- Swiss National Accident Insurance Fund (Suva)	651201
- Public accident insurance funds (ÖK)	651201
- Aargau Canton Accident Insurance Fund for Schoolchildren (ÖK Schüler)	651201
- Zürich Municipal Accident Insurance Fund (UK)	651201
- Alternate Accident Insurance Fund (EK)	651201
- Private insurance corporations supervised by FINMA and providing non-life insurance	651202
- Swiss Export Risk Insurance (SERV)	651202
- Sickness funds (CM)	651203
- Cantonal building insurers (ECAIs)	651204
- Family compensation funds (FAKs)	651204
Reinsurance	6520
- Private reinsurance corporations supervised by FINMA	652000
- RVK Rück (health and accident reinsurance)	652000
- Intercantonal Reinsurance Union (UIR)	652000
Pension funding services	6530
- Pension funds (CP)	653000
- Substitute Occupational Benefit Institution	653000
Independent insurance agents and insurance brokers	6622
Other insurance and pension funding activities	6629
- Old-age and survivors' (AVS) compensation funds	662901
- Institution commune LaMal [Common Institution under the Federal Health Insurance Act] (IC LaMal)	662902
- Association of Cantonal Fire Insurance Offices (AEAI)	662902
- Guarantee Fund (SF BVG)	662902

The table below shows the production account for subsector S.128/129 and its subcomponents in 2011.

Unit type	NOGA	GOV	IC	GVA
Life insurance companies	6511	7 051	1 941	5 110
Non-life insurance	6512	18 189	6 653	11 536
Reinsurance	6520	7 535	1 556	5 979
Pension funds	6530	5 482	2 472	3 009
Insurance agents and brokers	6622	2 533	1 028	1 504
Other insurance activities	6629	886	323	563
S.128/129 (without FISIM)		41 676	13 973	27 702
Published S.128/129 (with FISIM)		41 676	14 647	27 028

Intermediate consumption is initially estimated by insurer type without allocating FISIM. The latter are calculated and broken down by sector in the course of the estimates for subsector S.121/S.127 and added to the aggregate intermediate consumption of subsector S.128/129 as a final step.

The details of the types of insurance that contribute most to the value added of subsectors S.128/129 are given below. Insurance for which the value added is very low, or virtually zero, is not covered in this document.

Output

The output value of insurance is not directly measured by the insurance companies themselves in their generation of income accounts. The insurer deducts from the premiums (or contributions) it receives the amount needed to cover its production costs and pays to policyholders the claims due in respect of the injury, loss or damage that has occurred. It also builds provisions (or reserves) for the claims it will have to pay out at a later date, which may be in the form of real estate or financial securities, from which it can draw income. The output value of insurance activity (insurance service) is equal, therefore, to the difference between insurance revenue (premiums and income from the investment of reserves) and the technical expenses (claims paid out, claims incurred and insurance provisions). The total output of insurance companies also includes, beyond the insurance service they provide, output related to property rental and income from other goods and services sold (e.g. publications, healthcare products etc.).

The output of insurers consists of the following components:

▪ Life and non-life insurance, and reinsurance:

Actual premiums earned
+ Premium supplements
- Claims due
- Increases (+ decreases) in technical provisions against outstanding risks and policyholder dividends
= <u>Insurance service</u>
+ Real estate services
+ Other market output
= <u>Total output (P.1)</u>

▪ **Other employment-related social insurance schemes (pension funds, compulsory health insurance, accident insurance and family allowances)**

Actual contributions earned
+ Premium supplements
- Benefits due
- Increases (+ decreases) in pension fund reserves
= <u>Insurance service</u>
Real estate services
+ Other market output
= <u>Total output (P.1)</u>

Premium supplements represent the income drawn from the investment of insurance reserves. Since insurance reserves are regarded as household assets in the system of national accounts, this investment income is initially treated as having been paid to households by insurance companies in the form of property income, then subsequently repaid to the insurance companies alongside the actual premiums.

2.3.1 Life insurance

Data sources

Description	Produced by
Insurance market report	FINMA, Bern
Occupational pension schemes with life insurance companies: publication of accounts	FINMA, Bern
Annual reports	Various insurance companies
Structural Business Statistics (STATENT)	FSO, Neuchâtel
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The output value of life insurance companies is made up of three components:

Components	2011, in CHF millions
Insurance services	4 437
Real estate services	1 658
Other market output	79
Output	6 174

The output value related to real estate services and to other market output is based on a number of accounting items, including current income from land and buildings, other technical income and other ordinary income.

The output value related to life insurance services is calculated according to the equations set out in the *Output* section and consists of the following:

Actual premiums earned	Gross premiums written - Change in gross amount of premiums carried forward - Commission, share in surpluses and rebates for business accepted for reinsurance
Premium supplements	Investment income (direct income) + Interest debited on gross technical reserves - Direct income from derivative financial instruments - Interest credited/paid on gross technical liabilities ²³ - Interest charges for liability financing - Interest charges for equity financing - Current expenditure related to property operating costs - Linear depreciation on property = <u>Net property income excluding participation-based life insurance</u> × Technical provisions/(equity + technical provisions) ratio + Charges for surplus participation + One-off adjustments
Claims due	Gross amount of claims paid - External and internal claims management expenses + Changes in claims provisions - Changes in equalisation provisions - Withdrawal of equity (capital transfers)
Changes in household entitlements to technical provisions	Change in mathematical provisions, gross amount + Change in other technical provisions + Surplus and rebate participation - Direct income from investments for participation-based life insurance - Gains realised on investments for participation-based life insurance - Latent gains realised on investments for participation-based life insurance - Losses realised on investments for participation-based life insurance - Latent losses realised on investments for participation-based life insurance + Adjustment of income for participation-based life insurance - One-off adjustments of mathematical provisions - Adjustment to remove holding gains
= Life insurance and inward reinsurance service	
+ Output of real estate services	
+ Other market output	
= Total output of life insurance companies	

The baseline data used to estimate the insurance service produced by life insurance companies are the profit-and-loss accounts of resident life insurance companies, excluding foreign business, and foreign branches in Switzerland. For each company, an estimate is made of the insurance service by insurance sector on the basis of the available data included in the FINMA report. First, the property income attributed to insurance policyholders is estimated for all sectors. Next, it is split between D.441 and D.442 using the information on each sector and the occupational pension scheme accounts provided by FINMA. Flow D.441 is then attributed to those sectors excluding occupational pension schemes in proportion to the technical provisions.

It should be noted that in Switzerland group life insurance also covers flows relating to fully reinsured pension funds (collective pension funds) and the reinsurance portfolio of partly reinsured pension funds. The technical account item 'gross amount of claims paid' includes claims management expenses. The latter should not be treated as claims.

²³ 'Gross' here means including the reinsurers' share.

The advantage of a detailed calculation by company and insurance sector is that it is possible to analyse the results obtained and how they change year on year. In the event of inconsistent results, adjustments are made at several levels:

- Property income attributed to insurance policyholders: analysis of FINMA data concerning changes in technical provisions and the corresponding technical interest may lead, in exceptional cases, to an adjustment of the level of property income attributed to insurance policyholders.
- Changes in equalisation reserves: under ESA 2010, these provisions are no longer regarded as technical provisions (F.6). Consequently, any change in them should no longer be taken into account when calculating the insurance service produced. Nevertheless, ESA 2010 allows, generally in the event of heavy losses, for excessive volatility of estimates to be lessened by taking account of the changes in these equalisation reserves.
- Adjustment for holding gains: this is calculated for each company on the basis of the results for the financial year before distribution, excluding holding gains and losses and without taking account of flows connected with outward reinsurance. If this result is positive, there is no adjustment for holding gains. If, however, the result is negative, it is considered to be covered by holding gains. If the holding gains are not high enough to cover the loss in full, only the amount of holding gains available is taken into account. Analysis of the results by sector determines for which sector and by what amount this adjustment needs to be applied.
- Adjustment for withdrawal of equity: If the results of the financial year before distribution and excluding holding gains and losses but including reinsurance flows is negative and the holding gains do not make up the shortfall, the difference remaining is regarded as a decrease in equity (D.99). This adjustment is made only if analysis of the company's results by sector indicates the need for such a correction.
- One-off adjustments of the changes in technical reserves: by using the information provided by FINMA with regard to the different causes of changes in these items,²⁴ the impact of exchange rate variations and other changes, where applicable, can be minimised. As of 2013, FINMA no longer gathers this information.

In order to estimate the net operating surplus on properties, intermediate consumption, salaries and wages and the depreciation of rental properties have been estimated. Current expenditure is derived by applying to the output value of the properties a ratio based on the information provided by Suva. Depreciation corresponds to 2% of the market value of properties and land.

Other market output consists of other income resulting from insurance activities.

Intermediate consumption excluding FISIM

The intermediate consumption of life insurance companies is composed of the following:

²⁴ The annual variation can be attributed to a number of different causes, including premiums earned, technical interest, claims paid, transfers of portfolios, exchange rate variations (for foreign currencies), changes in the value of life insurance funds in connection with investment funds, and other changes.

	Acquisition costs for direct business
+	Change in deferred acquisition costs
+	External and internal claims management expenses
+	Administration costs
+	Other costs for insurance activities
+	Investment management costs
=	Total management costs of resident companies
-	Commission paid to in-house agencies
-	Gross wages and salaries for insurance-related activities
-	Depreciation of equipment
+	Property operating costs
-	Gross wages and salaries for property management activities
=	Total intermediate consumption of resident companies excluding reinsurance
+	Purchase of reinsurance services
=	Intermediate consumption excluding FISIM

The basic data used to estimate the intermediate consumption of life insurance companies are supplied by FINMA. As these data are not sufficiently detailed for a distinction to be made between different types of operating expenses (in particular, to separate these costs into IC and compensation of employees), the overall operating expenses are calculated on the basis of the profit-and-loss accounts. Next, those elements that cannot be classed as intermediate consumption but are included in the management costs, i.e. compensation of employees and depreciation, are estimated. Property-related costs and wages are estimated using ratios derived from the data supplied by Suva. With regard to the compensation of employees in connection with insurance operations, a number of sources are used (STATENT, annual reports and indications of the number of staff). Acquisition costs for direct business consist of commission paid to insurance agents and brokers. A company's external services can be organised in two ways: by a network of in-house agencies or by a network of independent agencies. The commission paid to in-house agency staff is treated in the same way as a salary, provided that they are employees of the company. The amount of this commission is determined on the basis of the type of network of agencies used by each company. In the case of depreciation, the straight-line depreciation rate for tangible fixed assets (1/15 years) and computer software (1/4 years) is applied to balance sheet amounts.

The management costs taken from the profit-and-loss accounts do not take into consideration the reinsurance service bought by life insurance companies ceding part of their risks. This service is implicitly included in the reinsurance premiums paid by these companies. Using a reinsurance matrix (see p. 50), the reinsurance service produced and imported is allocated to the different institutional sectors and the rest of the world in proportion to the reinsurance premiums paid by ceding companies.

Estimates at the previous year's prices

Output

The individual components of the output value of life insurance companies are deflated in different ways:

- As there is no observable price for the insurance and reinsurance service, the value of the service at the previous year's prices is estimated using a volume index. As a general rule, the volume index is the change from the previous year in the difference between the technical provisions (excluding provisions for premiums and claims not yet settled and the bonuses credited to policyholders, on the one hand, and the claims due, on the other hand, deflated by the annual change in the Consumer Price Index (CPI):

$$\frac{(\text{tech. prov.} + \text{claims due in } t)}{(1 + \text{annual change in CPI in } t)} \times (\text{tech. prov.} + \text{claims due in } t - 1) \times 100$$

In some cases, the index and/or corresponding implicit deflator obtained this way may be too high or too low. If so, this index is replaced by another measuring the change in premiums earned.

$$\frac{(\text{premiums earned in } t)}{(1 + \text{annual change in CPI in } t)} \times (\text{premiums earned in } t - 1) \times 100$$

In that situation, the index giving the most plausible result is taken into account. These indices are calculated by company and for each insurance sector.

- Output of real estate services: deflation using the annual variation in the 'rent' CPI.
- Other market output: deflation by the annual variation in the nominal wage index for division 65.

Intermediate consumption excluding FISIM

The deflation of intermediate consumption can be broken down into three categories:

- Purchase of reinsurance services: deflation is carried out for each individual reinsurer (on the production side). The value at the previous year's prices is then allocated to consumers using the reinsurance matrix (see Chapter 2.3.4).
- Commission paid to independent agents: the deflator is the change from the previous year in the commission rate, i.e. in the amount of commission paid for one franc of the gross premium written (total commission/gross premiums written).
- Other intermediate consumption: deflation is carried out using an index derived from the weighting of different CPIs according to the structure of administrative costs relating to Suva's insurance operations, and disregarding the expenditure specific to Suva. The weighting of these indices is shown in the following table.

Administrative costs	CPI	Weighting
PR/Marketing costs	All services	18.60%
Investment management costs	All services	10.90%
Travel expenses	Transport services (7200)	10.10%
Shipping costs	Postal services (8001)	9.80%
Consultancy fees	Other services (12541)	7.50%
IT maintenance	Repairs and installations (9120)	6.50%
Taxes and licences	Postal services (8001)	6.30%
Miscellaneous	All services	6.00%
Other IT costs	Repairs and installations (9120)	5.80%
Printed matter	Books, newspapers and stationery	4.80%
Courses for third parties	Lifelong learning (10100)	2.60%
Legal expenses	Other services (12541)	2.00%
Maintenance of office furniture and machinery, appliances and vehicles	Routine property maintenance (4009)	1.90%
Translation	All services	1.50%
Miscellaneous contributions	All services	1.40%
Paper and office equipment	Writing and drawing materials (9555)	1.10%
Freight	Transport services (7200)	1.10%
Judicial expenses	Other services (12541)	0.60%
Other office equipment expenses	Writing and drawing materials (9555)	0.60%
Newspapers	Newspapers and journals (9525)	0.50%
Reimbursement of oversight costs incurred by the board of directors	All services	0.20%
Workwear	Wearing apparel (3002)	0.10%
Telephone	Telecommunication services (8014)	0.00%

2.3.2 Non-life insurance

Swiss National Accident Insurance Fund (Suva)

Data source

Description	Produced by
Financial report Detailed balance sheet and generation of income account Summary of property generation of income accounts Details of investment income	Suva
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The output value related to insurance services is calculated according to the equations set out in the introduction to Chapter 2.3, the components of which are estimated on the basis of the following:

Gross premiums earned	Gross premiums received from businesses for occupational accident insurance (BUV) + Gross premiums received from policyholders for non-occupational (NBUV) and optional (FV) accident insurance + Gross premiums for accident insurance for the unemployed (UVAL) + BUV and NBUV co-insurance premiums - Surcharge for the cost of occupational accident and illness prevention and non-occupational accident prevention - Surcharge for the cost of accident and illness prevention for the unemployed - Surcharge for interest on BUV, NBUV, FV and UVAL arrears
Premium supplements	Accrued Interest + Accrued dividends - Interest expenses - Land rents, rental on land in usufruct + Net surplus on property rental = <u>Net property income</u> × $\frac{\text{Technical provisions}}{\text{Equity} + \text{technical provisions}}$ ratio
Claims due	Reimbursement of BUV, NBUV, FV and UVAL care + BUV, NBUV, FV and UVAL daily allowances + BUV, NBUV, FV and UVAL lump-sum pensions and benefits + BUV, NBUV, FV and UVAL cost-of-living allowances + BUV and NBUV co-insurance benefits + Increase in reserves for unpaid BUV, NBUV, FV and UVAL accident claims + Increase in reserves for BUV, NBUV, FV and UVAL pension cover capital
Changes in technical provisions	Change in BUV, NBUV, UVAL and FV equalisation and general reserves + Change in reserves for FV and UVAL cost-of-living allowances - Adjustment for holding gains
= Insurance service	

Suva's total output value is composed of the following:

Insurance service
+ Other operating revenue
+ Sale of equipment
+ Provision of services to third parties
+ Surcharge for the cost of occupational and non-occupational accident and illness prevention and for the unemployed
+ Reimbursed expenditure for occupational safety
+ Purchase by the Swiss Government
= Total output value of Suva

The gross premiums for the various types of insurance include surcharges for the cost of accident and illness prevention and interest on arrears. As prevention is not regarded as an insurance activity, premium supplements relating to it are not taken into account when calculating the insurance service, but represent a purchase of services from the executive bodies for occupational safety and are a component of Suva's other market output. Interest on arrears is considered to be investment income.

The data available for Suva are highly detailed. Accordingly, for each type of investment the net revenue excluding holding gains and losses, the outcome of the sale of investments (realised gains/losses) and the change in the investment value (unrealised gains/losses) are known. In order to calculate the interest and dividends, it was necessary to estimate the management costs and the commission paid for each investment type. That was done by setting fee rates for each investment type, which were then applied to the market value of each investment. When fixing the fee rates, we used the information available for the years up to 2002. This information has been available again since 2011.

The adjustment for holding gains is determined by calculating the result excluding holding gains and losses, after adjusting the technical provisions and security reserves for the different insurance types and before any allocation to equity. If this result is positive, there is no adjustment for holding gains when calculating the service. If, however, the result is negative, an adjustment for holding gains is made corresponding to the deficit.

Flows concerning property (gross rent, IC, wages and maintenance costs) are calculated using the details of costs relating to properties owned by Suva. Only the depreciation is estimated, by applying a rate of 2% to the investment value of the properties at the beginning of the year.

'Reimbursed expenditure for occupational safety' refers to the amounts actually spent by Suva on prevention.

Since 1 July 2005, Suva has been responsible for managing military insurance. The Confederation finances the benefits and administrative costs of this type of insurance where they are not covered by premiums and income from recourse against liable third parties. The purchase by the Confederation of military insurance management services is equal to the administrative costs of managing the insurance fund once the recourse income has been deducted.

Intermediate consumption excluding FISIM

Suva's intermediate consumption is composed of the following:

+	Ordinary administrative expenditure
+	Purchase of equipment
+	Change in inventories
+	Third party services relating to equipment
+	External expenditure on lawyers' fees/tackling fraudulent claims
+	Investment management costs
+	Business development expenditure
+	Project-related expenditure
=	Total insurance operating expenditure
-	Wages and salaries
-	Contribution to research
-	Contribution to the Swiss Council for Accident Prevention
-	Increase in the Suva Fund
-	Furniture and IT purchases
-	Net insurance premiums
-	Offsetting of internal services
=	Intermediate consumption related to insurance operations
+	Property-related intermediate consumption
=	Intermediate consumption excluding FISIM

In order to reflect the purchase of insurance services by Suva, a rate of 70% is applied to the gross insurance premiums paid included in the total ordinary administrative expenditure, to obtain the net premiums. The latter are recorded as D.71 transactions.

The adjustments to offset internal services help avoid double counting in relation to the provision of services and goods across different local units and ancillary departments etc.

Estimates at the previous year's prices

Output

- Insurance services: extrapolation using a volume index consisting of the annual change in the number of accidents and of beneficiaries of accident insurance pensions in the event of invalidity and survival.
- Real estate services: deflation by the change in rent received per square metre.
- Sale of equipment: deflation using the annual variation in the 'clothing and footwear' CPI.
- Reimbursed expenditure for occupational safety and for the management of military insurance: deflation by the deflator of Suva's intermediate consumption.
- Reimbursements for the provision of services to third parties: deflation using the annual variation in the nominal wage index for division 84.
- Premium supplements for prevention: deflation using the annual variation in the contribution rate set by law.
- Other output: the components are deflated by the following relevant indices:
 - Reimbursements to Suva: deflator of IC for Suva operations;
 - Revenue from training: 'lifelong learning' CPI;
 - Revenue from the provision of other services: 'services' CPI;
 - Revenue from the sale of occupational safety products: 'wearing apparel' CPI;
 - Revenue from the sale of printed matter: 'newspapers and journals' CPI;

- Revenue from insurance services: Swiss nominal wage index for NOGA division 65;
- Revenue from the sale of computer software: 'computer software' CPI.

Intermediate consumption excluding FISIM

- Insurance-related IC: deflation by the annual variation in the weighted sum of different CPIs based on Suva's expenditure structure.
- Property-related IC: deflation using the implicit deflator of intermediation consumption related to Suva's operating expenses.

Private insurance corporations supervised by FINMA and providing non-life insurance

Data source

Description	Produced by
Insurance market report	FINMA, Bern
Annual reports	Various insurance companies
Structural Business Statistics (STATENT)	FSO, Neuchâtel
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Output

The output value of indemnity insurance companies is made up of three components:

Components	2011, in CHF millions
Insurance services	13 106
+ Real estate services	402
+ Other market output	112
= Output	13 628

The output value related to indemnity insurance services is calculated according to the equations set out in the *Output* section and consists of the following:

Actual premiums earned	Gross premiums written - Change in gross amount of premiums carried forward - Commission, for business accepted for reinsurance
Premium supplements	Investment income (direct income) + Interest debited on reserves - Direct income from derivative financial instruments - Interest credited/paid on gross technical liabilities - Interest charges for liability financing - Interest charges for equity financing - Property administration expenses - Linear depreciation on property = Net property income x Technical provisions/(equity + technical provisions) ratio = Property income drawn from the technical provisions + Bonuses credited + Charges for surplus participation
Claims due	Gross amount of claims paid - External and internal claims management expenses + Changes in provisions for claims not yet settled + Adjustment to changes in provisions for claims not yet settled - Changes in equalisation provisions - Withdrawal of equity (capital transfers)

	+ Correction of claims for run-off activities
Changes in other technical provisions	Change in mathematical provisions, gross amount + Surplus and rebate participation + Changes in other technical provisions for non-life insurance business - Adjustment to remove holding gains
= Indemnity insurance and inward reinsurance service	
+ Output of real estate services	
+ Other market output	
= Total output of indemnity insurance companies	

As in the case of life insurance companies, the baseline data used to estimate the insurance service produced by indemnity insurance companies are the profit-and-loss accounts of resident indemnity insurance companies, excluding branches abroad but including foreign branches in Switzerland.

The amount of reinsurance commission deducted from premiums does not correspond to the accounting item 'commission and profit shares from business accepted for reinsurance'. An estimate is made in order to split this item between commission, on the one hand, and profit shares, on the other. The latter are in fact not a discount on premiums but a current transfer from the reinsurer to the ceding companies if the business turns out to be profitable.

The technical account item 'gross amount of claims paid' includes claims management expenses. The latter should not be treated as claims. Use of data gathered by FINMA made it possible to estimate the amount up until 2007; since then estimates have been based on the ratios observed up to 2007.

The various adjustments are calculated for each insurance company on the basis of the profit-and-loss accounts. The method used to estimate these adjustments was explained with regard to life insurance in Chapter 2.3.1. In the case of non-life insurance, however, additional adjustments are required:

- Adjustment to changes in provisions for claims not yet settled: by analysing the changes in these provisions, including making use of the additional information supplied by FINMA until 2012, it can be determined whether any provisions have been released not to cover claims actually settled but in order to adjust the level of the provisions following an overestimation of the cost of particular claims in previous years. It is possible that a correction of this kind and amount has been made in the previous years, but with the opposite effect.
- Correction of claims for run-off activities: the insurance service for types of insurance or insurance sectors providing run-off cover cannot be calculated using the standard equation, as, with this activity, there are usually no longer any premiums earned but only claims paid. By convention, in such a case the service is measured solely by the property income attributed to policyholders. An adjustment of the amount of claims due is necessary, therefore.

With regard to the changes in equalisation provisions, in view of the fact that these provisions are required by law for the direct accident and health insurance sectors, any changes in them are always taken into account when calculating the service of these sectors. For the other sectors, only the releases covering abnormal losses are taken into consideration.

Other market output consists of other income resulting from insurance activities.

Intermediate consumption excluding FISIM

Intermediate consumption excluding FISIM of indemnity insurance services is composed of the following:

	Acquisition costs for direct business
+	Change in deferred acquisition costs
+	External and internal claims management expenses
+	Administration costs
+	Other costs for own-account insurance activities
+	Investment management costs
=	Total management costs of resident companies
-	Depreciation of equipment
-	Commission paid to in-house agencies
-	Gross wages and salaries for insurance-related activities
+	Property management fees
-	Gross wages and salaries for property management activities
=	Total intermediate consumption of resident companies excluding reinsurance
+	Purchase of reinsurance services
=	Intermediate consumption of indemnity insurance companies excluding FISIM

The comments made in respect of life insurance companies apply equally to indemnity insurance companies.

Estimates at the previous year's prices

Output

- Insurance service: for each insurance company and sector, a volume index is calculated on the basis of the changes in the adjusted claims due and the gross technical provisions (excluding provisions for premiums and claims not yet paid) as deflated by the CPI, in a similar way as for life insurance. For certain sectors, additional volume indices (number of beneficiaries of accident insurance pensions, sums insured under fire insurance, number of vehicles on the road and number of individual businesses etc.) are estimated. The volume index used for a given year depends on the changes in these indices compared with the changes in premiums. The index chosen is the one for which the changes seem most plausible, including in terms of the deflator derived from it.
- Real estate services: deflation using the annual variation in the 'rent' CPI.
- Other income resulting from insurance activities: deflation using the annual variation in the wage index for division 65.

Intermediate consumption excluding FISIM

In order to deflate the intermediate consumption, it is divided between three categories.

- Purchase of reinsurance services: deflation is carried out for each individual reinsurer (on the production side). The value at the previous year's prices is then allocated to consumers using the reinsurance matrix.
- Commission paid to independent agents: the deflator is the change from the previous year in the commission rate, i.e. in the amount of commission paid for one franc of the gross premium written (total commission/gross premiums written).
- Other intermediate consumption: deflation using an index derived from the weighting of different CPIs according to the structure of Suva's intermediate consumption (see Chapter 2.3.2).

Sickness funds (CM)

Data sources

Description	Produced by
Compulsory Health Insurance Statistics	Federal Office of Public Health (FOPH), Bern
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

Components	2011, in CHF millions
Insurance services	1 437
+ Gross property income	75
+ Other operating income	136
+ Compensation received for administrative costs	708
+ Health insurance contributions	0
= Output	2 355

Gross property income is calculated using the rate of return on Suva's properties applied to the purchase value of sickness fund properties.

The output value related to insurance services is calculated according to the equations set out at the beginning of Chapter 2.3, the components of which are estimated on the basis of the following:

Components	Accounting items
Gross premiums earned	Daily allowance insurance premiums + Compulsory basic health insurance premiums + Supplementary insurance premiums - Deductions on premiums + Other premiums
Premium supplements	+ Capital income - Interest expenses + Property accounts = <u>Net property income</u> x Technical provisions/equity + technical provisions ratio
Benefits due	+ Benefits paid for daily allowance insurance + Benefits paid for compulsory basic health insurance - Policyholders' contributions to costs + Benefits paid for supplementary insurance + Other insurance costs + Adjustment to provisions for insurance claims not yet settled/actuarial provisions
Changes in technical provisions	- Adjustment for holding gains
= Insurance service	
+ Gross property income	
+ Other operating income	
+ Compensation received for administrative costs	
+ Health insurance contributions	
= Total health insurance output	

The adjustment for holding gains is determined by calculating the result excluding holding gains and losses, after adjusting the technical provisions and security reserves for the different insurance types and before any allocation to equity. If this result is positive, there is no adjustment for holding gains when calculating the service. If, however, the result is negative, an adjustment for holding gains is made corresponding to the deficit.

Interest expenses are estimated by applying the average mortgage rate published by the SNB to the mortgage debt amount for a sample of funds.

Gross property income is calculated by applying the rate of return on Suva's properties in comparison to their purchase value to the purchase value of sickness fund properties.

Intermediate consumption excluding FISIM

The intermediate consumption of sickness funds is composed of the following:

	Administrative premises and operating equipment expenses
+	IT expenses
+	Marketing and advertising costs
+	Other administrative expenses
+	Other operating expenses
+	Purchase of reinsurance services
+	Investment management costs
+	Property-related expenses
=	Intermediate consumption excluding FISIM

The management costs obtained from the profit-and-loss accounts do not take into consideration the reinsurance service bought by sickness funds ceding part of their risks. This service is implicitly included in the reinsurance premiums paid by these funds. Using a reinsurance matrix (see Chapter 2.3.4), the reinsurance service produced and imported is allocated to the different institutional sectors and the rest of the world in proportion to the reinsurance premiums paid by ceding funds.

The investment management costs correspond to the item 'capital charges', from which interest expenses have been deducted.

The property-related expenses for buildings owned by the sickness funds are estimated using the ratios applicable to Suva.

Estimates at the previous year's prices

Output

- Insurance services: extrapolation using a volume index consisting of the annual change in the number of policyholders for which at least one invoice for a hospital stay or outpatient care has been processed.
- Real estate services: deflation by the annual variation in the CPI item 'rent'.
- Other operating income: deflation by the annual variation in the CPI items 'leisure-time courses' and 'durable merchandise' (weighting of 50%/50%).
- Compensation received for administrative costs and health insurance contributions: deflation by the Swiss Wage Index for NOGA division 65 and the implicit deflator of intermediation consumption related to sickness fund's operations. The weighting of these indices is derived from the structure of the sickness fund's operating expenditure as regards the split between value added and intermediate consumption.

Intermediate consumption excluding FISIM

- Insurance-related IC: deflation by the annual variation in the weighted sum of different indices (CPI, deflator of Suva's IC, deflator of the insurance service of indemnity insurance companies).

- Property-related IC is deflated using the deflator of intermediate consumption of Suva's properties. This index is derived from the weighting of different CPIs on the basis of the structure of intermediate consumption of properties owned by Suva.
- The weighting is based on the structure of sickness funds expenditure. This index is derived from the weighting of different CPIs based on the structure of intermediate consumption of properties owned by Suva.
- Purchase of reinsurance services: deflation is carried out for each individual reinsurer (on the production side). The value at the previous year's prices is then allocated to consumers using the reinsurance matrix (see Chapter 2.3.4).

Cantonal building insurers (ECAIs)

Data source

Description	Produced by
Cantonal building insurers annual reports	ECAIs
Financial statistics for the 19 cantonal building insurers	Association of Cantonal building insurers(AEAI)
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The total output value of the ECAIs is composed of the following:

Components	2011, in CHF millions
Insurance service	451
+ Output of real estate services	61
+ Financing by private insurance companies	31
+ Contribution for fire prevention officers	27
+ Contribution for fire prevention officers through a premium supplement	91
+ Fees	5
+ Other market output	31
= Output	696

The insurance service output of the ECAIs is calculated according to the equations set out at the beginning of Chapter 2.3., the components of which are estimated on the basis of the following:

Component	Accounting item
Gross premiums earned for own account	Premiums earned for cover against fire, natural events and water damage - Contributions for fire prevention officers - Premiums paid for outward reinsurance *
Premium supplements	Market value of investments in shares × Rate of return on shares held by Suva = <u>Accrued dividends (a)</u> Market value of other financial investments × Rate of return on bonds held by Suva = <u>Interest (b)</u> Market value of mortgages, loans and term investments × Average mortgage rate applicable to Suva = <u>Interest (c)</u>

	$(a) + (b) + (c) = \text{Investment income, excluding holding gains and losses}$ + Return on property rental - Share of the net operating surplus on properties in Suva's property income - Net operating surplus on ECAI properties (d) = <u>Net property income (a+b+c+d)</u> $\times \frac{\text{technical provisions}}{\text{equity} + \text{technical provisions}}$ **
Benefits due for own account	Benefits for fire and natural events claims - Share assumed by CIREN ²⁵ in damage caused by natural events + Contents insurance and water damage claims + Claims paid under CIREN + Changes in provisions for unpaid claims - Reinsurers' share in claims due - Withdrawal of equity (capital transfers)
Changes in technical provisions	Risk compensation provisions + Surplus and rebate participation - <i>Adjustment to remove holding gains</i>
= Insurance service	
+ Output of real estate services	
+ Financing by private insurance companies	
+ Contribution for fire prevention officers	
+ Fees	
+ Other market output	
= Total output of ECAIs	

* Reinsurance with the Intercantonal Reinsurance Union (UIR). The ECAIs' flows are considered net of reinsurance in order to avoid any double counting and to ensure consistency in the treatment of the individual ECAIs.

** By applying this ratio, the return on equity investments can be removed.

The baseline data used to estimate the insurance service produced by the ECAIs are the profit-and-loss accounts published in their respective annual reports. Given that the chart of accounts and the way of recording revenue and expenditure are not uniform across the ECAIs, the aggregation of the individual economic accounts in order to obtain a single account applicable for all ECAIs takes into consideration the characteristics specific to each. Consequently the economic accounts feature a large number of accounting items, which are sometimes redundant. Knowledge of each ECAI's specific accounting system is essential in order to develop methods for estimating national accounts flows.

The ECAIs share the same reinsurer, the Intercantonal Reinsurance Union (Union intercantonale de réassurance (UIR)). As this unit belongs to subsector S.128, it was decided to consolidate the flows concerning these two types of unit. Accordingly, net reinsurance flows are taken into account when calculating the ECAIs' insurance service.

The ECAIs are often responsible for preventing and tackling fires. For this reason, they receive a contribution towards fire-fighting from policyholders and private companies offering contents insurance. In some ECAIs, contributions from policyholders are recorded as premiums earned. However, we consider these amounts to be another form of output.

Adjustments are required in respect of CIREN, firstly, in order to reduce the claims due for ECAIs that benefit from CIREN's assistance and, secondly, to increase the claims due for those ECAIs that must pay

²⁵ Intercantonal Community for Risks from Natural Elements (Communauté Intercantonale de Risques Eléments Naturels), a mutual association formed by the ECAIs and the Intercantonal Reinsurance Union (UIR) to deal with damage caused by natural disasters. Each ECAI and the UIR jointly assumes the risk of natural disaster risks in proportion to their size. Joint cover in this respect comes to CHF 750 million.

for this assistance. These adjustments ensure consistent accounting treatment, thus preventing any double counting.

In view of the different ways of recording capital income (gross or net, with or without holding gains), it is necessary to estimate interest and dividends on the basis of information concerning the investments. For some ECAs, investments can be categorised as described in the AEAI's financial statistics. The rates of return excluding holding gains are the same as those calculated for Suva's investments, for which detailed information is available. The structure of Suva's property rental costs is also used to determine the net operating surplus for real estate services.

Withdrawals of equity (D.99) are estimated by analysing the changes in reserve funds regarded as equity within each ECAI. Any decrease in these funds is considered to be a capital transfer.

The adjustment for holding gains is the amount of gains net of holding losses after deduction of the payment to the investment fluctuation reserve. This amount is calculated for the individual ECAs and only positive amounts are taken into account.

To estimate the net operating surplus on property, a ratio obtained from analysing Suva's accounting data is applied to the output value of the properties.

Other market output consists of property rental income, contributions to fire prevention and fire-fighting, fees and other revenue.

Intermediate consumption excluding FISIM

The intermediate consumption of the ECAs is composed of the following:

Administrative costs of insurance activities

+ Grants to public authorities

= Insurance management costs (a)

Administrative costs of insurance activities

× $\frac{\text{Wages}}{\text{Administrative costs}}$ ratio

= Insurance management staff costs (b)

(a) - (b) - Depreciation = Intermediate consumption related to insurance operations (A)

Administrative costs of fire prevention officers

+ Correction for fire prevention officers' expenditure

+ Current expenditure for fire-fighting

= Management costs for fire-fighting and prevention (d)

Administrative costs of fire prevention officers

× $\frac{\text{Wages}}{\text{Administrative costs}}$ ratio

= Administrative costs for fire prevention officers (e)

(d) - (e) - Depreciation for fire prevention officers = Intermediate consumption for fire prevention and fire-fighting activities (B)

(A) + (B) + Property-related intermediate consumption = Intermediate consumption excluding FISIM

The baseline data used to estimate the intermediate consumption of the ECAs are taken from the annual reports. Total IC consists of IC for the insurance activity, IC for fire prevention and fire-fighting activities and property-related IC. To work out intermediate consumption, wages and depreciation are deducted from the administrative costs. Wages are estimated using the ratios calculated with reference to the ECAs that publish detailed information on the wages paid. Property-related IC, meanwhile, is estimated using Suva's cost structure.

Estimates at the previous year's prices

Output

- Insurance services: extrapolation using a volume index consisting of the annual change in the total sum insured by greater region, as deflated by the annual change in the Construction Price Index for the respective greater region.
- Real estate services: deflation by the annual variation in the CPI item 'rent'.
- Financing by private insurance companies: deflation by the implicit deflator of the sums insured.
- Contribution for fire prevention officers: extrapolation by the insurance service volume index.
- Fees: no deflation, as it is assumed that the nominal change in fees corresponds to the change in volume.
- Other revenue: deflation by the annual variation in the nominal wage index for division 84.

Intermediate consumption excluding FISIM

Deflation by the annual variation derived from the weighting of different CPIs based on the structure of Suva's intermediate consumption.

2.3.3 Reinsurance

Private reinsurance corporations supervised by FINMA

Output

The total output value of private reinsurance companies is composed of the following:

Components	2011, in CHF millions
Reinsurance service	7 171
+ Output of real estate services	100
+ Other market output	148
= Output	7 419

The output value related to reinsurance services is calculated according to the equations set out in the *Output* section and consists of the following:

Actual premiums earned	Gross premiums written - Change in gross amount of premiums carried forward - Reinsurance commission for reinsurance accepted
Premium supplements	Investment income (direct income) + Interest debited on technical reserves + Other income from insurance activities - Direct income from land and buildings - Direct income from derivative financial instruments - Interest credited/paid on gross technical liabilities - Interest charges for liability financing - Interest charges for equity financing = <u>Net property income</u> × Technical provisions/(equity + technical provisions) ratio = Property income drawn from the technical provisions + Gains/losses in life insurance in connection with investment funds + Bonuses credited + Charges for surplus participation
Claims due	Gross amount of claims paid + Changes in claims provisions + Adjustment to changes in provisions for claims not yet settled - Changes in equalisation provisions

	<ul style="list-style-type: none"> - Withdrawal of equity (capital transfers) + Correction of claims for run-off activities
Changes in technical provisions	<ul style="list-style-type: none"> Change in mathematical provisions, gross amount - One-off adjustments of mathematical provisions + Change in other technical provisions + Surplus and rebate participation - <i>Adjustment to remove holding gains</i>
= Reinsurance service	
+ Output of real estate services	
+ Other market output	
= Total output of reinsurance companies	

The baseline data used to estimate the insurance service produced by professional reinsurers are the profit-and-loss accounts of resident reinsurance companies. The adjustment for branches abroad is made on the basis of information gathered in the FSO's survey of reinsurance companies with staff abroad. This survey uses the definitions and structure of economic accounts featured in the questionnaire that FINMA sends to insurance companies as part of its supervision. It is possible, therefore, to adjust the different profit-and-loss account items. At sectoral level, however, no information is available for foreign branches, other than whether they belong to the life or non-life insurance sector. For this reason, an initial calculation by sector is made on the basis of the non-adjusted information for branches. A correction to the life reinsurance and non-life reinsurance service is then applied for the companies in question.

Given that reinsurance companies have dealings only with insurance companies or other reinsurers, no claims management expenses are included in the technical account item 'gross amount of claims paid'. As in the case of indemnity insurance, the reinsurance commission deducted from premiums is estimated using the commission rate. The difference between the amounts obtained this way and the item 'commission and profit shares from business accepted for reinsurance' is regarded as a current transfer.

The various adjustments are estimated in the same way as for life and indemnity insurance, using the individual data and taking account of the adjustments for foreign branches. The changes in equalisation provisions are taken into account only in the event of a release following heavy losses. Other market output consists of other income resulting from reinsurance activities.

Intermediate consumption excluding FISIM

The intermediate consumption of private reinsurance companies is composed of the following:

	Administration costs
+	Other costs for insurance activities
+	Investment management costs
=	<i>Reinsurance company management costs</i>
-	Gross wages and salaries for insurance-related activities
-	Depreciation of equipment
+	Property management fees
-	Gross wages and salaries for property management activities
=	<i>Intermediate consumption of reinsurance companies excluding outward reinsurance</i>
+	Purchase of reinsurance services
=	<i>Intermediate consumption of reinsurance companies excluding FISIM</i>

The baseline data used to estimate the intermediate consumption of private reinsurance companies subject to the supervision of FINMA is that gathered by FINMA and corrected for the flows concerning foreign branches by incorporating the information obtained in the FSO survey.

The comments made in respect of life insurance companies apply equally to reinsurance companies (see Chapter 2.3.1).

2.3.4 Reinsurance services by sector

Since reinsurance services can be defined as insurance for re(insurers), a balance must be ensured between its output, import, (intermediate) consumption and export. The premiums paid by resident (re)insurers making use of reinsurance, the premiums earned by resident reinsurers (including reinsurance by life and indemnity insurance companies) and the premiums exported and imported can be calculated from the various statistical sources mentioned previously, and with reference to additional information supplied by the SNB as part of its work producing the report on the Swiss balance of payments. Using these different sources, and applying certain hypotheses, a matrix can be produced showing the amount of premiums paid by type of ceding company (type of insurance company, including rest of the world) and type of beneficiary (type of reinsurance company, including rest of the world). Reinsurance services are allocated by two methods:

- a) For domestic output: in proportion to the premiums paid to resident reinsurers by the different types of ceding companies;
- b) For imports: by applying to premiums paid abroad the $\frac{\text{services}}{\text{premiums}}$ ratio observed for resident producers.

The allocation in nominal terms is also applied to the values at the previous year's prices, the imports having been deflated by the implicit deflator of reinsurance services produced in Switzerland.

Estimates at the previous year's prices

Output

The individual components of the output value of reinsurance companies are deflated in different ways:

- As there is no observable price for the reinsurance service, the service's value at the previous year's prices is estimated using a volume index. As a general rule, this volume index consists of the change from the previous year in the difference between the gross mathematical provisions and adjusted claims due, deflated by the annual change in the Consumer Price Index (CPI):

$$\frac{\text{math. prov.} + \text{adjusted claims due in } t}{(1 + \text{annual change in CPI in } t)} (\text{math. prov.} + \text{adjusted claims due in } t - 1) \times 100$$

Nevertheless, if the index and/or corresponding implicit deflator obtained this way is too high or too low, it is sometimes replaced by another measuring the change in premiums earned.

$$\frac{\text{premiums earned in } t}{(1 + \text{annual change in CPI in } t)} \times (\text{premiums earned in } t - 1) \times 100$$

In such cases, the index giving the most plausible result is chosen in practice. These indices are calculated by company and for each sector.

- Real estate services: deflation by the annual variation in the 'rent' CPI.
- Other market output: deflation by the annual variation in the nominal wage index for division 65 (see sheet on deflation).

Intermediate consumption excluding FISIM

In order to deflate the intermediate consumption, it is divided into two categories.

- Purchase of reinsurance services: deflation is carried out for each individual reinsurer (on the production side). The value at the previous year's prices is then allocated to consumers using the reinsurance matrix.
- Other intermediate consumption: deflation using an index derived from the weighting of different CPIs according to the structure of administrative costs relating to Suva's insurance operations, and disregarding the expenditure specific to Suva.

2.3.5 Pension funding services

Pension funds

Data sources

Description	Produced by
Basic pension fund statistics	FSO, Neuchâtel
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

The units covered are pension schemes:

- Type 1 pension schemes: pension schemes with statutory benefits and active employees. They are covered on an annual basis;
- Type 2 pension schemes: benevolent funds, financing foundations and pension funds that are frozen or about to cease operating. They are covered every five years, with the exception of employment figures and the balance sheet total, which are provided annually. Such schemes are of marginal significance, accounting for less than 2.6% of the balance sheet total for pension schemes in 2010, and their treatment is not described below. It is essentially a question of using information on type 1 pension schemes, combined with the basic data that are recorded every five years.

Estimates at current prices

Output

The total output value of pension funds is composed of the following:

Components	2011, in CHF millions
Insurance services	2 240
+ Gross property income	5 091
+ Income from services provided	79
= Output	7 410

Gross property income and income from services provided are the accounting items recorded. The output value related to insurance services is calculated according to the equations set out at the beginning of Chapter 2.3., the components of which are estimated on the basis of the following:

Social contributions for own account	Statutory and supplementary contributions by policyholders and employers + Payments into and changes in employer contribution reserves + Adjustment of the changes in employer contribution reserves + Contributions from financing foundations + Single payments and buy-backs by policyholders and employers - <i>Private insurance premiums</i>
Premium supplements	+ Actuarial interest
Social benefits for own account	Old-age, survivors' and invalidity pensions + Other pensions + Extra-statutory pensions + Lump-sum retirement, death and extra-statutory benefits - <i>Annuities and lump-sum benefits from private insurance companies</i>
Changes in household entitlements to pension funds (a) + (b) + (c)	Changes in the pension assets of working and retired policyholders + Changes in technical provisions + Return on savings capital = <u>Change in pension assets and technical provisions a)</u> <i>Single payments to private insurance companies</i>

	<ul style="list-style-type: none"> + <i>Use of the share of insurance dividends</i> - <i>Other private insurance benefits</i> - <i>Bonuses distributed by insurance companies</i> + Vested benefits transferred and paid out in cash + Advance payments for home ownership + Advance payments in the event of divorce - Inward transfer of vested benefits - Reimbursement of advance payments for home ownership - Reimbursement of payments in the event of divorce + Actuarial reserves transferred in the event of collective transfers - Actuarial reserves received in the event of collective transfers = <u>Impact of vested benefits, collective transfers and reinsurance on changes in actuarial reserves (b)</u> Change in property value - Gains net of losses on securities - Changes in the value fluctuation reserve - Changes in non-technical provisions + Income surplus - Expenditure surplus - Contributions to uncommitted funds in the event of returning policyholders + Adjustment for releases from employer contribution reserves - Restructuring contributions - Adjustment relating to technical interest = <u>Adjustment to remove holding gains (c)</u>
= Insurance service of pension funds	
+ Gross property income	
+ Income from services provided	
= Total output of pension funds	

The data obtained from the pension statistics relate only to pension schemes with statutory benefits and active policyholders (type 1 pension schemes). Additional information is needed, therefore, in order to take account of flows concerning benevolent funds, financing foundations and pension funds that are frozen or about to cease operating (type 2 pension schemes). While there are many of these units (2411 in 2011), they are relatively insignificant in monetary terms (in 2011 they accounted for 2.5% of the balance sheet total and 2.6% of expenditure compared with type 1 pension schemes).

Data concerning type 2 pension schemes is collected only every five years (those years ending in 0 or 5) using a shortened questionnaire, except for the number of units and balance sheet total, which are recorded on an annual basis. Even in those years in which data are gathered, some estimates are necessary, such as of the way in which the balance sheet total is split between the different categories of investment and liabilities. This is done on the basis of the data collected in the old pension fund statistics,²⁶ which allow a basic structure of investments and liabilities to be established as it stood in 2002, and of trends in the different categories of investments and liabilities recorded for type 1 pension schemes. In the years in which no data are collected, the generation of income account flows must all be estimated. In this case, too, use is made of the information available for previous years and the trends observed for type 1 pension schemes. The 2010 questionnaire for type 2 pension schemes was altered to resemble the questionnaire for type 1 schemes. In 2010, therefore, exhaustive data were collected for all economic account items. In the years that followed, the estimates for type 2 pension schemes were revised. They are now based on the information gathered in 2010.

²⁶ Detailed and exhaustive data was collected for type 2 pension schemes until 2002.

The pension fund statistics cover all type 1 pension schemes, including those which have been fully reinsured (collective pension funds). These units receive the contributions, but transfer them in their entirety to a life insurance company. Similarly, the annuities they pay out are covered by payments from the insurance companies that reinsure them. For that reason, a collective pension funds does not manage its actuarial reserves itself and, consequently, does not have a lot of assets. Since the risk is handled by the insurance company, it is the latter that builds the technical provisions and invests this capital.

In this respect, a problem with double counting arises, as in the FINMA report business transferred by collective and semi-autonomous (partially reinsured) pension schemes is treated as direct life insurance business. Accordingly, it is taken into account when calculating the insurance service of life insurance companies. The flows transferred to private insurance companies are removed when calculating the service provided by pension funds. This measure was also made necessary by the fact that, in order to calculate the insurance service, the change in pension assets and the premium supplement must be known, which is not possible with collective pension funds, as already explained. We therefore calculate the insurance service in terms of the risks actually assumed by the pension funds themselves.

ESA 2010 has introduced a new definition of the amount of investment income payable on pension entitlements (D.442, in ESA 95 – D.44), stating that it must be equal to the technical interest on pension liabilities, i.e. to the return on pension assets and the increase in pensioners' retirement assets due at the discount rate.

The change in pension assets and technical provisions is not the same as the change in household entitlements to pension funds, as the actuarial reserves do not vary solely in terms of contributions and benefits but are also influenced by other circumstances, such as:

- a) **Vested benefits flows:** 'vested benefits' does not just refer to the transfer of pension assets from one pension fund to another but also to the holding of the pension savings accumulated in the event that the policyholder is not working (in the form of a vested benefits account with a bank or a vested benefits policy with an insurance company) or, in some circumstances, the cash payment of the full vested benefits. The balance of vested benefits flows is not zero, therefore, for pension funds as a whole. Under the national accounts, vested benefits are not regarded as a benefit²⁷ or any other form of redistributive flow.
- b) **Early withdrawals:** the Occupational Pensions Act (loi sur la prévoyance professionnelle – LPP) provides for the advance payment of assets accumulated with a pension fund in order to buy a home, as well for the transfer of part of these assets to a spouse in the event of divorce. In the national accounts, these cases are treated in the same way as vested benefits flows. In fact, these early withdrawals reduce the entitlement to old-age, death and invalidity benefits and are not regarded as social benefits.
- c) **Collective transfers:** these take place when a pension fund transfers part or all of its policyholder portfolio to another fund. The balance of these flows most likely represents discrepancies in the accounting records for these flows between the different pension schemes.
- d) **The balance of flows with insurance companies:** this adjustment has a dual function. On the one hand, it enables vested benefits flows for collective pension schemes that have been taken into account in the adjustment for vested benefits flows to be disregarded, without having any impact on AF.612.²⁸ On the other hand, it means that the purchase of annuities from insurance companies for semi-autonomous pension schemes can be reflected.

It is necessary, therefore, to eliminate the impact these factors have on the change in actuarial reserves and technical provisions.

²⁷ After all, the vested benefits are paid out before any of the events against which the pension scheme offers cover (survival, death or invalidity).

²⁸ Indeed, for collective pension schemes there are no actuarial reserves on the liability side of the balance sheet.

It has become evident that releases from employer contribution reserves are not used solely to compensate for the non-payment of contributions but also to improve the financial situation of pension funds. Releases for the latter purpose should not be regarded as employers' social contributions, but as capital transfers (D.99). In order to identify such instances, it is necessary to look at the individual data on pension schemes.

The adjustment for holding gains is calculated on the assumption that the value fluctuation reserve, non-technical provisions and disposable assets are formed or released by holding gains/losses or restructuring contributions. The amount of holding gains/losses remaining is regarded as affecting the change in actuarial reserves.

The adjustment relating to technical interest entails taking into account the share of technical interest not covered by property income in the strictest sense (interest, dividends and net operating surplus on properties) but in all likelihood by holding gains.

Intermediate consumption excluding FISIM

The intermediate consumption of pension funds is composed of the following:

	Administrative costs
+	Marketing and advertising costs
-	Wages
+	Property-related expenses
+	Administrative costs of investments
+	Purchase of guarantee fund services
=	Intermediate consumption excluding FISIM

The data are taken from the pension fund statistics, with the exception of the purchase of guarantee fund services. This amount corresponds to the output value of the guarantee fund and represents an internal allocation to subsector S.128.

Estimates at the previous year's prices

Output

- Insurance services: extrapolation using a volume index consisting of the annual change in the sum of benefits due for own account and the accumulated retirement savings, deflated by the annual variation in the 'total' CPI:

$$\frac{\text{retirement savings} + \text{benefits due in year } t}{1 + \text{annual change in CPI in } t} \times \frac{100}{\text{retirement savings} + \text{benefits due in year } t - 1}$$

- Real estate services: deflation by the annual variation in the 'rent' CPI.
- Provision of services to third parties: deflation by the annual variation in the Swiss Wage Index for NOGA division 66.

Intermediate consumption excluding FISIM

- Administrative costs excluding wages: deflation by the annual variation in the weighted sum of different CPI positions. The weighting is based on the cost structure of the pension fund BLVK.
- Investment management costs: deflation by the deflator of intermediate consumption of properties owned by Suva.
- Purchase of guarantee fund services: implicit deflator of guarantee fund output.

2.3.6 Independent insurance agents and brokers

Data sources

Description	Produced by
Life and non-life insurance company estimates	FSO, National Accounts section
Annual report of Visana SA	Visana SA
Annual report of EGK Services AG	EGK AG
Statistics on Value Added	FSO, Neuchâtel
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The output of independent insurance agents and brokers consists of the following components:

Components	2011, in CHF millions
Commission paid to independent agents by life insurance companies	763
Commission paid to independent agents by non-life insurance companies	1 476
+ Payments to Visana Services AG	232
+ Payments to EGK Services AG	62
= Output	2 533

Output corresponds to the commission paid by life and indemnity insurance companies to independent agents and brokers. The total commission paid by life and indemnity insurance companies is divided into commission paid to in-house agents and commission paid to independent agents when calculating the intermediate consumption of insurance companies.

Insurance corporations belonging to the Visana and EGK groups are run by Visana Services AG and EGK Services AG respectively, for which they receive compensation, which is regarded as the output value for these units (sector 662902: 'other activities auxiliary to insurance').

Intermediate consumption excluding FISIM

The intermediate consumption of insurance agents and brokers is composed of the following:

	Output of independent agents
*	Share of IC in output value
+	Intermediate consumption of Visana Services AG
+	Intermediate consumption of EGK Services AG
=	Intermediate consumption of independent agents excluding FISIM

Intermediate consumption is obtained by applying a proportion to the output value. This proportion is fixed and was estimated by analysing the structure of the profit and loss accounts of division 74 for 1990 to 2000 as set out in NOGA 2002, and in accordance with the *Statistics on Value Added*.

Estimates at the previous year's prices

Output

The commission deflator is the change in the commission rate from the previous year. This is calculated by dividing the total amount of commission paid (commission paid to in-house agencies and commission paid

to independent agents) by the life and indemnity insurance companies by the amount of gross premiums written by these companies.

The output of Visana Services AG and EGK Services AG is deflated by the deflator of Suva's IC.

Intermediate consumption excluding FISIM

IC is deflated using an index derived from the weighting of different CPIs according to the structure of administrative costs relating to Suva's insurance operations, and disregarding the expenditure specific to Suva.

2.3.7 Other activities auxiliary to insurance

Old-age and survivors' (AVS) compensation funds

Data source

Description	Produced by
Profit and loss accounts of AVS compensation funds	Federal Social Insurance Office (FSIO), Bern
Annual reports of cantonal compensation funds	Cantonal compensation funds
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The total output value of AVS compensation funds is composed of the following:

Components	2011, in CHF millions
Contribution to the fund	387
+ Fees	22
+ Compensation for administrative costs	91
+ Income from services provided	332
+ Miscellaneous administrative income	26
= Output	857

Contributions to the fund are the amounts paid by members of the fund to cover administrative costs, in the form of a supplement to the rate of AVS contributions due.

AVS compensation funds are required by law to perform certain tasks in connection with invalidity and unemployment insurance, family allowances and supplementary benefits. For this they receive compensation for administrative costs. If the AVS compensation funds manage invalidity insurance offices, the compensation they receive is recorded as other income from services provided.

Intermediate consumption excluding FISIM

The intermediate consumption of AVS compensation funds is composed of the following:

	Rents paid and property-related expenses (if not specified)
+	Cleaning, heating and lighting costs
+	Office expenses
+	Shipping costs and telephone charges
+	Operating expenditure

+	External auditors' fees for the fund and its branches
+	Fees for external employer inspections
+	Compensation paid to agencies
+	Compensation paid to the tax authorities
+	Ordinary services provided by third parties
+	Miscellaneous administrative income
=	Intermediate consumption excluding FISIM

The level of detail concerning expenditure by AVS compensation funds is not the same for each fund. As a result, it has been possible to distinguish between the different categories of expenditure for some, while, for others, only the general expenditure groups are available.

Estimates at the previous year's prices

Output

Extrapolation using a volume index consisting of the annual change in the number of beneficiaries of AVS and invalidity pensions and compensation for loss of income.

Intermediate consumption

Deflation using the deflator of Suva's IC.

2.4 The general government sector (S.13)

According to ESA 2010, the general government sector (S.13) consists of 'institutional units which are non-market producers whose output is intended for individual and collective consumption, and which are financed by compulsory payments made by units belonging to other sectors, and institutional units principally engaged in the redistribution of national income and wealth' (p.44).

The general government sector is subdivided into four subsectors:

1. Central government (excluding social security funds) (S.1311);
2. State government (excluding social security funds) (S.1312);
3. Local government (excluding social security funds) (S.1313);
4. Social security funds (S.1314).

In the Swiss national accounts, the 'general government' sector (S.13) is composed of the following four institutional subsectors:

- S.1311: Confederation
- S.1312: Cantons
- S.1313: Municipalities
- S.1314: Social security funds

Sector S.13 does not include the various public, market producers where these are recognised as legal entities. As a result, undertakings such as Swiss Post, SBB CFF FFS (the Swiss Federal Railways) and RUAG are covered by the non-financial corporations sector and assigned to the relevant economic divisions. By the same logic, hospitals, nursing homes and institutions for psychosocial cases are extracted from cantonal or municipal data and added to the non-financial corporations sector. Churches are also removed from cantonal or municipal data, in spite of having the characteristics of non-market producers. They are incorporated into the NPISHs sector.

Since the various components of the value added are calculated for each subsector of S.13, they are described separately under the relevant headings. Their relative importance is shown in the table below (2011, in CHF millions).

Subsectors	GOV	IC	GVA	Share
S.1311	17 482	5 749	11 733	18.6%
S.1312	40 400	8 116	32 284	51.2%
S.1313	30 088	11 399	18 689	29.6%
S.1314	1 544	1 165	379	0.6%
S.13 total	89 513	26 429	63 085	100.0%

2.4.1 Confederation (S.1311)

Data sources

Description	Produced by
State financial statement	Federal Finance Administration (FFA), Bern
Public Finances in Switzerland	FFA, Bern
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The total output value is estimated by the sum of its costs, then separated into market output, output for own final use and non-market output.

Components	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption	P.2	5 749
Consumption of fixed capital	P.51C	5 046
Compensation of employees	D.1	6 687
= Total output	P.1	17 482
- Market output	P.11	1 070
- Output for own final use	P.12	2 054
= Non-market output	P.13	14 358

The calculation of intermediate consumption is explained later in the chapter, while that of consumption of fixed capital is described in Chapter 2.7.2.

The compensation of employees consists of the following components:

Wages and salaries (D.11)

+ Employers' actual social contributions (D.121)

+ Employers' imputed social contributions (D.122)

Gross wages and salaries D.11	Authorities, committees and judges + Administrative and operational staff + Additional teaching and research staff + DDPS (Federal Department of Defence, Civil Protection and Sport) instructors + Staff working for external bodies - Staff connected with 'current international cooperation' - Staff costs corresponding to 'other current transfers' - Retirement pensions of magistrates and their survivors - Other staff costs
Actual social contributions D.121	Social security contributions + Employer pension contributions + Health and accident insurance contributions + Social security contributions of staff working for external bodies - Social contributions corresponding to flows D.74 and D.75 - Retirement pensions paid by employers - Contributions related to 'other staff expenditure'
Imputed social contributions D.122	Benefits + Benefits paid by employers in the event of short-term illness + Childcare allowances - Items corresponding to flows D.74 and D.75

In order to calculate the **market output (P.11)** of the confederation, we take into account the income from sales of the external bodies²⁹ as well as different revenue sources (from property, sales, fees and others). From these revenues, the revenues from penalties that are recorded in D.75 is subtracted.

²⁹ The ten external bodies are as follows:

- Federal Institutes of Technology (EPF/ETH), Swiss Alcohol Board (RFA/EAV), Swiss National Science Foundation (SNF-FNS), Swiss National Tourist Office, Foundation for Buildings for International Organisations (FIPOI), Pro Helvetia, Swiss Federal Institute for Vocational Education and Training (SFIVET), Swiss National Museum (MNS/SNM), Federal Institute of Metrology (METAS), Organisation for Feed-in Remuneration At Cost (RPS/KEV).

Output for own final use (P.12) is composed of the following:

- Capitalisation of services for own account (NRM 437)
- + R&D output for own final use
- + External bodies' output for own final use
- = Output for own final use

Non-market output is derived by residual.

Intermediate consumption

Components	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption	P.2	5 749
Intermediate consumption excluding FISIM	P.2 to P.119	5 699
FISIM	P.119	50

Intermediate consumption excluding FISIM is equal to the aggregation of the following elements:

<ul style="list-style-type: none"> Goods and services and other operating expenditure + Temporary workers + Other staff costs + Weapons expenditure (35%) + Compensation for cantons + Compensation for municipalities + Share of 'other contributions to third parties' - Item '309000/3090001 fw_/nf_Kinderbetreuung [Childcare]' - Item '311101 Construction civile [Civil engineering]' - Items related to computer programs (hardware and software) - Non-capitalised investments - Item '31198 Pertes sur créances [credit losses]' - Item '3142 Routes nationales en construction non portées à l'actif [main roads under construction not yet recorded as an asset]' - Correction of the amount paid by the Confederation to the SNF-FNS, which should be recorded as D.73. - Intermediate consumption resulting from foreign transfers - Other current transfers + Intermediate consumption of the 10 external bodies = <u>Intermediate consumption excluding FISIM</u>
--

The amount of FISIM is taken directly from the estimates made for division 64 (see Chapter 2.2.2).

Estimates at the previous year's prices

Output

- Compensation of employees: deflation by the annual variation in the Swiss Wage Index for NOGA division 84;
- Intermediate consumption: see below;
- Consumption of fixed capital: see Chapter 2.7.

Market output

Each component is deflated by the annual variation in the relevant CPI:

- Housing rental (4002)
- Public services

- Merchandise
- Spirits (2002)

Output for own final use

The components are deflated by the following deflators:

- 'Services' CPI
- R&D

'Reimbursements to the UN' and 'Compensation for loss of income, invalidity pension and Suva reimbursements' are subtracted from '5360 Reimbursements'. There is no specific deflator for these items, for which reason an implicit deflator of P.11 excluding reimbursements is calculated by dividing the nominal value of P.11 by the real value of P.11 (excluding reimbursements) as calculated beforehand. This deflator is then applied to the nominal value of total P.11 (including reimbursements).

The total market output is deflated by the implicit deflator of market output excluding reimbursements.

Other non-market output is derived by residual, with the exception of the COFOG function 'education', which is obtained by applying a volume index (Laspeyres volume index) that consists of the annual change in the number of pupils/students weighted by the cost per pupil/student for each ISCED³⁰ class. The volume index can be formulated as follows:

$$\frac{\sum_i^n x_i^{t-1} n_i^t}{\sum_i^n x_i^{t-1} n_i^{t-1}} \times 100$$

where: n_i^t : number of pupils for the ISCED class i at the time t

x_i^t : cost per pupil for the ISCED class i at the time t .

Intermediate consumption

Each component of the intermediate consumption excluding FISIM is deflated by the annual variation in the relevant CPIs, listed as follows:

- 'Services' CPI
- 'Private services' CPI
- 'Public services' CPI
- 'Merchandise' CPI
- 'Durable merchandise' CPI
- 'Spirits' CPI
- Implicit deflator of gross fixed capital formation of 'capital goods'; see Chapter 3.2.1.

The deflation of FISIM is explained in Chapter 2.2.2.

2.4.2 Cantons (S.1312)

Data sources

Description	Produced by
Financial statistics for all cantons, combination by function and by nature	FFA, Bern
Public Finances in Switzerland	FFA, Bern
State accounts	Cantons
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

³⁰ International Standard Classification of Education.

Output

The total output value is estimated by the sum of its costs, then separated into market output, output for own final use and non-market output

Component	2011, in CHF millions
Intermediate consumption	8'116
+ Consumption of fixed capital	7'249
+ Compensation of employees	25'035
= Total output	40'400
- Market output	5'718
- Output for own final use	2'985
= Non-market output	31'697

The calculation of **intermediate consumption** is explained later in the chapter, while that of consumption of fixed capital is described in Chapter 2.7.

The **compensation of employees** consists of the following components:

Gross wages and salaries
+ Employers' (actual) social contributions
+ Employers' (imputed) social contributions

Gross wages and salaries	Authorities, committees and judges + Administrative, technical and operational staff + Teaching staff
Actual social contributions	Social security contributions + Pension funds + Health and accident insurance - Social contributions linked to deducted wages and salaries
Imputed social contributions	- Staff costs linked to 'Benefits paid to retirees' + Allowances

Market output consists of the following components:

Administrative fees
+ Revenue from hospitals and specialised institutions
+ School fees
+ Other usage fees and services
+ Sales
+ Compensation from third parties
+ Own payments for investments
+ Other contributions
+ Revenue related to 'heritage buildings'
+ Property transfer and stamp duties
= Market output

The non-market output is derived by residual.

Intermediate consumption

Components	2011, in CHF millions
Intermediate consumption excluding FISIM	7 989
+ FISIM	127
= Intermediate consumption	8 116

Intermediate consumption excluding FISIM is composed of the following:

Office and teaching supplies and printed matter
+ Heating, lighting and water
+ Other goods
+ Third-party services related to property maintenance
+ Third-party services related to the maintenance of furnishings
+ Rents, land rents and usage fees
+ Compensation
+ Fees and services
- Net indemnity insurance premiums
+ Miscellaneous costs
+ Transfers in kind
+ Temporary staff
+ Grants awarded to municipalities (part corresponding to compensation)
= <u>Intermediate consumption excluding FISIM</u>

The amount of FISIM is taken directly from the estimates made for division 64 (see Chapter 2.2.2).

Estimates at the previous year's prices

Output

- Compensation of employees: deflation by the Swiss Wage Index for NOGA division 84;
- Intermediate consumption: see intermediate consumption;
- Consumption of fixed capital: see Chapter 2.7.

Market output: each component is deflated by the annual variation in the relevant CPI, listed as follows:

- 'Services'
- 'Public services'
- 'Merchandise'

Other non-market output is derived by residual, with the exception of the function 'education', which is obtained by applying a volume index (Laspeyres volume index) that consists of the annual change in the number of pupils/students weighted by the cost per pupil/student for each ISCED³¹ class (see Chapter 2.4.1).

Intermediate consumption

Each component is deflated by the annual variation in the relevant CPI, listed as follows:

- 'Merchandise' CPI
- 'Durable merchandise' CPI
- 'Energy' CPI
- 'Housing rental' CPI
- 'Services' CPI

³¹ International Standard Classification of Education.

- 'Private services' CPI
- 'Public services' CPI
- Implicit deflator of GFCF (capital goods)
- Implicit deflator of GFCF (construction)

The deflation of FISIM is explained in Chapter 2.2.2.

2.4.3 Municipalities (S.1313)

Data sources

Description	Produced by
Financial statistics for the municipalities	Federal Finance Administration (FFA), Bern
Municipal accounts	Cantons
Expenditure and revenue for towns and cantonal capitals	24 towns and 12 cantonal capitals
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Estimates at current prices

Output

The total output value is estimated by the sum of its costs, then, where necessary, separated into market output, output for own final use and non-market output.

Components	2011, in CHF millions
Intermediate consumption	11'399
+ Consumption of fixed capital	5'084
+ Compensation of employees	13'605
= Total output	30'088
- Market output	8'991
- Output for own final use	54
= Non-market output	21'043

The calculation of intermediate consumption is explained in the following section, and that of consumption of fixed capital in Chapter 2.7.2. Compensation of employees and market output are based on the same components as in S.1312 but at municipal level.

Other non-market output is derived by residual.

Intermediate consumption

Components	2011, in CHF millions
Intermediate consumption	11 399
Intermediate consumption excluding FISIM	11 234
FISIM	165

Intermediate consumption excluding FISIM is based on the same elements as those taken into consideration for S.1312. The amount of FISIM is taken directly from the estimates made for division 64 (see Chapter 2.2.2).

Estimates at the previous year's prices

The method is identical to that used for the cantons (S.1312).

2.4.4 Social security funds (S.1314)

Subsector S.1314 corresponds to NOGA division 843. This division covers social security schemes for old age, widowhood, invalidity, unemployment and loss of income due to maternity or to military or civilian service etc. In Switzerland the insurance schemes that come under subsector S.1314 are as follows:

- Old-age and survivors' insurance (AVS)
- Invalidity insurance (AI)
- Compensation for loss of income (APG)
- Unemployment insurance (AC)
- Family allowances for agricultural workers (AFA)
- Maternity insurance in the Canton of Geneva (AMat).

The Central Compensation Office for AVS/AI/APG in Geneva (CCO) belongs to the Confederation subsector (S.1311), while the AVS compensation funds and occupational and cantonal family compensation funds are part of sector S.125 (division 66).

Data sources

Description	Produced by
Activity report	CCO, Geneva
Balance sheet and generation of income account for AVS and APG, AI accounts	CCO, Geneva
Annual report	AVS compensation fund, Geneva
Statistical Yearbook of the CCO	CCO, Geneva
Swiss Social Insurance Statistics	Federal Social Insurance Office (FSIO), Bern
AI Statistics	FSIO, Bern
Trial balance of the AC compensation fund	State Secretariat for Economic Affairs (SECO), Bern
Administrative costs of unemployment funds	State Secretariat for Economic Affairs (SECO), Bern
Annual report	Cantonal Social Insurance Office, Geneva
Activity report	Maternity Insurance Compensation Fund, Geneva
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

Output

The output value for subsector S.1314 is the sum of the output values of each type of social insurance (AVS, AI and APG are calculated together). In the calculations, individual institutions are grouped together by type of social insurance (2011, in CHF millions).

INSURANCE TYPE	GOV	IC	GVA	Share of GVA
AVS/AI/APG	837	623	214	56.5%
AC	681	518	163	43.0%
AFA	2	2	0	0.0%
AMat	3	2	1	0.3%
<i>Adjustment for P.51C*</i>	0	0	0	0.0%
<i>FISIM**</i>	20	20	0	0.0%
S.1314 total	1 544	1 165	379	100.0%

* Accounting data on depreciation are replaced by the standardised values for the national accounts in respect of the subsector total only.

**FISIM are estimated for the subsector total only.

As with the other elements of S.13, the total output value is estimated by the sum of its costs, then, where necessary, classified as market output and other non-market output. No output for own final use is estimated for the subsectors of sector S.13, and the market output is marginal.

Components	2011, in CHF millions
Intermediate consumption	1 165
+ Consumption of fixed capital	10
+ Compensation of employees	369
= Total output	1 544
- Market output	5
= Other non-market output	1 539

Consumption of fixed capital is later replaced by the standardised values defined for this subsector in the national accounts (see Chapter 2.7).

AVS/AI/APG	Cantonal office costs	Administrative costs + Depreciation of property belonging to AI offices
	Purchase of services from the Confederation	+ Implementation costs
	Other administrative and management expenditure	AVS investment costs + AVS compensation fund costs + Cost of AVS and AI recourse claims + AVS and AI special services + AVS and AI examination costs + AVS , AI and APG costs and expenditure + Flat-rate franking costs for AVS, AI and APG
AC	Costs of cantonal, occupational and federal compensation funds	CCO implementation costs for AC + Compensation fund costs
	AC compensation fund costs	+ AC compensation fund administrative costs
	AC fund costs	AC fund administrative costs - Costs for which the funds are liable - Unauthorised administrative costs
	Cantonal employment office costs	+ Administrative costs of cantonal employment offices
	IT centre costs	+ IT centre administrative costs
	Other administrative and management expenditure	+ Liability risk subsidy + Reimbursement of legal costs + Fees for examination by an advising physician + Advances for judicial expenses + Miscellaneous expenses
AFA		+ Purchase of services from the CCO and AVS compensation funds + Management fees
AMat	+Purchase of services from AVS compensation funds	+ Management fees
	Other administrative and management expenditure	+ Staff costs + Member benefits + Administrative costs

Intermediate consumption

Components	2011, in CHF millions
Intermediate consumption	1 165
Intermediate consumption excluding FISIM	1 146
FISIM	20

The expenditure items taken into account when estimating the output value include depreciation and compensation of employees. In the majority of cases, these components can be isolated and subtracted in order to obtain the intermediate calculation. In other cases, such as that of the AI offices, the separation of intermediate consumption and compensation of employees/depreciation is achieved using ratios observed for similar units or derived from other sources.

The amount of FISIM is taken directly from the estimates made for division 64 (see Chapter 2.2.2).

Estimates at the previous year's prices

Output

AVS/AI/APG/AC/AFA/AMat: for each type of insurance, the number of beneficiaries in year t is multiplied by the unit cost per beneficiary in year t-1. This unit cost is calculated by dividing the nominal output value in year t-1 by the number of beneficiaries in t-1.

The subsector's real output value is obtained by adding together the real values recorded for the various insurance types. The implicit deflator derived for output may also be applied to each of its components (market output and other non-market output).

Intermediate consumption excluding FISIM

AVS/AI/APG: deflation of the individual components of IC by the annual variation in the following CPIs:

- Rent
- Electricity
- Housing maintenance and repair services
- Railways
- Communications
- Repairs and installations
- Books, newspapers and stationery
- Lifelong learning
- Services
- Postal services
- Medical services
- Private services

The amount of FISIM in volume terms is taken directly from the estimates made for division 64 (see Chapter 2.2.2).

2.5 Non-profit institutions serving households (NPISHs) (S.15)

According to ESA 2010, the non-profit institutions serving households (NPISHs) sector (S.15) consists of *'non-profit institutions which are separate legal entities, which serve households and which are private non-market producers. Their principal resources are voluntary contributions in cash or in kind from households in their capacity as consumers, from payments made by general government and from property income.'*

The legal forms of NPISHs are essentially associations and foundations. In the Swiss national accounts, sector S.15 covers four economic divisions:

- 87: Residential care activities
- 88: Social work activities without accommodation
- 91: Libraries, archives, museums and other cultural activities
- 94: Activities of membership organisations

These economic divisions also include producer units in sectors S.11 and S.14, which means that the total value added for these divisions is the sum of the value added of sectors S.11, S.14³² and S.15.

NOGA	Description
873002	Institutions for disabled persons
872001	Institutions for drug addicts
872002	Institutions for psychosocial cases
879001	Residential homes for children and young people
879002	Correctional institutions
879003	Other residential homes
881000	Day centres for disabled persons, sheltered workshops
889901	Charitable institutions
889902	Other social activities n.e.c.
910100	Library and archives activities
910200	Museums activities
910300	Operation of historical sites and buildings and similar visitor attractions
910400	Botanical and zoological gardens and nature reserves activities
942000	Activities of trade unions
949101	Activities of religious organisations
949102	Monasteries and convents
949200	Parties and political organisations
949901	Cultural, educational, scientific and research organisations
949902	Healthcare organisations
949903	Youth organisations
949904	Other interest groups n.e.c.

Data sources

Description	Produced by
Business Census (BC)	FSO, Neuchâtel
Employment statistics (STATEM)	FSO, Neuchâtel
Structural business statistics (STATENT)	FSO, Neuchâtel
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel

³² For the calculation of the value added of sectors S.11 and S.14, see Chapter 2.1.

Estimates at current prices

Components	ESA 2010 flow code	2011, in CHF millions
Output	P.1	15 777
Market output	P.11	5 410
Output for own final use	P.12	312
Other non-market output	P.13	10 055
- Intermediate consumption	P.2	5 958
Intermediate consumption excluding FISIM	P.2 to P.119	5 681
FISIM ³³	P.119	277
= Gross value added	B.1b	9 819
- Consumption of fixed capital	P.51c	1 686
= Net value added	B.1n	8 132

Output

As with any non-market producer, the total output value is estimated by the sum of its costs, then, where necessary, separated into market output and other non-market output. Output for own final use consists solely of own-account R&D output.

Components	ESA 2010 flow code	2011, in CHF millions
= Compensation of employees	D.1	8 132
+ Intermediate consumption	P.2	5 958
+ Depreciation	P.51c	1 686
= Output	P.1	15 777

Compensation of employees is drawn from AVS payroll data, which are available for 2011 onwards.

Intermediate consumption

Please see below.

Consumption of fixed capital

See Chapter 2.7.2.

Finally, the overall output value is split between the individual NOGA divisions concerned (87, 88, 91 and 94), in proportion to the number of FTEs in each. The distinction between market and non-market output is made on the basis of the revenue structure recorded in the 1985 census, which provided information about employment (FTEs), production costs,³⁴ and wages for each economic division under the old ASWZ/NGAE³⁵ nomenclature.

³³ Financial intermediation services indirectly measured (FISIM). See [FISIM sheet](#).

³⁴ The variables recorded are staff costs, depreciation and other costs (equipment, interest, maintenance, rent and other costs).

³⁵ General Nomenclature of Economic Activities.

Intermediate consumption

The data collected in the 1985 Business Census provide information about the cost structure of NPISHs by NGAE sector. Use of a classification key has enabled the data for each NGAE sector to be assigned to the corresponding NOGA division. The cost structure allows us to calculate the proportion of intermediate consumption to compensation of employees. This proportion is fixed and is applied to flow D.1 for each year. By adding together the intermediate consumption of each NOGA division as calculated by this method, the intermediate consumption of sector S.15 can be obtained.

Finally, the FISIM corresponding to sector S.15 must also be added to calculate the final intermediate consumption value for sector S.15.

Accounting item	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption excluding FISIM	P.2 to P.119	5 681
+ FISIM	P.119	277
= Intermediate consumption including FISIM	P.2	5 958

Estimates at the previous year's prices

Output

Total output

- Compensation of employees: deflation based on the annual variation in the Swiss Wage Index for each division. These values are then aggregated to obtain the compensation of employees for sector S.15.
- Intermediate consumption: see below.
- Consumption of fixed capital: see Chapter 2.7.

Market output

The $\frac{\text{market output}}{\text{total output}}$ ratio at current prices is applied to the deflated total output value. Other non-market output is derived by residual.

Intermediate consumption

Deflation using the annual variation in the following CPIs, weighted according to the cost structure obtained from the 1985 census:

- Housing rental;
- Goods and services for routine household maintenance;
- Energy;
- Office machinery and accessories;
- Books, newspapers and stationery.

Finally, the FISIM in terms of volume that correspond to S.15 must also be added.

As with the nominal values (output value and intermediate consumption), the values at the previous year's prices for sector S.15 are subsequently split between the individual NOGA divisions concerned (87, 88, 91 and 94) in proportion to the number of FTEs.

2.6 Taxes and subsidies on products

Taxes and subsidies on products are added to the sum of value added in order to obtain the value at market prices. Unlike other types of tax or subsidy (e.g. direct payments to farmers), they are directly linked to the units of goods or services produced or traded (amount per unit of quantity or percentage of unit price or value). The subsidies in question concern payments to producer units only and do not include, for instance, any transfers to NPISHs.

2.6.1 Taxes on products

According to ESA 2010, taxes on products (D.21) are 'taxes that are payable per unit of a given good or service produced or transacted. The tax may be a specific amount of money per unit of quantity of a good or service, or it may be calculated as a specified percentage of the price per unit or value of the goods and services produced or transacted. Taxes assessed on a product, irrespective of which institutional unit pays the tax, are included in taxes on products, unless specifically included under another heading (ESA 2010, p. 92).

There are three types of taxes on products (ESA 2010, pp. 92-93):

- a) **Value added type taxes (VAT) (D.211):** 'a tax on goods or services collected in stages by enterprises and which is ultimately charged in full to the final purchaser'. These taxes therefore include both the value added tax collected by general government (S.13) and applied to national or imported products, and other deductible taxes applied under similar rules to those governing VAT.
- b) **Taxes and duties on imports excluding VAT (D.212):** 'compulsory payments levied by general government or the institutions of the European Union on imported goods, excluding VAT, in order to admit them to free circulation on the economic territory, and on services provided to resident units by non-resident units'.
- c) **Taxes on products, except VAT and import taxes (D.214):** 'taxes on goods and services that become payable as a result of the production, export, sale, transfer, leasing or delivery of those goods or services, or as a result of their use for own consumption or own capital formation'.

Data sources

The data are identical to those used in the general government sector (S.13) estimates.

The following tables show the taxes on products by component and authority:

Components	ESA 2010 flow code	2011, in CHF millions
Taxes on products	D.21	35 106
Value added type taxes (VAT)	D.211	21 506
Taxes and subsidies on imports	D.212	6 551
Taxes on products	D.214	7 050

Authorities	2011, in CHF millions
Confederation	34'428
Cantons	623
Municipalities	56
Total	35'106

Estimates at current prices

Different items are added together to obtain the desired flow. Nothing further is done with the administrative data used.

Value added type taxes (VAT) (Confederation only)	VAT revenue - under-compensation of VAT in agriculture
Taxes and subsidies on imports (Confederation only)	Customs duties on imports (4060) + Mineral oil tax on engine oils (40460) + Mineral oil surtax on engine oils (40461) + Mineral oil tax on combustibles and other mineral-oil-based products (40462) + Automobile tax (4050)
	<ul style="list-style-type: none"> ▪ <u>Confederation:</u> <ul style="list-style-type: none"> Stamp duties + Tobacco duty + Beer tax + Tax on excess deliveries by milk producers + Tax on gaming establishments + Revenue from the auctioning of tariff quotas in agriculture ▪ <u>Cantons:</u> <ul style="list-style-type: none"> + Property transfer and stamp duties + Entertainment tax + Cantonal stamp duty + Other taxes on property and expenditure + Share of lottery, Sport-Toto and betting revenue + Taxes on gambling establishments and slot machines + Capital transfers by general government to the relevant sectors in notified taxes and contributions that are unlikely to be collected (D.995). ▪ <u>Municipalities :</u> <ul style="list-style-type: none"> + Property transfer and stamp duties + Taxes on gambling establishments and slot machines + Entertainment tax + Other taxes on property and expenditure + Stamp duty + Share of lottery, Sport-Toto and betting revenue + Capital transfers by general government to the relevant sectors in notified taxes and contributions that are unlikely to be collected (D.995).

Estimates at the previous year's prices

Value added type taxes (VAT): extrapolation on the basis of the change in the volume of output on which VAT is payable. This output is calculated as follows:

Total output
+ Imports
- Exports
- Intermediate consumption
- Investments
+ Household investment in construction
- Inventory changes
= <u>Output on which VAT is payable</u>

Taxes and subsidies on imports: extrapolation on the basis of the change in the volume of goods imported.

Other taxes on products: extrapolation on the basis of the change in volume of the output value of the economic divisions in question. For instance, the change in volume of tobacco duties is the same as the change in volume of the output of the division 'manufacture of tobacco products'.

2.6.2 Subsidies on products

According to ESA 2010, taxes on products (D.31) are '*subsidies payable per unit of a good or service produced or imported. The subsidy may be a specific amount of money per unit of a good or service or it may be calculated ad valorem as a specified percentage of the price per unit. [...] By convention, subsidies on products can only pertain to market output [P.11] or to output for own final use [P.12]*' (SEC 2010, pp. 95 to 96).

Estimates at current prices

Data sources

The data are identical to those used in the general government sector (S.13) estimates.

Confederation	Contributions paid to state organisations (e.g. LV SBB Betrieb Infrastruktur) and to third parties (e.g. Regionaler Personenverkehr)
Cantons	Contributions to public enterprises and to private enterprises operating in the following functions of the financial statistics: legal affairs, transport in the agglomerations and electricity.
Municipalities	As for the cantons

The table below shows the subsidies on products by authority:

Authorities	2011, in CHF millions
Confederation	2 474
Cantons	9 365
Municipalities	1 088
Total	12 927

Confederation

The Confederation defines the term 'subsidy' as 'a contribution to a third party'. This means any assistance granted to natural or legal persons that do not belong to the federal government or institutions of the Confederation.³⁶ The Confederation's definition also covers the transfers it makes to foundations, such as the Swiss National Sound Archives, or to international organisations by way of financial support for humanitarian operations. As far as the national accounts are concerned, the former transfer represents a 'miscellaneous current transfer' (D.75), as it is a transfer to a 'non-profit institution serving households'³⁷ (S.15), while the latter is an example of 'current international cooperation'³⁸ (D.74).

Subsidies on products are calculated by adding together all accounting items corresponding to these subsidies. Analysis is carried out on a case-by-case basis for each subsidy granted by the Confederation.

³⁶ See the handbook '*Directives et instructions relatives à la gestion budgétaire et comptable de la Confédération*' [Guidelines and instructions on national budgetary and accounting management], FFA: http://intranet.accounting.admin.ch/handbuch_hh/index.html?lang=fr.

³⁷ NPISHs supply non-market goods and services to households.

³⁸ ESA 2010 defines the flow D.74 as 'all transfers in cash or in kind between general government and governments or international organisations in the rest of the world [...]'. It should be noted that international organisations belong, by definition, to the 'rest of the world' sector (S.2), even if their headquarters are in Switzerland.

Cantons and municipalities

In the case of the cantons and municipalities, flow D.31 is calculated by adding together the costs arising from the cost categories '3634 Contributions to public enterprises'³⁹ and '3635 Contributions to private enterprises' for the following functions of the financial statistics:

- 4110 Hospitals
- 4120 Nursing homes
- 4130 Psychiatric clinics
- 6220 Regional transport
- 6230 Transport within the agglomerations
- 6310 Maritime transport

Allocation of subsidies on products by division

Based on their descriptions, the subsidies in question can be assigned to the divisions which benefit from them (see the table below). These subsidies concern sectors S.11 and S.14 only. They are added to the output (excluding subsidies) of the following recipient divisions (see Chapter 2.1.3):

01	Crop and animal production, hunting and related service activities
02	Forestry and logging
03	Fishing and aquaculture
10	Manufacture of food products
12	Manufacture of tobacco products
28	Manufacture of machinery and equipment n.e.c.
35	Electricity, gas, steam and air conditioning supply
49	Land transport and transport via pipelines
51	Air transport
53	Postal and courier activities
72	Scientific research and development
71	Architectural and engineering activities; technical testing and analysis
81	Services to buildings and landscape activities
85	Education

Estimates at the previous year's prices

The subsidies at current prices are grouped by economic division and deflated by the output deflator for the relevant divisions.

2.7 Consumption of fixed capital

Consumption of fixed capital (P.51C) represents the amount of fixed assets used up, during the period under consideration, as a result of normal wear and tear and foreseeable obsolescence, including a provision for losses of fixed assets as a result of accidental damage which can be insured against. Although consumption of fixed capital is not a component of GDP, the latter being estimated on a gross basis, it is explained here because of its indirect role in estimating the output values of the different non-market producers. Before consumption of fixed capital can be calculated, the net non-financial capital stock must be estimated, as described below.

Data sources

Identical to those for gross fixed capital formation (GFCF, see Chapter 3.2.1).

³⁹ See the FFA publication 'State financial statement' for details of the national system for classification by nature.

2.7.1 Net non-financial capital stock

Net non-financial capital stock reflects the state of an economy's fixed assets, i.e. its non-financial wealth. In Switzerland, the fixed assets included in non-financial capital stock are housing, civil engineering works, machinery and equipment, cultivated assets and software. They are the same as the assets derived from gross fixed capital formation (see Chapter 3.2.1 for a list of the relevant goods).

As Switzerland has no information on the stock of fixed assets, the net capital stock (NCSt) is estimated using the **perpetual inventory method** (PIM). This method involves adding together the investments made over the service life specified for each type of good, then estimating their net value, i.e. their value after taking account of depreciation and assets withdrawn from the stock. In the case of Switzerland's NCSt, the depreciation method applied is the **geometric double-declining method**. This approach has the advantage of taking into consideration two elements: the **depreciation** and the **life-length** of the assets in question. It takes account, therefore, of the retirement of assets, whether they are withdrawn from the stock because they are reaching the end of their service lives or whether they have been withdrawn prior to this point. Furthermore, it reflects the fact that an asset depreciates greatly in the first year of its life, with its value then declining gradually according to its lifespan. Rates of depreciation (which take implicit account of life lengths) are calculated as follows:

$$\text{depreciation rate} = \frac{1}{0.5 \times \text{lifespan of asset, in years}}$$

These rates give rise to coefficients, which, when applied to the investments made, enable their residual (or net) value after n years to be obtained:⁴⁰

$$\text{net value}_t = \text{value of investment}_{t-n} \times (1 - \text{depreciation rate}) \times n$$

If ' n ' represents the service life of an asset, the NCSt for this asset is obtained by adding together the net values calculated on the basis of the GFCF for the N previous years.

More formally, the NCSt of item i at the time t can be written as follows:

$$SDCN_{i,t} = \sum_{j=0}^n (1 - \delta_i)^j FBCF_{i,t-j}$$

where:

j = number of years of existence of asset i

n = service life in years

δ_i = rate of depreciation of asset i

$FBCF_{i,t-j}$ = GFCF of asset i during period $t-j$

For the purposes of this estimate, capital goods are grouped at NOGA level 2 and construction classified according to the institutional sector and the type of construction (buildings or civil engineering) in question. These calculations are done at disaggregated level and are based on data expressed in prices of a reference year (2010 in Switzerland's case) to ensure that past investments are given the same value (constant replacement costs). Finally, the implicit deflators derived from the calculation of gross fixed capital formation for each type of item are used as price indices in order to obtain the values at current prices.

The NCSt of cultivated assets and animals is estimated in the context of the primary-sector economic accounts and directly integrated. The service life of fixed assets is defined in the following way:

⁴⁰ This value becomes zero once the lifespan of the asset (N) has been reached.

Fixed assets	Lifespan (years)
Fabricated metal products, except machinery and equipment	18
Machinery and equipment	18
Computer, electronic and optical products	7
Electrical equipment	15
Manufacture of motor vehicles, trailers and semi-trailers	10
Other transport equipment	20
Research and development	10
Computer programming and consultancy	4
Construction	50
Military expenditure	35
Small fruits	8
Industrial crops	12
Arboriculture	15
Hops	20
Vines	25
Textiles, excluding wearing apparel	10
Ceramic articles, china	10
Manufacture of furniture	15
Musical instruments, sports goods, games and medical supplies	10
Installation of machinery	18

The stock of animals is not subject to any depreciation and is directly incorporated into the fixed assets. More detailed information on the concept of capital stock (gross or net) is contained in the document *Stock de capital net non financier: rapport méthodologique*, second edition, published by the FSO in Neuchâtel in 2013 (in French and German).⁴¹ In particular, the document provides information about the backward extrapolation carried out in order to obtain series on investment in capital goods and construction that are long enough for the calculations to be possible.

2.7.2 Consumption of fixed capital

ESA 2010 defines consumption of fixed capital (CFC) as 'the amount of fixed assets used up, during the period under consideration, as a result of normal wear and tear and foreseeable obsolescence'. CFC, or depreciation, should be calculated for all fixed assets, whether tangible or intangible. Only animals are not subject to depreciation. CFC is calculated for all assets taken into account in gross fixed capital formation (see Chapter 3.2.1), namely capital goods and construction. It should, however, be published by institutional sector and not by category of assets. Construction stock data are available by institutional sector, meaning that it can be inserted directly into the calculation of depreciation by sector. Data on capital goods stocks, on the other hand, are available by asset type only, which means that capital goods need to be broken down by sector. This distinction by sector is explained below (depreciation of capital goods).

The calculation of depreciation is based on the net capital stock for all depreciable assets. Firstly, it is necessary to refer back to the investment series in order to have a long series at the previous year's prices, with the reference year being t-1. For instance, when calculating depreciation for the year 2010, a chain-linked series is required, with 2009 as the reference year.

⁴¹ <http://www.bfs.admin.ch/bfs/portal/fr/index/news/publikationen.Document.83377.pdf>

CFC, at the previous year's prices, with $t-1$ as the reference year, is equal to the sum of $NCSt_{t-1}$ and $GFCF_t$, less $NCSt_t$.

$$CCF_t = SDCN_{t-1} + FBCF_t - SDCN_t$$

CFC at current prices is obtained by 'inflating'⁴² CFC at the previous year's prices, with $t-1$ as the reference year, using the corresponding implicit deflator.

a) Construction

The average lifespan of construction assets (buildings and civil engineering) is set at 50 years. The NCSt of construction assets is calculated by sector and by type of construction. The CFC of construction assets is estimated by applying the equation set out above to the NCSt of construction assets in each sector. This gives the NCSt by institutional sector at the previous year's prices, with $t-1$ as the reference year. Using the implicit deflator these results can be inflated to obtain the CFC at current prices.

b) Capital goods

Capital goods are available by category of assets. NCSt is calculated for each category of capital goods. Using the above equation the CFC of capital goods at the previous year's prices can be obtained. These amounts are then inflated to give the CFC of capital goods at current prices.

If the data by sector are taken directly from the calculations relating to construction assets, depreciation on capital goods is allocated to the various sectors using a distribution key. The latter is determined on the basis of past investments (nominal and real values) accumulated over a period of 10 years.

⁴² Inflating is the inverse operation of deflating, i.e. multiplying values at the previous year's prices by the deflator to obtain the values at current prices.

3. Expenditure approach

The first part of this document was concerned with methods of estimating GDP according to the production approach. As stated in the introduction, GDP may also be calculated using the expenditure approach, that is by aggregating final consumption expenditure, gross capital formation and the balance of trade (exports less imports of goods and services).

- a) **Final consumption expenditure** consists of expenditure incurred by resident institutional units on goods or services that are used for the direct satisfaction of individual needs or wants or the collective needs of members of the community' (ESA 2010, p. 70). Final consumption expenditure may take place on the domestic territory or abroad. It may be incurred by households (S.14), general government (S.13) and NPISHs (S.15);
- b) **Gross capital formation** consists of gross fixed capital formation (capital goods and construction), changes in inventories and acquisitions less disposals of valuables;
- c) The **balance of trade** is exports of goods and services minus imports of goods and services.

All flows relating to expenditure are valued at purchasers' prices, thereby ensuring their compatibility with GDP valued at market prices using the production approach.

The following table shows the different components of GDP and the share they account for under the expenditure approach.

Component of expenditure	ESA 2010 flow code	2011, in CHF millions	Share
Final consumption expenditure	P.3	399 802	64.7%
Households and NPISHs	S.14 + S.15	333 417	53.9%
General government	S.13	66 385	10.7%
Gross capital formation	P.5	66 124	26.9%
Gross fixed capital formation	P.51b	144 596	23.4%
- Capital Goods	P.5111be	90 059	14.6%
- Construction	P.5111c	54 537	8.8%
Changes in inventories	P.52	4 385	0.7%
Acquisitions less disposals of valuables	P.53	17 142	2.8%
Exports of goods and services	P.6	406 706	65.8%
Exports of goods	P.61	306 871	49.6%
Exports of goods without non-monetary gold	P.61c	228 615	37.0%
Exports of services	P.62	99 834	16.1%
Imports of goods and services	P.7	354 306	57.3%
Imports of goods	P.71	280 762	45.4%
Exports of goods without non-monetary gold	P.71c	185 204	30.0%
Imports of services	P.72	73 544	11.9%
Gross domestic product	B.1*b	618 325	100.0%

3.1 Final consumption expenditure

3.1.1 Household final consumption expenditure

Household final consumption expenditure (HFCE) is published according to 12 different consumption purposes (COICOP⁴³ level 1), which are shown below.

COICOP	Description	2011, in CHF millions	Share in %
1	Food and non-alcoholic beverages	29 391	9.1
2	Alcoholic beverages, tobacco and narcotics	11 820	3.7
3	Clothing and footwear	10 987	3.4
4	Housing, water, electricity, gas and other fuels	80 856	25.0
5	Furnishings, household equipment and routine household maintenance	13 490	4.2
6	Health	45 026	13.9
7	Transport	30 868	9.5
8	Communication	7 761	2.4
9	Recreation and culture	28 804	8.9
10	Education	1 924	0.6
11	Restaurants and hotels	22 808	7.1
12	Miscellaneous goods and services	39 628	12.3
	Total	323 363	100

Data sources

Description	Produced by
Household Budget Survey (HBS) ⁴⁴	FSO, Neuchâtel
Retail Trade Turnover Statistics (DHU)	FSO, Neuchâtel
Empty Dwellings Census	FSO, Neuchâtel
Building and Housing Statistics	FSO, Neuchâtel
Survey concerning the structure of rental payments and average prices	FSO, Neuchâtel
Structural survey and occupancy status of dwellings	FSO, Neuchâtel
Work Volume Statistics (WV)	FSO, Neuchâtel
Swiss Labour Force Survey (SLFS)	FSO, Neuchâtel
Health system costs and financing	FSO, Neuchâtel
Road Motor Vehicle Statistics	FSO, Neuchâtel
Statistics on pupils and students	FSO, Neuchâtel
Population and Households Statistics (STATPOP)	FSO, Neuchâtel
Federal Population Census	FSO, Neuchâtel
Per capita consumption of alcoholic beverages in Switzerland	Swiss Alcohol Board (RFA/EAV), Bern
Foreign trade statistics	Swiss Customs Administration (AFD/EZV), Bern
Overall energy statistics	SFOE, Bern

⁴³Classification of Individual Consumption According to Purpose, established within the System of National Accounts (SNA). The definition of the different categories can be found at the following address: <http://unstats.un.org/unsd/cr/registry/regcst.asp?Cl=5&Lg=1>

⁴⁴ Known as the 'Income and consumer expenditure survey' until 2008.

Estimates at current prices

The Household Budget Survey (HBS), which records household expenditure within different categories of consumption, is the reference survey for estimating consumption by individual consumption purpose. Since the national accounts were revised in autumn 2014, 2011 has been the new base year for the calculation of household consumption expenditure. As no particular year emerges as an obvious reference year (it is not a large-scale survey), we have used 'temporal pooling' and the 'pooling of products' to increase the robustness of the reference year. In order to ensure a larger sample size, samples from the years 2010, 2011 and 2012 have been aggregated. This 'temporal pooling' enables the confidence intervals for each HBS item to be reduced, thus boosting the reliability and precision of estimates of the amount spent on each product. The 'pooling of products' makes reference to the COICOP classification system used in the national accounts. The household consumption expenditure results are published at one-digit COICOP level, while the calculations are performed at three-digit COICOP level.

Estimates of HFCE are taken from a number of sources:

- a) HBS data: for certain sub-purposes, accounting for 35% of household consumption expenditure, values are lifted straight from the survey. The HBS records the average monthly expenditure per household and extrapolation for all households is carried out for each of the sub-purposes in question.
- b) For the majority of subdivisions of division 4, constituting 24.4% of total expenditure, figures are taken from the energy statistics and from housing and rental cost statistics.
- c) Division 6, 'Health', represents 14.4% of total expenditure and is based wholly on the Health system costs and financing statistics,
- d) The remainder, which comes to around 26% of consumption expenditure, is drawn from various sources, indicated in the table below. Furthermore, where no specific source exists, a volume index multiplied by a price index is applied, which corresponds to a nominal change.

In the case of some consumption purposes, **collective household expenditure** must also be added for the purpose in question. Collective households include residential homes for the elderly, institutions for people with disabilities, boarding schools, hospitals, prisons and reception centres for asylum seekers. As this category of household is not covered by the HBS, it is necessary to add expenditure by these households to purposes 1, 2, 3, 6 and 9. The amount of collective household expenditure is estimated on the basis of expenditure incurred in respect of the purposes in question and the proportion of the total number of households accounted for by collective households.

Methods of estimation used in the calculation of HFCE by COICOP sub-division.

01 Food and non-alcoholic beverages

Data taken from the HBS.

02 Alcoholic beverages and tobacco

02.1.1 (Spirits), 02.1.2 (Wine) and 02.1.3 (Beer)

Expenditure is obtained by multiplying the following variables:

- volume: litres consumed per capita and per category⁴⁵ (RFA/EAV);
- price: average price per category (RFA/EAV);
- average permanent resident population.

Expenditure on alcoholic beverages purchased in restaurants (a sub-component of division 11), obtained from the HBS, must be deducted from the extrapolated total.

2.2 (Tobacco)

Expenditure is obtained by multiplying the following variables:

⁴⁵ Wine, beer, cider and distilled alcohol.

- volume: number of units (cigarettes or cigars) or quantity (rolling tobacco) sold in Switzerland (AFD/EAV);
- price: price per unit or kg (AFD/EAV).

2.3 (Narcotics)

Data taken from the HBS.

03 Clothing and footwear

Data taken from the HBS.

04 Housing, water, electricity, gas and other fuels

4.1 (actual rentals) and 4.2 (imputed rentals)

An estimate drawn from data gathered in the *Structural Survey* serves as a basis for the calculations. Detailed data are available on the number of dwellings (by number of rooms) rented or owner-occupied and on the rent paid (by number of rooms). By combining, according to the number of rooms, the number of rented dwellings and the rent paid, an estimate can be made for COICOP class 4.1.1. The combination of the number of owner-occupied dwellings and the rent paid enables an estimate to be made for class 4.2.1. For subsequent years, each component of these calculations is extrapolated on the basis of specific indicators:⁴⁶

- Number of dwellings by number of rooms: indicator based on the *Building and Housing Statistics* (a combination of data on new constructions, demolitions, conversions and vacant dwellings);
- Rent by number of rooms: CPI sub-item ('rent').

4.3.1 (Materials for the maintenance and repair of the dwelling) and 4.3.2 (Services for the maintenance and repair of the dwelling):

Data taken from the HBS.

4.4.1 (Water supply); 4.4.3 (Sewage collection)

Expenditure is obtained by multiplying the following variables:

- Water consumption per capita;
- Water price per litre;
- Average permanent resident population.

4.4.2 (Refuse collection)

Data taken from the HBS.

05 Furnishings, household equipment and routine household maintenance

Data are initially taken from the HBS. It is then compared to other indicators, including the Retail Trade Turnover Statistics (DHU). If the HBS data appear implausible, these indicators can be used to make adjustments.

Consumption expenditure on domestic services (05.6.2) corresponds, based on certain assumptions,⁴⁷ to the compensation paid to staff employed for the production of this service. It is estimated annually with regard to the following:

- Annual work volume in millions of hours (WV, divisions 90-98);
- Median gross occupational earnings (SLFS, divisions 90-96).

06 Health

Each component of the division 'health' is taken from the *Health system costs and financing* statistics, which provide information about all direct and indirect household expenditure on health.

⁴⁶ The indicators used are the same for actual and imputed rentals.

⁴⁷ While this expenditure is, by definition, equal to the value of the service produced, the equivalence of consumption expenditure and compensation of employees stems from two assumptions. First of all, the equivalence of the output value and value added is postulated. It is then assumed that the entirety of this value added is paid to the employees in question.

07 Transport

Expenditure is taken from the HBS.

08 Communication

Data taken from the HBS.

09 Recreation and culture

Data is taken from the HBS, except in the case of class 09.4.3 (games of chance), for which the output value for NOGA division 92 is used.

10 Education

Data taken from the HBS (2011).

11 Restaurants and hotels

11.1 (Catering services)

Data taken from the HBS.

11.2 (Accommodation services)

Data taken from the tourism satellite account.

12 Miscellaneous goods and services

Data taken from the HBS, except for the following items:

12.2 (Prostitution)

These services are imputed on the basis of various sources.

12.5.1 (Life insurance)

This expenditure is calculated on the basis of the services provided by life insurance companies, pension funds and the Substitute Occupational Benefit Institution (see Chapter 2.3). The estimated service for the Substitute Occupational Benefit Institution and the estimated direct life insurance service provided by the life insurance companies⁴⁸ are attributed in full to HFCE. The insurance service of pension funds is corrected by the share of the service exported, which is assumed to be proportional to the gross contributions paid by non-residents (cross-border commuters or Swiss employed abroad, taken from various sources).

12.5.2 (Insurance connected with the dwelling)

These services are provided by indemnity insurance companies, the ECAIs and the UIR. The insurance service of indemnity insurance companies relating to properties can be isolated as a first step. Using information contained in the annual reports of the different ECAIs, this service can then be broken down by property type (administrative buildings, residential buildings and other buildings), based on the number of buildings insured. Ultimately, the amount attributed to households relates solely to residential buildings and is derived from the share recorded in the most recent *Population Census*.⁴⁹ This share also determines the amount attributed to the insurance service of the ECAIs and the UIR.⁵⁰

12.5.3 (Insurance connected with health)

Within the insurance service of indemnity insurance companies, health insurance and accident insurance services can be isolated and attributed in full to households. The insurance service of health insurance funds and Suva is corrected by the share of the service exported, which is assumed to be proportional to

⁴⁸ They also produce inward reinsurance and health insurance services. The estimated value of the life insurance service should be increased by the share of stamp duty on insurance premiums in order to obtain the value at purchase cost. This tax applies only to single-premium life insurance policies.

⁴⁹ Share of households among property owners.

⁵⁰ The estimated value of the insurance service of indemnity insurance companies and the ECAIs should be increased by the share of stamp duty on insurance premiums in order to obtain the value at purchase cost.

the gross contributions/premiums paid by non-residents (taken from various sources). The services provided by other accident insurers are attributed in full to households.⁵¹

12.5.4 (Insurance connected with transport)

Insurance connected with transport covers motor insurance and motor-vehicle liability insurance, which are offered only by indemnity insurance companies. The relevant insurance service can be isolated, and the ratio between the premiums paid by households (according to the HBS) and the total premiums earned applied to it.

12.5.5 (Other insurance)

Other insurance consists of general liability insurance, legal protection insurance and family allowances. The latter are managed by family compensation funds (FAKs), the insurance service of which is attributed in full to household consumption expenditure. General liability insurance and legal protection insurance are offered only by indemnity insurance companies. The relevant insurance service can be isolated, and the ratio between the premiums paid by households (according to the HBS) and the total premiums earned applied to it.⁵²

12.6.1 (Financial intermediation services indirectly measured)

This class represents the FISIM allocated to households (see Chapter 2.2.2).

12.6.2 (Other financial services)

This expenditure is based on an estimate of the bank commission paid by households. This estimate is produced according to the following steps:

1. The amount of commission paid by non-bank resident sectors is determined:

Items	Sources:
Commission income	Estimates for subsector S.121/S.127 (Chapter 2.2.2)
- Commission expenses	Annual banking statistics
+ Commission payable abroad	Balance of payments, quarterly survey of interest, commission and trading operations between offices in Switzerland and customers and banks in other countries
+ Commission received from abroad	Balance of payments, quarterly survey of interest, commission and trading operations between offices in Switzerland and customers and banks in other countries
= Commission paid to banks, by non-bank resident counterparties	

⁵¹ As stamp duty does not apply to health and accident insurance, the values do not need to be corrected.

⁵² Separate calculations are performed for general liability insurance and legal protection insurance.

2. The commission is broken down into different components:

Components	Source
Commission on transactions in loans	Share according to the annual banking statistics
Commission on trading operations in securities and investments	Share according to the annual banking statistics
▪ Brokerage fees	Qualitative disclosures
▪ Custody fees	Qualitative disclosures
▪ Issuances	Qualitative disclosures
▪ Fiduciary transactions	Qualitative disclosures
Commission on other services	Share according to the annual banking statistics

3. The share of each component accounted for by households is determined:

- Transactions in loans: allocation in proportion to the amounts due from households (source: annual banking statistics);
- Brokerage fees: in proportion to the amount of securities held by households (source: annual banking statistics);
- Custody fees: in proportion to the amount of securities held by households (source: annual banking statistics);
- Issuances: no allocation to households;
- Fiduciary deposits: in proportion to the amount deposited by households in a fiduciary account (source: annual banking statistics);
- Other services: no allocation to households;

4. Adjustments are made to reflect purchase costs:⁵³ allocation of a share of the stamp duty, after deducting the duty paid by foreign counterparties (source: Balance of payments). This allocation is based the amount of securities held by households.

Finally, an adjustment is made to the results obtained for divisions 1, 2, 3, 6 and 12 in order cover individuals living in collective households,⁵⁴ who are not included in the various statistical sources used. As they account for 3.47% of the population according to the *2000 Population Census*, the corresponding share is added to the aforementioned results.

Estimates at the previous year's prices

Deflation is sometimes carried out at levels lower than the subdivisions listed in the Annex (depending on the degree of detail provided by the HBS). With the exception of classes 12.5.1 to 12.6.2, it is based on various CPI sub-items. Generally speaking, with the HBS serving as a basis for the CPI weighting, it is easy to establish parallels between the estimated items and the subcomponents of the CPI, which is formed of 220 partial indices.

The deflation of classes 12.5.1-12.5.5 is achieved by the same methods as for the components of output value of which they consist (see Chapter 2.3). The deflation of class 12.6.1 (FISIM) is covered in Chapter 2.2.2.

⁵³ Commission is valued at basic prices.

⁵⁴ People who have been living in a hotel, hospital or care facilities etc. for at least six months are deemed to belong to a collective household. Other examples of collective households are residential homes, boarding schools, prisons, monasteries, construction site accommodation and reception centres for asylum seekers.

The deflation of class 12.6.2 is carried out separately for two components:

- Commission consumed by households, at basic prices: Swiss Wage Index, NOGA division 65;
- Stamp duty attributed to households: volume index based on the real change in commission earned by division 65.

3.1.2 NPISH final consumption expenditure

Final consumption expenditure incurred by NPISHs (S.15) is the same as their *other non-market output*. The method of estimating the latter is explained in Chapter 2.5.

3.1.3 Final consumption expenditure of general government

Data sources

The data are the same as those used to estimate the value added of general government (see Chapter 2.4).

General government final consumption expenditure includes two categories of expenditure:

- The value of the goods and services produced by general government itself for purposes other than capital formation and sales. This component is the same as *other non-market output* (see Chapter 2.4.);
- Purchases by general government of goods and services produced by market producers that are supplied to households, without any transformation, as *social transfers in kind*.

Accounting items	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption	P.2	26 429
+ Consumption of fixed capital	P.51c	17 388
+ Compensation of employees	D.1	45 697
+ Social transfers in kind	D.632	5 970
- Market output	P.11	24 006
- Output for own final use	P.12	5 092
= Final consumption expenditure	P.3	66 385

It may also be separated into individual and collective consumption expenditure depending on the nature of the needs it meets. This distinction concerns other non-market output of general government only, since social transfers in kind are, by definition, individual. For the Confederation, cantons and municipalities, the distinction is made according to the activity in question (classification by function)

Type of expenditure	Function
Collective	<ul style="list-style-type: none"> ▪ General government ▪ Justice and police ▪ External relations ▪ National defence ▪ Transport ▪ Environment and land-use planning ▪ Other economic sectors ▪ Finance and taxation
Individual	<ul style="list-style-type: none"> ▪ Training and basic research ▪ Culture and leisure ▪ Health ▪ Social welfare

In the case of social security funds, all consumption expenditure is regarded as individual.

The values for the various subsectors concerned and the different components estimated are shown in the following table (2011, in CHF millions).

Subsectors	Consumption expenditure	Share	Individual	Collective
S.1311	13 078	21%	3 476	9 602
S.1312	27 407	43%	17 626	9 782
S.1313	19 638	31%	11 513	8 125
S.1314	3 130	5%	3 130	0
S.13 total	63 254	100%	35 745	27 509

Confederation

Estimates at current prices

The Confederation's total final consumption expenditure is the sum of the expenditure on each of its COFOG (Classification of the Functions of Government) functions:

1. General public services
2. Defence
3. Public order and safety
4. Economic affairs
5. Environmental Protection
6. Housing and community amenities
7. Health
8. Recreation, culture and religion
9. Education
10. Social protection

The final consumption expenditure (P.3) for each function is expressed by the equation:

$$P.3 = P.2 + D.1 + P.51c + D.632 - P.11 - P.12$$

where:

P.2: intermediate consumption (including FISIM)

D.1: compensation of employees

P.51c: consumption of fixed capital

D.632: social transfers in kind

P.11: market output

P.12: output for own final use

As P.3 is obtained from adding together the above flows, the latter must be calculated first. The first step is to identify the revenue/expenditure or income/costs corresponding to the different types of flow. These flows are then aggregated and allocated by COFOG function.

Secondly, the proportion of revenue/expenditure or income/costs is estimated for each task within the same flow. This proportion is then applied to the total amount of the different flows (P.2, D.1, P.51c, P.11 and P.12) concerning the Confederation.

The following example, applied to flow D.1., illustrates this process: the proportion of the Confederation's total staff costs accounted for by each task is calculated, with this percentage then applied to the total value of D.1 for the Confederation. This gives the total value of D.1. for each task. The same process is repeated

for each function using the following revenue/expenditure and income/costs applicable to the Confederation:

- P.2: cost of goods and services purchased
- P.51c: capital expenditure
- P.11: sales income
- P.12: the capitalisation of services for own account and R&D output for own final use

Only the flow D.632 is obtained differently. The item amounts taken from the Confederation's accounts are lifted directly for each of the four 'individual' tasks. FISIM are already taken into account, since they are included in flow P.2, 'intermediate consumption'.

The following table shows the Confederation's final consumption expenditure.

Accounting items	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption	P.2	5 749
+ Consumption of fixed capital	P.51c	5 046
+ Compensation of employees	D.1	6 687
+ Social transfers in kind	D.632	152
- Market output	P.11	1 788
- Output for own final use	P.12	2 054
= Final consumption expenditure	P.3	13 792

Estimates at the previous year's prices

Other non-market output: see Chapter 2.4.1. The allocation between individual and collective expenditure (excluding social transfers in kind) carried out for the values at current prices can also be applied to the values at the previous year's prices.

Social transfers in kind: deflation by the annual variation in the 'services' CPI.

Cantons

Estimates at current prices

The final consumption expenditure of the cantons (S.1312) is calculated using the same methods as for the Confederation (S.1311), and according to the same functions and revenue/expenditure and income/expenditure items.

The following table shows the cantons' final consumption expenditure.

Accounting items	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption	P.2	8 116
+ Consumption of fixed capital	P.51c	7 249
+ Compensation of employees	D.1	25 035
+ Social transfers in kind	D.632	1 620
- Market output	P.11	11 845
- Output for own final use	P.12	2 985
= Final consumption expenditure	P.3	27 189

Estimates at the previous year's prices

Other non-market output: see Chapter 2.4.1. The nominal allocation between individual and collective expenditure (excluding social transfers in kind) carried out for the values at current prices can also be applied to the values at the previous year's prices.

Social transfers in kind: deflation by the annual variation in the 'services' CPI.

Municipalities

Estimates at current prices

The final consumption expenditure of the municipalities (S.1313) is calculated using the same methods as for the Confederation (S.1311) and the cantons (S.1312), and according to the same functions and revenue/expenditure and income/expenditure items.

The following table shows the municipalities' final consumption expenditure.

Accounting items	ESA 2010 flow code	2011, in CHF millions
Intermediate consumption	P.2	11 399
+ Consumption of fixed capital	P.51c	5 084
+ Compensation of employees	D.1	13 605
+ Social transfers in kind	D.632	2 547
- Market output	P.11	10 368
- Output for own final use	P.12	54
= Final consumption expenditure	P.3	22 213

Estimates at the previous year's prices

Other non-market output: see Chapter 2.4.1. The nominal allocation between individual and collective expenditure (excluding social transfers in kind) carried out for the values at current prices can also be applied to the values at the previous year's prices.

Social transfers in kind: deflation by the annual variation in the 'public services' CPI.

Social security funds (S.1314)

Estimates at current prices

The final consumption expenditure (P.3) of social security funds (S.1314) corresponds to the flow 'social transfers in kind' (D.63), as it is composed of the flows 'social transfers in kind – general government and NPISHs non-market production' (D.631) and 'Social transfers in kind – market production purchased by general government and NPISHs' (D.632).

$$P.3 = P.132 + D.632$$

Accounting items	ESA 2010 flow code	2011, in CHF millions
Other non-market output	P.132	1528
+ Social transfers in kind	D.632	1 660
- market production purchased by general government and NPISHs		
= Final consumption expenditure	P.3	3 188

The following table shows the final consumption expenditure of AVS, AI and APG insurance, as well as AC and AFA funds.

Accounting items	ESA 2010 flow code	AVS, AI and APG	AC	AFA
Other non-market output	P.132	837	677	2
+ Social transfers in kind	D.632	1 579	72	0
- market production purchased by general government and NPISHs				
= Final consumption expenditure	P.3	2 416	748	2
Individual final consumption expenditure	P.31	2 416	748	2
Collective final consumption expenditure	P.32	0	0	0

Estimates at the previous year's prices

Final consumption expenditure (P.3) at the previous year's prices is the sum of *other non-market output* (P.132) at the previous year's prices and *social transfers in kind* (D.632) at the previous year's prices. The method applicable to P.132 is explained in Chapter 2.4.4.

Flow D.632 is deflated using the annual variation in the 'public services' CPI.

3.2 Gross capital formation

3.2.1 Gross fixed capital formation

ESA 2010 defines gross fixed capital formation (GFCF) as follows: '*gross fixed capital formation (P.51) consists of resident producers' acquisitions, less disposals, of fixed assets during a given period plus certain additions to the value of non-produced assets realised by the productive activity of producer or institutional units. Fixed assets are produced assets used in production for more than one year*' (ESA 2010, pp. 73-74).

In the Swiss national accounts, GFCF incorporates the following categories:

- **Tangible fixed assets:** dwellings, other buildings and structures, machinery and equipment, cultivated assets (trees etc. and livestock) and military expenditure.
- **Intangible fixed assets:** computer software and expenditure on research and development (R&D).

Dwellings and other buildings and structures are grouped together in the category 'construction', while machinery and equipment, cultivated assets, computer software and military and R&D expenditure all belong to the category 'capital goods'. The sources and methods of estimation for these two categories are different and are therefore explained here separately.

3.2.1.1. Construction

Data sources

Description	Produced by
Building and Housing Statistics	FSO, Neuchâtel
Construction Price Index.	FSO, Neuchâtel

Estimates at current prices

Estimates are based on data taken directly from the *Building and Housing Statistics*. These data cover all new structures built during the reference year and are available by purpose (residential, industrial, educational etc.), construction type (building or civil engineering structures) or client type. The latter allows for a breakdown by institutional sector, which is required in order to produce the sequence of accounts.

Estimates at the previous year's prices

Investment in construction is deflated using the Swiss Construction Price Index. Deflation is carried out for the two aforementioned areas (buildings and civil engineering works), with a construction price index specific to each. As these price indices are published every six months (April and October), an annual average must be calculated first of all. The annual variation in these indices can then be used to calculate the deflators for the categories 'buildings' and 'civil engineering'. Finally, the gross fixed capital formation at current prices is deflated by the relevant deflators.

3.2.1.2. Capital goods

Data sources

Description	Produced by
Statistics on Output and Value Added	FSO, Neuchâtel
Foreign trade statistics	Swiss Customs Administration (AFD/EZV), Bern
R&D satellite account	FSO, Neuchâtel
Producer Price Index	FSO, Neuchâtel
Import Price Index	FSO, Neuchâtel

Estimates at current prices

Capital goods excluding R&D and military expenditure

In order to identify the goods that make up GFCF in capital goods (excluding R&D and military expenditure), a selection has been made of the NOGA headings concerned. Capital goods are calculated at NOGA-class-level (level 4). The approach taken is, however, product-based and not sectoral. Consequently, the total investment amount of sector x does not refer to the investment made by sector x. In reality, this amount is the total amount of capital goods acquired during the year under consideration by all industries or all institutional sectors.

Capital goods resulting in investment are defined on the basis of the following NOGA codes (level 4):⁵⁵

01, 02, 03	Cultivated assets
1392	Manufacture of made-up textile articles, except apparel
2341	Manufacture of ceramic household and ornamental articles
2530	Manufacture of steam generators, except central heating hot water boilers
2599	Manufacture of other fabricated metal products n.e.c.
2620	Manufacture of computers and peripheral equipment
2630	Manufacture of communication equipment
2640	Manufacture of consumer electronics
2651	Manufacture of instruments and appliances for measuring, testing and navigation
265202	Manufacture and assembly of large clocks
2660	Manufacture of irradiation, electromedical and electrotherapeutic equipment
2670	Manufacture of optical instruments and photographic equipment
2711	Manufacture of electric motors, generators and transformers
2740	Manufacture of electric lighting equipment
2751	Manufacture of electric domestic appliances
2752	Manufacture of non-electric domestic appliances
2790	Manufacture of other electrical equipment
2811	Manufacture of engines and turbines, except aircraft, vehicle and cycle engines
2813	Manufacture of other pumps and compressors
2821	Manufacture of ovens, furnaces and furnace burners
2822	Manufacture of lifting and handling equipment
2823	Manufacture of office machinery and equipment (except computers and peripheral equipment)
2824	Manufacture of power-driven hand tools
2825	Manufacture of non-domestic cooling and ventilation equipment
2829	Manufacture of other general-purpose machinery n.e.c.
2830	Manufacture of agricultural and forestry machinery
2841	Manufacture of metal forming machinery
2849	Manufacture of other machine tools
2891	Manufacture of machinery for metallurgy
2892	Manufacture of machinery for mining, quarrying and construction
2893	Manufacture of machinery for food, beverage and tobacco processing
2894	Manufacture of machinery for textile, apparel and leather production
2895	Manufacture of machinery for paper and paperboard production
2896	Manufacture of plastic and rubber machinery
2899	Manufacture of other special-purpose machinery n.e.c.
2910	Manufacture of motor vehicles
2920	Manufacture of bodies (coachwork) for motor vehicles; manufacture of trailers and semi-trailers
3011	Building of ships and floating structures
3020	Manufacture of railway locomotives and rolling stock
3030	Manufacture of air and spacecraft and related machinery
3091	Manufacture of motorcycles
3092	Manufacture of bicycles and invalid carriages

⁵⁵ While the divisions of the NOGA classification system refer to economic activities, the system is sometimes used to categorise products. In this case, for instance, division 30 [NOGA 2002] would refer to all 'office machinery and computers' purchased or produced, regardless of the industry or institutional sector concerned.

3099	Manufacture of other transport equipment n.e.c.
3101	Manufacture of office and shop furniture (installation not included)
3102	Manufacture of kitchen furniture and bathroom furniture (installation not included)
3103	Manufacture of mattresses
3109	Manufacture of other furniture
3220	Manufacture of musical instruments
3230	Manufacture of sports goods
3240	Manufacture of games and toys
325001	Manufacture of medical and dental instruments and supplies
3299	Other manufacturing n.e.c.
3320	Installation of industrial machinery and equipment
5829	Other software publishing
6201	Computer programming activities
6202	Computer consultancy activities

Investment in capital goods by class of capital goods is estimated by means of a supply and use balancing (commodity flow) method, except in the case of divisions 01, 02 and 03 (cultivated assets), which are obtained from direct sources. This is an indirect method enabling all new capital goods on Swiss territory to be measured for any given year. According to this method, such goods include all capital goods produced on Swiss territory plus imported goods, from which exported goods are subtracted. Next, adjustments are made to reflect transport costs, trade margins, non-deductible taxes on products and the investment rate for the good in question.

The commodity flow process is as follows and is applied to each NOGA class:

Domestic output x ratio of investment to domestic output
+ (Imports + customs duties) x investment ratio
= <u>Supply at basic prices</u>
× Adjustments for value at purchasers' prices
= <u>Supply at purchasers' prices</u>
- Exports x investment ratio
= GFCF in capital goods

Domestic output

The first stage entails entering the domestic output values. The data used, which are taken from the Statistics on Value Added, is the *net turnover of output sold* (variable 600)⁵⁶ and *output for own final use* (variable 604). In view of the fact that the output value supplied by these statistics may be made more plausible when estimating the output of S.11 and S.14, the above variables must also be adjusted accordingly. This adjustment consists, firstly, of calculating the proportion of the *gross output value* variable listed in the Statistics on Value Added accounted for by the sum of these variables and, secondly, of applying this proportion to the post-plausibility-check output value for sectors S.11 and S.14. This treatment, which is carried out for each economic division, ensures consistency between the supply and use approaches. Given that capital goods are calculated at the NOGA-class (four-digit) level, the output obtained by division is then broken down at NOGA level 4 using a weighting calculated on the basis of the number of FTEs, taking into consideration only those classes whose output consists of investment. We are left, in the end, with the domestic output of each NOGA class involved in the production of capital goods.

Ratio of investment to domestic output

The data on domestic output consist of gross figures from which the share not concerned with investment must be removed. A specific investment ratio is therefore applied to each NOGA class (four-digit-level). These ratios are calculated using an implicit method that is the weighted average at six-digit level of the ratio between the total exports of a type of good and the share of exports of this type of good attributed to

⁵⁶ In the case of divisions 33, 58 59 and 62, variable t010 (turnover) is used in place of variable 600.

capital goods. In other words, it is the average at four-digit-level of the investment ratio for exports, weighted in respect of each six-digit code for the type of good exported. These investment ratios therefore change each year, as the weight of each six-digit code varies from one year to the next.

Imports, customs duties and exports

The data on imports, customs duties and exports are taken from the foreign trade statistics. Customs statistics are available by HS8 tariff code, i.e. by type of goods. All HS8 tariff codes corresponding to capital goods are selected and tariff headings are assigned to the NOGA headings using a correspondence table linking HS8 custom tariff codes with the 57 NOGA headings relating to capital goods (excluding cultivated assets).

Ratio of investment to imports, custom duties and exports

As with domestic output, the import and export figures taken from the foreign trade statistics are gross amounts, from which the share not concerned with investment must be removed. Again, an investment ratio specific to each type of good is therefore applied to these flows at the NOGA-class level. These ratios are determined according to international practices. The ratios applied to imports, customs duties and exports are identical and, in principle, do not vary from one year to the next.

The following table shows the investment ratios by NOGA class for imports, custom duties and exports.

NOGA	RATIO	NOGA	RATIO	NOGA	RATIO	NOGA	RATIO	NOGA	RATIO
13.92.11	30	26.51.66	90	28.22.17	100	28.92.11	100	29.20.23	100
13.92.12	5	26.51.70	60	28.22.18	100	28.92.12	100	30.11.21	100
13.92.13	10	26.52.28	95	28.23.11	100	28.92.21	100	30/11/2022	100
13.92.14	5	26.60.11	90	28.23.12	100	28.92.22	100	30.11.23	100
13.92.15	20	26.60.12	100	28.23.13	100	28.92.23	100	30/11/2024	100
13.92.22	30	26.60.13	100	28.23.21	100	28.92.24	100	30/11/1931	100
13.92.24	30	26.70.11	33	28.23.22	100	28.92.25	100	30.11.32	100
23.41.11	20	26.70.12	33	28.23.23	100	28.92.26	100	30.11.33	100
23.41.12	10	26.70.14	33	28.24.11	50	28.92.27	100	30.11.40	100
25.30.11	90	26.70.15	33	28.24.12	50	28.92.29	100	30.11.50	100
25.30.21	90	26.70.16	33	28.25.11	100	28.92.30	100	30.20.11	100
25.71.11	10	26.70.17	33	28.25.12	100	28.92.40	100	30.20.12	100
25.71.14	10	26.70.18	33	28.25.13	100	28.92.50	100	30.20.13	100
25.73.10	30	26.70.19	33	28.25.14	100	28.93.11	100	30.20.20	100
25.73.20	20	26.70.22	50	28.25.20	10	28.93.12	100	30.20.31	100
25.73.30	40	27/11/2026	100	28.29.11	100	28.93.13	100	30.20.32	100
25.73.40	50	27.11.31	100	28.29.12	100	28.93.14	100	30.20.33	100
25.73.50	100	27.11.32	100	28.29.21	100	28.93.15	100	30.20.40	100
25.73.60	40	27.11.41	100	28.29.22	90	28.93.16	100	30.30.20	100
25.99.21	50	27.11.42	75	28.29.23	100	28.93.17	100	30.30.31	100
26.20.11	70	27.11.43	100	28.29.31	100	28.93.19	100	30.30.32	90
26.20.13	70	27.11.50	100	28.29.32	20	28.93.20	100	30.30.33	50
26.20.14	70	27.40.22	15	28.29.39	100	28.93.31	100	30.30.34	100
26.20.15	70	27.40.23	50	28.29.41	100	28.93.32	100	30.30.40	100
26.20.16	70	27.40.24	100	28.29.42	100	28.93.33	100	30.91.11	10
26.20.17	70	27.40.25	30	28.29.43	100	28.93.34	100	30.91.12	10
26.20.18	70	27.51.11	40	28.29.50	100	28.94.11	100	30.91.13	10
26.20.21	30	27.51.12	10	28.29.60	100	28.94.12	100	30.92.10	1
26.20.22	30	27.51.13	10	28.29.70	99	28.94.13	100	30.92.20	40
26.20.30	50	27.51.15	10	28.30.10	100	28.94.14	100	30.99.10	100
26.30.11	100	27.51.21	20	28.30.21	100	28.94.15	100	31.00.11	50
26.30.12	100	27.51.22	45	28.30.31	100	28.94.21	100	31.00.12	60
26.30.13	100	27.51.23	10	28.30.32	100	28.94.22	100	31.00.13	50
26.30.22	65	27.51.24	50	28.30.33	100	28.94.23	100	31.01.11	100

26.30.23	92	27.51.25	5	28.30.34	100	28.94.24	100	31/01/2012	100
26.30.50	80	27.51.26	80	28.30.39	100	28.94.30	100	31.01.13	100
26.40.11	10	27.51.27	10	28.30.40	10	28.94.40	100	31.02.10	30
26.40.12	80	27.51.28	10	28.30.51	100	28.94.51	100	31.03.11	30
26.40.20	10	27.52.14	80	28.30.52	100	28.94.52	100	31.03.12	30
26.40.31	10	27.90.11	20	28.30.53	100	28.95.11	100	31.09.11	50
26.40.33	10	27.90.12	20	28.30.54	100	28.96.10	100	31.09.12	33
26.40.34	90	27.90.13	20	28.30.59	100	28.99.11	100	31.09.14	50
26.40.41	80	27.90.20	100	28.30.60	100	28.99.12	100	32.20.11	50
26.40.42	30	27.90.31	100	28.30.70	100	28.99.13	100	32.20.12	50
26.40.43	50	27.90.32	100	28.30.81	100	28.99.14	100	32.20.13	30
26.51.11	10	27.90.40	100	28.30.82	100	28.99.20	100	32.20.14	50
26.51.12	10	27.90.70	100	28.30.83	100	28.99.31	100	32.20.15	30
26.51.20	100	28.11.21	100	28.30.84	100	28.99.32	100	32.30.11	10
26.51.31	100	28.11.22	100	28.30.85	100	28.99.39	100	32.30.13	10
26.51.32	70	28.11.24	100	28.30.86	100	28.99.40	100	32.30.14	80
26.51.33	100	28.13.21	10	28.41.11	100	29.10.21	45	32.30.15	10
26.51.41	100	28.13.22	10	28.41.12	100	29/10/2022	45	32.40.42	90
26.51.42	100	28.13.23	10	28.41.21	100	29.10.23	45	32.50.11	100
26.51.43	100	28.13.24	60	28.41.22	100	29.10.24	45	32.50.12	100
26.51.44	100	28.13.25	10	28.41.23	100	29.10.30	100	32.50.13	30
26.51.45	100	28.21.11	75	28.41.24	100	29.10.41	100	32.50.21	100
26.51.51	60	28.21.12	100	28.41.31	100	29.10.42	100	32.50.22	20
26.51.52	100	28.21.13	100	28.41.32	100	29.10.43	100	32.50.30	100
26.51.53	100	28.22.11	100	28.41.33	100	29.10.44	100	32.99.59	100
26.51.61	100	28.22.12	100	28.41.34	100	29.10.51	100	33.20.00	90
26.51.62	100	28.22.13	100	28.49.11	99	29.10.52	100	58.29.11	50
26.51.63	100	28.22.14	100	28.49.12	99	29.10.59	100	59.11.23	10
26.51.64	5	28.22.15	100	28.91.11	100	29.20.10	0	6201	80
26.51.65	80	28.22.16	80	28.91.12	100	29.20.21	100	6202	50

Adjustments to obtain purchasers' prices

GFCF is valued at purchasers' prices, which means that supply at basic prices must be adjusted through the addition of distribution costs (transport costs, trade margins and taxes on products). These distribution costs have been valued in accordance with international practices and do not vary from year to year. A ratio of 20% has been determined for all NOGA categories and is applied directly to each item in the commodity flow process.

Cultivated assets

Investment in cultivated assets covers livestock, breeding stock, dairy stock, draught stock, vineyards, orchards and other permanent plantations. This data are taken directly from the *Economic and satellite accounts for the primary sector* and added to the total investment in capital goods.

Research and development (R&D)

GFCF in R&D is based on R&D satellite account figures. This satellite account supplies the R&D investment by institutional sector and the data are used unchanged in the national accounts.

Structures and equipment used by the military

GFCF in structures and equipment used by the military is based on a detailed analysis of public expenditure on defence.

Estimates at the previous year's prices

Real total gross fixed capital formation is also calculated using the 'commodity flow' method. Under this method, each relevant flow at current prices is deflated by a specific price index.

Domestic output: the output at current prices of each class under consideration is deflated by the Producer Price Index (PPI) that is the best fit. The index with the highest level of disaggregation is used for each heading. In the case of a number of headings, the deflator (annual variation in the PPI) is available at four-digit level. Where that is not the case, the deflator at the next level up is applied. For example, there is no deflator specific to heading 2910, so the deflator for heading 29 is used. With regard to goods in class 2841, in the absence of a more detailed deflator, the deflator for group 28.4 is applied.

Imports and custom duties: imports and customs duties are deflated by the import price indices offering the highest level of disaggregation. The index with the highest level of disaggregation is used for each heading.

Exports: exports are deflated by the producer price indices offering the highest level of disaggregation. The index with the highest level of disaggregation is used for each heading.

The investment ratios and distribution cost ratios are the same as those used in the estimates at current prices and are applied to the values at the previous year's prices.

R&D: R&D investment at current prices is deflated by the deflator used to deflate R&D output (see Chapter 2.1.3).

Structures and equipment used by the military: expenditure at current prices is deflated by the annual variation in the PPI for division 25, 'manufacture of fabricated metal products'.

3.3 Acquisitions less disposals of valuables

The flow acquisitions less disposals corresponds to net imports of certain categories of goods. This flow is estimated for the economy as a whole only. It consists of the following categories, according to the Swiss Customs Administration's system of classification by the nature of goods:

- 13: Precious metals and precious and semi-precious stones (including unwrought gold and silver and coin)
- 14: Works of art and antiques

The sources and deflation methods used in relation to them are detailed in Chapter 3.4.1.

3.4 Exports and imports of goods and services

3.4.1 Exports/imports of goods

Data sources

Description	Produced by
Enquiries, which enable the compiling of the Balance of Payments	SNB, Zürich
External trade statistics	Federal Customs Administration
Electricity statistics	Swiss Federal Office of Energy, SFOE
Monthly Statistical Bulletin	SNB, Zürich
Producer Price Index	FSO, Neuchâtel
Consumer Price Index	FSO, Neuchâtel

Estimates at current prices

The exports and imports of goods published in the national accounts are drawn chiefly from the Swiss Customs Administration's foreign trade statistics. These statistics are based on the special trade concept. It defines imports as merchandise for which a declaration has been made and which may therefore freely circulate, and exports as merchandise goods leaving the Swiss customs territory. However, the foreign trade statistics differ from the approach taken by the national accounts in the sense that they cover all commercial goods cleared by customs, whereas the national accounts take into consideration all cases in which ownership is transferred between a resident and a non-resident. The Customs Administration data are therefore corrected for flows concerning goods for processing without change of ownership and returned goods, two types of customs traffic included in the foreign trade statistics but not involving any transfer of ownership. It is important to note that any exported (or imported) returned good will have been imported (or exported) beforehand under the normal system and that it is necessary, therefore, to correct the flow in the place in which the returned good originated. Again, in the interests of consistency with the approach taken by the national accounts, the Customs Administration's data is supplemented by additional estimates made when drawing up the *Balance of payments* (BOP). These are essentially the goods purchased and sold abroad in the context of merchanting activities.

The customs database makes frequent reference to *special trade* totals 1 and 2:

a) Total 1 ('business cycle total'): includes customs codes by nature 1 to 12:

- 1: Agriculture, forestry and fisheries products,
- 2: Energy products,
- 3: Textiles, clothing and shoes,
- 4: Paper, paper products and products of the printing industry,
- 5: Leather, rubber and plastics,
- 6: Products of the chemical and pharmaceutical industries,
- 7: Stones and earth,
- 8: Metals,
- 9: Machines, appliances and electronics
- 10: Vehicles,
- 11: Precision instruments, clocks and watches and jewellery,
- 12: Miscellaneous goods, such as musical instruments, articles for interior furnishing, toys and sports goods etc.

b) Total 2 ('general total'): Total 1 + codes by nature 13-14 including precious metals, precious and semi-precious stones, works of art and antiques.

The following table shows the imports and exports of goods (2011, in CHF millions).

Type of goods	Imports	Exports
Special trade, total 2	184 540	208 203
Special trade, total 1	174 388	197 907
Agriculture, forestry and fisheries products	13 319	8 439
Energy products	15 451	6 462
Textiles, clothing and shoes	8 880	3 249
Paper, paper products and products of the printing industry	4 583	2 556
Leather, rubber and plastics	6 257	4 359
Products of the chemical and pharmaceutical industries	37 435	74 647
Stones and earth	2 915	865
Metals	14 715	13 034
Machines, appliances and electronics	30 680	36 889
Vehicles	16 838	4 672
Precision instruments, clocks and watches and jewellery	18 088	41 254
Miscellaneous goods, such as musical instruments, articles for interior furnishing, toys and sports goods etc.	5 227	1 481
Special trade, codes by nature 13 and 14	10 152	10 296
Unwrought gold and silver and coin	99 432	78 257
Merchanting⁵⁷	-	27 601
Supplements to foreign trade⁵⁸	-3 210	-7 189
Total	280 762	306 871

Estimates at the previous year's prices

Deflation is carried out at various levels:

- Customs classification by nature for goods belonging to total 1. Energy products and precision instruments, clocks and watches and jewellery are deflated at a more detailed level;
- The customs codes for precious metals, precious and semi-precious stones, works of art and antiques are grouped together;
- Each component is deflated in the case of all other types of goods.

The deflators used consist mainly of the annual change in the following indices:

- a) The average value indices (AVI) estimated by customs. The average values are the value of the goods exported or imported divided by their quantities.
- b) Export price indices (EPI). These indices are based on a specific weighting for exports in relation to export prices.
- c) Import price indices (IPI).

1. Agriculture and forestry

Exports and imports: deflation by AVI.

2. Energy products

- a) Crude oils and basic products (02.1), fuels (02.2) and combustibles (02.3)

AVI for each export and import heading.

- b) Electrical energy

- Imports: extrapolation of nominal values for t-1 by GWh imported.⁵⁹

⁵⁷ Goods bought and sold that are classed as merchanting are recorded net as exports in the balance of trade.

⁵⁸ The purchase and sale of Rhine and maritime vessels, corrections for CIF/FOB relating to imports, unchecked goods trade, small consignments, goods procured in ports and airports, inward and outward traffic in goods for processing and returned goods.

⁵⁹ Electricity statistics, Swiss Federal Office of Energy (SFOE).

- Exports: extrapolation of nominal values for t-1 by GWh exported.⁶⁰

3. Textiles, clothing and shoes

Imports and exports: deflation by AVI.

4. Paper, paper products and products of the printing industry

Imports and exports: deflation by AVI.

5. Leather, rubber and plastics

Imports and exports: deflation by AVI.

6. Products of the chemical and pharmaceutical industries

a) Imports: deflation by the annual variation in the different IPIs.

b) Exports: deflation by the annual variation in the different EPIs.

7. Stones and earth

Imports and exports: deflation by AVI.

8. Metals

Imports and exports: deflation by AVI.

9. Machines, appliances and electronics

a) Imports: deflation by the annual variation in the different IPIs.

b) Exports: deflation by the annual variation in the different EPIs.

10. Vehicles

Imports and exports: deflation by AVI.

11. Precision instruments, clocks and watches and jewellery

a) Precision instruments, clocks and watches and jewellery (11.1) and clocks and watches (11.2)

- Imports: deflation by the annual variation in the different IPIs.

- Exports: deflation by the annual variation in the different EPIs.

b) Jewellery and household goods made from precious metals

Imports and exports: deflation by the AVI for heading 11.

12. Other products

Imports and exports: deflation by AVI.

Unwrought gold and silver and coin

a) Unwrought gold (7108.1200) and coin of gold (7118.9010)

Imports and exports: deflation by the annual variation in the price of gold (CHF/kg).

b) Unwrought silver (7106.9100) and coin of silver (7118.9020)

Imports and exports: deflation by the annual variation in the price of silver (CHF/kg).

c) Other coin (7118.1000 and 7118.9030)

Imports and exports: deflation by the implicit deflator of the headings unwrought gold and silver and coin of gold and silver.

⁶⁰ Electricity statistics, Swiss Federal Office of Energy (SFOE).

Merchanting

Merchanting is deflated by an index measuring the change in the price of raw materials in CHF multiplied by the price (of raw materials) elasticity of the margin per tonne.

Other

- a) Platinum, unwrought or in semi-manufactured forms, or in powder form (7110.11/19)
Imports and exports: deflation by AVI.
- b) Diamonds unsorted, industrial, unworked and worked (7102.10, 21, 29, 31 and 39)
Imports and exports: deflation by the annual variation in the Antwerp Diamond Index (1 carat), corrected for the USD/CHF exchange rate.
- c) Palladium, unwrought or in powder form/in semi-manufactured form (7110.21/29)
Imports and exports: deflation by AVI.
- d) All other precious metals, precious and semi-precious stones, works of art and antiques
Imports and exports: Deflation by the implicit deflator of the headings platinum, palladium and diamonds.
- e) All other headings
 - Imports: Implicit deflator of total 2 + Customs Administration deflator for narcotics imports.
 - Exports: Implicit deflator of total 2.

3.4.2 Exports/imports of services

Data sources

Description	Produced by
Balance of payments surveys	SNB, Zürich
Quarterly surveys of interest, commission and trading operations between offices in Switzerland and customers and banks in other countries	SNB, Zürich
Monthly Statistical Bulletin	SNB, Zürich
Consumer Price Index	FSO, Neuchâtel
Swiss Wage Index	FSO, Neuchâtel
Work Volume Statistics (WV)	FSO, Neuchâtel
Structural Business Statistics (STATENT)	FSO, Neuchâtel
Consumer Price Index	Statistical offices abroad

Estimates at current prices

The data on exports and imports of services are based on balance-of-payments figures, with the following exception:

- a) Imported and exported insurance services
In the case of these services, the data based on the estimates made in the context of the breakdown of reinsurance and private social insurance services by sector. No imports or exports of direct private insurance services are recorded, as foreign business is assumed to be conducted through foreign branches (see Chapter 2.3.4).
- b) Stamp duty and a share of the proceeds from the withholding tax on savings arising from the taxation of savings agreement with the EU are recorded in the national accounts as exports of services, while they are listed as revenue in the balance of secondary income for the balance of payments.

The table below shows imports and exports of services by type (2011, in CHF millions).

Type of services	Imports	Exports
Transport (including postal services)	9 692	10 161
Tourism	12 128	15 185
Overnight stay: business and leisure trips, study abroad and hospital stays.	-	10 433
Day trips, transit traffic and other tourist services	-	2 684
Consumption of cross-border commuters and persons in possession of a short-term residence permit (less than four months)	-	2 069
Financial services	6 195	30 705
Licence fees	9 476	14 015
Telecommunication, computer and information services	10 090	8 085
Manufacturing services on physical inputs, maintenance and repair services, construction services	2 625	5 238
Research and development (R&D)	6 150	2 232
Business services	16 067	11 137
Other services*	1 123	3 077
Total	73 544	99 834

*Services provided or received by general government (purchases of goods and services by foreign representations and international organisations (IOs) in Switzerland, as well as by embassy staff and their family members (excluding local employees), by Swiss representations abroad and their Swiss employees (and family members)), taxes received by Swiss embassies and consulates, personal, cultural and recreational services, public revenue from stamp duty and revenue arising from the taxation of savings agreement with the EU.

Estimates at the previous year's prices

1. Transport

a) Passenger transport

- Rail
 - Imports: deflation by means of the 'public transport services by rail' CPI for the following countries: Germany, France, Spain and Italy. The weighting is based on the number of overnight stays by Swiss tourists abroad and is corrected for the CHF/EUR exchange rate.
 - Exports: deflation by the CPI for heading 7210.
- Air
 - Imports: deflation by means of the 'air passenger transport' CPI for the following countries: Germany, France, Spain and Italy. The weighting is based on the number of overnight stays by Swiss tourists abroad and is corrected for the CHF/EUR exchange rate.
 - Exports: deflation by the CPI for heading 7210.
- Other⁶¹
 - Imports and exports: deflation by the implicit deflator of the passenger transport category (rail and air only).

b) Freight transport

- Rail

⁶¹ Road, river, lake and sea transport, and income and expenses relating to transport that cannot be attributed to any other category (other transport services).

- Imports: deflation by the deflator obtained from the comparison of the correction for CIF/FOB at current prices and at the previous year's prices.
 - Exports: deflation by the weighted average of the PPIs 'imports/exports' and 'transit' of the 'freight rail transport'. The weighting is based on their share to the PPI 'freight rail transport'.
 - Air
 - Imports: deflation by the deflator obtained from the comparison of the correction for CIF/FOB at current prices and at the previous year's prices.
 - Exports: deflation by the CPI 'air transport'. Since 2013 the Producer Price Index for freight air transport has been used.
 - Other
 - Imports and exports: deflation by the implicit deflator of the freight transport category (rail and air only).
- c) Other transport services**
- Rail
 - Imports and exports: deflation by the implicit deflator of the transport category (rail only).
 - Air
 - Imports: extrapolation of nominal values for t-1 by the change in the number of takeoffs/landings (excluding internal flights) by Swiss aircraft and the number of passengers and amount of freight transported to a foreign destination (Swiss airlines' activity at foreign airports).
 - Exports: extrapolation of nominal values for t-1 by the change in the number of takeoffs/landings by foreign aircraft and the number of passengers and amount of freight transported (foreign airlines' activity at Swiss airports).
 - Other
 - Imports and exports: deflation by the implicit deflator of the category 'other transport services' (rail and air only).
- d) Transport via pipelines**
- Imports: extrapolation of nominal values for t-1 by means of the change in the volume imported into Switzerland by pipeline (in tonnes).
 - Exports: extrapolation of nominal values for t-1 by means of the change in the volume of gas transported by the company Nord Stream AG.
- e) Post and messenger services**
- Imports: deflation by the 'postal services' CPI for the following countries: Germany, France, Italy, Austria, the Netherlands, Belgium, UK, Spain, Denmark and Sweden. Correction for the change in the exchange rate and weighting by the share of tonnes exported to these countries by parcel/letter.
 - Exports: deflation by the 'postal services' CPI.

2. Tourism

a) Overnight stay: business and leisure trips, study abroad and hospital stays.

- Imports: deflation by the destination country's 'total' CPI + the subheadings: accommodation, restaurants and cafés and similar establishments.
- Correction for the exchange rate.
- Exports: deflation by overall CPI + the subheadings: restaurants and cafés, hotels and alternative accommodation facilities.

b) Day trips, transit traffic and other tourist services

- Imports: deflation by the destination country's CPI (total plus subheadings), corrected for the exchange rate:
 - food and non-alcoholic beverages
 - alcoholic beverages
 - fuel
 - pharmaceutical products

- clothing and footwear
- household appliances;
- audiovisual, photographic and information processing equipment
- other recreational items and equipment, gardens and pets
- Exports: deflation by overall CPI + the subheadings:
 - catering
 - fuel
 - cigarettes
- c) Consumption of cross-border commuters and persons in possession of a short-term residence permit (less than four months)**
 - Imports: deflation by the total CPI of the destination countries. Correction for the exchange rate.
 - Exports: deflation by the total CPI.
- 3. Private insurance**

Imports and exports: the data are supplied by insurance sector estimates (see Chapter 2.3).
- 4. Financial services**
 - a) Bank commission**
 - Imports and exports: deflation by the wage index for NOGA division 65.
 - b) FISIM**
 - Imports: there are no imports of FISIM.
 - Exports: the data are supplied by the estimates for subsector 121/127 (see Chapter 2.2).
 - c) Income arising from trading operations**
 - Imports: there are no imports of trading operations.
 - Exports: deflation by the wage index for division 65.
- 5. Licence fees**
 - Imports: deflation by the OECD's total CPI.
 - Exports: deflation by the total CPI.
- 6. Telecommunication, computer and information services**
 - a) Telecommunications services**
 - Imports: extrapolation of the nominal values t-1 by means of the change in (the duration of) calls to foreign numbers and in roaming services for Swiss customers abroad.
 - Exports: extrapolation of the nominal values t-1 by means of the change in (the duration of) calls to Switzerland and in roaming services for foreign customers in Switzerland.
 - b) Computing and information services**
 - Imports: deflation by the labour cost index: professional, scientific and technical activities (euro area – 18 countries), taking into account variations in the CHF/EUR exchange rate.
 - Exports: deflation by the wage index for divisions 62 and 63 (computer service activities and information service activities)
- 7. Manufacturing services on physical inputs, maintenance and repair services, construction services**
 - a) Manufacturing services**

Imports and exports: deflation by the implicit deflator of manufacturing sector goods.
 - b) Maintenance and repair**
 - Imports: deflation by the euro-area labour cost index (covering 18 countries) for professional, scientific and technical activities, taking into account variations in the CHF/EUR exchange rate.
 - Exports: deflation by the wage index for divisions 32 and 33 ('other manufacturing' and 'repair and installation').
 - c) Construction services in Switzerland**
 - Imports: deflation by the weighted average of the construction cost indices for new residential buildings (average of the indices for France and Germany), taking into account variations in the CHF/EUR exchange rate.

- Exports: deflation by the deflator of intermediate consumption of division 43 ('specialised construction activities') (see Chapter 2.1.1).

d) Construction services abroad

- Imports: deflation by the construction materials price index for new residential buildings (euro area – 18 countries).
- Exports: deflation by the Construction Price Index.

8. Research and development (R&D)

- Imports and exports: deflation by the R&D deflator in accordance with the production approach (see Chapter 2.1.3).

9. Business services

- Imports: Average of two indices: 1) the labour cost index: administrative and support service activities (N), and 2) the labour cost index: professional, scientific and technical activities (M). (Euro area – 18 countries), taking into account variations in the CHF/EUR exchange rate.
- Exports: Deflation by the hourly wage indicator. It is calculated by the combination of the rate of change (for NOGA sections M+N) in the wage index (A%), employment (B%) and the number of hours worked (C%): $(1+A\%)*(1+B\%)/(1+C\%)$.

10. Other services

a) Services provided or received by general government (excluding fees and taxes)

- Imports: deflation by the 'total' CPI of the OECD countries.
- Exports: deflation by the 'total' CPI.

b) Fees and taxes received by embassies

- Imports: no imports.
- Exports: deflation by the 'public services' CPI.

c) Personal, cultural and recreational services

- Imports: deflation by the labour cost index: 'human health and social work activities' (euro area - 18 countries), taking into account variations in the CHF/EUR exchange rate.
- Exports: average of the 'education' and 'publishing, audiovisual and broadcasting activities and telecommunications' wage indices.

d) Stamp duty

- Imports: no imports.
- Exports: extrapolation by means of the growth rate in the volume of S.122/3/4 commission.

e) EU-Switzerland taxation of savings agreement

- Imports: no imports.
- Exports: deflation by the 'public services' CPI.

4. Gross national income (GNI)

Data sources

Source	Produced by
Balance of Payments	SNB
Cross-border Commuter Statistics (CCS)	FSO, Neuchâtel
Survey of international organisations	OCSTAT, Geneva, OFS, Neuchâtel
Structure of Earnings Survey (SES)	FSO, Neuchâtel

As mentioned at the beginning of this document, in the Swiss national accounts, GNI is not worked out independently of the 'production' and 'expenditure' approaches explained earlier, but is estimated according to GDP and income receivable from and payable to other countries. The transition from GDP to GNI is made by adding to GDP the investment and labour income received from other countries after subtracting the investment and labour income paid to other countries. The transition flows for moving from GDP to GNI are as follows:

- D.1r: Compensation of employees received from the rest of the world
- D.1p: Compensation of employees paid to the rest of the world
- D.4r: Property income received from the rest of the world
- D.4p: Property income paid to the rest of the world

The GDP-GNI transition formula is the following, therefore:

$$\text{GNI} = \text{GDP} + \text{D.1r} + \text{D.4r} - (\text{D.1p} + \text{D.4p})$$

The sources for and methods of calculating these flows are explained below.

4.1 Remuneration of employees

4.1.1 Compensation of employees received from the rest of the world

In both the national accounts and the Swiss balance of payments, compensation of employees received from the rest of the world covers three scenarios:

1. the compensation of employees who live in Switzerland but work abroad (cross-border commuters);
2. the compensation of employees of international organisations located in Switzerland who also reside in Switzerland;
3. the compensation of local staff working in embassies and consulates located in Switzerland who also reside in Switzerland.

The national accounts calculate these three types of compensation and send this information to the SNB so that it can be incorporated in the balance of payments. In the case of cross-border commuters and local embassy and consulate staff, compensation is calculated on the basis of different sources of information.

For instance, the compensation of local embassy and consulate staff is obtained by multiplying the average wage of staff recruited locally by the number of staff recruited locally.

Meanwhile, the compensation paid by international organisations to individuals living in Switzerland is determined in the course of an exhaustive survey of the international organisations carried out jointly by the Cantonal Statistical Office in Geneva (OCSTAT) and the FSO.

There is, however, a difference in the compensation of employees received from the rest of the world as recorded in the national accounts and in the balance of payments. This is due to the fact that the SNB does

not take into account the remuneration of Swiss residents who work in Liechtenstein (owing to the monetary union, the Swiss balance of payments also includes Liechtenstein).

4.1.2 Compensation of employees paid to the rest of the world

In both the national accounts and the Swiss balance of payments, compensation of employees paid to the rest of the world covers two scenarios:

1. the compensation of employees who work in Switzerland but live abroad (cross-border commuters);
2. the compensation of local staff working for Swiss embassies and consulates.

The SNB is responsible for estimating the compensation paid to cross-border commuters. It does this on the basis of FSO statistics and surveys, namely the quarterly Cross-Border Commuter Statistics (CCS) and data from the Structure of Earnings Survey. The FSO, meanwhile, determines the remuneration of local staff working for Swiss embassies and consulates on the basis of information supplied by the Federal Department of Foreign Affairs (FDFA).

4.2 Property income

The main source of information used to calculate property income comes from the balance of payments produced by the SNB. The SNB gathers information on cross-border investment income in its current account surveys,⁶² its cross-border capital linkages surveys,⁶³ and its direct investment surveys.

In the balance of payments, investment income is shown by investment type (foreign direct investment, portfolio investment, other investment and reserve assets) rather than income type, as is the case in the national accounts (interest, distributed income of corporations, reinvested earnings and other income).

4.2.1 Property income received from the rest of the world

In the Swiss national accounts, flow D.4r is the sum of the following:

$$D.4r = D.41 + D.42 + D.43 + D.44 + D.29$$

where the flows are defined as follows:

D.41: interest;

D.42: distributed income of corporations;

D.43: reinvested earnings on foreign direct investment;

D.44: other investment income;

D.29: other taxes on production.

The formula for D.4r can be set out in greater detail still by noting that flow D.44 is the sum of flows D.441, D.442 and D.443 (although D.442 = 0), that flow D.42 is the sum of flows D.421 and D.422 (although D.422 = 0)⁶⁴ and that flow D.41 is obtained from a gross flow of interest, D.41s, which is corrected for FISIM. In other words, flow D.41s is the flow of interest that has not been corrected by a margin corresponding to an implicit payment for the service provided by financial institutions when granting loans and accepting deposits. In Switzerland's case, the correction made in the calculation of D.4r applies solely, in fact, to interest received in connection with the granting of loans by Swiss financial institutions, as imports of FISIM

⁶² <http://www.snb.ch/en/emi/CAX>

⁶³ <http://www.snb.ch/en/emi/INV>

⁶⁴ D.422 includes dividends and withdrawals from income of quasi-corporations. In the context of income received from the rest of the world, this means, for instance, the net operating surplus notionally received by residents of owner-occupied dwellings abroad. Conceptually speaking, these dwellings are regarded as notional non-resident units (from the perspective of the owner's country). However, transactions relating to them (accommodation services, property income) are not currently included in the national accounts or balance of payments.

are not estimated in either the Swiss national accounts or the Swiss balance of payments. For that reason, FISIM are deducted from the gross flows of interest in the following formula.

$$D.4r = D.41s - \text{correction for FISIM} + D.421 + D.43 + D.441 + D.443 + D.29$$

where:

D.41s: gross flow of interest;

D.421: dividends;

D.441: investment income attributable to insurance policyholders

D.443: investment income attributable to collective investment fund shareholders

D.29 consists of revenue from the distance-related heavy vehicle fee and 20% of revenue from the purchase of motorway stickers by non-residents. The data required for the calculation are supplied by the Swiss Customs Administration. Forming part of primary income, flow D.29 is taken into account in the transition from GDP to GNP, which is why it is included in D.4r. However, D.29 is not taken into account in the balance of primary income in the balance of payments. In this respect, therefore, it represents a difference between the national accounts and the balance of payments.

Flows D.41s, D.421 and D.43

These flows are obtained directly from the SNB.

Flow D.441

The amount of D.441 received from the rest of world concerns reinsurance only and corresponds to the amount of premium supplements implicitly included in the value of imported reinsurance services.

To estimate these flows, the ratio between property income attributed to ceding or retroceding companies by reinsurance companies and the total reinsurance premiums earned by reinsurance companies is applied to the amount of reinsurance premiums payable abroad.

Flow D.443

The flows of investment income attributable to collective investment fund shareholders (D.443) received from abroad are obtained from the SNB, which estimates them based on deposits of foreign securities held in Swiss banks by residents, to which a specific rate of return is applied. These estimates cover not only the income distributed to shareholders but also that which is not distributed, i.e. capitalised.

4.2.2 Property income paid to the rest of the world

In the Swiss national accounts, flow D.4p is the sum of the following:

$$D.4p = D.41 + D.42 + D.43 + D.44$$

where the flows are defined as above:

Similarly to flow D.4r, flow D.42 is the sum of flows D.421 and D.422 (where D.422 = 0), and D.44 is the sum of flows D.441, D.442 and D.443. Flow D.41 is obtained from a gross flow of interest, D.41s, which is corrected for FISIM. In Switzerland's case, the correction made in the calculation of D.4p applies solely to interest paid in connection with the acceptance of deposits by Swiss financial institutions, as imports of FISIM are not estimated in either the Swiss national accounts or the Swiss balance of payments. For that reason, FISIM are added to the gross flows of interest in the following formula.

$$D.4p = D.41s + \text{correction for FISIM} + D.421 + D.43 + D.441 + D.442 + D.443$$

where:

D.442: investment income payable on pension entitlements

where the flows are defined as above:

Flows D.41s, D.421 and D.43

These flows are obtained directly from the SNB.

Flows D.441 and D.442

Investment income attributable to insurance policyholders corresponds to the premium supplements used to estimate insurance and reinsurance services (see Chapter 2.3).

The breakdown by sector of the direct insurance service, i.e. the allocation among the different types of resident policyholders was explained in part in Chapter 2.3.4. The breakdown by sector of the reinsurance service is based on the reinsurance matrix.

Flows D.441 and D.442 paid to S.2 consist of property income attributable to pension, Suva and health insurance policyholders abroad, as far as direct insurance is concerned, and, with regard to reinsurance, to ceding and retroceding companies.

In the case of direct insurance, D.441 and D.442 are attributed to resident and non-resident policyholders in proportion to the gross premiums/contributions paid by these two categories of policyholder, using the same method as for the breakdown by sector of the insurance service.

As regards reinsurance, the property income attributable to ceding/retroceding companies is distributed in proportion to the gross premiums earned by each type of reinsurer and by type of ceding/retroceding company. As already mentioned, this structure is derived from the reinsurance matrix.

To obtain the property income attributable to ceding/retroceding companies by life and indemnity insurance companies, it is necessary to split the estimated premium in the calculation of service between direct insurance and inward reinsurance. In the case of indemnity insurance, that is done in proportion to the gross technical provisions for these two types of activity, whereas, for life insurance companies, the income directly attributable to occupational pension schemes is first eliminated and then the gross technical provisions excluding occupational pension scheme actuarial reserves used.

Calculations are carried out at company and industry level. It is not possible, therefore, to reconstitute a global calculation of these amounts, given that additivity is not guaranteed and that the industry-level structures differ from one company to the next.

Flow D.443

Estimates of investment income attributable to collective investment fund shareholders (D.443) paid to the rest of the world are based on the same principle as those received. The stocks of securities held in Swiss banks by non-residents are used as the basis, with this figure multiplied by a specific rate of return. As in the case of income paid to the rest of the world, non-distributed income is included in the estimate.

5. Annexes

5.1 Institutional sectors and subsectors

Sectors/subsectors	Sector codes
Non-financial corporations	S.11
Financial corporations	S.12
Central bank	S.121
Other monetary financial institutions	S.122
Other financial intermediaries, except insurance corporations and pension funds	S.123
Financial auxiliaries	S.124
Insurance corporations and pension funds	S.125
General government	S.13
Confederation	S.1311
Cantons	S.1312
Municipalities	S.1313
Social security funds	S.1314
Households	S.14
Non-profit institutions serving households (NPISHs)	S.15
Rest of the world	S.2

5.2 Economic divisions under NOGA 2008

01-03	Agriculture, forestry and fishing
05-09	Mining and quarrying
10-12	Manufacture of food products and tobacco
13-15	Manufacture of textiles and wearing apparel
16	Manufacture of wood and of products of wood and cork, except furniture
17	Manufacture of paper and paper products
18	Printing and reproduction of recorded media
19-20	Manufacture of coke, and refined petroleum products and manufacture of chemicals and chemical products
21	Manufacture of basic pharmaceutical products and pharmaceutical preparations
22	Manufacture of rubber and plastic products
23	Manufacture of other non-metallic mineral products
24	Manufacture of basic metals
25	Manufacture of fabricated metal products
26	Manufacture of computer, electronic and optical products
27	Manufacture of electrical equipment
28	Manufacture of machinery and equipment n.e.c.
29	Manufacture of motor vehicles, trailers and semi-trailers
30	Manufacture of other transport equipment
31	Manufacture of furniture
32	Other manufacturing
33	Repair and installation of machinery and equipment
35	Energy supply
36-39	Water supply; waste management
41-43	Construction

45	Wholesale and retail trade and repair of motor vehicles and motorcycles
46	Wholesale trade
47	Retail trade
49-51	Land transport and transport via pipelines, water and air transport
52	Warehousing and support activities for transportation
53	Postal and courier activities
55	Accommodation
56	Food and beverage service activities
58-60	Publishing, audiovisual and broadcasting activities
61	Telecommunications
62-63	IT and other information services
64	Financial service activities
65	Insurance
68	Real estate activities
69-71	Legal and accounting activities, management consultancy activities and architectural and engineering activities
72	Scientific research and development
73-75	Other professional, scientific and technical activities
77-82	Administrative and support activities
84	Public administration and defence, compulsory social security
85	Education
86	Human health activities
87-88	Residential care and social work activities
90-93	Arts, entertainment and recreation
94-96	Other service activities
97	Activities of households as employers of domestic personnel
98	Goods- and services-producing activities of private households for own use

5.3 COICOP (Classification of Individual Consumption According to Purpose)

01	Food and non-alcoholic beverages
02	Alcoholic beverages, tobacco and narcotics
03	Clothing and footwear
04	Housing, water, electricity, gas and other fuels
05	Furnishings, household equipment and routine household maintenance
06	Health
07	Transport
08	Communication
09	Recreation and culture
10	Education
11	Restaurants and hotels
12	Miscellaneous goods and services

5.4 COFOG (Classification of the Functions of Government)

1. General public services
2. Defence
3. Public order and safety
4. Economic affairs
5. Environmental protection
6. Housing and community amenities
7. Health
8. Recreation, culture and religion
9. Education
10. Social protection