HUNGARIAN DEMOGRAPHIC RESEARCH INSTITUTE

agenta

COUNTING WOMEN'S WORK

The quantity-quality tradeoff: a cross-country comparison of market and nonmarket investments per child in relation to fertility

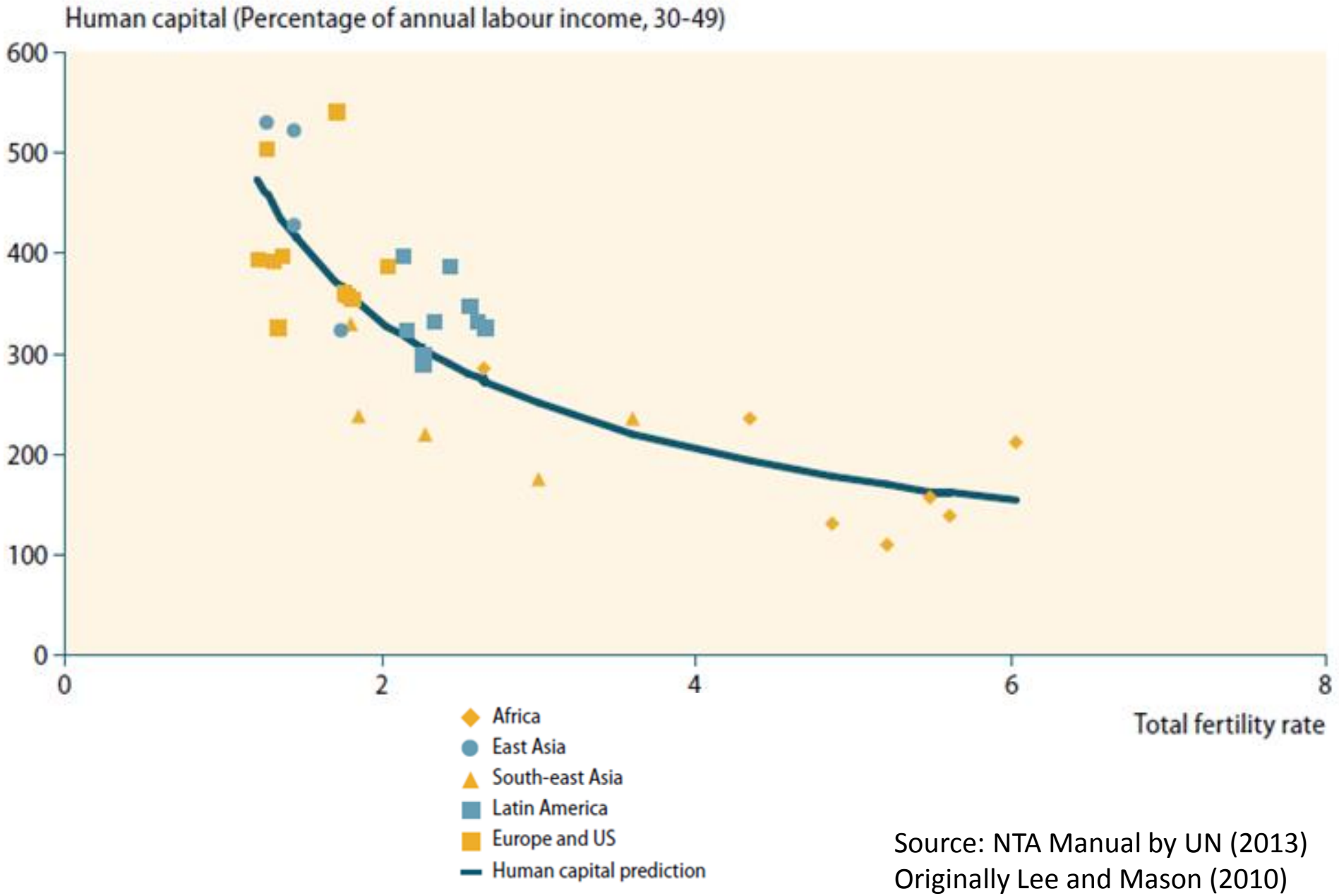
Lili Vargha & Gretchen Donehower

NTA11 Saly, 22 June 2016

Starting point

- NTA data supports the quantity-quality tradeoff hypothesis on the macro-level:
  - There is a tradeoff between human capital investment per child and fertility (Lee and Mason 2010, Lee and Donehower 2011, Mason et al. 2016)
    - In these studies human capital investment is public and private education + health spending per child
  - There is tradeoff between total costs per child and fertility in East-Asia (Ogawa et al. 2016)
    - In this study the costs are the NTA defined LCD per child

Human capital and the total fertility rate in selected countries



Source: NTA Manual by UN (2013)
Originally Lee and Mason (2010)

Problem

- In these previous studies only public and private market costs are included, even though the extended theory on the quantity-quality trade-off by Becker incorporates **time costs of raising children**
- **Childcare** provided by mostly parents and grandparents are also important human capital investments

Objective

- In these previous studies only public and private market costs are included, even though the extended theory on the quantity-quality trade-off by Becker incorporates **time costs of raising children**
- **Childcare** provided by mostly parents and grandparents are also important human capital investments

- New NTTA estimations enable us to extend previous results and incorporate **the value of childcare** into analyzing human capital investment per child and its relation to fertility
- We combine market expenditures with the measures of time inputs (NTA + NTTA), analyze them in a cross-national comparative context and explore their relation to fertility

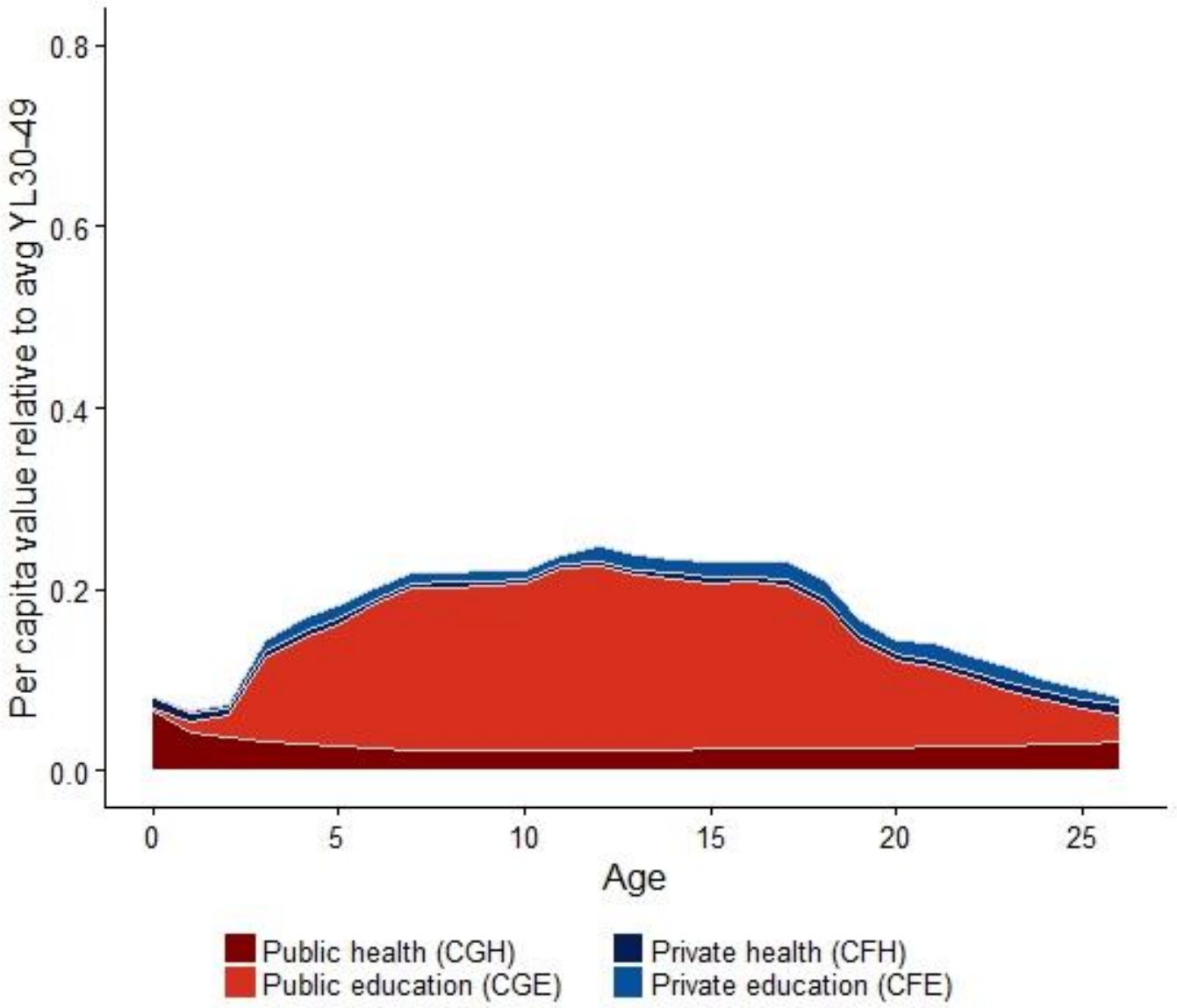
Data

- 25 countries with NTTA + NTA estimations, 2000-2010
  - Low and middle-income countries: Bulgaria, Colombia, Costa Rica, Estonia, Ghana, Hungary, Latvia, Lithuania, Mexico, Poland, Senegal and South Africa
  - High income countries: Austria, Belgium, Denmark, Finland, France, Germany, Italy, Netherlands, Slovenia, Spain, Sweden, United Kingdom, United States
  - Sources: ntaccounts.org, CWW, AGENTA

- **HK investment per child**: Public and private education and health costs + value of childcare per child in each country
- **Total spending per child**: NTA+NTTA LCD per child in each country

1. Human capital investment per child

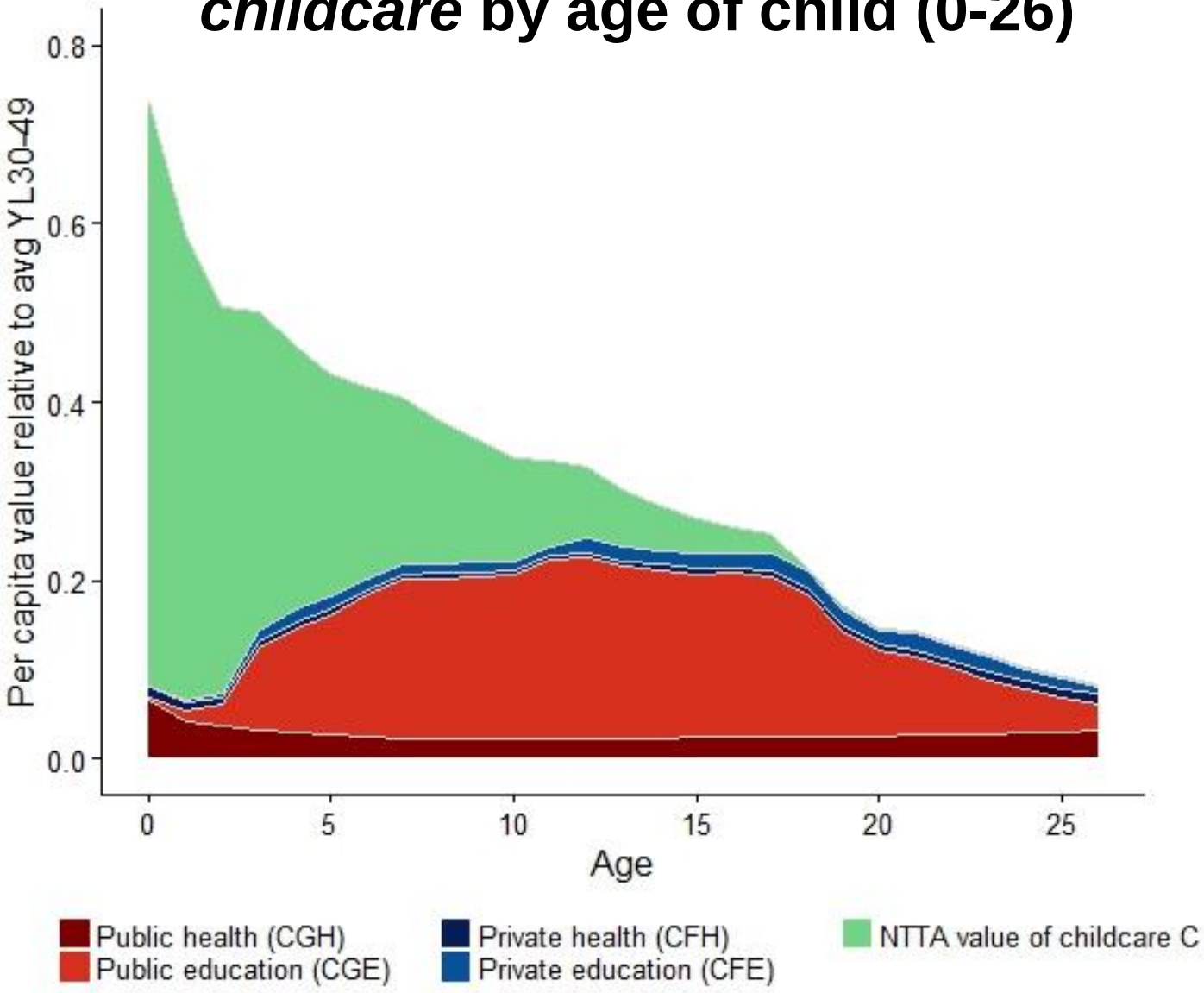
Market human capital investment by age of child (0-26)



Note: Average of 22 countries around 2000-2010

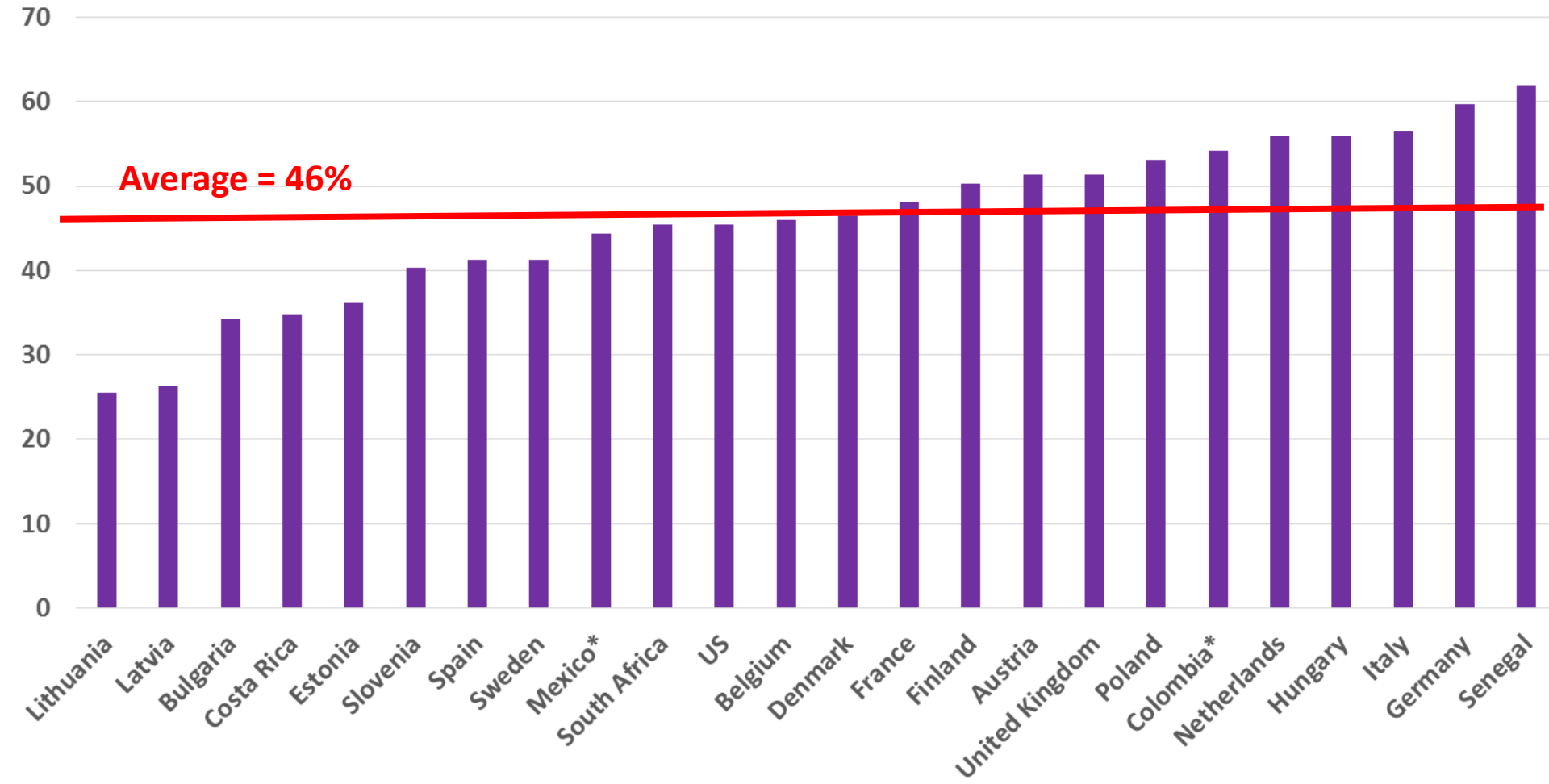
Source: Authors' calculations using NTA from ntaccounts.org & AGENTA

Market human capital investment + *value of nonmarket childcare* by age of child (0-26)



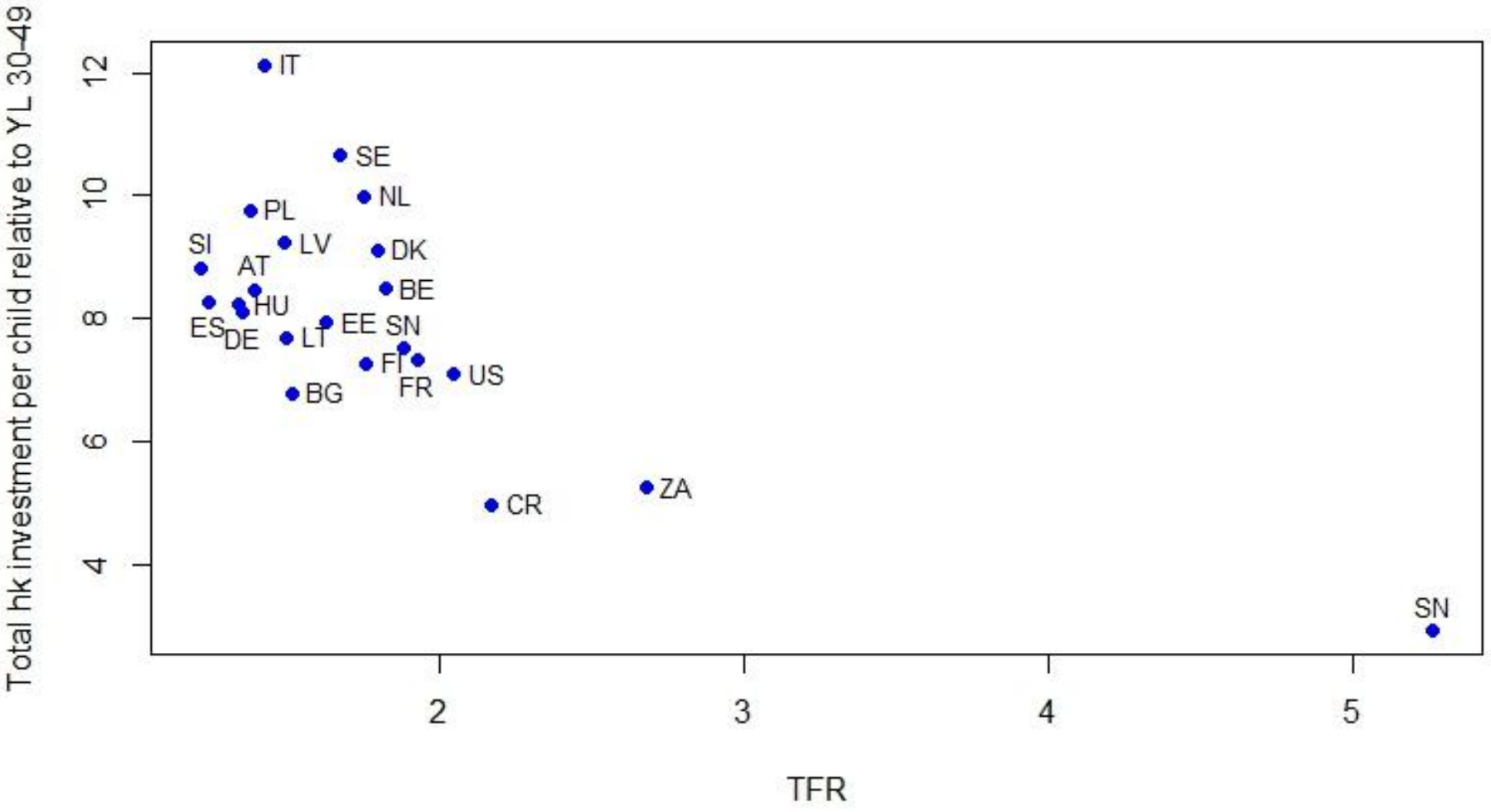
Note: Average of 22 countries around 2000-2010. Source: Authors' calculations using NTTA from CWW & AGENTA, NTA estimates from ntaccounts.org & AGENTA

Percentage of time inputs in total human capital investment in 24 countries (%)



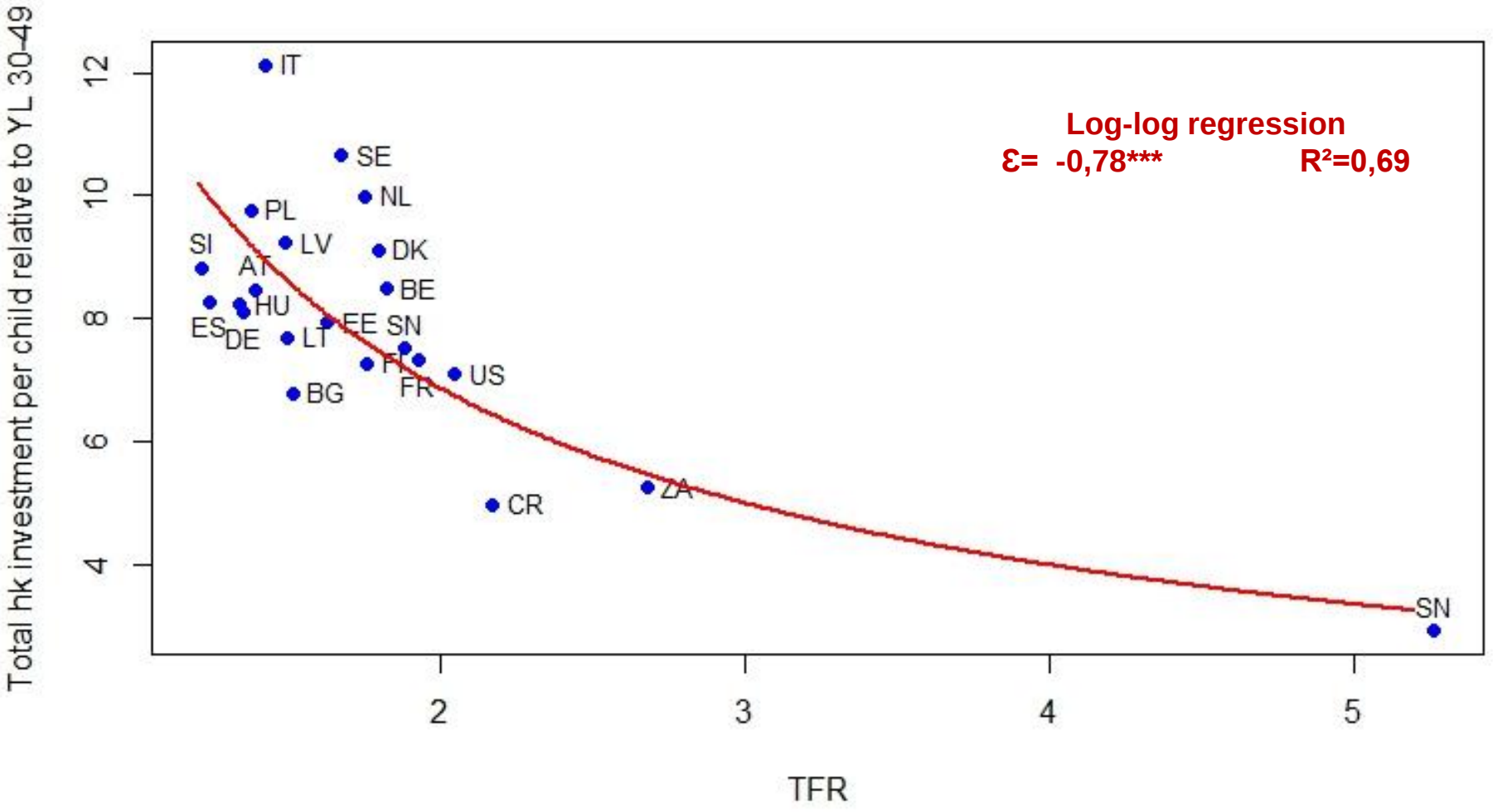
Source: Authors' calculations using NTTA from CWW & AGENTA, NTA estimates from ntaccounts.org & AGENTA

Human capital investment per child and the total fertility rate in 22 countries



Source: Authors' calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; TFR from UN. HK investments are synthetic cohort measures computed as
HK= CGE + CFE (age 0-26) + CGH + CFH (age 0-17) + the value of NTTA childcare consumption (age 0-17)

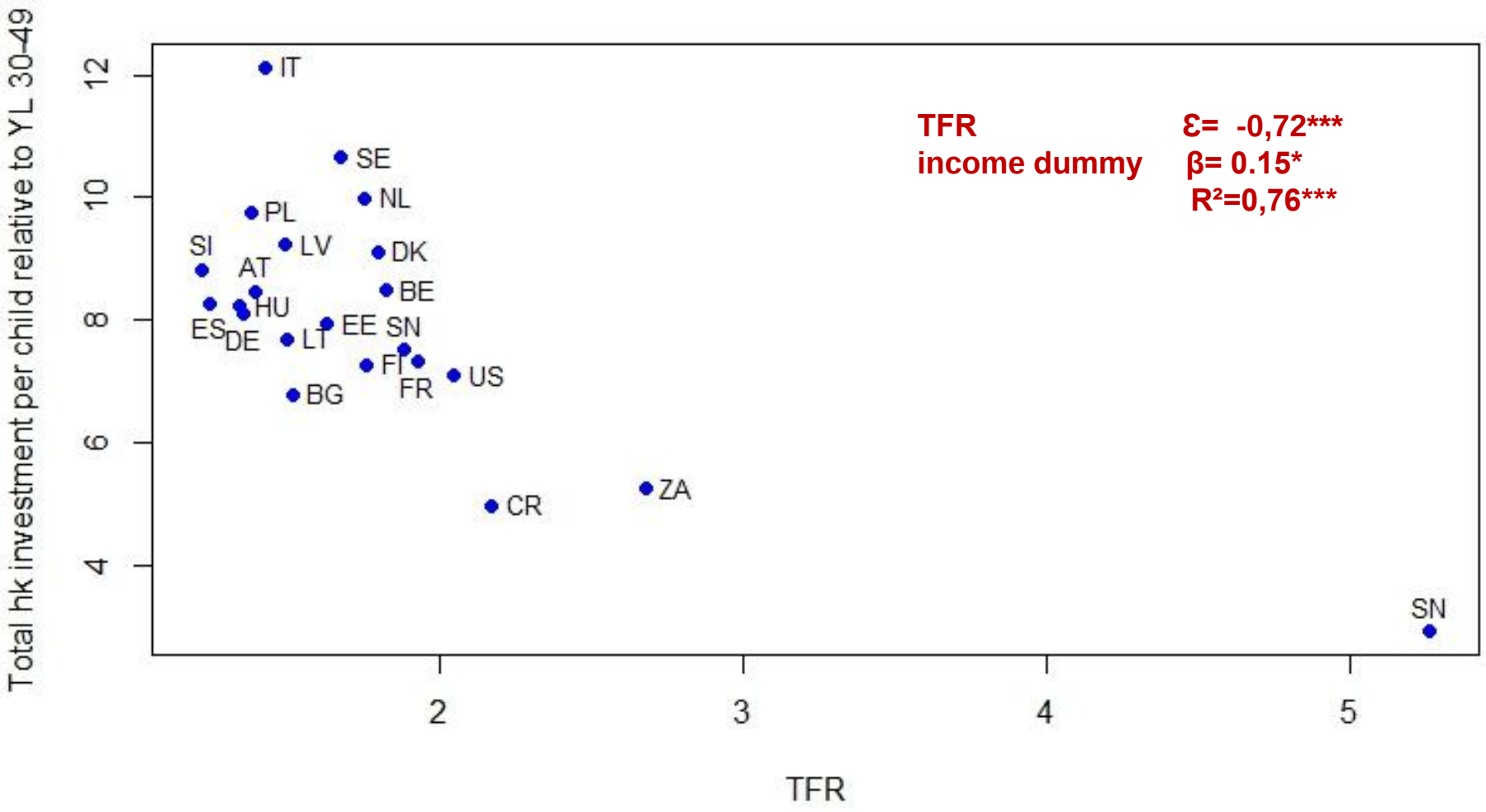
Human capital investment and total fertility rate in 22 countries



Source: Author's calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; TFR from UN. HK investments are synthetic cohort measures computed as
HK= CGE + CFE (age 0-26) + CGH + CFH (age 0-17) + the value of NTTA childcare consumption (age 0-17)

Low or middle vs. high income countries

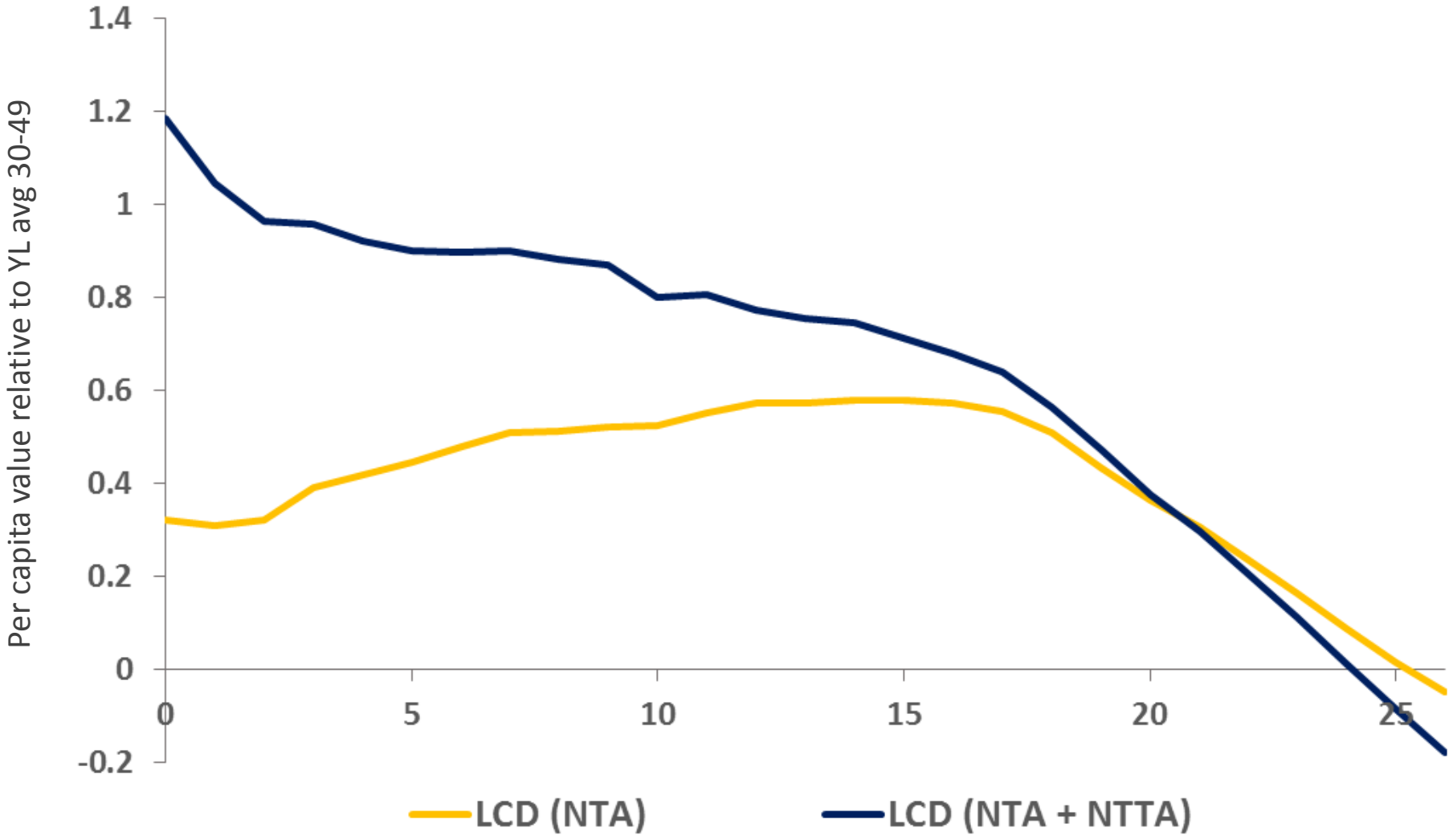
(+ income dummy, low/middle: 0; high: 1)



Source: Authors' calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; TFR from UN. HK investments are synthetic cohort measures computed as
HK= CGE + CFE (age 0-26) + CGH + CFH (age 0-17) + the value of NTTA childcare consumption (age 0-17)

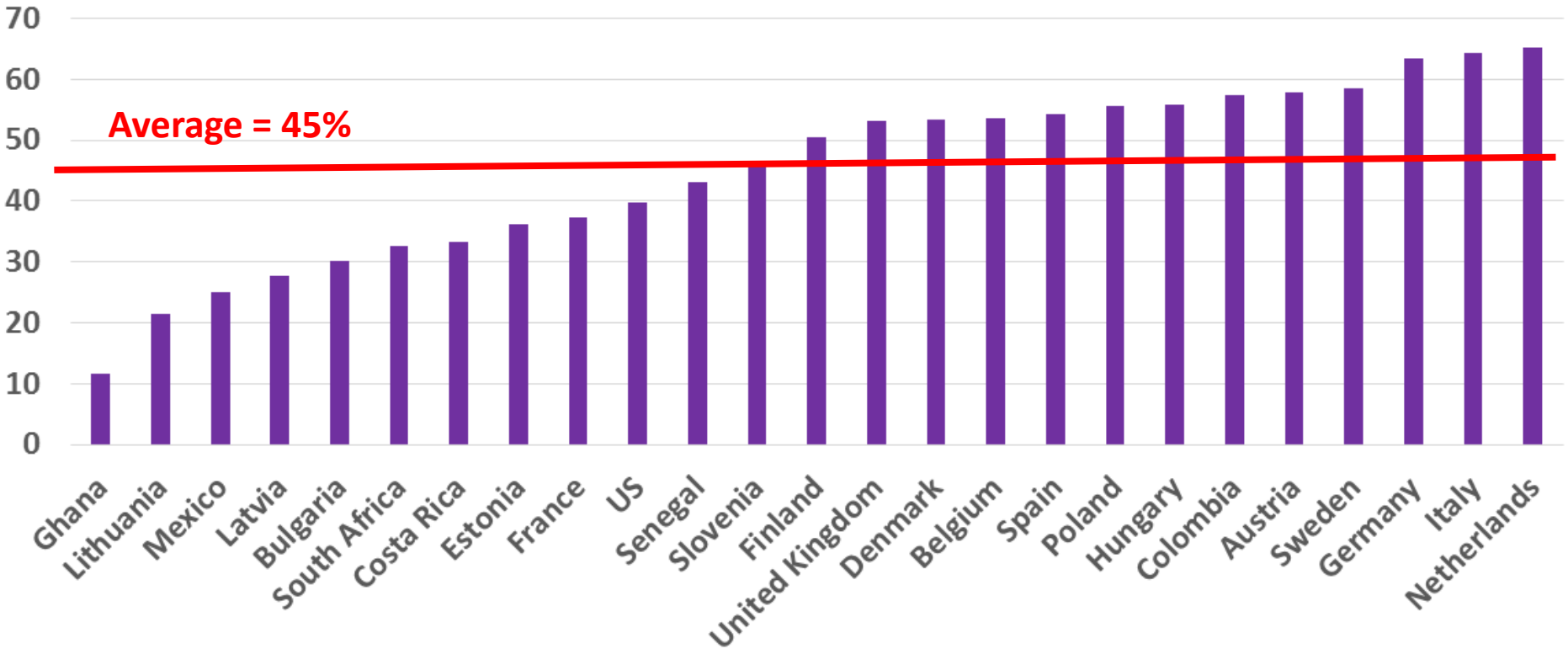
1. Total LCD (NTA + NTTA) per child

NTA LCD and total LCD (NTA+NTTA) curve by age of child (0-26)



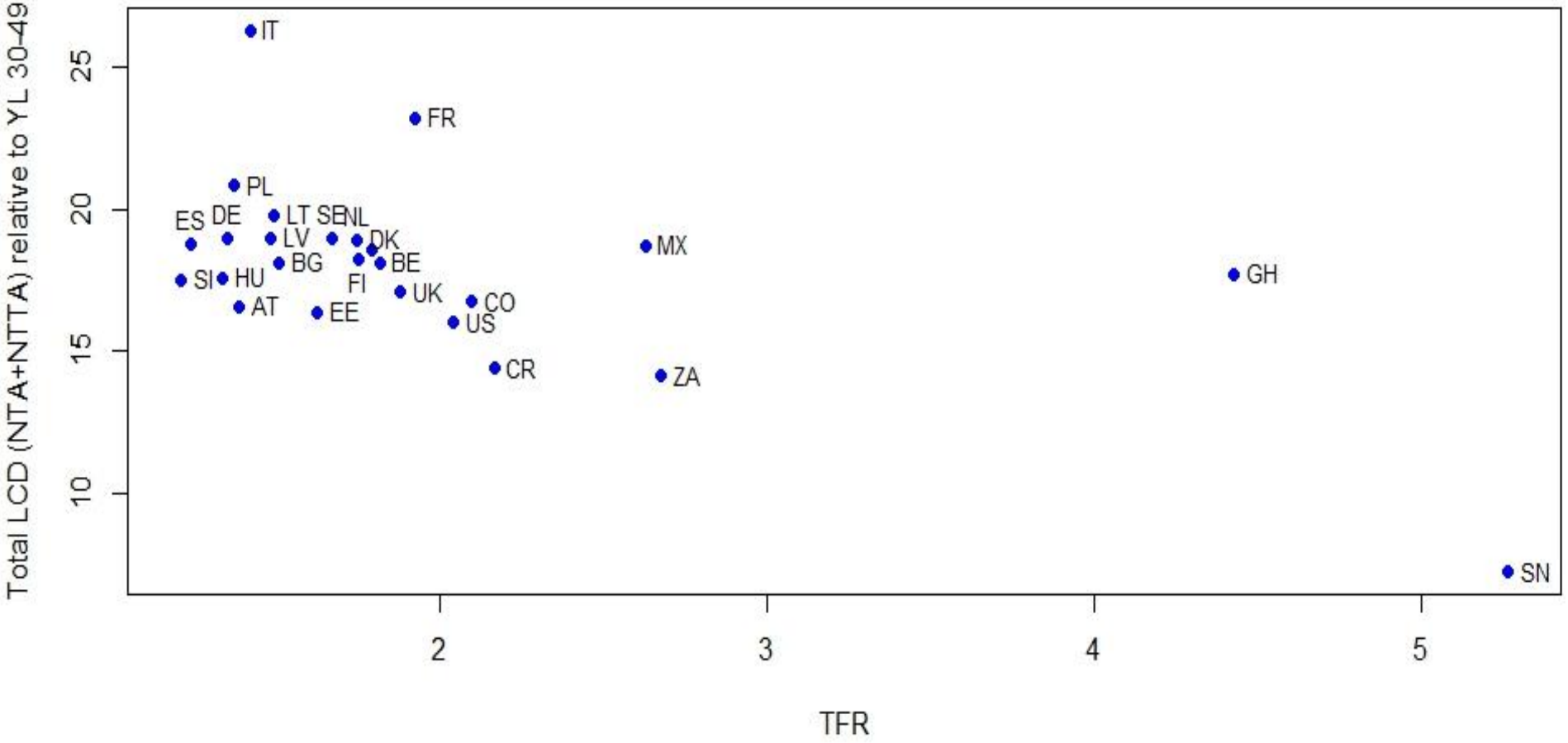
Note: Average of 25 countries around 2000-2010. Source: Authors' calculations using NTTA from CWW & AGENTA, NTA estimates from ntaccounts.org & AGENTA

Percentage of time inputs in total LCD (NTA + NTTA) in 25 countries (%)



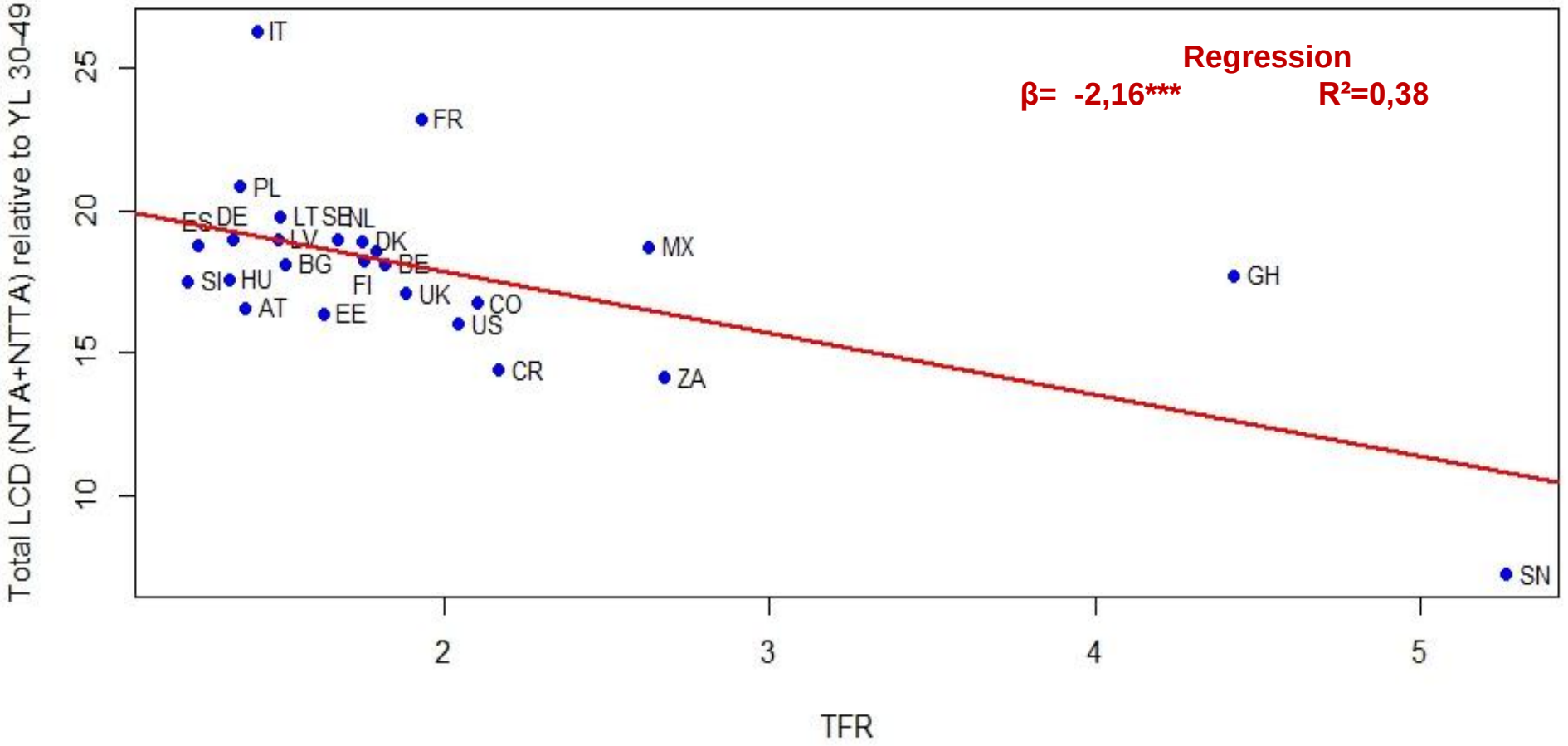
Source: Authors' calculations using NTTA from CWW & AGENTA, NTA estimates from ntaccounts.org & AGENTA

Total LCD (NTA+NTTA) and total fertility rate in 25 countries (preliminary results)



Source: Authors' calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; TFR from UN. Total LCD are synthetic cohort measures computed as C (NTA+NTTA) – YL (NTA+NTTA); age limits are defined by NTA definition depending on LCD

Total LCD (NTA+NTTA) and total fertility rate in 25 countries (preliminary results)



Source: Authors' calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; TFR from UN. Total LCD are synthetic cohort measures computed as C (NTA+NTTA) – YL (NTA+NTTA); age limits are defined by NTA definition depending on LCD

Summary

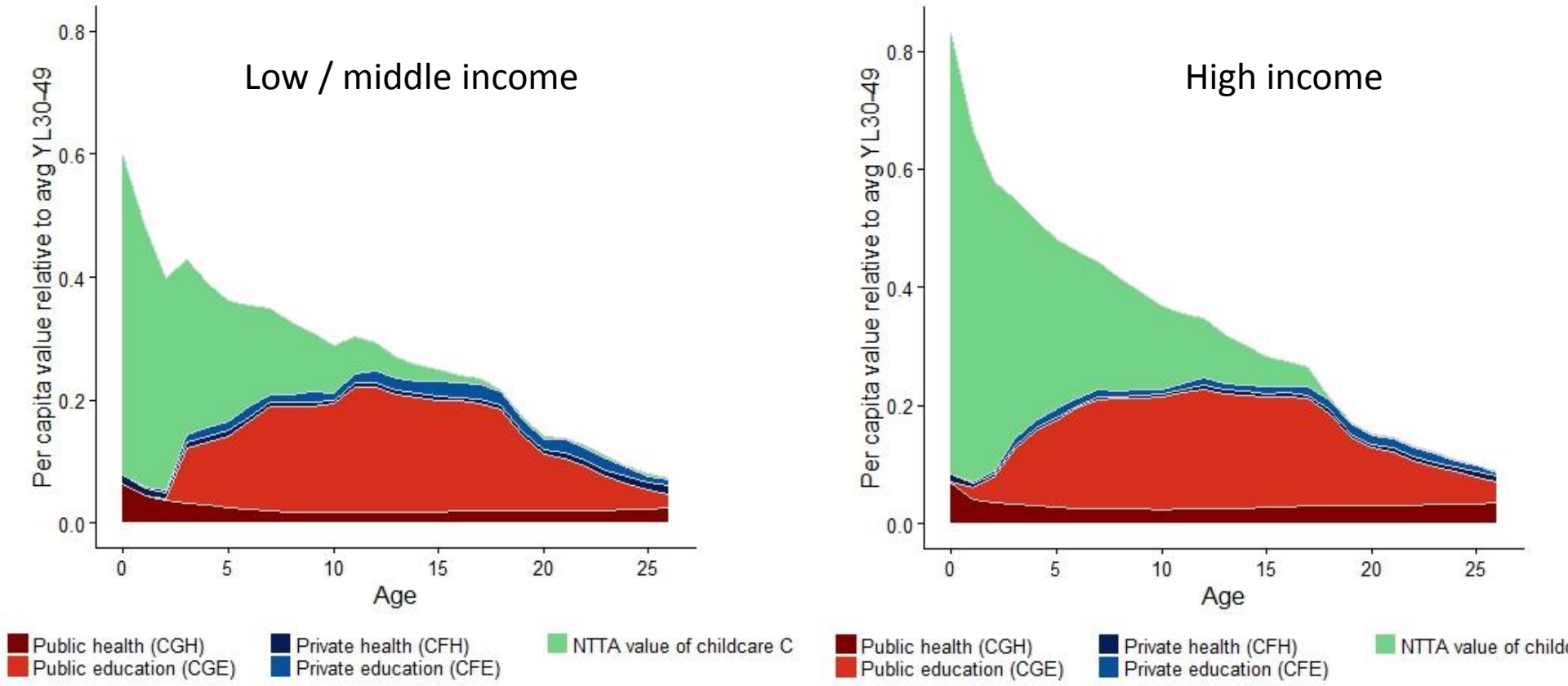
- Nonmarket childcare provided by mostly parents and grandparents is an important and significant part of human capital investment
- NTA data combined with NTTA data supports the quantity-quality tradeoff hypothesis on the country-level
- The results are important for both the gender and the demographic dividend discussion

Thank you!

vargha@demografia.hu

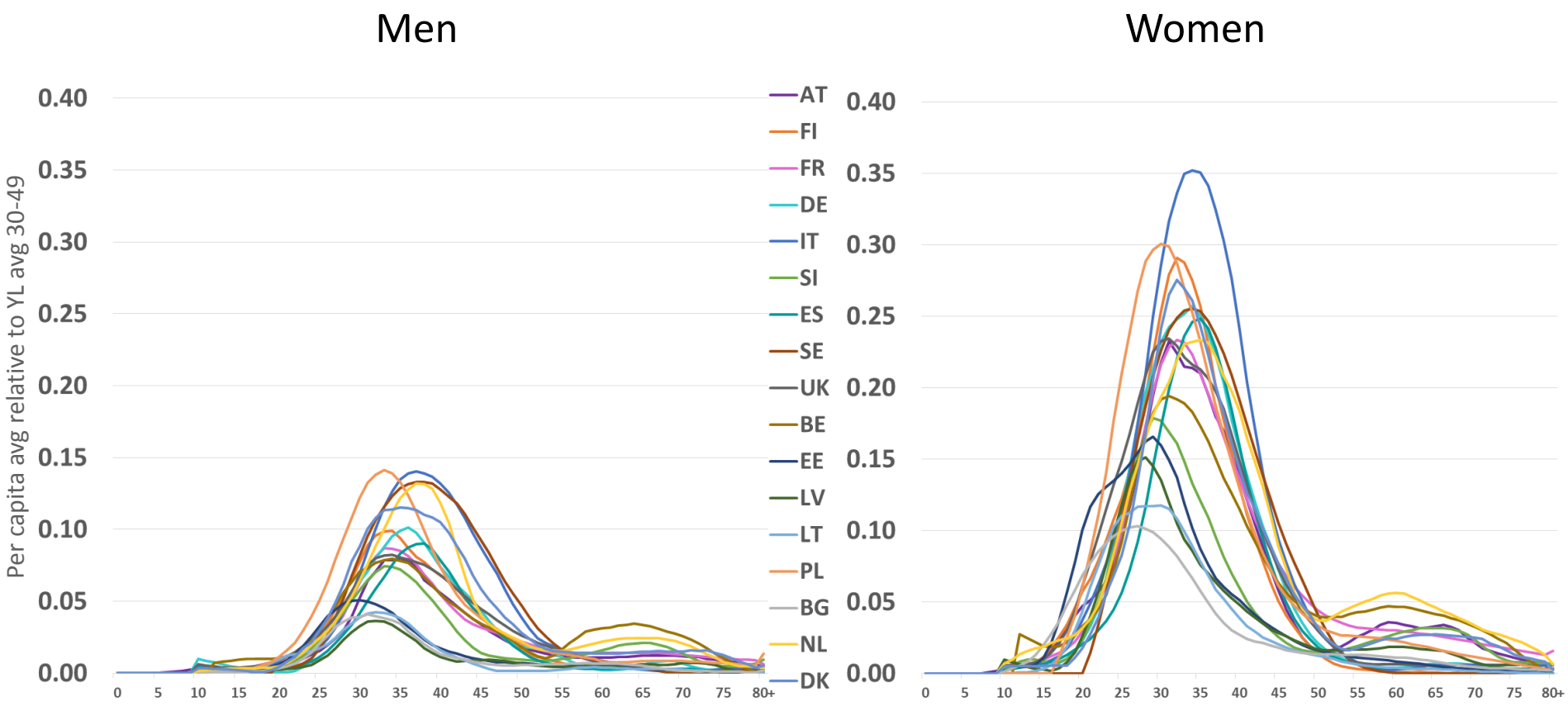
Appendix

HK investment in low / middle vs high income countries



Note: Average of 22 countries around 2000-2010. Source: Authors' calculations using NTTA from CWW & AGENTA, NTA estimates from ntaccounts.org & AGENTA

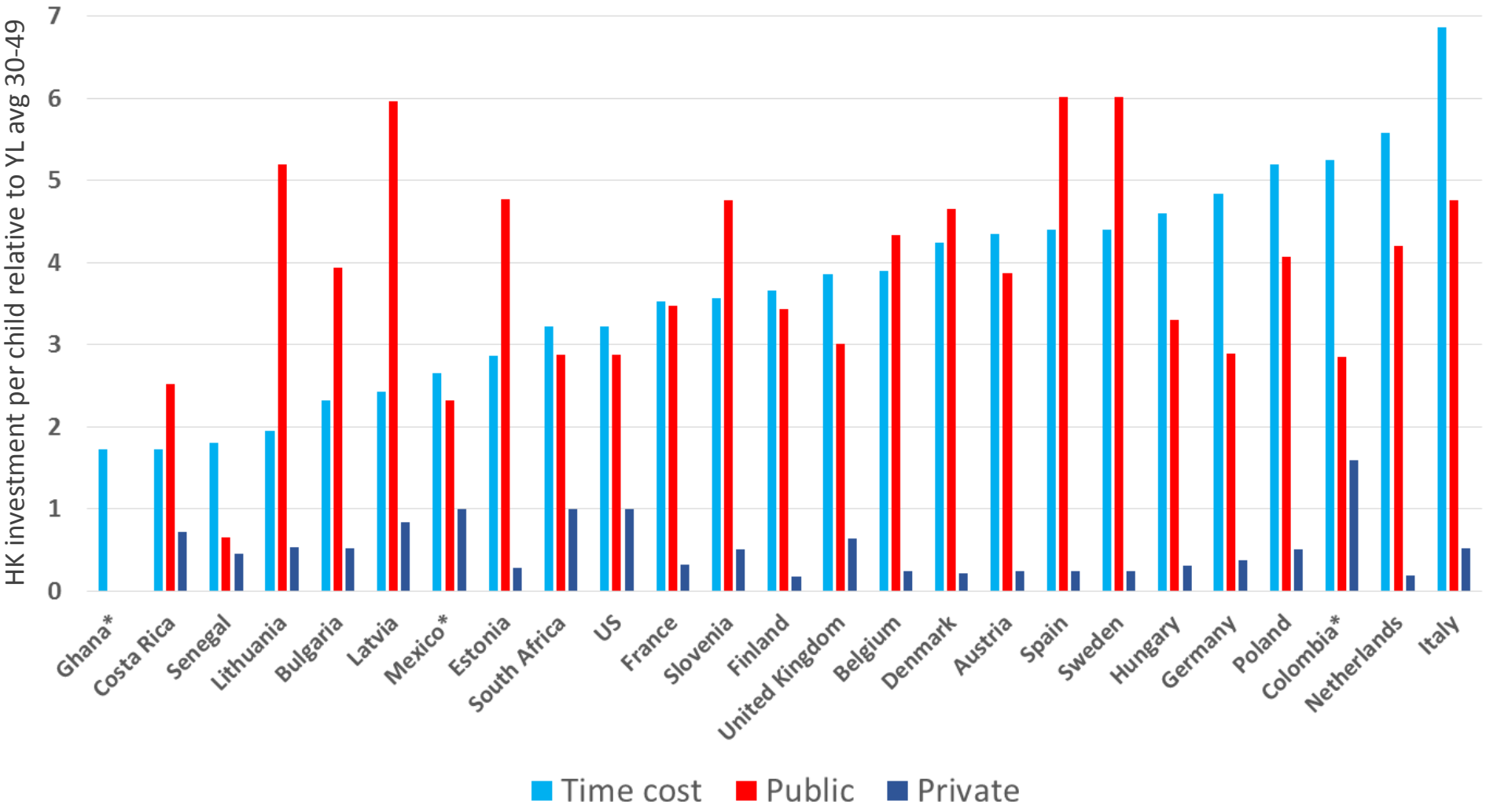
Value of per capita childcare production in 17 EU countries by gender



HDRI

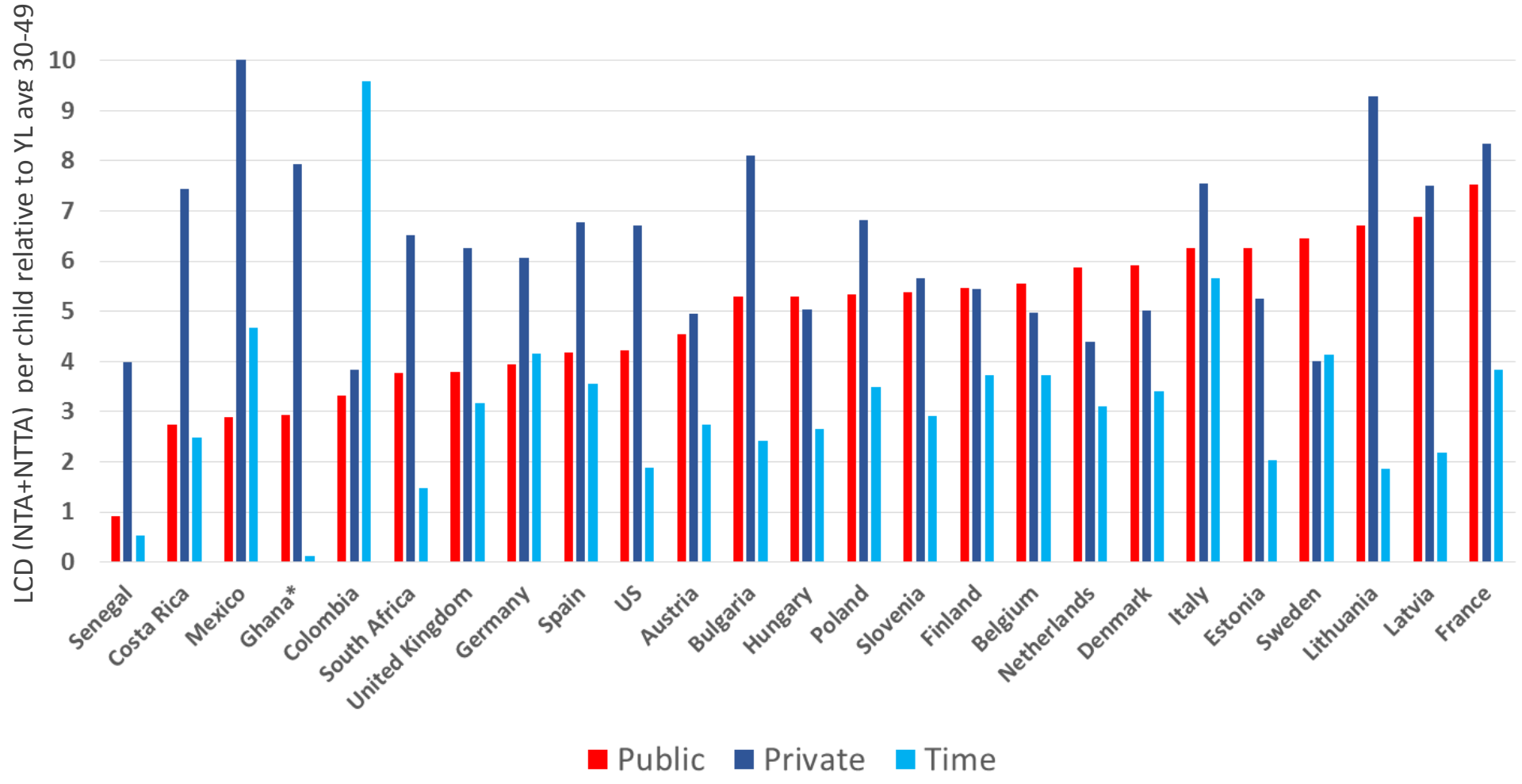
Note: NTTA childcare production age profiles of 17 EU countries around 2005; Author's calculations.

Human capital investments per child in 25 countries



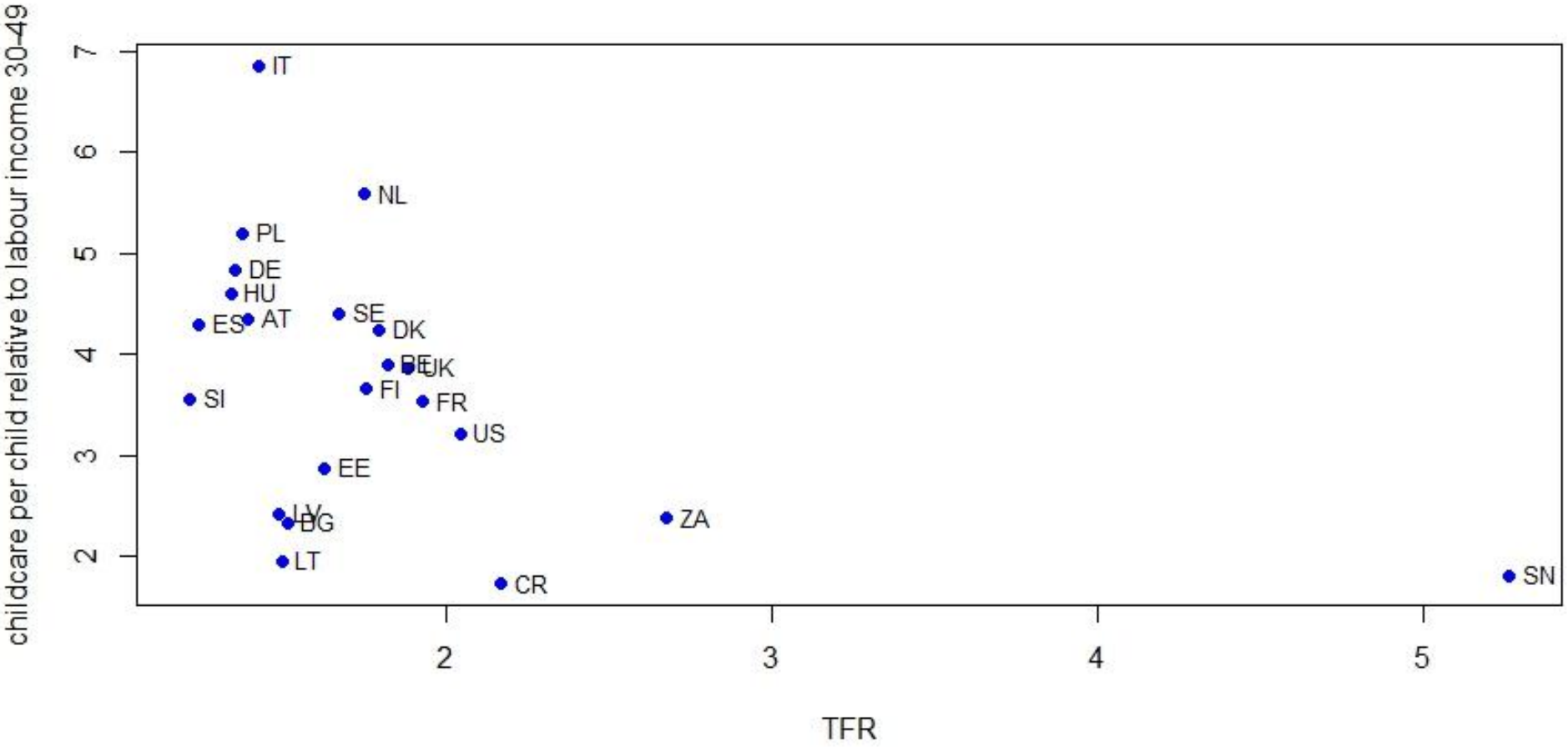
Source: Authors' calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; TFR from UN. HK investments are synthetic cohort measures computed as the value of NTTA childcare consumption (age 0-17); Public= CGE + CGH (age 0-26/17); Private = CFE + CFH (age 0-26/17)

Financing the LCD (NTA+NTTA) of children in 25 countries (preliminary results)



Source: Authors' calculations using NTTA estimates from AGENTA & CWW; NTA from ntaccounts.org & AGENTA; Total LCD is a synthetic cohort measure computed as C (NTA+NTTA) – YL (NTA+NTTA); age limits are defined by NTA definition depending on LCD curve

Value of nonmarket childcare and fertility rate in 22 countries (preliminary results)



Source: Authors' calculations using NTTA estimates from AGENTA & CWW; TFR from UN.