

Industry aggregation in IntERACT

Abstract:

This working paper describes the aggregation of the 117 industries of the national accounts used in the spring 2014 versions of the IntERACT model and presents key characteristics of this industry aggregation.

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The need for aggregation

The main data source for the IntERACT computable general equilibrium sub-model (henceforth the CGE model) is the national accounts, in particular the input-output tables and the energy accounts. The input-output tables and the energy accounts operate with 117 industries. This is a significantly higher level of detail than what can be handled meaningfully in the CGE model and in the TIMES-DK model. It is therefore necessary to establish a suitable aggregation of these 117 industries.

This working paper presents the aggregation used in the spring 2014 versions of the IntERACT CGE model. As work on the model and database progresses, the aggregation may be modified. This will typically imply a higher level of disaggregation as analyses becomes more detailed and more data becomes available.

Aggregation criteria and resulting aggregation

Generally, the choice of aggregation key depends on the aim of the analysis. The focal point of IntERACT is energy and the impact of energy usage and production on the national economy. Therefore, the 117 industries of the national accounts are grouped according to the way they use or produce energy as well as the overall type of output produced by the industries. In addition to this, the manufacturing industries are also grouped according to the energy intensity of production (measured as net use of energy per total supply, i.e. GJ per million DKK).¹ This results in the following industry aggregation:

- Energy production and distribution industries:
 - 1) Extraction of oil and gas and mining support service activities.
 - 2) Oil refinery etc.
 - 3) Production and distribution of electricity
 - 4) Manufacturing and distribution of gas
 - 5) Steam and hot water supply
 - 6) Other utilities, i.e. water collection, purification, and supply; sewerage; and waste management and materials recovery. Other utilities are included under the category energy production and distribution industries in anticipation of the revised national accounts (to be published in September 2014), as the accompanying revision of the energy accounts introduces a new allocation of the production of electricity and district heating.

- Transport industries:
 - 1) Industries associated with passenger transport by private car. According to the input-output table on private commodity consumption, consumer expenditures related to purchase and maintenance of motor vehicles are mainly associated with the three industries manufacture of motor vehicles and related parts, sale of motor vehicles, and repair etc. of motor vehicles. Consumer expenditures on fuels are primarily associated with the industries oil refineries, whole sale and retail. However, the three latter industries also cover many types of demands not related to passenger transport by private

¹ Total supply of an industry is the value of production of the industry in question, measured in market prices.

car. Fuel costs will later be split out of these industries, but for now industries associated with passenger transport by private car only comprise the three industries:

- i. Manufacture of motor vehicles and related parts
 - ii. Sale of motor vehicles
 - iii. Repair etc. of motor vehicles
- 2) Passenger rail transport etc. and transport by suburban trains, buses and taxi operation, etc.
 - 3) Freight transport by road and via pipeline, water transport, air transport, support activities for transportation, and postal and courier activities. These rather different transport industries and transport related industries have been grouped together in order to handle the presence of negative gross surplus and mixed income for water transport and air transport in the 2009 IO table.²

Construction and housing:

- 1) Construction, i.e. construction of new buildings, civil engineering, professional repair and maintenance of buildings, and own-account repair and maintenance of buildings.
 - 2) Dwellings, i.e. owner-occupied dwellings and renting of residential buildings. The sole production of these two industries is housing to private consumers. Note that the dwelling industries consume very little energy as consumer expenditures on heating, electricity, etc. are registered as deliveries from the energy industries directly to the private consumers. Renting of non-residential buildings is categorized a private service industry.
- Service producing industries:
 - 1) Service industries in the private sector. This category covers a wide range of industries including wholesale and retail trading, financial services and consulting, and entertainment and recreation industries. It should be noted that the distinction between private and public service industries applied here is based on the structure of the industry's ownership and organization rather than their source of revenue. This implies that e.g. medical and dental practice activities are categorized as a private service industry, even though the output of these activities is typically designated as public consumption. This is in accordance with the principles applied in the industry aggregation used by the EMMA model (cf. EMMA 10, ENS 2010).³
 - 2) Service industries in the public sector. This category also covers a range of industries including public administration, hospitals, various types of education, and non-market recreational activities.
 - Commodity producing industries:
 - 1) Primary industries encompassing agriculture and horticulture, fishing, forestry, and extraction of gravel and stone.
 - 2) Highly energy intensive manufacturing industries:
 - i. manufacture of concrete and bricks

² Gross surplus and mixed income is the part of an industry's income, which is available for compensating self-employed persons and consumption of fixed capital (depreciation). It is calculated as the residual when subtracting compensation of employees and other production taxes from gross value added for the industry in question.

³ For documentation on EMMA 10 see <http://www.ens.dk/sites/ens.dk/files/info/tal-kort/fremskrivninger-analyser-modeller/modeller/emma/dokumentation/EMMA10%20dokumentation.pdf>

- ii. manufacture of glass and ceramic products
- iii. manufacture of paper and paper products
- 3) Manufacture of food, beverages and tobacco products
- 4) Other commodity producing industries

The exact categorization of each of the 117 industries of the national accounts is outlined in annex A. Annex A also provides an overview of the NR36a2 standard aggregation of the national accounts and the industry aggregation used in the EMMA model. The present IntERACT aggregation encompasses 17 industries while the EMMA aggregation is comprised of 22 industries. Comparing these two aggregation shows that EMMA is more focused on the energy consuming sectors, especially the commodity producing industries, while IntERACT has a higher degree of disaggregation in production of electricity and heating.⁴

As mentioned earlier, the IntERACT aggregation may be further refined in the future, as the need arises and / or data becomes available. Candidates for further disaggregation include the following industries:

- Primary industries: It may be desirable to disaggregate this industry grouping, including splitting out horticulture, as several of the industries are highly energy-intensive. Note, though, that horticulture is presently grouped with agriculture in the national accounts.
- Commodity producing industries: It may be desirable to further disaggregate the industry groupings manufacture of food, beverages and tobacco products and other commodity producing industries according to the type of energy use in production (cf. also the industry aggregation of the EMMA model).
- Freight transport by road and via pipeline, water transport, air transport etc.: It would be desirable to disaggregate this industry according to the different types of transport (i.e. freight, water, and air transport).
- Motor vehicles: It would be desirable to split fuel costs related to passenger transport by cars from oil refinery and trade industries in order to include these fuel costs in the transport category motor vehicles. However, further work on the concepts of the motor vehicle industry vs. the freight industry and the split between consumption and investment in relation to motor vehicles is required.

Characteristics of the chosen aggregation

Having established the industry aggregation outlined above, this section will present the characteristics of the industries themselves and their significance in the national economy.

The characteristics of the individual industries here pertain to the production and cost structure of the industry. The main input-output table measures all inputs to an industry in terms of the monetary spending on these inputs. The energy accounts details the industries use of ener-

⁴ This reflects the slight difference in focus between the EMMA model and IntERACT. The EMMA model thus focuses more on energy consumption, and has typically been used in connection with the RAMSES model, which models the production of electricity and district heating. The IntERACT model consists of a general equilibrium model (CGE) and a technical energy system model (TIMES), which are soft-linked. While the division of labor in the EMMA-RAMSES set-up is on energy consumption vs. energy supply, the division of labor in the IntERACT set-up is on macro-economic effects vs. technological choices on “micro-level”. Consequently, the CGE and the TIMES model will both have to deal with energy consumption and energy production, and this is reflected in the chosen industry aggregation.

gy not only in monetary terms but also in physical units. Based on these data, the following intensity and cost share measures are created as indicators of the industries' production structure:

- Energy intensity: Net use of energy per total supply measured in GJ per million DKK. The reason for using the physical variable net use of energy to illustrate the industries energy intensities is first of all to focus on the physical energy requirements of production rather than the monetary energy bill associated with this production. The former is a result of the industries choice of technology and "laws of nature", while the latter may be significantly influenced by the regulatory framework. Secondly, in order to assess how much energy each industry actually consumes in the course of its production, the variable 'net use of energy' is chosen instead of 'supply and use of energy'. The variable net use of energy thus captures the fact that the energy converting industries only consume a small fraction of the energy supplied to them, while the remainder is converted into e.g. electricity and district heating and delivered to other industries etc.⁵
- Energy cost share: Energy expenditures in market prices per total supply. Note that the energy expenditures are based on 'supply and use of energy' rather than 'net use of energy', which explains the high energy cost shares for the energy converting industries.
- Labor cost share: Wages and salaries per total supply.
- Capital cost share: Gross surplus and mixed income per total supply.

Table 1 below shows that the most energy intensive industries in this aggregation are the highly-energy intensive manufacturing industries (concrete, glass, and paper), the primary industries (agriculture, forestry, fishing, and gravel and stone), as well as the two industries related to oil production (oil refineries and extraction of oil and gas). However, turning to the energy cost shares, table 1 also shows that energy expenditures constitute less than 10% of these industries' production value, except in the case of oil refineries as this is an energy converting industry.

⁵ There is some terminology confusion as 'net use of energy' is also known as 'gross energy consumption'. It is calculated "by dividing the use of primary energy (e.g. coal, crude oil and natural gas) used in the production process at the electricity plants and district heat plants proportionately on the users of the individual converted energy commodities. Simultaneously, the use of primary energy in the conversion industries is reset to zero.... The conversion process involves a considerably loss of energy (the conversion loss). Therefore, the total energy content used in the production process is allocated to the final users of energy in the calculation of the net energy consumption.... Furthermore, the electricity power plants consumption of energy is adjusted for the net imports of electricity, implying that this is also converted into primary energy."
(<http://www.dst.dk/en/Statistik/dokumentation/Declarations/energy-accounts-for-denmark.aspx>).

It should be noted that the calculation of conversion losses for electricity and district heating appears to have been updated in the revised energy accounts. The numbers in table 1 are based on the old energy accounts, as the new and revised energy accounts are not fully compatible with the currently available IO table.

Table 1: Industries' input intensities and cost shares

| | Net use of energy per total supply (GJ per mill DKK) | Energy expenditures (market prices) per total supply | Wages and salaries per total supply | Gross surplus and mixed income per total supply |
|--|--|--|-------------------------------------|---|
| Agriculture, forestry, fishing, gravel & stone | 828 | 8% | 12% | 21% |
| Food, beverages, tobacco | 287 | 2% | 16% | 7% |
| Concrete, glass, paper | 997 | 6% | 29% | 9% |
| Other commodity production | 164 | 2% | 27% | 8% |
| Private service industries | 93 | 1% | 36% | 16% |
| Public services industries | 87 | 2% | 63% | 6% |
| Construction | 113 | 2% | 32% | 8% |
| Dwelling | 4 | 0% | 3% | 66% |
| Extraction of oil and gas | 560 | 0% | 3% | 79% |
| Oil refinery | 802 | 88% | 2% | 0% |
| Electricity production & distribution | 110 | 25% | 21% | 34% |
| Gas manufacturing & distribution | 21 | 76% | 4% | 15% |
| Steam and hot water supply | 193 | 23% | 8% | 48% |
| Other utilities | 281 | 5% | 16% | 20% |
| Motor vehicles - purchase and repair | 203 | 3% | 40% | 7% |
| Trains, buses, taxis | 356 | 4% | 32% | 20% |
| Freight by road & pipeline, water and air transport, support activities and postal | 254 | 4% | 18% | 3% |
| Average | 164 | 3% | 33% | 16% |

Source: Input-output tables and energy accounts for 2009 (old method)

As explained above, the high energy cost shares in the energy converting industries are a result of energy expenditures encompassing the entire cost of the intermediate input into the industry, i.e. the value of total energy inflow into these industries. The variable 'supply and use of energy', which is the basis for calculating energy expenditures, consequently does not take into account that these industries "resell" most of the energy supplied to them. This also partly explains the seemingly low capital cost share of the gas industry.

Looking more generally at the industries' capital cost shares, it should also be remembered that gross surplus and mixed income is the residual component in industries' cost structure. Economic crises, like the one in 2009, may thus significantly influence the industries' capital cost shares.⁶

Turning to the significance of the industries in the national economy, a simple way to examine this is to consider the industries' share of key economic statistics in 2009, as presented in table 2 below.

⁶ The economic crisis is apparently not the only explanation for the very low capital cost share of the oil refinery industry, as this sector has exhibited quite low capital cost shares the past two decades.

Table 2: Industries' shares of key economic statistics

| | Share of value-added | Share of exports | Share of employment | Share of net use of energy |
|--|----------------------|------------------|---------------------|----------------------------|
| Agriculture, forestry, fishing, gravel & stone | 1% | 2% | 3% | 12% |
| Food, beverages, tobacco | 2% | 11% | 2% | 8% |
| Concrete, glass, paper | 1% | 1% | 1% | 5% |
| Other commodity production | 9% | 36% | 9% | 12% |
| Private service industries | 39% | 19% | 42% | 20% |
| Public services industries | 23% | 0% | 28% | 9% |
| Construction | 5% | 0% | 6% | 4% |
| Dwelling | 8% | 0% | 1% | 0% |
| Extraction of oil and gas | 3% | 3% | 0% | 6% |
| Oil refinery | 0% | 2% | 0% | 4% |
| Electricity production & distribution | 1% | 0% | 0% | 1% |
| Gas manufacturing & distribution | 0% | 1% | 0% | 0% |
| Steam and hot water supply | 1% | 0% | 0% | 1% |
| Other utilities | 1% | 0% | 0% | 2% |
| Motor vehicles - purchase and repair | 1% | 2% | 2% | 2% |
| Trains, buses, taxis | 1% | 0% | 1% | 3% |
| Freight by road & pipeline, water and air transport, support activities and postal | 3% | 22% | 4% | 12% |
| Total | 100% | 100% | 100% | 100% |

Source: Input-output tables and energy accounts for 2009 (old method)

Note: Employment is defined as total employment excl. leave of absence and measured in persons. Net use of energy is measured in GJ.

Share of value-added illustrates the industries' significance for GDP. Table 2 shows that the Danish economy is dominated by the service sector, as the two categories of service industries account for almost 62% of value-added and 71% of employment. Typically, the service industries also exhibit low energy intensities and the two service industries therefore only account for 29% of net energy use by industries.

Two of the important private service industries are wholesale and retail sale. These two industries account for respectively 7% and 4% of value-added, 6% and 8% of employment, and 5% and 4% of net use of energy. Likewise, two prominent public service industries are social work activities and public administration. These two industries account for respectively 6% and 5% of value-added and 9% and 4% of employment, but only 2% and 1% of net energy use.

Turning to the commodity producing industries and the primary industries, these industries account for 13% of value-added and 14% of employment. However, as illustrated in table 1, some of these industries are relatively energy intensive, and the commodity producing industries and the primary industries thus account for 37% of net energy use by industries. Agriculture (including horticulture) is the single largest net energy user in the national accounts, as

this sector accounted for 9% of net energy use in 2009. Manufacture of concrete and brick, which is a highly energy-intensive manufacturing industry, account for 4% of net energy use.

Some of these industries are also highly export oriented. In 2009, commodity producing industries and agriculture thus accounted for 50% of exports. It should be noted that a significant share of total exports are concentrated on relatively few industries. In the group of commodity producing industries, manufactures of engines, windmills and pumps account for 6% of total exports, while pharmaceuticals account for 5%. In the private service sector, wholesale account for 11%, while water transport tops the list accounting for 18% of exports. In total, these four industries alone thus accounted for 40% of total exports in 2009.

The IntERACT aggregation of industries strikes a balance

The present IntERACT industry aggregation consists of 17 industries and industry groups. The aggregation strikes a balance between the need for detailed information on industry energy consumption and energy production, while keeping the level of disaggregation tractable. The aggregation may be updated and refined in the future, as the need arises and / or data becomes available.

Annex A – Comparison of different mappings of the 117 industries of the national accounts.

- NR36a2 is a standard mapping in the national accounts system.
- IntERACT3 is the mapping used in the spring 2014 versions of the IntERACT model.
- EMMA is the mapping used in the EMMA model (cf. EMMA 10, ENS 2010).

| Danish Industries | English names | NR36a2 | IntERACT3 | EMMA (Danish industry name) |
|-------------------|---|---------------------------------|--|--|
| 010000 | Agriculture and horticulture | Agriculture, forestry, fishing | Agriculture, forestry, fishing, gravel & stone | Landbrug og gartneri, skovbrug, indvinding af grus og sten |
| 020000 | Forestry | Agriculture, forestry, fishing | Agriculture, forestry, fishing, gravel & stone | Landbrug og gartneri, skovbrug, indvinding af grus og sten |
| 030000 | Fishing | Agriculture, forestry, fishing | Agriculture, forestry, fishing, gravel & stone | Fiskeri |
| 060000 | Extraction of oil and gas | Mining and quarrying | Extraction of oil and gas | Indvinding af olie og gas |
| 080090 | Extraction of gravel and stone | Mining and quarrying | Agriculture, forestry, fishing, gravel & stone | Landbrug og gartneri, skovbrug, indvinding af grus og sten |
| 090000 | Mining support service activities | Mining and quarrying | Extraction of oil and gas | Indvinding af olie og gas |
| 100010 | Production of meat and meat products | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 100020 | Processing and preserving of fish | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 100030 | Manufacture of dairy products | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 100040 | Manufacture of grain mill and bakery products | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 100050 | Other manufacture of food products | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 110000 | Manufacture of beverages | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 120000 | Manufacture of tobacco products | Manufacture of food and tobacco | Food, beverages, tobacco | Nærings- og nydelsesmiddel |
| 130000 | Manufacture of textiles | Textiles and leather products | Other commodity production | Anden fremstilling |
| 140000 | Manufacture of wearing apparel | Textiles and leather products | Other commodity production | Anden fremstilling |
| 150000 | Manufacture of leather and footwear | Textiles and leather products | Other commodity production | Anden fremstilling |
| 160000 | Manufacture of wood and wood products | Wood and paper products | Other commodity production | Anden fremstilling |
| 170000 | Manufacture of paper and paper products | Wood and paper products | Concrete, glass, paper | Anden fremstilling |
| 180000 | Printing etc. | Wood and paper products | Other commodity production | Anden fremstilling |

| Danish Industries | English names | NR36a2 | IntERACT3 | EMMA (Danish industry name) |
|-------------------|---|-------------------------------|---------------------------------------|-------------------------------------|
| 190000 | Oil refinery etc. | Oil refinery etc. | Oil refinery | Olieraffinaderier |
| 200010 | Manufacture of basic chemicals | Manufacture of chemicals | Other commodity production | Kemisk industri |
| 200020 | Manufacture of paints and soap etc. | Manufacture of chemicals | Other commodity production | Kemisk industri |
| 210000 | Pharmaceuticals | Pharmaceuticals | Other commodity production | Kemisk industri |
| 220000 | Manufacture of rubber and plastic products | Manufacture of plastic, glass | Other commodity production | Kemisk industri |
| 230010 | Manufacture of glass and ceramic products | Manufacture of plastic, glass | Concrete, glass, paper | Glas- og keramik industri |
| 230020 | Manufacture of concrete and bricks | Manufacture of plastic, glass | Concrete, glass, paper | Fremstilling af cement, mursten, mv |
| 240000 | Manufacture of basic metals | Basic metals, metal products | Other commodity production | Jern- og stålværker |
| 250000 | Manufacture of fabricated metal products | Basic metals, metal products | Other commodity production | Maskin- og transportmiddel-industri |
| 260010 | Manufacture of computers and communication equipment etc. | Manufacture of electronics | Other commodity production | Maskin- og transportmiddel-industri |
| 260020 | Manufacture of other electronic products | Manufacture of electronics | Other commodity production | Maskin- og transportmiddel-industri |
| 270010 | Manufacture of electric motors, etc. | Electrical equipment | Other commodity production | Maskin- og transportmiddel-industri |
| 270020 | Manufacture of wires and cables | Electrical equipment | Other commodity production | Maskin- og transportmiddel-industri |
| 270030 | Manufacture of household appliances, lamps, etc. | Electrical equipment | Other commodity production | Maskin- og transportmiddel-industri |
| 280010 | Manufacture of engines, windmills and pumps | Manufacture of machinery | Other commodity production | Maskin- og transportmiddel-industri |
| 280020 | Manufacture of other machinery | Manufacture of machinery | Other commodity production | Maskin- og transportmiddel-industri |
| 290000 | Manufacture of motor vehicles and related parts | Transport equipment | Motor vehicles - purchase and repair | Maskin- og transportmiddel-industri |
| 300000 | Manufacture of ships and other transport equipment | Transport equipment | Other commodity production | Maskin- og transportmiddel-industri |
| 310000 | Manufacture of furniture | Manufacture of furniture etc. | Other commodity production | Anden fremstilling |
| 320010 | Manufacture of medical instruments, etc. | Manufacture of furniture etc. | Other commodity production | Maskin- og transportmiddel-industri |
| 320020 | Manufacture of toys and other manufacturing | Manufacture of furniture etc. | Other commodity production | Anden fremstilling |
| 330000 | Repair and installation of machinery and equipment | Manufacture of furniture etc. | Other commodity production | Maskin- og transportmiddel-industri |
| 350010 | Production and distribution of electricity | Electricity, gas, and steam | Electricity production & distribution | Energi og fjernvarmeforsyning |
| 350020 | Manufacture and distribution of gas | Electricity, gas, and steam | Gas manufacturing & distribution | Energi og fjernvarmeforsyning |
| 350030 | Steam and hot water supply | Electricity, gas, and steam | Steam and hot water supply | Energi og fjernvarmeforsyning |
| 360000 | Water collection, purification and supply | Water, sewerage, and waste | Other utilities | Energi og fjernvarmeforsyning |

| Danish Industries | English names | NR36a2 | IntERACT3 | EMMA (Danish industry name) |
|-------------------|--|-----------------------------|--|-------------------------------------|
| 370000 | Sewerage | Water, sewerage, and waste | Other utilities | Øvrige tjenesteydende erhverv |
| 383900 | Waste management and materials recovery | Water, sewerage, and waste | Other utilities | Øvrige tjenesteydende erhverv |
| 410009 | Construction of new buildings | Construction | Construction | Bygge og anlæg |
| 420000 | Civil engineering | Construction | Construction | Bygge og anlæg |
| 430003 | Professional repair and maintenance of buildings | Construction | Construction | Bygge og anlæg |
| 430004 | Own-account repair and maintenance of buildings | Construction | Construction | Bygge og anlæg |
| 450010 | Sale of motor vehicles | Whole sale and retail trade | Motor vehicles - purchase and repair | Handel mv |
| 450020 | Repair and maintenance of motor vehicles etc. | Whole sale and retail trade | Motor vehicles - purchase and repair | Handel mv |
| 460000 | Wholesale | Whole sale and retail trade | Private service industries | Handel mv |
| 470000 | Retail sale | Whole sale and retail trade | Private service industries | Handel mv |
| 490010 | Passenger rail transport, interurban | Transportation | Trains, buses, taxis | Landtransport |
| 490020 | Transport by suburban trains, buses and taxi operation, etc. | Transportation | Trains, buses, taxis | Landtransport |
| 490030 | Freight transport by road and via pipeline | Transportation | Freight by road & pipeline, water and air transport, support activities and postal | Landtransport |
| 500000 | Water transport | Transportation | Freight by road & pipeline, water and air transport, support activities and postal | Skibsfart |
| 510000 | Air transport | Transportation | Freight by road & pipeline, water and air transport, support activities and postal | Luftfart |
| 520000 | Support activities for transportation | Transportation | Freight by road & pipeline, water and air transport, support activities and postal | Landtransport |
| 530000 | Postal and courier activities | Transportation | Freight by road & pipeline, water and air transport, support activities and postal | Landtransport |
| 550000 | Hotels and similar accommodation | Accommodation, food service | Private service industries | Hotel, herunder forlystelser |
| 560000 | Restaurants | Accommodation, food service | Private service industries | Hotel, herunder forlystelser |
| 580010 | Publishing | Publishing, TV, and radio | Private service industries | Kontorer, herunder finansiel sektor |
| 580020 | Publishing of computer games and other software | Publishing, TV, and radio | Private service industries | Kontorer, herunder finansiel sektor |
| 590000 | Motion picture and television programme production, and sound recording activities | Publishing, TV, and radio | Private service industries | Kontorer, herunder finansiel sektor |

| Danish Industries | English names | NR36a2 | IntERACT3 | EMMA (Danish industry name) |
|-------------------|--|-----------------------------------|----------------------------|-------------------------------------|
| 600000 | Radio and television broadcasting | Publishing, TV, and radio | Private service industries | Kontorer, herunder finansiel sektor |
| 610000 | Telecommunications | Telecommunications | Private service industries | Kontorer, herunder finansiel sektor |
| 620000 | Information technology service activities | IT and information service | Private service industries | Kontorer, herunder finansiel sektor |
| 630000 | Information service activities | IT and information service | Private service industries | Kontorer, herunder finansiel sektor |
| 640010 | Monetary intermediation | Financial and insurance | Private service industries | Kontorer, herunder finansiel sektor |
| 640020 | Mortgage credit institutes, etc. | Financial and insurance | Private service industries | Kontorer, herunder finansiel sektor |
| 650000 | Insurance and pension funding | Financial and insurance | Private service industries | Kontorer, herunder finansiel sektor |
| 660000 | Other financial activities | Financial and insurance | Private service industries | Kontorer, herunder finansiel sektor |
| 680010 | Buying and selling of real estate | Real estate, rent. of non-res. b. | Private service industries | Øvrige tjenesteydende erhverv |
| 680023 | Renting of residential buildings | Dwellings | Dwelling | Øvrige tjenesteydende erhverv |
| 680024 | Owner-occupied dwellings | Dwellings | Dwelling | Øvrige tjenesteydende erhverv |
| 680030 | Renting of non-residential buildings | Real estate, rent. of non-res. b. | Private service industries | Øvrige tjenesteydende erhverv |
| 690010 | Legal activities | Consultancy etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 690020 | Accounting and bookkeeping activities | Consultancy etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 700000 | Business consultancy activities | Consultancy etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 710000 | Architectural and engineering activities | Consultancy etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 720001 | Scientific research and development (market) | Research and development | Private service industries | Øvrige tjenesteydende erhverv |
| 720002 | Scientific research and development (non-market) | Research and development | Public services industries | Off. adm, undervisn., sundhed |
| 730000 | Advertising and market research | Advertising and other services | Private service industries | Øvrige tjenesteydende erhverv |
| 740000 | Other technical business services | Advertising and other services | Private service industries | Øvrige tjenesteydende erhverv |
| 750000 | Veterinary activities | Advertising and other services | Private service industries | Øvrige tjenesteydende erhverv |
| 770000 | Rental and leasing activities | Travel agent, cleaning, etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 780000 | Employment activities | Travel agent, cleaning, etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 790000 | Travel agent activities | Travel agent, cleaning, etc. | Private service industries | Landtransport |
| 800000 | Security and investigation activities | Travel agent, cleaning, etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 810000 | Services to buildings, cleaning and landscape activities | Travel agent, cleaning, etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 820000 | Other business service activities | Travel agent, cleaning, etc. | Private service industries | Øvrige tjenesteydende erhverv |

| Danish Industries | English names | NR36a2 | IntERACT3 | EMMA (Danish industry name) |
|-------------------|---|-----------------------------|----------------------------|-------------------------------|
| 840010 | Public administration | Public adm., defence etc. | Public services industries | Off. adm, undervisn., sundhed |
| 840021 | Rescue service ect. (market) | Public adm., defence etc. | Private service industries | Øvrige tjenesteydende erhverv |
| 840022 | Defence, public order, security and justice activities (non-market) | Public adm., defence etc. | Public services industries | Off. adm, undervisn., sundhed |
| 850010 | Primary education | Education | Public services industries | Off. adm, undervisn., sundhed |
| 850020 | Secondary education | Education | Public services industries | Off. adm, undervisn., sundhed |
| 850030 | Higher education | Education | Public services industries | Off. adm, undervisn., sundhed |
| 850041 | Adult and other education (market) | Education | Private service industries | Øvrige tjenesteydende erhverv |
| 850042 | Adult and other education (non-market) | Education | Public services industries | Off. adm, undervisn., sundhed |
| 860010 | Hospital activities | Human health activities | Public services industries | Off. adm, undervisn., sundhed |
| 860020 | Medical and dental practice activities | Human health activities | Private service industries | Øvrige tjenesteydende erhverv |
| 870000 | Residential care activities | Residential care | Public services industries | Off. adm, undervisn., sundhed |
| 880000 | Social work activities without accommodation | Residential care | Public services industries | Off. adm, undervisn., sundhed |
| 900000 | Theatres, concerts, and arts activities | Arts and entertainment ect. | Private service industries | Hotel, herunder forlystelser |
| 910001 | Libraries, museums and other cultural activities (market) | Arts and entertainment ect. | Private service industries | Hotel, herunder forlystelser |
| 910002 | Libraries, museums and other cultural activities (non-market) | Arts and entertainment ect. | Public services industries | Off. adm, undervisn., sundhed |
| 920000 | Gambling and betting activities | Arts and entertainment ect. | Private service industries | Hotel, herunder forlystelser |
| 930011 | Sports activities (market) | Arts and entertainment ect. | Private service industries | Hotel, herunder forlystelser |
| 930012 | Sports activities (non-market) | Arts and entertainment ect. | Public services industries | Off. adm, undervisn., sundhed |
| 930020 | Amusement and recreation activities | Arts and entertainment ect. | Private service industries | Hotel, herunder forlystelser |
| 940000 | Activities of membership organizations | Other service activities | Private service industries | Øvrige tjenesteydende erhverv |
| 950000 | Repair of personal goods | Other service activities | Private service industries | Øvrige tjenesteydende erhverv |
| 960000 | Other personal service activities | Other service activities | Private service industries | Øvrige tjenesteydende erhverv |
| 970000 | Activities of households as employers of domestic personnel | Households as employers | Private service industries | Øvrige tjenesteydende erhverv |