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The Dutch Growth Accounts: Measuring Productivity with Non-Zero Profits

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The Dutch growth accounts – measuring productivity with non-zero profits

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Abstract: *Since the year 2007 Statistics Netherlands publishes multifactor productivity statistics at the macro and meso-level in the annual publication The Dutch growth accounts. In contrast with the standard neoclassical approach, the official growth accounts of Statistics Netherlands employ an exogenous rate of return to determine capital services. As a consequence, revenues do not necessarily equal total cost of production. Therefore a balancing item "net profit" is created which represents to some extent the returns to those assets that are not covered in the measurement of capital stock. In addition to the exogenous model, Statistics Netherlands publishes growth accounts with an endogenous rate of return (neoclassical approach).*

Since 2010 the asset coverage of the Dutch growth accounts has been extended with several new asset types (land, subsoil assets and inventories). The aim of this paper is to investigate the effects of these capital extensions on input cost shares, contributions to output growth, and productivity for both the exogenous and the endogenous model. Expanding the asset coverage improves the outcomes of the growth accounts in both models. Including additional asset types has an effect on input cost shares in the exogenous model and leads to different volume changes of capital input in both productivity models. In addition, the inclusion of more asset types reduces the rate of return in the endogenous model and profitability in the exogenous model. The results show that differences between the exogenous and endogenous model are reduced in the Netherlands for the period 1996-2009.

Keywords: Productivity, exogenous and endogenous interest rate, subsoil assets, land, inventories, intellectual property products, growth accounts, profitability, sensitivity analysis.

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1. Introduction

Although the usefulness of the neoclassical model is generally recognized, its assumptions are sometimes at odds with economic reality, especially in times of rapid technological progress. To avoid some of these assumptions, the Dutch growth accounts (official growth accounts of Statistics Netherlands) employ an exogenous rate of return to determine capital services.

The neoclassical model is based on the assumptions of constant returns to scale and perfect competition. Both imply that businesses do not gain incomes in excess of production costs. In accounting terms this means that the operating surplus or mixed income must be fully allocated to either the user costs of capital or labour income of the self-employed. Since the labour income of the self-employed is usually estimated exogenously, an endogenous interest rate is required to balance the equation.

In contrast with the standard neoclassical model (further referred to as endogenous model), the Dutch growth accounts employ an exogenous rate of return which is unrelated to operating surplus. As a result business revenues do not necessarily equal total cost. This inequality also holds for any aggregate of industries. For the calculation of aggregate figures, volume changes of inputs per industry are not weighted on the basis of output shares, which would imply a return to the neoclassical model, but instead based on cost shares. This deviation from the standard neoclassical model creates a new balancing item in the national accounts which is addressed as "net profit". This balancing item is not found in the system of national accounts. It is defined as the gross operating surplus less the labour income of self-employed and the user costs of capital.

Net profits represent to some extent the returns to those asset types that are not (yet) covered in the measurement of capital stock. In the endogenous model these unmeasured assets are reflected in the endogenous interest rate (also referred to as rate of return). Extending the asset coverage with additional asset types has an influence on profitability in the exogenous model and on the rate of return in the endogenous model. Since 2010, the asset coverage of the Dutch growth accounts has been expanded with subsoil assets, land and inventories. This expansion allows an analysis of the effects on input cost shares, contributions to output growth, multifactor productivity (*mfp*), the rate of return and net profits. For this reason, a comparison was made between the outcomes of the Dutch growth accounts and the endogenous model. The effects of expanding the asset coverage are illustrated in this paper.

The Dutch growth accounts framework contains a so-called knowledge satellite account in which the SNA asset boundary is stretched to include the coverage of additional intellectual property products (IPPs) such as R&D, organisational structures and firm-specific human capital. This paper also shortly describes the effects of including IPPs on the outcomes of the exogenous model only.

This paper is structured as follows: section 2 describes the conceptual underpinnings of the Dutch growth accounts; section 3 provides an empirical analysis of including additional asset types for the Netherlands and section 4 ends with conclusions and some ideas for future work.

2. The Dutch growth accounts

Since 2007 the national accounts of the Netherlands have been expanded with a set of multifactor productivity (*mfp*) statistics which are published on StatLine, the statistical database on the website of Statistics Netherlands. Currently time-series from 1996 onwards are available. Based on these statistics an annual publication, the Dutch growth accounts, is composed in which a general overview of these *mfp* statistics is provided.

In the Dutch growth accounts the results of *mfp* measurement at the macro and industry level are presented. The Dutch growth accounts use the concept of the commercial sector to aggregate industry-outcomes to a macro-economic total. The commercial sector covers the entire economy except the industry branches general government, real estate activities, renting of movables, and private households with employed persons.[1] The main reason for excluding these economic activities is the absence of proper indicators for measuring their output volumes. These excluded industry branches are thus represented neither in the figures of the commercial sector nor in the figures of the industries financial and business activities and care and other service activities as presented here.[2]

The outcomes of the Dutch growth accounts are fully consistent with the Dutch national accounts. The results still have an experimental status because the Dutch growth accounts are subject to ongoing developments. Since the year 2010, the accounts cover the most important

[1] The expression commercial sector is not entirely accurate as commercial activities do take place in the industry branches renting of movables, private households with employed persons and (in parts of) real estate activities. However, no other appropriate name exists for the part of the economy that is described here.

[2] Since multifactor productivity is determined by dividing the volume index of outputs by the volume index of all inputs, meaningful results can only be obtained when outputs and inputs are independently determined. When volume changes of output are measured on the basis of volume changes of inputs, this independence is lost and productivity measurement becomes impossible. Since the output of several industries, i.e. general government, real estate activities and private households with employed persons, is partly based on volume changes of inputs, productivity change is not, for the time being, calculated for these industries in the Dutch growth accounts.

types of capital, including fixed assets, subsoil assets, inventories, agricultural land, and land underlying dwellings and buildings. Recreational land and building land are the most important types of capital that are not (yet) covered. In addition the subdivision of labour based on characteristics such as age and gender (as a proxy of working experience) and education level has not yet been introduced on a regular basis in the Dutch growth accounts. It is expected that these additions will follow in the near future. This implies that the results presented in the Dutch growth accounts are likely to be further refined in the coming years.

In addition, Statistics Netherlands developed the knowledge satellite account which pictures the knowledge-based economy in much greater detail than the mainstream Dutch national accounts. In the knowledge satellite account intellectual property is expanded to a comprehensive list of assets including R&D, brand equity, organizational structures, firm specific human capital and architectural and engineering designs. These supplementary forms of capital are subsequently introduced in the Dutch growth accounts framework in order to compute their contributions to economic growth.

The Dutch growth accounts include gross output based as well as value added based *mfp* statistics. In the gross output based model capital (K), labour (L), energy (E), materials (M) and services (S) are used as inputs, whereas in the value added based model only capital (K) and labour (L) are included as inputs. Gross output and value added *mfp* have different uses. The advantage of the gross output *mfp* growth measure is that it includes the effect of (in)efficient use of intermediate inputs as a source of industry growth. In this sense, this measure provides a more complete picture of the production process. On the other hand, the value-added based *mfp* corresponds to the income that is generated by capital and labor. Value-added based *mfp* may be considered as an important contributor to income that flows into society. Statistics Netherlands publishes gross output based *mfp* change as well as valued added based *mfp* change. In the present paper only gross output based results are discussed.

This section summarizes the specifications and assumptions used for the compilation of the Dutch growth accounts. The layout of this section is as follows: Section 2.1 describes the measurement of capital. Section 2.2 discusses the measurement of labour input. The other inputs and outputs are discussed in section 2.3. For a detailed overview of productivity measurement at Statistics Netherlands the reader is referred to van den Bergen et al. (2008).

2.1 Capital input measurement

In the growth accounts, the non-financial assets make up the capital input. In recent years, capital input was expanded with the asset types subsoil assets (the Dutch oil and gas reserves and other subsoil assets e.g. sand, gravel and salt), inventories, agricultural land and land underlying dwellings and buildings. Recreational land and construction land are the most important types of capital that are not yet included.

The volume index of the capital services of fixed assets is based on the volume change of the productive capital stock. This capital stock measure is corrected for efficiency losses due to ageing. Capital cost is determined by multiplying the quantity of assets, broken down by asset type and age, with the user cost per quantity of assets. The volume changes of the input of subsoil assets are based on physical extraction levels. For inventories, the quantity levels of inventories by commodity are used. Volume changes of the input of land are based on land surface area by type, corrected for quality differences due to differences in location. Land in more popular locations has a higher economic value. In the growth accounts, this land is therefore treated as land of higher quality than land in less popular locations.

2.1.1 User cost of capital

Conceptually, user cost of capital can be compared with rental prices of non-financial assets. Generally user cost of capital consists of three different cost components: consumption of fixed capital (applicable only to fixed assets), the imputed (opportunity) cost of the money that is tied up in the assets and holding gains and losses.[3] When prices of non-financial assets rise, holding gains arise that must be deducted from the user cost of capital. Reversely, when prices fall, the user cost increases.

In the Dutch system of national accounts, the consumption of fixed capital is calculated mathematically by using long time-series of capital formation and information about the economic lives of different types of fixed assets. The cost of the money that is tied up in the assets is calculated by multiplying the market value of the assets with a rate of return. The rate of return can be interpreted as the interest rate that would have been paid if the acquisition of the asset had been financed with a loan. Holding gains and losses are determined based on price changes of new capital assets since information on price changes of second-hand assets is not readily available. Holding gains and losses are not included in the user cost of

[3] An exception is made for subsoil assets. For subsoil assets, the user cost is estimated endogenously as the difference between the gross operating surplus and the user cost of capital on the other non-financial assets.

inventories and land since large variations in the price of these assets may lead to negative user cost.

With regard to the interest rate, which is also called rate of return, the first choice is between an exogenous and an endogenous rate. An endogenous rate is in accordance with the standard neoclassical model. This model is based on the twin assumptions of constant returns to scale and perfect competition. These assumptions imply that profit equals zero. All gross output revenue of an enterprise is used to reward the inputs in the production process. The whole operating surplus/mixed income must therefore be allocated to user cost of capital and labour income of the self-employed. When the labour income of the self-employed is estimated exogenously, which is common practice, an endogenous interest rate is required to make the equation fit.

An exogenous rate of return is chosen independently of the operating surplus. For example, the average interest rate on the capital market could be used. Almost certainly an exogenous rate will lead to a difference between the user cost of capital and the operating surplus. Profit will therefore be non-zero. Although the usefulness of the neoclassical model is generally recognized, its assumptions seem incompatible with economic reality, especially when there is rapid technological progress and unbiased measurement of productivity change is more important than ever. To avoid making these assumptions, an exogenous interest rate is employed in the official growth accounts of Statistics Netherlands[4].

The exogenous interest rate consists of two parts. Lenders must be compensated for providing capital and for the risk that the capital will not be returned (for example due to the bankruptcy of the borrower). In the growth accounts the first part of the interest rate is set equal to the internal reference rate (IRR) between banks. The risk premium is determined as the difference between the expected gross return on bonds (before subtracting management fees) and the IRR. This leads to a risk premium of 1.5 percent. The total interest rate therefore equals the yearly IRR plus 1.5 percent. For more details with regard to the calculation of the exogenous rate of return we refer to Van den Bergen et al. (2008).

[4] In this context it is important to mention that the growth accounts based on the endogenous rate of return are also presented in the statistical database at the website of Statistics Netherlands.

2.1.2 Recently added inputs in more detail: subsoil assets, inventories and land

Capital input in the Dutch growth accounts has in recent years been expanded with subsoil assets, inventories and land. A more detailed description of their measurement is presented below.

Subsoil assets

In the Netherlands the subsoil assets contain the oil and gas reserves and other subsoil assets. An extensive description of the method for estimating the oil and gas reserves is given by Veldhuizen et al. (2009). The user cost of capital for oil and gas are calculated endogenously. The (exogenously estimated) user cost of capital of the fixed assets and the pure profits for sideline activities are subtracted from the gross operating surplus to determine the resource rent for the extraction of oil and gas. The resource rent of the reserves corresponds to the user cost of capital. To make a distinction between the different subsoil asset types, the resource rent has to be divided into a resource rent for oil extraction and a resource rent for gas extraction. Due to lack of data, the division is for now based on the ratio between the production values of oil and gas. More research is required to arrive at a better division. For both oil and gas, the resource rent is divided by the physical extraction to arrive at the unit resource rent. The volume changes of the user cost are based on the changes in physical extraction from one year to another. Data on the physical extraction are obtained from several government agencies.

In the Netherlands the asset type other subsoil assets comprises sand, salt, gravel, clay, peat and limestone. Mining the coal reserves in the Netherlands is not economically feasible and all coal mines were closed in the seventies. As for oil and gas, the resource rent of the other subsoil assets is calculated by subtracting the (exogenously estimated) user cost of capital of the fixed assets and the pure profits for sideline activities from the gross operating surplus. Micro data shows that in the years 2005, 2006 and 2007, the ratio between gross output and the resource rent is for most subsoil assets fairly similar. The resource rent is therefore divided into the different types of subsoil assets according to the distribution of the production value into these subsoil assets. For all the different subsoil assets, the resource rent is subsequently divided by the physical extraction to arrive at the unit resource rent. The volume changes of the user cost of other subsoil assets are derived from production volume changes in the supply and use tables.

Inventories

The Dutch non-financial balance sheet distinguishes four different types of inventories: work-in-progress, materials and supplies, final products and goods for resale (Taminiau-van Veen et al., 2009). Work-in-progress consists of output produced that is not yet finished, such as maturing livestock and uncompleted structures. Companies keep inventories of materials and supplies to secure the continuity of their production process. The service provided by these inventories is the certainty of delivery of raw materials. Inventories of final products provide a company with the certainty of customer delivery which enables a company to cope with changing demand over time. Inventories of goods for resale in the hands of a trader provide more or less a similar service as the inventories of final products in the hands of the manufacturer. The volume change of capital services of all types of inventories are based on the changes in quantities of inventories by commodity type.

Land

The Dutch balance sheet for land represents three different types of land: agricultural land, land underlying dwellings and land underlying non-residential buildings (Van den Bergen et al., 2010). The use of balance sheets for land to determine the capital input in the growth accounts requires a breakdown by industry. The industry breakdown is based on the use of land in production which is not necessarily equal to a breakdown based on land ownership.

Agricultural land is subdivided into two separate groups: open farmland and land underlying greenhouses. All open farmland is assigned to the industry agriculture, forestry and fishing. This equally applies to all land underlying greenhouses used in agricultural production. For other uses of greenhouses, an estimate is made of the area (and value) of land that is occupied by garden centres. This estimate is based on the number of garden centres and their average size. This land is assigned to the industry retail trade and repair. It is assumed that all other land underlying greenhouses (not in use for agricultural purposes) are used for secondary activities of agricultural businesses and is therefore assigned to agriculture, forestry and fishing.

In the Netherlands, land underlying dwellings is assigned to the real estate industry (including owner-occupied housing), insurance and pension funds and to the industry government. The division of land underlying dwellings by industry is based on the value distribution of dwellings. For the industry breakdown of land underlying non-residential buildings, all industries are divided into two groups: (1) industries with a relatively high ratio between land

values underlying non-residential buildings and the values of the buildings and (2) industries with relatively low ratios. The first group consists of industries occupying buildings with a restricted number of floors that are primarily located in town centres and cities (for example retail trade and restaurants). For the time being and due to data constraints, it is assumed that the ratio between the values of land and buildings in the first group is two times the ratio in the second group.

The volume changes of land-related capital service inputs are based on changes in occupied land areas, corrected for quality differences due to location. Land values in more economically active locations are higher than land values in areas with fewer activities. In the growth accounts, the former is treated as land of a higher quality than the latter.

Although the most important types of land are now included, the estimates of land are still incomplete. Construction land and privately owned recreational land are not yet included in the figures. Furthermore, land underlying tax-exempted buildings, like churches, is also excluded because no data on the value of these real estate objects is currently available. These estimates are subject to future research.

2.2 Labour input measurement

In the growth accounts, the hours worked and labour cost are subdivided into two categories: labour by employees and labour by self-employed (including unpaid family workers). Hours worked and labour cost are also classified by industry. Per industry, the total volume change of labour is determined by weighing the hours worked for each type of labour (employees or self-employed) with the corresponding labour cost per hour worked. Since labour cost of employees and the self-employed may differ, the volume change of total labour input can deviate from the change in total hours worked. A subdivision of labour by other characteristics such as educational level, sex or age is not available at this time. Changes in such characteristics will therefore manifest themselves in *mfp* change.

The cost of labour consists of the compensation of employees plus the compensation for labour of the self-employed. The compensation of employees at current prices is directly available from the national accounts. However, the same compensation at previous year prices cannot be used because the deflation in the national accounts is not conducted with volume indexes of hours worked. In order to retain a consistent set of supply and use tables, the national accounts (in constant prices) is balanced with the newly calculated compensation of employees at prices of the previous year. This is accomplished by adjusting the operating

surplus. In this way consistency is retained without changing any other input or output quantity.

Unlike compensation of employees, no explicit estimate of labour income of self-employed is provided in the national accounts. Labour income of self-employed is, together with the user cost of capital and the profit of the sector households (S.14), part of mixed income. When gross fixed capital formation, consumption of fixed capital and the capital stock are broken down into institutional sectors, it is possible to directly calculate the user cost of capital of S.14. However, it is not possible to measure directly either profit of S.14 or labour income of self-employed. Therefore, the labour income of self-employed is determined exogenously. Although firm evidence is lacking, most data suggest that self-employed work more hours than employees without earning substantially more money. It is therefore assumed that self-employed have the same labour income per year as employees. There are a few exceptions to this assumption. In some medical sectors, for instance in the case of dentists and general practitioners, the self-employed generally have a university degree, whereas the employees mostly have a lower educational level. Since educational level is generally positively correlated with earnings, it is expected that in these sectors self-employed have a higher income than employees. Therefore, for the year 2003, in these sectors labour income of self-employed is set at a so-called standard income[5] of these professions. It is further assumed that the development of labour income of the self-employed equals the development of wages of employees in these sectors. For some professions, e.g. lawyers, accountants and architects, which are included in the financial and business activities branch, it is also expected that self-employed have a higher income than employees. However, there is no data available with regard to some standard income of these professions. It is therefore assumed that these self-employed have the same income per year as employees.[6]

2.3 Other inputs and outputs

Gross output, value added and intermediate consumption (with its E, M, and S components) are estimated in the context of the national accounts. Production surveys, foreign trade statistics, and surveys on consumption and investments are the most important data-sources. Our national accounts database consists of data for very detailed product groups, which are further subdivided to origin and destination, and which have different valuation layers. From

[5] This is a rough estimate used to inform medical students about their expected future salaries.

[6] When labour is broken down by education, this problem may cease to exist. The expectation that self-employed have a higher income than employees is primarily based on the difference in education between self-employed and employees. It is expected that self-employed in this industry earn the same income as employees with the same education.

this database, supply and use tables and input-output tables can be derived. Approximately 120 industries and 275 product groups are distinguished. This level of detail is sufficient for measuring productivity change as described in the foregoing. With respect to constant price estimation, a combination of (chained) Paasche price index numbers and Laspeyres volume index numbers is used. The price statistics for production, international trade and private consumption of households are the main sources for the deflators.

Although both value added and gross output (in current prices and prices of the previous year) can be directly derived from the national accounts, gross output must be consolidated before it can be used for the gross output productivity measures. The most detailed national accounts supply-use database has the following three dimensions: industry of supply × industry of demand × product group. Thus, generally, the amounts of intra-industry deliveries can be determined directly for each product group.[7] All the intra-industry deliveries, both in current prices and in prices of the previous year, are excluded from gross output and intermediate consumption to obtain sectoral output and intermediate input.

The cost components of intermediate consumption can also be derived from the national accounts. The intermediate consumption that is used for the productivity measures is calculated as the intermediate consumption at basic prices plus the sum of taxes-less-subsidies on products. In contrast with the national accounts, for productivity measurement trade and transport margins are not attributed to the products on which they are imposed, but they are recorded as a service. This way, energy, materials and services are separated properly. Finally, intermediate consumption must also be consolidated.

The total volume index of all inputs of production is determined by weighing the volume indices of each input with their cost shares in the total consolidated production cost. For the calculation of aggregate quantity or volume change of inputs and outputs, an index formula must be selected. In the standard growth accounting approach, where *mfp* change represents technological change, the index formula corresponds to a certain specification of the technology (for instance by means of a production function). For the annual publication of the Dutch growth accounts, chained Laspeyres volume index numbers are used. The reasons are twofold. First, convenience of calculation, given the set-up of the Netherlands' supply and use

[7] Trade and transport margins constitute the only exception to this rule. This is caused by the fact that these margins are registered as so-called valuation layers. For a detailed description of the methods used for consolidation the reader is referred to Van den Bergen et al. (2008).

tables. Second, consistency with the volume index numbers as published in the national accounts.

2.3.1 Net profit or loss

Since by using an exogenous interest rate the values of the input components are calculated independently from the value of output, revenue does not need to be equal to total cost. A new balancing item is created, called net profit (NP).

$$NP = Y - K - L - E - M - S \qquad (1)$$

The balancing item net profit is not part of the system of national accounts. However, it can easily be deduced by subtracting the calculated user cost of capital from the gross operating surplus. It should be noticed that the net profit determined this way can differ from profits as reported by companies. The main reason for this is that only actually paid interest charges are registered in company bookkeeping, while in the growth accounts imputed interest charges (opportunity cost of the money that is tied up in the assets) of all assets are part of the user cost of capital. Since companies usually partially finance their assets with loans, the imputed interest charges in the growth accounts will generally exceed the interest charges actually paid. The resulting net profit calculated in the growth accounts will therefore generally be lower than profits reported by companies. Differences in the method used to determine consumption of fixed capital may also explain part of the differences found between net profit as determined by equation (1) and profits as reported by companies.

In summary, in contrast with the standard neoclassical model, the official growth accounts of Statistics Netherlands employ an exogenous interest rate to determine capital services implying that revenues in a certain industry need not be equal to total cost. This inequality also holds for any aggregate of industries. For the calculation of aggregate figures, volume changes of inputs per industry are not weighted by revenues per industry, which would imply a return to the neoclassical model, but by cost-shares. In conclusion, on the industry level as well as any aggregate of the industry level revenues need not be equal to total cost. As a result, in the Dutch growth accounts, *mfp* change cannot be interpreted as exclusively the result of technological change (progress or regress), but may also be due to scale effects, efficiency improvements, and other factors.

3. Comparing the Dutch growth accounts with the neo-classical model

When it comes to capital measurement the 2008 SNA is an important step forwards. A new chapter on capital services (chapter 20) explains in a straightforward way the interrelationship between the balance sheets of non-financial assets and gross operating surplus. The latter aggregate is explained as the ex-post compensation of capital used in production. When *mfp* calculations become part of the national accounts statistics program, it is advisable to set up the capital measurement framework (perpetual inventory method) in such a way that balance sheet positions of fixed assets, consumption of fixed capital and capital services estimates are compiled in an integrated and mutually consistent way. Statistics Netherlands reorganised its capital measurement framework accordingly at its 2001 national accounts benchmark revision.

For the calculation of capital an exogenous rate of return can be used. By using such a preset rate of return, the sum values of all inputs and outputs in a production account (at firm, branch or economy level) do not necessarily match. This implies that the introduction of capital service in the production account leads to an additional balancing item in the accounts (net profit). The capital measurement handbook (OECD, 2009) considers this to be a disadvantage of using an exogenous rate of return. Another disadvantage highlighted in this compilation manual is the arbitrary choice of an exogenous rate.

Despite these disadvantages, the capital services in the Dutch growth accounts are determined on the basis of an exogenous rate of return (see also section 2.1.1). This can be motivated by the following two arguments. First, balance sheets for the non-produced assets were developed simultaneously with the growth accounts. The first results where based on an incomplete coverage of these assets from the perspective of the SNA asset boundary. This seems to make the use of an endogenous rate of return rather inappropriate since some parts of capital income remain disconnected from the assets to which this income is supposed to relate to. And even beyond the SNA asset boundary there may be various forms of capital such as intellectual property products which contribute to the output of companies but which are, for the time being, ignored by national accountants.

Second, as explained in the recently developed guidelines for environmental accounting (the SEEA Central Framework (United Nations, 2012)), the resource rents or the services obtained from natural resources can only be obtained as the difference between gross operating surplus and the capital services of fixed assets and inventories. In other words the resource rents of

natural resources are determined as a residual item. So the measurement of resource rents requires applying an exogenous rate of return for fixed assets.

In the remainder of this section, the differences between an exogenous and endogenous rate of return are evaluated with empirical data from the Dutch growth accounts. All calculations are conducted at the level of nine industries and for the commercial sector as a whole. The following sections decribe the effects of including additional asset types on input cost shares (section 3.1), volume changes of capital services (section 3.2), contributions to output growth (section 3.3) and developments in rates of return and profitability (section 3.4). Finally, section 3.5 describes the results of including intellectual property products.

3.1 Input cost shares

Tables 1, 2 and 3 show the cost shares of capital input, labour input and intermediate inputs for the exogenous and the endogenous model including and excluding the extensions of capital input with subsoil assets, land and inventories. The tables are interrelated. Extending capital input with more asset types in the exogenous model does not only influence the cost share of capital input, but also the cost shares of labour input and intermediate use.

The cost shares in the exogenous model are calculated as the share of one input in the total cost of all inputs. In the exogenous model the total cost of all inputs is not equal to output (as the difference between output and input in the exogenous model is net profit). The input cost shares in the exogenous model are thus not equal to their respective shares in output. By extending capital input with more asset types, capital input increases and consequentially the total cost of all input increases in the exogenous model. As a result the cost share of capital increases by adding more asset types (and the cost shares of other inputs decrease).

In the endogenous model profits are zero by definition, therefore output is equal to the cost of all inputs. The full operating surplus/mixed income minus the labour income of self-employed is allocated to capital inputs, which makes capital input a balancing item. Extending capital input with more asset types does not lead to an increase of capital cost in the endogenous model As a results, the cost shares of other inputs also remain the same. For this reason the cost shares of the endogenous model including and excluding the additional asset types are shown in one column. The item profitability in table 1 is derived from the exogenous model including the additional asset types and is calculated as the consolidated gross output divided by the sum of all inputs, both valued in current prices.

Table 1: Cost shares of capital input, average 1996-2009

	Exogenous		Endogenous	Profitability
	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Excluding/Including subsoil assets, land and inventories	Profitability (exogenous)
	Percent			
Commercial sector	14.2	17.2	22.7	7.1
Agriculture, forestry and fishing	20.2	28.3	14.8	-15.7
Mining and quarrying	37.0	72.5	72.4	-0.4
Manufacturing	8.0	8.7	12.6	4.4
Electricity, gas and water supply	22.5	22.8	27.8	7.2
Construction	4.0	4.1	7.1	3.2
Trade, hotels, restaurants and repair	9.0	10.7	20.1	11.7
Transport, storage and communication	18.8	19.1	21.9	3.7
Financial and business activities	9.4	10.0	18.0	9.8
Care and other service activities	9.7	10.3	13.2	3.3

Source: Statistics Netherlands, national accounts

Including subsoil assets, land and inventories increases the cost share of capital input by 3 percentage points for the commercial sector in the exogenous model. When looking at some individual industries the effects of including more asset types are more substantial. The cost share of capital inputs in the industry mining and quarrying almost doubled (from 37 percent to 72.5 percent) and there is also a substantial change of the share of capital cost in total inputs in the industry agriculture, forestry and fishing (the capital cost share increased from 20.2 to 28.3 percent here). The increased cost share in the industry mining and quarrying is mainly caused by the inclusion of subsoil assets, while in the industry agriculture, forestry and fishing the inclusion of land has a large effect on the cost share of capital.

After including the additional asset types the cost shares of capital inputs for the exogenous and the endogenous model are almost equal in the mining and quarrying industry (72.5 percent). The reason is that in the exogenous model the user cost of subsoil assets are determined by an endogenously calculated resource rent. This resource rent is determined by subtracting the exogenously estimated user cost of capital of produced assets from the gross operating surplus in the mining and quarrying industry. By determining the user cost of subsoil assets in this way, the cost shares of the exogenous model lead to that of the endogenous model.

Even after including the additional asset types the cost shares of capital input in most industries remain different in both models. In the endogenous model all profits are allocated to capital input. This leads to a large positive or negative effect on the cost shares depending on the sign of profitability in the corresponding industry. For example, the industry agriculture, forestry and fishing suffers from negative profits, which leads to a much lower capital cost share in the endogenous model (14.8 percent) as compared to the exogenous model (28.3 percent). The endogenous model is influenced by annual changes in profitability. In years with increasing profits the cost share of capital inputs increases and vice versa (not shown). The input cost shares of the endogenous model are therefore more sensitive to business cycles as compared to the exogenous model.

Tables 2 and 3 show cost shares of labour input and intermediate use. The inclusion of additional asset types results in a decreased labour input share of 1.8 percentage points and a decreased share of intermediate inputs of 1.2 percentage point in the commercial sector. The largest effects on the cost shares of labour input and intermediate use can be found in the industry agriculture, forestry and fishing and the industry mining and quarrying. These effects can easily be explained by the fact that the share of capital input has increased substantially in these industries. As a result the shares of the other inputs in total costs have decreased.

After including the additional asset types, the difference in input cost shares between the exogenous model and the endogenous model is about 3 percentage points for labour input (49 percent versus 45.8 percent) and just over 2 percentage points for intermediate inputs (33.8 percent versus 31.5 percent) in the commercial sector. At the industry-level the main differences can be found in the agricultural industry, trade, and financial and business activities. Large profitabilities in the latter two industries lead to a larger capital input cost share in the endogenous model, leading to lower cost shares of the other inputs. Thus, differences in profitability have a substantial influence on input cost shares in the endogenous model.

Table 2: Cost shares labour input, average 1996-2009

	Exogenous		Endogenous
	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Excluding/Including subsoil assets, land and inventories
	Percent		
Commercial sector	50.8	49.0	45.8
Agriculture, forestry and fishing	30.9	27.7	32.9
Mining and quarrying	10.1	4.6	4.6
Manufacturing	21.5	21.3	20.4
Electricity, gas and water supply	10.3	10.2	9.7
Construction	40.4	40.4	39.1
Trade, hotels, restaurants and repair	44.2	43.3	38.8
Transport, storage and communication	30.8	30.7	29.6
Financial and business activities	56.9	56.5	51.5
Care and other service activities	57.4	57.0	55.2

Source: Statistics Netherlands, national accounts

Table 3: Cost shares intermediate inputs, average 1996-2009

	Exogenous		Endogenous
	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Excluding/Including subsoil assets, land and inventories
	Percent		
Commercial sector	35.0	33.8	31.5
Agriculture, forestry and fishing	49.0	44.0	52.3
Mining and quarrying	52.9	23.0	23.1
Manufacturing	70.5	70.0	67.0
Electricity, gas and water supply	67.3	67.0	62.6
Construction	55.6	55.5	53.8
Trade, hotels, restaurants and repair	46.8	45.9	41.1
Transport, storage and communication	50.4	50.2	48.4
Financial and business activities	33.7	33.5	30.5
Care and other service activities	32.9	32.7	31.7

Source: Statistics Netherlands, national accounts

3.2 Volume change of capital input

Table 4 shows the volume changes of capital input before and after the inclusion of the additional capital inputs. Including more capital has an effect on the volume changes of total capital input in both the exogenous and the endogenous model, whereas the extension of capital input affected input cost shares in the exogenous model only.

In the endogenous model the volume change of unmeasured capital (that is all allocated to capital input) is set equal to the volume change of assets that are actually measured in the capital stock. When the asset coverage is extended and a new volume measure for an additional asset type is included, this may alter the volume change of total capital input. In addition, the volume change of capital input in the endogenous model depends on the endogenously determined rate of return. If the rate of return changes (by including more asset types) the volume of capital input may change as well.

Table 4: Capital input volume changes, average 1996-2009

	Exogenous		Endogenous	
	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories
	% volume change			
Commercial sector	2.9	2.4	2.4	2.4
Agriculture, forestry and fishing	0.3	0.3	-0.6	-0.6
Mining and quarrying	0.8	-0.3	0.2	-0.3
Manufacturing	1.6	1.6	1.4	1.5
Electricity, gas and water supply	0.9	0.9	0.7	0.7
Construction	4.3	4.1	3.8	3.7
Trade, hotels, restaurants and repair	3.3	3.3	2.2	3.0
Transport, storage and communication	3.2	3.1	2.9	2.9
Financial and business activities	6.3	5.8	4.4	4.1
Care and other service activities	3.8	3.7	3.8	3.6

Source: Statistics Netherlands, national accounts

In the exogenous model the volume change of capital input is based on the volume change of all measured capital inputs only (excluded asset types are reflected in productivity). Logically, when including additional asset types the volume measure of total capital input will change if the additional asset types have a different volume change than the asset types that were already included.

In the industry mining and quarrying the addition of subsoil assets, land and inventories has a large effect on the volume change of capital inputs. In the exogenous model the adjustment of the volume change is larger (decreasing from 0.8 to -0.3 percent) than in the endogenous model (decreasing from 0.2 to -0.3 percent). Apparently, the volume change of total capital inputs in the endogenous model before the inclusion of subsoil assets was more in line with the actual volume change of subsoil assets than it was in the exogenous model. In general, the endogenous model will lead to fewer adjustments than the exogenous model if it can be assumed that unmeasured assets have similar volume changes as the asset types that are taken into account. However, in the case of subsoil assets this could rather be a coincidence as the annual amount of extracted subsoil assets depends to a large extent on government policy and weather conditions.

In the industry trade, hotels, restaurants and repair the adjustment of the volume change of capital input is much larger in the endogenous model. This is mainly caused by the inclusion of inventories in capital input that clearly have different volume changes than the fixed assets that were already included. This result shows that the volume changes of the already included assets are not necessarily representative for the volume change of unmeasured assets.

3.3 Contributions to gross output growth

The annual average contributions of all KLEMS-inputs and productivity to gross output volume change for the exogenous and endogenous models excluding and including the capital extensions are shown in table 5. At the aggregate level, the effects of including additional asset types on growth contributions and the differences between the exogenous and the endogenous model are rather small. However, when looking at the industry-level the differences are larger (see Annex 1 for growth contributions at the industry-level).

The contributions to gross output growth are determined by multiplying the input cost shares with the volume changes of the corresponding inputs. Table 4 shows that in the exogenous model the volume change of capital input decreased by 0.5 percentage points in the commercial sector (from 2.9 percent to 2.4 percent) by including the additional asset types. Since the cost share of capital input remains relatively low (17.2 percent of total inputs) the resulting effect on the growth contribution of capital input is small. However, extending capital also has an effect on the cost shares of other inputs in the exogenous model. As a result the contributions to output growth of other inputs marginally decrease. Together the

reductions of the contributions of all inputs lead to a small increase of productivity in the exogenous model.

Table 5: Contributions to gross output volume change in the commercial sector, average 1996-2009

	Exogenous		Endogenous	
	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories
	percentage point			
Labour	0.51	0.50	0.47	0.47
Capital	0.44	0.43	0.54	0.55
Intermediate use	0.83	0.81	0.76	0.76
Productivity	0.74	0.79	0.76	0.75
	% volume change			
Gross output	2.5	2.5	2.5	2.5

Source: Statistics Netherlands, national accounts

In contrast to the exogenous model, the cost shares of capital input (and all other inputs) in the endogenous model have not changed by including additional asset types. The volume change of capital input increased only marginally, leading to a very small effect on the growth contribution of capital and productivity (as a residual). When comparing the endogenous model with the exogenous model, the growth contribution of capital input is larger in the endogenous model. This is mainly explained by differences in capital cost shares. Due to the allocation of profits to capital input in the endogenous model the capital cost shares are much larger than the capital cost shares in the exogenous model.

At the industry-level the effects of the inclusion of additional asset types in the exogenous and the endogenous model are more substantial (see Annex 1). The differences in input cost shares (only in the exogenous model) and capital volume changes are larger at the industry-level than at the aggregate level. The largest effect on productivity can be found in the mining and quarrying industry, which is mainly caused by the inclusion of subsoil assets. Other

effects, although less substantial, are caused by the addition of land and inventories and can predominantly be found in agriculture and trade.

There is a difference in the interpretation of productivity between the exogenous and the endogenous model. In the endogenous model, the full operating surplus/mixed income minus the labour income of self-employed is allocated to capital inputs, thereby assuming that all capital inputs are accounted for. As a consequence, productivity in the endogenous model is often seen as a measure of pure technological change. Whereas, in the exogenous model, productivity also reflects asset types that are not accounted for. Although the endogenous model aims to account for missing assets, results at the industry-level show that productivity can be biased when not all assets are measured. The inclusion of the additional asset types leads to a considerable change in productivity in some industries. This finding strengthens the case for growth accounting models with a large asset coverage.

3.4 Rate of return and profitability

The effects of including additional asset types on the real rate of return and profitability are shown in table 6. The real rate of return in the exogenous model does not change by adding more asset types as it is determined exogenously. In contrast, the inclusion of additional asset types does have an effect on the real rate of return in the endogenous model. By including more asset types, capital stock increases and the return per unit of capital consequentially decreases. The real rate of return in the Dutch commercial sector decreases by almost 5 percentage points on average by including subsoil assets, land and inventories to capital input. The rate of return in the endogenous model is often used for analytical purposes, for example to make a comparison with the interest rate on capital markets. However, from the results in table 6 it can be concluded that the endogenous real rate of return is very sensitive to the asset coverage and the exclusion of important asset types may lead to biased results.

In the exogenous model profitability is a balancing item, which can also be used for analytical purposes (like the rate of return in the endogenous model). However, extending the asset coverage also influences profitability. By adding more asset types in the exogenous model, the user cost of capital increase, and the cost of total input increase. As a result, the balancing item net profit decreases. In the Netherlands, including subsoil assets, land and inventories reduces profitability by almost 4 percentage points on average in the period 1996-2009. Thus, to make analyses on profitability and the rate of return more meaningful, it is important to have a large asset coverage in both models.

Table 6: Real rate of return (RR) and profitability, commercial sector

	RR Exogenous	RR Endogenous		Profitability (exogenous)	
	Excluding/Including subsoil assets, land and inventories	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories
	Percent				
1996	3.8	9.3	6.1	7.5	3.9
1997	3.9	10.1	6.6	8.3	4.6
1998	4.0	10.5	7.0	8.6	5.2
1999	2.9	10.1	6.8	9.6	6.9
2000	2.5	10.6	6.6	10.4	7.3
2001	2.8	11.1	6.7	10.7	7.0
2002	3.0	11.1	6.9	10.3	6.9
2003	3.1	11.5	7.3	10.8	7.3
2004	3.1	12.0	7.5	11.1	7.5
2005	2.4	14.0	8.7	14.1	10.4
2006	2.9	14.9	8.9	14.0	9.5
2007	4.2	15.9	9.7	13.1	8.5
2008	4.8	17.3	10.0	13.2	7.2
2009	4.4	15.2	9.2	12.7	7.8

Source: Statistics Netherlands, national accounts

3.5 Extending the asset boundary with intellectual property products

At Statistics Netherlands assets beyond the SNA boundary are included experimentally in the exogenous model of the growth accounts framework. This means that capitals inputs are extended with intellectual property products (IPPs) as defined in the studies of Corrado et al. (2006). The methodological aspects of including IPPs in the extended framework of the Dutch growth accounts are described in Van Rooijen-Horsten et al. (2008).

Table 7 shows that the contributions of capital input to output growth in the most extended model including IPPs are more in line with the endogenous model excluding IPPs. After including IPPs in the exogenous model the capital cost share increases by 6 percentage points (from 17 to 23 percent, not shown), which is slightly more than the capital cost share in the endogenous model. In the endogenous model IPPs have not yet been included, thus a full comparison between the two different models can as yet not be made. For a more detailed analysis of the inclusion of different types of IPPs the reader is referred to the publication of the Dutch growth accounts 2009 (CBS, 2010). A comparison of growth contributions for IPPs at the industry-level is also available upon request.

Table 7: Contributions to gross output volume change in the commercial sector, average 1996-2008

	Exogenous			Endogenous	
	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories	Including subsoil assets, land, inventories and IPPs	Excluding subsoil assets, land and inventories	Including subsoil assets, land and inventories
	percentage point				
Labour	0.62	0.60	0.59	0.56	0.56
Capital	0.47	0.48	0.58	0.57	0.60
Intermediate use	1.08	1.04	0.93	0.98	0.98
Productivity	0.97	1.02	1.04	1.02	0.99
	% volume change				
Gross output	3.13	3.13	3.13	3.13	3.13

Source: Statistics Netherlands, national accounts

4. Conclusions

The main conclusion of this study is that the inclusion of additional asset types to capital input improves the outcomes of both the exogenous and the endogenous model for productivity measurement. In the exogenous model it leads to a better cost share of capital input (and all other inputs) and an improved measurement of profitability and *mfp*. In the endogenous model including additional asset types leads to a better volume measurement of capital input and improved measurement of the endogenous rate of return and *mfp*.

By including additional asset types to capital input some parts of the exogenous model and the endogenous model have become more aligned. In the commercial sector, both input cost shares and volume changes of capital input converged between the exogenous and the endogenous model. In addition, the rate of return in the endogenous model decreased by adding more asset types, bringing it more in line with the exogenously determined rate of return. The combined effect of changed input cost shares and changed volumes of capital input in the exogenous model had a small positive effect *mfp* change, which made the difference between *mfp* in the exogenous model and the endogenous model slightly larger (0.04 percentage points).

At the industry-level, the combined effect of changed cost shares and changed volumes lead to a substantial decrease in the difference of *mfp* between both models in the mining and quarrying industry. However, in the industry trade, hotels, restaurants and repair the difference between the exogenous model and the endogenous model has increased. This is predominantly caused by the inclusion of inventories in capital input which had a considerable impact on the growth contribution of capital and productivity for this industry in the endogenous model. Apparently, the volume change of inventories was much different than the volume change of the assets that were already included in capital input. In addition, profitability in the industry trade is quite large, which results in a much larger capital cost share in the endogenous model. Therefore, the volume changes of the new asset type inventories received a higher weight in the endogenous model than in the exogenous model. As a result, the outcomes of the endogenous model deviate more from the exogenous model after including the additional asset types in this industry.

It can be concluded that in most cases the extension of productivity measurement with additional capital inputs reduced differences between the exogenous and the endogenous model in the Netherlands in the period 1996-2009. However, the cost share and volume change of capital input in the endogenous model are dependent on developments of profits (input cost shares in the endogenous model are influenced by business cycles). Thus, despite of the inclusion of a broader range of assets there remain deviations between the exogenous model and the endogenous model when profitability increases or decreases.

An important reason for choosing an exogenous interest rate for the official growth accounts at Statistics Netherlands is that the return to capital in the exogenous model does not depend on changes in profitability. Instead, the return to capital is directly connected to the assets that are included in capital stock. Another reason for using the exogenous model is that an exogenous rate of return is required to calculate a resource rent for natural resources. For example, the resource rent for subsoil assets can only be determined endogenously, by subtracting the exogenously determined user cost of produced capital from the gross operating surplus. If the user cost of produced capital is determined endogenously, there would not be a residual to attribute to the resource rent of the reserves.

The rate of return and profitability are often used for analytical purposes. However, both measures are highly sensitive to the coverage of assets in capital input. Therefore, the rate of return in the endogenous model and profitability in the exogenous model should be treated

with care as they can be biased by the absence of important asset types. Further improvement of capital measurement could make these analyses more meaningful.

Due to the zero-profit assumption in the endogenous model, the interpretation of productivity becomes different from the exogenous model. In the endogenous model all profits are allocated to capital input, thereby assuming that all capital inputs are accounted for. As a result, productivity in the endogenous model can more or less be interpreted as (disembodied) technological change. In the exogenous model productivity change cannot be interpreted as exclusively the result of technological change, but may also be due to unmeasured capital input and other factors such as scale effects and efficiency improvements. By including additional asset types, this unexplained part of productivity becomes smaller in the exogenous model. Although, the endogenous model aims to account for missing assets, productivity can still be biased if not all assets are measured. The results showed that in some industries the inclusion of additional asset types also leads to a considerable change in productivity in the endogenous model. Therefore, in both models a larger asset coverage leads to more accurate growth accounting results.

This research clearly shows that adding additional asset types makes a difference. Although, the most important asset types are now included in the non-financial balance sheets of the Netherlands several issues remain outstanding. First, the estimates of land are not yet complete. Building land and privately owned recreational land are not yet included in the figures. Furthermore, land underlying tax-exempted buildings, like churches, are excluded in the figures, since no data on the value of these real estate objects is available from the tax registers. Future work should provide estimates for these types of land.

Second, the results showed that the contribution of capital to output growth increased considerably by including new IPPs in the growth accounts. According to the SNA 2008 guidelines expenses on research and development should be added to the asset boundary (which only is a small part of the IPPs that are currently beyond the SNA boundary). The ESA 2010 will likely follow this recommendation. Once a final decision has been made, R&D will be included in the non-financial balance sheets and subsequently in the regular Dutch growth accounts.

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Annex 1: Contributions to gross output volume change by industry, average 1996-2009

Table A.1 Exogenous model excluding subsoil assets, land and inventories

	Gross output	Labour	Capital	Intermediate use	Productivity
	% volume change	*percentage point*			
Commercial sector	2.53	0.51	0.44	0.83	0.74
Agriculture, forestry and fishing	1.08	-0.03	0.06	0.47	0.57
Mining and quarrying	0.06	-0.23	0.30	1.72	-1.73
Manufacturing	1.11	-0.27	0.14	0.68	0.57
Electricity, gas and water supply	1.70	-0.18	0.23	1.05	0.60
Construction	1.68	0.38	0.18	1.25	-0.13
Trade, hotels, restaurants and repair	2.96	0.28	0.31	1.19	1.17
Transport, storage and communication	3.91	0.17	0.63	1.59	1.52
Financial and business activities	3.80	1.42	0.66	1.41	0.30
Care and other service activities	2.93	1.39	0.40	1.24	-0.09

Source: Statistics Netherlands, national accounts

Table A.2 Exogenous model including subsoil assets, land and inventories

	Gross output	Labour	Capital	Intermediate use	Productivity
	% volume change	*percentage point*			
Commercial sector	2.53	0.50	0.43	0.81	0.79
Agriculture, forestry and fishing	1.08	-0.03	0.06	0.42	0.62
Mining and quarrying	0.06	-0.11	-0.22	0.91	-0.52
Manufacturing	1.11	-0.27	0.14	0.67	0.56
Electricity, gas and water supply	1.70	-0.18	0.23	1.05	0.60
Construction	1.68	0.38	0.18	1.25	-0.13
Trade, hotels, restaurants and repair	2.96	0.28	0.37	1.17	1.14
Transport, storage and communication	3.91	0.17	0.63	1.58	1.52
Financial and business activities	3.80	1.41	0.64	1.40	0.34
Care and other service activities	2.93	1.38	0.41	1.23	-0.08

Source: Statistics Netherlands, national accounts

Table A.3 Endogenous model excluding subsoil assets, land and inventories

	Gross output	Labour	Capital	Intermediate use	Productivity
	% volume change	*percentage point*			
Commercial sector	2.53	0.47	0.54	0.76	0.76
Agriculture, forestry and fishing	1.08	-0.04	0.01	0.50	0.60
Mining and quarrying	0.06	-0.11	0.19	0.92	-0.94
Manufacturing	1.11	-0.26	0.17	0.65	0.54
Electricity, gas and water supply	1.70	-0.19	0.21	1.03	0.65
Construction	1.68	0.37	0.25	1.23	-0.17
Trade, hotels, restaurants and repair	2.96	0.25	0.44	1.07	1.19
Transport, storage and communication	3.91	0.17	0.65	1.56	1.53
Financial and business activities	3.80	1.27	0.83	1.27	0.42
Care and other service activities	2.93	1.34	0.49	1.20	-0.10

Source: Statistics Netherlands, national accounts

Table A.4 Endogenous model including subsoil assets, land and inventories

	Gross output	Labour	Capital	Intermediate use	Productivity
	% volume change	*percentage point*			
Commercial sector	2.53	0.47	0.55	0.76	0.75
Agriculture, forestry and fishing	1.08	-0.04	0.01	0.50	0.60
Mining and quarrying	0.06	-0.11	-0.22	0.92	-0.53
Manufacturing	1.11	-0.26	0.18	0.65	0.53
Electricity, gas and water supply	1.70	-0.19	0.21	1.03	0.65
Construction	1.68	0.37	0.24	1.23	-0.17
Trade, hotels, restaurants and repair	2.96	0.25	0.60	1.07	1.03
Transport, storage and communication	3.91	0.17	0.65	1.56	1.54
Financial and business activities	3.80	1.27	0.79	1.27	0.47
Care and other service activities	2.93	1.34	0.47	1.20	-0.08

Source: Statistics Netherlands, national accounts