



Development of a quality adjusted labour productivity index in the European Union

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QALI in European Union

- Outline
 - **Two projects: QALI and Consolidated European SUIOTs**
 - **Methodology of QALI**
 - **Data sources for QALI**
 - **Consolidation of 28 national Supply, Use Tables**
 - **Some results**

Two projects: productivity indicators and EU-SUIOT

1. Productivity indicators:

- collaboration with JRC-IPTS
- Aim: regular publication of coherent set of competitiveness indicators across MS and industries
 - Quality Adjusted Labour Index
 - Capital productivity indicators
 - Time series 2002 - 2014
- Integrated into European Wheel of Competitiveness: statistical framework for competitiveness
- Project duration: 2014 - 2016

Two projects: productivity indicators and EU-SUIOT

2. European consolidated Supply and Use Tables

- ✓ Coherent EU and euro area SUTs and IOTs : analytical purposes; modelisation
- ✓ Time series 2005-2014
- ✓ Key input for environmental accounts:
 - Adding environmental extensions (EE) to the Supply and Use Tables (SUT);
 - Creating Environmentally Extended symmetric Input Output table (EE IOT)
- ✓ First dissemination 2011

QALI, methodology

- ✓ **Törnqvist** index: weights are labour income shares

$$QALI_{t-1}^t = \prod_i \left(\frac{h_{i,t}}{h_{i,t-1}} \right)^{\left(\frac{w_{i,t} + w_{i,t-1}}{2} \right)}, w_{i,t} = \frac{e_{i,t}}{\sum_i e_{i,t}}$$

- ✓ National Accounts aggregates benchmarked hours worked and compensation of employees

QALI methodology (2)

✓ Workers groups

- **Age: 3 categories**

- 15-29 years old; 30-49 years old; 50 and more

- **Skill (using proxy of the highest educational level attained): 3 categories**

- Low (ISCED97 0-2, <lower secondary); Medium (ISCED97 3-4, upper and post secondary); High (ISCED97 5-6, tertiary)

- **Industry breakdown: 10 or 21**

- ~~**Professional status**~~ (employee, self-employed)

- ~~**Gender**~~

QALI data sources (1)

LFS, Labour Force Survey

- 2002 to 2014, annual data
- Reliability limits
- Country or residence /country of work (NA)
- Possible revisions due to census updates
- Gaps: max 5.6% skill/A21 for hours worked; QALI: up to 12.8%
- Hours % by Age and skill and industry
- Conversion method for activity classification change

QALI data sources (2)

SES, Structural Earnings Survey

- 4 yearly survey: 2002, 2006, 2010
- Confidentiality
- Imputations (up to 4.2% for skill and A21 for QALI)
- interpolation procedure for each country's earnings, year, industry and group (age/skill)
- Earnings % by skill, age and industry
- Conversions for activity classification

EU SILC Statistics on Income and Living Conditions

- Annual earnings for activity A, Agriculture
- Unreliability, confidential data
- Gaps: up to 19% for earnings data (A10 and skill) – 56% of QALI

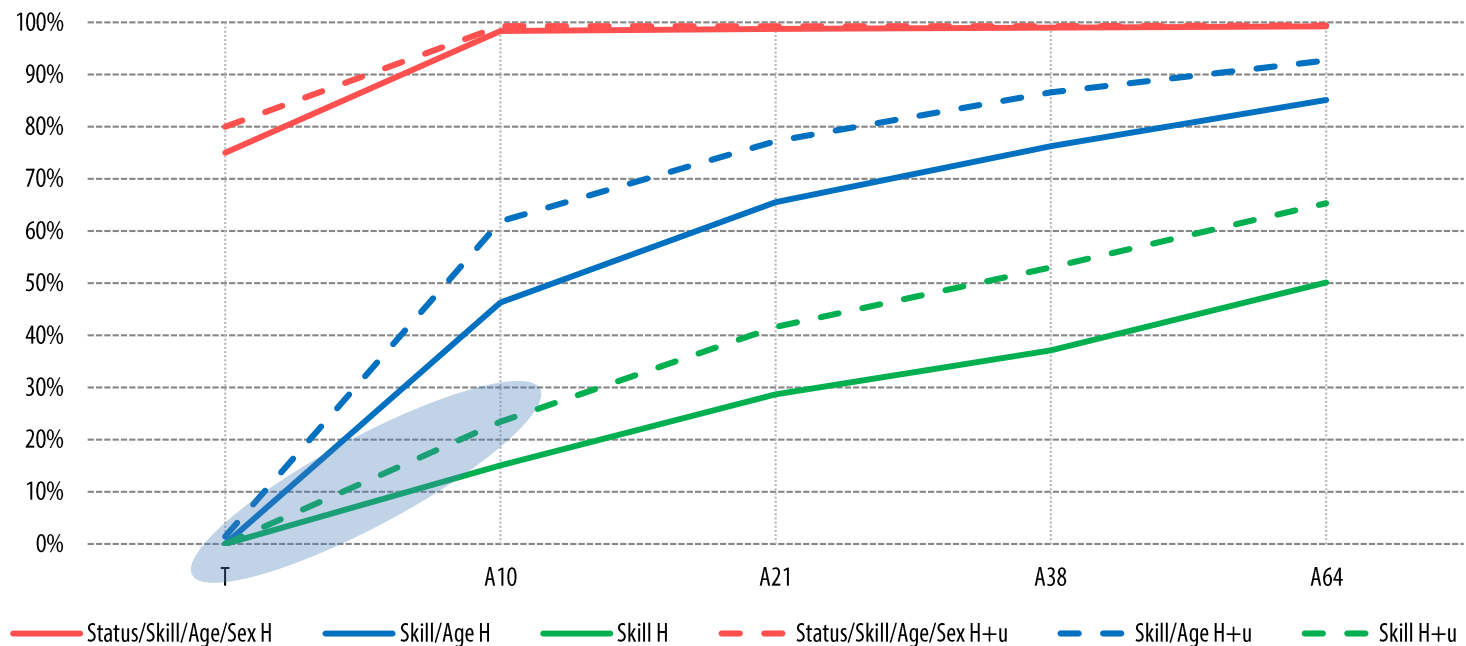
QALI data sources (3)

National Accounts Data as benchmark

- Hours worked by industry breakdown
Imputation for consistency
Top down and bottom-up -> full set
- Compensation of employees
- **LFS and SES data's contribution to split up totals from National Accounts**

Data source LFS flags

Share of very unreliable (H) and unreliable (u) QALI results for each aggregation level and (single/combined) categories of quality based on LFS microdata



Dissemination constraints

	Skill/Age		Skill		Age	
	MS	EU/EA	MS	EU/EA	MS	EU/EA
TOT	√	√	√	√	√	√
A*10	X	√	√	√	√	√
A*21	X	√	6 MS	√	12 MS	√

Table 5. Targeted QALI results
 6MS: FR, DE, (NL), ES, IT, UK
 12MS: 6 MS + AT, BE, CZ, PL, (SI), SE

	LFS	SILC	SES
Vu	ID1	ID4	
U	ID2	ID5	
C	ID3	ID6	ID7
n.a.	ID9		ID8
HW	ID10/ID12		
D1	ID11/ID13		

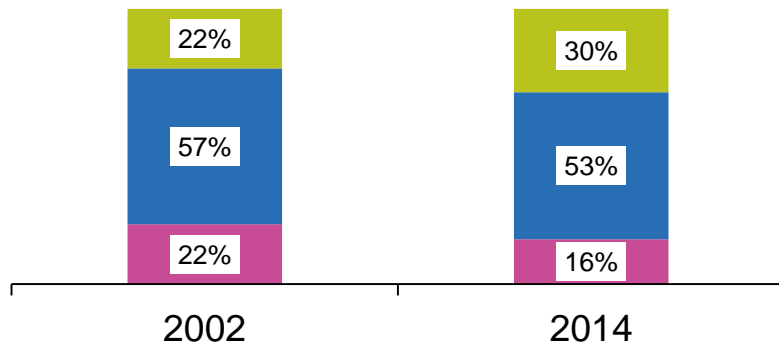


	QALI
Vu	ID1
U	ID2, ID9, ID10, ID12
C	ID5, ID7 or LFS freq <3
n.a.	ID9, ID10, ID12, ID6, ID8, ID11, ID13

Results for euro area

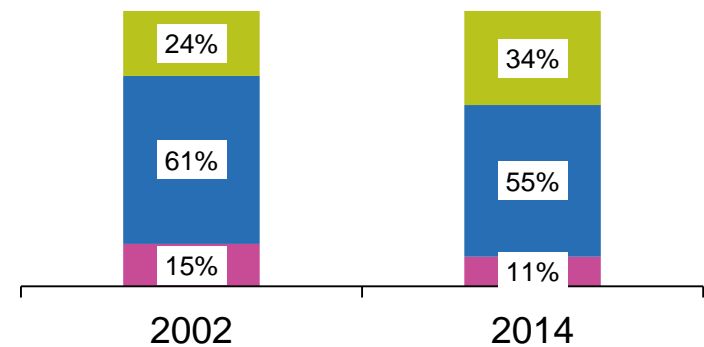
Hours worked

■ 15-29 years ■ 30-49 years ■ 50+ years

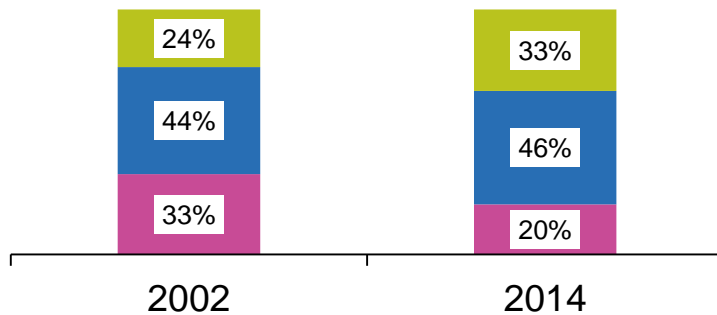


Earnings

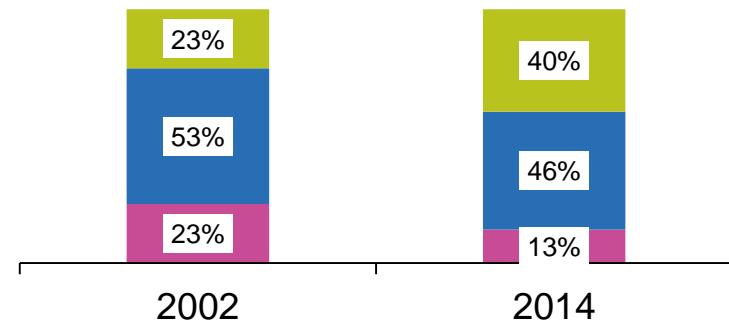
■ 15-29 years ■ 30-49 years ■ 50+ years



■ Low ■ Medium ■ High



■ Low ■ Medium ■ High



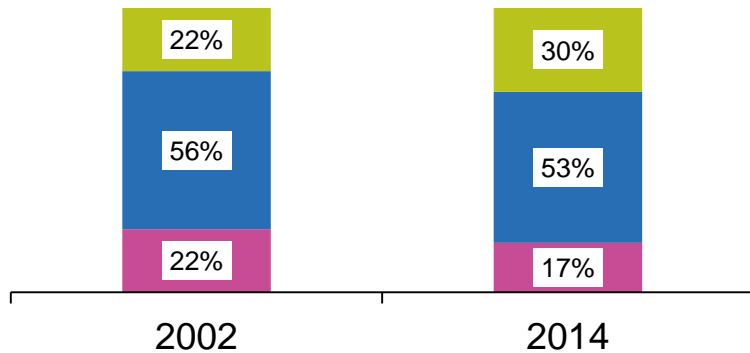


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Results for European Union

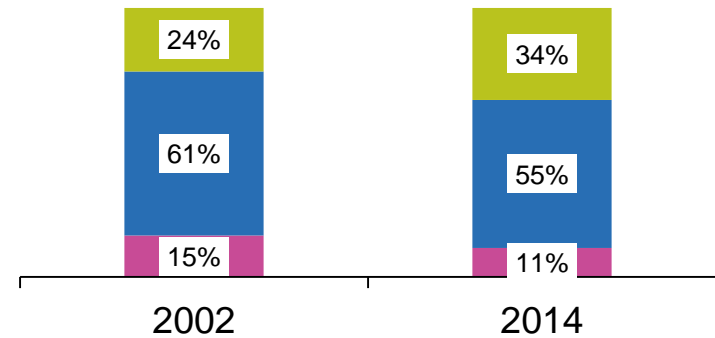
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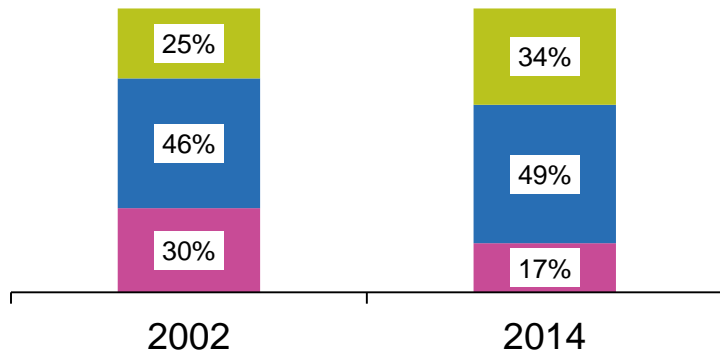


Earnings

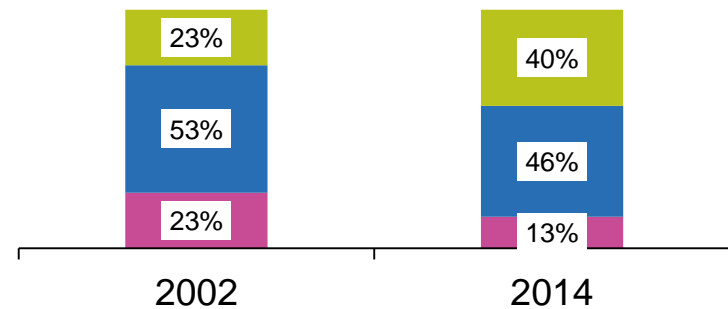
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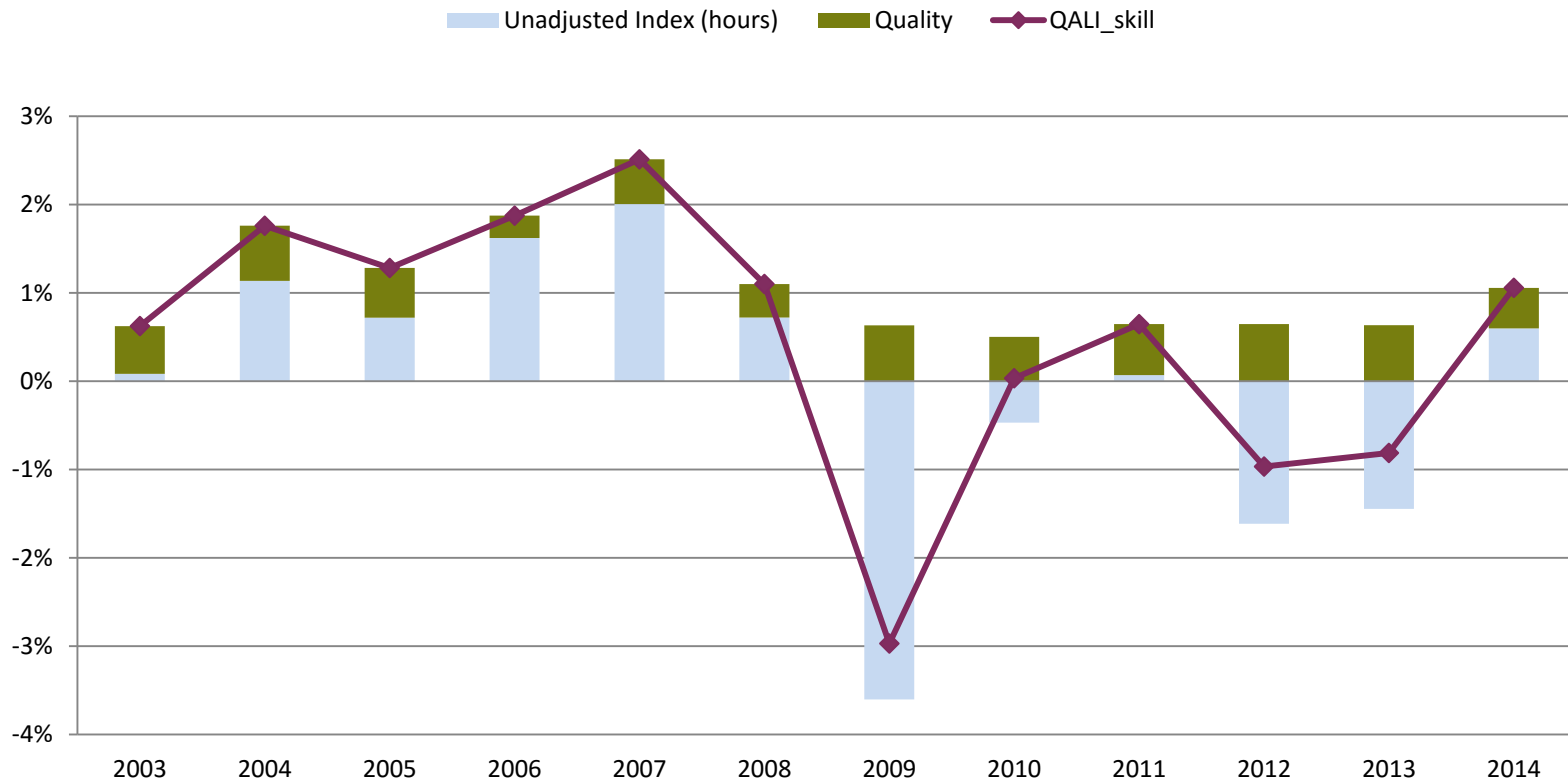
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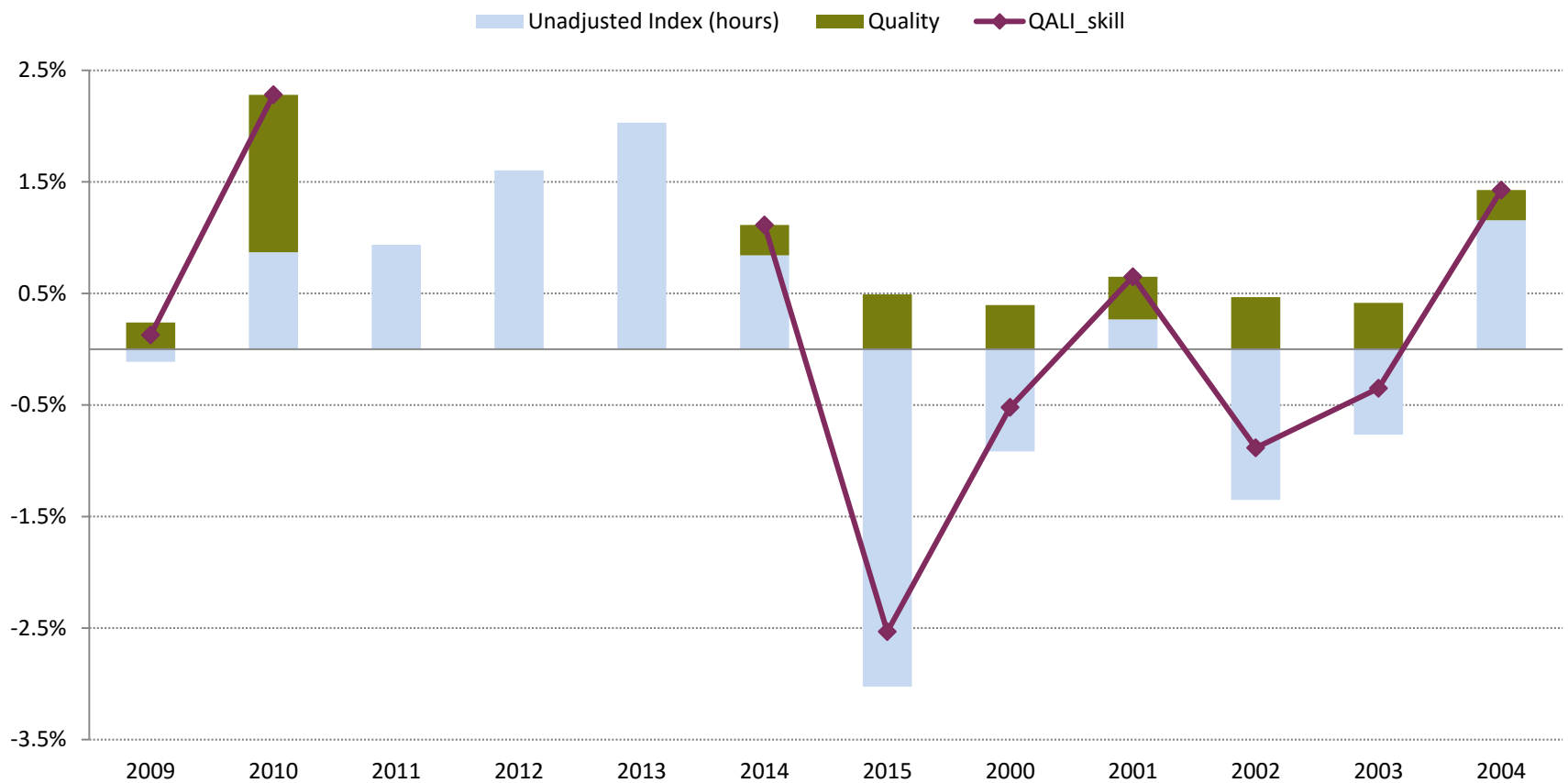
■ Low ■ Medium ■ High



Results, QALI Euro area



Results, QALI European Union

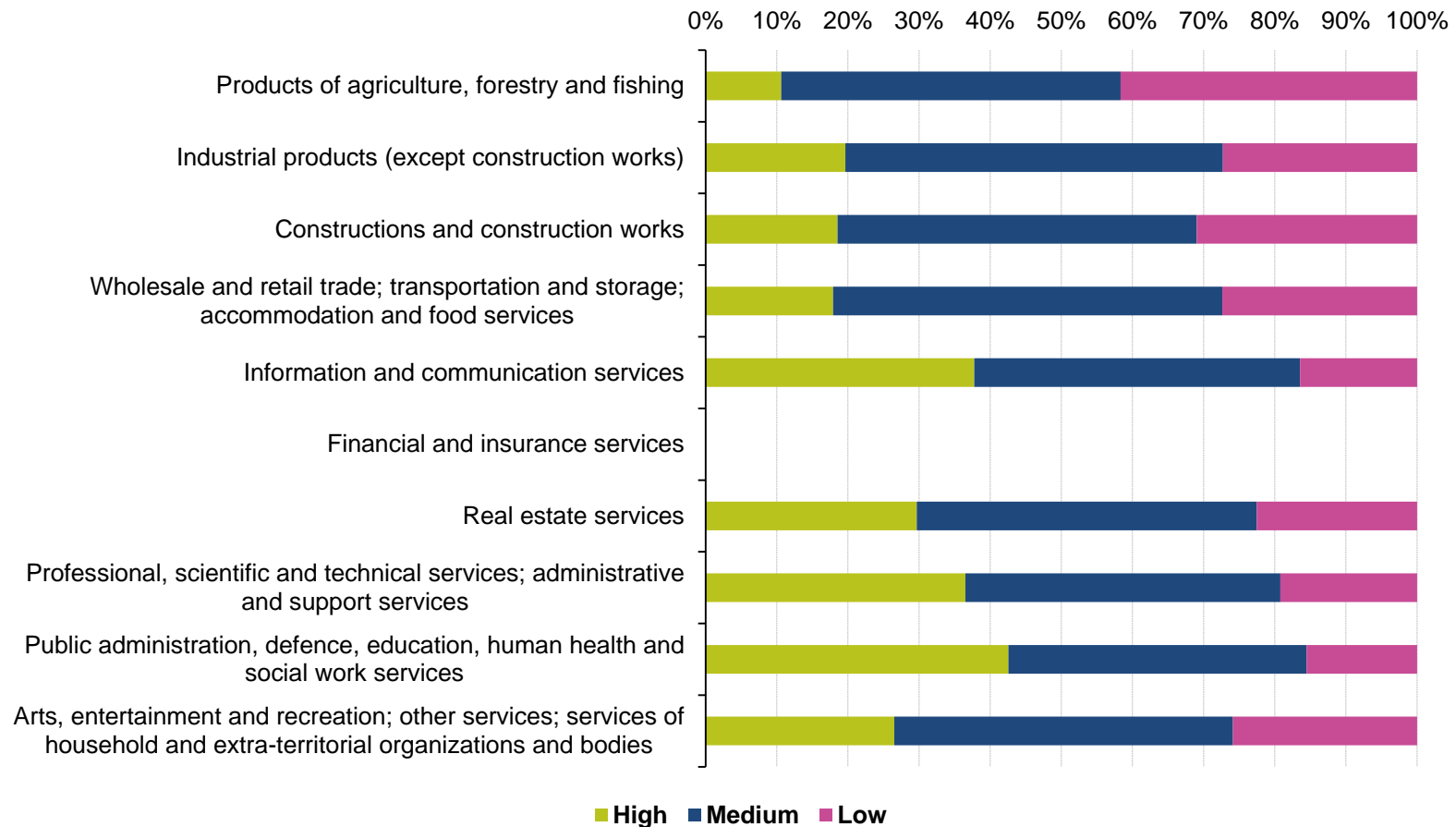


European consolidated SUIOTs

- steps to treat intra-EU trade flows to get the consolidated EU28 Use table.
- Benchmark to macro-aggregates totals in line with GDP
- Embodied employment in exports

Embodied employment in exports

EU28





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Thank you for your attention