Economic Dependency Ratios in a Comparative European Setting

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Ageing and Dependency

Population Ageing → Increasing **Demographic Dependency Ratios**

Age is not enough to define dependency!

A) Employment based dependency ratio

→ Not everyone of working age is working

→ Not everyone who is not of working-age is dependent

B) NTA based dependency ratio

→ Degree of dependency changes with age

→ Degree of supporting others changes with age

Restriction of analysis to 10 European countries for which NTA data exists

Demographic Dependency

Table 1: Demographic dependency ratios, 2011 and 2050

	2011			2050			increase
Country	**Young**	**Old**	**Total**	**Young**	**Old**	**Total**	**in Total**
AT (Austria)	0.33	0.28	**0.61**	0.35	0.51	**0.86**	41 %
DE (Germany)	0.31	0.34	**0.65**	0.34	0.62	**0.96**	48 %
ES (Spain)	0.31	0.27	**0.58**	0.36	0.68	**1.04**	79 %
FI (Finland)	0.38	0.29	**0.67**	0.41	0.46	**0.87**	30 %
FR (France)	0.42	0.29	**0.71**	0.45	0.49	**0.94**	32 %
HU (Hungary)	0.33	0.27	**0.60**	0.36	0.52	**0.88**	47 %
IT (Italy)	0.31	0.34	**0.65**	0.35	0.58	**0.93**	43 %
SE (Sweden)	0.40	0.32	**0.72**	0.43	0.41	**0.84**	17 %
SI (Slovenia)	0.30	0.26	**0.56**	0.39	0.59	**0.97**	73 %
UK (United Kingdom)	0.40	0.28	**0.68**	0.43	0.50	**0.92**	35 %
Average	**0.35**	**0.29**	0.64	**0.39**	**0.54**	**0.92**	**43 %**

Source: Eurostat, population on January 1st (2011); Eurostat, EUROPOP2013 (2050), main scenario

Demographic Dependency ≠ Economic Dependency

$$\frac{< 20 \ + \ 65+}{20\text{-}64} \neq \frac{\text{persons not working}}{\text{persons working}}$$

Persons not working:

children + unemployed + housewives/-men + retirees + other inactive

Persons working:

employed (full-time, part-time, compulsory military or civil service)

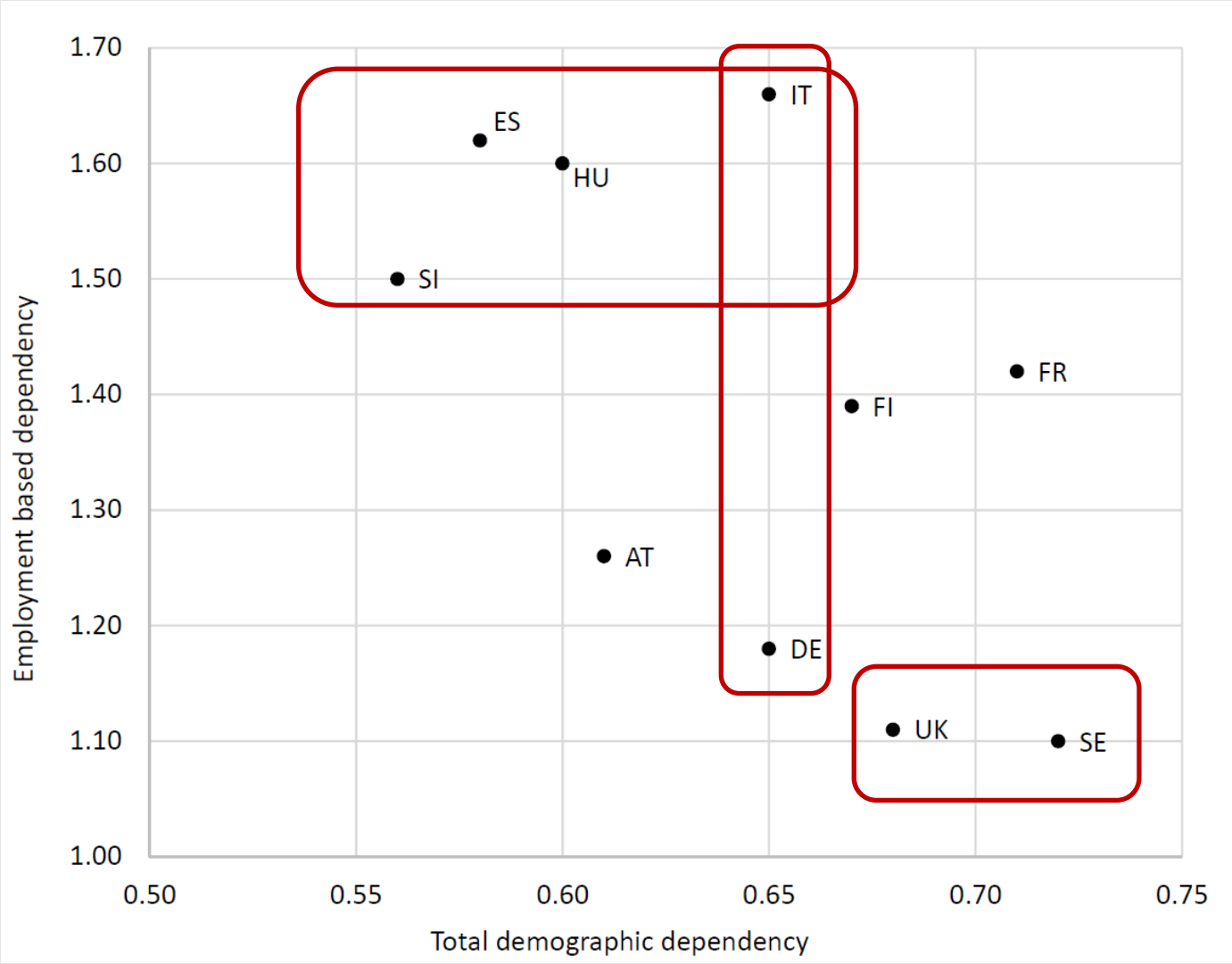
Employment based Dependency

Table 2: Employment based dependency ratios by economic status, 2011

Country	Total	Education	Unemployed	Retired	Domestic Work	Other
AT	1.26	0.48	0.09	0.58	0.10	0.01
DE	1.18	0.45	0.09	0.56	0.07	0.02
ES	1.62	0.58	0.27	0.60	0.14	0.03
FI	1.39	0.61	0.11	0.60	0.06	0.01
FR	1.42	0.63	0.11	0.61	0.04	0.03
HU	1.60	0.60	0.18	0.71	0.07	0.05
IT	1.66	0.56	0.15	0.73	0.20	0.03
SE	1.10	0.53	0.06	0.46	0.02	0.03
SI	1.50	0.59	0.18	0.69	0.02	0.01
UK	1.11	0.50	0.06	0.46	0.08	0.01

Source: EU-SILC 2011 (Activity); Eurostat, population on January 1st (2011)

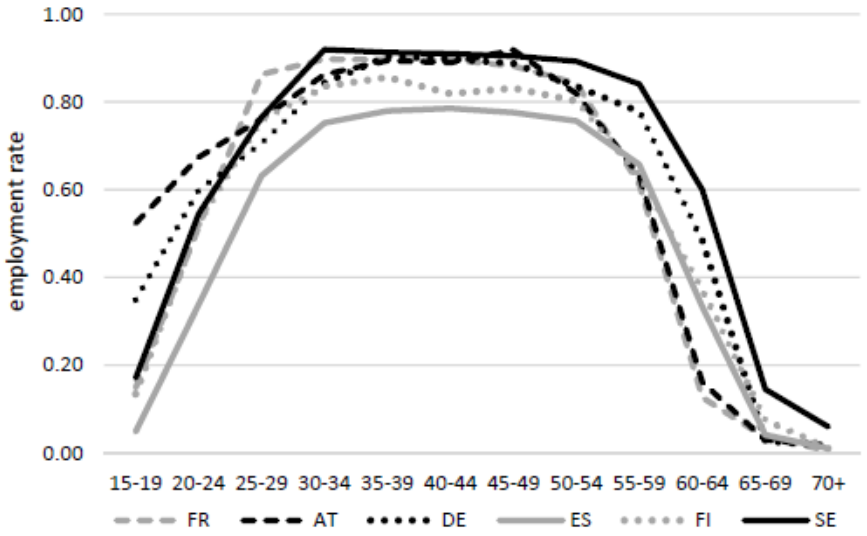
Employment based dependency



Source: EU-SILC 2011, EUROSTAT

Projections of Employment based Dependency I

- Goal: to estimate potential future levels of economic dependency, 2015 to 2050
- Inputs:
  - Population projections -> EUROPOP2013
  - Projections of workers -> 3 scenarios of future employment rates (ages 15-70+)
    1. constant scenario: age- and sex-specific employment rates (2011)



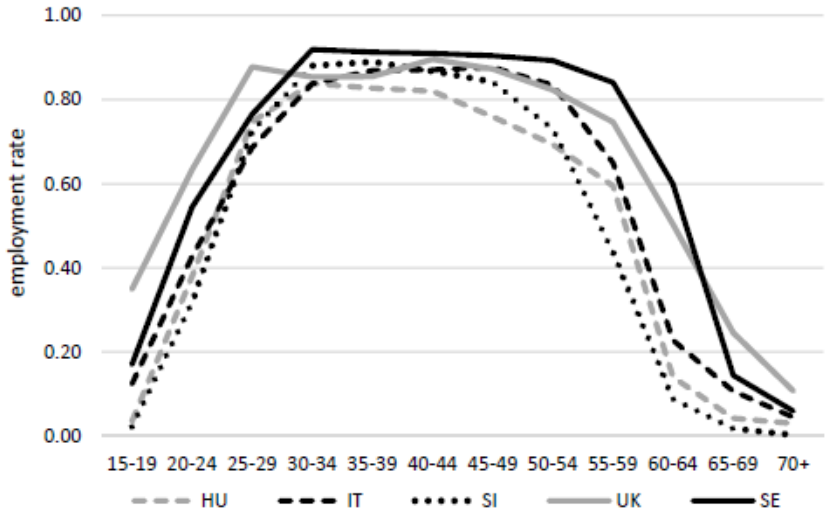
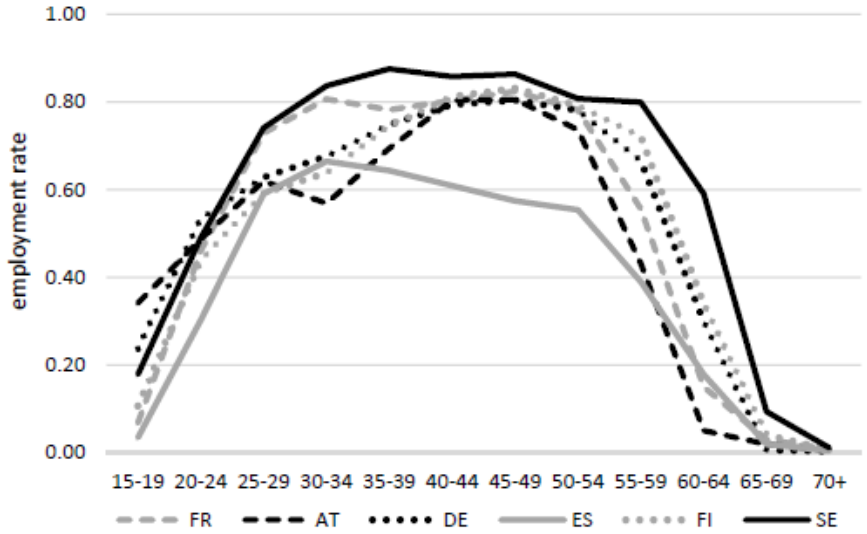


Figure 13: Age-specific employment rates, men, 2011



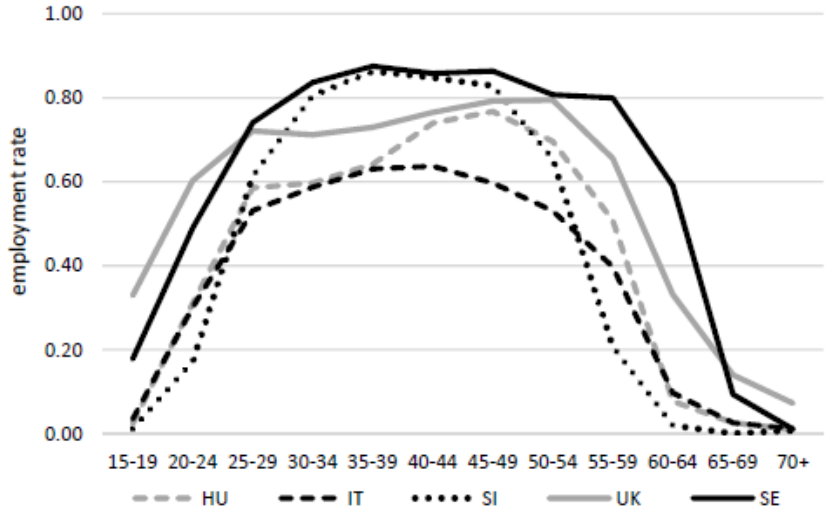
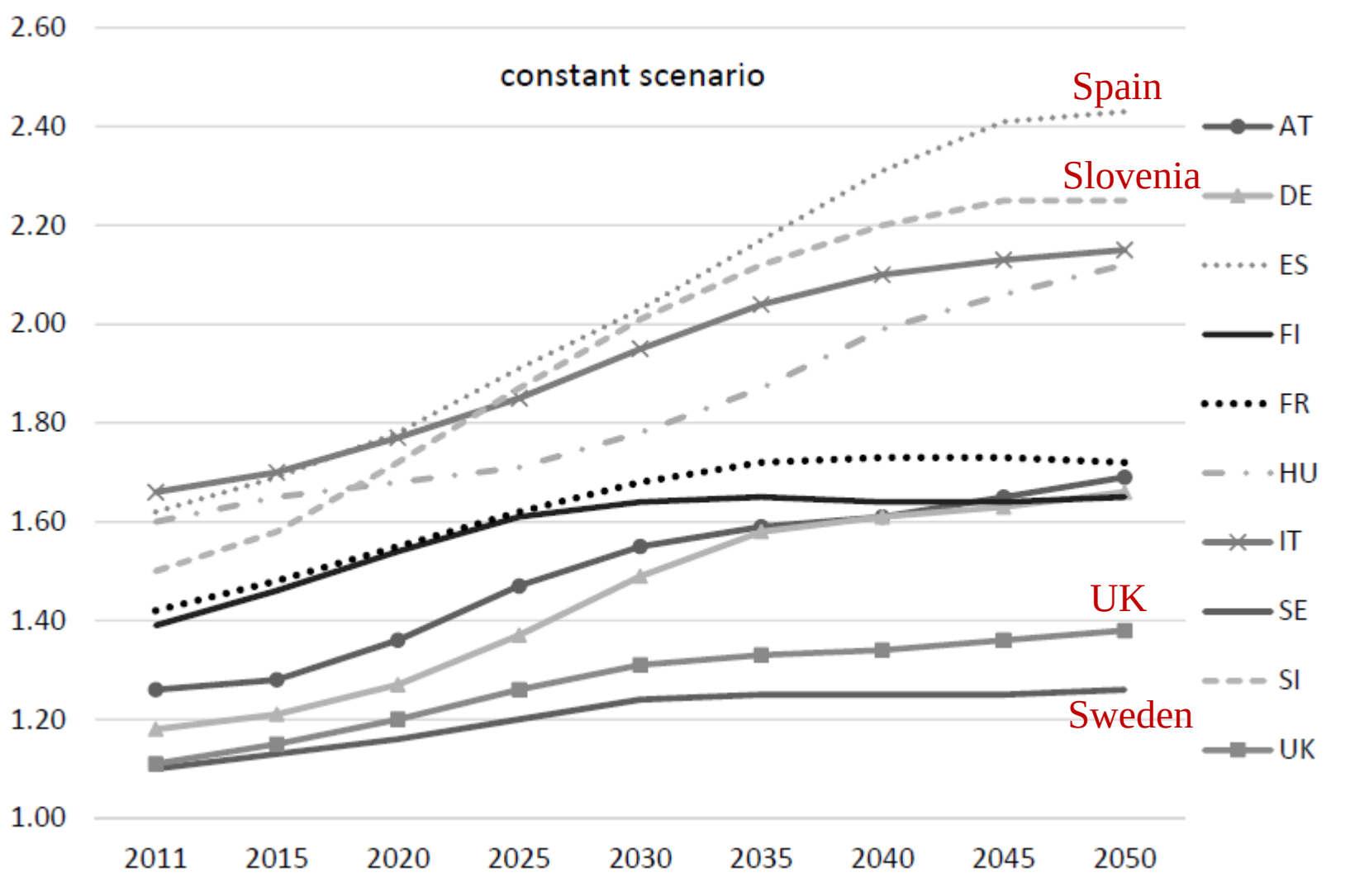


Figure 14: Age-specific employment rates, women, 2011

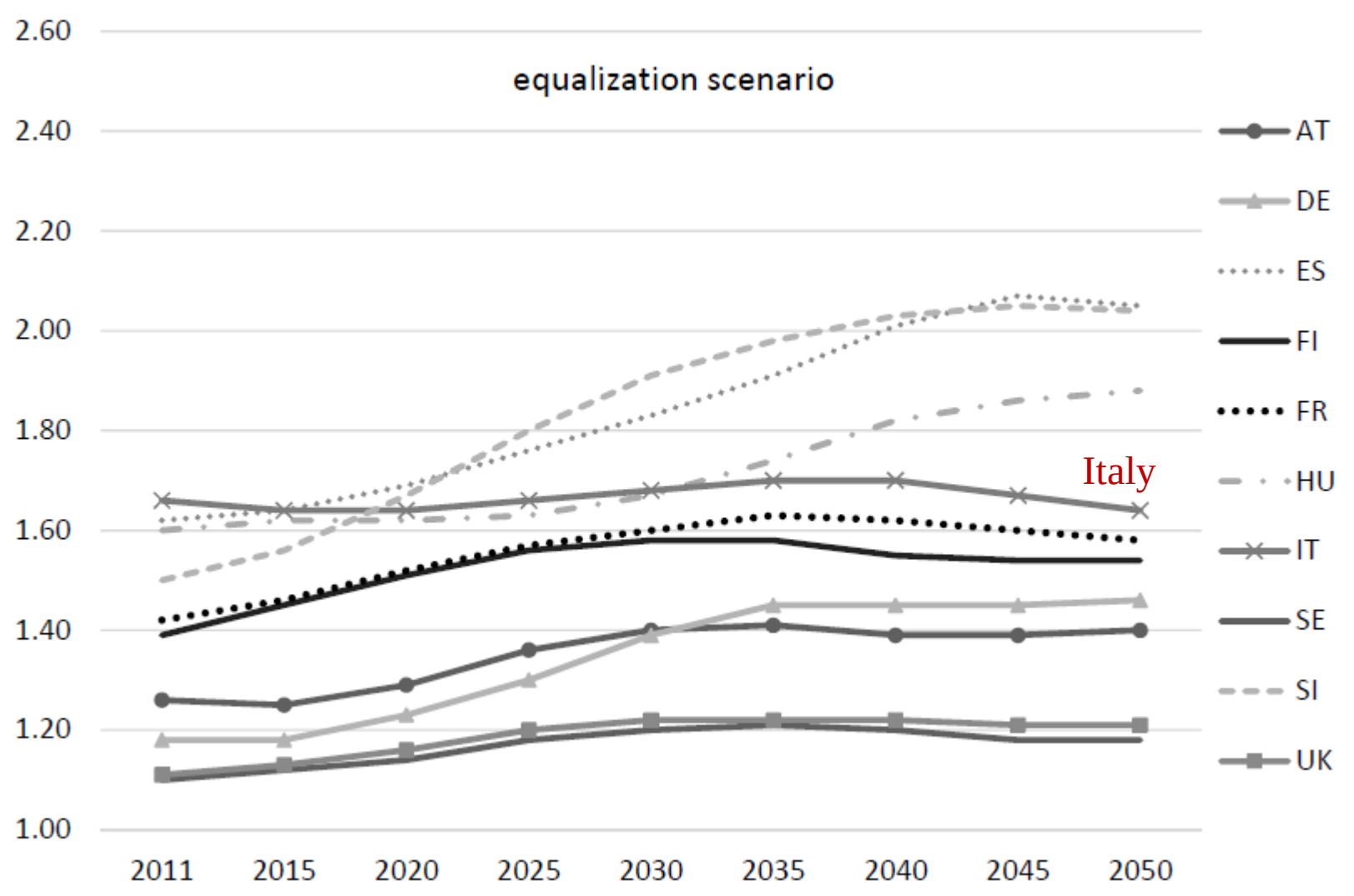
Projections of Employment based Dependency I

- Goal: to estimate potential future levels of economic dependency, 2015 to 2050
- Inputs:
  - Population projections -> EUROPOP2013
  - Projections of workers -> 3 scenarios of future employment rates (ages 15-70+)
    1. constant scenario: age- and sex-specific employment rates (2011)
    2. equalization scenario: female employment levels reach male levels in 2050
    3. benchmark scenario: Swedish employment rates (2011) as benchmark in 2050
  - Projections of persons that are not working: residual (population minus workers)

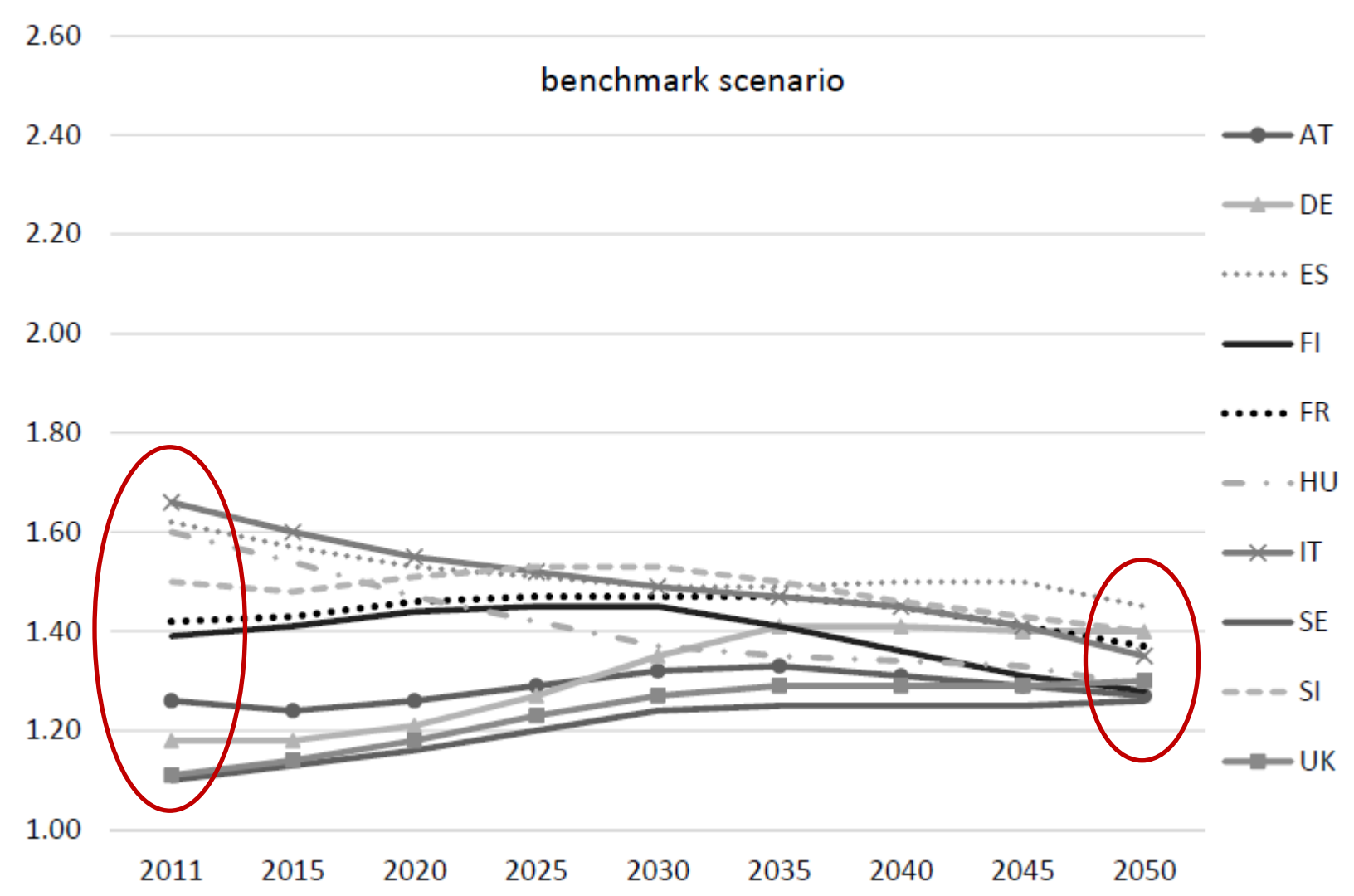
Projections of Employment based Dependency II



Projections of Employment based Dependency III



Projections of Employment based Dependency IV



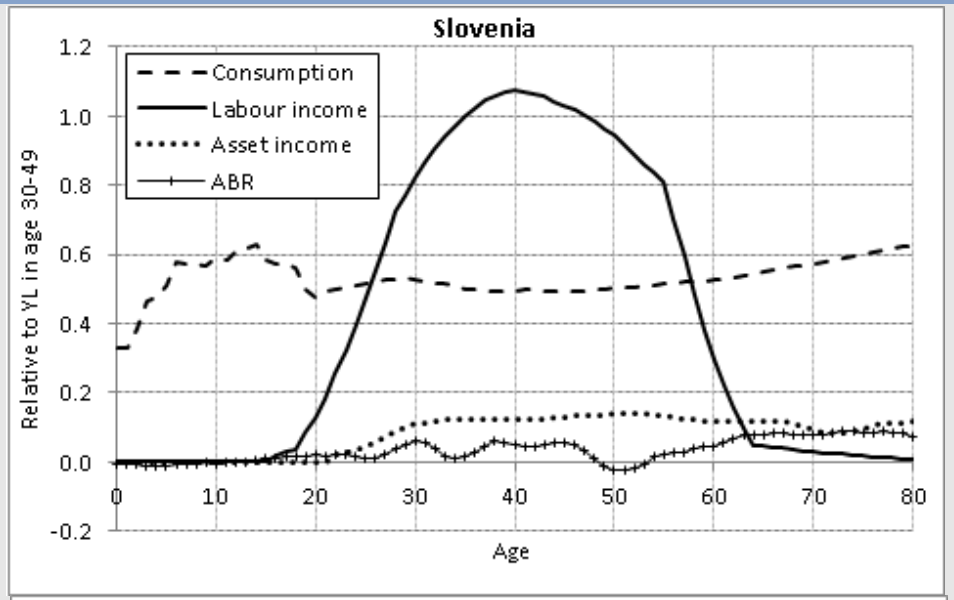
The life-cycle – Slovenian and Spanish case

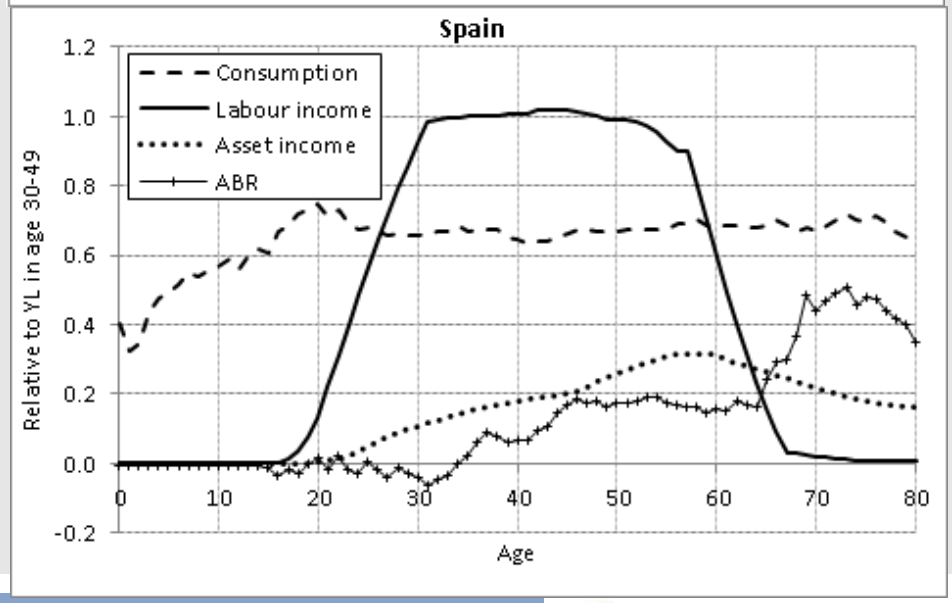
National Transfer Accounts (NTA)

Per capita age profiles of:

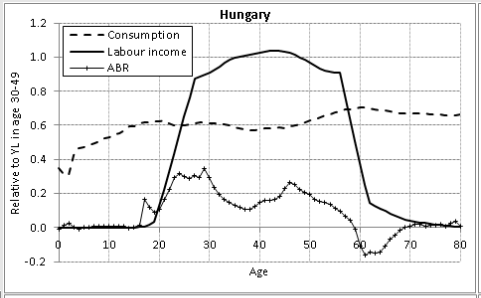
- **Consumption (C)**
- **Labour income (YL)**
- **Asset income (YA)**
- **Asset-based reallocation (ABR)**

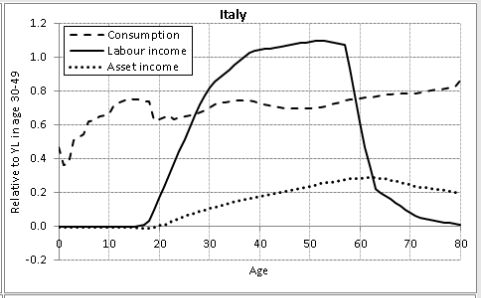
… relative to Labour income (YL) in age 30-49

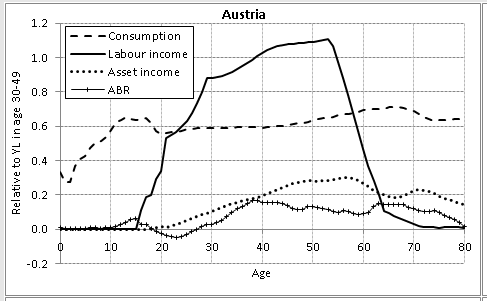


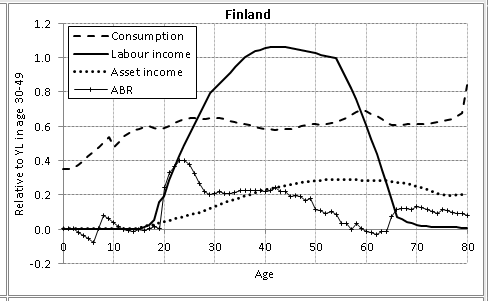


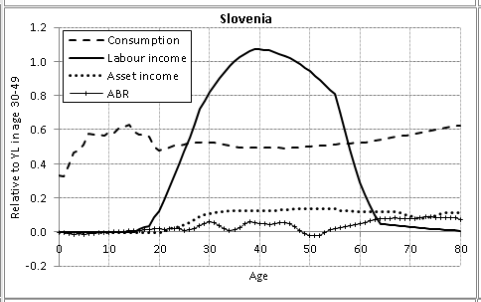
NTA age profiles for all European NTA countries

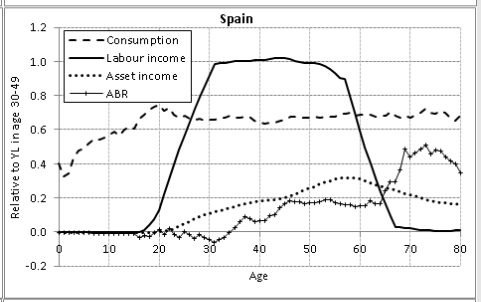


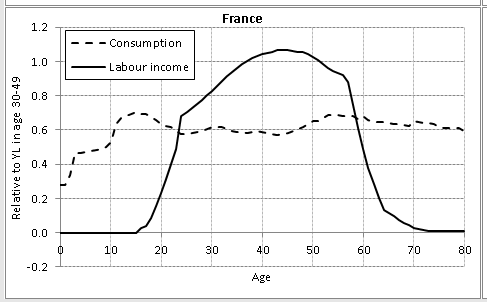


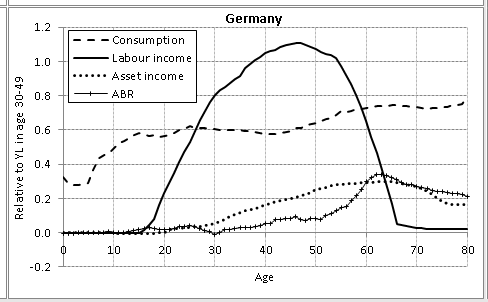


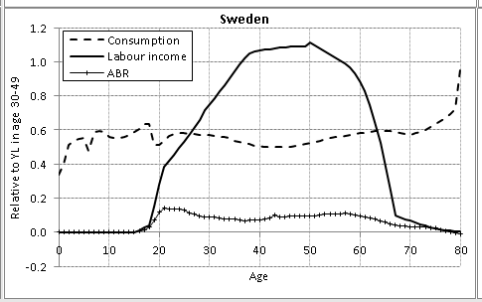






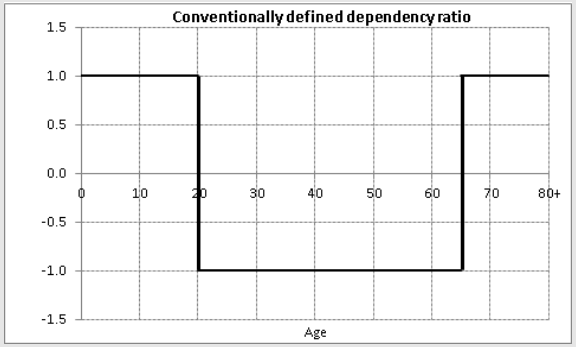


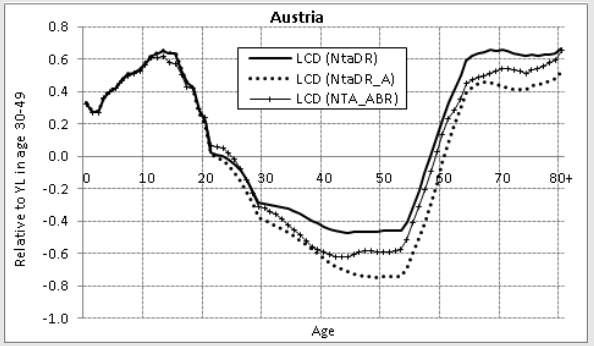


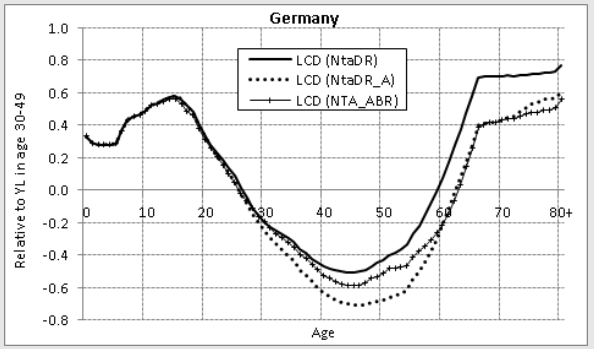


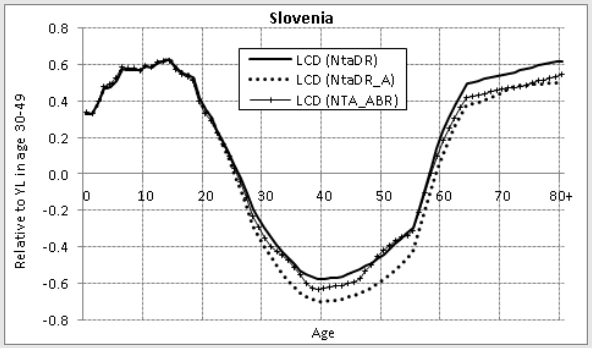
Taking into account actual consumption - labour income (+ asset income (- savings)) per capita age profiles

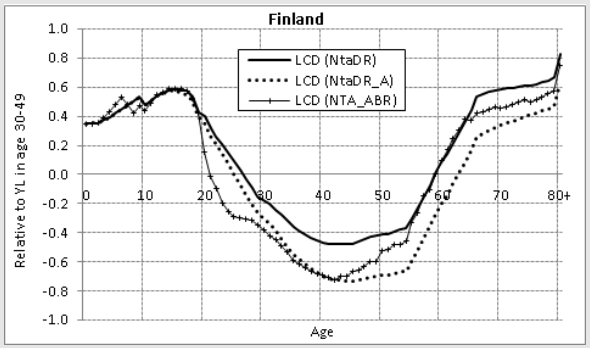
INSTEAD OF:

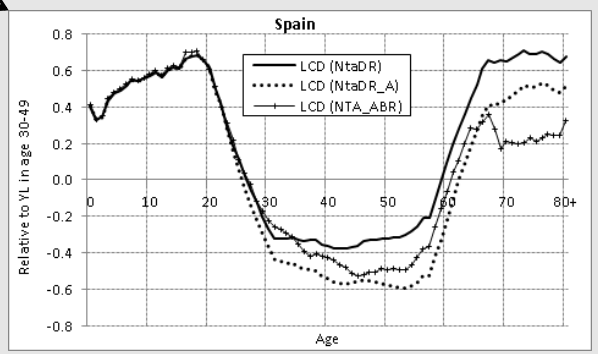












NTA dependency ratios

$$NTA\ dependency\ ratios = \frac{total\ life\ cycle\ deficit}{total\ lifecycle\ surplus}$$

$$1)\ NtaDR = \frac{\sum_{i=0}^{i=L}(C_i - YL_i) + \sum_{i=O}^{i=80+}(C_i - YL_i)}{\sum_{i=L+1}^{i=O-1}(YL_i - C_i)}$$

$$2)\ NtaDR_A = \frac{\sum_{i=0}^{i=L}(C_i - YL_i - YA_i) + \sum_{i=O}^{i=80+}(C_i - YL_i - YA_i)}{\sum_{i=L+1}^{i=O-1}(YL_i + YA_i - C_i)}$$

$$3)\ NtaDR_{ABR} = \frac{\sum_{i=0}^{i=L}(C_i - YL_i - (YA_i - S_i)) + \sum_{i=O}^{i=80+}(C_i - YL_i - (YA_i - S_i))}{\sum_{i=L+1}^{i=O-1}(YL_i + (YA_i - S_i) - C_i)}$$

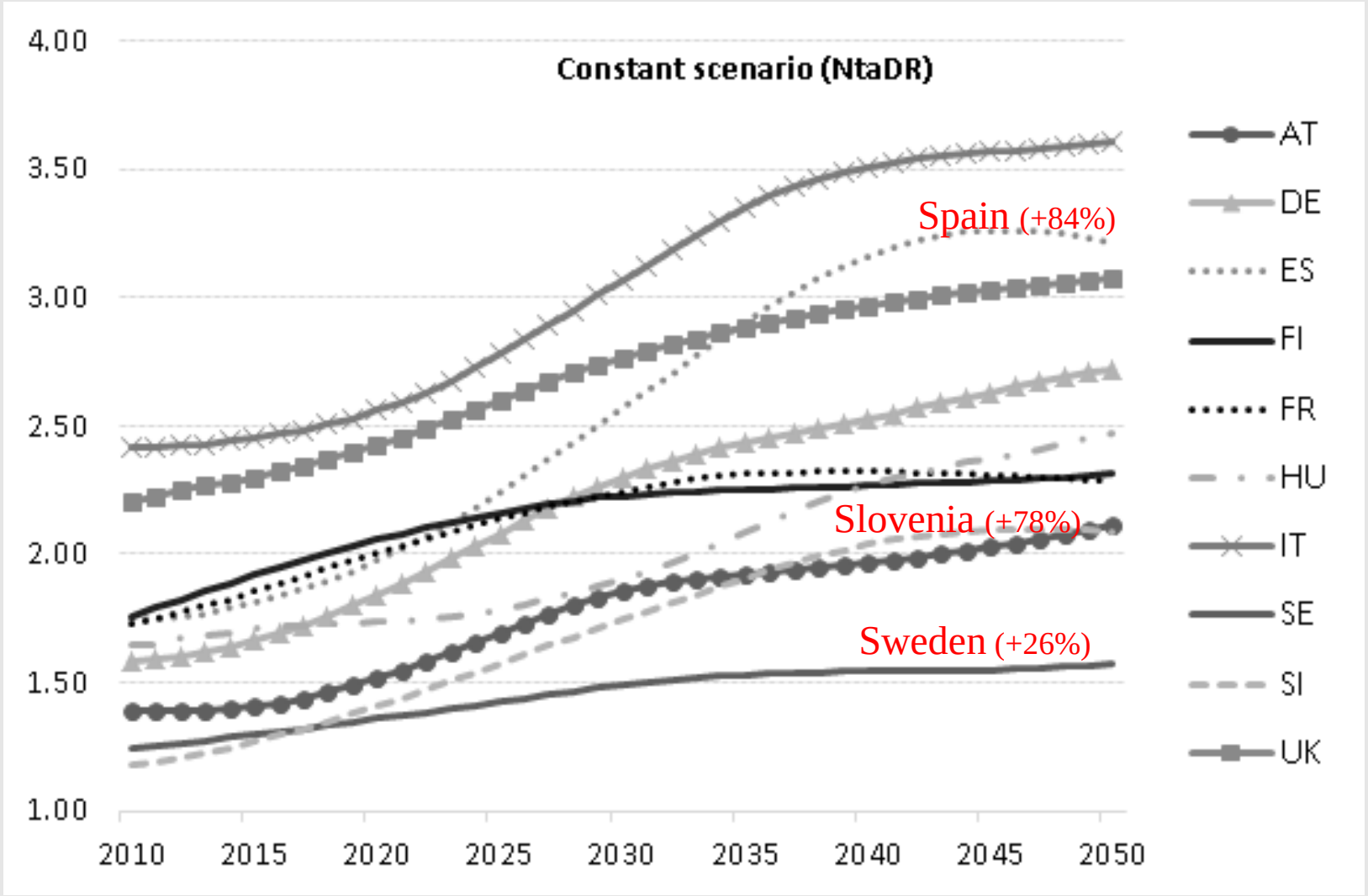
L… the age where the life cycle deficit at young ages is still positive
O… the lowest old age at which the life cycle turns positive again

Three versions of NTA dependency ratios

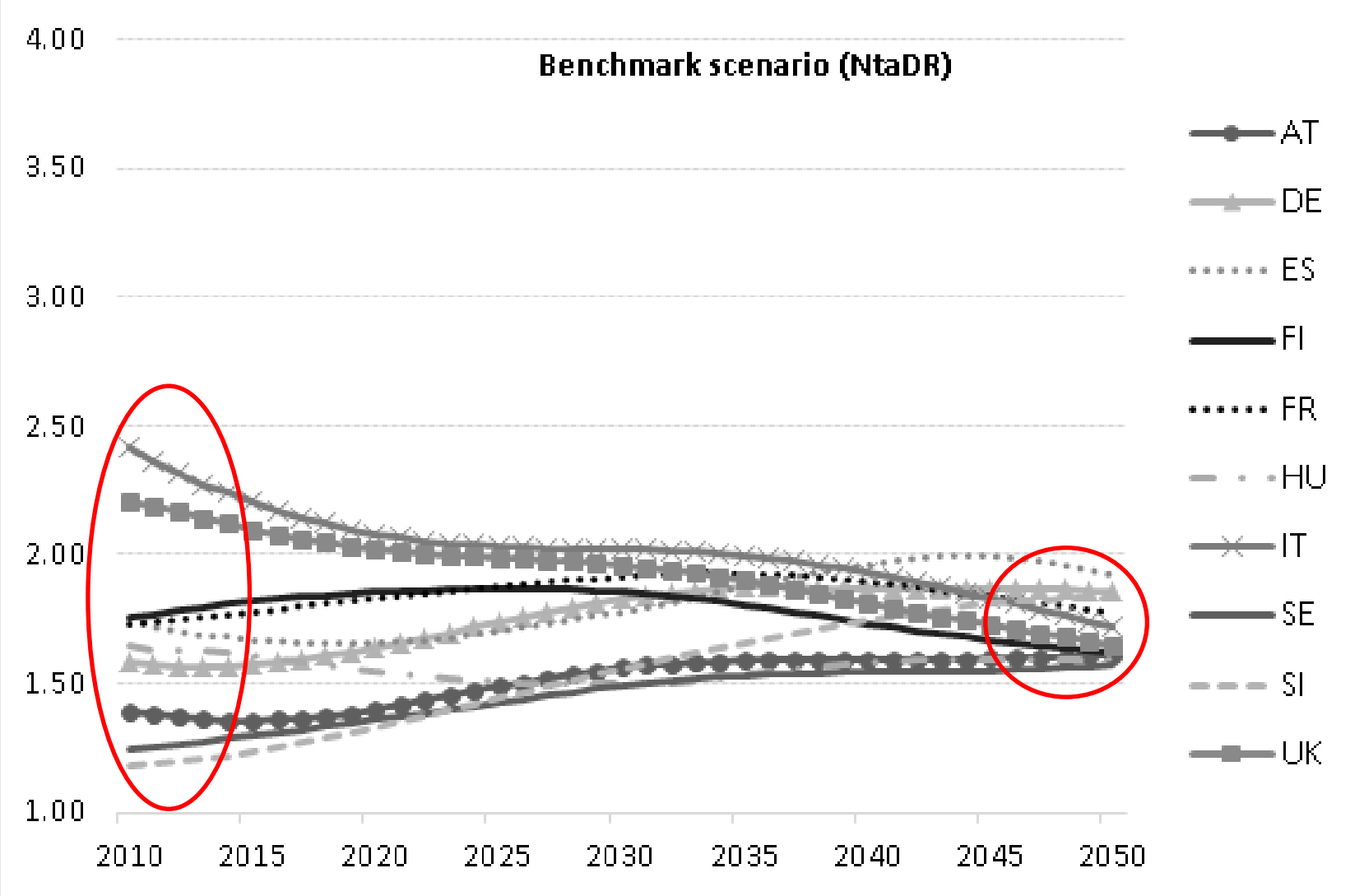
	NTA Dependency Ratio			Age-Borders	
Country	Young Age	Old Age	Total	Positive until	Positive from
AT	0.60	0.79	1.39	23	58
DE	0.60	0.98	1.58	26	60
ES	0.89	0.85	1.74	26	60
FI	0.88	0.87	1.75	26	59
FR	0.94	0.78	1.73	23	59
HU	0.78	0.86	1.64	24	58
IT	1.05	1.36	2.41	27	60
SE	0.67	0.58	1.25	26	64
SI	0.59	0.59	1.18	25	58
UK	1.13	1.08	2.21	27	60
	Extended NTA Dependency Ratio			**Age-Borders**	
Country	Young Age	Old Age	Total	Positive until	Positive from
AT	0.37	0.33	0.71	21	61
DE	0.38	0.41	0.78	25	63
ES	0.52	0.33	0.85	25	63
FI	0.48	0.29	0.76	25	63
IT	0.61	0.52	1.13	25	62
SI	0.44	0.35	0.80	24	59
	General NTA Dependency Ratio			**Age-Borders**	
Country	Young Age	Old Age	Total	Positive until	Positive from
AT	0.46	0.51	0.97	24	59
DE	0.46	0.47	0.93	25	63
ES	0.70	0.27	0.97	26	61
FI	0.48	0.48	0.96	20	59
HU	0.43	0.58	1.01	22	58
SE	0.50	0.45	0.95	22	64
SI	0.54	0.47	1.01	25	58
UK	0.68	0.25	0.94	26	64

Source: EU-SILC 2011 (Labour income); www.ntaccounts.org (Consumption and ABR); HFCS (Asset income)

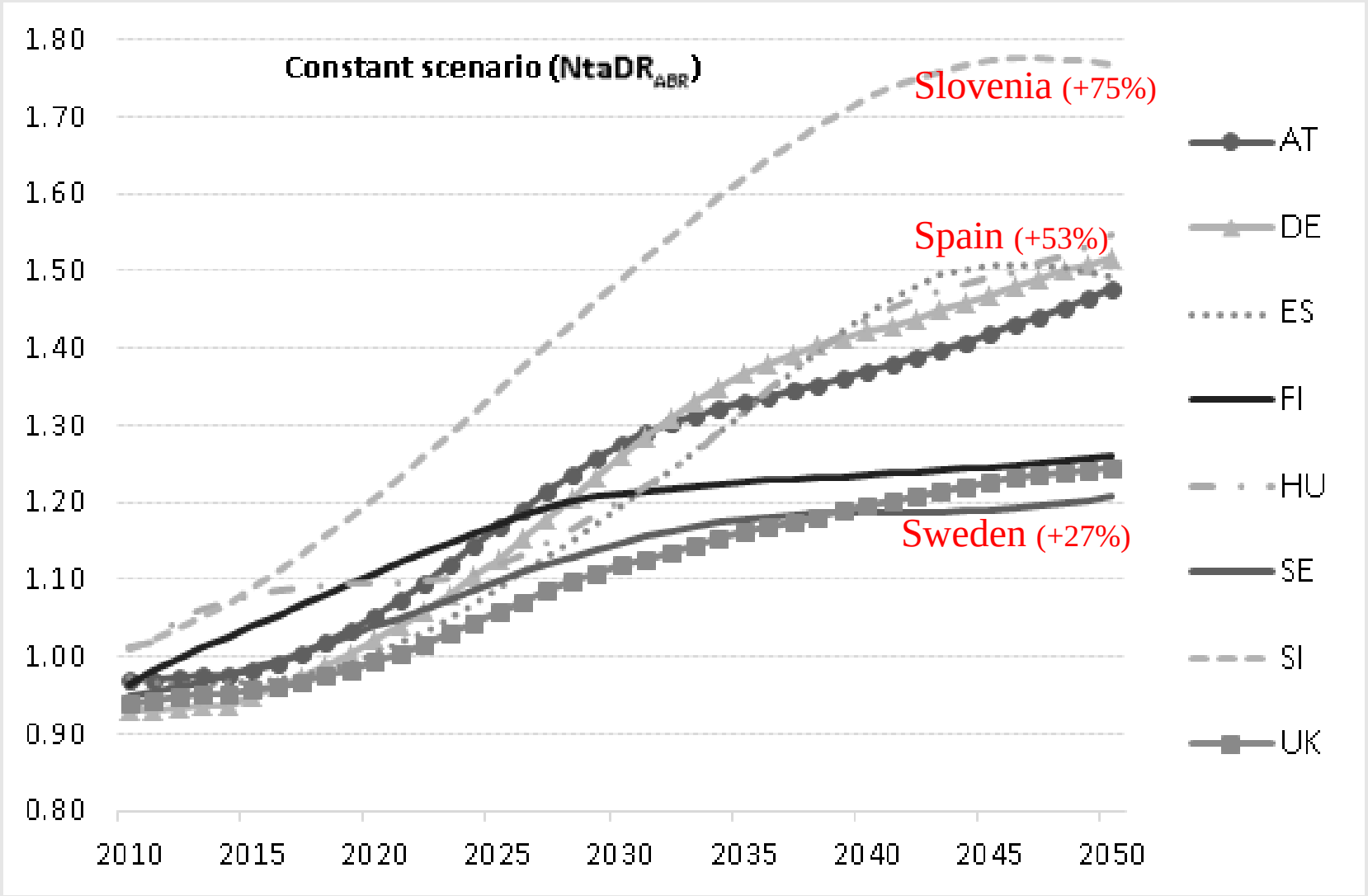
Projections of NTA Dependency I



Projections of NTA Dependency II



Projections of NTA Dependency III



Conclusions

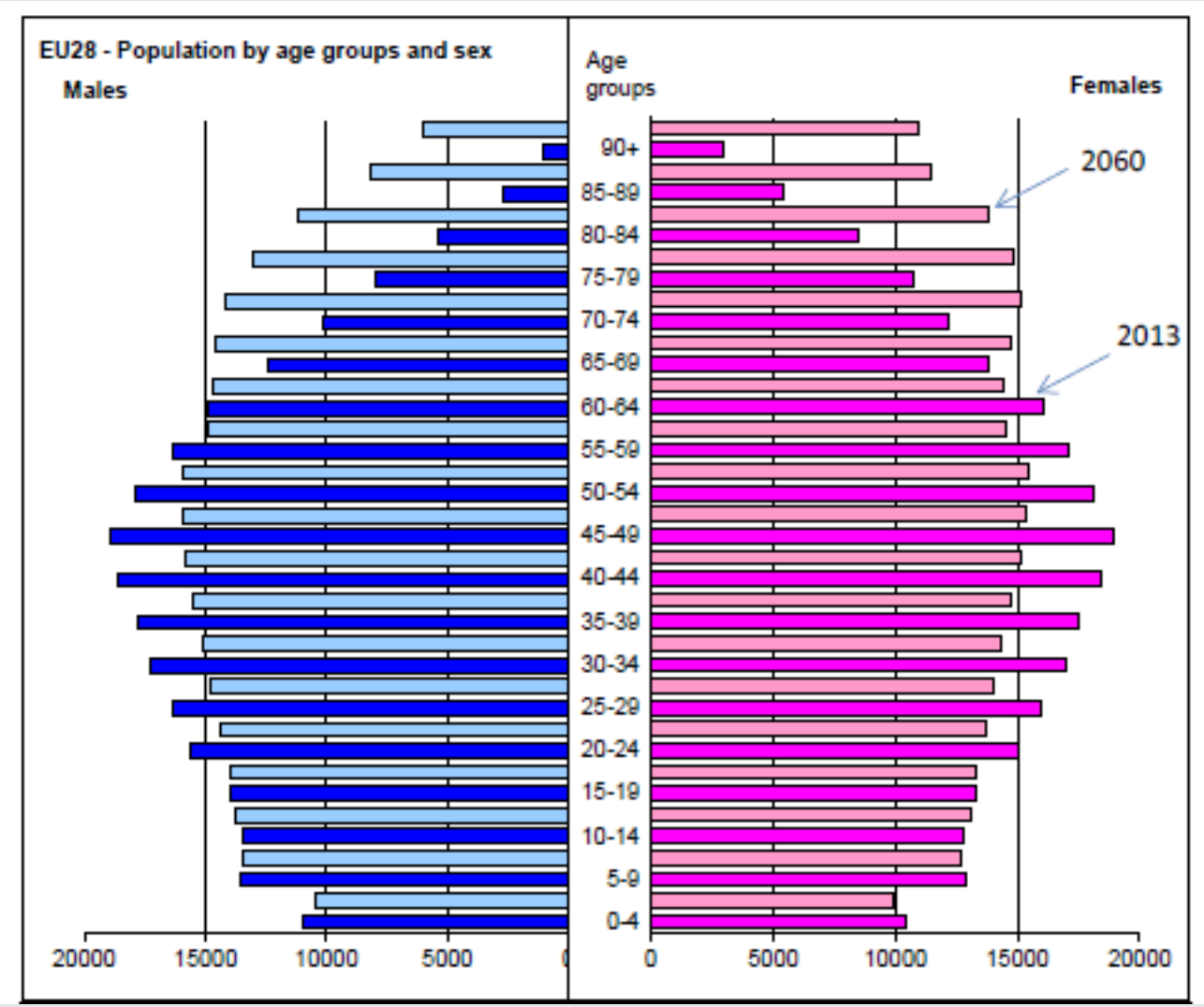
- Not all dependents are equally dependent and not all supporters have the same supporting capabilities
- In general, age span at which people are net supporters is much narrower (duration of 32-37 years) than assumed in conventional dependency ratio (45 years)
- In countries where elderly receive positive asset-based reallocation the burden of population ageing is mitigated

„AGENTA“ project will provide results for all EU countries

Thank you!

Appendix

Europe is Ageing



Source: The 2015 Ageing Report, graph I.1.2

	2013	2060
< 15:	~ 15%	
15-64:	66%	→ 57%
65+:	18%	→ 28%
80+:	5%	→ 12%