



Embodied employment in exports and value added content of exports and imports at EU28 level using of input-output techniques

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Statistical facts of 2014 for EU



28,3 million employed persons in the EU were supported by exports to the rest of the world
= 12,5% of total EU employment

1552 billion€ of value added produced in EU due to exports
= 12,5% of total EU value added

Methodological framework

- ✓ **EU28 input-output table**
- ✓ **Leontief quantity model**
 - ✓ <http://ec.europa.eu/eurostat/web/esa-supply-use-input-tables/data/database>
- ✓ **Eurostat website, tables disseminated since 2011**
- ✓ **ESA2010 methodology**
- ✓ **Years 2005 to 2014 for European tables**
- ✓ **National input**

Input to EU Input-Output tables



- ✓ **28 National tables**
 - ✓ ~~Input-Output tables~~
 - ✓ Supply and use tables
 - ✓ Basic prices
- ✓ **Basic prices**
 - = Purchasers' prices
 - Non-deductible VAT
 - Other net taxes on products
 - Trade and transport margins
- ✓ **European transmission program**

Data availability

Regulation (EU) No 549/2013

Annually

- Supply table at basic prices with transformation to purchasers' prices
- Annual Use table at purchasers' prices

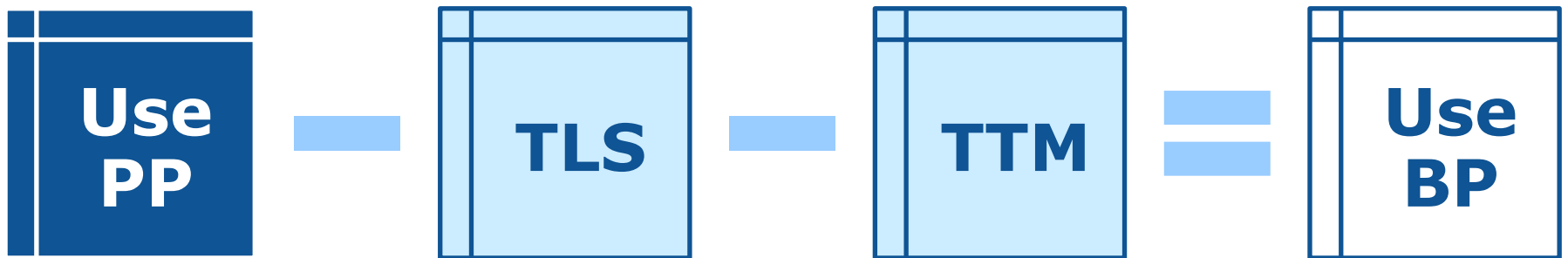
5-yearly

- Symmetric input-output tables, total, domestic production, imports
- Use table at basic prices, total, domestic, imports
- Valuation matrices: taxes less subsidies, trade and transport margins

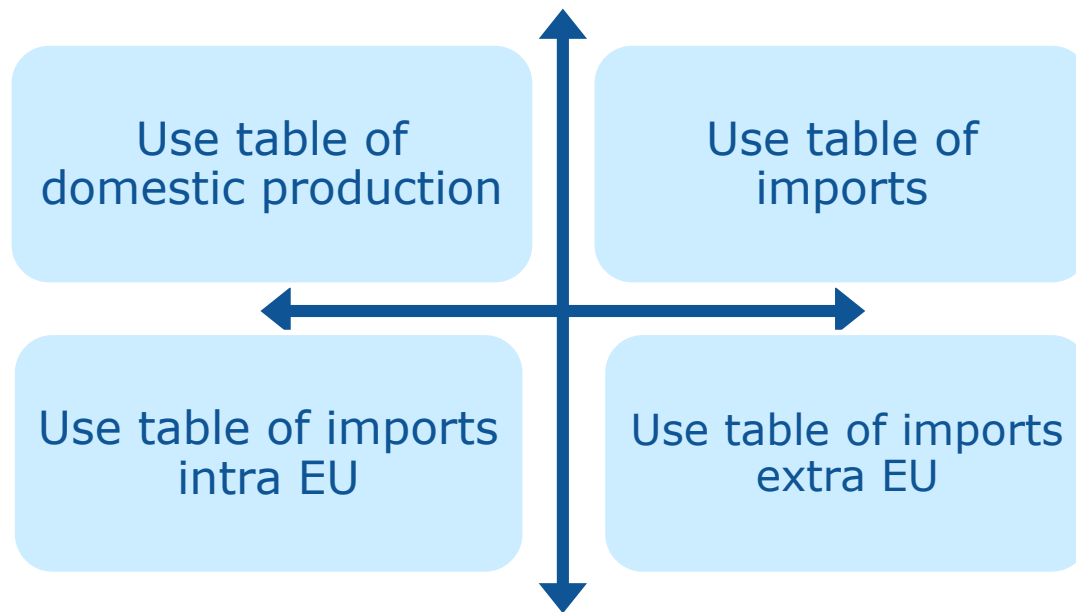
Voluntary transmission

Good practices for estimation

Compilation at country level



Country use table at basic prices



Total import by product (supply table)

Trade statistics for goods and for services

➤ **Share of imports intra EU commodity-wise**

Proportionality assumption

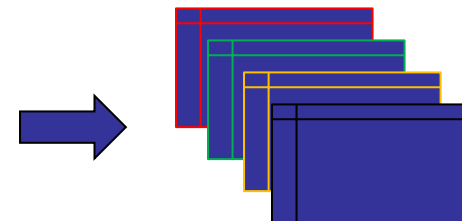
Consolidation to European level



$$\sum_{n=1}^{28} \textit{Supply}$$



$$\sum_{n=1}^{28} \textit{Use}$$



Consolidation to European level (2)

- 1:** exports to intra-EU countries
- 2:** exports to extra-EU countries
- 3:** transit trade – imported from intra-EU, exported to intra-EU
- 4:** transit trade – imported from intra-EU, exported to extra-EU
- 5:** transit trade – imported from extra-EU, exported to intra-EU
- 6:** transit trade – imported from extra-EU, exported to extra-EU

		exports	
domestic use	dom. final dem.	1	2
import use intra EU	imp. final dem. intra EU	3	4
import use extra EU	imp. final dem. extra EU	5	6

Consolidation to European level (3)

domestic		1	
import extra EU			

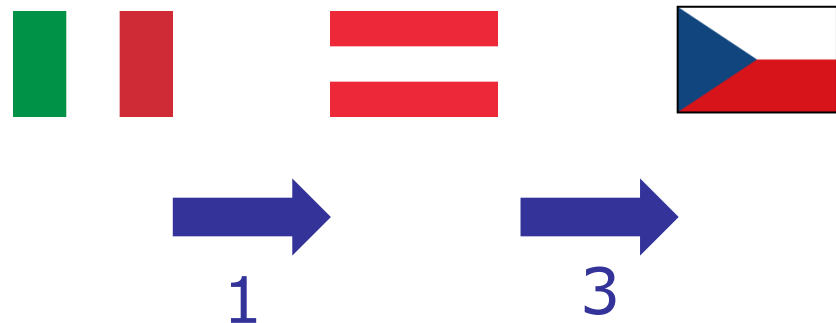
Main problem of the consolidation steps is to balance the intra-EU import table with the information on intra-EU exports in column 1

Each trade flow is reported by two countries which two values usually do not match (mirror trade statistics).

Consolidation to European level (4)

Step 1: Adjust for taxes less subsidies on intra-EU imports

Step 2: Correct trade flows imported from intra-EU, re-exported to intra-EU (column 3)



Consolidation to European level (5)



Step 3: Correct for trade flows imported from within the EU and re-exported outside the EU

Step 4: Correct for trade flows imported from outside the EU and re-exported within the EU

Consolidation to European level (6)

Step 5: Rescale all intra-EU imports such that their total equals that of the intra-EU exports

Factor of circa 10%

Step 6: Balancing the intra-EU import table with the intra-EU export column using GRAS

Final step: benchmark to macro data at European level (Value added, Taxes less subsidies, Final consumption, consumption of fixed capital)

Consolidated environmental tables

- ✓ Adding environmental extensions (EE) to the Supply and Use Tables (SUT);

	Domestic products	Imported products	Industries	Final demand	Total
Domestic products			U_d	Y_d	q
Imported products			U_m	Y_m	m
Industries	V				g
Value added			W		w
Total	q^T	m^T	g^T	y^T	
Environm. extension			R	H	

R Environmental extensions - industries (env. ext. by industries)

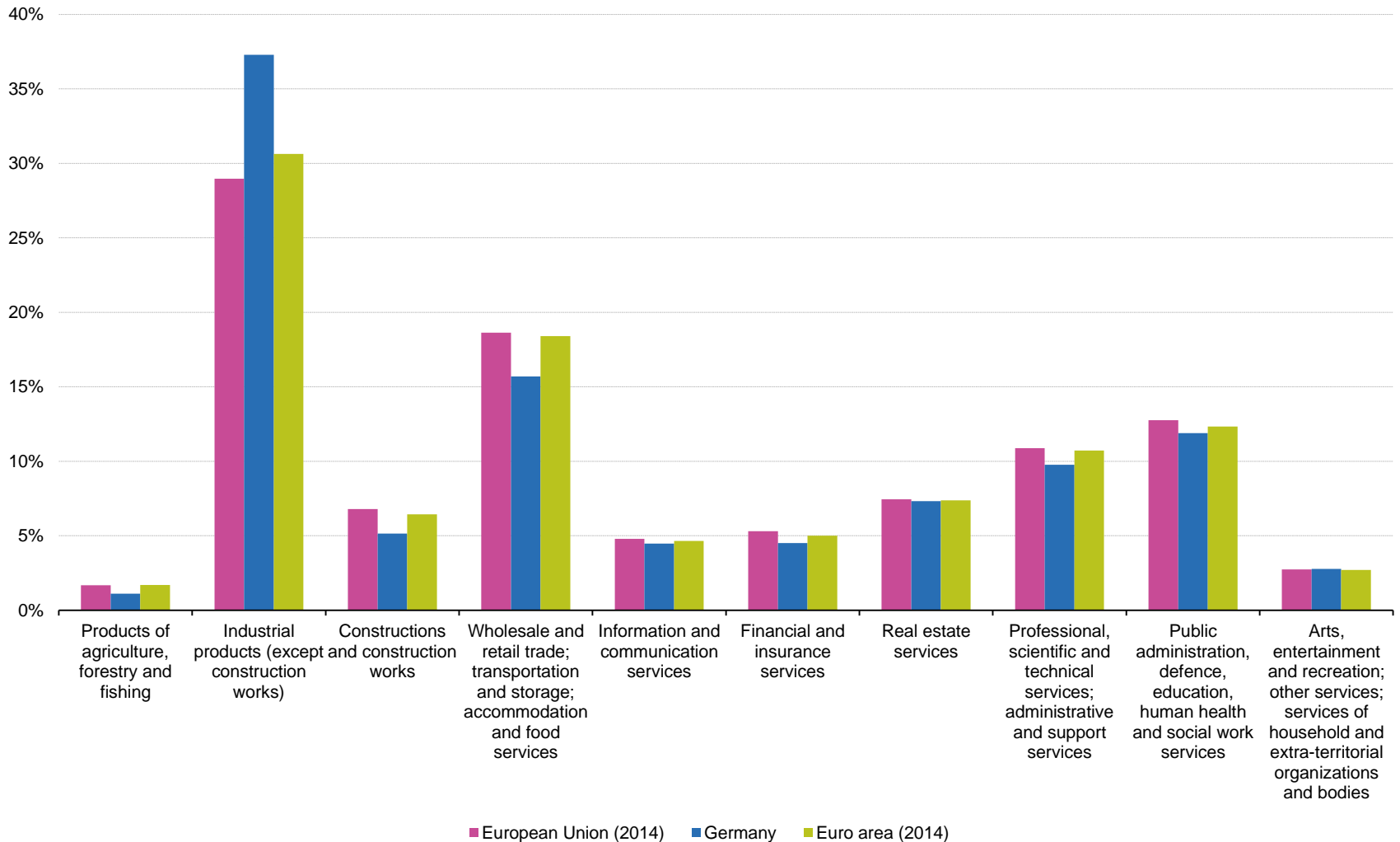
H Environmental extensions - direct of final demand categories (env. ext. by final demand category)

Consolidated IO tables

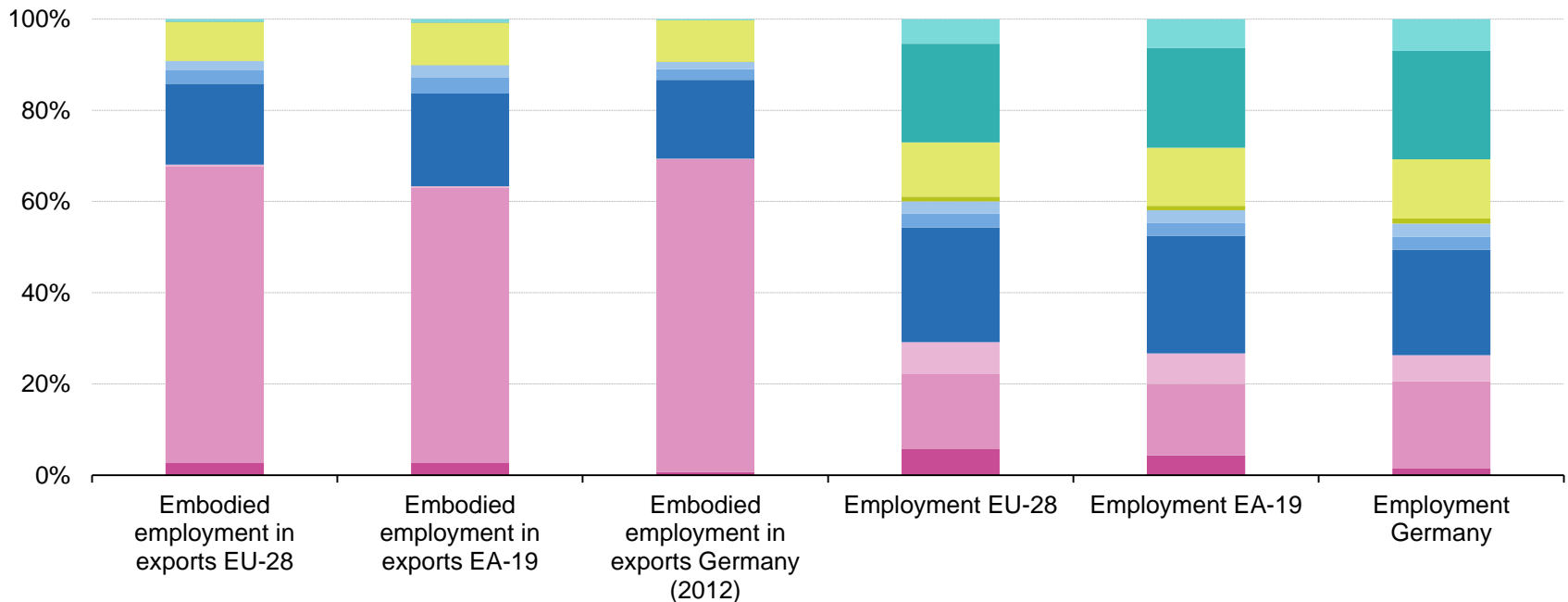
- Transformation matrix is calculated according to market shares.

Use of the industry technology assumption to give product-by-product tables (Model B, Eurostat 2008 Manual)

Sectoral structure of output



Embodied employment in exports extra EU



- Products of agriculture, forestry and fishing
- Constructions and construction works
- Information and communication services
- Real estate services
- Administration and other public services

- Industrial products (except construction works)
- Trade, transportation, accommodation and food services
- Financial and insurance services
- Professional and support services
- Arts, entertainment and other services

Further data

- **Time series of EU consolidated tables 2005 – 2014**
- **European inter-country supply, use and input output table**
- **Development of a quality adjusted labour productivity index in the European Union**

Embodied employment in exports EU28

