



Non-Financial Corporations Split Into Subsectors

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1. Executive summary

This report is the final report of a project financed in part by a grant received from Eurostat regarding the improvement of the quality of gross national income estimates.

Foreign multinational corporations are already well known to play a sizable role in the Dutch economy. These corporations are mostly part of the non-financial corporations sector as recorded in the sector accounts framework. Due to the large size of foreign multinational corporations the Netherlands faces clear challenges to estimate gross national income accurately. As income received by foreign corporations is to be allocated to the foreign owners, consistency through the accounts from supply and use tables data to sector accounts data is important.

The Netherlands has been receiving questions regarding the causes behind the large current account surplus where non-financial corporations play a significant role as well as questions regarding the risks related to the large debt levels the Dutch non-financial corporations have relative to gross national product. For statistical purposes, administrative purposes and interpretation purposes it is therefore important to split the non-financial corporations sector into subsectors to enhance the usability of the sector accounts data.

In this study we propose a split of the non-financial corporations sector into foreign controlled corporations and nationally controlled corporations with this second group split further into multinationals, large corporations and small and medium sized corporations. To this purpose we have compiled a list of all non-financial corporations in the Netherlands, categorized those corporations into the four groups and compiled granular data for each corporation consistent with national accounts data. The data have been compiled by using granular source data at the disposal of Statistics Netherlands and by allocating source data adjustments, conceptual adjustments and balancing adjustments to individual corporations.

The data have been compiled for the years 2015, 2016 and 2017. As was to be expected foreign controlled corporations are important within the Dutch non-financial corporations sector. They are the most profitable corporations. In addition they show a tendency to use the Netherlands as a key aggregation point in multinational global corporate structures with large income inflows and outflows going through the Netherlands.

The analysis of the data for 2015, 2016 and 2017 suggests that the income of Dutch corporations that should be attributed to foreign owners is currently underestimated on average by some €9 bln annually, partly due to inconsistencies between the supply and use tables on the one hand and sector accounts on the other hand, partly due to a bias towards recording Dutch ownership of corporations by spotting foreign ownership insufficiently or insufficiently timely and partly due to inconsistencies caused by compilation adjustments. Whether this implies that Dutch gross national income is overvalued by on average €9 bln annually cannot be determined firmly as foreign earnings of Dutch multinationals may similarly be underestimated. However, due to the smaller size of foreign earnings of Dutch multinationals relative to payments to foreign owners by foreign controlled corporations a tentative estimate of the overestimate of gross national income would be €6,8 bln in 2015, €6,0 bln in 2016 and increasing to €11,4 bln in 2017.

2. Introduction

Sector accounts describes all economic processes in a national economy, encompassing production and value added, income flows as well as financial flows. sector accounts does this by describing the activities of sectors. Considering that the production account is covered extensively in the supply and use tables it is clear that sector accounts principally focusses on income flows and financial flows. When looking at data availability, much data on such transactions is typically available from financial institutions. Furthermore, because of the focus on income and finance, financial institutions themselves and in particular Central Banks have a keen interest in sector accounts. As a result the classification of financial entities into financial subsectors is already quite extensive and may even grow in the future.

The European administrative use of sector accounts data for the government sector has increased demand for more granular classifications for the government sector than presented in ESA2010¹, the main European statistical manual for national accounts. But this demand is principally needed for quality checks rather than increased understanding of government processes since the government sector may be diverse but is directed by a single national government. To consolidate data among the various government units is therefore the preferred way when presenting data. Even if the government sector is described as part of the sector accounts system it generally generates all its own information and would be capable, just like the financial institutions, to publish reliable and complete data on its own.

Therefore, when looking at key outputs of sector accounts it is data on non-financial corporations and households that are of the highest interest. Information for these sectors, generated in a consistent framework, is the new element that adds to the various sector specific data sources for financial corporations and the government. But information about non-financial corporations and households in sector accounts, though valuable, also is rather unspecific and uninformative. For example, consumption of households may rise but is this due to increasing consumption by the poorest or the purchase of an extra yacht by the richest households? Who actually is receiving income and who is incurring debts? To answer such questions, households in the Netherlands are split into various subgroups based on their income². In Europe similar groupings are developed by the OECD, Eurostat and the ECB.

That leaves the non-financial corporations sector as the remaining sector for which interpreting data from sector accounts is rather challenging. Whereas data in the supply and use tables is split into multiple industries such as agriculture, industry, transport and trade, sector accounts only has a single sector. Because of such lack of granularity it leaves little scope for actual economic analysis and gives governments little scope for developing new policies. It also makes validating statistical results from the sector accounts rather difficult. There is therefore a clear case to develop a meaningful split of the non-financial corporations sector to answer relevant questions.

One question in particular concerns the impact of globalization. Trade flows and financial flows have been growing strongly for decades making the analyses of the impact of those flows more important. Especially the role of multinationals, some of which are larger than small countries, is of key interest. Macro-economic data of a relatively small country can be strongly influenced

¹ European System of Accounts 2010

² Adding Inequalities to the SNA Framework: How Macro Disposable Income Benefits and Differs from Micro Disposable Income, Arjan Bruil, 2018

by actions of one or a limited number of large multinationals. Although such flows of multinationals represent some form of economic reality, sometimes such flows make macro-economic analysis impossible due to the noise they create in the data. The clearest case of the impact of multinationals has been the GDP growth in Ireland in 2015. Statistically it raised the issue of the mobility of intellectual property as well as the effects of corporate inversions. Two phenomena analysed for the Dutch economy by Ronald Nelisse and Leo Hiemstra (2019)³

Another clear example of the impact of multinationals is the existence in some economies, including the Netherlands, of Special Purpose Entities (SPEs). SPEs are entities used by multinationals to link global operations together and are located in countries of convenience. The flows passing through SPEs often have no meaningful impact on the economy in which they are resident but the flows through such entities are very visible in national statistics such as sector accounts and the balance of payments.

SPEs tend to be diverse and can come in various shapes and sizes. They are not by necessity clearly identifiable from other economic entities. Although a typical SPE tends to have no employees and no production activity a multinational may well use a modest production unit in a local economy as the vehicle of choice through which global profits and investments flow. As a result countries with SPEs, generally classified as financial institutions, are likely to have larger financial flows in the non-financial corporations sector than other countries. Such differences become clear when countries are compared such as in the Macro-economic Imbalances Procedure (MIP) by Eurostat. The comparison is meant to show vulnerabilities in the various countries' economies, for example by looking at private sector debt. But SPE-debt of a multinational that has found its way into the non-financial corporations sector makes such indicators difficult to interpret. None of the SPE-debt is actually of significant relevance in terms of local vulnerability since the debt is covered by the foreign multinational and backed by foreign assets.

Although the Dutch economy may already be of a decent size compared to other countries multinationals are large enough to occasionally have a visible impact on macro-economic data as the Netherlands has found itself in the import and gross fixed capital formation data in 2015⁴. In addition the Dutch economy has a large number of SPEs, some of them spilling over into the non-financial corporation sector.

The case for splits in the non-financial corporations sector is strengthened by the administrative use of national accounts data to calculate the Dutch contribution to the EU budget. Currently data on output and intermediate consumption of non-financial corporations are based on production statistics and processed in the supply and use tables. Data on income and financial flows of non-financial corporations are based, among other sources, on the Statistics of Finances of Non-financial Enterprises and processed in the sector accounts System. The results of the supply and use tables are directly used in the sector accounts System ensuring macro-economic consistency in terms of statistical output of both products. The statistical data used in the supply and use tables is also checked on a granular level with the sector accounts own data, for example regarding gross operating surplus, typically during a major benchmark revision. Nevertheless, due to the different statistical units used in both systems and the various adjustments made in the supply and use tables, only a general alignment between the systems is achieved in practice. A key worry is that due to adjustments to multinational corporations in the supply and use tables the related reinvested earnings that should be distributed to the

³ The Influence of multinational corporations on National accounts: corporate inversions and trade in Intellectual Property, Ronald Nelisse & Leo Hiemstra, 2019

⁴ National accounts 2015 benchmark revision, Statistics Netherlands, 2018

foreign owners of such corporations are not sufficiently consistent. As a result gross national income (GNI) may diverge from its correct value. Such potential consistency problems are also highlighted by Eurostat in its worry that income from output related to capitalized research and development is not sufficiently consistent to the Current Operating Performance Concept (COPC) used to estimate reinvested earnings based on corporate financial statements.

The case is further strengthened by the high profile economic discussion on the causes of the persistently large current account surplus of the Netherlands. The large surplus seems to indicate a lack of local expenditure and excess saving. Both the European Commission and the IMF are looking at the potential causes of the surplus and the possible policy measures that the Dutch government might pursue. The argument being that the Netherlands is forcing deficits on other countries. A significant part of the surplus originates from the non-financial corporations sector. Although some analysis is available on the surplus and its components, most recently by the Dutch Central Bank⁵, Statistics Netherlands has not been able to contribute much to the policy discussion due to the lack of a granular and coherent dataset to pinpoint the exact corporations involved. A split of the non-financial corporations sector in various subsectors would significantly aid future data analysis on developments in the Dutch current account.

The ECB, Eurostat and OECD are sponsoring the development of the subsectoring of the various sectors in the sector accounts system, in line with the subsectors already available in the statistical manuals. The new interest is based on the recommendations of the Data Gap Initiative (DGI-2). In recommendation 8 it is encouraged to compile subsectors with ‘foreign controlled (non-)financial corporations’ as the item of the most interest. To achieve this, one way forward could be to compile such a split based on an indicator approach. For example, data of the Statistics of Finances of Non-financial Enterprises could be used as a set of indicators for each subsector within the non-financial corporations. The data could subsequently be aligned to the data in the National accounts by distributing the differences over the subsectors. Although such an approach would have been feasible it would typically not have been sufficient to do a proper check of gross national income and a true study of the causes behind the current accounts surplus. As a result Statistics Netherlands has opted for a granular approach using micro data for the statistical units used during the actual compilation of the supply and use tables and sector accounts to compile data and distribute this data to subsectors based on the characteristics of the units and subsequently assign compilation and balancing adjustments to these statistical units. To this end Statistics Netherlands has received Eurostat funding as part of its grants program regarding the improvement of data on gross national income (work package 8)⁶.

The report is the result of work done by a large number of colleagues from Statistics Netherlands. I would like to thank in particular in alphabetic order Khadija Afrian, Nieke Aerts, Dirk van den Bergen, Timon Bohn, Hugo de Bondt, Arjan Bruil, Stephen Chong, Henri Demarteau, Gerard Eding, David Gies, Stefan Hoefsmit, Rico Konen, Melanie Koymans, Coen Leentvaar, Chantal Lemmens-Dirix, Oscar Lemmers, Michael Polder, Sandra Schaaf, Michiel Schirris, Ron van der Wal and Warner van der Wal.

⁵ Unravelling the savings surplus of Dutch corporations, occasional paper vol 17 no 4 (2019), Bas Butler, Krit Carlier, Guido Schotten en Maikel Volkerink

⁶ B4451-2019-BOP - National Accounts and Balance of Payments, ESTAT-2019-PA2-4-C-NA-BOP: 2019 National accounts and Balance of Payments grant (2019-NL-NA-BOP), Project 2: Specification of Multinationals in the National Accounts

The report is structured as follows. Chapter three describes the non-financial corporations in the Netherlands, including sources and methods used for compilation. Chapter four describes how the population of all non-financial corporations is determined. The delineation into different subsectors is covered in chapter five. Chapter six discusses the different estimation methods to arrive at the data that can be allocated to the new subsectors. The numerical results and conclusions are presented in chapter seven. Chapter eight offers some concluding remarks.

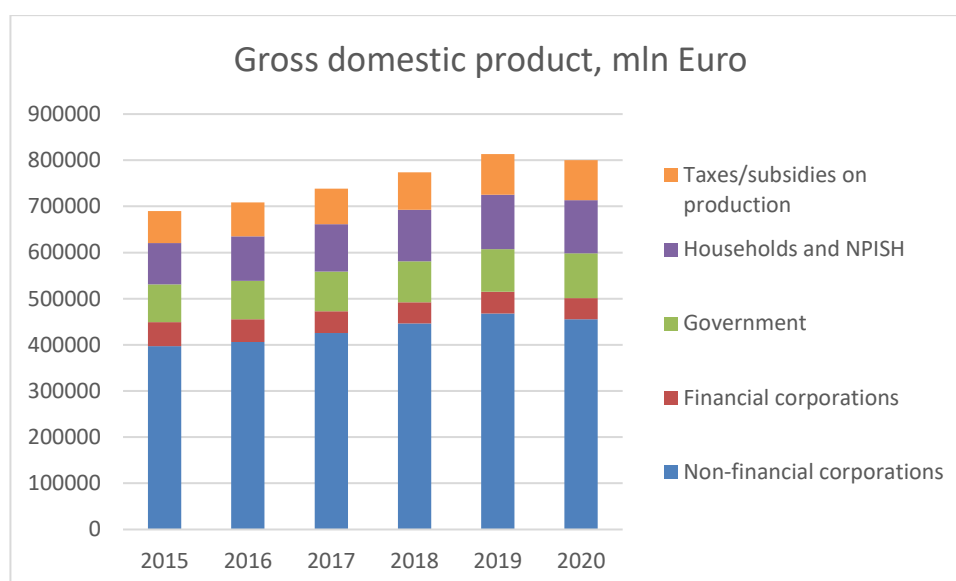
3. Non-Financial Corporations in the Netherlands

The non-financial corporations sector encompasses all corporations that are market producers and that produce goods and/or non-financial services. Industries typically dominated by non-financial corporations are manufacturing, energy, trade, transport and other corporate services. Being a market producer means that the corporations sell their goods and services for economically significant prices which means that generally the prices will more than compensate for the costs of supplying the goods and services.

The non-financial corporations sector is especially relevant when looking at gross national product (GDP) as it covers the units supplying most goods and services. But also when looking at income and financial flows, the non-financial corporations sector is sizable. This chapter first focusses on the size and characteristics of the non-financial corporations in the Netherlands. In the second part it will be discussed how data on the non-financial corporations is currently compiled in the Dutch national accounts.

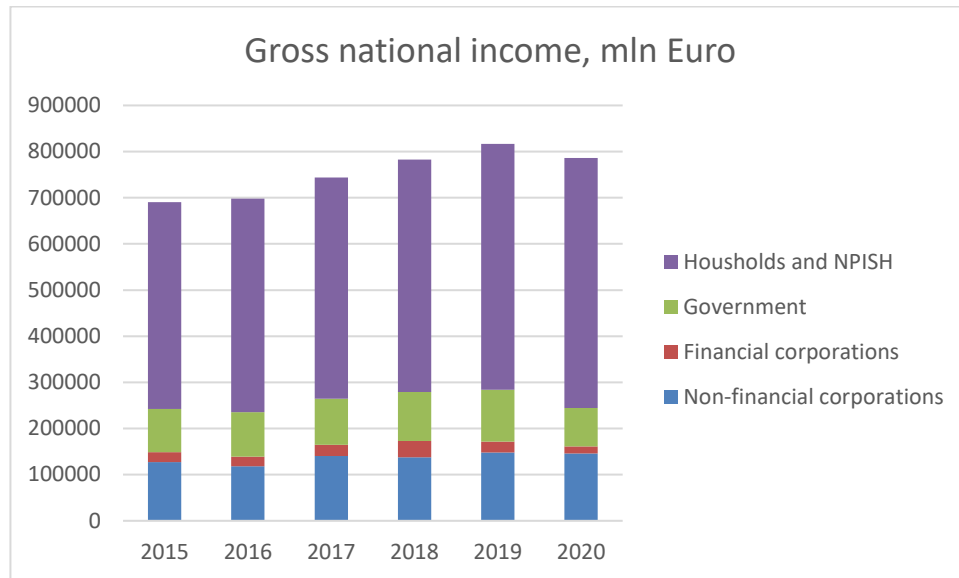
3.1 Non-Financial Corporations in the Dutch National Accounts

One of the key national accounts variables is GDP. It provides an overall total for the value of the activities of corporations, institutions, households and the government during a particular period and for a particular country. The non-financial corporations is the main sector responsible for generating value added, accounting for a little under 60% of GDP in the Netherlands. Households and the government are the main other sectors generating value added.



Source: Statistics Netherlands

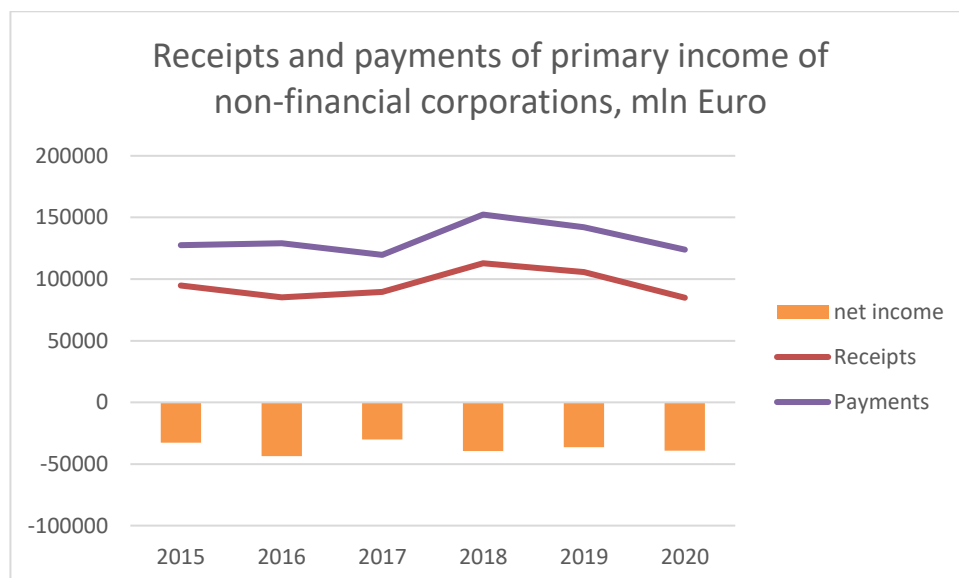
GDP is a measure of production activity in a national economy. But what could be argued to matter more to an economy as well as its individual participants is income. You may earn income from production but you can also provide capital and receive income such as interest and dividends in return. To be able to produce may require to borrow, leading to payments of interest to capital providers. Gross national income (GNI) is the national accounts measure to take these income flows into account, including those from the rest of the world. As globalization of production becomes ever more important with impact on the reliability of the GDP measure, the GNI measure appears to be more robust.



Source: Statistics Netherlands

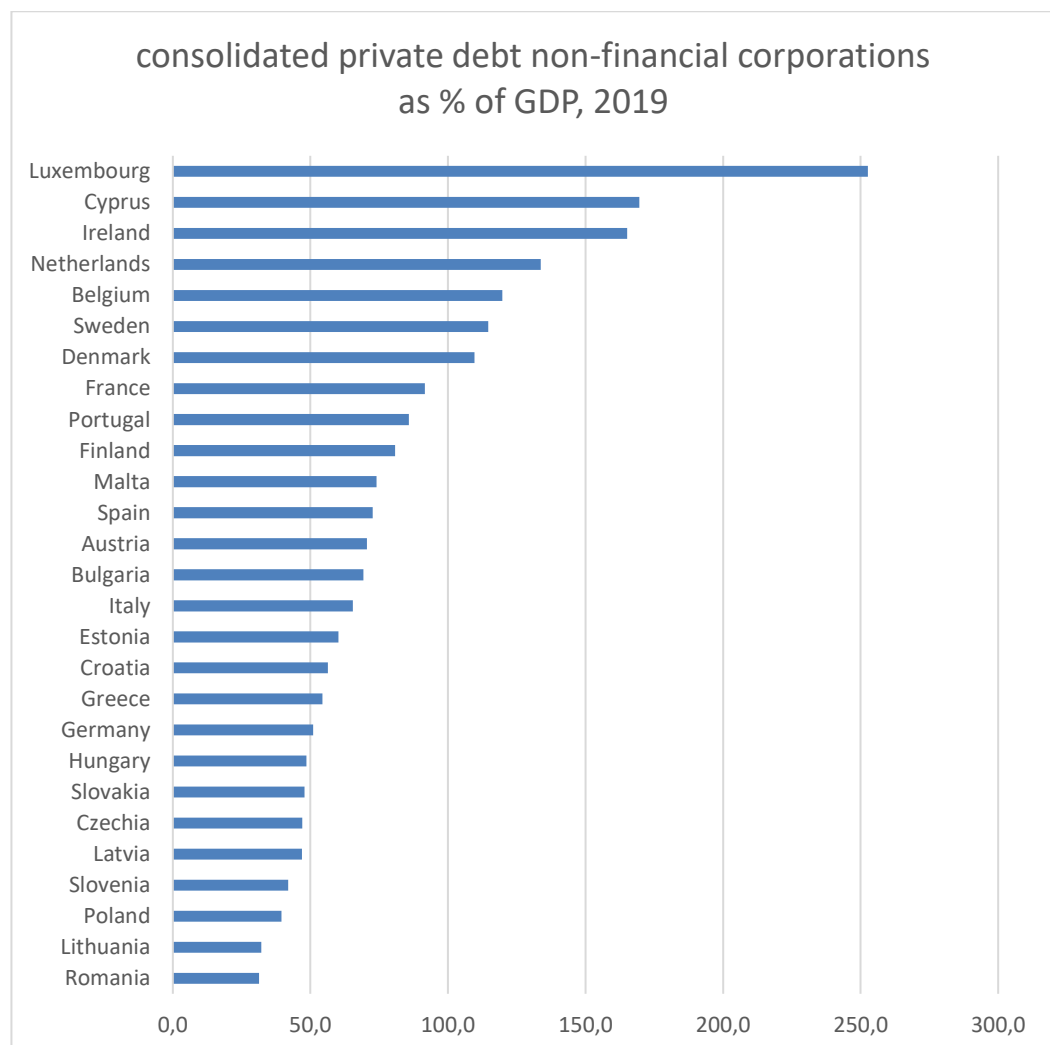
The size of the non-financial corporations in this measure is far smaller compared to GDP, accounting for less than 20%. Households are the main recipients of income, partly in the form of wages and salaries and partly from activities as independent entrepreneurs. The size of the government sector is somewhat similar to the non-financial corporations. Income of the government reflects in a large part the received taxes less subsidies on production and secondly the statistical treatment of the consumption of fixed capital.

The importance of the non-financial corporations for GNI is somewhat deceptive when looked at from a statistical perspective. The amount of wages and salaries paid in the Netherlands and earned by households is well documented and this also applies to the data on taxes and subsidies. In the part of GNI that is less well covered the share of non-financial corporations is far larger than its total share in GNI. In addition large multinationals, both foreign and domestic, are the most likely source for disturbances in the data impacting the recording of annual developments. One reason for this is that GNI records net income. Gross primary income flows of receipts and payments are larger than the net amount, so relatively small errors in gross flows may lead to relatively larger errors in net flows.



Source: Statistics Netherlands

The large income flows seen in the Netherlands for non-financial corporations is not a typical feature of non-financial corporations. The income flows are a consequence of large assets and liabilities. When looked at from an European perspective the balance sheet size of non-financial corporations in the Netherlands is large. One international indicator in which this becomes apparent is the MIP-indicator 'private sector debt'. This indicator refers to total borrowing by households and non-financial corporations in the form of loans and debt securities, as a percentage of GDP. The threshold above which consolidated debt is indicated to need discussion and potentially may give rise to policy measures is 133% of GDP.



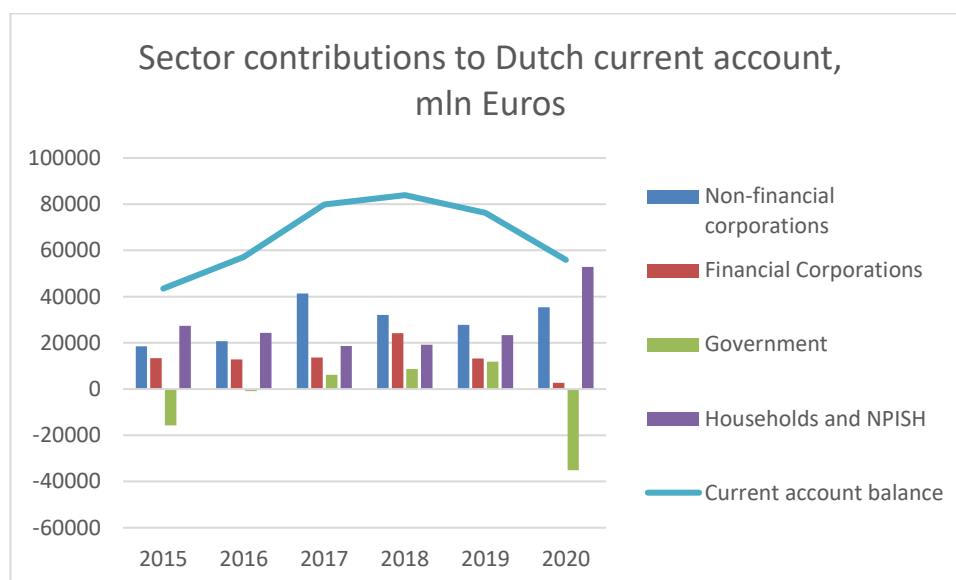
Source: Eurostat

In 2019 the consolidated debt of the non-financial corporations in the Netherlands was just over 133% of GDP, already triggering the threshold. And this is without counting the impact of household debt in the form of mortgages that is also large relative to GDP in the Netherlands. In the ranking of European countries Dutch non-financial corporations hold the fourth largest stock of debt relative to GDP after countries such as Luxembourg and Ireland that are also hotspots for multinational corporations. This was even more so the case in 2015 as the stock of consolidated debt relative to GDP has been in decline in recent years. While a decline between 2019 and 2015 is the case for most European countries, especially for Ireland and Cyprus, some countries actually see increasing debt levels such as Denmark, France, Germany and Sweden.

The indicator 'private debt' shows why national and international authorities have a keen interest in a more granular breakdown of the Dutch non-financial corporations sector. It has

significantly different policy implications if such debt is carried by foreign multinationals or carried by local firms financed by local financial corporations.

One specific feature of the Dutch economy is that it has a high surplus on its current account in its relations with foreign countries. As recently as 2019 the current account balance was above 10% as a share of GDP. The surplus in part reflects corporate decisions by Dutch non-financial corporations. The non-financial corporations are responsible for on average some 40% of the total current account balance in the Netherlands in recent years. The contribution by non-financial corporations is a result of an excess accumulation of income relative to gross fixed capital formation. Such corporate saving does not appear to be a necessary attribute of being a non-financial corporation as excess saving could have been distributed as dividends to shareholders without a direct impact on corporate activity. If some of the new gross capital formation would be financed by borrowing, which would seem normal business practice, distributed income to shareholders could even be higher. A significant part of the saving will have been used to finance expansion into foreign markets. But a firmer understanding of why Dutch non-financial corporations save as they do would contribute significantly to understanding the Dutch surplus.



Source: Statistics Netherlands

3.2 Sources and Methods

The non-financial corporations sector is compiled based on a range of data sources. These data sources are subsequently enhanced by removing errors, adding missing parts and making methodological adjustments, for example for own account production and FISIM (Financial Intermediation Services Indirectly Measured). As a final step the data is confronted with data from other sectors in the sector accounts system. To remove inconsistencies adjustments are made. This section covers the key sources and methods for annual estimates briefly as it is covered in detail in the GNI inventory⁷ and the ASA inventory⁸.

⁷ GNI inventory (ESA2010), reporting year 2015, the Netherlands, Statistics Netherlands, January 2019

⁸ Sources and methods for non-financial Annual Sector Accounts, ASA inventory, Statistics Netherlands, June 2021

The data on output and intermediate consumption, wages and salaries, social contributions and taxes and subsidies on production are based on the supply and use tables. A key input to compile output and intermediate consumption in the supply and use tables is data from the Structural Business Statistics (SBS) providing data for most industries in which non-financial corporations play a role. However, to cover output in the supply and use tables fully data for other sectors is needed as well, for example for financial corporations and the government. But also the non-financial corporations are not covered fully by the SBS-survey such as with regard to agriculture, (parts of) real estate, healthcare and sports. In the supply and use tables data on output and intermediate consumption is confronted with data on consumption, gross fixed capital formation, imports and exports. The balancing process results in data on GDP.

Wages and salaries and social contributions are based on social security records collected by the Employment Insurance Agency (UWV, 'Uitvoeringsinstituut Werknemersverzekeringen') enhanced with pension data from pension funds statistics. Granular data is available for all statistical units. Data on total taxes and subsidies on production are available from government data. Its distribution over industries is to some extent based on SBS-data but to align with the government data imputations and balancing of the industry data is needed. To complete the income approach of GDP, operating surplus and mixed income is estimated as a residual by confronting the production approach based on output and intermediate consumption, and subtracting the data on wages and salaries, social contributions and taxes and subsidies on production.

GDP is a national aggregate categorized in industries that needs to be converted into sectors to use the data in sector accounts. To do this a cross classification table between sectors and industries is used. This table is compiled by firstly making estimates for the cross classification for financial corporations and the government. This is fairly straightforward as the sector accounts data for these sectors is also a direct input in the supply and use tables. Subsequently a cross classification is estimated for the non-profit institutions serving households, making full use of the consumption data of such units estimated in the supply and use tables. The final step is the most difficult, to separate households and non-financial corporations. For most industries households are relatively small compared to the non-financial corporations meaning that if it would be possible to compile a good estimate for households, non-financial corporations could safely be used as a residual. Due to the availability of income tax data a reliable basis for the income of independent entrepreneurs is available in the Netherlands so the cross classification of households is estimated first and the non-financial corporations are assigned the remainder. This choice does have its drawbacks. The income tax data does not play an active role in compiling the supply and use tables as data on households is covered by the SBS-survey and other estimates, creating the possibility of inconsistencies in the income tax data with GDP. As a result the linkage between the SBS-data and the non-financial corporations sector is impacted. In addition balancing adjustments in the supply and use tables are allocated to non-financial corporations by default if they are insufficiently accounted for in the households estimate. This is nevertheless the preferred option considering the quality of the income tax data.

To compile annual data on the primary income flows the starting point is the Statistics of Finances of Non-financial Enterprises (SFO). This statistic, compiled by Statistics Netherlands, consists of two parts. All non-financial corporations with a balance sheet value of 40 mln or higher receive a dedicated survey (SFGO⁹). The survey covers the current account, capital

⁹ Statistiek Financiën van Grote Ondernemingen

account and the financial account. The main focus of the survey is enterprise groups of which it covered over 2000 in 2015 increasing to around 2400 in 2017. These corporate groups are responsible for roughly 43% of value added of non-financial corporations in the Netherlands. The second part is based on corporate tax data (SFKO¹⁰). When filing corporate tax data in the Netherlands companies also need to provide a profit and loss account and balance sheet data to the tax authorities. These data are subsequently sent to Statistics Netherlands for statistical purposes. For those corporate groups that are not covered by the SFGO-statistic the corporate tax data is used. In 2015 corporate tax data was used for some 220 thousand corporate groups increasing to 240 thousand corporate groups in 2017.

The SFGO/SFKO-statistic that is published by Statistics Netherlands had until recently a policy to exclude the real estate sector. Information on the real estate sector is nevertheless available in the fiscal data. This information is used when compiling the non-financial corporations sector in the national accounts. The information is subsequently enhanced by using data from the Authority supervising housing associations ('woningbouwcorporaties') which has more granular data of housing associations. The real estate sector consists of some 15 thousand corporations in 2017.

Fiscal data on health care producers is enhanced by using corporate data collected CBIG, a government agency that is part of the Ministry of Health, Welfare and Sport. This data source covers the profit and loss account as well as balance sheets.

To complete the full non-financial corporations sector three further additions are made. Firstly, although institutional arrangements have changed since, at the time of the compilation of 2015 to 2017, data was added on a subset of entities based on data from the Dutch Central Bank. The entities involved had a dual economic role as they consisted of some (mostly minor) production activity in combination with large financial balance sheets. As an early compromise the financial parts of such entities were treated as financial corporations, whereas the production activity was kept in the non-financial corporations sector. As a result of the introduction of the ESA2010 and subsequent discussions with Eurostat, ECB and OECD this policy was changed in the national accounts revision of 2015 and all such units were allocated to the non-financial corporations sector.

Secondly data was added on head offices that are to be treated as independent institutional units. The statistical unit used in the SFGO statistic is the enterprise group meaning that data on such corporations is of a consolidated nature. All Dutch entities within such enterprise groups are consolidated into a single unit. To align better with the concept of institutional units in the statistical manuals estimates are made for the biggest head offices within SFGO-corporations based on annual reports.

As a third step data on notional units are added. The estimate is based on balance of payments data and relates to the direct holdings of real estate by foreign owners. As the real estate should be treated as statistical units within the local economy in which the real estate resides, an estimate for such notional units needs to be added.

Once all basic data have been collected the data is subsequently confronted with data from other sectors such as the financial corporations, the government and the rest-of-the-world. The balancing stage, in which the data from all sectors are made mutually consistent, is an

¹⁰ Statistiek Financiën van Kleine Ondernemingen

important step for the compilation of the non-financial corporations. It improves the quality of the data and it gives the opportunity to compile additional splits in transactions that are not or only partially available in the source data on non-financial corporations.

A key part of the balancing phase is the comparison between data on non-financial corporations and the balance of payments on primary income transactions, in particular dividend and reinvested earnings on direct foreign investment. Although organizational changes mean that currently Statistics Netherlands is fully responsible for the collection and compilation of data on non-financial corporations, in the 2015 to 2017 period the Dutch Central Bank still had its own balance of payments survey with information on non-financial corporations giving the opportunity to compare the results. These in depth comparisons led to balancing adjustment to the source data. Data from the balance of payments as well as data from Dutch banks and other Dutch financial institutions were an important input to improve the numerical results of interest payment and receipt estimates.

Accurate information on income received from investment funds and income on insurance policies is typically unavailable in corporate financial statements and is also not explicitly available in the SFGO-survey. Information on such transactions is therefore only available from counterpart sectors. The income non-financial corporations pay as rent on land and subsoil assets is most reliably available from data sources from the government sector.

Similarly when looking at income transfers data from counterpart sectors often have more detail available or are better aligned with statistical concepts. Data on corporate tax is typically available in the data sources but taxes based on bookkeeping records rather diverge conceptually from the required tax data. One problem in particular is the bookkeeping practice to make provisions for potential future losses. As a result government tax data take precedence over the corporate tax data. Social benefits and social contributions in case of non-financial corporations mostly refer to sick leave pay. Such specific information is only available by combining social security records and pension payments from pension funds. Payments related to insurance premiums and receipts are, at least in the aggregate, better available from insurance corporations, payments related to fines better available from government data and corporate contributions to non-profit institutions serving households better available from such institutions. A specific income transfer for which some corporate granular data is available is cross border sample gifts. Such samples, used to give potential customers a sense of a particular product, are recorded in international trade statistics.

From this description two conclusions can be drawn. Firstly, although a comprehensive dataset is available on non-financial corporations, primarily in the form of the SFO-statistic covering all stocks and flows, in practice there are actually a lot of transactions where this data source is not leading. Partial data sources covering only a number of transactions, for example the SBS-survey or social security data on wages, or counterpart data sources covering only relations with a particular counterpart, such as for income transfers, are the norm. These partial data sources or counterpart data sources are superior due to available details or due their superior alignment with statistical standards. Only with regard to primary income and especially dividend and reinvested earnings on direct foreign investment does the SFO have a prime role. In such a situation it is clear that inconsistencies between the various partial data sources can impact the consistency of the overall estimate of the non-financial corporations. This can have a key impact on paid reinvested earnings to foreign direct investors. The estimate for the paid reinvested earnings should in principle be consistent with other national accounts estimates but is

currently based on bookkeeping data that for most other transactions are improved and enhanced with additional data.

Secondly, the use of counterpart data makes any additional splits of the non-financial corporations sector into subsectors complicated. Few counterpart data sources have the necessary granularity to identify particular corporations or particular groups of corporations. This will also apply to certain balancing adjustments needed to balance the system. In such cases it will not always be preventable to use crude distribution keys to allocate particular transactions to corporations impacting the quality of a further split.

4. Population of Non-Financial Corporations

If the aim is to categorize statistical units of the non-financial corporations sector into several subsectors it firstly needs to be clear which units belong to the non-financial corporations in the first place. In case of the Netherlands this is less straightforward than it would appear. This became especially apparent during the last major revision over the year 2015 when a data comparison was done between data from the Statistics of Finances of Non-financial Enterprises and data from the production statistics used in the supply and use tables. Currently and during the last few years much work has been done to give the business register a more coordinating role with regard to the sector classification of statistical units, especially regarding the government sector and the financial corporations sector. However, when determining the population of the non-financial corporations in the Netherlands the business register only has a supporting role which contrasts with the strong coordinating role the business register has for production statistics.

In this chapter firstly we will discuss some of the population issues encountered in the current data sources for the non-financial corporations sector. In the second part of this chapter it will be discussed how a full list of corporations belonging to the non-financial corporations has been compiled, in effect creating the most complete cross classification of sectors and industries so far that is aligned with the Dutch national accounts.

4.1 Population Statistics of Finances of Non-financial Enterprises

As discussed in the previous chapter, the estimate of the non-financial corporations sector is based on several data sources. A key data source is the Statistics of Finances of Non-financial Enterprises. With regard to population this data source is based on the data that the Dutch tax authorities receive as part of the corporate tax filing of corporations. As the tax data become available, the tax records are linked to the business register where a linkage is available between the tax unit identifiers and the unit identifiers used by Statistics Netherlands. The link with the business register is made to be able to use the classifications of units there, in particular to be able to exclude financial corporations from the non-financial corporations. The business register also offers information on the corporate relationships between units.

A unit is said to be economically active in the business register when it has sales, employees or both. In such a case a statistical unit is created called 'BE' ('bedrijfseenheid') which plays the role of the statistical unit 'enterprise'. A single BE consists of one or several legal units ('CBSP' or 'CBS-persoon'). With regard to corporations the CBSP typically corresponds to one corporate tax unit. CBSP-units are grouped into BE based on ownership and control. For most corporations the BE is identical to the statistical concept of 'enterprise group' ('OG' or 'Ondernemingengroep'). In such cases all legal units belonging to the same corporate group with direct ownership-linkages in the Netherlands are grouped into a single statistical unit. This can be done due the simple nature of the corporations involved. Large corporations are profiled manually at Statistics Netherlands. The enterprise group will then consist of several BEs with the split made based on decision making criteria and activity characteristics.

BEs are classified into industries according to NACE 2.0. Initially the NACE-code is offered by the corporations themselves for each legal unit when registering the legal unit at the Dutch Chamber of Commerce ('Kamer van Koophandel'). This NACE-code is checked and if necessary adjusted, and based on the dominant activity the NACE-code on the BE is established. Subsequently based on the dominant activities of the BEs the NACE-code of the OG is established.

The basic population of non-financial corporations in the SFO consists of all units liable for corporate tax that can be linked to an OG that is not classified as a financial corporation (NACE 64, 65, 66). In some cases an OG may not be sector homogeneous, for example when it consists of financial and non-financial economically active units. In case of a large OG, when sending out the SFGO only the non-financial parts will be surveyed. For small OG the dominant activity is leading whether it will be classified in the non-financial corporations sector or not. In some cases units classified as part of the government sector are also present in the corporate tax data. Clear cases are then eliminated from the data set. It may also be the case that a market producer is part of a large government unit. In such a case the OG would initially be classified as part of government (for example NACE 84). To correct for this a new OG is imputed in the business register to account for the market producer and classified accordingly.

To compile the population of the non-financial corporations the business register plays the role of an aid. The initial list of corporations is based on the units liable for corporate tax. The business register then helps to identify which units belong to the non-financial corporations. Whether this will describe the full non-financial corporations sector as envisaged in the sector accounts system then depends on the completeness of the tax register.

Based on the characteristics of corporate tax coverage looks good. Corporate tax applies to all units with the legal form 'NV' ('Naamloze Vennootschap') and 'BV' ('Besloten Vennootschap'), the most common forms corporations take in the Netherlands. In addition it applies to the 'CV' ('Commanditaire Vennootschap') in cases where the CV is to be treated as 'open' meaning that investors can opt to be purely providers of capital without being managing partners. Such investors are freely able to sell their shares in the CV. Managing partners, by contrast, are personally liable and therefore pay income tax over their share of the profit in the CV. If all investors are managing partners the CV is treated as 'closed' and the CV is no longer liable for corporate tax. From the point of view of corporate tax a closed CV is fiscally transparent.

Furthermore other types of legal units such as foundations ('Stichtingen') and associations ('Verenigingen') are liable for corporate tax if such units are using capital and labour to (attempt to) make profit, if they compete against corporations without having an exemption, or on request of a tax inspector. Foundations and associations can opt for an exemption if their annual taxable profit is less than €15.000 or in the previous 4 years the combined profit was less than €75.000. In addition, healthcare producers can request for an exemption if 90% of their output consists of healing and nursing patients and if any profits are used for further provision of healthcare or other socially beneficial purposes.

The tax authorities are likely to have a good view of all units liable for corporate tax and therefore the corporate tax register feels like a good register to follow, even if some small foundations and associations might be missing as well as certain healthcare providers. However, as part of the 2015 benchmark revision of the Dutch national accounts an attempt was made to link data from Structural Business Statistics (SBS), firmly based on the business register, with data from the SFO. Although, as expected, many of the corporations could be matched in both data sources a sizable number of units could not. Therefore, since SBS-data is a key part in the estimate of the production account of non-financial corporations simply following the tax list as a population list for the non-financial corporations would lead to unexplained omissions of SBS-data.

A key problem impacting the comparison of statistical units in the SBS-survey and statistical units in SFO was simply technical. Corporations emerge or die, for example through mergers or demergers. In cases of such corporate events corporations may get a new unit identifier in the business register. However, different statistics may use the old identifier or the new identifier depending on their particular circumstances. It may be that for tax purposes a corporation reports on its own until the date of a merger, say in April. The rest of the year is reported by the new corporation. On the other hand it is also possible that a corporation may report over the full year at the end of the year even if the composition of the corporation was different at the start of the year. Statisticians face similar issues when sending out statistical questionnaires. Some of the inconsistencies in unit identifiers between SBS-data and SFO-data could be traced to such identifier issues.

Another technical issue was the result of incomplete ownership linkages in the business register. Only fiscal units that could be linked to an OG are deemed to be units that might be part of the non-financial corporations sector. However, sometimes data is reported by fiscal units that according to the business register are not economically active units. One reason for this to happen is that the unit reporting the tax data is actually the parent of the economically active unit but the linkage is missing in the business register. For SFO-purposes such units are omitted from further processing.

What might also be considered a technical problem is the case of the legal units that have some relatively small economic activity and at the same time have large balance sheets comparable to SPEs as described in the previous chapter. In the SBS-survey they were treated as regular non-financial corporations whereas in the SFO the financial flows and positions were classified as belonging to financial entities. In cases this happened to single legal units, these were omitted from the SFO impacting the comparability with SBS-data. Due to the change in treatment of such entities, with such entities now being an integral part of the non-financial corporations sector, conceptually this is no longer a problem.

Compilation practices were another reason for differences in the 2015 to 2017 period although these issues have changed in more recent periods. Typically units that had the legal form of foundation or association and were too small to be part of the SFGO survey were omitted in an attempt to split non-profit institutions serving households from non-financial corporations. Furthermore SFKO-units that had a balance sheet size of over €40 mln with over 75% of assets invested in financial assets were no longer classified as non-financial corporations even if sales could be up to €25 mln.

From this it can be concluded that to compile a full population list of non-financial corporations a list needs to be developed taking into account the fact that corporate events lead to the emergence and disappearance of units. The list needs to include both the SBS-units and the SFO-units even if they essentially relate to the same corporations. Secondly, due to the compilation practices in the SFO the list needs to be enhanced, which partly means reinstating some eliminated units from the corporate tax register. A good starting point is the business register. However, as we attempt to split the current non-financial corporations sector as published by sector accounts into subsectors we also need to carefully align the list with national accounts practices, for example relating to non-profit institutions serving households and government units while at the same time do justice to the SFO-data that was input to the compilation process.

4.2 Coordinated Population of Non-financial Corporations

The Dutch business register provides a comprehensive list of legal units active in the Netherlands. It is principally based on the registers of the Dutch Chamber of Commerce where corporations and institutions are obliged to register by law. All corporations that may be part of the non-financial corporations sector have a registering obligation. As a result the business register is able to provide a comprehensive list of units from which to compile the population of non-financial corporations.

The business register combines data from various data sources to be able to have a good view of the characteristics of the legal units. The information available in the business register includes, in addition to general information on the name of the units and the address where the units are located also information on the NACE-classification, the legal form of the unit, the number of employed persons and the size class of the units and various unit identifiers which facilitate the linkage to various data sets.

The linking of legal units into coherent statistical units such as the enterprise ('BE', 'Bedrijfseenheid') and enterprise group ('OG', 'Ondernemingengroep') is also done in the business register.

The business register offers a sector classification for each unit. But up until now the role of the business register has been relatively modest when compiling sector accounts data sources. Typically other registers are used such as supervisory registers for financial corporations by the Central Bank, the income tax register for households and general administrative data obtained for the government. As indicated in the previous paragraph the SFO statistic has the corporate tax register as its basis. The business register plays an important but still supporting role when identifying the population of non-financial corporations. As a result the sector classification in the business register is not a good starting point to establish the population of non-financial corporations as this classification is insufficiently embedded in production processes and the necessary quality control this brings.

To establish a full list of non-financial enterprises and enterprise groups for the years 2015, 2016 and 2017 the following steps have been taken based on the complete business register.

1. Remove legal units that are part of enterprises ('BE') that belong to the financial corporations (NACE 64, 65, 66) or are head offices of financial corporations (NACE 70 within financial enterprise groups).
2. Remove all legal units that are directly related to households. In case of sole proprietorships, partnerships and general partnerships ('VOF', 'Vennootschap onder Firma') and certain shipping corporations ('rederij') the owners are fully personally liable for such entities and thus classify as households. Complicating factor is the legal form CV ('Commanditaire Vennootschap') which can be either 'closed' in which case it should be treated as part of households or 'open' in which case the unit is a non-financial corporation. This difference is not easily identifiable in the business register. Except for those CV's that can be found in the corporate tax register, CV's are removed. A VOF may also be created by legal persons instead of natural persons. All VOFs are excluded except those found in the corporate tax register.
3. Remove units that are non-profit institutions serving households (HPISH). A list of such units was not readily available. During the benchmark revision of 2015 for some industries (namely NACE 91, 93 and 94) an approach was taken to select non-market

producers to aid the estimate of output of such units in the supply and use tables by compiling a list of all NACE-codes at a 5 digit level that would most likely harbour non-profit institutions serving households. To select non-profit institutions serving households from enterprises ('BE') classified in these NACE-codes all enterprises were selected that had the legal form of foundation ('stichting') or association ('vereniging'). Clear market producers that still remained on the NPISH-list such as professional football clubs were subsequently eliminated.

For some other industries the supply and use table estimate was established more from a macro-perspective without explicitly selecting statistical units. For those industries either foundations and associations of a specific NACE-code have been selected or a specific set of foundations and associations is selected to act as non-profit institutions serving households to reflect the numerical values that are present in the cross classification between the supply and use tables and sector accounts.

4. Remove units that are part of the government sector. Statistics Netherland has compiled lists of entities that are part of the government sector for quite a number of years. However, during the benchmark revision of 2015 the annual lists were revised and improved with a new list published for the year 2018 along with the revision results. New lists were also compiled for internal use for the years 2015 to 2017. It is preferable to use these updated lists which are in line with the revised data. To compile the full lists for 2015 to 2017 some additions were made. Some units that were included in the 2018 published list were not present on the internal lists for 2015 to 2017 without clear reason. To alter this all legal units that are present in the 2018 list as well as that are active during the previous years are treated as government units in those previous years. The dynamic of events leading to new units and the disappearance of units is also present among government entities. As a result government units will have existed in 2015 that are no longer present in 2018. To complete a full set of government entities for 2015 all legal units that are not present in 2018 but have a sector code S.13 in the business register during 2015 are also selected as government entities. The same procedure was used for 2016 and 2017.
5. Correct for national accounts adjustments. After the previous steps a number of adjustments are needed to be able to align fully with the national accounts.
 - a. In the business register a sizable number of entities was inadvertently separated from their enterprise group and classified as financial institution. Typically those entities employed the owner/manager of the enterprise group. For national accounts purposes, based on social security records on employment, these corporations were reclassified back to the non-financial corporations sector and NACE-code 70.1 (Activities of head offices). This adjustment also included some other previously misclassified units;
 - b. For several reasons some data sources used by the national accounts contained units that could not be linked to a BE and OG in the business register. One of the national accounts adjustments to the SFO is to add data on housing corporations. A small number of these entities could not be linked to an enterprise group as the business register did not register the unit as economically active. Secondly, the use of data from the Dutch Central Bank on SPE-type entities with some local output also led to the situation that not all of those units could be linked to a BE or OG. Although it is now clear that some of these units should not have been reclassified to the non-financial

corporations as was done in the 2015 benchmark revision, to be able the compile subsectors to the current national accounts totals means that those units need to be imputed in the non-financial corporations list. Finally, as it was not always possible to reconstruct the national accounts data with micro data, some dummy unit identifiers were introduced to aid the subsectoring.

6. Add units from the SFO not covered by the previous steps. In principle the previous steps should have been sufficient to complete the list of non-financial corporations. However, the SFO recorded a number of units that were disqualified in the previous steps. As data from these units did play a role in the compilation of the non-financial corporations they cannot be dismissed in its entirety. In 2015 462 Enterprises (2016: 539, 2017: 848) prove to have been classified, at least partly, in the non-financial corporations sector in the SFO but are now classified outside of the non-financial corporations sector. Of these 236 (2016: 303, 2017: 645) are enterprises that can be associated to the sector government and 4 (2016: 2, 2017: 1) can be related to the financial corporations. The cases for the government sector point to inconsistencies between the government list of units and the business register that should be solved.

Of the 462 corporations 222 (2016: 234, 2017: 202) enterprises can be related to the sector non-profit institutions serving households. These enterprises have been removed from our list as a consequence of the fact that in the business register not all enterprises are homogenous with regard to their legal form. Some enterprises consist in both a foundation or association and a unit with a legal form typically used for non-financial corporations. In such cases the enterprises have been treated as non-profit institution serving households if the foundation or association proved the dominant part in the enterprise. However, the SFO uses the information from the non-financial corporation bits of the enterprise if it is separately available from the tax records. A clear case can be made that such enterprises should be split into two parts in the business register. Making use of SFO data may be a way forward to improve the populations of non-profit institutions serving households.

Entities from this sixth step are treated differently from the other entities on the list. No output, intermediate consumption and value added will be considered for these units. Only the data on income and income transfers will be used in the estimates.

Table 4.1 sums the number of units that are part of the population lists for each year to be classified in the non-financial corporations sector. At the end of 2015 the new list of non-financial corporations consists of 609 thousand unique legal units grouped into 326 thousand enterprises and 320 thousand enterprise groups.

Table 4.1 Number of units at the end of year (thousands)

	# legal units	# enterprises	# enterprise groups
2015	609	326	320
2016	632	336	331
2017	652	346	342

In addition to aid the effort to compile subsectors for the non-financial corporations, the result of the steps is also that now for the years 2015, 2016 and 2017 the most advanced linkage between the business register and the national accounts has been created that covers all sectors and industries. It is a further step in the effort to align data sources used for sector accounts better and to improve the compilation of sector accounts.

5. Subsectors for the Non-Financial Corporations

Once it is established which statistical units belong to the non-financial corporations the units can be grouped based on the unit's characteristics. In this chapter we discuss the subsectors that are typically proposed in the international statistical handbooks and propose an additional breakdown to further improve the interpretation of the non-financial corporations sector. The classification raises the issue of control of corporations and how it is implemented in the Netherlands. This chapter will subsequently describe the data used to classify the Dutch non-financial corporations.

5.1 Possible subsectors for the Non-financial Corporations

The non-financial corporations sector within sector accounts is typically in publications, both domestically and internationally, a single sector. This is in stark contrast to the granular NACE-classification to which units within the non-financial corporations also are classified. However, both the System of National Accounts 2008 and the European System of Accounts 2010 propose a subdivision into three groups based on who controls the corporations:

- S.11001: Public non-financial corporations. These are corporations that are market producers but are nevertheless owned by the government;
- S.11002: National private non-financial corporations: These are corporations that are ultimately owned by domestic owners which include financial corporations, households and non-profit institutions serving households. This group also includes corporations that are quoted on the stock exchange and have a dispersed ownership, potentially foreign and domestic;
- S.11003: Foreign controlled non-financial corporations: These are corporations that are ultimately owned and controlled by foreign residents. The foreign residents may be from all sectors. Many will be owned by foreign non-financial corporations but they can also be owned by foreign financial corporations, foreign governments, foreign households or foreign non-profit institutions serving households.

The value of these subsectors has, during the last few years, been given extra support from the G20 data gaps initiative¹¹. Eurostat and de ECB also have a keen interest in these subsectors, especially with regard to countries such as the Netherlands that have a large population of Special Purpose Entities (SPE). Those entities, that tend to have large balance sheet sizes and large income flows in terms of interest, dividend and reinvested earnings, will typically be classified in the financial corporations sector but such entities nevertheless inadvertently tend to spill over into the non-financial corporations sector by the existence of some small production activity. More in general there is a strong international focus on globalization in which multinationals play a large role. The section that therefore currently receives the most attention is S.11003 (Foreign controlled corporations). This is also the sector that is an important aim of this study.

When a split in subsectors is applied like this, this leaves subsector S.11002 (National private non-financial corporations) as a rather diverse sector. It includes both large sized internationally active corporations as well as small and medium size local enterprises. To be able to analyse

¹¹ G-20 Data Gaps Initiative (DGI) Recommendation 8: Institutional Sector Accounts ([https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPNA\(2017\)7&docLanguage=en](https://www.oecd.org/officialdocuments/publicdisplaydocumentpdf/?cote=STD/CSSP/WPNA(2017)7&docLanguage=en))

globalization, there is a clear interest to analyse the impact of national private multinationals on the local economy in addition to the impact of the foreign controlled corporations. Secondly, small and medium sized enterprises also have a clear policy relevance and are important to analyse. One way to enhance the usability of the data is to split sectors according to their size class. A helpful starting point is the classification sponsored by Eurostat¹²:

- Large corporations: 250 employees or more;
- Medium-sized corporations: 50-249 employees;
- Small enterprises: 10-49 employees;
- Micro enterprises: fewer than 10 employees.

Even a more granular approach could be envisaged by classifying enterprises or enterprise groups based on their NACE-code. One likely problem that might be encountered with such an approach is that due to the nature of financial income flows and balance sheets being more concentrated in terms of size among a select range of corporations, such a granular approach could lead to confidentiality issues. Data of individual corporations would become visible unless the NACE classification would be sufficiently aggregated. One can wonder whether a NACE approach could be combined with other types of sector split for the same reason.

The Netherlands faces a particular problem with a full NACE-approach when applied at the enterprise level. A key data source for primary income for the non-financial corporations in the sector accounts, the SFO, uses enterprise groups as the main angle to request data from corporations. This applies in particular to the SFGO for large corporations. The SFGO uses fiscal units that may well be smaller than the enterprise group and as a result may actually be even more granular than the enterprise. Use of the enterprise group in the SFGO tends to be a help for corporations to report data as this fits better with their book keeping records. But it complicates the ability to compile data on income, income transfers and financial flows and stocks more granular than the enterprise group.

For this study we have opted for an approach to separate the non-financial corporations firstly into foreign controlled corporations and nationally controlled corporations. Secondly the group of national corporations are subdivided into multinationals, large enterprises and medium, small and micro enterprises. Dutch multinationals are defined as being corporations without a foreign controlling parent while controlling at least one foreign subsidiary, irrespective of the size class of the local activities of such corporations. Large enterprises and medium, small and micro sized enterprises are separated based on the number of employees. Rare cases where a corporation is owned by foreign owners but due to organisational arrangements is to be regarded according to statistical standards as under Dutch government control are allocated to the subsector of Dutch multinationals.

The unit that will be used for the classification will be the enterprise group. This has no impact on the classification based on ownership as all enterprises belonging to the same enterprise group will be part of the same subsector. It does have an impact on the classification of corporations based on size as the size of the enterprise group will be the determining factor. However, the use of the enterprise group with regard to size actually makes sense as it would be inappropriate to classify a small production unit as a small enterprise when such a unit is

¹² Size class is also used in the report: Multinationals en niet-multinationals in de Nederlandse economie, CBS, Oktober 2018

actually part of a large enterprise group and as a result makes use of several enterprise group services.

For this study we have opted not to pursue the sector S.11001 (Public non-financial corporations). This has several reasons. Firstly the non-financial corporations owned by the government are not a particularly sizeable part of the non-financial corporations sector in the Netherlands representing only some 7% of value added. Secondly, considering the choice of subsectors made in this study identifying government controlled corporations would imply further splitting the national subsectors of multinationals, large corporations and medium, small and micro enterprises. Such splits may trigger confidentiality concerns. Finally for such a split to be published additional consistency analysis on the results would be required to make sure the data fully align with the EDP data published for the government sector.

5.2 The Concept of Control

Our proposed classification depends on two characteristics, firstly control and secondly the number of employees. Of these the concept of control needs some further explanation. ESA paragraphs 2.35 to 2.37 state:

2.35 Control over a financial or non-financial corporation shall be defined as the ability to determine general corporate policy, for example by choosing appropriate directors if necessary.

2.36 A single institutional unit (another corporation, a household, a non-profit institution or a government unit) secures control over a corporation or quasi-corporation by owning more than half the voting shares or otherwise controlling more than half the shareholders' voting power.

2.37 In order to control more than half the shareholders' voting power, an institutional unit need not own any of the voting shares itself. A given corporation, corporation C, could be a subsidiary of another corporation B in which a third corporation A owns a majority of the voting shares. Corporation C is said to be subsidiary of corporation B when either corporation B controls more than half of the shareholders' voting power in corporation C or corporation B is a shareholder in C with the right to appoint or remove a majority of the directors of C.

Control is established if a single institutional unit, either domestic or foreign, owns more than half of the voting power in another institutional unit. Usually this will be the same as owning more than half of the equity of a corporation. However, control may be achieved indirectly through a chain of corporations. In a sequence of subsidiaries the ultimate controlling parent may actually control a subsidiary even if the parent owns less than half of the equity. One of the reasons for this is special voting shares that provide relatively high voting power compared to the actual equity stake. However, it is also something mathematical. If as presented in ESA a corporation A controls corporation B by owning 51% of the equity and corporations B controls corporations C also by 51% then corporation A also controls C but only owns 26% of the equity value of C. The concept of direct and indirect control is more elaborately described in the Framework for Direct Investment Relationships (FDIR)¹³ which is presented in the Balance of Payments and International Investment Position Manual.

An important distinction needs to be made between being a subsidiary and being an associate. A direct foreign investments relationship is said to exist in the FDIR if an institutional unit

¹³ Balance of Payments and International Investment Position Manual Sixth edition (BPM6) paragraph 6.12 to 6.24

controls more than 10% of the voting power of a foreign institutional unit. In such a case it is said that the institutional unit owning the stake controls a significant amount of the equity and so has significant influence over the use of the profits of the owned corporation. As proof of this fact both ESA2010 and BPM6 require that such profits are distributed to the parent, if such payment is not made as dividend than in the form of reinvested earnings on direct foreign investment. But as long as the percentage of ownership between the corporation owning the equity stake and the owned corporation is between 10% and 50%, such an owned corporation is called an associate. The influence on an associate can be large but it is not sufficient for it to be regarded as being controlled. Whenever the ownership exceeds 50% the owned corporation is a subsidiary. Only subsidiaries of foreign institutional units will be part of the sector S.11003. Even if the vast majority of the foreign direct investment will be in sector S.11003, all of the other subsectors may have some amount of foreign direct investment.

Many non-financial corporations may have local non-financial subsidiaries. The local subsidiary could then be argued to be a local corporation that should qualify as a national private corporation. However, control is to be defined after taking the full chain of control of corporations into consideration. As a result, if a corporation is controlled by a foreign entity then all local subsidiaries of this corporation are also controlled by the foreign entity. This applies equally to corporations owned by domestic owners. As long as all corporations are part of the same sector the relationships between parents and subsidiaries will remain hidden in the overall flows going in and out of a sector. However, it can imply that a corporation will be part of S.11003 but may have a local parent in another sector, for example a captive financial institution (S.127), that itself is controlled by a foreign corporation. Such relationships can occur for all non-financial corporations that are subsidiaries of financial corporations.

As a result it would be incorrect to suggest that the reinvested earnings of non-financial corporations in the S.11003 sector could be determined by setting net saving of such corporations to zero which would typically be the case when a corporation is 100% directly controlled by a foreign investor. Not only can minority investors still be present as owners of corporations classified in S.11003, but foreign control could be established through a financial corporation and so the appropriate reinvested earnings paid to the foreign investor would then be shown in the reinvested earnings paid by the financial corporation.

5.3 Control in the Dutch Business Register

To be able to classify corporations into subsectors on the one hand it needs to be established who controls the legal entity at the top of the enterprise group within a national economy and on the other hand which subsidiaries belong to the enterprise group including the relationships between the various legal units. With regard to this second part, in the Netherlands control in a chain of subsidiaries is available in the business register. Control is established in the business register by combining various data sources.

The most prominent source of such information is the Dutch Chamber of Commerce that records all corporate relationships in which a corporation owns 100% of the equity of a subsidiary. Although the Chamber of Commerce provides comprehensive data for corporations the fact that it is limited to 100% relationships is a problem. However, the business register has more information sources to draw from.

In the Netherlands corporations have some advantages to group parent and subsidiaries into units that are relevant for tax-purposes. They may consolidate legal units into single taxable units or they may report legal units separately. Consolidation of units is only allowed by Dutch fiscal law on the condition that there is at least a 50% ownership of the parent with regard to

the subsidiary. Corporations may use different groupings for different purposes. For example the cluster of legal units that is consolidated into a single taxable unit for corporate tax may diverge from the cluster that is used for social security contributions and may also diverge from the cluster that is used for value added tax. By dissecting the legal units from these clusters a wide range of relationships can be determined where ownership and control is between 50% and 100%. Such groupings can be enhanced further as part of the interaction Statistics Netherlands has with corporations that are surveyed. In this way Statistics Netherlands is able to establish enterprise groups ('OG', 'Ondernemingsgroep') and its constituent parts.

Control as registered in the Dutch business register corresponds to the DIIC (Direct Influence Indirect Control) method of control. Only subsidiaries are registered and not associates.

5.4 Data Sources and Process to Establish Control

In the Netherlands there is not a register available with a comprehensive overview of who owns Dutch enterprise groups¹⁴. Nevertheless a number of data sources is available to determine whether a corporation has foreign owners.

- a) The SFGO statistic asks the largest non-financial corporations in the Netherlands along with its numerical data request whether they have a foreign owner and what the ownership percentage is.
- b) The business register records, based on Chamber of Commerce data, whether units are 100% owned by a foreign owner and the name and nationality of that foreign owner.
- c) As part of the FATS (Foreign Affiliate Trade Statistics), a statistic based on European legislation, Statistics Netherlands has compiled a list of corporations that have a foreign Ultimate Controlling Institutional unit (UCI). An UCI is defined as begin an institutional unit which is not controlled by any other institutional unit when moving up a chain of control. The data sources underlying the establishment of the UCI are data from the Netherlands foreign investment agency, Eurostat's EuroGroups Register (EGR), the SFO, the business register and information gathered from public sources.
- d) For 2015, 2016 and 2017 data was also available from the balance of payments (BoP) and the statistic on the international investment position (IIP) compiled by the Dutch Central Bank. Both statistics specifically target corporations with foreign subsidiaries and associates or foreign parents.

Analysis showed that if any of the data sources found that a Dutch corporation was owned by a foreign owner, that was generally the case. None of the various data sources can be viewed as complete and the reasons for omissions are not always clear. In practice they are all needed to reinforce each other.

The SFGO statistic should have comprehensive data on large corporations. One of the reasons the foreign ownership indicator can be lacking is that the immediate parent of a non-financial corporation can be a local financial corporation. The non-financial corporation may then indicate that it has a domestic parent even if that parent is subsequently owned by a foreign parent. Another reason for an omission is that a corporation that has recently been taken over

¹⁴ From the 27th of September 2020 Dutch enterprises are obliged to report their ultimate beneficial owner (UBO) to the Dutch Chamber of Commerce, based on new European legislation. With regard to this legislation an UBO is defined as a person having at least 25% equity stake in the subsidiary and/or having at least a 25% share in the voting rights in the subsidiary or that generally controls a subsidiary in practice in cases of foundations and associations. This data source will provide new information on ownership of Dutch corporations and other legal entities but it excludes those corporations or entities that are owned by foreign corporations.

by a foreign corporation may fail to report the foreign owner in its first data transmission after the event. Especially with regard to large corporations, data from BoP and IIP can be of benefit in such cases. However, when looking at smaller corporations the SFO's coverage compared to BoP and IIP is generally better.

The business register will not record foreign owners if their ownership percentage is less than 100%. Although many subsidiaries do have a 100% owner, sometimes ownership structures can be quite complicated even with a single ultimate parent. In addition, the data regarding ownership and the implementation of this data in the business register appears incomplete for the years analysed in this study.

The UCI as implemented by Statistics Netherlands actually focusses on the location of the head offices, the global decision center (GDC) instead of the ultimate owner. The UCI and the GDC diverge if the head office is a domestic unit but the ultimate owner, for example a financial holding company (global group head, GGH) or a natural person, is not. Or alternatively if the financial holding company or natural person are domestic units but the head office is not.

To establish foreign control, and considering the bias towards local owners in the various data sources the approach has been to start with the SFGO-data and subsequently do a manual check on the correctness of the data, especially when the various data source where inconsistent. This offers a foreign ownership percentage for the largest corporations. For the remaining corporations, if the business register indicates an enterprise group has a 100% foreign owner then 100% foreign ownership is expected. If the business register does not register a foreign owner but it is established that the UCI is foreign, a 100% foreign ownership is assumed. All other enterprise groups are assumed to be national corporations.

The concept of control describes the relationship between parents and subsidiaries. Accordingly a statistical unit that is being owned by a foreign statistical unit will classify as foreign controlled. However, it is important to realize that this may not always make sense from a user perspective. For example, a small number of quoted holding companies in the Netherlands are part of the financial corporations sector as captive financial institutions. Although most of their assets are foreign subsidiaries they do have some local subsidiaries in the non-financial corporations sector. In cases where such holding companies have no major shareholder controlling more than 50% of the equity, which for quoted entities is often the case, technically the non-financial subsidiaries will count as local corporations even if the head office of the global group is actually foreign. Most users would identify such corporations as foreign controlled.

A similar problem results when corporations are directly owned, or indirectly owned through a family holding company, by a natural person living in a foreign country. If such corporations have a local head office guiding the global operations and have a local heritage, users will regard such corporations as traditional domestic corporations.

Both cases seem to indicate that the current rules for the subsectors in ESA2010 may not fully be line with what we try to show. It would appear useful to make a distinction between the impact on gross national income, in which foreign ownership should be the guiding principle, and the classification into foreign controlled or domestic corporation, where 'control' is determined by the geographical location of the global head office.

The classification we presented in paragraph 5.1 proposes a further split of the national private corporations into multinationals, large corporations and medium, small and micro corporations. The defining feature to be a national private corporation but also a multinational is the existence of ownership of foreign subsidiaries. To establish whether such subsidiaries exist four data sources are available.

- 1) The SFGO asks the largest non-financial corporations on the income they receive from foreign subsidiaries and the value of such subsidiaries;
- 2) The corporate tax data as covered by the SFKO also offer data on income from foreign investments and the value of such investments for smaller non-financial corporations.
- 3) The Dutch tax authorities maintain a register of subsidiaries that Dutch corporations own. This register records both foreign subsidiaries and local subsidiaries. Based on this register Statistics Netherlands maintains an annual list of corporations with foreign subsidiaries that can be used for analysis and publication purposes such as for this study.
- 4) A final data source for 2015, 2016 and 2017 is the balance of payments (BoP) and the statistic on the international investment position (IIP) compiled by the Dutch Central Bank.

Starting point to establish those corporations with foreign subsidiaries is the list based on data from the Dutch tax authorities, further developed and maintained by Statistics Netherlands. Subsequently all corporations that report earnings from foreign subsidiaries in the data sources but are not yet covered by the register are added to the list of multinationals.

To subsequently classify the remaining corporations as large corporations or medium, small and micro corporations use is made of the number of employees. Such data on employees is readily available in the Dutch business register and is based on social security records.

5.5 Coverage

By using the various data sources and after the manual check of the largest Dutch corporations it can be expected that coverage of all foreign controlled corporations in the Netherlands in this study is reasonably good. However, since the various data sources all tended to have a bias towards local owners compared to foreign owners, this could imply that some sort of underestimate of foreign ownership is still present.

Work at Statistic Netherlands to capture foreign controlled corporations better in the business register in 2017 was an important factor that led to an increase in the number of foreign controlled corporations that could be identified. In 2015 20,5 thousand enterprise groups and branches were identified that were foreign controlled. In 2016 the number was 23,6 thousand increasing to 25,9 thousand in 2017. Some of the increase was due to acquisitions of corporations but a significant number that was found to be foreign controlled in 2017 may well have been foreign controlled in 2015 as well.

It would not be possible to check retrospectively whether all corporations under foreign control for the first time in 2017 might have been foreign controlled earlier. Nevertheless, based on the data developed in this project and presented in chapter 7, using some assumptions a sense of the possible bias in 2015 and 2016 relative to 2017 can be given.

Corporations that intrinsically change significantly due to mergers or acquisitions will in general receive a new identification number in the business register. Identification numbers that

emerge for the first time in 2017 for corporations that are not new start-ups are proof of corporate events that may well be related to a foreign buyer. Although not necessarily the case as corporate events purely between local corporations will also lead to new identification numbers, we may assume that a bias would generally be visible in those identification numbers that are present in 2017 as well as in 2016 and 2015. We may further assume that if such corporations were covered in those years by the SFGO survey in which foreign control is reported and of which a significant number have been checked, a change to foreign control in 2017 is real. A similar exercise can be done for new business register identification codes in 2016 compared to 2015. This leads to list of corporations in 2015 and 2016 that may well have been foreign controlled but were not registered by Statistics Netherlands as such at the time. By linking the lists to the data for dividend payments and undistributed income in this study a measure of the bias results that may still be present despite adjustments already made to the ownership for this study.

In 2016 some 1300 corporate groups could be effected with some €0,7 bln in dividends and undistributed profits now not allocated to foreign owners. In 2015 some 1600 corporate groups are effected with €1 bln in dividends and undistributed profits. If we would restrict this further to only those corporations without a change of name, as a change of name may also be a sign of corporate activity, the dividends and undistributed profits would be roughly half those estimates. On the one hand this may be an upper bound as some of the cases will have resulted from real acquisitions. On the other hand it would appear likely that 2017 itself has remaining coverage issues impacting the bias estimate. Even if more improvements will have been made since in the registration of ownership, it is clear that establishing an exhaustive list of foreign controlled corporations is still of clear importance to estimate gross national income correctly and that the lack of such a list in the past will generally have led to an overestimate of gross national income.

A possible caveat that may be further investigated is that Dutch owners may own their corporate groups through foreign financial holdings, for example located in Luxembourg. Currently income that such households earn from such foreign financial holdings may well also be underreported at this time. By using the information on foreign ownership in the business register for the liability side of corporations, the number of such cases will likely have increased.

6. Data Compilation

In chapter 4 it is described how a list of enterprises and enterprise groups belonging to the non-financial corporations has been developed. In chapter 5 it is discussed which groupings of corporations are of interest and how units can be classified to each of these groups. If all data in the national accounts, including conceptual adjustments and balancing adjustments, can be linked to or distributed over individual enterprises it is subsequently easy to compile data for the various groups that is consistent with the national accounts. It even offers the opportunity to experiment further with additional groupings of non-financial corporations.

This chapter describes how the national accounts data has been converted to data for each enterprise and/or enterprise group.

6.1 Supply and Use Tables

In the supply and use tables data is compiled for the variables output, intermediate consumption, wages and salaries, employers' social contributions and taxes and subsidies on production. Data is collected for industries according to the NACE classification. Not only is total output and intermediate consumption estimated but also what goods and services they produce and use. This offers the possibility to compare supply and demand with goods and services data from the international trade in goods and services, consumption of households and the government, gross fixed capital formation and inventories. Balancing this system leads to a comprehensive estimate for GDP. After adding data on labour costs and taxes and subsidies on production, the gross operating surplus results.

To estimate data for the non-financial corporations sector, granular data on most industries will be needed as non-financial corporations are generally present in most industries. In some industries they do not play a role and granular estimates for such industries are therefore not needed. This applies to the NACE sections K (financial and insurance activities), O (public administration) and a sizable part of section P (education) but excluding the private non-subsidized schools and institutions.

For many of the industries for which granular data is required, data is available from the Structural Business Statistics (SBS). The main exceptions, for which no SBS-data are available, are NACE-sections A (agriculture with the exception of NACE 016)), parts of P, Q, R, S and T (education, health, entertainment and other services). Also for real estate (NACE 68) only a small fraction of output is covered by the SBS-survey.

6.1.1 Breakdown of output and intermediate consumption of the industries covered by the SBS-survey

The compilation of industries in the supply and use tables generally follows several steps:

1. Collection of data sources: Surveys (e.g. SBS), administrative records (e.g. income and expenditures of government institutions and subsidized educational institutions), annual reports, models (e.g. to estimate imputed rent for owner occupied dwellings), etc.
2. Data validation: Different types of adjustments to source data are performed. Examples include:
 - a. Adjustments to SBS-data for very small enterprises in several branches of industry. In the SBS-survey the very small enterprises are not included in the survey, but estimated on the basis of turnover value from VAT-data and structural data on

turnover and costs of the enterprises in the smallest size classes that are surveyed in the SBS. After confrontation with the data from the Labour Accounts, the estimated value of compensation of employees was found to be too high for the non-surveyed size classes in the SBS.

- b. Adjusting fiscal year data in the SBS-survey to calendar year (NACE 26).
 - c. Adjustments to remove the impact of derivatives that some companies inadvertently report as part of the production account, e.g. weather derivatives in NACE 35.
- 3. Conceptual adjustments: In order to comply with ESA 2010 concepts it is sometimes necessary to depart from the registration normally adopted in business accounting. Examples include the measurement of consumption of fixed capital, cost of the use of banking services as measured by FISIM (financial services indirectly measured), insurance services, holding gains and losses of inventories, R&D expenditure, etc¹⁵.
 - 4. Exhaustiveness adjustments: Enterprises do not report certain activities in the SBS-survey. These include 'hidden' or illegal activities and certain regular activities such as construction on own account by households¹⁶.
 - 5. Balancing adjustments: Adjustments need to be made in the supply and use tables in order to balance supply and demand.

For industries whose main or only source is the SBS-survey, the breakdown to enterprises is made for each of the five components.

In the Netherlands the SBS-survey collects data (component 1) for each industry based on the following principles.

- i. The enterprises belonging to the 350 largest and most complex enterprise groups in the Netherlands are exhaustively surveyed.
- ii. Large and medium sized enterprises (100+ employees) that are not part of a Top 350 enterprise groups are also exhaustively surveyed.
- iii. A stratified sample is taken for enterprises with ≥ 1 employees. The stratum is based on the NACE group, size class and legal form (incorporated/unincorporated).
- iv. Some NACE x size class combinations for enterprises with more than 1, but less than 10 employees are sampled once every three years. In the years that they are not sampled, VAT information is used in combination with structural information from the latest survey year. This is done to reduce the administrative burden for smaller enterprises.
- v. The turnover of the smallest enterprises (mainly enterprises with 0 persons employed, after rounding) is estimated using VAT information only. The other variables are calculated using information from enterprises in a higher size class for which data is available.

For enterprises in categories i. and ii. and enterprises in category iii. that are in the sample survey, reported or imputed (in case of non-response) data on output and intermediate consumption is directly available. For enterprises in category iii. that are not in the sample survey, values are derived. For each NACE x legal form combination the value of the surveyed enterprises is deducted from total SBS-value of the NACE x legal form combination to derive the

¹⁵ Chapter 3.5 of the GNI inventory 2015 elaborates further on the conceptual adjustments made by Statistics Netherlands.

¹⁶ Chapter 3.7 of the GNI inventory 2015 elaborates further on the adjustments for exhaustiveness made by Statistics Netherlands.

value to be distributed over the non-surveyed enterprises. There are two types of legal forms: incorporated and unincorporated enterprises. The residual values derived are distributed over the non-surveyed enterprises using the data on turnover of each enterprise from VAT-data.. Enterprises in category iv. are surveyed irregularly with a three year interval. In years when they are not sampled total turnover grouped by NACE x size class x legal form is estimated using VAT information. The total results for other variables are subsequently derived by using the ratio of these variables in relation to the turnover from the latest year with sample data. The values per NACE x size class x legal form group are distributed over enterprises using data on turnover of each enterprise from VAT-data.

Enterprises in category v. are grouped by NACE and size class. The value for each enterprise within the group is calculated using the turnover from the VAT data.

In the business register a sizable number of entities was inadvertently separated from their enterprise group and classified as financial institution. Typically those entities employed the owner/CEO of the enterprise group. Based on social security records these corporations were reclassified back to the non-financial corporations sector and NACE-code 70.1 (Activities of head offices). Their output was estimated as the sum of the paid wages and social security contributions. For these entities the assumption is made that they have no intermediate consumption and no operating surplus. Other units that were misclassified into the financial industry in the business register were added as well including estimates for intermediate consumption an operating surplus when appropriate. The distribution of the value of output and compensation of employees to individual enterprises was made using data from the labour accounts.

Around half of the value of adjustments to output for data validation (component 2) could be traced back to specific enterprises. In those cases an adjustment was also made to the intermediate consumption of those enterprises. The adjustments to the value of output that could not be traced back to specific enterprises, were proportionally distributed over all enterprises within the respective industries using the output data from the SBS-survey. Similarly the remaining adjustments to intermediate consumption were proportionally distributed over enterprises based on the estimated intermediate consumption from the SBS-survey.

The conceptual adjustments (component 3) within each industry covered by the SBS-survey were allocated to enterprises using the output value from the SBS-survey with a number of exceptions. The adjustments for R&D that is developed on own account and needs to be added to output and gross fixed capital formation are allocated to enterprises making use of the R&D survey available at Statistics Netherlands. The adjustments for software developed on own account are estimated making use of data from the ICT survey available at Statistics Netherlands. The estimates for purchased R&D and software to be excluded from intermediate consumption and added to gross fixed capital formation are based on the total gross fixed capital formation in R&D respectively software for each enterprise. Unless specific enterprise information was available, for example for small enterprises, data was allocated to enterprises based on the number of employees of each enterprise. The software estimates were enhanced by making sure capitalization adjustments were not unduly allocated to households by taking into account the limited amount of R&D that needed to be capitalized for households.

With regard to FISIM the data for enterprises belonging to the non-financial corporations as well as the other sectors is benchmarked to the cross classification values between industry and sector for this variable. As a further adjustment for those corporations that are non-market producers within the industries covered by the SBS-survey output is set at the sum of costs. Most of the adjustments for exhaustiveness (component 4) cannot be allocated to enterprises in the Dutch business register. Most hidden or illegal activities are done by people or groups of

people that are not registered at the Chamber of Commerce or the tax authority. The same holds for legal activities that are not hidden, but do not show up in the statistical sources such as construction on own account by households. These activities are allocated to units belonging to the households sector.

Only a small portion (less than 5 percent) of the adjustments made to balance the supply and use tables (component 5) could be traced back to specific enterprises. All other balancing adjustments were proportionally distributed over the enterprises using the value of output and intermediate consumption for the respective industries from the SBS-survey.

6.1.2 Breakdown of output and intermediate consumption for the industries not covered by the SBS-survey

For the industries that are not covered by the SBS-survey granular data is not always readily available. Whenever granular data is available and found to be fit for use this data is used but typically as indicators meaning that the above mentioned steps are not explicitly estimated individually.

For agriculture, forestry and fishing (NACE 01-03) the breakdown to enterprises for 2015 was made as follows. The values of output, intermediate consumption and gross value added for enterprises in NACE sections 011-015 (crop and animal production) are derived from the statistic 'Financial data of agricultural companies'¹⁷. This statistic contains financial data from fiscal sources for enterprises in the agricultural census ('landbouwtelling') performed by the RVO ('Rijksdienst voor Ondernemend Nederland'). The statistical unit in the agricultural census (agricultural company) differs from the statistical unit in the business register (enterprise). However, a link can be made between the two for about 75 percent of the total value of agricultural yield (the measure of production in the statistic 'financial data of agricultural companies'). For enterprises that do not link, an estimate for production and intermediate consumption is made based on the value per employed person for enterprises in the same stratum. The stratum is based on NACE group, size class and legal form. The total value for output, intermediate consumption and gross value added derived in this way for each NACE (011-015) are scaled to the values for those variables in the balanced supply and use tables. There are no sources with enterprise-level data on output and intermediate consumption for enterprises in NACE 020 (forestry and logging) and 030 (fisheries and aquaculture). An estimate is made by allocating the total value of production and intermediate consumption of both industries in the supply and use tables to enterprises using the number of employees for each enterprises based on social security data.

For 2016 and 2017 a more crude method was used by using the detailed structure as found for 2015 and aligning these data with more aggregated source data for 2016 and 2017. The results were subsequently aligned with the balanced data in the supply and use tables.

No complete and easily usable dataset is available on the production activity of enterprises that offer real estate for rent (NACE 68.1 and 68.2). In the supply and use tables the values for these industries are based on a collection of data sources and modelling as well as counterpart information on paid rents. To allocate the data to enterprises as a first step an estimate was made for all real estate that is directly owned by foreign residents. The net income of such residents is compiled by the Dutch Central Bank as part of the balance of payments. Based on the production structure in the supply and use tables for the respective industries the net income is converted into estimates for output, intermediate consumption, taxes and subsidies on production and consumption of fixed capital. Secondly micro data is used on building

¹⁷ Statistic for financial data of agricultural firms ('Financiële gegevens landbouwbedrijven')

societies ('woningbouwcorporaties') from the Authority supervising building societies. Thirdly micro data is taken from the corporate tax register as compiled as part of the SFO. For those enterprise groups where the renting of property is the sole activity data is used directly. However, some real estate enterprises are part of larger and more diverse enterprise groups and data is not always sufficiently individually available. In such cases estimates are based using the average data for similar entities based on industry and size class. As a final step the difference between the sum of the micro data and the values found in the cross classification between industries and sectors is distributed proportionally over the micro data excluding the estimate for directly foreign owned real estate.

For enterprises in the parts of education where non-financial corporations are present (NACE 855-856), healthcare (NACE 86-88) and parts of sections Q, R, S and T (health, entertainment and other services) in most cases micro data is insufficiently available and estimates in the supply and use tables are compiled based on the variety of data sources. To estimate the values for output, intermediate consumption and value added for individual enterprises the following three-step procedure is used.

In the first step the values were taken from the cross classification between industries and sectors for each variable in the supply and use tables as established during the regular national accounts estimation process. In the second step adjustments made to output and/or intermediate consumption in the supply and use tables for hidden and illegal activities for these industries were deducted from the household sector, since these activities are assumed not to be performed by enterprises but only by households. In the third step the residual values of production and intermediate consumption of each industry x institutional sector combination from step two, are distributed to enterprises using the number of employees for each enterprise based on data available in social security data and by making use of the cross classifications list for enterprises that was developed as part of this study to compile lists of non-financial corporations.

A similar approach as used for the real estate industry seems feasible in theory to improve the distribution over enterprises. An effort to do so encountered data quality issues, among other reasons due to problems linking the units in the tax records to the correct industries. Considering that both methods anchor to the cross classification and that the industries concerned are all labour intensive making the number of employees a strong indicator the overall quality improvement if data issues regarding the corporate tax method would be resolved, can be expected to be limited. Furthermore, since there is very little foreign ownership or a presence of local multinationals in these industries, only the split between large corporations and small and medium enterprises would be most affected. As a result we opted to use the number of employees as the preferred approach.

6.1.3 Allocation of gross value added components of the industries in supply and use tables to enterprises

Using the procedures explained in the preceding paragraphs, output, intermediate consumption and value added for all industries in the supply and use tables have been allocated to enterprises. To complete the estimate for the complete supply and use tables, estimates for the components of value added need to be compiled.

For the compensation of employees enterprise-level data for wages and salaries and employers' social contributions is derived from the Labour accounts. The primary data source for the labour accounts are the social security data received from the Employment Insurance Agency (UWV, 'Uitvoeringsinstituut Werknemersverzekeringen'). As the labour accounts data is directly used

in the supply and use tables for compensation of employees for the various industries one would expect that the labour accounts data would be easily usable for enterprise level data. This is indeed largely the case. However the labour accounts corporate codes do not always match the unit identifiers in the business register. Approximately 1% of the total compensation of employees in the Netherlands annually cannot be linked.

One reason for linkage problems is that the business register can have a lag in how quickly new corporations are introduced. The social security data is a monthly data source and therefore new entities that are the result of corporate restructurings or new entities that emerge in general, quickly find their way into the labour accounts data source with unit identifiers that are still unknown in the business register. In addition, some units are not known in the business register as they have no legal requirement to register at the Dutch Chamber of Commerce, for example churches. Also branches of foreign corporations appear to be missing in the business register in some cases.

To allocate the wages and social contributions to the correct sector, data was collected from the business register from other periods than the reporting period to find metadata on units. Subsequently information that was found regarding identification codes, legal form, NACE code and name, as well as similar meta information available from the tax records were used to allocate units to sectors. and within the non-financial corporations sector, to allocate units to subsectors. Some 60% of the wages and social contributions of unlinked units could be classified to the non-financial sector. Of these approximately 60% or €1,3 bln annually could be allocated to the subsector of foreign controlled corporations.

There is limited enterprise level data on the other taxes and subsidies on production. The breakdown by enterprises is made in each industry using the values of output per enterprise (including the national account adjustments). Gross operating surplus/mixed income for each enterprise can subsequently be calculated as a residual.

6.1.4 Cross classification between industries and sectors

The link between a supply and use tables and the sector accounts is a cross classification table between industries and sectors as discussed in chapter 3.2. To align the supply and use tables data fully with sector accounts the data that have come available from the previous steps needs to be brought in line with the cross classification.

For some industries this has already been achieved in the compilation process, in particular real estate, healthcare, entertainment and other services. For other industries there are still differences between the calculated values and the cross classification values. One solution would be to proportionally distribute the differences over the estimated values for each industry. For this study we have opted for the use of a single dummy record to align with the cross classification.

There are several reasons for this approach.

1. The data on agriculture in the supply and use tables is functional in nature meaning that if for example a corporation has both agricultural output as well as food processing the two activities are split into an agricultural part and an industrial part. In this study we have estimated the values for each enterprise diverging from this principle. Fully aligning with the cross classification values would therefore be inappropriate.
2. As explained in chapter 3.2 the values in the cross classifications for non-financial corporations are effectively a residual. The value of the income of independent entrepreneurs that are part of households is estimated from income tax records and

used subsequently as cross classification values for households. But these income tax records do not play a role in the compilation of the supply and use tables. This can lead to inconsistencies and diverging data from the SBS-results. However, SBS-data on small corporations is relatively weak so any inconsistencies may firstly be the result of data inaccuracies in SBS-data for small corporations and potentially also GDP. Some evidence exists that income earned by households as a secondary activity may currently be missing in the supply and use tables. It would therefore not be appropriate to adjust such inconsistencies on both large and small corporations.

3. There is a clear problem regarding the potential of double counting in cases where a corporation has the legal form CV ('Commanditaire Vennootschap') and it is constructed as being 'open'. Such entities are liable to pay corporate tax and there is a clear case for them to be included in the non-financial corporations sector. However, usually 'open' CV consist of both one or more managing partners and one or more non-managing partners with the managing partners being personally liable for the debts of the CV. Such managing partners will count as independent entrepreneurs and will pay income tax for their role in the CV. To prevent double taxation they can deduct the income tax from the CV corporate tax. As CV's are typically medium to small enterprises, adjusting the data for large corporations would be inappropriate.

As the likely source of the remaining inconsistencies between the cross classification values and the estimated values can most likely be attributed to small and medium enterprises a dummy is allocated to this subsector to account for the sum of the differences. The value of this dummy for value added is -€2.1 bln in 2015 (2016: -€1.8 bln, 2017: -€1,9 bln). Most of the value corresponds to gross operating surplus, lowering the profitability of small and medium enterprises compared to the calculated value (2015: -€1,7 bln, 2016: -€1,8 bln, 2017: -€1,5 bln). This amounts on average to 3,6% of the gross operating surplus of small and medium enterprises before adjustment.

6.2 Primary Income and Income Transfers

The supply and use tables are compiled using the enterprise as the main statistical unit. All data from the supply and use tables are therefore calculated towards enterprises. The practice of the SFGO for large corporations is to collect data for primary income aiming for the enterprise group. This limits the ability to do a more granular approach than the level of the enterprise group. Primary income as well as secondary income will thus only be estimated for enterprise groups in this study unless more granular data is available from other sources than the SFO. One such enhancement relates to the estimates of the activities of head offices that Statistics Netherlands estimates separately for the largest enterprise groups.

Data on primary income is compiled by using the SFO as a starting point. For the largest corporations granular data is directly available either by reported data or imputations. For the smaller corporations that are covered by the SFKO some grossing up is needed. At the time the final estimates are compiled for the sector accounts, for which source data need to be ready around one year after the reporting period, not yet all corporate tax data is available. The procedure the SFKO takes is to use information from the tax authorities on how many tax filings the tax authorities still expect for each industry. Grossing up is done by multiplying the average data per taxable entity for a given industry by the number of open tax filings after allowing for the likelihood that some of the tax filings expected by the tax authorities will not materialize by a correction factor, as entities may have changed during the year. This correction adjustment

means that in practice it is not exactly known for which specific entities grossing up is done and by what amount. The total size of the grossing up is some 5% of the SFKO-total.

To allocate the grossing up to actual corporations for each year a list was established of all corporations for which tax filings eventually became available but were not yet available at the time of the final SFKO-compilation. The amount grossed up for each industry was distributed over the enterprise groups by using the share each enterprise group had in the total sales of the grossed up enterprise groups within its industry. Although such a calculation will provide a fair distribution over enterprises it should be noted that this is only possible with a significant time lag and may thus not be possible if the split of the non-financial corporations becomes a more timely part of the sector accounts compilation process.

Primary income transactions consist of interest, dividends, reinvested earnings on direct foreign investment, income on investment funds and insurance policies and rent. In addition, the income that relates to the relationship a corporation can have with its pension fund in cases where the corporation is fully liable for any deficits at the pension fund also count as primary income. For the most important primary income transactions, interest, dividends and reinvested earnings enterprise group level data is available from the data sources as described in paragraph 3.2. To align the enterprise group data to the sector accounts totals only those integration adjustments that cannot be directly linked to individual enterprises need now to be assigned to enterprises.

To aid the data compilation and improve results difference is made between payments and receipts with domestic counterparts and payments and receipts with foreign counterparts. Only the SFGO survey has data on foreign and domestic income and foreign and domestic payments. The corporate tax data only include data for earnings of foreign and domestic subsidiaries. To estimate the payments and receipts of interest for small corporations with regard to foreign counterparts as well as the payments of dividend to foreign owners the assumption was made that payments and receipts by foreign controlled entities were all cross border payments and receipts whereas national corporations only have domestic payments and receipts for such transactions.

6.2.1 Interest

For interest the integration adjustments proved to be rather large. The received interest as available in the data source was lower than found in counterpart data, notably from banks and the balance of payments. The paid interest as available from the data sources was far higher than found in those same counterpart data sources. For a number of large corporations adjustments were made after analysing the data. To estimate the remaining adjustments for received interest as a first step the average annual balance sheets size was taken for short term loan assets and long term loan assets for each enterprise group. For large corporations covered by the SFGO survey, those corporations with loan assets that said to have no interest income, income was imputed to reflect a fair interest rate. In addition, for those corporations that reported very high interest income relative to their annual average balance sheet value of short term and long term loan assets also a fair interest income was estimated and used. Similar adjustments were made for the interest payments relative to short term and long term liabilities.

For small corporations covered by corporate tax data a simpler approach was used. Those corporations with short term and long term loan assets that said to have no interest income, income was imputed to reflect a fair interest rate. On the liabilities side, for those corporations that reported very high interest payments relative to the annual average balance sheet value of

short term and long term debt liabilities, a new interest payment was estimated using fair interest rates.

Fair rates were set so as to align with the interest receipts and payments according to the sector accounts taking into account rate differences between short term and long term assets and liabilities and in cases of large corporations (SFGO) between domestic and foreign counterparts. Any remaining differences between the micro data and sector accounts totals was distributed proportionally to the estimated micro data over all enterprise groups.

Both the zero rates as well as the occasionally extremely high rates in the source data are likely caused by the fact that in corporate accounts interest is not recorded on an accrual basis. In addition, items used from the survey and corporate tax records may include more than just interest and interest bearing assets and liabilities. To fully understand the reasons behind the adjustments and to improve the quality of data on interest more research is needed.

To compile interest aligned to the national accounts definition an adjustment for FISIM (Financial Intermediation Services Indirectly Measured) is needed. The FISIM adjustment for intermediate consumption as estimated in the supply and use Tables was allocated to corporations by using fixed proportions to assign FISIM to the resources side, related to interest on deposits, and uses side, related to interest on debt.

6.2.2 Distributed and undistributed income of corporations

A significant number of Integration adjustments on dividends that were made during the sector accounts compilation of 2015, 2016 and 2017 could be traced to specific corporations. Nevertheless some sizable adjustments remained that needed to be allocated to corporations. Firstly a sizable pre-integration adjustment is made during the estimate of the non-financial corporations' sector total for received dividends. Small corporations covered by corporate tax data report total earnings from investments in other corporations. In addition to dividend this includes the share in the undistributed profits of the subsidiaries as well as items not to be regarded as income according to statistical manuals. During the 2015 compilation the total share of dividends in total domestic earnings was estimated at 5%. To distribute total adjustment over enterprise groups the first step was to correct for those enterprise groups that recorded negative domestic earnings. Those corporations are assumed not to have received any dividends. The adjustment for undistributed profits was distributed proportionally over those enterprise groups reporting earnings from subsidiaries. Similar adjustments were made for 2016 and 2017. In addition, for the year 2016 a similar adjustment was made for the foreign earnings of small corporations in which the dividend estimate from foreign subsidiaries also appeared particularly large.

Secondly, during the 2016 sector accounts compilation as part of the balancing process, in which data is confronted with counterpart data, a significant adjustment emerged regarding paid dividends to domestic counterparts. To allocate this adjustment to corporations it was chosen to use the paid dividends by small national corporations as a distribution key and so to allocate the adjustment to the small corporations. A similar adjustment was made for the year 2017.

Thirdly, for 2017 it proved not any more possible to find the micro data that aligned with the micro data used during the 2017 sector accounts compilation regarding paid dividends by small corporations to foreign owners. To allocate this adjustment to corporations it was chosen to use the paid dividends by foreign controlled small corporations from the available micro data as a distribution key.

Any remaining difference after these adjustments were proportionally distributed over all enterprise groups that had dividend payments or receipts.

Income from quasi-corporations in the Netherlands with regard to non-financial corporations only refers to income from directly owned foreign real estate. Dutch corporate owners of foreign real estate receive income. Dutch real estate that is directly owned by foreigners pay income. From a statistical perspective such real estate is owned by an artificial company, called a notional unit. Domestic owners of foreign real estate receive income from the foreign notional unit as if they have an equity holding in the notional unit. Similarly foreign owners of domestic real estate hold this real estate in a statistical sense through a local notional unit. The income from the notional unit is equal to the revenue real estate generates after deduction of costs. The paid net income is available in the balance of payments but as it refers to notional units such payments cannot be assigned to specific corporations. Two dummy units for investments in houses and other buildings were created and assigned to the category of foreign controlled corporations. The earned income on foreign real estate should be assigned to Dutch enterprises but the granular data for this is largely lacking. The unallocated total is distributed over enterprises using the share in total output for each enterprise.

For received reinvested earnings on direct foreign investment no large adjustments were needed as the micro data fitted the macro data well. A small remaining difference was proportionally distributed over all enterprise groups having foreign earnings.

The paid reinvested earnings on direct foreign investment could have been determined in a similar way based on data received from corporations. But the paid reinvested earnings should also be aligned with the other estimated Sectors Accounts transactions. According to ESA 2010 paragraph 4.64 reinvested earnings on foreign direct investment should be equal to:

“the operating surplus of the foreign direct investment enterprise plus any property income or current transfers receivable minus any property incomes or current transfers payable, including actual remittances to foreign direct investors and any current taxes payable on the income, wealth, etc. of the foreign direct investment enterprise”

One of the aims of this study is to look into potential inconsistencies in the Dutch national accounts. Such inconsistencies will show when comparing the paid reinvested earnings on direct foreign investment from data sources and implemented in the sector accounts, with the calculated reinvested earnings that can be deduced by estimating all the other transactions for all corporations with foreign ownership. As this study attempts to quantify this inconsistency the paid reinvested earnings on foreign direct investment presented in this study will diverge from the actually previously published data in the sector accounts.

The paid reinvested earnings will be estimated using actual sector accounts transactions. A limiting factor to this approach is that if a foreign controlled corporation owns a minority stake of up to 50% of the equity in a local subsidiary any undistributed profits of this subsidiary will be omitted from the calculation. This is the result from the fact that enterprise groups in the Dutch business register only include corporate relationships in excess of the 50% threshold as well as from the fact that undistributed profits between residents are not registered conceptually as part of the sector accounts system. On the other hand, any minority interests of national corporations in national subsidiaries of foreign controlled corporations will not be recorded as such but recorded as foreign controlled. Information on domestic corporate relationships below the 50% threshold is generally not available and as a result adjustments are difficult to estimate and implement. Nevertheless for the biggest known corporation where the problem is relevant

an adjustment was made to supplement the general calculation procedure. For all other cases we have assumed the net impact to be negligible.

6.2.3 Other investment income and rent

Enterprise groups earn some money from investment funds and also have some income from insurance policies. As granular data to distribute these sums over industries is lacking, the unallocated total is distributed over enterprises using the share in total output for each enterprise.

The final primary income category is rent. Rent is paid for the use of land or the use of subsoil assets such as coal, oil or gas. More recently payments made for the use of mobile phone spectrum was also included in rent. Non-financial corporations pay rent to the Dutch government for various reasons. The biggest is for the extraction of oil and gas. Sizable are also the payments for mobile phone spectrum. Such payments can be assigned to specific corporations. Payments are also made by distributors of electricity, public transport corporations, and hotels and restaurants to be able to use terraces on pavements. Small payments are also made for the use of radio frequencies and public advertising space. Although information is available by type and by extension by the industry that pays each type, specific information for each enterprise is lacking. In such cases the data is distributed by industry and subsequently the share in total output an enterprise has in its industry.

Non-financial corporations also receive some rent from the government. This is assumed to be paid to farmers for the use of farming land. The values are distributed over the farming enterprises along their share in output in the farming industry.

6.2.4 Income transfers

Income transfers consists of payment of corporate taxes, social security payments and receipts, insurance payments and receipts and various other transfers such as the payment of fines and the contributions to non-profit institutions serving households.

Granular data on paid corporate taxes to the Dutch government is available for each enterprise group. Any remaining difference with the data as reported to be received by the government is proportionally distributed over the paying corporations. Such differences can be rather large due to the conceptual differences between what sector accounts conceptually regards as paid tax, which is fairly comparable to actual cash tax payments, and taxes according to accountancy rules. The quality of the distribution of the tax data is therefore somewhat questionable.

In some cases corporations also pay taxes at source for received foreign dividend and foreign interest. No granular data is available for such tax payments. The tax estimates are distributed proportionally over those corporations that receive foreign dividend and interest.

For the other income transfers hardly any granular information is available to assign payments and receipts directly to enterprises. sector accounts records social security payments and receipts for non-financial corporations. Such payments and receipts are related mostly to payments to employees on sick leave and are also part of the social contributions that are recorded as compensation of employees. Both the receipts and payments of the transfers are therefore distributed over enterprises using the estimated social contributions for each enterprise.

Insurance premiums for casualty insurance and receipts from insurance claims are distributed over enterprises using the share each enterprise has in total output for lack of granular information. The same is done for all other transfers.

A specific income transfer for which some corporate granular data seemed available was cross border sample gifts. Such samples, used to give potential customers a sense of a particular product, are recorded in international trade statistics. However while processing the data the linking to actual corporations seemed inappropriate. The companies that declare imports and exports may actually only be the facilitator of such trade flows. They do the administrative filing but may not be the ultimate provider or the ultimate receiver of the sample. In addition some of the administrative filing is actually done by customs officers making any specific link to corporations no longer possible. More importantly, however, is that serious doubts can be had on the accuracy of the data as a sizable part of the data appeared to be related to sales by foreign corporations, where the goods are cleared for sale in the Dutch market, and often handled by a Dutch subsidiary, but the goods remain owned by the foreign seller. Any granular use of such data would therefore lead to unlikely income transfers to and from Dutch corporations.

6.3 Capital Account

6.3.1 Consumption of fixed capital

To estimate the paid reinvested earning on direct foreign investment as aimed in this study one needs to add all income and subtract all cost of all Dutch corporations with foreign ownership. One of the costs that needs to be taken into account is the consumption of fixed capital. Consumption of fixed capital is the gradual loss of value of fixed capital by usage and aging.

To estimate consumption of fixed capital in the Dutch national accounts the Perpetual Inventory Method (PIM) is used. Gross fixed capital formation is estimated for a time series by industry and categorized by type, such as machinery, real estate or software. Some types of fixed capital lose their value fast and consumption of fixed capital for each year will be high. For assets such as real estate consumption of fixed capital will be relatively low. With a sufficiently long time series of gross fixed capital formation data the PIM-method offers the national accounts estimate of consumption of fixed capital for the Dutch economy.

To estimate consumption of fixed capital for each individual enterprise ideally a time series of gross fixed capital formation would have to be established for each enterprise. The data needs for such an effort are extremely large, the estimate would require many assumptions and would be very costly.

For this study a different approach has been taken. As part of the PIM-calculations at Statistics Netherlands a cross classification becomes available, showing for each combination of sector and industry the estimated consumption of fixed capital. As a result the consumption of fixed capital for non-financial corporations for each industry is known but this lacks the granularity towards enterprises and a distribution key needs to be developed.

Most granular data sources have data available on consumption of fixed capital calculated by corporations for their own corporate accounts. By using the consumption of fixed capital in the agricultural data, the SBS and corporate tax data, for most industries consumption of fixed capital could be estimated for enterprises or enterprise groups. It is well known that such corporate consumption of fixed capital diverges from PIM-estimates because of the differing valuation for fixed assets and differing estimation rules to be applied for consumption of fixed

capital. In addition it is clear that corporate consumption of fixed capital data typically can include one off right downs and other price changes on fixed assets. As a result, only using this data would appear inappropriate.

Table 6.1 shows the difference for 2015 between the corporate source data on consumption of fixed capital, typically underlying Current Operating Performance Concept (COPC) estimates of reinvested earnings and the PIM estimates showing that in most cases PIM provides higher data. 2016 and 2017 show similar differences between estimates using PIM and the source data.

Table 6.1 Consumption of fixed capital for non-financial corporations by industry, 2015, mln Euro

	source data	PIM	difference
Agriculture, forestry and fishing	867	1091	224
Mining and quarrying	1869	2045	176
Manufacturing	8274	13945	5671
Electricity and gas supply	2203	3474	1271
Water supply and waste management	825	1102	278
Construction	1247	2103	856
Wholesale and retail trade; repair of motor vehicles	6310	7110	800
Transportation and storage	3811	4751	940
Accommodation and food service activities	812	569	-244
Information and communication	5457	5760	303
Financial and insurance activities	-	-	-
Real estate activities*	4827	7402	2575
Professional, scientific and technical activities	2467	3035	569
Administrative and support service activities	4843	5302	458
Public administration and defence; compulsory social security	-	-	-
Education	57	139	82
Human health and social work activities	3487	4558	1071
Arts, entertainment and recreation	501	697	195
Other service activities	208	148	-60
Households with domestic personnel	-	-	-
Total	48066	63231	15165

* corporate consumption of fixed capital includes PIM-national accounts estimates for notional units

As an additional indicator output is therefore used, as the output of a particular enterprise in a particular industry will typically have a strong correlation with its use of fixed capital. The cross classification values for consumption of fixed capital are distributed over enterprises using both indicators with an equal weight.

6.3.2 Gross fixed capital formation

A specific issue facing the Netherlands is the high current account surplus regarding its international transactions. The high current account surplus has been identified by international organisations like the European commission and the IMF as a relevant macroeconomic phenomenon that would be helped by further research. Part of the current account surplus can be traced to the non-financial corporations. To be able to say more about this surplus the subsectoring of the non-financial corporations can help. In addition to the work done for the various transactions described above, this would require to split the data on gross fixed capital formation and inventories into the four subsectors. To do so the data on gross fixed capital formation and inventories was split towards individual enterprises.

The main data source for gross fixed capital formation is the Investment survey. This survey collects data from around 50 thousand enterprises and covers enterprises from most industries. In the survey data is collected on the total and the type of gross fixed capital formation for each enterprise. Enterprises not part of the sample are estimated by grossing up the survey data. Specific estimates are needed for gross fixed capital formation of residential real estate. Based on the estimates a split was made between gross fixed capital formation by households and gross fixed capital formation by others.

Gross fixed capital formation done by healthcare providers is based on separate data source that has microdata for enterprise groups based on annual reports. This data was subsequently calculated towards enterprises using the number of employees of each enterprise within each enterprise group. The gross fixed capital formation for each enterprise within agriculture was determined by using micro data on the capital stock for each enterprise at the end of the year. This data was used as a distribution key to distribute the national accounts data for gross fixed capital formation by agriculture. For those industries for which specific micro data was lacking such as fisheries, private education and other services within NACE codes 90 to 94 data was determined by distributing the national accounts estimate for each industry by using the number of employees as a distribution key.

Specific types of gross fixed capital formation are not covered sufficiently by the investment data sources such as gross fixed capital formation in software and R&D. Estimates for the national accounts for such gross fixed capital formation are based on the ICT survey and the R&D survey¹⁸. The national accounts estimates by industry for such gross fixed capital formation were allocated towards enterprises by using the number of employees if no specific enterprise data was available.

To allocate national accounts data on divestments to enterprises the number of employees for each enterprise were used if no specific enterprise data was available.

During the national accounts compilation some large adjustments were made to the investment data. These adjustments were allocated to individual enterprises where possible.

To compile the final data set two adjustments were made. Firstly, to make sure that the use of the number of employees as a distribution key for own account gross fixed capital formation in software did not lead to high such gross fixed capital formation by households, the share for household entities was reduced in favour of other entities for each industry based on the share of households in R&D gross fixed capital formation. As a result gross fixed capital formation regarding software and R&D is consistent with the capitalization adjustments to output and intermediate consumption noted in paragraph 6.1.1. Secondly, similarly to the consumption of fixed capital, gross fixed capital data for each industry was aligned to the cross classification estimates between industries and sectors for gross fixed capital formation determined during the national accounts compilation.

6.3.3 Inventories and valuables

Allocating the national accounts data on inventories to enterprises is challenging due to the volatile nature of inventory changes for each enterprise. Annual data on inventories is available through the SBS-survey which records the value of inventory assets at the beginning and the end of the recording period for each enterprise within the sample. As only the totals and no further information is available on which goods each corporation has in its inventories

¹⁸ The GNI inventory 2015 elaborates further on the sources and methods used for gross fixed capital formation in the Netherlands

assumptions need to be made to link to the national accounts data which has estimates for inventories by type of good. During the national accounts compilation data are estimated linking inventories of goods and services in the supply and use tables to industries. By using the SBS-data as a distribution key the industry data can be allocated to enterprises.

The SBS-survey only records data for industries within its scope. Inventories held by other industries are of limited size. The national accounts estimates by industry for industries without micro data are distributed over enterprises using the number of employees of each enterprise.

Limited data is available regarding valuables. In the supply and use tables five types of valuables are identified. By using data from the sector accounts the share of valuables that should be allocated to non-financial corporations can be determined. One type of valuables that is identified in the supply and use tables is museum quality art. The share of non-financial corporations for this type is allocated to museums using output as distribution key. For all other types of valuables such as gold, coins or art work, data are allocated to the industry of head offices for lack of a better alternative. This would at least ensure that most data will be allocated to large corporations which would seem most likely. In any case the choice of industry will have little impact on the overall results due to small value to be distributed.

6.3.4 Acquisition less disposals of non-produced assets

Non-financial assets can be split into produced assets and non-produced assets. Those assets that are the result of production processes are regarded as produced assets and purchases of such assets count as gross fixed capital formation. Assets such as land and other natural resources, leases and licences or marketing assets are not regarded as produced but can nevertheless be bought and sold.

Data on non-produced assets are not easy to collect. Some data is available through the balance of payments and from government data. Some other information emerges by analysing data sources available at Statistics Netherlands such as the international trade in services. Data from the balance of payments or resulting from data analysis can usually be allocated to specific enterprises. However, identifying the exact buyers and sellers of land, an important category within non-produced assets, is difficult based on current data sources. To allocate the data to enterprises it is assumed that most purchases are done by enterprises within the building industry or within the real estate industry. Data is subsequently distributed to enterprises based on the output of each enterprise. Although this is a crude assumption it is hoped that these two industries will provide a fair allocation of the purchase and sale of land to subsectors.

6.3.5 Capital transfers

Capital transfers consist of capital taxes, investment grants and other capital transfers. In general only investment grants and capital transfers are relevant for non-financial corporations. Although the incidence of capital transfers can have various causes, the prime reason for such transfers is government policy. The government might provide funds to corporations to support investments in particular types of gross fixed capital formation. Secondly, the government may provide funds to loss making government owned corporations.

Most data on investment grants available to national accounts cannot be directly linked to receiving enterprises for lack of granular information. Information is available regarding the reasons behind particular investment grants. Social security funds provide investment grants to health care providers. Such transfers are therefore allocated to enterprises within the health care industry. Based on the various aims of the Investment grants and unless more specific

information is available, the grants of the central government and local government can be assumed to be targeted to small and medium sized enterprises, government owned corporations and particular industries such as for producing cultural activities.

Other capital transfers could in some cases be directly allocated to enterprises but in most cases granular data was not available at national accounts. However, based on the policies the capital transfers were part of, small and medium enterprises, government owned corporations and the same industries identified as targets for investments grants were the likely recipients of funds. Data was allocated to enterprises using output of each enterprise.

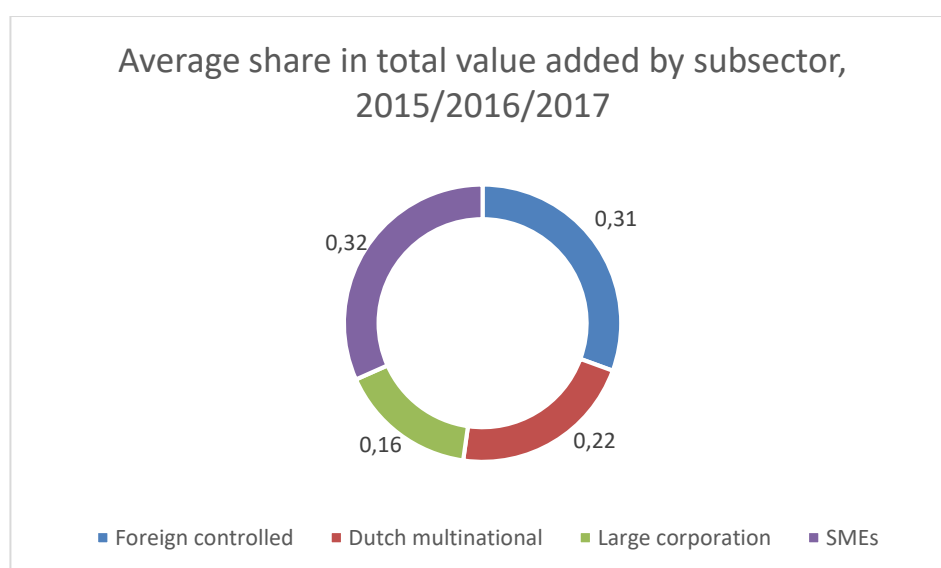
7. Results

In this chapter the results are presented for the estimates for the split in subsectors as well as the estimates of the paid reinvested earnings on foreign direct investment that can be calculated from the granular data for each enterprise group.

7.1 Numerical Results

Table 7.1, 7.2 and 7.3 present the main results of this study to split the non-financial corporations sector into subsectors.

Foreign controlled corporations account over the three examined years for 31% of the value added of Dutch non-financial corporations. As a group most value added is generated by small and medium sizes enterprises (32%) with Dutch multinationals accounting for 22%. Although presented as an average, shares are very stable from year to year.



When looking at the relative share of compensation of employees and operating surplus foreign controlled corporations have by far the highest profit share, defined as the percentage of gross operating surplus in value added. For foreign controlled non-financial corporations the profit share is half of total value added.

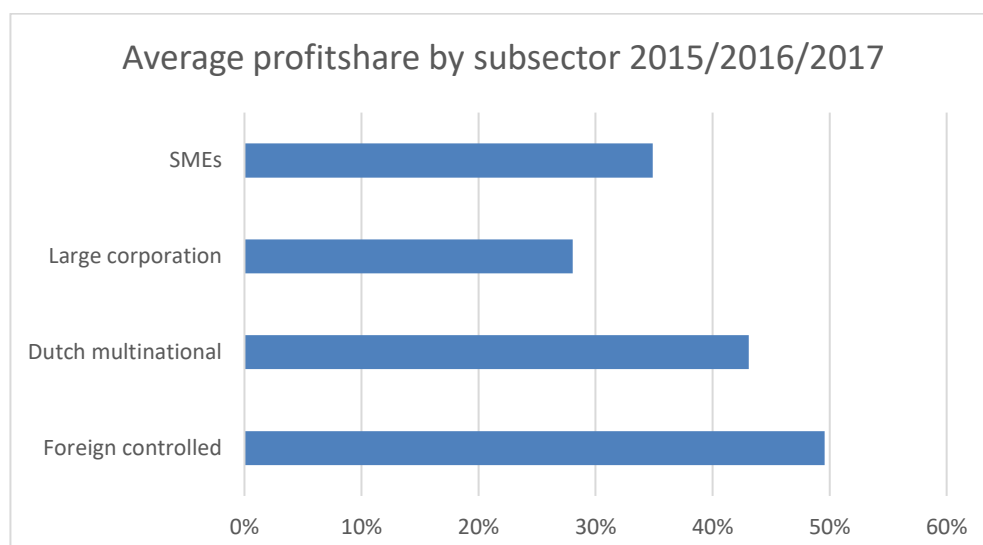


Table 7.1 Non financial corporations split into subsectors, 2015-2017, mln Euro

Dutch Multinationals						Large corporations				
	2015	2016	2017	mut2016	mut2017	2015	2016	2017	mut2016	mut2017
Output	230894	236726	250788	5832	14062	103319	97937	103352	-5382	5415
Intermediate Consumption	144284	147574	160293	3290	12719	35513	34406	36916	-1107	2510
Value added (gross)	86610	89152	90495	2542	1343	67806	63531	66436	-4275	2905
Wages and salaries	39348	40766	42440	1418	1674	37326	36775	38755	-551	1980
Employers' social contributions	9909	10247	10595	338	348	10353	10330	10726	-23	396
Other taxes on production	745	754	682	9	-72	1018	974	1004	-44	30
Other subsidies on production	-1203	-1360	-1350	-157	10	-1664	-1610	-1766	54	-156
Operating Surplus (gross)	37811	38745	38128	934	-617	20773	17062	17717	-3711	655
Primary income										
Resources	29063	22082	36316	-6981	14234	375	219	937	-156	718
Interest	4810	4497	5459	-313	962	90	35	98	-55	63
Adjustment FISIM	-221	-312	-216	-91	96	-98	-131	-94	-33	37
Actual interest receipts	5031	4809	5675	-222	866	188	166	192	-22	26
Distributed income of corporations	23766	26099	29126	2333	3027	261	171	821	-90	650
Dividends	23724	26055	29080	2331	3025	242	153	802	-89	649
Withdrawals from income of quasi-corporation	42	44	46	2	2	19	18	19	-1	1
Reinvested earnings on foreign direct investment	433	-8547	1686	-8980	10233	0	0	0	0	0
Other income	53	32	44	-21	12	24	13	18	-11	5
Investment income attributable to insurance companies	26	23	36	-3	13	12	9	15	-3	6
Investment income payable on pension entitlements	0	0	0	0	0	0	0	0	0	0
Investment income attributable to investment funds	27	9	8	-18	-1	12	4	3	-8	-1
Income from land and subsoil assets	1	1	1	0	0	0	0	0	0	0
Uses	27904	29998	31516	2094	1518	7253	4651	5896	-2602	1245
Interest	4120	3938	5610	-182	1672	877	734	732	-143	-2
Adjustment FISIM	-2829	-2804	-2461	25	343	-1258	-1177	-1073	81	104
Actual interest receipts	6949	6742	8071	-207	1329	2135	1911	1805	-224	-106
Distributed income of corporations	22129	25361	24334	3232	-1027	1622	1268	2056	-354	788
Dividends	22129	25361	24334	3232	-1027	1622	1268	2056	-354	788
Withdrawals from income of quasi-corporation	0	0	0	0	0	0	0	0	0	0
Reinvested earnings on foreign direct investment	1221	270	1271	-951	1001	-7	-3	40	4	43
Other income	0	0	0	0	0	0	0	0	0	0
Investment income payable on pension entitlements	0	0	0	0	0	0	0	0	0	0
Income from land and subsoil assets	434	429	301	-5	-128	4761	2652	3068	-2109	416
Primary income (gross)	38970	30829	42928	-8141	12099	13895	12630	12758	-1265	128
Income Transfers										
Resources	2983	2937	3313	-46	376	2217	2195	2478	-22	283
Social contributions and benefits	1477	1582	1771	105	189	1543	1594	1793	51	199
Net social contributions	1477	1582	1771	105	189	1543	1594	1793	51	199
Other current transfers	1506	1355	1542	-151	187	674	601	685	-73	84
Non-life insurance claims	819	845	937	26	92	366	350	386	-16	36
Miscellaneous current transfers	687	510	605	-177	95	308	251	299	-57	48
Uses	6354	7596	7772	1242	176	3337	3250	3349	-87	99
Current taxes on income, wealth, etc.	2892	4049	4076	1157	27	906	843	763	-63	-80
Current taxes on income	2892	4049	4076	1157	27	906	843	763	-63	-80
Social contributions and benefits	1477	1582	1771	105	189	1543	1594	1793	51	199
Net social contributions	1477	1582	1771	105	189	1543	1594	1793	51	199
Other current transfers	1985	1965	1925	-20	-40	888	813	793	-75	-20
Net non-life insurance premiums	823	814	937	-9	123	368	337	386	-31	49
Miscellaneous current transfers	1162	1151	988	-11	-163	520	476	407	-44	-69
Disposable income (gross)	35599	26170	38469	-9429	12299	12775	11575	11887	-1200	312
Capital Account										
Resources	241	929	42	688	-887	354	194	123	-160	-71
Investment grants	34	83	7	49	-76	204	137	110	-67	-27
Other capital transfers	207	846	35	639	-811	150	57	13	-93	-44
Uses	22282	21752	21588	-530	-164	10954	9839	10888	-1115	1049
Gross fixed capital formation	18877	20497	19928	1620	-569	10860	9792	10710	-1068	918
Consumption of fixed capital	15349	15851	15255	502	-596	8532	8840	9509	308	669
Net fixed capital formation	3528	4646	4673	1118	27	2328	952	1201	-1376	249
Changes in inventories	3088	981	1476	-2107	495	-21	54	48	75	-6
Acquisitions less disposals of valuables	103	69	40	-34	-29	15	10	8	-5	-2
Acquisitions less disposals of non-produced assets	214	204	143	-10	-61	100	-18	121	-118	139
Other capital transfers	0	1	1	1	0	0	1	1	1	0
Value added (net)	71261	73301	75240	2040	1939	59274	54691	56927	-4583	2236
Operating surplus (net)	22462	22894	22873	432	-21	12241	8222	8208	-4019	-14
Primary income (net)	23621	14978	27673	-8643	12695	5363	3790	3249	-1573	-541
Disposable income (net)	20250	10319	23214	-9931	12895	4243	2735	2378	-1508	-357
net borrowing/net lending	13558	5347	16923	-8211	11576	2175	1930	1122	-245	-808
contribution to current account balance	13531	4623	17025	-8908	12402	1921	1719	1121	-202	-598

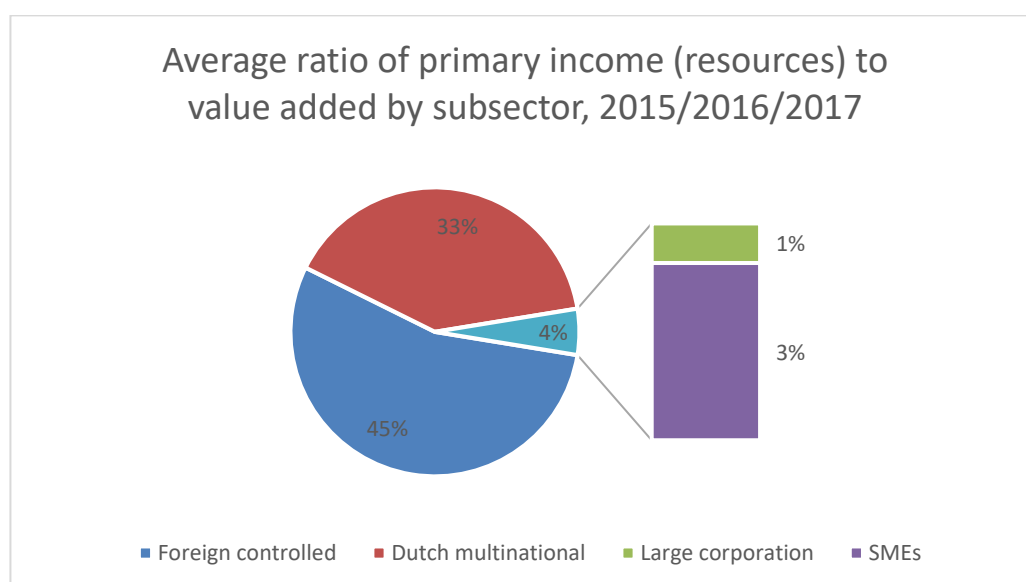
Table 7.2 Non financial corporations split into subsectors, 2015-2017, mln Euro

Small and medium enterprises						Foreign controlled non-financial corporations					
	2015	2016	2017	mut2016	mut2017	2015	2016	2017	mut2016	mut2017	
Output	255140	266107	275169	10967	9062	352630	358640	389635	6010	30995	
Intermediate Consumption	131290	135654	140381	4364	4727	233562	235469	255927	1907	20458	
Value added (gross)	123850	130453	134788	6603	4335	119068	123171	133708	4103	10537	
Wages and salaries	64625	67004	69246	2379	2242	48386	51275	54132	2889	2857	
Employers' social contributions	16274	16869	17211	595	342	11643	12523	12945	880	422	
Other taxes on production	2277	2415	2543	138	128	1388	1427	1600	39	173	
Other subsidies on production	-1607	-1772	-1835	-165	-63	-1686	-1946	-2176	-260	-230	
Operating Surplus (gross)	42281	45937	47623	3656	1686	59337	59892	67207	555	7315	
Primary income											
Resources	4174	4534	4709	360	175	61183	58467	47626	-2716	-10841	
Interest	2167	2369	1693	202	-676	11864	11516	9941	-348	-1575	
Adjustment FISIM	-250	-347	-239	-97	108	-329	-461	-327	-132	134	
Actual interest receipts	2417	2716	1932	299	-784	12193	11977	10268	-216	-1709	
Distributed income of corporations	1938	2118	2955	180	837	48520	44533	39452	-3987	-5081	
Dividends	1892	2069	2906	177	837	48399	44459	39372	-3940	-5087	
Withdrawals from income of quasi-corporatio	46	49	49	3	0	121	74	80	-47	6	
Reinvested earnings on foreign direct investment	0	0	0	0	0	719	2370	-1836	1651	-4206	
Other income	57	36	48	-21	12	80	48	68	-32	20	
Investment income attributable to insurance p	28	26	40	-2	14	39	35	56	-4	21	
Investment income payable on pension entitle	0	0	0	0	0	0	0	0	0	0	
Investment income attributable to investment f	29	10	8	-19	-2	41	13	12	-28	-1	
Income from land and subsoil assets	12	11	13	-1	2	0	0	1	0	1	
Uses	11424	15122	15895	3698	773	91664	86492	78220	-5172	-8272	
Interest	2744	2618	2052	-126	-566	12206	11363	11238	-843	-125	
Adjustment FISIM	-3191	-3125	-2722	66	403	-4203	-4152	-3723	51	429	
Actual interest receipts	5935	5743	4774	-192	-969	16409	15515	14961	-894	-554	
Distributed income of corporations	8582	12406	13686	3824	1280	42888	47541	41582	4653	-5959	
Dividends	8582	12406	13686	3824	1280	41027	45655	39514	4628	-6141	
Withdrawals from income of quasi-corporatio	0	0	0	0	0	1861	1886	2068	25	182	
Reinvested earnings on foreign direct investment	10	-4	59	-14	63	36265	27287	25195	-8978	-2092	
Other income	0	0	0	0	0	0	0	0	0	0	
Investment income payable on pension entitle	0	0	0	0	0	0	0	0	0	0	
Income from land and subsoil assets	88	102	98	14	-4	305	301	205	-4	-96	
Primary income (gross)	35031	35349	36437	318	1088	28856	31867	36613	3011	4746	
Income Transfers											
Resources	4090	4127	4568	37	441	4036	3985	4560	-51	575	
Social contributions and benefits	2426	2604	2877	178	273	1735	1933	2164	198	231	
Net social contributions	2426	2604	2877	178	273	1735	1933	2164	198	231	
Other current transfers	1664	1523	1691	-141	168	2301	2052	2396	-249	344	
Non-life insurance claims	905	950	1028	45	78	1251	1280	1456	29	176	
Miscellaneous current transfers	759	573	663	-186	90	1050	772	940	-278	168	
Uses	9082	11670	12059	2588	389	10672	12000	12166	1328	166	
Current taxes on income, wealth, etc.	4463	6858	7070	2395	212	5906	7090	7011	1184	-79	
Current taxes on income	4463	6858	7070	2395	212	5906	7090	7011	1184	-79	
Social contributions and benefits	2426	2604	2877	178	273	1735	1933	2164	198	231	
Net social contributions	2426	2604	2877	178	273	1735	1933	2164	198	231	
Other current transfers	2193	2208	2112	15	-96	3031	2977	2991	-54	14	
Net non-life insurance premiums	909	915	1028	6	113	1256	1234	1456	-22	222	
Miscellaneous current transfers	1284	1293	1084	9	-209	1775	1743	1535	-32	-208	
Disposable income (gross)	30039	27806	28946	-2233	1140	22220	23852	29007	1632	5155	
Capital Account											
Resources	788	466	305	-322	-161	75	109	53	34	-56	
Investment grants	476	295	131	-181	-164	4	32	2	28	-30	
Other capital transfers	312	171	174	-141	3	71	77	51	6	-26	
Uses	16362	19463	21280	3101	1817	45292	26154	26161	-19138	7	
Gross fixed capital formation	16159	17936	19137	1777	1201	44340	24275	25897	-20065	1622	
Consumption of fixed capital	16672	16653	16559	-19	-94	22678	23319	25376	641	2057	
Net fixed capital formation	-513	1283	2578	1796	1295	21662	956	521	-20706	-435	
Changes in inventories	-341	1038	1483	1379	445	-440	1184	1	1624	-1183	
Acquisitions less disposals of valuables	61	47	72	-14	25	81	50	35	-31	-15	
Acquisitions less disposals of non-produced asset	482	433	575	-49	142	1311	645	228	-666	-417	
Other capital transfers	1	9	13	8	4	0	0	0	0	0	
Value added (net)	107178	113800	118229	6622	4429	96390	99852	108332	3462	8480	
Operating surplus (net)	25609	29284	31064	3675	1780	36659	36573	41831	-86	5258	
Primary income (net)	18359	18696	19878	337	1182	6178	8548	11237	2370	2689	
Disposable income (net)	13367	11153	12387	-2214	1234	-458	533	3631	991	3098	
net borrowing/net lending	14465	8809	7971	-5656	-838	-22997	-2193	2899	20804	5092	
contribution to current account balance	14160	8785	8254	-5375	-531	-21761	-1657	3074	20104	4731	

Table 7.3 Non financial corporations split into subsectors, 2015-2017, mln Euro										
S11 total as published in Sector Accounts						adjustment to reinvested earnings				
	2015	2016	2017	mut2016	mut2017	2015	2016	2017	mut2016	mut2017
Output	941983	959410	1018944	17427	59534	-	-	-	-	-
Intermediate Consumption	544649	553103	593517	8454	40414	-	-	-	-	-
Value added (gross)	397334	406307	425427	8973	19120	-	-	-	-	-
Wages and salaries	189685	195820	204573	6135	8753	-	-	-	-	-
Employers' social contributions	48179	49969	51477	1790	1508	-	-	-	-	-
Other taxes on production	5428	5570	5829	142	259	-	-	-	-	-
Other subsidies on production	-6160	-6688	-7127	-528	-439	-	-	-	-	-
Operating Surplus (gross)	160202	161636	170675	1434	9039	-	-	-	-	-
Primary income										
Resources	94795	85302	89588	-9493	4286	-	-	-	-	-
Interest	18931	18417	17191	-514	-1226	-	-	-	-	-
Adjustment FISIM	-898	-1251	-876	-353	375	-	-	-	-	-
Actual interest receipts	19829	19668	18067	-161	-1601	-	-	-	-	-
Distributed income of corporations	74485	72921	72354	-1564	-567	-	-	-	-	-
Dividends	74257	72736	72160	-1521	-576	-	-	-	-	-
Withdrawals from income of quasi-corporatio	228	185	194	-43	9	-	-	-	-	-
Reinvested earnings on foreign direct investment	1152	-6177	-150	-7329	6027	-	-	-	-	-
Other income	214	129	178	-85	49	-	-	-	-	-
Investment income attributable to insurance p	105	93	147	-12	54	-	-	-	-	-
Investment income payable on pension entitle	0	0	0	0	0	-	-	-	-	-
Investment income attributable to investment f	109	36	31	-73	-5	-	-	-	-	-
Income from land and subsoil assets	13	12	15	-1	3	-	-	-	-	-
Uses	127618	129015	119655	1397	-9360	10627	7248	11872	-3379	4624
Interest	19947	18653	19632	-1294	979	-	-	-	-	-
Adjustment FISIM	-11481	-11258	-9979	223	1279	-	-	-	-	-
Actual interest receipts	31428	29911	29611	-1517	-300	-	-	-	-	-
Distributed income of corporations	75221	86576	81658	11355	-4918	-	-	-	-	-
Dividends	73360	84690	79590	11330	-5100	-	-	-	-	-
Withdrawals from income of quasi-corporatio	1861	1886	2068	25	182	-	-	-	-	-
Reinvested earnings on foreign direct investment	26862	20302	14693	-6560	-5609	10627	7248	11872	-3379	4624
Other income	0	0	0	0	0	-	-	-	-	-
Investment income payable on pension entitle	0	0	0	0	0	-	-	-	-	-
Income from land and subsoil assets	5588	3484	3672	-2104	188	-	-	-	-	-
Primary income (gross)	127379	117923	140608	-9456	22685	-10627	-7248	-11872	3379	-4624
Income Transfers										
Resources	13326	13244	14919	-82	1675	-	-	-	-	-
Social contributions and benefits	7181	7713	8605	532	892	-	-	-	-	-
Net social contributions	7181	7713	8605	532	892	-	-	-	-	-
Other current transfers	6145	5531	6314	-614	783	-	-	-	-	-
Non-life insurance claims	3341	3425	3807	84	382	-	-	-	-	-
Miscellaneous current transfers	2804	2106	2507	-698	401	-	-	-	-	-
Uses	29445	34516	35346	5071	830	-	-	-	-	-
Current taxes on income, wealth, etc.	14167	18840	18920	4673	80	-	-	-	-	-
Current taxes on income	14167	18840	18920	4673	80	-	-	-	-	-
Social contributions and benefits	7181	7713	8605	532	892	-	-	-	-	-
Net social contributions	7181	7713	8605	532	892	-	-	-	-	-
Other current transfers	8097	7963	7821	-134	-142	-	-	-	-	-
Net non-life insurance premiums	3356	3300	3807	-56	507	-	-	-	-	-
Miscellaneous current transfers	4741	4663	4014	-78	-649	-	-	-	-	-
Disposable income (gross)	111260	96651	120181	-14609	23530	-	-	-	-	-
Capital Account										
Resources	1458	1698	523	240	-1175	-	-	-	-	-
Investment grants	718	547	250	-171	-297	-	-	-	-	-
Other capital transfers	740	1151	273	411	-878	-	-	-	-	-
Uses	94890	77208	79917	-17682	2709	-	-	-	-	-
Gross fixed capital formation	90236	72500	75672	-17736	3172	-	-	-	-	-
Consumption of fixed capital	63231	64663	66699	1432	2036	-	-	-	-	-
Net fixed capital formation	27005	7837	8973	-19168	1136	-	-	-	-	-
Changes in inventories	2286	3257	3008	971	-249	-	-	-	-	-
Acquisitions less disposals of valuables	260	176	155	-84	-21	-	-	-	-	-
Acquisitions less disposals of non-produced asset	2107	1264	1067	-843	-197	-	-	-	-	-
Other capital transfers	1	11	15	10	4	-	-	-	-	-
Value added (net)	334103	341644	358728	7541	17084	-	-	-	-	-
Operating surplus (net)	96971	96973	103976	2	7003	-	-	-	-	-
Primary income (net)	64148	53260	73909	-10888	20649	-10627	-7248	-11872	3379	-4624
Disposable income (net)	48029	31988	53482	-16041	21494	-10627	-7248	-11872	3379	-4624
net borrowing/net lending	17828	21141	40787	3313	19646	-10627	-7248	-11872	3379	-4624
contribution to current account balance	18478	20718	41346	2240	20628	-10627	-7248	-11872	3379	-4624

Profitability is relatively poor at large Dutch corporations without foreign subsidiaries. This is primarily due to a relatively large share of corporations within the health care industry in this subsector. Dutch multinationals are the most profitable subsector within the national non-financial corporations but less profitable than foreign controlled corporations.

Compared to value added it is clear that foreign controlled corporations receive large amounts of primary income, especially from foreign countries. Total received primary income amounts on average to 45% of valued added. Dutch multinationals also received large amounts of primary income relative to value added but still considerably less than foreign controlled corporations. The average percentage share for Dutch multinationals is heavily impacted by relatively large received profits from foreign subsidiaries in 2017. As can be expected corporations that have no foreign subsidiaries receive very little primary income relative to value added. As a result Dutch multinationals have a similar share in total primary income compared to small and medium size enterprises even if their share in value added was far lower.



The high receipts of primary income as well as large payments of primary income for foreign controlled corporations show that a fair number of foreign controlled corporations use the Netherlands as a midway point between foreign subsidiaries and the ultimate parent which is referred to internationally as 'pass-through'.

When looking at disposable income the share of Dutch multinationals in the total is similar to the share of small and medium sized enterprises. As should be the case for foreign controlled corporations net disposable income tends to be fairly close to zero as this will only diverge from zero for companies that have either some minority shareholders, for example some domestic owners or foreign owners owning less than 10% of the enterprise group, or if the group is owned by a Dutch intermediate corporation in another sector as a link to the ultimate foreign owner.

The Netherlands has a current account surplus regarding its international relationships. This surplus is in part due to the non-financial corporations. Our analysis shows that this surplus is split fairly evenly between Dutch multinationals on the one hand and small and medium sized enterprises on the other. Where corporate saving by Dutch multinationals might be explained by income received from foreign subsidiaries, small and medium sized enterprises save from local activity.

When looking beyond three-year averages and to developments from 2015 to 2017 the increase in overall weight of foreign controlled corporations in value added and operating surplus is notable. However, interpreting annual developments by subsector, for example regarding relative performance compared to other subsectors, faces some challenges. Firstly, interpreting annual developments for a specific subsector is made harder by the impact of mergers and restructurings. For example, consumption of fixed capital could be expected to be on a gentle increase over time as gross fixed capital formation replenishes the capital stock. However, consumption of fixed capital by Dutch multinationals decreases between 2016 and 2017. But this decline is simply due to a merger with a particular corporation moving from Dutch multinationals to the foreign controlled corporations and a restructuring in which a corporation moved from Dutch multinationals to large corporations. These corporate events are also a clear contributing factor to the negative development to gross operating surplus for Dutch multinationals in 2017.

Secondly, interpreting results becomes more vulnerable to specific developments in one or a limited number of corporations. For example, the decline in gross operating surplus between 2015 and 2016 for large corporations is mostly due to developments in one particular corporation. Also the steep increase in both interest receipts and interest payments by Dutch multinationals in 2017 are due to the financial arrangements within two corporate groups.

Thirdly, interpreting results is made more difficult if the available microdata for some transactions does not prove to be a particularly good fit to the macro data. The adjustments that were needed can be evidence of significant quality issues not only impacting the overall level estimates but also annual growth rates. Such vulnerabilities will then be magnified if a sector is split into subsectors impacting the accurateness of conclusions. In our study interest and corporate tax are transactions that exhibit such vulnerabilities.

Overall drawing conclusions from a short time series is in any case hard due to the volatility of transactions such as dividends. To improve the ability to analyse the performance by subsector a longer time series would need to be developed while the impact of sectors shifts will remain a limiting factor as such shifts will be a regular feature.

7.2 Reinvested Earnings on Foreign Direct Investment

Net saving of foreign controlled corporations should be close to zero as all earned income should be attributed to the foreign owner unless two specific cases apply. Firstly if the foreign controlled corporation is partly owned by minority shareholders, for example some domestic owners or foreign owners owning less than 10% of the enterprise group some part of the income of the corporation will remain in the local economy. Secondly, if the non-financial corporation is owned by a Dutch intermediate corporation in another sector as a link to the ultimate foreign owner, all undistributed income will appear to remain within the non-financial corporations. In the SNA/ESA framework no transaction of undistributed profits exists between local corporations so reinvested earnings between local corporations are not to be recorded. However, such undistributed profits will ultimately be distributed to the foreign owner by the intermediate corporation leaving net saving for the corporate group in the Netherlands as a whole at zero.

By estimating all transactions for all corporations, and establishing the amount of foreign ownership for each corporation, net saving can be set to the appropriate value by adjusting the paid reinvested earnings on foreign direct investment.

7.2.1 New estimates explained

For 2015 the calculated reinvested earnings in this study are €10,6 bln higher than the reinvested earnings published for non-financial corporations. The gap is €7,2 bln in 2016 and €11,9 bln in 2017.

To better understand the higher reinvested earnings we have estimated compared to previous publications table 7.4 splits the difference between the new data and the published data into various categories. The table provides data for the foreign-controlled corporations as this group explains most of the difference.

Table 7.4 adjustment to the paid reinvested earnings of foreign controlled corporations

year	published	new estimate	difference
2015	26660	36308	9648
2016	20121	27199	7078
2017	13903	25287	11383

	year		
	2015	2016	2017
total difference	9648	7078	11383
causes of differences			
coverage of corporations	2558	1500	1792
sources/compilation gross operating surplus	2008	-3794	-1734
capitalization of R&D/software	4955	4571	4667
consumption of fixed capital	-4576	-2905	-4388
other methodological adjustments	1345	725	644
balancing Supply and Use Tables	3914	7046	6325
balancing Sector Accounts	674	-625	1166
other	-1229	559	2911

Over the three years that we investigated reinvested earnings should have been higher to the amount of €9 bln annually. The causes for this difference are diverse and due to the multitude of factors involved and the influence of large corporations, the causes are not particularly stable across the three years.

Coverage of corporations: The first reason for differences is different coverage of corporations in the Statistics of Finances of Non-financial Enterprises compared to other data sources. As the published reinvested earnings are estimated to a large extent based on the Statistics of Finances of Non-financial Enterprises any missing coverage would impact the estimate.

Corporations could be missing in the Statistics of Finances of Non-financial Enterprises for various reasons as noted in chapter 4. Some corporations have a rather hybrid character, both having some productive activity but also having large balance sheets. Due to those large balance sheets some of these corporations were treated as financial corporations, with those corporations reporting data to the Dutch Central Bank. During the benchmark revision of the national accounts of 2015 data of such corporations from the Dutch Central Bank was recorded back into the sector of non-financial corporations. This recording was the conclusion of extensive discussions with Eurostat and the ECB on how to record such entities. The data from the Dutch Central Bank was partial and therefore not necessarily covering the enterprises in their entirety leading to differences with the new data.

In some cases corporations with financial holding type balance sheets and limited productive activity were omitted in their entirety from the Statistics of Finances of Non-financial Enterprises without being covered by the Dutch Central Bank as they had little foreign assets and liabilities, omitting any income, even if small, from such corporations. Another reason why entities might be missing is that the tax register uses tax identification codes that in some cases cannot be linked to active corporations as available in the business register. If such a link cannot be established such entities were treated as not part of the non-financial corporations, even if tax data show income flows.

Coverage issues were most significant in 2015, in particular due to one corporation that recorded a significant profit in the supply and use tables but through the use of Central Bank data was actually recorded with a sizable loss as reinvested earnings.

Data sources/compilation gross operating surplus: The second reason for differences are data and compilation differences regarding gross operating surplus. Firstly there are differences in source data used by the national accounts for gross operating surplus, notably the Structural Business Statistics versus the Statistics of Finances of Non-financial Enterprises. They may give different data for the same corporations. One reason for such differences is that statistics gross up data for corporations not covered by their samples. Data from a corporation in a particular statistic will generally not correspond to the grossed up value for that same corporation in another statistic. However, also when corporations provide data for two separate statistics the data do not necessarily match as different parts of a corporation may report to different statistics or different statistics may pose the same questions in a different way, leading to different answers. To counter this phenomenon Statistics Netherlands cross checks results from various statistics for the largest and most complex corporations and engages with these corporations to improve any inconsistencies. Data from smaller corporations are not checked with the same intensity and differences between statistics can remain.

Secondly differences occur due to compilation adjustments in gross operating surplus prior to balancing in the national accounts. The data from the Structural Business Statistics are checked and prepared for use in the supply and use tables. Adjustments may be the result amongst other reasons, of misalignment of data with required national accounts definitions. Also data errors in the source data may be adjusted, which may show when looking at data with a clear time series perspective. These adjustments may be in the form of adjustments to data of individual corporations as well as adjustments to a particular industry or size class within a particular industry.

The category of compilation adjustments includes adjustments made in the Statistics of Finances of Non-financial Enterprises. Although the data on output and intermediate consumption from this statistic is not actively used for the national accounts, a particular issue arose when looking at data for reinvested earnings. The data used for paid reinvested earnings in this statistic proved inadvertently to include exceptional gains and losses. As a result the reinvested earnings were no longer in line with the rest of the accounts. Although exceptional gains and losses may have a multitude of causes, both financial and non-financial, for this analysis we have assumed that the use of such exceptional gains and losses are an implicit adjustment to gross operating surplus.

The most important factor here are the compilation adjustments made in the supply and use tables. In the aggregate the data from the supply and use tables are linked with the sector accounts, leading to consistent national accounts for non-financial corporations. Adjustments made to gross operating surplus of foreign controlled corporations however also need to feed back into reinvested earnings estimates which is currently generally not the case leading to

differences. Furthermore the use of exceptional gains and losses in the Statistics of Finances of Non-financial Enterprises also created difference.

Capitalization of R&D/software: According to ESA2010 rules expenditure related to research and development as well as software that cannot be regarded as a direct cost of sales, should be capitalized and presented as additions to gross fixed capital formation. As a result gross operating surplus of corporations will generally be higher than according to bookkeeping records as this treatment diverges in part from corporate recording rules. Purchases of research and development and software from third parties are no longer counted as intermediate consumption thereby increasing value added. Furthermore, costs related to in house research and development and in house software development are to be added to output further increasing value added.

In our estimate the capitalization of research and development as well as software increases gross operating surplus of foreign controlled corporations between €4,5 and €5 bln annually.

Consumption of fixed capital: While capitalization of research and development and software development adds to gross value added, the value of reinvested earnings to be assigned to foreign owners should be lowered by the increase in consumption of fixed capital that is the result of the higher capital stock. We do indeed find that consumption of fixed capital according to national accounts should be significantly higher than the values found in corporate data. The quality of corporate data available on consumption of fixed capital is insufficient to prove for each individual corporation a clear link between the increase in consumption of fixed capital and the increase in capital stock due to capitalization even if it is clear that in the aggregate consumption of fixed capital in national accounts is higher partly due to such capitalization. For individual corporations the link is impacted by the fact that corporate data on consumption of fixed capital may include exceptional gains and losses and in any case will be determined through other methods than the Perpetual Inventory Method used by national accounts. As a result consumption of fixed capital as determined for the national accounts will diverge from corporate data.

Our analysis shows that the increase in consumption of fixed capital mostly compensates for the increase in gross operating surplus due to capitalization. In 2016 however there is a gap between capitalization and consumption of fixed capital of around €1,7 bln. This gap is primarily caused by some irregular values for consumption of fixed capital in the source data for a small number of corporations where the data seem unlinked to the actual capital stock. As a result the adjustment needed to arrive at the new calculated result is smaller than in 2015 and 2017.

Other methodological adjustments: In the Dutch supply and use tables some other adjustments are made, principally for insurance premiums and for revaluations of goods held in inventories. In corporate records insurance premiums are typically recorded fully as intermediate consumption reducing value added. However, for national accounts purposes the premiums should be split into a service charge to be recorded as intermediate consumption and an income transfer for the remainder. Gross operating surplus according to national accounts will therefore be higher than according to corporate data.

The national accounts value of output of trade activities of corporations includes the value of net additions to inventories. However only the net additions to inventories resulting from sales and purchases should be included. Revaluations of goods held in inventory are to be excluded. This treatment can diverge from corporate recording for example if corporations record the value of a sold item at the historical purchase price.

The adjustment of insurance premiums adds around €1 bln annually to the gross operating surplus of foreign controlled corporations. Due to a positive impact of revaluations of inventories in 2015 and a negative impact in 2016 and 2017 the overall value of the additional methodological adjustments is higher in 2015 than in the other two years.

Balancing supply and use tables: The national accounts are compiled based on a great number of data sources. As the various data sources are generally not mutually consistent, adjustments will have to be made to establish a coherent dataset. The balancing of the supply and use tables had led to upward adjustments to data from production statistics, among other reasons based on international trade data. Upward adjustments increase gross operating surplus of domestic producers including foreign controlled ones. Such adjustments will then have to be reflected in the paid reinvested earnings.

Balancing in the supply and use tables has increased gross operating surplus for foreign controlled corporations by a few billion Euro annually with the largest amounts in 2016 and 2017. One of the reasons why the impact of balancing is higher in 2016 compared to 2015 is that in 2016 a larger adjustment was needed for employment agencies (+€0,8 bln). In the data sources they record a significant part of the costs of their workers as part of intermediate consumption whereas the national accounts records these as compensation of employees. As the total sum of total paid compensation of employees increased strongly in 2016, so did the needed adjustment. For the subsector of foreign controlled corporations the impact of the adjustment increased further due to the takeover of a large Dutch employment agency by a foreign corporation.

A link may also be assumed between the balancing adjustments and the adjustments for data sources and compilation presented above that were relatively high in 2015. With 2015 being the year used as the benchmark year in the last major revision of the national accounts, one can assume that more adjustments were assigned to individual corporations in 2015 than was organizationally feasible in the regular annual estimates of 2016 and 2017.

Balancing sector accounts: Balancing the sector accounts system in general both involves adjustments for individual corporations as well as more general balancing adjustments. In this overview the category corresponds to the general balancing adjustments as the adjustments for individual corporations are also used for this study and as such do not lead to differences with the originally estimated reinvested earnings. The largest such general adjustments are for the transactions interest and dividends. There is a significant divergence between interest according to corporate data from the Statistics of Finances of Non-financial Enterprises and the balanced data in sector accounts based on counterpart data, primarily from banks and other financial institutions as well as from the balance of payments. It is clear the corporate data are not recorded in an proper accrual manner. In addition the corporate data in some cases seem to include other flows than mere interest. As a result adjustments are needed. Regarding dividends data for smaller corporations obtained from income tax records do not record dividend but more generally earnings from subsidiaries. This may include undistributed profits as well as revaluations that are not be recorded as income in the sector accounts. This also required adjustments.

The adjustment to remove dividend income is not compensated by an increase in earned undistributed income as would appear needed in case of foreign controlled corporations. The main reason is because revaluations unrelated to profit are a large reason for the adjustments. Nevertheless some profit may be eliminated incorrectly as a result.

Smaller adjustments are needed for paid corporate taxes, where tax data as recorded by corporations diverge from data obtained from the government, as well as for other income transfers for which specific information is generally not available in the corporate data.

Overall the balancing in sector accounts tends to have a relatively limited impact on the results despite the size of some of the adjustments as most of these adjustments are related to domestic transactions.

Other: The remaining difference between the new estimate of the reinvested earnings and the earlier published data is explained by several causes. One reason for differences is a different treatment of some corporations regarding whether they are owned directly by a foreign parent or indirectly through a local intermediate parent not being a non-financial corporation, in the Dutch case mostly a captive financial institution. Based on the analysis of corporate group structures some changes were made for this study. As noted at the start of this section, when a corporation is owned directly by a foreign parent reinvested earnings should be assigned directly to the foreign parent. However, if there is an intermediate local parent between the non-financial corporation and the foreign parent such corporations will show net savings. Eventually the sum of all undistributed earnings of all Dutch corporations within a corporate group will be shown in the reinvested earnings of the intermediate parent to the foreign owner. The total reinvested earnings of non-financial corporations sector therefore depends in part on the corporate structure within the Netherlands. We explore the impact on reinvested earnings through intermediate local parents in the next paragraph further.

A second reason for 'other' differences is that in cases where both now and in the previous estimate a local intermediate parent was identified, all differences for such corporations originating from the above mentioned categories will be compensated in the 'other' category with a negative sign as the end result for reinvested earnings of non-financial corporations in both cases is zero.

A third element is that the 2017 data include the impact of the removal of an adjustment for the profit of a corporation that was made to maintain consistency between annual estimates of subsequent years in the published results. The overall impact on GNI of this corporation was kept similar in the three years in the published results. Due to changes in the underlying data sources the impact of the corporation is part of 'other' differences in 2017 whereas the impact of this corporation is part of coverage differences in 2015 and source differences in 2016.

As a fourth element the 'other' category includes the impact of manual adjustments to primarily paid and received interest of some specific corporations to improve the subsectoring results in this study.

An important part of the 'other' category corresponds unfortunately to compilation errors in the published estimates. In some cases adjustments in the sector accounts framework, for example to domestically earned interest or profits, were made without taking into account that due to the existence of a foreign parent such adjustments should have been accompanied by an adjustment to the paid reinvested earnings. A specific group of adjustments here relates to the effort done in recent years by Statistics Netherlands and the Dutch Central Bank to combine data from the balance of payments and the Statistics of Finances of Non-financial Enterprises to improve the Dutch GNI estimates. With the benefit of hindsight it has to be acknowledged that this effort rather had some unhelpful side-effects. In certain cases the combination of data sources improved results. However, the analysis done fully focused on cross border flows in the process making rather implicit assumptions on profitability of local subsidiaries of the corporations involved. In some cases those implicit assumptions proved rather implausible.

Over two billion Euro in the 'other' category in 2017 can be traced to a rather unfortunate use of data for one specific corporation.

7.2.2 Reinvested earnings through an intermediate parent

Non-financial corporations that are foreign controlled in general have a direct foreign parent. Instead of a direct foreign parent, corporations may have an intermediate parent in another domestic sector, in particular a captive financial institution. As noted in the previous section in case of full ownership by a direct foreign parent all excess income needs to be distributed to the foreign parent directly so net saving is zero. However, according to statistical manuals no such imputed payments are to be made in case of a (intermediate) local parent. As a result corporations with an intermediate local parent will show net saving. To make sure for the economy as a whole net saving is still zero for corporations under full foreign control, the net saving of the non-financial corporations is compensated through the net saving of sectors of the intermediate parents. To study the impact of non-financial corporations on total reinvested earnings such intermediate reinvested earnings need to be taken into account.

For the same reasons as income towards foreign parents directly proved different from earlier estimates in some cases, so was the income towards the intermediate parents. The table below shows the difference between the new and the previous estimate regarding profits in the form of both dividends and undistributed earnings to be allocated to the local intermediate parent in the financial sector.

Table 7.5 dividends and undistributed earnings towards local intermediate parents

	year		
	2015	2016	2017
underlying current published data	10363	6931	9462
new estimate	9286	6882	12024
difference	-1078	-49	2562

To some extent the differences presented in this table are just a shift from directly recorded reinvested earnings to indirectly recorded earnings or vice versa as counterpart to the 'other' differences category from the previous section. However, the difference is larger than just due to different presentation of data.

A significant reason for the negative difference in 2015 is the elimination of rather optimistic assumptions regarding the estimated profitability of the local subsidiaries of SPE-type corporate groups in the non-financial corporations sector in the data underlying current published estimates. Other differences for individual corporations in 2015 can be substantial and the net impact of these differences is moderately positive. In 2017 positive differences dominate with estimates of the profitability of SPE-type corporate groups playing a limited role. In 2016 substantial adjustment for individual corporations can be seen but the net impact is limited. The overall profit level going through local intermediate holdings in 2017 is significantly higher than in 2016 and to a lesser extent 2015. The main reason for the fluctuations is strong variation in received profits from foreign subsidiaries in the three years with the impact of corporate restructurings also playing a role.

7.2.3 Impact to gross national income

The result of the reestimated direct flow of reinvested earnings as well as indirect flow of reinvested earnings is that Dutch GNI appears to be overestimated by €9,5 bln in 2015, €7,2 bln in 2016 and by €14,4 bln in 2017. Due to the multitude of factors or perhaps despite the multitude of factors causing the differences the revision is not particularly stable over time

which is unfortunate considering that for a change to be implemented in the national accounts a time series needs to be constructed. But in addition to a time series thought also needs to be given to the implications of the new evidence for earned reinvested by Dutch multinationals from foreign subsidiaries. If differences between corporate data and national accounts data is an issue for paid reinvested earnings this is likely also to be the case for earned reinvested earnings that are also based on corporate data. However, not all factors will play an equally important role.

Issues related to the coverage of corporations are unlikely to be as significant for incoming flows than they were for outgoing flows. Not only are there less Dutch multinationals compared to foreign controlled corporations, Dutch multinationals belong to the corporate segment most visible to statisticians. Even if it is possible that a Dutch corporation that is foreign controlled could be misclassified, it is not particularly likely that a relatively large foreign subsidiary of a Dutch corporation would be unknown.

Source and compilations issues could be of relevance as they might point to general issues regarding valuation of transactions or other differences between corporate recording and national accounts recording. This also appears to apply to balancing adjustments, at least regarding the supply and use tables but presumable also for other balancing adjustments.

Methodological issues for which explicit adjustments are made during national account compilation such as capitalization of R&D and the estimate of consumption of fixed capital using the PIM-method clearly are relevant when evaluating the accuracy of received reinvested earnings.

The 'other' category is very much related to national accounts compilation issues not having clear relevance for the use of corporate data.

Assuming that Dutch multinationals face data issues to the same extent as foreign multinationals face regarding Dutch subsidiaries what would this imply for Dutch GNI? Table 7 offers a calculation how this might look like.

Table 7.6 estimate of potentially missed earnings from foreign subsidiaries

	year		
	2015	2016	2017
profits attributable to foreign owners	61152	60240	56068
profits through intermediate local parents	9286	6882	12024
sources/compilation gross operating surplus	2008	-3794	-1734
capitalization of R&D/software	4955	4571	4667
consumption of fixed capital	-4576	-2905	-4388
other methodological adjustments	1345	725	644
balancing Supply and Use Tables	3914	7046	6325
balancing Sector Accounts	674	-625	1166
total adjustments	8319	5019	6680
ratio adjustments to book keeping profits	0,13	0,08	0,11
earned foreign profit by Dutch multinationals	20869	14889	28064
possibly missing foreign income	2795	1203	3053

Relative to profits attributable directly or indirectly to foreign owners the total of selected adjustments in this study constitutes on average some 11% annually. Multiplying this ratio with the foreign income earned by Dutch multinationals on average some €2,4 bln annually could be missing. The accurateness of this estimate is hard to verify as it would require supply and use table data and income data from those foreign subsidiaries. The total earnings from foreign subsidiaries strongly depends on just a limited number of Dutch multinationals for which the

various issues may not apply or may not apply to the same extent. On the other hand issues are known to exist regarding the recording of income for some multinationals, with foreign subsidiaries being valued at historical cost, to suggest that some upward adjustment is to be expected. Considering the diversity in causes we found in this study between the recorded reinvested earnings in data sources and the calculated reinvested earnings the estimate as presented here may be the only reasonable estimate for foreign missed income available to national accountants.

Taking the current estimate of potentially missed income as a reference Dutch GNI according to current data appears overestimated by some €6,8 bln in 2015, €6,0 bln in 2016 increasing to €11,4 bln in 2017. These results are summarised in table 7.7.

Table 7.7 Impact to GNI

	year		
	2015	2016	2017
difference profits attributable to direct foreign owners	10627	7248	11872
difference profits through intermediate local parents	-1078	-49	2562
potentially missed earned income on foreign subsidiaries	-2795	-1203	-3053
impact on GNI	6755	5995	11381

The findings concerning the reinvested earnings are an additional explanation for the high current account surplus as currently published for the Netherlands. The impact now shown for GNI is also relevant for the current account surplus. The current account is overestimated by the same amount. This still leaves Dutch non-financial corporations as net savers but clearly by a lesser extent than what would appear from what is currently published.

8. Concluding Remarks

In the previous chapters we explored the possibility of estimating splits in the Dutch non-financial corporations sector. The study proves that this is indeed feasible and that sufficient information is available to compile data for the subsectors of foreign controlled corporations and national multinationals for which there is much interest of users of national account statistics. Furthermore, data has been compiled by enterprise group making possible other groupings of units, for example regarding government controlled corporations.

By compiling data for foreign controlled corporations the split of the non-financial corporations sector also proves a useful tool to improve the quality of macroeconomic statistics, in particular gross national income. It would be a worthwhile addition to the national accounts production program, at least in the Netherlands. To improve GNI-data for other years than the years analyzed in this study more time series work would be advisable. Furthermore, as the analytical interest for splits in the non-financial corporations extends to the financial accounts, further work to allocate the financial accounts to various subsectors would be of relevance.

The work done to estimate the results presented in this report also offers lessons for future work, both for projects extending the results of this study but also regular production processes.

The work has improved the understanding regarding the data sources that are currently used for national accounts compilation and in the process reconfirmed the variety of data sources that are in use. It has shown areas where improvements to data quality of data sources and compilation processes would be most needed, particularly interest but also dividends. In addition the current national account adjustment to deconsolidate head offices from the SFO survey may need some further reflection. The study also showed the vulnerability for some national accounts transactions such as income transfers and capital transfers through the need to use data from counterparts. Even if some of these transactions are not of prime importance for non-financial corporations sector work to improve data collection would be of help, as well as closer cooperation with compilers of data from counterparts to make sure such data are incorporated in a coherent way into the non-financial corporations sector. The study reconfirmed vulnerabilities already known such as the lack of information regarding the purchase and sale of land and more in general non-produced assets.

In particular the study emphasizes the importance to improve quality by intensifying the coordination and cooperation between the supply and use tables and the sector accounts. As data sources of the largest and most complex corporations are already checked for consistency when received by Statistics Netherlands, the National Accounts department itself may need to take additional steps to maintain the consistency up to the end products that are published. An important step is to invest in a complete cross classification of statistical units between industries and sectors allowing the linkage of data sources actually in use. Such a cross classification should make comparisons of data from the supply and use tables and sectors accounts easier. Currently the business register offers a full cross classification but with data sources used in the sector accounts not fully aligned with the register this is insufficient.

One particular issue that became apparent as part of the study was the lack of a complete list of corporations that were foreign controlled. In the past, the extent of foreign ownership was not fully appreciated creating an upward bias to GNI. Through this study a more complete list was created for the years analyzed. Nevertheless some evidence exists that the results in this study

could still have an upward bias. Even if processes might have improved since, work to complete the list of foreign controlled corporations remains of importance. One step forward would be if the concept of Ultimate Controlling Institutional Unit (UCI) was implemented as defined instead of as global decision center,

Not only the variety of data sources was large. By allocating micro data as well as national accounts adjustments to enterprises a large amount of data was created beyond the regular sizes of data sets typically used for national accounts statistics. To be able to compile splits in the non-financial corporations sectors on a regular basis production systems as well as data storage need to be improved. As the demand for better explanations for developments in national accounts statistics increases, and by necessity the need to remain linked to micro data increases, the work processes and the way micro data is handled for national accounts purposes in the Netherlands may need a rethink.