Conceptualisation of Supra-National Value Sets for the EQ-5D

Agata Łaszewska[1], Ayesha Sajjad[2], **Judit Simon**[1], Jan van Busschbach[3],

Leona Hakkaart-van Roijen[2]

[1] Department of Health Economics, Center for Public Health, Medical University of Vienna, Austria

[2] Erasmus School of Health Policy & Management Health Technology Assessment, Erasmus University Rotterdam, The Netherlands

[3] Section Medical Psychology & Psychotherapy, Department of Psychiatry, Erasmus MC, Rotterdam, The Netherlands

Background

- Various value sets produce different estimates of EQ-5D index scores and, ultimately, may impact the interpretation of the study results

- Applying different national EQ-5D value sets to the same study population may result in substantially different incremental QALY estimates

- For countries that do not have national value sets, it is recommended to use already developed value sets from countries that are similar and, in theory, are likely to have matching health preferences
  - E.g. based on geographical proximity
  - **The EuroQol guideline**: if a standard EQ-5D-3L/5L value set is not available for the country, an option may be to select an EQ-5D-3L/5L value set for a country/region that most closely approximates this country (EuroQol Research Foundation 2019)

Based on what criteria?

The aim of PECUNIA

- Developing harmonised methods, tools and information for cost and outcome assessment for economic evaluations in Europe.

- **The aim of this WP5 Outcomes sub-study:** to develop a conceptual framework for the development of regional/supra-national value sets and derive regions/clusters of countries that are likely to share similar characteristics relevant for preference-based health state valuations.
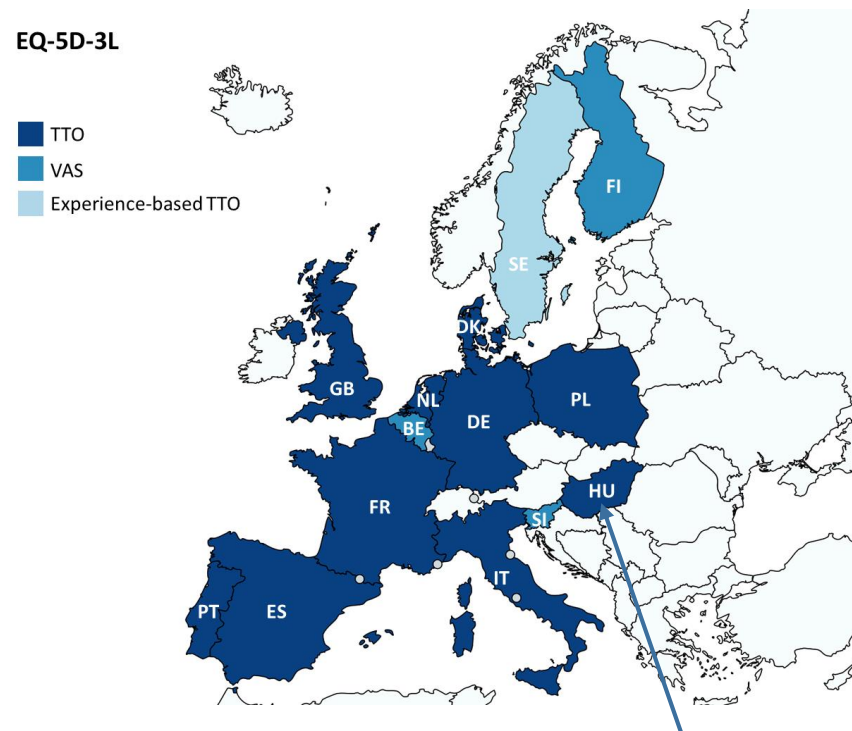
Value sets across Europe
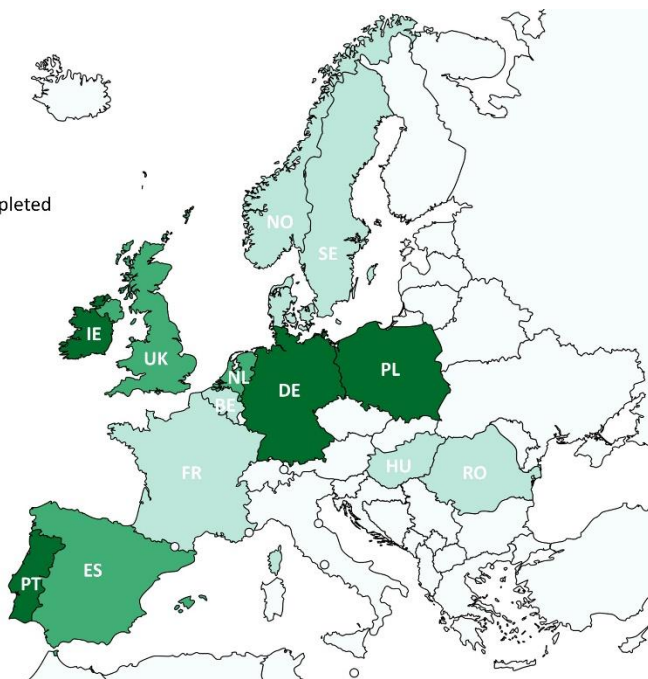## EQ-5D-3L

2019
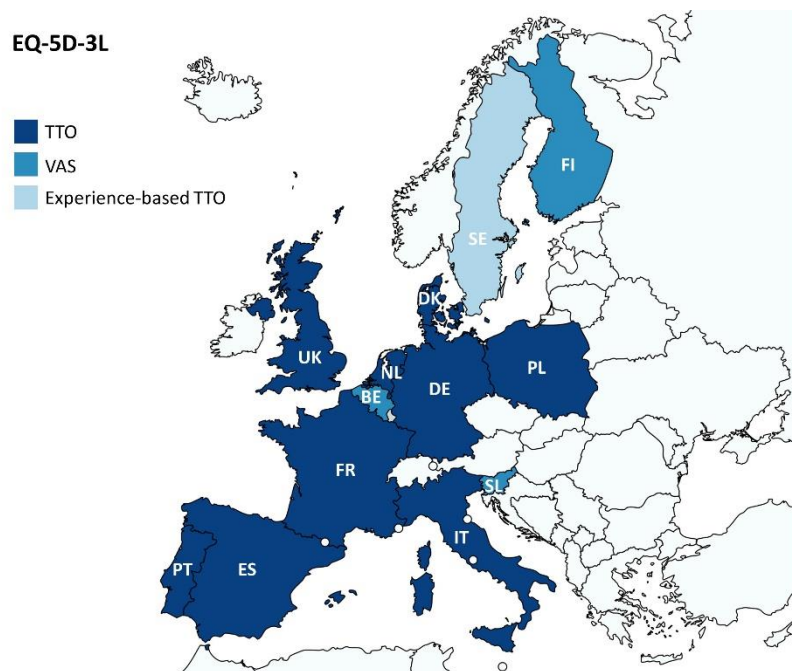
2020

Value sets across Europe
EQ-5D-5L

2019

EQ-5D-5L

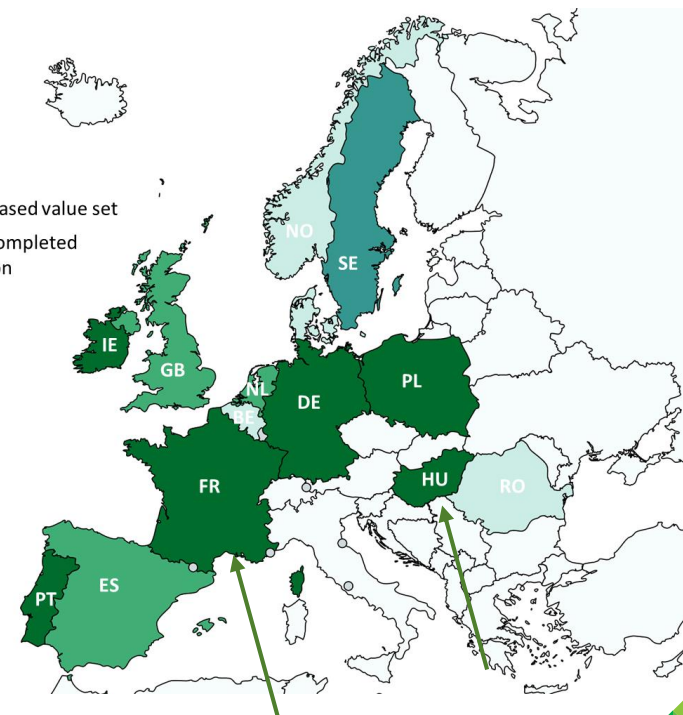- ■ EQ-VT v2.0
- ■ EQ-VT v1.0
- ☐ Ongoing or completed data collection
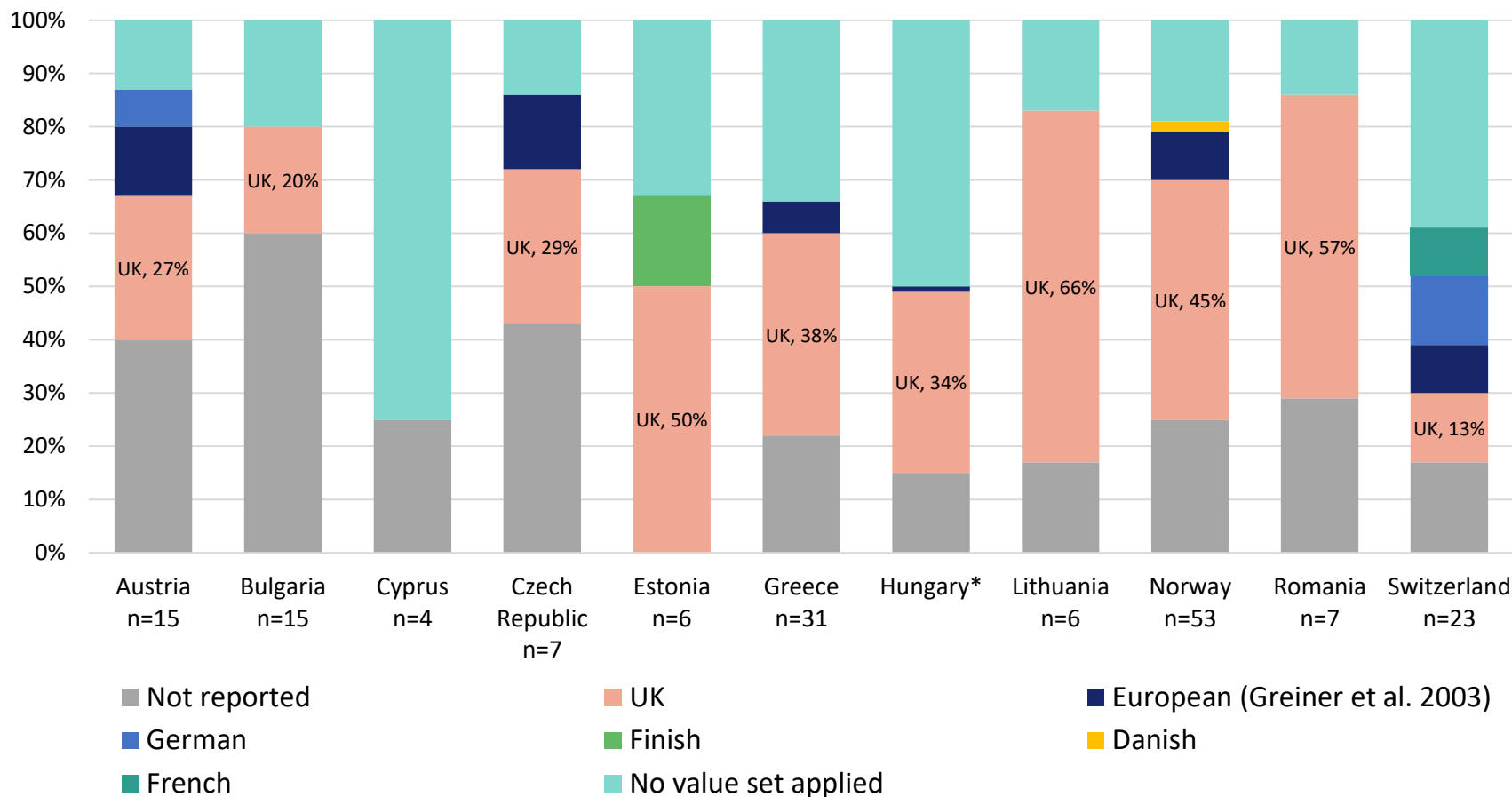
2020

EQ-5D-5L

- ■ EQ-VT v2.0
- ■ EQ-VT v1.0
- ■ Experience-based value set
- ☐ Ongoing or completed data collection

PECUNIA

Use of value sets in European countries without a national one (EQ-5D-3L & -5L)

Source: Own research (November 2019); both 3L and 5L versions of the EQ-5D are included
*Rencz et al. 2016

Our work

Assumptions

There is a set of variables related to personal characteristics that influence how people value EQ-5D health states in valuation studies.

Countries grouped into a cluster on the basis of cultural/country characteristics are likely to have matching health preferences with respect to the valuation of EQ-5D health states.

Our work

To identify variables relevant in EQ-5D health state valuations in order to understand which country characteristics might be relevant for creating groups of countries for the regional EQ-5D value sets.

To use these variables to group European countries; countries most frequently grouped together formed the basis of clusters where national value set can be used for supra-national value set estimation.

Our work

PECUNIA

There is a set of variables related to personal characteristics that influence how people value EQ-5D health states in valuation studies.

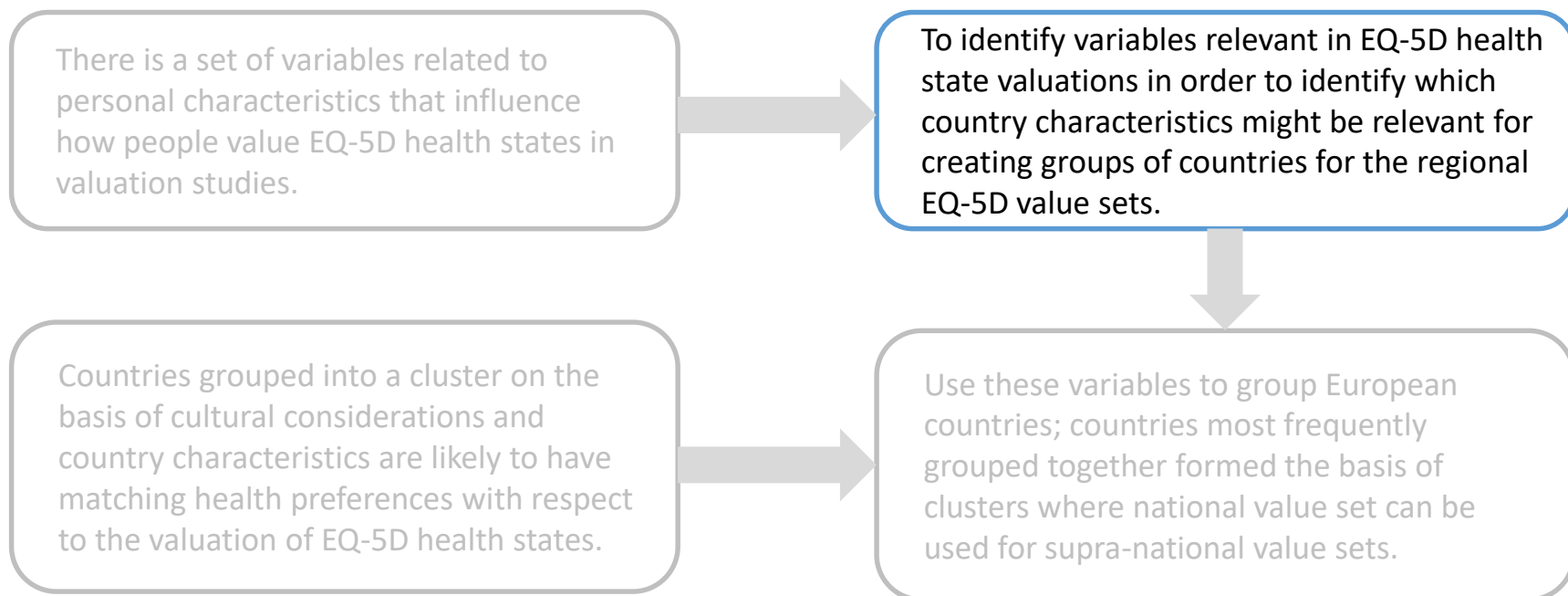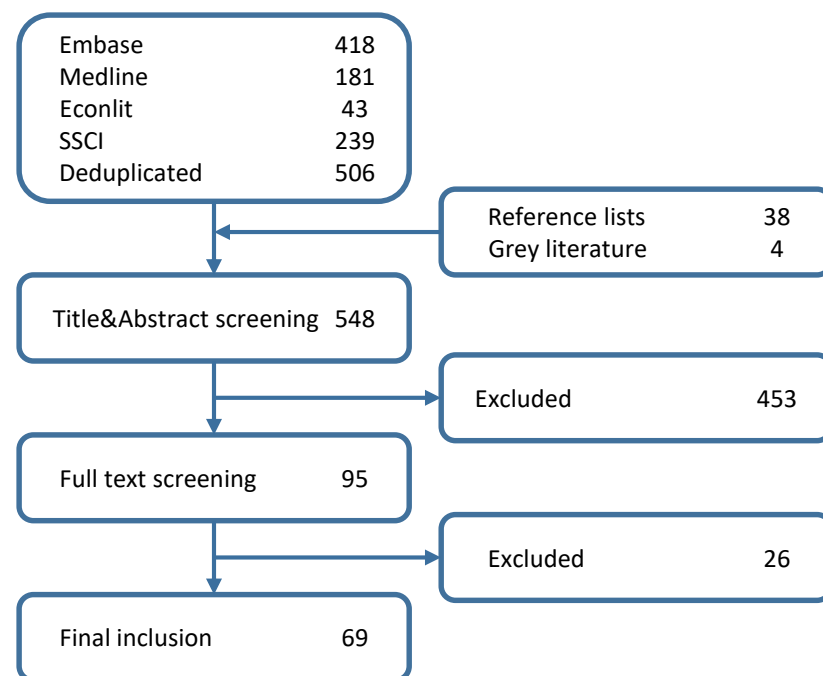To identify variables relevant in EQ-5D health state valuations in order to identify which country characteristics might be relevant for creating groups of countries for the regional EQ-5D value sets.

Countries grouped into a cluster on the basis of cultural considerations and country characteristics are likely to have matching health preferences with respect to the valuation of EQ-5D health states.

Use these variables to group European countries; countries most frequently grouped together formed the basis of clusters where national value set can be used for supra-national value sets.
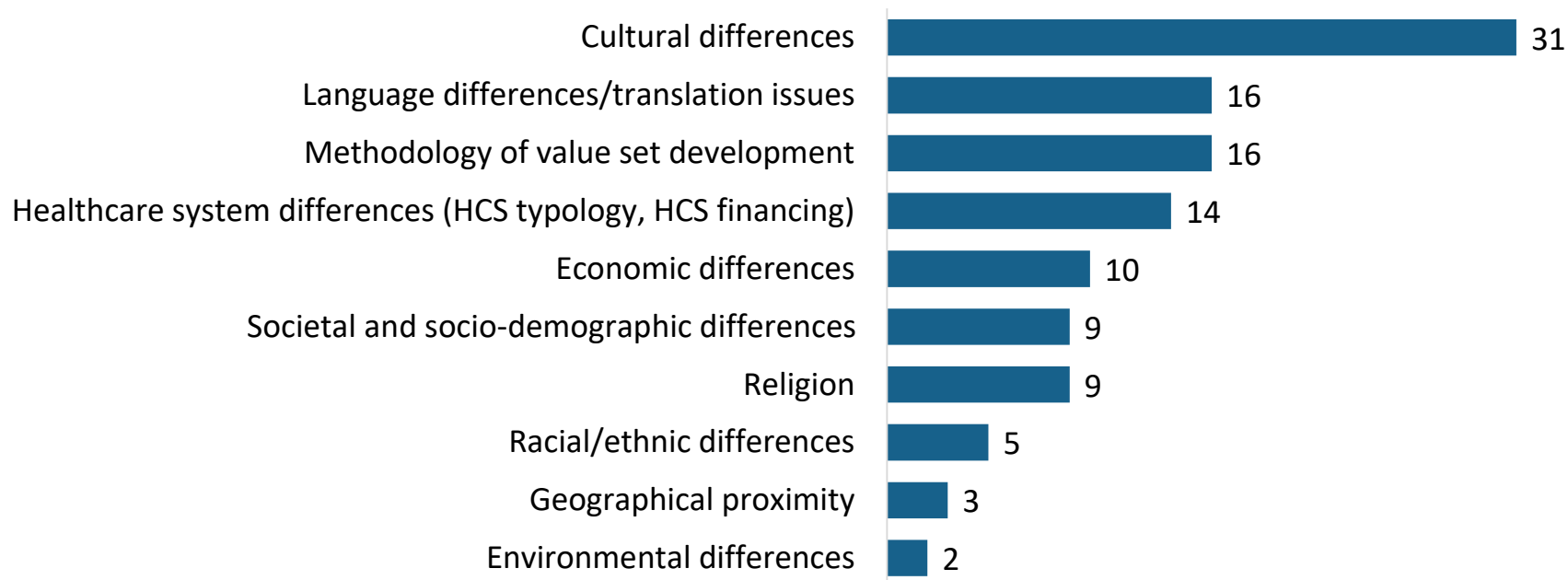
Identification of the factors influencing differences in EQ-5D health state valuations across populations

- Literature search between Oct and Dec 2019

- Not restricted to any country, language or time period

- Search: Embase, Medline, and Social Sciences Citation Index + Reference lists of identified records + the EuroQol Group's website as a grey literature search

- Flexible inclusion criteria due to the exploratory character of the search:
  - Studies empirically investigating differences in how people valued EQ-5D hypothetical states based on their country of origin or other characteristics, e.g. sex, ethnicity, socio-economic status, etc., in any country
  - Studies reflecting of these aspects (e.g. as part of their discussion section)

Embase	418
Medline	181
Econlit	43
SSCI	239
Deduplicated	506

Reference lists	38
Grey literature	4

Title&Abstract screening	548

Excluded	453

Full text screening	95

Excluded	26

Final inclusion	69

Number of studies mentioning possible variables influencing cross-country differences in EQ-5D valuations (n=69)

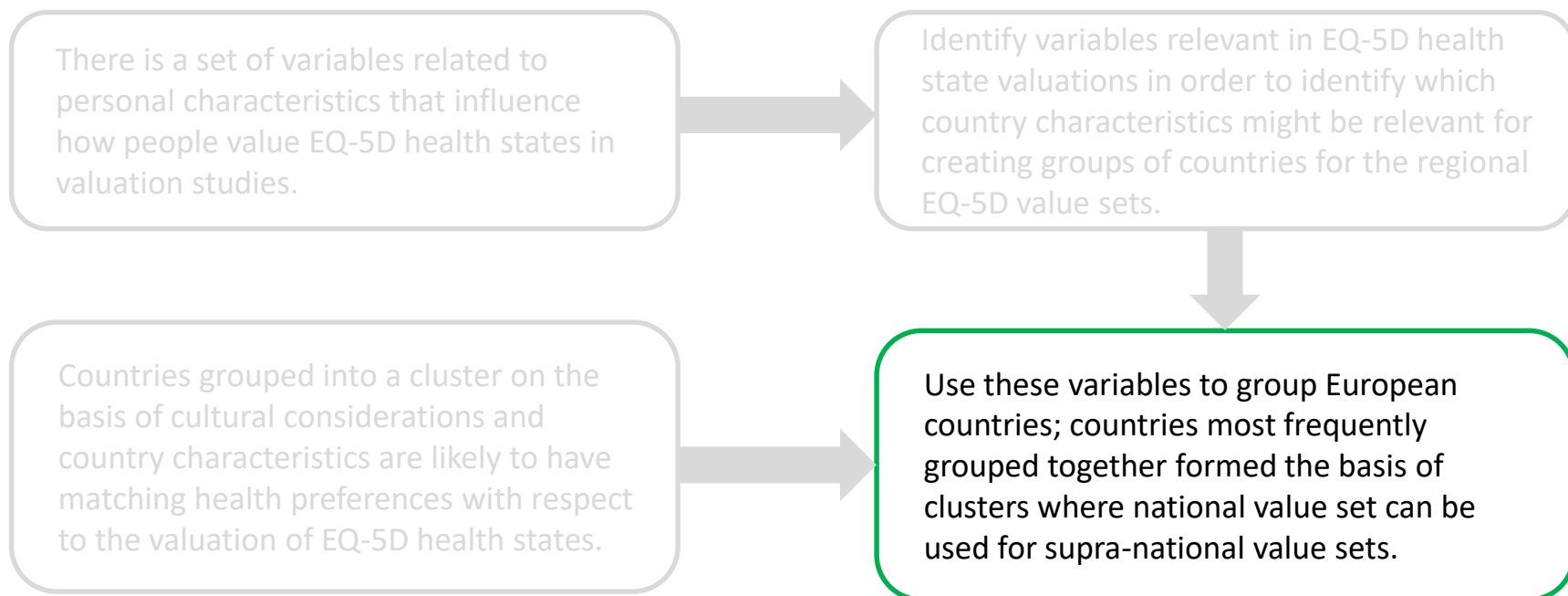| Variable	Count
Cultural differences	31
Language differences/translation issues	16
Methodology of value set development	16
Healthcare system differences (HCS typology, HCS financing)	14
Economic differences	10
Societal and socio-demographic differences	9
Religion	9
Racial/ethnic differences	5
Geographical proximity	3
Environmental differences	2

Are these variables relevant for creating groups of countries for the regional EQ-5D value sets?

Criteria adapted from Carinci et al. (2015)

Variable	Validity Sufficient scientific evidence exists to support a link between the variable and variations in health state valuations	Reliability Variables represent a stable phenomenon, and the repeated measurements over time produce similar results	International feasibility A 'value' of variable can be derived for international comparisons without substantial additional resources	International comparability The definition of the variable is the same in each country	Inclusion Inclusion for further analysis: cut-off of 2 & no 0 value
Cultural beliefs	0.5	1	0.5	0.5	**included**
Language/ translation issues	1	1	1	1	**included**
Methodology of value set development	n/a	n/a	n/a	n/a	n/a
Healthcare system differences (typology, financing)	0.5	1	1	1	**included**
Religion	1	1	1	1	**included**
Ethnicity	0.5	0	0.5	0.5	excluded
Socio-demographic structures	0.5	0.5	1	0.5	**included**
Economy/country development	0	0	1	1	excluded
Geographic proximity	0	1	1	1	excluded
Environmental aspects	0	0.5	0	0.5	excluded

Three-point scoring was applied depending if the variable 1) met the criterion (1 point), 2) met the criterion in part (0.5 points), 3) did not meet the criterion (0 points). The variables that were assigned 0 to any of the criteria were automatically excluded from further investigation.

Our work

There is a set of variables related to personal characteristics that influence how people value EQ-5D health states in valuation studies.

Identify variables relevant in EQ-5D health state valuations in order to identify which country characteristics might be relevant for creating groups of countries for the regional EQ-5D value sets.

Countries grouped into a cluster on the basis of cultural considerations and country characteristics are likely to have matching health preferences with respect to the valuation of EQ-5D health states.

Use these variables to group European countries; countries most frequently grouped together formed the basis of clusters where national value set can be used for supra-national value sets.

Country grouping categories (n=5)

- Countries were grouped based on typologies available in literature:

Culture and Religion ← Huntingdon 1993; Inglehart & Baker 2000

Language ← Van der Auwera & Baoill 1998

Healthcare system typology ← Ferreira et al. 2018; EURO-HEALTHY project

**Healthcare system financing** ← Wendt et al. 2009; Böhm et al. 2013

Socio-demographics ← Figueras et al. 1994; Genova 2010; Palevičienė & Dumčiuvienė 2015

Example of a proposed grouping category for EU and EFTA countries

Grouping category	Sub-categories	Countries included
Language	Germanic West	The Netherlands, Belgium, Germany, Austria, Switzerland, UK, Ireland, Luxembourg
	Germanic North	Norway, Denmark, Iceland, Sweden
	Romance Western	France, Italy, Portugal, Spain
	Romance Eastern	Romania
	Baltic	Latvia, Lithuanian
	Slavic West	Poland, Czech Republic, Slovakia
	Slavic South	Bulgaria, Croatia, Slovenia
	Greek	Greece, Cyprus
	Finnic	Estonia, Finland
	Ugric	Hungary
	Maltese	Malta

Clusters for supra-national value sets
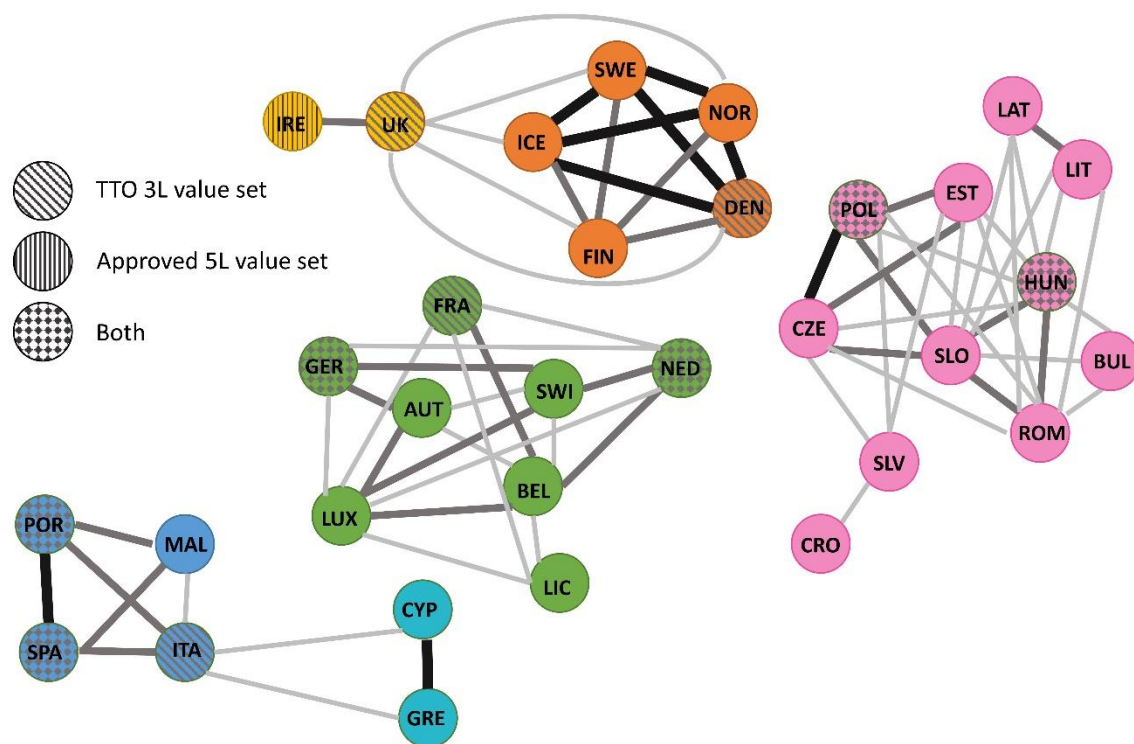
We analysed how many times pairs of countries have been assigned to the same sub-category within the respective five grouping categories. The Figure is a graphical representation of the results.

Clusters for supra-national value sets

| Name of the cluster	Countries	Countries with 3L TTO value set	Countries with 5L value set	Recommendation
English-speaking	Ireland, UK[1]	UK	Ireland	Use of UK or Irish value set
Nordic	Sweden, Norway, Finland, Denmark, Iceland	Denmark	-	Use of Danish value set for 3L and Irish value set for 5L
Central-Western	Germany, France, Switzerland, The Netherlands, Austria, Belgium, Luxembourg	France, Germany, The Netherlands	France, Germany, The Netherlands	A supra-national value set calculated
South-Western	Portugal, Malta, Spain, Italy, Cyprus, Greece	Italy, Portugal, Spain	Portugal, Spain	A supra-national value set calculated
Eastern European	Poland, Czech Republic, Slovenia, Hungary, Bulgaria, Romania, Slovakia, Croatia, Estonia, Latvia, Lithuania	Poland, Hungary[2]	Poland, Hungary[2]	A supra-national value set to be calculated

Note: Experience-based value sets (available for Sweden) are excluded
[1] The 5L UK value set is not considered in this study as per NICE recommendations
[2] An update of supra-national value sets is planned for 2021

EQ-5D-5L index scores for selected health states by the four different value sets

PECUNIA

Legend: ——— The Netherlands ——— Germany — — — France — — — Central-Western supra-national value set
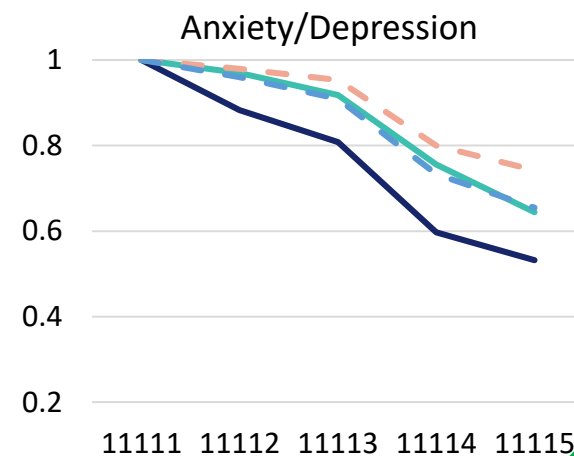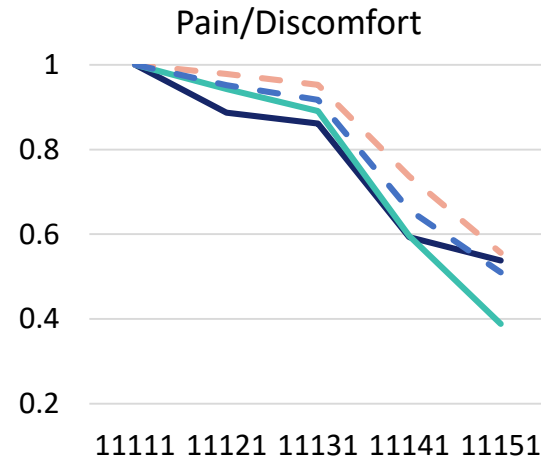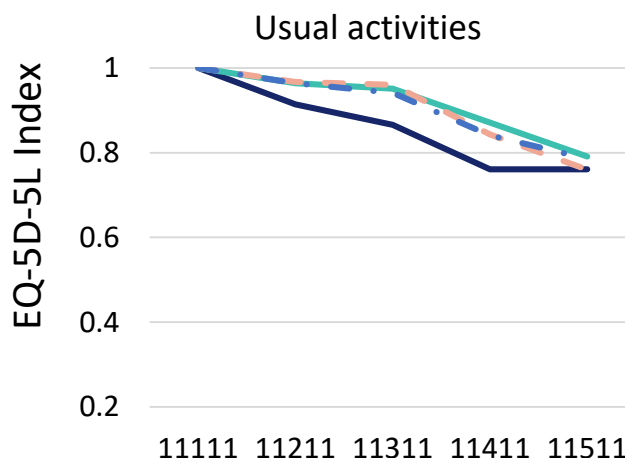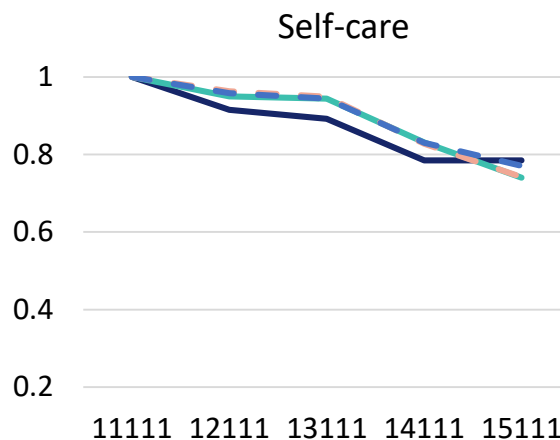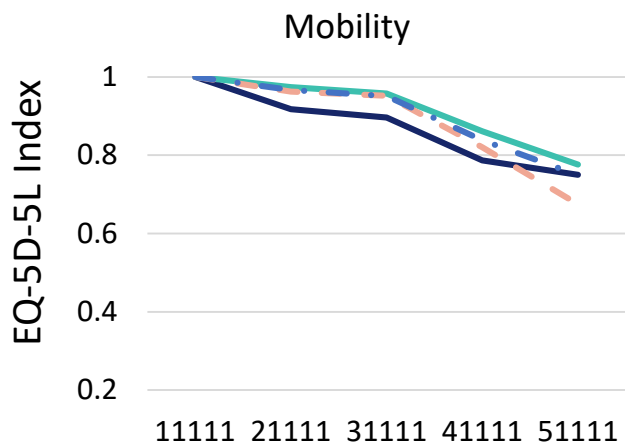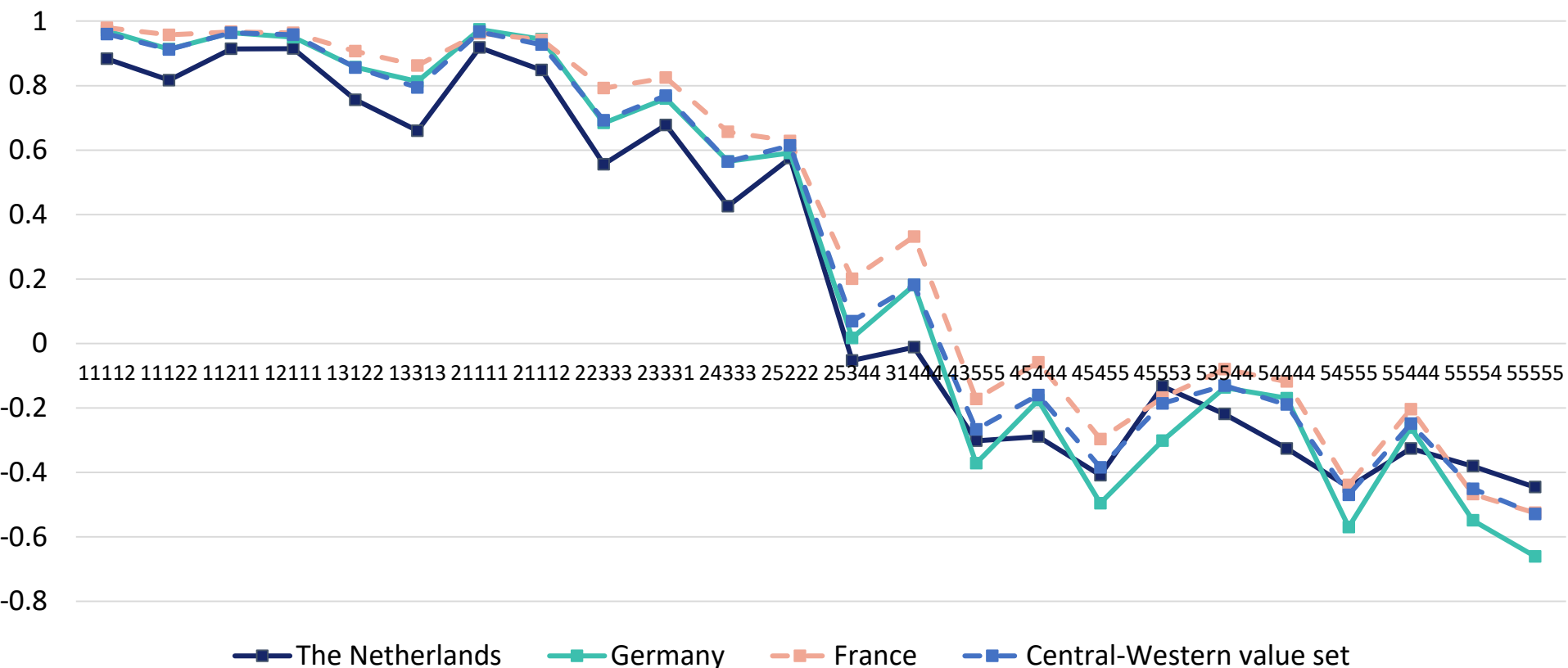

GA No. 779292

EQ-5D-5L index scores for selected health states by the four different value sets

PECUNIA

Programme in costing, resource use measurement and outcome valuation for use in multi-sectoral national and international health economic evaluations

www.pecunia-project.eu

Thank you for your attention!

Judit Simon

Professor of Health Economics

PECUNIA Coordinator & WP5 lead

judit.simon@meduniwien.ac.at