



Ageing Europe – An Application of
National Transfer Accounts for Explaining
and Projecting Trends in Public Finances

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Underinvestment in human capital across Europe and its consequences for the sustainability of public transfers

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The Human Capital Investment Gap - a sustainability indicator for the public transfer system

Sustainability: How will the public transfer system look like in 30-40 years?

Why is sustainability important?

- Public transfers affect important economic decisions, e.g. old age provision
- To make good and appropriate decisions individuals must be able to predict how public transfers will be affected by population ageing.

The Generational Contract

Main idea of the Human Capital Investment Gap: the reciprocal nature of intergenerational transfers

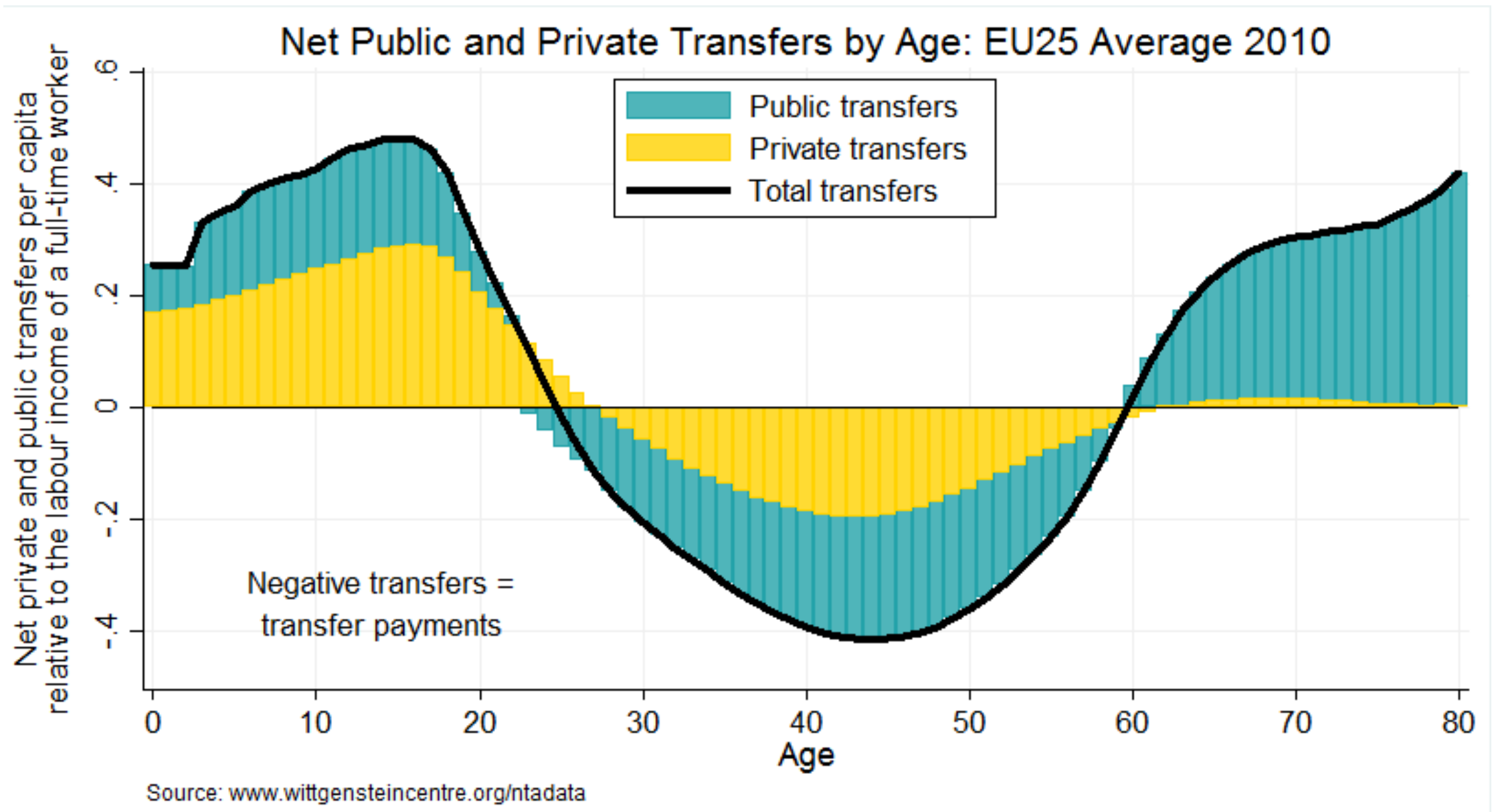
The generational contract:

- Parental generation uses resources for their children (invests in children)
- The child generation provides care and pays a share of their income to the retired parental generation (return to the investments in children)

Crucial question for each generation/cohort:

- Have the investments in children been large enough to finance transfer to the parental generation at the desired level?

Intergenerational Transfers



Human Capital Investment Gap for the cohort born in 1950

Difference between

- total **net public benefits in old age** expected by a member of the cohort born in 1950 and
- total **net public contributions to the elderly** paid by the child generation over the working life per member of the 1950 cohort

Data: European National Transfer Accounts

Datasource:

European National Transfer Accounts: www.wittgensteincentre.org/ntadata

=> Detailed information on income, transfers, consumption and saving for the year 2010

Public transfer contributions: age-specific information on taxes and social contributions by source: labour income, asset income, consumption

Public transfer benefits: age-specific cash and in-kind benefits by type: pensions, health, education...

Mortality: EUROPOP2013,

Completed cohort fertility: Human Fertility Database and EUROSTAT.

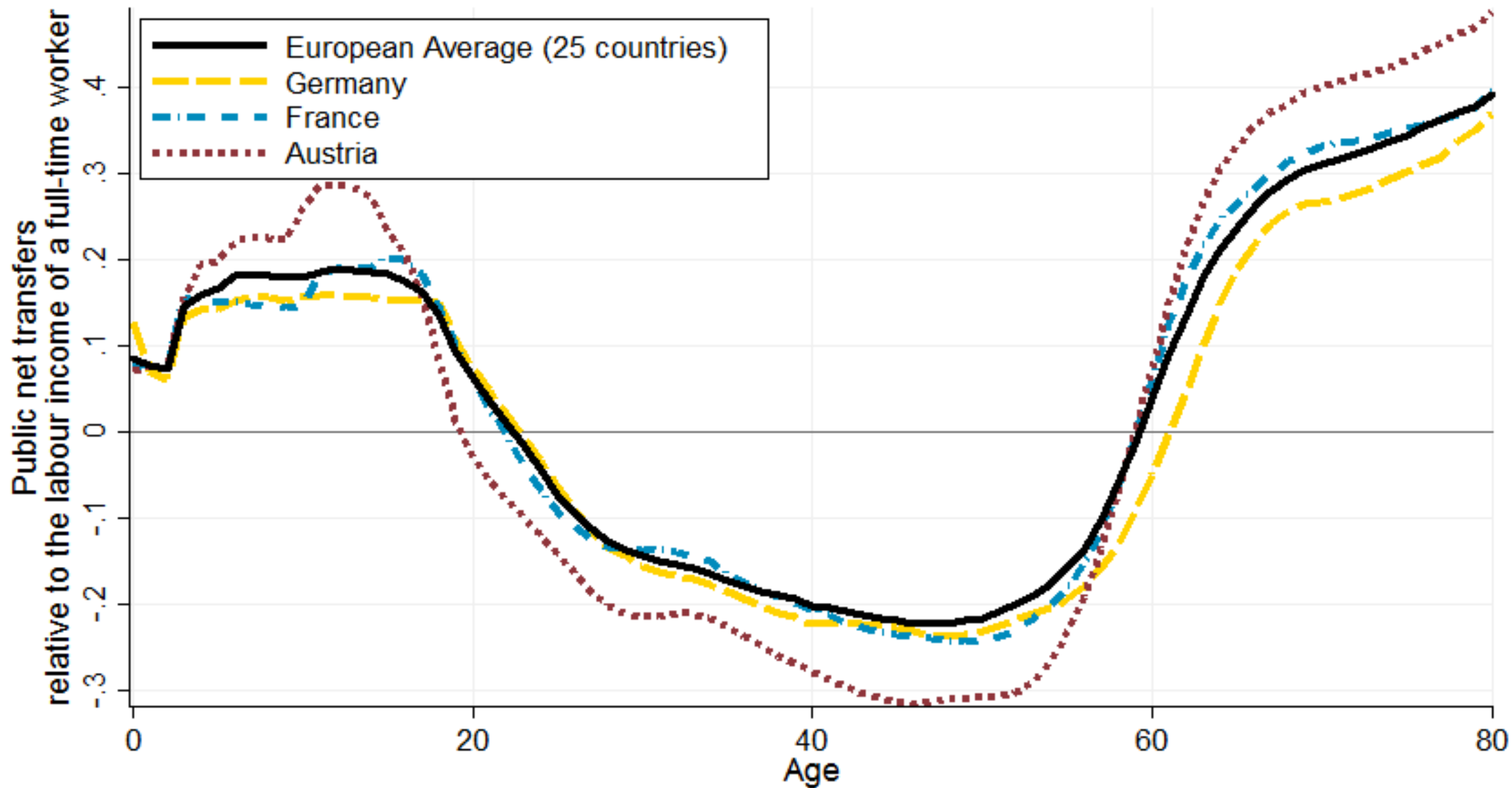
- I. Expected public old age benefits for members of the cohort born in 1950.**

- II. Expected public contributions of the children's generation per member of the 1950 cohort**

**I. Net public transfer benefits in old age,
cohort born in 1950**

Public Net Transfers 2010

Public Transfers 2010



Projections: Public Old Age Benefits

Assumptions:

- **Age-specific public benefits in old age in relation to labour income of a full-time worker remain at levels observed in 2010.**
- **Survival probabilities from EUROPOP2013**

$$TGOA_{c1950} = \sum_{i=u}^{100} TG_i * S_{c1950,i}$$

$TGOA_{c1950}$... total public old age benefits expected by a member of the 1950 cohort

TG_i ... avg. public net benefits at age i relative to the income of a ft-worker

u ... lowest age group with positive public net benefits

$S_{c1950,i}$... probability of survival until age i

$S_{c1950,100}$... life expectancy at age 100

Results: Public Old Age Benefits

Country	Benefit in old age relative to the labour income of a full-time worker	Expected no. of years with pos. net benefits	Avg. net benefit
Austria	10.0	25	0.40
Finland	10.4	23	0.45
France	8.3	26	0.31
Germany	6.7	23	0.29
Hungary	6.2	23	0.27
Spain	7.0	26	0.27
Italy	7.2	26	0.28
Sweden	7.8	21	0.37
Bulgaria	4.7	22	0.21

2. Net public contributions in working age,
children of the 1950 cohort

Projections of Public Contributions

Simulation of the public net contributions of the child generation over the whole working life

- Combination with employment projections: we account for a likely **increase in employment rates** (projections based on past development)

Components and assumptions

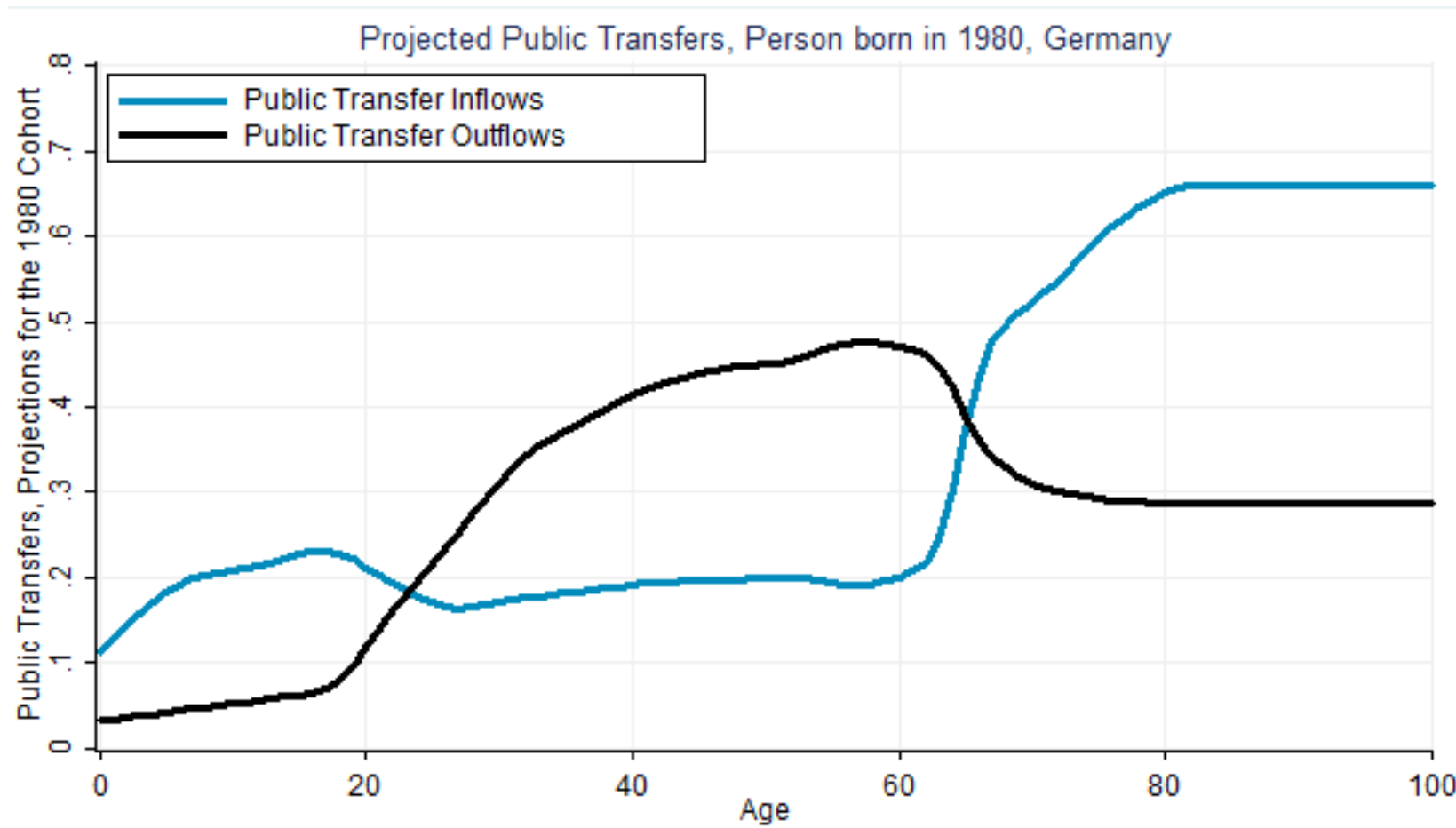
- **Size of child generation** calculated using data on completed cohort fertility of the cohort born in 1950
- **Share of net public contributions relative** to the elderly relative to labour income of a fulltime worker remains at level observed in 2010.

Projections of Public Contributions

Taking into account increasing employment rates: decomposition transfers by employment status:

- Per capita public contributions and benefits **not directly related to employment status** remain constant at the 2010 level relative to the income of a full-time worker.
- Contributions and benefits **directly related to employment status** relative to the income of a fulltime worker remain at the level observed in the cross-section data 2010 conditional on employment status.

Projections of Public Contributions



Total public contributions of the child generation during working age per member of the 1980 cohort:

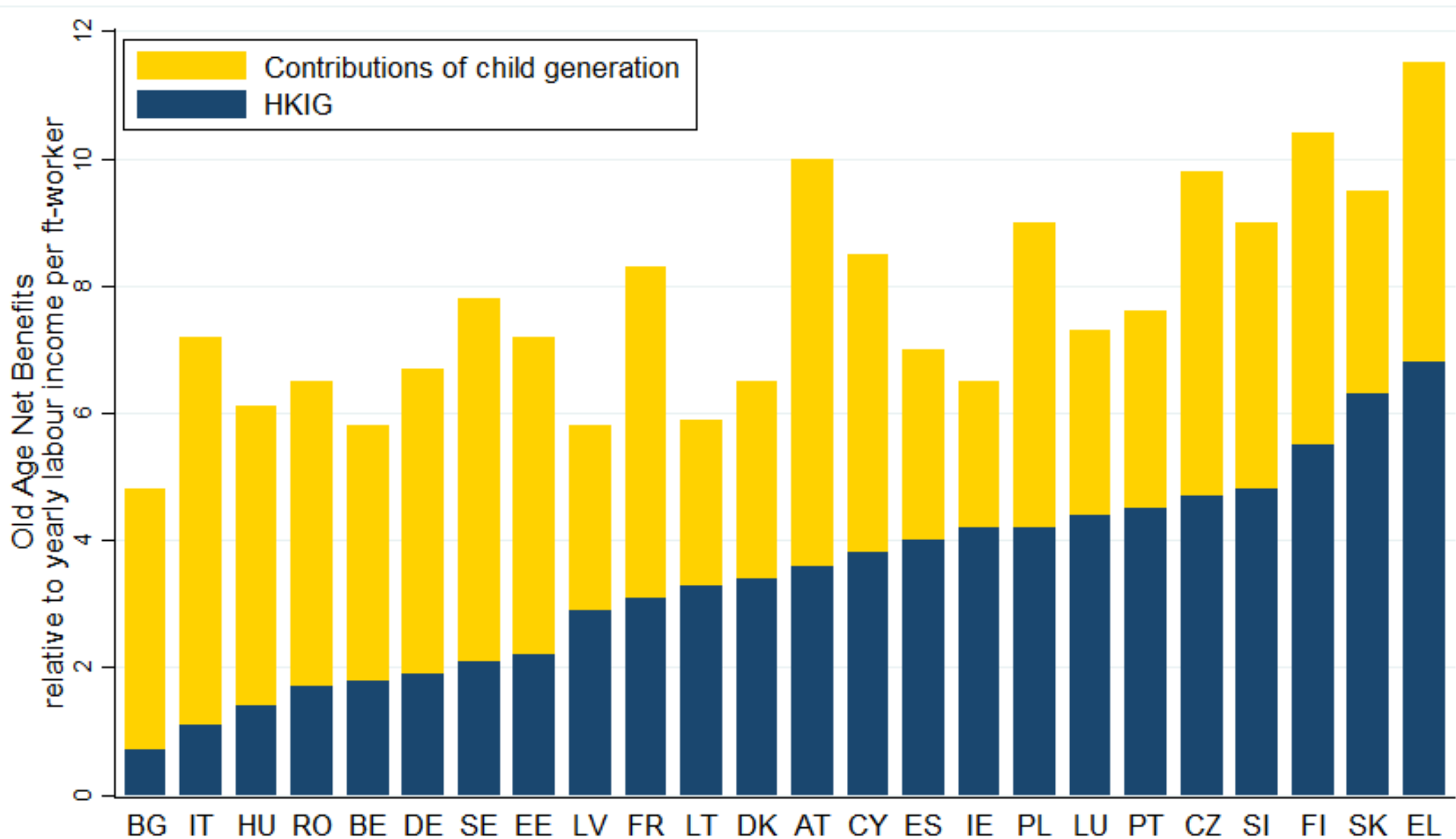
$$TGWA_{c1980} = \sum_{i=t}^{u-1} (TGO_i - TGI_i) * S_{c1980,i}$$

$TGWA_{c1980}$ *share transferred to elderly*avg. number of children

Projections of Public Contributions: Results

Country	Contributions of children per member of the 1950 cohort	Expected no. of years with pos. net contributions	Avg. net contribution	Share paid to elderly in %	No. children
Austria	6.4	41	0.24	68	0.96
Finland	4.9	41	0.19	69	0.93
France	5.2	41	0.19	62	1.09
Germany	4.8	42	0.19	68	0.87
Hungary	4.7	39	0.18	64	1.07
Spain	3.0	41	0.11	62	1.11
Italy	6.1	42	0.22	68	0.99
Sweden	5.7	42	0.23	59	1.01
Bulgaria	4.1	43	0.13	69	1.10

The Human Capital Investment Gap Across Europe



The HKIG in Selected Countries: Retirement at Age 70

Country	Benefit in old age	Contributions child generation per member of the 1950 cohort	HKIG
Austria	10.0	8.2	1.8
Finland	10.4	5.6	4.7
France	8.3	6.8	1.4
Germany	6.7	5.5	1.2
Hungary	6.2	5.8	0.4
Spain	7.0	3.6	3.3
Italy	7.2	7.5	-0.3
Sweden	7.8	6.8	1.0
Bulgaria	4.7	4.4	0.3

Conclusions

- **Intergenerational transfers consist of transfers to the elderly (public) and transfers to children (mostly private)**
- **These transfer components are interrelated: the transfers to children determine the children's ability to finance public transfers to the elderly once they enter working age**
- **Demographic changes – a change in the level of transfers to children - require changes in the age pattern of public transfers**
- **Level of public benefits and contributions will have to change in the future - increasing retirement age will not be sufficient**

Literature:

Sustainability of Inter-Generational Public Transfers in EU-Countries: A New Indicator Based on Projections of National Transfer Accounts. Bernhard Hammer, Alexia Fürnkranz-Prskawetz, Róbert I. Gál, Lili Vargha, Tanja Istenič. Download from: agenta-project.eu

European National Transfer Accounts

