



# OECD INTER-COUNTRY INPUT-OUTPUT DATA AND EMBODIED CO<sub>2</sub> EMISSIONS

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# OECD Inter-country input-output table

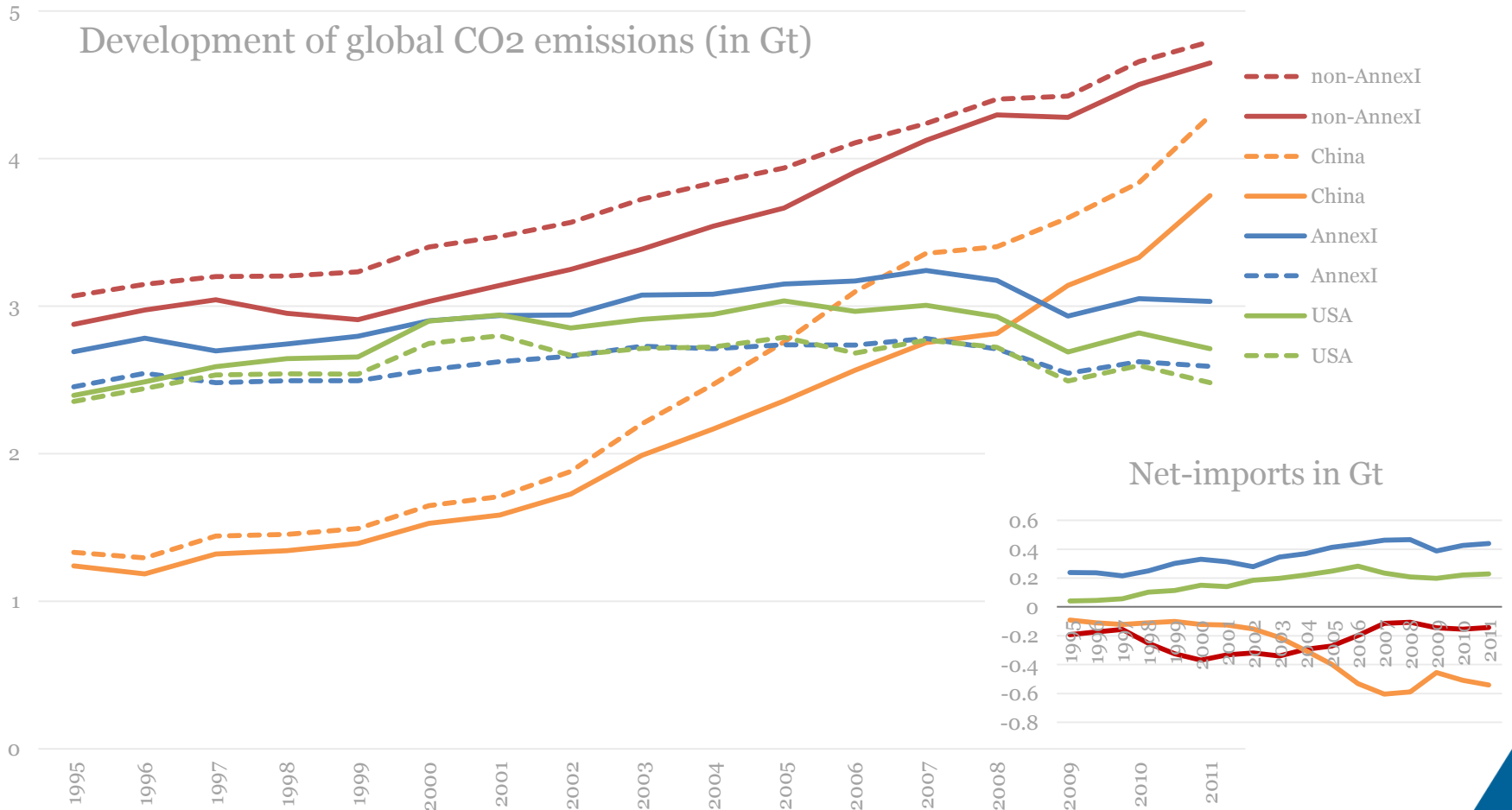
## OECD ICIO (Edition 2015)

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- 61 countries + RoW
- 34 industries (ISIC Rev. 3)
- 1995 – 2011
- Editions
  - 1<sup>st</sup> in 2011
  - 2<sup>nd</sup> in 2013
  - 3<sup>rd</sup> in 2015
  - To be updated regularly (more countries, refined list of industries)
- Features
  - Exporting / non-exporting firms
  - Non-resident purchases
- Applications
  - TiVA
  - Embodied CO<sub>2</sub> (IEA data)
  - Embodied renewable electricity (experimental)
  - Embodied Materials (?)



# Does climate policy have an effect on CO2 embodied in trade?

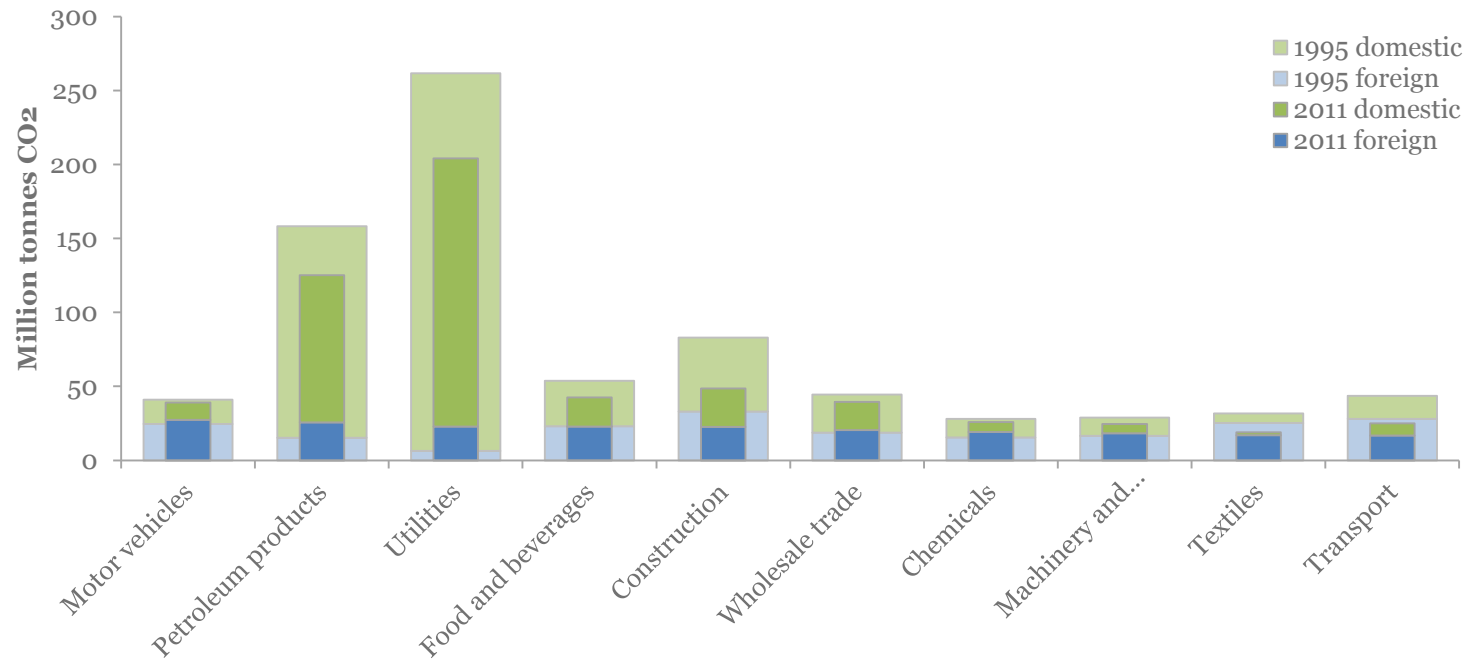




# Example: Germany

## Emissions embodied in final demand

### Emission of foreign origin – top 10 final demand industries



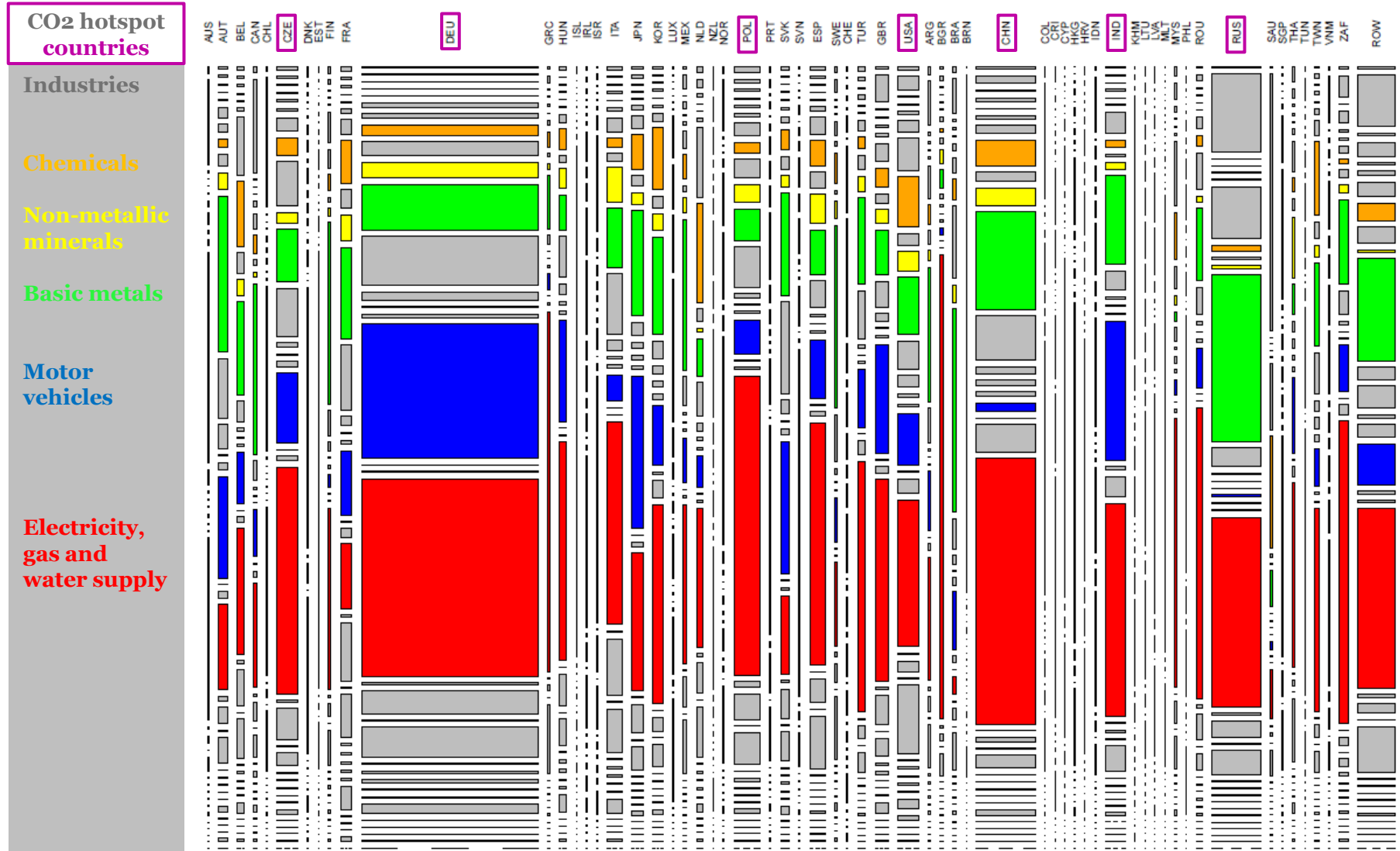
~  $\frac{2}{3}$  of total emissions of foreign origin

~  $\frac{3}{4}$  of total consumption-based emissions



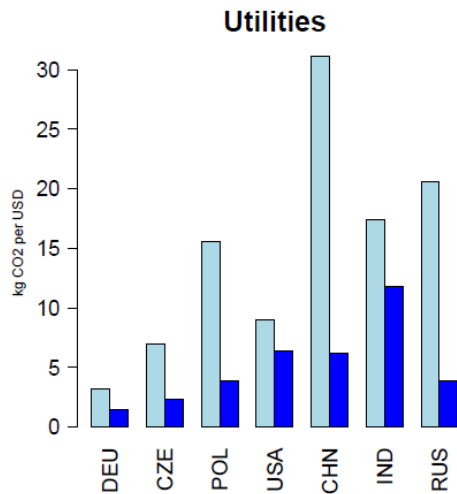
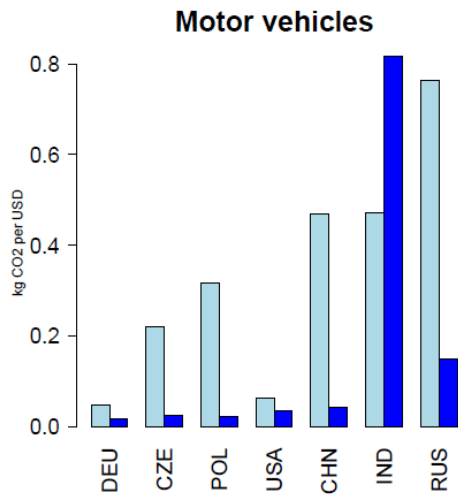
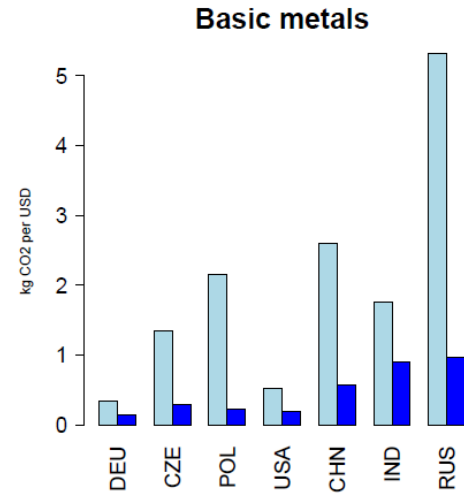
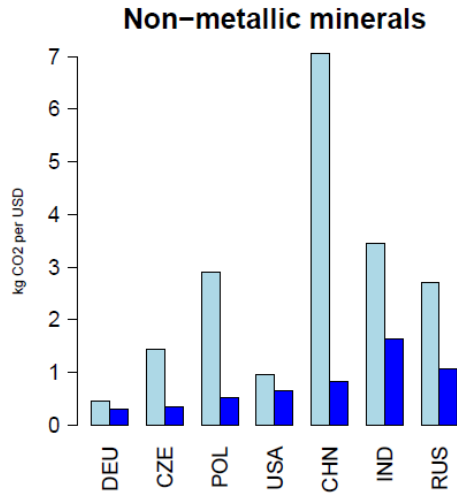
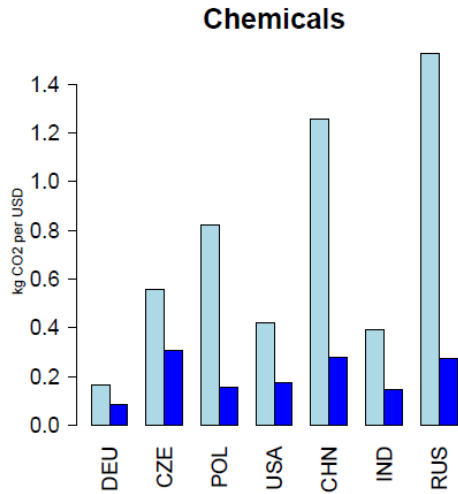
# Germany's demand for motor vehicles

## Origin of emissions by country and industry – 2011 hotspots





# CO<sub>2</sub> intensities of hotspots



1995  
2011

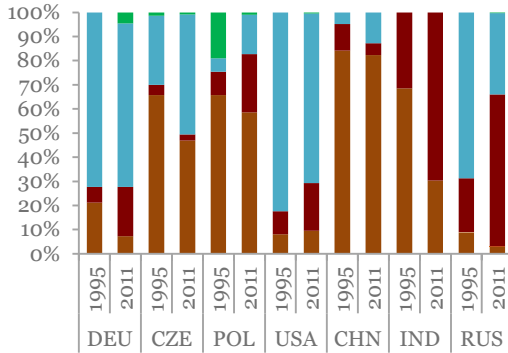
Germany's CO<sub>2</sub> intensities are smaller than everyone else's

→ Why?

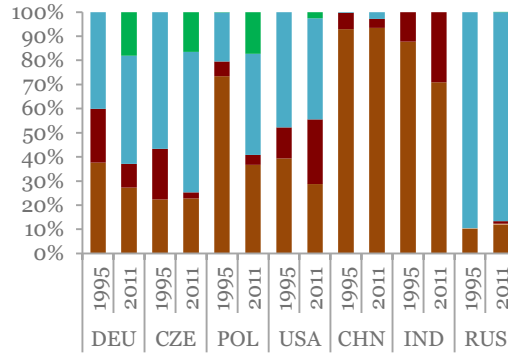


# Energy mix of hotspots

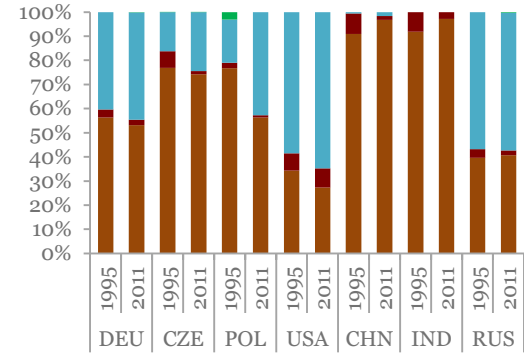
### Chemicals



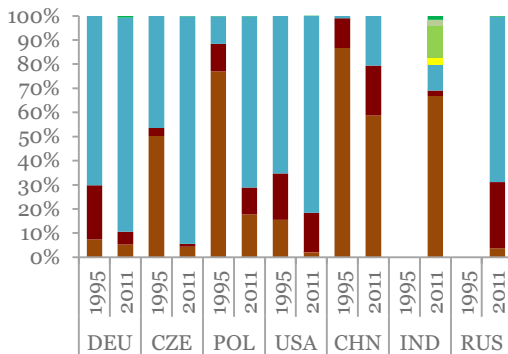
### Non-metallic minerals



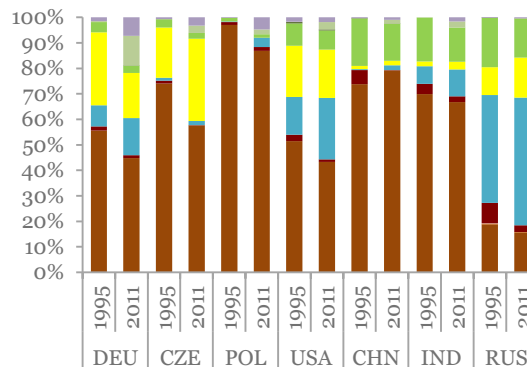
### Basic metals



### Motor vehicles



### Utilities



- Comb. Renewables
- Solar/wind/other
- Geothermal
- Hydro
- Nuclear
- Natural gas
- Oil
- Crude/NGL/feedst
- Peat
- Coal

Germany's energy mix has lowest share of CO2 intensive energy carriers

Again: Why?  
→ Policies? Technology?



# Germany and its emission hotspots

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## Policy influence

- Energy/climate policies
  - Successful voluntary agreements with industry since 1997 (Chemicals, various non-metallic minerals, NF metals, iron and steel, gas, oil, electricity, CHP )
  - Renewable Energies Act (EEG)
- R&D policies
  - Environmental innovation programme

## Technology influence

- Less CO<sub>2</sub> intensive energy mix
- Cleaner production processes?
- But: Production of different products in same industries in different countries?

**Using consumption-based CO<sub>2</sub> accounts for...**

**Policy transfer?**

**Technology transfer?**





# THANK YOU!

Contact

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More information

**<http://oe.cd/io-co2>**



# ICIO industry classification ISIC Rev 3

Code	LabelE	Short labels
TOTAL	TOTAL	Total
01T05	Agriculture, hunting, forestry and fishing	Agriculture
10T14	Mining and quarrying	Mining
15T16	Food products, beverages and tobacco	Food products
17T19	Textiles, textile products, leather and footwear	Textiles & apparel
20	Wood and products of wood and cork	Wood
21T22	Pulp, paper, paper products, printing and publishing	Paper, print, publish
23	Coke, refined petroleum products and nuclear fuel	Coke, petroleum
24	Chemicals and chemical products	Chemicals
25	Rubber and plastics products	Rubber & plastics
26	Other non-metallic mineral products	Non-metallic minerals
27	Basic metals	Basic metals
28	Fabricated metal products	Fabricated metals
29	Machinery and equipment, nec	Machinery
30,32,33	Computer, Electronic and optical equipment	ICT & electronics
31	Electrical machinery and apparatus, nec	Electrical machinery
34	Motor vehicles, trailers and semi-trailers	Motor vehicles
35	Other transport equipment	Other transport
36T37	Manufacturing nec; recycling	Other manufacturing
40T41	Electricity, gas and water supply	Utilities
45	Construction	Construction
50T52	Wholesale and retail trade; repairs	Wholesale & retail
55	Hotels and restaurants	Hotels & restaurants
60T63	Transport and storage	Transport & storage
64	Post and telecommunications	Post & telecoms
65T67	Financial intermediation	Finance & insurance
70	Real estate activities	Real estate
71	Renting of machinery and equipment	Renting of machinery
72	Computer and related activities	IT services
73, 74	R&D and other business activities	Other business services
75	Public admin. and defence; compulsory social security	Public admin
80	Education	Education
85	Health and social work	Health
90T93	Other community, social and personal services	Other services
95	Private households with employed persons	Private households



# ICIO country coverage

1 AUS	Australia	22 NLD	Netherlands	43 HKG	Hong Kong SAR
2 AUT	Austria	23 NZL	New Zealand	44 HRV	Croatia
3 BEL	BELGIUM	24 NOR	Norway	45 IDN	Indonesia
4 CAN	Canada	25 POL	Poland	46 IND	India
5 CHL	Chile	26 PRT	Portugal	47 KHM	Cambodia
6 CZE	Czech Republic	27 SVK	Slovak Republic	48 LTU	Lithuania
7 DNK	Denmark	28 SVN	Slovenia	49 LVA	Latvia
8 EST	Estonia	29 ESP	Spain	50 MLT	Malta
9 FIN	Finland	30 SWE	Sweden	51 MYS	Malaysia
10 FRA	France	31 CHE	Switzerland	52 PHL	Philippines
11 DEU	Germany	32 TUR	Turkey	53 ROU	Romania
12 GRC	Greece	33 GBR	United Kingdom	54 RUS	Russian Federation
13 HUN	Hungary	34 USA	United States	55 SAU	Saudi Arabia
14 ISL	Iceland	35 ARG	Argentina	56 SGP	Singapore
15 IRL	Ireland	36 BGR	Bulgaria	57 THA	Thailand
16 ISR	Israel	37 BRA	Brazil	58 TUN	Tunisia
17 ITA	Italy	38 BRN	Brunei Darussalam	59 TWN	Chinese Taipei
18 JPN	Japan	39 CHN	China	60 VNM	Viet Nam
19 KOR	Korea	40 COL	Colombia	61 ZAF	South Africa
20 LUX	Luxembourg	41 CRI	Costa Rica	62 RoW	Rest of the world
21 MEX	Mexico	42 CYP	Cyprus		