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A New National Accounts Framework

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A NEW NATIONAL ACCOUNTS FRAMEWORK[1]

1.0 Introduction

The new framework for national accounts statistics, the European System of Accounts (ESA) 2010, entered into force in September 2014, replacing the old framework of ESA 1995. The new system essentially modernises the previous standards in ESA 1995. Such changes are periodically made to adapt the national accounts to the changing dynamics of economic activity, for example to incorporate the advent of the knowledge economy. Updates are also needed to comply with international standards.

The changes in ESA 2010 are important but not radical. The biggest conceptual change is that Research and Development (R&D) spending is now recorded as investment rather than as current expenditure. While this increases the level of gross domestic product (GDP), it has a negligible impact on the growth rate of GDP from year to year. The new methodology also provides for more comprehensive and comparable information on pension entitlements starting in 2017, which is clearly important in the light of ageing societies. It also provides more precise principles for classifying units into or outside the government sector.

The changeover to ESA 2010 was planned since the agreement on the underlying new international standard, the System of National Accounts 2008. The implementation of ESA 2010 coincides with normal periodic revisions of the national accounts produced by national statistical institutes. The main changes, other than those related to ESA 2010, are:

- benchmark revisions, in which national methodologies and data sources are reviewed and updated. In some cases, benchmark revisions may generate a more significant revision to GDP than the changeover to ESA2010;
- the harmonisation of measurement of certain illegal activities, notably prostitution, and the production and trafficking of drugs. While these were already included in the official definition of GDP under the old standard, implementation had varied from country to country. A common methodology for recording these activities is now being applied.

The successful implementation of these changes has been a Europe-wide project requiring a significant, coordinated effort from national statistical institutes and Eurostat.

2.0 Implementation in Malta

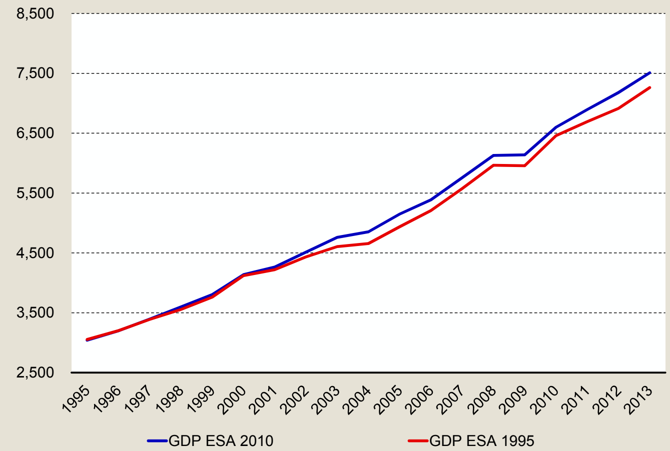
In the case of Malta, the adoption of the new system meant that the entire GDP time series from 1995 onwards was revised. The main statistical projects with respect to the benchmark revision relate to the insurance sub-sector and to special purpose entities (SPE), while ESA 2010 entailed the capitalisation of R&D expenditure.

The National Statistics Office (NSO) has also introduced a major methodological improvement in the compilation of national accounts data in real terms. Under ESA 1995, the volume series of the quarterly national accounts were published in constant base-year prices (the base year was 2000). To meet EU requirements, the ESA 2010 series will henceforth be calculated at chain-linked prices. However, as a result of this change, levels of sub-components of GDP in real terms do not add up to the level shown by aggregate categories.

[1] This article was written by Mr Michael Pace Ross, Mr Joseph Bonello and Ms Vanessa Dimech from the National Statistics Office, Malta.

The NSO has now published national accounts annual data from 1995 to 2013 at current market prices and from 2000 to 2013 in chain-linked volumes. Quarterly data are available on the online edition of *News Release* 195/2014.

Chart 1
GROSS DOMESTIC PRODUCT AT CURRENT PRICES
(EUR millions)



Source: NSO.

Results for GDP and gross national income

The recalculation, as part of the 2014 revision of the national accounts, has led to an increase in nominal GDP by an average of 2.2 percentage points over the whole time series (see Chart 1). The gross national income (GNI) series has been revised upwards by an average of 2.7 percentage points, compared with the *News Release* published on 27 August 2014 (159/2014). Revisions in GDP range from a low of -0.4% in 1995 to a high of 4.3% in 2004. Revisions in GNI range from -1.0% in 1995 to 6.0% in 2012.

The main changes in GDP and GNI levels between 2010 and 2013 are shown in Table 1 and may be broken down as follows:

- the introduction of ESA 2010 increased GDP by an average of 0.4 percentage point and the GNI by an average of 0.6 percentage point;
- methodological improvements increased GDP by an average of 2.7 percentage points and GNI by an average of 4.6 percentage points.

The rates of change of annual figures at current prices differ by an average of 0.2% in the whole time series between 1995 and 2013, and by an average of 0.3% for the price-adjusted GDP between 2000 and 2013. The new path of GDP confirms the economic cycle displayed by ESA 1995 national accounts data, as can be seen in Chart 2.

Table 2 illustrates the revisions in some of the main variables of the national accounts for the benchmark year 2010. The most prominent revisions relate to imports, exports and property income received, and paid from and to the rest of the world, mainly owing to the integration

Table 1
GDP AT CURRENT PRICES AND IMPACT OF REVISIONS: 2010-2013

	2010	2011	2012	2013
ESA 2010 revision on GDP	0.5%	0.4%	0.4%	0.5%
Benchmark revision on GDP	1.7%	2.6%	3.4%	2.9%
Total impact of revisions on GDP	2.2%	3.0%	3.8%	3.4%
Total impact of revisions on GNI	4.8%	4.8%	6.0%	5.3%

Source: NSO.

Table 2
REVISION OF NATIONAL ACCOUNTS : RESULTS FOR 2010

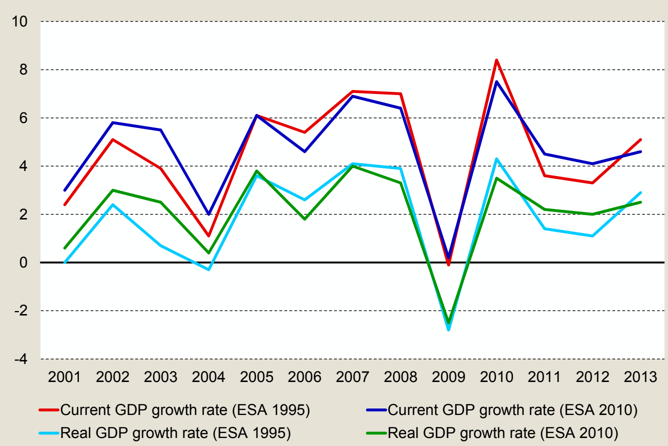
Indicator	Revision[(1)]	New level	Origin of main revisions
GDP	2.2%	€6,599.5 million	ESA 2010, SPEs, insurance, alignment with balance of payment statistics, regular revisions, new sources, illegal activities
GNI	4.8%	€6,321.3 million	
GDP per capita	2.2%	€15,922	
Total exports	72.9%	€10,114.1 million	Integration of SPEs
Exports (% of GDP)	62.7%	153.3%	Integration of SPEs
Total imports	72.9%	€10,174.2 million	Integration of SPEs
Imports (% of GDP)	63.0%	154.2%	Integration of SPEs
Gross fixed capital formation	9.8%	€1,411.6 million	Expenditure on R&D and transfer costs for dwellings
Gross fixed capital formation (% of GDP)	1.5%	21.4%	Expenditure on R&D and transfer costs for dwellings
Private household consumption expenditure	-0.8%	€3,717.9 million	Expenditure on food, culture, accommodation and financial services
Government consumption expenditure	-0.4%	€1,286.4 million	R&D expenditure is now recorded as capital formation
Compensation of employees	0.6%	€2,845.3 million	New data sources
Property income received from the rest of the world	309.0%	€6,571.1 million	Integration of SPEs
Property income paid to the rest of the world	237.2%	€6,853.2 million	Integration of SPEs

(1)Compared to the GDP and its sub-components in ESA 1995 as published in news release 159/2014.

Source: NSO.

of SPEs in national accounts. Nominal GDP is used as a reference value for a number of ratios, so the increase in GDP level also had an impact on such ratios.

Chart 2
COMPARISON OF ANNUAL GDP GROWTH RATES
(annual percentage changes)



Source: NSO.

2.1 Effects of ESA 2010

The main reason for the increase in the level of GDP caused by ESA 2010 is the capitalisation of R&D expenditure (see Table 3). In 2013 0.5 percentage point of the rise in GDP level was due to this reclassification. Under ESA 2010, R&D expenditure is recorded as investment and is included under gross fixed capital formation (GFCF) in the expenditure approach. In the case of market producers, the impact includes production for own use of R&D products and a reclassification of imported R&D previously included in intermediate consumption. The resultant increase in output in the production approach is mirrored in operating surplus in the income approach. For non-market producers, the impact on GDP is equivalent to the consumption of fixed capital of the new R&D assets, which is mirrored in a downward revision in government final consumption expenditure.

Other revisions include the reclassification in the general government sector of the Malta Freeport Corporation Ltd (from 1999 to 2011) and of the Malta Information Technology Agency from 1995 to date, and the reallocation of some output of the Central Bank of Malta across sectors.

Table 3
RESEARCH AND DEVELOPMENT[1]
(EUR millions)

	Market producer				Non-market producer			
Production approach	**2010**	**2011**	**2012**	**2013**	**2010**	**2011**	**2012**	**2013**
Output of goods and services (at basic prices)	25.2	21.1	21.1	22.1	7.8	8.6	9.6	10.7
Intermediate consumption (at purchasers' prices)	-1.2	-1.1	-1.2	-0.8	-0.5	-0.4	-0.4	-0.3
Gross Value Added (at basic prices)	**26.4**	**22.2**	**22.3**	**22.9**	**8.3**	**9.0**	**10.0**	**11.1**
Expenditure approach								
Total final consumption expenditure					-4.0	-4.8	-7.5	-5.2
General government final consumption expenditure					-4.0	-4.8	-7.5	-5.2
Gross capital formation	26.4	22.2	22.3	22.9	12.3	13.9	17.5	16.3
Gross fixed capital formation	26.4	22.2	22.3	22.9	12.3	13.9	17.5	16.3
Income approach								
Compensation of employees								
Gross operating surplus and mixed income	26.4	22.2	22.3	22.9	8.3	9.0	10.0	11.1
GDP	**26.4**	**22.2**	**22.3**	**22.9**	**8.3**	**9.0**	**10.0**	**11.1**
GNI	**26.4**	**22.2**	**22.3**	**22.9**	**8.3**	**9.0**	**10.0**	**11.1**

(1) Figures may not add up due to rounding.
Source: NSO.

The introduction of ESA 2010 contributed 0.5 percentage point to the increase in GDP and 0.6 percentage point on GNI in 2013.

2.2 Effects of methodological improvements

The benchmark revision incorporated updates related to the financial sector. New estimates now include SPEs and incorporate results of a review of the compilation methods used in the insurance sub-sector. Other enhancements include the identification of new data sources for holding companies and trusts. Reclassifications in the banking sector were also taken on board for the whole time series. The benchmark revision also incorporates updates, as well as a methodological alignment in the compilation of national accounts and balance of payments statistics. A number of pending methodological issues where Malta was not fully aligned with Eurostat methods were also dealt with. The revisions presented from 2011 onwards include other routine updates based on the latest Structural Business Statistics (SBS) survey and on available financial statements.

2.2.1 Main Statistical Projects

2.2.1.1 Special purpose entities

The inclusion of SPEs had an impact on the main variables shown in the production and expenditure approaches. An SPE may be defined as a limited company or a limited partnership, created to fulfil narrow, specific or temporary objectives and to isolate a financial risk, a specific taxation or a regulatory risk. These entities have been classified in the financial sector as they are mainly involved in invoicing or act as holding companies. Consequently, figures for SPEs are compiled using the sum-of-costs approach, a method recommended by Eurostat. There was a level shift in output and intermediate consumption in the production approach, and in imports and exports in the expenditure approach. The level shifts ranged from €1.3 billion in 1995 to €4.7 billion in 2013.

The impact on GDP was negligible up to 2004. Between 2005 and 2013 the contribution of SPEs increased from 0.1 percentage point to 0.4 percentage point in 2013. There was also a level shift in property income received, and paid from and to the rest of the world. This is illustrated in the income approach below. The revision upwards ranged from €92.9 million in 1995 to €8.2 billion in 2013. GNI has been revised upwards over the entire period, by €4.0 million or 0.1% in 1995, and by €106.5 million or 1.6% in 2013.

2.2.1.2 Insurance

The insurance sub-sector was another project in this benchmark revision. A number of transactions disclosed in company accounts were causing large fluctuations in gross value added (GVA). These issues have now been addressed and the time series from 1995 to date has been revised accordingly. In the production approach, revisions are more pronounced in intermediate consumption, which has been revised downwards. The resulting revisions in GVA range from - €12.6 million in 1997 to €67 million in 2012.

The revisions in the compilation of national accounts data on insurance had a direct positive impact on household final consumption expenditure. As a result of this project, a fully balanced system in national accounts is being compiled, so that the total output (local and imported) is allocated between intermediate consumption, consumer expenditure and exports.

Intermediate consumption at NACE division level has been adjusted to include the insurance service charge instead of insurance premia. The revision in intermediate consumption led to an upward revision in GVA, ranging from €10.3 million in 1995 to €17.9 million in 2013.

Property income attributed to holders of foreign insurance policies and income attributed to non-resident holders of domestic insurance policies were included in cross-border flows of property income. The overall impact on GDP amounted to 0.3 percentage point and 0.4 percentage point on GNI.

2.2.1.3 The production approach

(a) Alignment with balance of payments statistics

Some methodological issues relating to inconsistencies between the compilation of national accounts and balance of payments statistics have been addressed. The main revision related to companies classified in the financial sector. The impact ranged from €0.9 million in 2005 to €50.2 million in 2013. Classification issues relating to residency had a negative impact on GDP of approximately €15 million annually across the time series.

(b) Regular revisions

Annual and quarterly GDP data from 2011 onwards were routinely revised according to the latest available SBS survey and annual accounts and financial statements. As a result of these revisions, the GVA at current market prices increased by 1.8 percentage points in 2011, by 2.0 percentage points in 2012, and by 1.9 percentage points in 2013.

(c) New sources

From 2003 onwards, new data sources were incorporated for holding companies and trusts, education and sports, amusement and recreation activities. Data were then extrapolated backwards to 1995, when applicable. Key variables involving holding companies have been revised downwards, with GVA being adjusted by -€6.0 million in 1995 and by -€36.3 million in 2013. Trusts were previously not included in the ESA 1995 series. Their contribution to GVA amounted to €1.0 million in 2003 and to €11.6 million in 2013. Revisions in the education and sports sector were minor.

(d) Illegal activities

Illegal activities relating to narcotics and prostitution, which were also an ESA 1995 requirement, were included in the whole time series. The inclusion of illegal activities had an upward impact on Malta's GDP and GNI of approximately 0.3 percentage point. The increase in output shown in the production approach is mirrored by an equivalent rise in household final consumption expenditure and imports in the expenditure approach. In the income approach this had an impact on gross operating surplus.

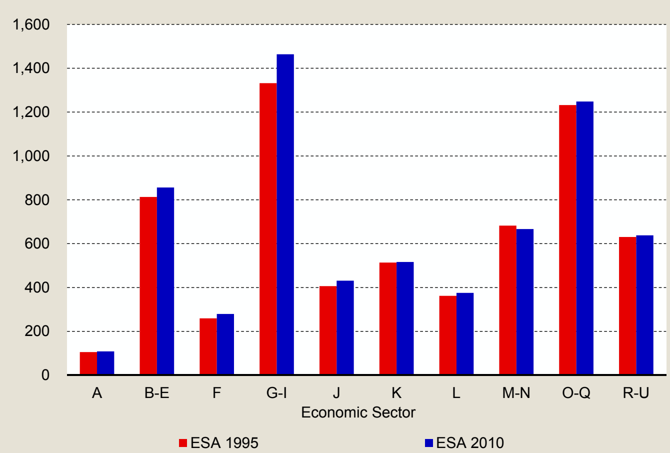
(e) Other changes

The NSO has adopted a new classification for banks in line with that adopted by the Central Bank of Malta. A number of banks previously included as International Banking Institutions (IBI) have now been classified as non-core domestic banks. This had a positive impact on GDP, given that data for IBIs are calculated in a different way. Moreover, these banks have more transactions with non-residents, thus significantly affecting the allocation of their services between intermediate consumption, exports and household expenditure. Other revisions relate to the imputed calculations on banks' service charges, known as Financial Intermediation Services Indirectly Measured (FISIM).[2]

The supply and use framework was used to introduce an adjustment for under-reporting the construction sector for some years.

Chart 3 depicts the industry breakdown before and after the introduction of ESA 2010, and the other methodological

Chart 3
GVA BY ECONOMIC SECTOR FOR ESA 1995 AND ESA 2010 FOR 2013
(EUR millions)



Source: NSO.

[2] FISIM is the term used to describe the services that banks provide to their customers but which are not invoiced. For bank depositors, these services generally include management of current accounts, sending out bank statements and fund transfers between accounts. Instead of directly invoicing for these services, the banks reduce the interest paid to depositors. This interest is in fact lower than what customers could have obtained by lending their money directly to borrowers. For bank borrowers, these services include monitoring their credit worthiness, financial advice, smoothing over time of repayments and recording these repayments for accounting purposes. The cost of these services is an inseparable part of the interest rate the bank charges to borrowers.

changes documented above for 2013.[3] The largest positive revisions to GVA relate to wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service, manufacturing and information and communication activities.

2.2.1.4 The expenditure approach

(a) Household final consumption expenditure

Revisions in household final consumption expenditure stemmed from various sources and differed over time. At product level, downward revisions were made to estimates of the consumption of meat, milk, cheese and eggs, fruit, accommodation services and other cultural services. The latest available information indicated that there was excess demand, implying an overstatement of consumption of these products. Data from the SBS survey also indicated the need to increase the share of intermediate consumption of these products. This revision lowered household final consumption expenditure across the entire time series by an annual average of €106 million between 2000 and 2013. In contrast, a change in the compilation of data for tobacco consumption had a positive impact of approximately €27.4 million annually between 2000 and 2013.

Household final consumption expenditure was revised upwards between 2001 and 2007, following the inclusion of data on the consumption of restaurant services located in hotels.

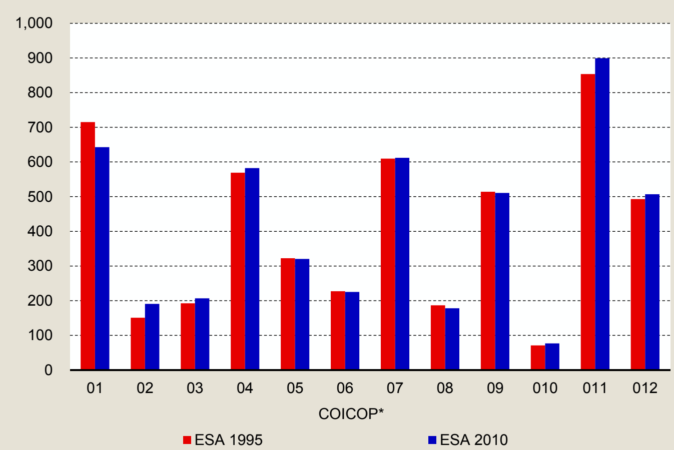
Improved measurement of illegal activities, namely narcotics and prostitution, also resulted in a positive impact of approximately €22 million annually.

A recent ad hoc survey carried out by the NSO showed an estimated €77 million spent annually on internet shopping. This excludes expenditure relating to travel, for which the national accounts have other sources. Following this survey, household consumption expenditure was revised up further.

The project on insurance, methodological changes made in the compilation of other financial services and the revision to FISIM had an impact, which ranged from - €25.9 million in 2000 to €82.4 million in 2005.

Chart 4 shows the impact of these revisions on the various

Chart 4
HOUSEHOLD CONSUMPTION
(EUR millions)



Source: NSO.

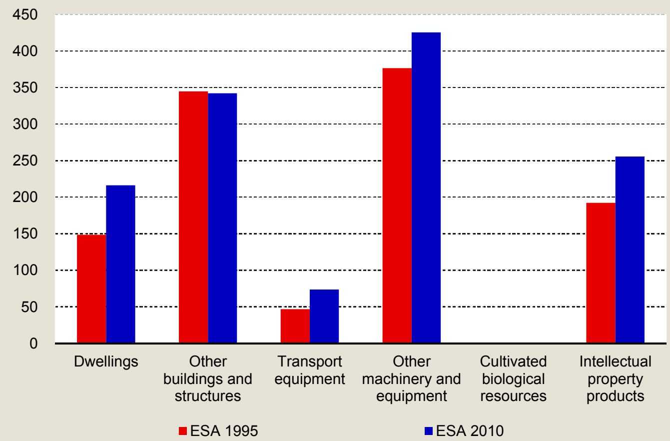
[3] The economic sectors shown in Chart 3 are the following: A) agriculture, forestry and fisheries; (B-E) mining and quarrying; manufacturing; electricity, gas, steam and air conditioning supply; water supply; sewerage, waste management and remediation activities; (F) construction; (G-I) wholesale and retail trade; repair of motor vehicles and motorcycles; transportation and storage; accommodation and food service activities; (J) information and communication; (K) financial and insurance activities; (L) real estate activities; (M-N) professional, scientific and technical activities; administrative and support service activities; (O-Q) public administration and defence; compulsory social security; education; human health and social work activities; (R-U) arts, entertainment and recreation, repair of household goods and other services.

components of household consumption in 2013.[4] These had an overall impact of €18.7 million in that year.

(b) GFCF

Apart from the inclusion of R&D expenditure, revisions to GFCF were due to transfer costs relating to dwellings, which were previously only partly included in GFCF. Transfer costs varied over time, and ranged from €25.4 million in 1995 to €66.3 million in 2013.

Chart 5
GFCF BY ASSET FOR THE YEAR 2013 IN ESA 1995 AND ESA 2010
(EUR millions)



Source: NSO.

Another important revision followed the incorporation of the latest available SBS survey and audited accounts. As a result of this new information, GFCF was revised upwards by approximately €77 million annually in 2011, 2012 and 2013. Other revisions were made to estimates of expenditure on software from 2010 onwards and to updates for own-account production of dwellings by households (see Chart 5).

Following the above-mentioned revisions, the composition of GFCF changed slightly when compared with the ESA 1995 series.

(c) Imports and exports of goods and services

Revisions to imports and exports were mainly due to the inclusion of changes in FISIM, internet shopping results, narcotics and SPEs. The upward level shift in both imports and exports primarily followed the inclusion of SPEs. The level shift amounted to €1.2 billion, or 45.9 percentage points in 1995, and €4.8 billion, or 72.2 percentage points in 2013. Despite this level shift, the impact on balance of exports and imports generated by SPEs was relatively small and amounted, for example, to €1.4 million in 1995 and €30.3 million in 2013.

2.2.1.5 The income approach

The income approach is a derived approach. Consequently, any revisions reported in the production approach resulted in a revision in gross operating surplus and mixed income.

Revisions in compensation of employees, which are directly measured through surveys and company accounts, also have an impact on gross operating surplus and mixed income. As part of the regular revision, the GDP data for 2011 were revised according to the latest available SBS survey and on the basis of annual accounts and financial statements. In the income approach, compensation of employees was revised by €58 million in 2011, and by around €87 million annually in 2012 and 2013.

[4] COICOP stands for Classification of individual consumption by purpose. The COICOP categories shown in Chart 4 are the following: food and non-alcoholic beverages (01), alcoholic beverages, tobacco (02), clothing and footwear (03), housing, water, electricity, gas and other fuels (04), furnishings, household equipment and routine household maintenance (05), health (06), transport (07), communication (08), recreation and culture (09), accommodation (010), restaurants and hotels (011) and miscellaneous goods and services (012).

As already explained, the inclusion of SPEs resulted in a level shift in the property income received, and paid from and to the rest of the world.

The overall impact of changes discussed in the production and income approach determines the level of GNI, which has been revised across the whole time series.

3.0 From constant prices to chain-linked prices

The volume series of the quarterly national accounts in ESA 1995 was published in constant base-year prices (the base year was 2000). To meet EU requirements, the series will henceforth be calculated at chain-linked prices.

There are different established techniques for chain-linking quarterly data. Malta has chosen the annual-overlap method, recommended by Eurostat and used by most Member States, which provides a better description of economic changes. It involves aggregating the GDP sub-components in volumes on the basis of the most recent price structure available, that is, that prevailing in the previous year. Chain-linking consists in choosing a reference year (essential for defining levels) and annually updating the structure of relative prices of sub-components. By constructing volume series at chain-linked prices, changes in the aggregates' relative prices over time may be incorporated.

However, chain-linking implies that components of GDP do not add up to the aggregate real GDP series. As in other countries, this reflects the fact that chain-linked volumes are calculated by separately extrapolating both totals and their sub-components. Unlike historical series at constant prices, chain-linked prices do not preserve the classic identity between the sum of the economy's sources (GDP + imports) and the sum of final uses (final consumption + investment + exports + changes in inventories). The loss of additivity of volumes will be observed in all years except the reference year and the subsequent year. In addition, different weights are applied to calculations of different periods (weights of fixed base year as against the previous year).

Chain-linking for variables with a potentially changing sign is aggravated and the results could prove to be erratic. For this reason, variables that are regularly susceptible to this are not required by Eurostat, at least not in absolute terms (e.g. acquisitions less disposal of valuables). In the case of Malta, this issue may also have an impact on some components of GFCF when negative values result at current prices (e.g. transport equipment in 2002).

Selection of a new reference year

In addition to the above-mentioned revisions, the reference year for GDP calculated with the chain-linking method was moved from 2000 to 2010. The transition to the new reference year changed the chain-linked indices and the chain-linked values, but GDP growth rates remained unchanged. Eurostat will also publish Malta's data in chain-linked volumes in 2005 prices.

4.0 Future work on National Accounts

The work in relation to the implementation of ESA 2010 is by no means complete. Malta, together with other Member States, obtained a number of derogations, which expire on 1 January 2020. This means that the NSO will, as from next year, embark on a number of projects to address these derogations and to expand national accounts statistics being compiled at present.[5]

[5] Commission Implementation Decision of 26.6.2014 on granting derogations to Member States with respect to the transmission of statistics pursuant to Regulation (EU) No 594/2013 of the European Parliament and of the Council concerning the European system of national and regional accounts in the European Union.