

The Skillsnet project on Medium-term forecasts of occupational skill needs in Europe: Replacement demand and cohort change analysis

Paper presented at the Workshop on Medium-term forecast of
occupational skill needs in Europe: Interim results.

3RD TECHNICAL WORKSHOP,
2007,

May 7-8

Maastricht, Netherlands

Dr. Ben Kriechel

ROA, Maastricht University



Overview

- Introduction
- Cohort-component versus alternatives
- Core methodology
- Data availability
- Participation rates
- Age structure by countries
- Dealing with migration
- Conclusions



Cohort-component vs alternative

Cohort-component

- Not an ideal method as it assumes comparability over different samples
- Better:
 - Panel over several years of representative sample of workers
 - Sufficient size
 - Detail in ISCO, ISCED, NACE, Age, Gender
- Lowest common denominator: Cohort component based on LFS cross sections.



Core methodology

Changes in level of participation

- (Changes in) participation by gender and age-group
- Alternatively: (Changes in) overall participation



Core methodology II

Estimates of demographic change

- Changes in birthrates
- Migration patterns



Core methodology III

Measure of outflow:

- Using cohort-component method:

$$F& = \frac{W_{age,t} - W_{age-1,t-1}}{W_{age-1,t-1}}$$

- It implies that we need data over more than 5 years.



Core methodology IV

Estimation of historical flow coefficient based on cohort-component method.

Prediction of future flows based on:

- Predicted flow coefficient by gender, age and occupation (education)
- Future demographic size of age cohorts
- Changes in participation



Data availability

Main data source:

- Micro data of the European Labour Force Survey (Eurostat)
- E3ME (Cambridge Econometrics)
- Population forecasts (Eurostat)



Data availability

- Participation rates:
 - Future participation rates are based on the predictions in the model by Cambridge Econometrics
- Population forecasts:
 - Europop2004 projection (baseline) by Eurostat



Data availability

European Labour Force Survey:

- 25 countries
- At least annual data
- Age-cohorts (5 years)
- ISCO, ISCED, NACE
- Gender



Data availability

	Country	Short	1997	1998	1999	2000	2001	2002	2003	2004
1	Austria	AT	-	-	all	all	all	all	all	all
2	Belgium	BE	Q2	Q2	all	all	all	all	all	all
3	Cyprus	CY	-	-	Q2	Q2	Q2	Q2	Q2	Q3
4	Czech	CZ	Q2	all	all	all	all	all	all	all
5	Denmark	DK	Q2	Q2	all	all	all	all	all	all
6	Espana	ES	Q2	all	all	all	all	all	all	all
7	Estonia	EE	Q2		all	all	all	all	all	all
8	Finland	FI	Q2	all	all	all	all	all	all	all
9	France	FR	Q1	Q1	Q1	Q1	Q1	Q1	all	-
10	Germany	DE	-	-	-	-	-	Q2	Q2	Q2
11	Greece	GR	Q2	all	all	all	all	all	all	all
12	Hungary	HU	Q2	all	all	all	all	all	all	all



Data availability

13	Ireland	IE	Q2	Q2	all	all	all	all	all	all
14	Island	IS	Q2	Q2	Q2	Q2	Q2	Q2	Q2	Q2
15	Italy	IT	Q2	all	all	all	all	all	all	all
16	Latvia	LV	-	Q2. Q4	Q2. Q4	Q2. Q4	Q2. Q4	all	all	all
17	Lithuania	LT	-	Q2. Q4	Q2. Q4	Q2. Q4	Q2. Q4	all	all	all
18	Luxembourg	LU	Q2	Q2	Q2	Q2	Q2	Q2	Q1, Q2	Q1, Q3
19	Netherlands	NL	Q2	Q2	Q2	all	all	all	all	all
20	Norway	NO	Q2	Q3	Q4	all	all	all	all	all
21	Poland	PL	Q2	Q2	all	all	all	all	all	all
22	Portugal	PT	Q2	all	all	all	all	all	all	all
23	Slovakia	SK	-	all	all	all	all	all	all	all
24	Sweden	SW	Q2	Q2	Q2	Q2	all	all	all	all
25	Slovenia	SI	Q2	Q2	all	all	all	all	all	all

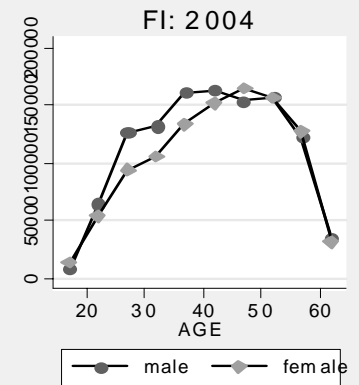
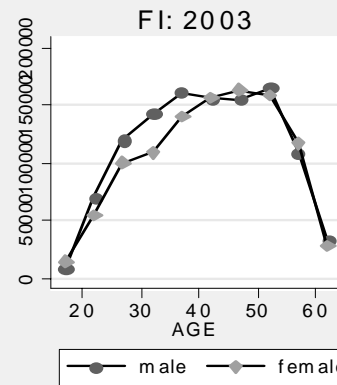
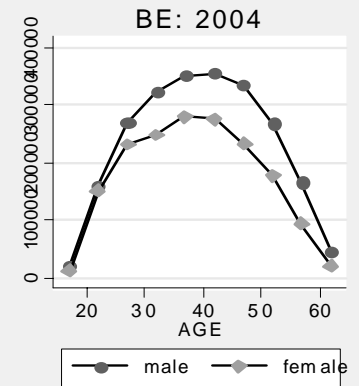
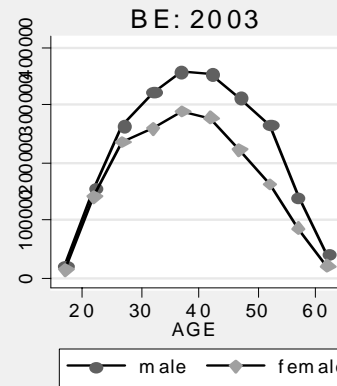
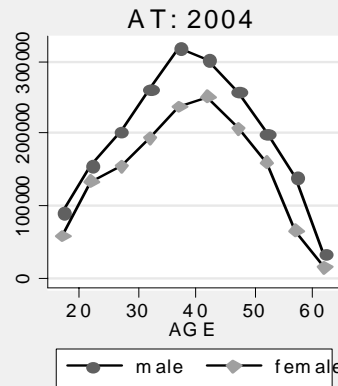
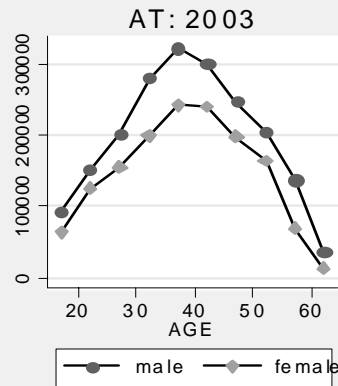


Data availability: LFS

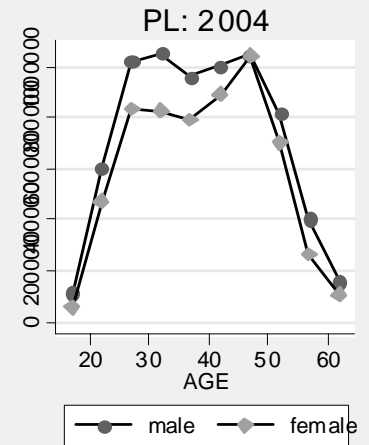
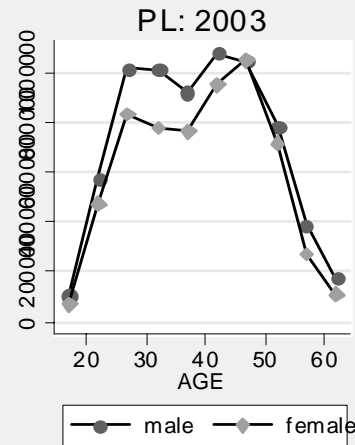
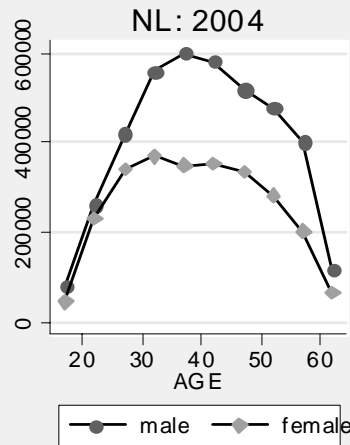
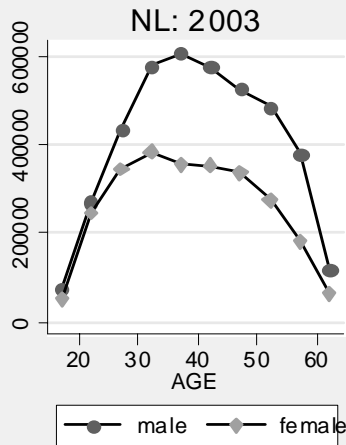
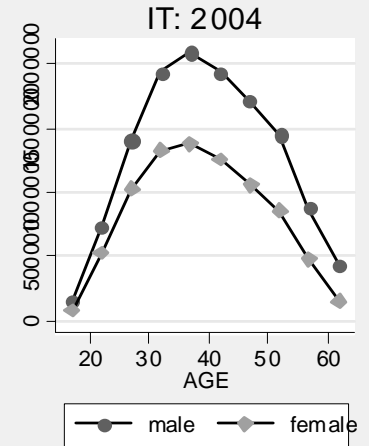
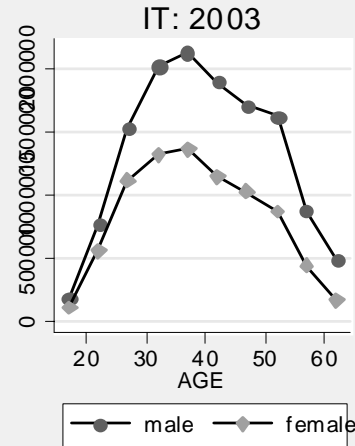
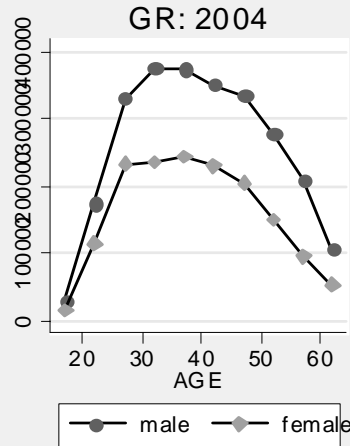
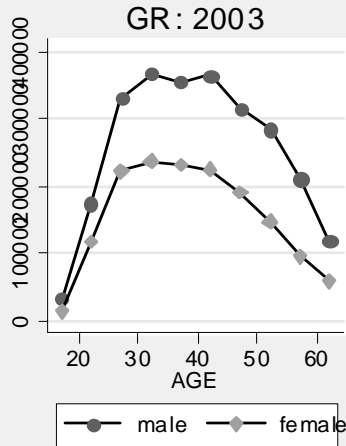
- Several countries are missing or incomplete:
 - United Kingdom, Germany
- Some are short in time-dimension:
 - Austria, Cyprus, Estonia, Latvia, Lithuania, Poland, Slovakia, Slovenia
- Coding changes in several countries over years



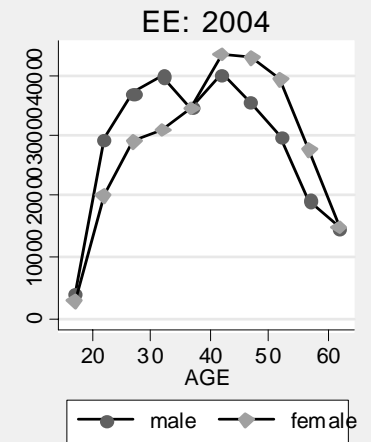
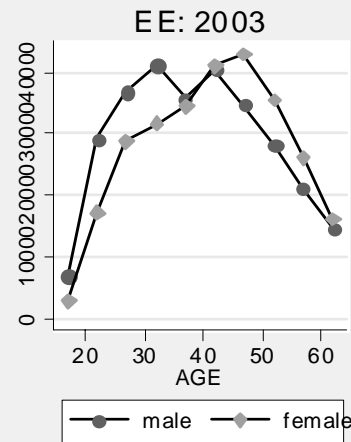
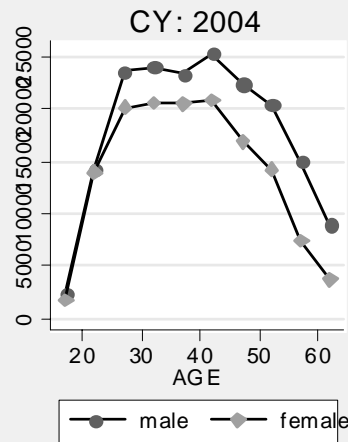
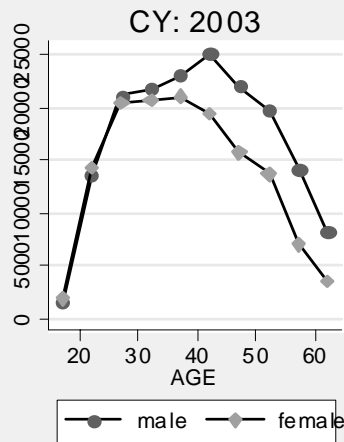
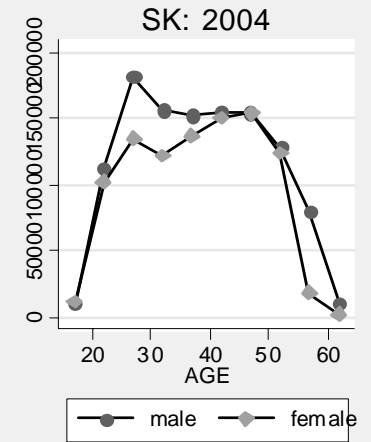
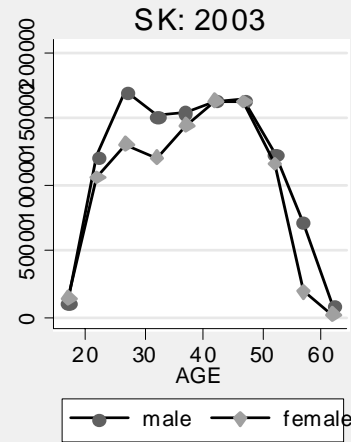
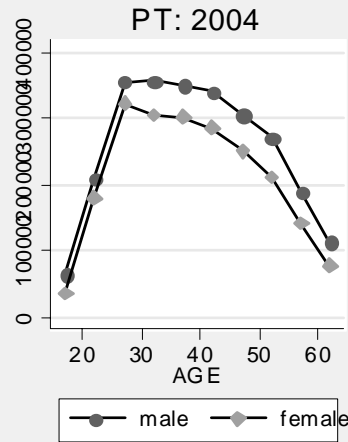
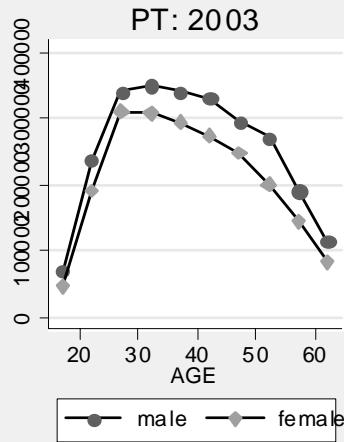
Age structure by country



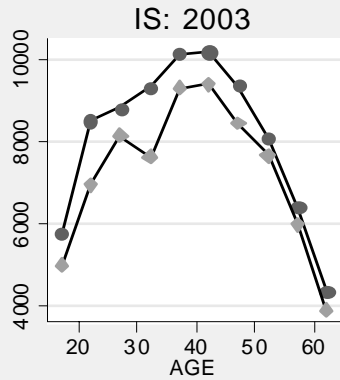
Age structure by country



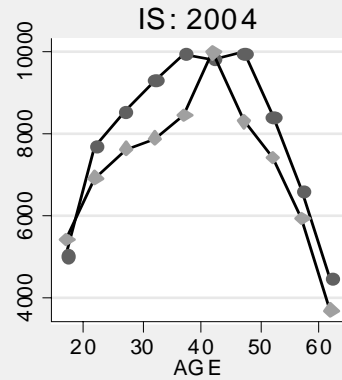
Age structure by country



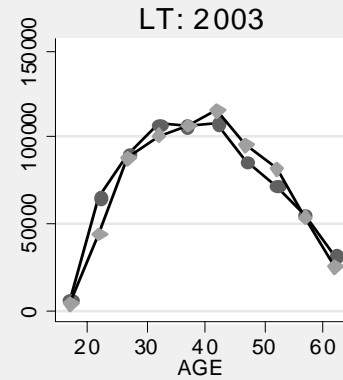
Age structure by country



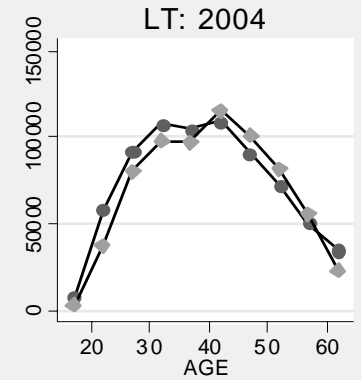
● male ◆ female



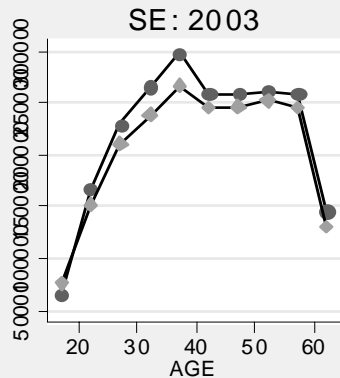
● male ◆ female



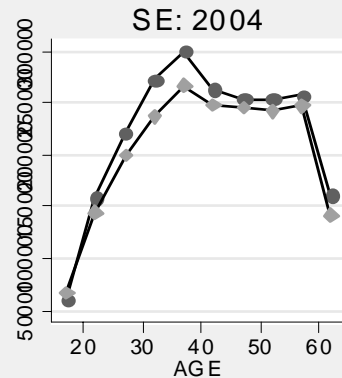
● male ◆ female



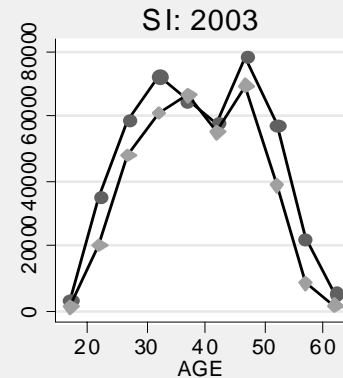
● male ◆ female



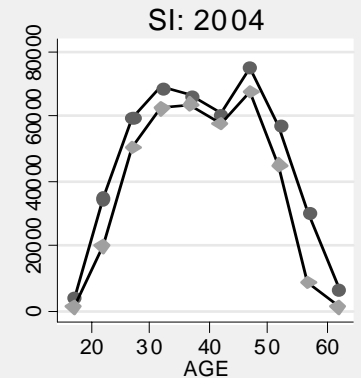
● male ◆ female



● male ◆ female



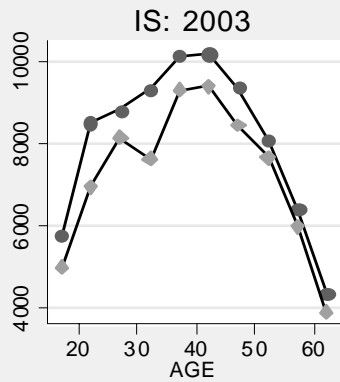
● male ◆ female



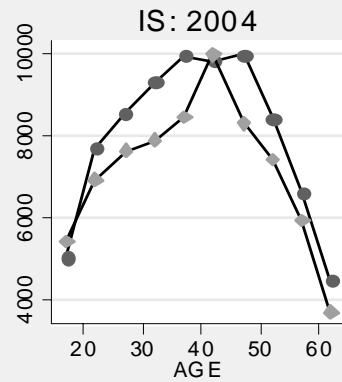
● male ◆ female



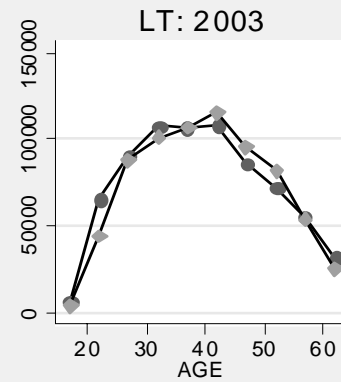
Age structure by country



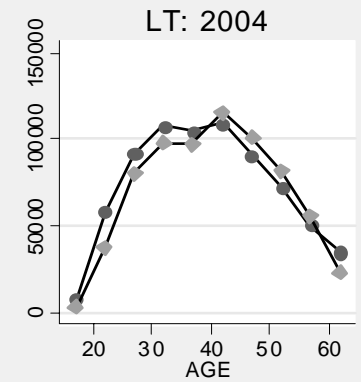
● male ◆ female



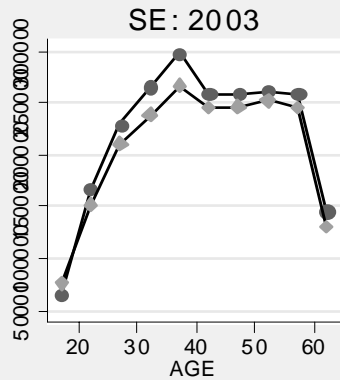
● male ◆ female



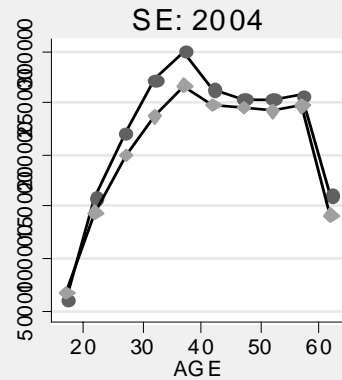
● male ◆ female



● male ◆ female



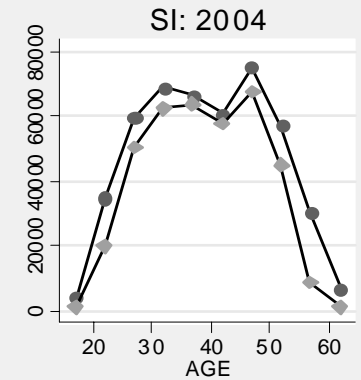
● male ◆ female



● male ◆ female



● male ◆ female

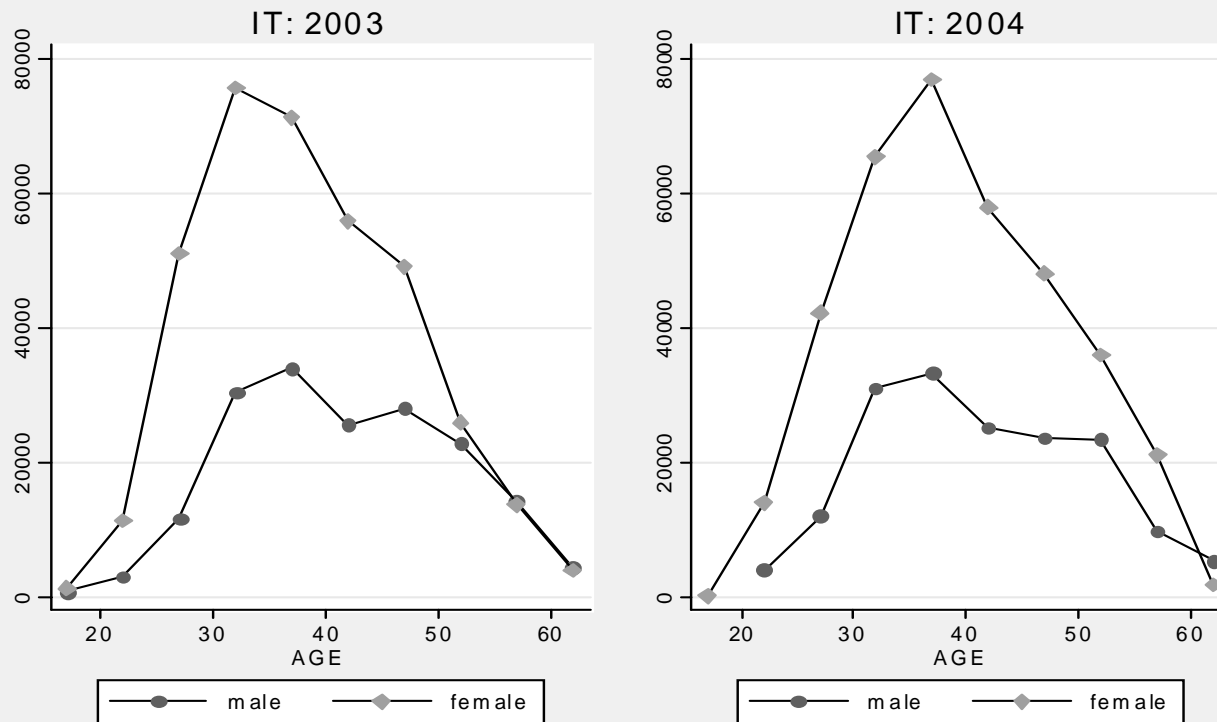


● male ◆ female



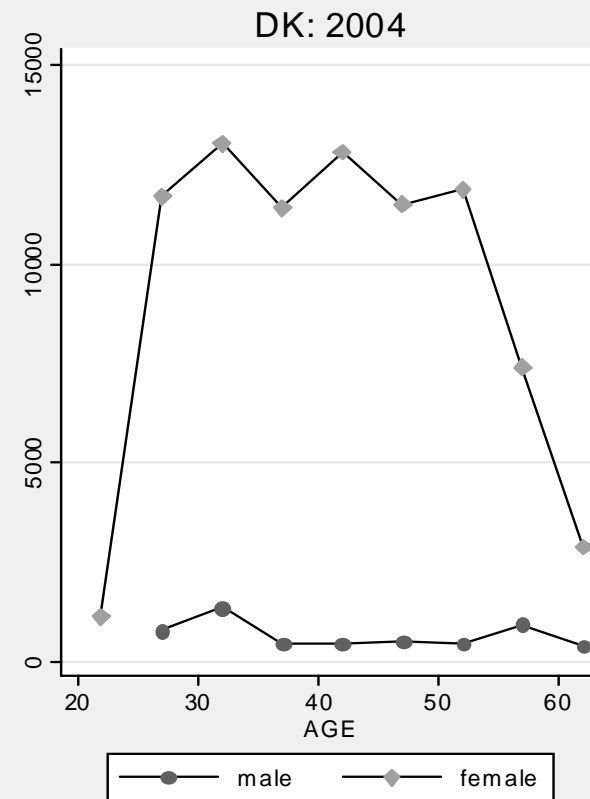
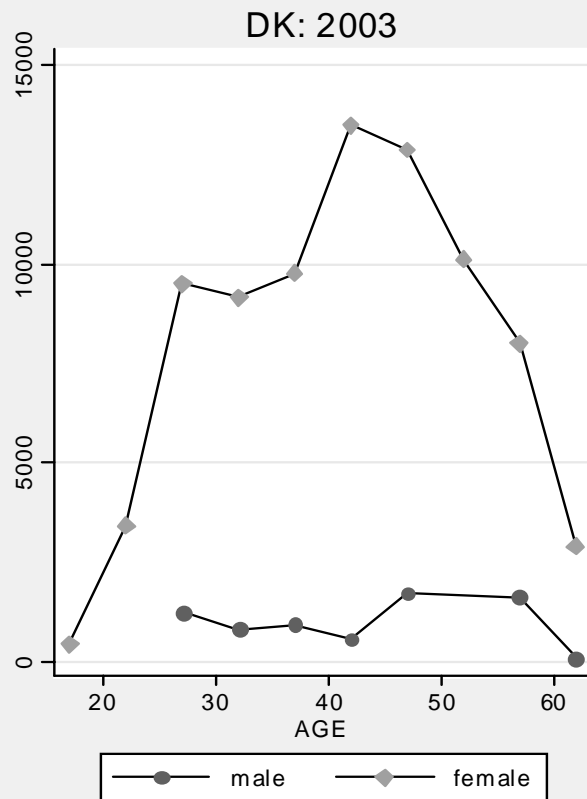
Example: Age structure

Life science & health associate professionals



Example: Age structure

Life science & health associate professionals



Migration

- Migration to and from EU countries should – if possible – be tackled
- Demographic forecasts should in principle include migration, but we should not solemnly rely on it.
- Alternative, using outside sources on migration streams, and extrapolating those on replacement demand:
 - Sources can at best distinguish between broad age groups



Conclusion

- Replacement Demand can in principal be estimated using a common methodology across all countries
- Data availability dictates the use of methodology
- For some countries the estimates will be less stable given short time-spans of availability
- Migration remains a difficult issue to tackle

