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Summary of the ESA 2010 review of national accounts

1. Background

The European Union will start using the new system of national accounts (ESA 2010) at the end of September 2014. The national accounts data will then be based on the new ESA 2010 methodological handbook. In Finland, the new system was taken into use for the national accounts data published on 11 July 2014.

The review does not include that many fundamental changes, but with the review, the system of national accounts becomes more up-to-date with relation to the present economic environment and corresponds to new data needs of users. For example, the new ESA 2010 extends the concept of assets to cover research and development expenditure and guides towards compilation of statistics on global production modes better than the old system.

In the review, several changes were made to key national accounts classifications. This is in particular true for the classifications of sectors, assets and transactions, where content and structural changes were made. The publication level changes of the classifications of sectors, assets and transactions are described in a separate table. The codes of transactions also changed in some parts.

This review on the content of the ESA 2010 time series aims to describe the main changes for users of data. Some of them are not directly connected to the ESA 2010 review but are other revisions to the time series. Where necessary, you can contact Statistics Finland for more detailed reviews of the changes made to each topic (in Finnish).

2. Main content and methodological changes

2.1 Research and development expenditure into investments

Research and development (R&D) refer to a systematic activity to increase knowledge and the use of this knowledge in production to find new applications. It comprises both basic research, applied research and development work.

In the ESA 2010 system, research and development expenditure is treated as capital formation, that is, as an investment, and no longer as a current expense. It raises the level of gross domestic product by around four per cent in the last few years, which is clearly the most significant effect of the review on gross domestic product.

Research and development investments comprise of R&D produced for oneself, which is recorded in the item 'output for own final use', and R&D bought from elsewhere, such as from the rest of the world. R&D expenditure was deducted from non-financial corporations' intermediate consumption in so far as they are considered to belong to the scope of the investment concept in national accounts. Such R&D inputs bought from outside that were used as intermediate products in the production of one's own R&D investment were left in intermediate consumption.

The primary source data used were Statistics Finland's statistics on research and development specified into the non-financial corporations sector and general government (incl. universities), as well as statistics on international trade in services. The time series were calculated genuinely starting from the year

1995. For the years 1975 to 1994, use was made of annual changes in the statistics on R&D expenditure.

In the non-financial corporations sector, the R&D input meant for own final use increases gross domestic product because output grows. Investment commodities bought from elsewhere (from general government and the rest of the world) increase the sector's value added and gross domestic product, because an amount corresponding to them is deducted from intermediate consumption.

General government's investments comprise only investments produced for own final use. The gross value added of general government consists of compensation of employees and consumption of fixed capital. R&D expenditure increases consumption of fixed capital, so the gross value added of general government grows.

The total effect of the change on gross domestic product is thus formed of three parts: output in the market sector increases, intermediate consumption in the market sector diminishes, and consumption of fixed capital in general government grows.

Investments in research and development have in recent years amounted to EUR six to seven billion. The change in treatment increased gross domestic product by three to four per cent in recent years.

2.2 Acquisitions of weapon systems into investments

According to the new ESA 2010, acquisitions of defence equipment or weapon systems are recorded as investments and not as intermediate consumption, because they can be used in the production of "defence services" over several years. In the industry 'defence equipment and conscripts', the part considered to belong to the investment concept of national accounts was transferred from intermediate consumption to investments. The definition was made based on the data supplied by the Finnish Defence Forces available from 2000 onwards. Only "single-use" defence goods (mines, shooting equipment, etc.) were left in intermediate consumption. The average distribution of 2000 to 2012 was applied to the time series for 1975 to 1999.

Investments in weapon systems have in recent years been around EUR 300 to 600 million. The change increased value added by the amount of consumption of investments, 0.2 to 0.3 per cent of gross domestic product in the last few years. Public consumption expenditure changed slightly, but total public expenditure did not.

2.3 Definition of general government becomes more precise

In the ESA95 system, the line between general government and other sectors was mainly drawn based on quantitative criteria (for example: do the unit's sales proceeds cover under or over one-half of the expenses). In the new ESA 2010 sector definition, account is also taken of qualitative criteria (for example: to whom the output is sold, does the unit operate genuinely in the market).

On account of the changes in drawing the line, units serving general government - such as public-owned limited companies - were transferred from non-financial corporations and non-profit institutions to general government. A description of the transferred units is published in the application decisions of the Classification of Sectors.

For local government (municipal administration), the number of transferred units was around 150. The number of units changes yearly, because enterprises have been established in different years and some

of them have already closed their operation. The transferred enterprises include such as polytechnics (previously belonged to non-profit institutions serving households) and real estate companies (previously belonged to non-financial corporations). The transfers start from 2000, prior to which the calculations have not been corrected. The source data are enterprises' financial statements data.

HAUS Finnish Institute of Public Management Ltd (2010), universities' real estate companies (2010) and Senate Properties (2011) with their affiliates were transferred to central government from non-financial corporations. Leijona Catering set up in 2012 was already part of central government, but its industry was corrected to food service activities.

The changes increase government debt in euros to some degree. According to the current estimate, the increase is two to three per cent from 2011 onwards, but clearly lower than that in the preceding years. General government deficit/surplus grew or diminished slightly depending on the year. Statistics Finland will release statistics on general government deficit and debt on 30 September 2014.

Several smaller revisions were also made to data on central government, local government, employment pension schemes and other social security funds mainly concerning the last few years.

2.4 Change in the concept of government deficit

Government deficit changes for another reason as well. Previously, the concept of government deficit differed slightly from the general government deficit in national accounts (net borrowing) in the Excessive Deficit Procedure (EDP) of the European Union's Growth and Stability Pact. The monetary flows relating to swap and forward rate agreements, which are entered as interest expenses in the EDP deficit reporting, are treated as financial transactions directed at derivatives and not as interests in national accounts. Due to the renewal, the separate definition of the EDP deficit was removed from the ESA manual, whereby direct deficit, i.e. net lending/borrowing, according to national accounts is taken into use in EDP reporting. The renewal changes Finland's government deficit (EDP) starting from 2003. For this reason, deficit grew in the last few years by an average of 0.3 percentage points relative to GDP.

2.5 Goods sent abroad for processing

Goods sent abroad for processing refer to goods sent on to another country for further processing or remodelling and they are returned to the sending country without the ownership of the goods changing in the process. In ESA 2010, goods sent abroad for processing is treated according to the ownership principle so that differing from ESA95, movement of goods across borders is not included in exports or imports of the processing country's goods, but only the margin of the process, i.e. the value of the processing service is contained in exports of services.

Because of the change, exports and imports data of goods differ more than before from the Customs data, because the foreign trade statistics of Finnish Customs are based on the physical movement of goods across the borders of the country. In principle, the change has no effect on the current account, but in practice, the current account changes slightly due to deficiencies in the source data.

For goods sent abroad for processing in Finland, the processing premium is added to Finland's exports of services. The value of the goods brought by the foreign owner for processing is deducted from imports of goods and the value of the finished product from exports of goods. The possible sale of the finished product by the foreign owner in Finland is added to imports of goods and possible raw material purchases by the foreign owner in Finland are added to exports of goods.

In goods sent abroad for processing in a foreign country, the processing premium is added to Finland's imports of services. The imports of a Finnish owner's finished products from abroad to Finland are deducted from imports of goods and the goods exported from Finland for processing abroad are deducted from exports of goods. The sale of the Finnish owner's finished product abroad is added to exports of goods and raw material purchases abroad are added to imports of goods.

The change in the treatment also has an effect on output and intermediate consumption, as well as on change in inventories. In goods sent abroad for processing in Finland, output contains only the processing premium but not the value of the whole product. Materials and equipment acquired are correspondingly removed from intermediate consumption, so the value added does not change. In goods sent abroad for processing in a foreign country, the output produced abroad is also added to Finland's output and materials and supplies acquired from abroad and processing paid work (processing premium) are added to intermediate consumption. The value added does not change.

The time series have been corrected in line with the new procedure starting from 2000. The calculations are based on Finnish Customs' data on the value of goods exported and imported for processing and of finished goods and in addition, on separate calculations for several significant enterprises. The source data have been Finnish Customs' statistics on foreign trade, statistics on international trade in services, business statistics and enterprises' financial statements.

In the time series, imports of goods and services in total decreased at most by nearly EUR one billion and exports by good EUR one billion. The current account improved in this respect slightly in several years. Goods sent abroad for processing in Finland have been most common in the manufacture of chemicals and basic metals, and goods sent for processing abroad in the manufacture of machinery and equipment.

2.6 Merchanting and factoryless goods production

Merchanting is defined as the purchase of a good by a resident from a non-resident and the subsequent resale of the good to another non-resident, without the good entering the merchant's economy. In ESA95, the margin of merchanting (difference between sales and purchases) was recorded as exports of services, but in ESA 2010 it will be recorded as exports of goods: the purchase of goods is recorded in the merchanting unit's home country as negative exports of goods and their sale further as positive exports of goods. The procedure is thus opposite to that in goods sent abroad for processing, where goods trade turns into sale of services. For merchanting, the time series have not been revised retrospectively, because pure merchanting has been minor in Finland.

Factoryless goods production refers to an activity where an enterprise has no actual manufacturing in its home country, but planning, research, product development, administration and marketing are located in that home country. The enterprise contracts out the processing of the actual product abroad and receives considerable added value on the product from product planning and research and development work, for example. This margin is recorded as exports of services, as has been the case thus far. ESA 2010 does not have instructions on recording this, but the UN is currently defining processing rules for it. So far, factoryless goods producers are treated as earlier in Finland, that is, the margin is included in exports of services.

2.7 Treatment and calculation of value added tax

Two revisions were made to value added tax. Firstly, the data source taken into use for value added tax paid by municipalities and joint municipal authorities and repaid to municipalities was the Tax

Administration's data starting from 2002, because the previously used data source, statistics on local government finances did not include the value-added tax of municipal enterprises.

As a result, value-added tax revenue grew, because the repayment in question is calculated as part of the value-added tax revenue. At most, the revenue increased by over EUR 300 million. Gross domestic product and income also rose, because value added tax is tax on products. In municipalities' expenses, the imputed paid value added tax is divided between intermediate consumption, investments and social transfers in kind. They grew, as did consumption expenditure and also value added, because due to investments, consumption of fixed capital increased slightly. Repayment of value added tax to municipalities is recorded as income transfer from central government. Net lending did not change in any sector.

Secondly, the payment paid by Member States to the European Union budget on the value added tax basis was previously recorded in the statistics as taxes collected by the EU. After the ESA 2010 review, the VAT payment is treated as tax collected by central government and as income transfer paid to the EU, in a similar manner as the gross national income payment based on gross national income. As a result of this change, central government's tax revenue grows and the EU's tax revenue diminishes in national accounts. This change also increased gross national income but not gross national product. The size of the VAT payment has been at its highest under EUR 500 million.

2.8 Employee stock options and compensation of employees

In ESA 2010, employee stock options are recorded in wages and salaries. There have been employee stock options in Finland since 1989 and they were included in wages and salaries in national accounts until 1997, but they were insignificant at the time. After that, options have not been recorded in wages and salaries. Now options are recorded in wages and salaries from 1998 onwards in the year when the option is exercised or sold, which is also the basis for taxation on option income. The item also contains stock bonuses.

Employee stock options were at their highest in 2000, around EUR one billion, or two per cent of the wages and salaries sum, but in recent years only good EUR 100 million. The Tax Administration's annual tax return data are used as source data.

Recording options as wages and salaries reduces enterprises' operating surplus, although they are not paid from the enterprise's assets. Data on paid wages and salaries without options are separately available from Statistics Finland.

Other revisions were also made to wages and salaries. In financial corporations, wages and salaries were amended particularly in activities auxiliary to financing and insurance. Wages and salaries paid by non-financial corporations were revised starting from 2010 based on the Business Register data and in many industries throughout the 2000s. In addition, wages and salaries in building construction were revised upwards from 1995 onwards, because the number of foreign employees was re-estimated. In real estate activities, wages and salaries were also revised upwards from the 1990s on. In total, these other revisions increased the wages and salaries sum at most by under EUR 500 million. In addition, the above-mentioned revision of the definition of general government increased wages and salaries paid by general government, but decreased those paid by non-financial corporations and non-profit institutions starting from 2000.

Voluntary social security contributions received by insurance corporations were mostly revised upwards starting from 1975, based on the statistics on insurance companies. The change was at its

highest good EUR 100 million. Voluntary social security contributions paid by non-financial corporations were changed accordingly.

2.9 Foreign trade and current account

The effects the changes in the treatment of goods sent for processing had on exports and imports of goods and services were already discussed above. In addition, other changes were made to data on the rest of the world sector.

Income from construction abroad and expenses caused by foreigners' construction in Finland were earlier recorded in property income and expenditure (withdrawals from the income of quasi-corporations). According to ESA 2010, exports and imports of construction services must be recorded for construction projects lasting under one year. This treatment thus became similar to those used in the balance of payments and statistics on international trade in services. The change had no effect on the current account.

The time series start from the year 1986. Exports and imports of construction services have been at their highest around EUR one billion. The data for 2008 had an error, which was revised at the same time. The output or other transactions of building construction or any other industry were not revised because of the change, as the data have already included exports.

An estimate of private persons' e-commerce was added for the years 2000 to 2007 into imports of goods and services. From 2008 on, the data are already included in imports, based on the statistics on e-commerce produced by TNS Gallup. For imports of goods, Finnish Customs' statistics on foreign trade cover imports from outside the EU, but imports from EU countries were added. Purchases made from outside the EU were also added to imports of services. In total, imports increased at most by good EUR 400 million.

The value of imputed housing services produced by foreign dwellings was added to imports and exports of services from 2004 onwards. The value of imputed housing services of dwellings owned by Finns abroad was added to imports. Correspondingly, the imputed output of dwellings owned by foreigners in Finland was added to exports of services. Imports and exports remained low, under EUR 20 million per year. The same items were recorded in property income and expenditure as reverse entries, so the current account did not change because of this. The sources used were the National Land Survey's data on real estate transactions by foreigners in Finland and the Household Budget Survey’s data on dwellings owned by Finns abroad.

Certain other revisions were made to imports and exports of services and interest rates and dividends starting from 2004, when data were compared to the statistics on balance of payments and international trade in services. At most, the changes were under EUR 500 million.

Wages and salaries paid from Finland abroad were revised upwards in 2000 to 2010 based on the Tax Administration's data on taxpayers with limited tax liability, at most by EUR 170 million. At the same time, the related employer's social insurance contributions and numbers of employed foreigners in Finland were revised.

2.10 Financial corporations

A new more accurate sub-sector classification according to ESA 2010 was taken into use in the financial corporations sector. In place of the previous five sub-sectors, there are now nine sub-sectors. In the

sub-sectors, the units 'other financial intermediaries', 'financial auxiliaries' and 'captive financial institutions and money lenders' were re-classified into new sectors. Some holding companies included in non-financial corporations were transferred to financial corporations.

ESA 2010 requires that the Central Bank's market output is recorded as the intermediate consumption of deposit banks. This has been done since 1995, when the Bank of Finland was separated into a sector of its own. To balance income and expenditure, the corresponding item is recorded as income transfer from the Central Bank to deposit banks. The item has been about EUR 100 million.

Income and expenses from derivative trade belonging to financial transactions were removed from interests received and paid by financial corporations. The revision concerns the years 2005 to 2010, because starting from 2011, the revision has already been made earlier. The decreases were at most nearly EUR two billion, but in net amounts at most around EUR 500 million. The interests received decreased more than those paid.

The market output of financing includes part of the income from currency and securities trading, for example. Their calculation method was changed starting from 2005. At most, market output decreased by good EUR 100 million.

The source data basis for other financial intermediation and activities auxiliary to financing was changed and units were re-classified between the new sectors. The change in general decreased the levels of these sectors' transactions. The treatment of the Bank of Finland's pension fund was also amended.

2.11 Insurance corporations

Following ESA 2010, insurance corporations were divided into two sub-sectors: insurance corporations and voluntary pension funds. Insurance corporations include life and non-life insurance corporations and as a new unit the Deposit Guarantee Fund since 1999. Voluntary pension funds include only the voluntary parts of pension funds and foundations, the statutory parts are still included in employment pension schemes. The time series of voluntary pension funds starts from the year 2000. Prior to that, they were included in employment pension schemes as before. The voluntary pension insurance provided by life insurance companies is included in insurance corporations.

A new industry 'Letting of other real estate' was added alongside insurance activities in insurance corporations. It contains insurance corporations' income and expenses in real estate activities. The data were previously included in the industry in question in the non-financial corporations sector.

The most significant change in calculating insurance is the shift to use the so-called cost method in calculating the market output of life insurance. The market output of non-life insurance is in turn calculated mainly similarly as before.

The market output of life and pension insurance is now calculated as a sum of costs (total operating expenses and consumption of fixed capital) and operating surplus (11-year moving average of profit/loss for the financial year). As a result of the new method, output, value added and operating surplus develop more evenly than before. The previous system produced time series that fluctuated along with value changes in investment activities and holding gains. Output must describe the service produced by insurance activities and the relatively even service fee levied from it, so it must not be directly influenced by fluctuations in investment activities. Value changes and holding gains and losses in investment activities are in turn visible in financial accounts.

Changing the method had no significant effect on average output, value added and operating surplus. Instead, the effects are significant in individual years, even hundreds of millions of euros either way, especially at the turn of the millennium. The change in the market output of insurance also altered household consumption expenditure on insurance considerably.

The calculation method of intermediate consumption was changed in 1975 to 1995 to correspond to the method used since 1996, which increased intermediate consumption in those years.

Other methodological changes were also made to the time series of insurance corporations. They had a significant effect on the imputed investment income paid to insurance policy holders, premiums and indemnities for insurances against loss or damage, social insurance contributions and compensations and adjustments for the change in net equity of households in pension fund reserves. Dividends and paid income taxes were revised especially at the turn of the millennium.

The data on insurance corporations are based on the statistics on insurance companies.

2.12 Non-profit institutions serving households

New data were obtained for the calculation of non-profit institutions serving households using the Tax Administration's 6C form from 2010 onwards. The data contain information given by around 20,000 associations in income tax returns. They were supplemented by information on around 10,000 units from the Business Register. The data were used when calculating the output and intermediate consumption of the sector's different industries. The data on wages and salaries are still based on the Business Register.

The level difference in the new and old figures for 2010 was faded out backwards, adhering to the old level of 1999, except in the industry 'sports activities and amusement and recreation activities', which adhered to the level of 1989.

Intermediate consumption grew by over EUR 900 million in 2010. Market output increased by over EUR 500 million, but sales of non-market products decreased by almost the same amount. The wages and salaries paid by the sector diminished due to the sector shift (polytechnics, etc.) by over EUR 200 million. As a consequence of these changes, consumption expenditure grew by around EUR 600 million in 2010. Consumption expenditure grew most in social services and in activities of organisations. In contrast, consumption expenditure in education declined due to the sector shift.

2.13 Building construction

To calculate the output in renovation building, new data were obtained from a survey made by Rakennustutkimus RTS Oy in 2011 on the value of renovation building of building construction. Conceptual revisions were made to it in national accounts so that it corresponds to output in national accounts. The previous cross-sectional data of VTT Technical Research Centre describing the level of renovation building was from 2000.

As a result of the level revision, the output of renovation building went down by around EUR 400 million in 2011. Output in renovation building of residential buildings diminished by around EUR 800 million, but output in renovation building of other building construction in turn grew by good EUR 400 million. The level difference of 2011 compared with old calculations was faded out backwards so that the old figures for 2000 were adhered to.

Renovation building is divided into annual repairs and renovations. In the case of residential buildings, the relation between renovations and annual repairs did not change. For other building construction, the share of renovations grew clearly.

The output of renovation building also has an impact on the demand items. Because annual repairs of residential buildings decreased, the intermediate consumption of the industries 'letting of dwellings' and 'operation of dwellings' diminished correspondingly. As annual repairs of other building construction increased, the intermediate consumption of the industry 'letting of other real estate' grew. Since renovation of residential buildings declined, investments in residential buildings also went down. On the other hand, investments in other building constructions increased.

Intermediate consumption, employment, and wages and salaries in building construction were revised at the same time.

2.14 Housing

Several changes were made to both the industries 'letting of dwellings' (rental dwellings) and 'operation of dwellings' (owner-occupied dwellings).

In letting of dwellings, output was revised (rents paid) downwards starting from 1996. The revision is based on the Household Budget Surveys where the level of paid rents has been lower, both for square metres and rents per square metre. In turn, wages and salaries in the industry were revised upwards based on new data.

In both industries, changes in renovation investments and the lifetime assumption modified consumption of fixed capital. In addition, the revision of the above-mentioned annual repairs changed intermediate consumption.

2.15 Household consumption expenditure

Household consumption expenditure changed mainly because data were obtained about households' consumption from the Household Budget Survey for 2012. The previous Household Budget Survey was from 2006 and the consumption data of that year were not as a rule changed. In contrast, consumption data for 2007 to 2012 were modified so that the data for 2012 now correspond better than before to those of the Household Budget Survey and the level difference was faded out backwards by the year 2006.

Compared to the previous data, expenditure decreased on food, beverages, tobacco, clothing and footwear, decoration and home maintenance, health, education, restaurant services, social protection and financial services. In turn, expenditure on acquisition of vehicles, telecommunications, and recreation and culture grew compared with earlier data.

Households' consumption expenditure on insurance was amended to correspond to changes made to the output of insurance. Actual housing rents were revised downwards from 1996 on, at most by around EUR one billion. Expenditure on the use of private vehicles (fuel, maintenance and repair) was revised upwards starting from 1995, at most by over EUR one billion. The reason for this was that the operating costs of company cars must be recorded as expenditure for households, not enterprises, because the corresponding fringe benefit is part of households' wages and salaries.

Different changes mostly cancelled each other out and households' total consumption expenditure decreased or increased at most by around EUR 700 million.

2.16 Consumption of fixed capital

Consumption of fixed capital changed for several reasons.

First of all, the treatment of research and development expenditure and acquisition of weapon systems as investments increased the consumption of fixed capital. The consumption ages of research and development expenditure were assessed by industry and sector, based on international recommendations and average validity of patents. The consumption age of product types was assessed to be around ten years, on average. The consumption age of weapon systems was estimated to be 25 years based on data supplied by the Finnish Defence Forces.

The lifetime assumption of investments in residential buildings was altered from 50 to 60 years, which reduced their annual consumption. Changes in investment figures, such as data on renovation of building construction, altered consumption of fixed capital. Similarly, transferring of units from one sector to another changed consumption.

2.17 Constant price time series

The year 2010 was changed as the reference year for constant price series, which is only a technical change.

The price and volume indices used in the calculation of constant price series have not changed that much from the previous ones. This means that changes made to constant price series correspondingly altered constant price series that describe volume.

Constant price series of research and development investments were derived by deflating current price data with indices of wage and salary earnings. At the same time, output in research and development into own final use was deflated. Around two thirds of R&D expenditure were expenditure on wages and salaries and the remainder purchased goods and services.

In deflating the acquisition of weapons systems, use was made of old prices of intermediate consumption in the industry 'defence equipment and conscripts', that is, prices of defence material acquisitions.

In insurance, the market output of life insurance was deflated with the index of wage and salary earnings in insurance activities. Non-life insurance was deflated with the price indices of non-life insurance of the Consumer Price Index. The same price indices were used when deflating consumption expenditure used by households on insurance. The price index of intermediate consumption of insurance was also revised before 2004.

The changes caused by processing abroad to the product structure of exports and imports and output and intermediate consumption of some industries have been taken into account since 2009 and the figures for these years have been deflated anew.

2.18 Dividends

Several revisions were made to the time series of dividends. First, capitalised dividends of investment funds belonging to shareholders were moved from dividends to investment income (ESA 2010

change). This diminished dividends starting from 1998. The same classification change also concerned capitalised interests.

Dividends received and paid by foreign economic units were revised starting from 2004 based on the data of the statistics on balance of payments. Dividends received by non-profit institutions serving households were revised from 2001 on against the data of the Tax Administration's 6C form. Dividends received and paid by insurance corporations were revised starting from 1975 based on the statistics on insurance companies. The change in treating enterprise restructurings made in 1999 and 2000 particularly changed dividends.

Paid and received dividends were balanced using the non-financial corporations sector as a residual sector. The used balancing items were until 2004 dividends received by non-financial corporations and from 2005 dividends paid by non-financial corporations.

2.19 Other time series revisions

Net growth of forests was revised from 1975 onwards based on data from the Finnish Forest Research Institute, mainly downwards, which diminished value added at most by over EUR 300 million. The sector distribution of net growth was also changed slightly. On the demand side, net growth of forests is recorded as change in inventories.

In several industries, concealed sales revenues (grey output) to be added to the market output of non-financial corporations and households were re-assessed from 2009 on, also to balance the supply and demand of the national economy. This increased output and value added by around EUR 600 million.

In investments, data on the product type 'exploration of minerals' were revised from 1995 onwards based on the data from the Finnish Safety and Chemicals Agency.

The pension fund of the Social Insurance Institution's employees was moved from other social security funds to employment pension schemes starting from 1991, that is, since its establishment. Pensions paid are under EUR 100 million per year. Other, minor revisions were also made to the time series of employment pension schemes and social security funds.

The distribution of paid income taxes (mainly corporation tax) by sector was revised. Income taxes paid by insurance corporations mostly increased, the data are now based on the statistics on insurance companies. Income taxes paid by non-profit institutions serving households were also revised from 2001 against the data of the Tax Administration's 6C form. Correspondingly, income taxes paid by non-financial corporations mainly decreased.

The distribution of paid real estate tax (other direct tax) by sector was revised starting from its introduction in 1993, because the distribution of general real estate tax was re-estimated. The share paid by households in real estate tax grew slightly and the share of non-financial corporations went down.

Vehicle tax is divided in national accounts into "other taxes on production" (vehicles used in production) and "other direct taxes" (households' vehicles). Their mutual distribution was changed starting from 2004, because new information was obtained by combining registers, similarly as on the distribution of used vehicles between industries. The share paid by households on vehicle tax changed significantly, from around 40 to about 80 per cent.

The total accrual of paid taxes remained unchanged, except for minor revisions.

The treatment of the vehicle registration fee was changed so that it is now included in taxes on products. The change was made starting from 1997, from which on the data are available. Before that, the registration fee was included in central government's market output.

The number of employed persons was revised upwards starting from the 1990s, at most by around 20,000 persons. The number of hours worked was revised mainly downwards, at most by over 40 million hours. The revisions were based on reconciliation of wages and salaries, work input and average earnings.

The ESA 2010 review also includes sections that have no direct impact on the now published time series. Such are the treatment of standardised guarantees and emission rights, the supplementary pension tables and the development of assets accounts.

3. Effects on main aggregates

3.1 Main aggregates

The table below shows the changes in main aggregates compared with accounting according to ESA95. Normal revisions of preliminary data also had an effect on the change in 2012.

Table 1. Changes in main aggregates, EUR million

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Gross domestic product	4 066	5 149	4 643	6 038	6 211	6 958	6 849	6 754	8 039	8 711	8 376	8 125	6 719
Imports	-684	-636	-162	246	586	490	-248	-68	271	482	262	97	1 738
Exports	-258	-455	-256	163	459	431	-894	-292	363	1 309	249	-220	825
Consumption expenditure	-405	-73	-447	260	322	623	648	530	715	1 523	945	991	855
Investments	4 976	4 985	5 260	5 490	5 894	6 173	6 190	6 765	7 586	7 182	7 235	7 087	6 437
Change in inventories		17	-22	-22	-30	-50	-39	-346	-293	-730	209	364	17
Gross national income	4 227	5 284	4 877	6 240	6 161	6 887	6 836	7 153	7 460	8 230	8 215	8 485	6 806
Net national income	1 547	2 243	1 436	2 403	2 074	2 480	2 094	2 360	2 210	2 054	1 835	1 930	-72
Compensation of employees	1 171	711	836	534	633	640	1 093	847	476	387	312	252	494
Operating surplus/mixed income	198	1 376	291	1 606	1 661	2 011	1 091	1 178	2 385	2 146	1 612	1 267	-801
Consumption of fixed capital	2 680	3 041	3 441	3 837	4 087	4 407	4 742	4 793	5 250	6 176	6 380	6 555	6 878

3.2 Gross domestic product and gross national income

The value of gross domestic product grew in all years. In 1975, the level rose by only 0.7 per cent, but at its most by 5.1 per cent in 2009. As a consequence of the risen level of gross domestic product, all ratios and shares, where some figure is compared with gross domestic product, diminish, unless the figure to be compared grows in relative terms at least as much as gross domestic product.

Gross domestic product grew most of all as a result of the new treatment of research and development. The new calculation method of insurance activities had a lowering effect on gross domestic product at the beginning of the 2000s.

Table 2. Contribution of different factors on change in gross domestic product, percentage points.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Research and development	3,4	3,3	3,4	3,5	3,6	3,7	3,6	3,6	3,9	4,0	4,0	3,7	3,4
Consumption of weapon systems	0,3	0,3	0,3	0,3	0,2	0,2	0,2	0,2	0,2	0,3	0,2	0,2	0,2
Methodological change of insurance	-1,0	-0,3	-0,7	0,2	0,0	0,3	0,1	-0,1	0,1	0,2	0,0	-0,1	0,0
Value added tax	0,0	0,0	0,0	0,0	0,0	0,1	0,1	0,1	0,1	0,1	0,2	0,2	0,2
Other changes	0,4	0,4	0,2	0,2	0,2	0,2	0,1	-0,1	0,1	0,4	0,3	0,3	-0,4
GDP total	**3,1**	**3,7**	**3,2**	**4,1**	**4,1**	**4,4**	**4,1**	**3,8**	**4,3**	**5,1**	**4,7**	**4,3**	**3,5**

In addition to changes in gross domestic product, changes in primary income from abroad influenced gross national income. These included the changes in treating the VAT payment paid to the EU, in treating foreign construction activities, as well as dividends, interest rates and wages and salaries from abroad. Gross national income changed from before either more or less than gross domestic product, depending on the year.

Gross value added grew examined by sector most in non-financial corporations and general government (incl. universities), because research and development mainly takes place there.

Table 3. Change in gross value added by sector, EUR million.

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Non-financial corporations	4 003	4 062	4 133	4 243	4 566	4 798	4 977	5 053	5 759	5 874	5 647	5 259	3 245
Financial and insurance corporations	-1 249	-297	-922	340	109	546	119	-175	132	263	-116	-47	21
General government	1 389	1 476	1 496	1 564	1 655	1 737	1 864	2 011	2 270	2 479	2 746	3 012	3 276
Households	-74	-79	-85	-97	-111	-128	-124	-77	-44	155	136	-72	87
Non-profit institutions	-20	-34	-54	-73	-98	-114	-140	-242	-258	-318	-353	-298	-308
Total	**4 049**	**5 128**	**4 568**	**5 977**	**6 121**	**6 839**	**6 696**	**6 570**	**7 859**	**8 453**	**8 060**	**7 854**	**6 321**

3.3 Volume development of gross domestic product

The annual volume change of gross domestic product amended only slightly. At most, the volume change altered by 0.5 percentage points in its absolute value. The changes were mainly the result of the new treatment of research and development activity. When research and development expenditure has grown more strongly than gross domestic product, the growth in gross domestic product has also been greater than previously estimated, and when research and development expenditure has contracted in relative terms more than gross domestic product, it has also decreased more than earlier assessed.

Over the period of 1975 to 2012, the volume of gross domestic product grew now in total by 2.8 per cent more than before.

3.4 Exports and imports

Exports and imports changed in different directions, depending on the year. As a rule, exports of goods decreased, but exports of services grew mainly due to the changed treatment of goods sent abroad for processing. In total, the change varied from EUR -900 million to EUR +1,300 million. Imports of goods also diminished and imports of services increased. In all, the change was between EUR -700 million and EUR +1,700 million. Changes in the current account remained under EUR one billion.

3.5 Investments, consumption and change in inventories

Investments grew significantly, because research and development expenditure and acquisition of weapon systems are now treated as investments. At most, the growth amounted to EUR 7.6 billion.

The investment rate, or the ratio of investments to gross domestic product, grew by an average of three percentage points over the 2000s.

Households' consumption expenditure turned as a rule upwards, at most by over EUR 700 million (1999). Revisions made to insurance, actual housing rents and use of vehicles had most effect on the changes. The consumption expenditure of non-profit institutions serving households grew. Public consumption expenditure increased since 2007, but decreased before that. The growth was due to the extension of the sector definition of general government, particularly local government. The decrease in turn was caused by the changed treatment of acquisition of weapon systems, and research and development expenditure.

Change in inventories altered mainly due to the change in net growth of forests and goods sent abroad for processing.

3.6 Net lending

Net lending of different sectors, or the financial position, changed varyingly. General government's net lending changed least. Net lending by financial and insurance corporations weakened for various reasons in different years. Net lending by non-profit institutions serving households was deteriorated by growth in consumption expenditure. Net lending of the rest of the world sector mainly improved, which means that net lending in the Finnish national economy weakened.

Conceptually, ESA 2010 corresponds to the new balance of payments manual BPM6, that is, foreign net lending in national accounts and current account in the statistics on balance of payments are congruent. In practice, there are still small differences in the time series, which will in future be removed.

Table 4. Change in net lending of different sectors, EUR million

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
Non-financial corporations	-1 551	-572	-241	278	335	1 033	658	688	-166	1 483	1 067	996	-375
Financial and insurance corporations	-493	-645	-1 156	-323	-366	-758	-989	-631	-169	-301	-823	-766	35
General government	62	59	45	66	50	25	20	-31	24	97	254	-61	88
Households	1 084	1 214	1 252	357	16	52	595	390	48	-471	-97	683	-135
Non-profit institutions	98	-112	-86	-166	-228	-389	-454	-406	-451	-686	-722	-937	-372
Rest of the world	-131	95	132	181	345	308	866	19	653	-213	321	183	1 082