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# 子育ての経済的費用と出生力：日韓台・EU25 カ国における国際比較

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# 1. Introduction

- This paper investigates the economic costs of children in Japan, South Korea and Taiwan, in comparison with 25 EU countries using the NTA framework

- Examining correlation between the **direct costs** of children and fertility

  -> testing the **quantity-quality trade-off** in fertility (Becker 1960)

  -> using a **highly standardized measure** of the "cost of children" and quantum of period fertility across large comparative setting

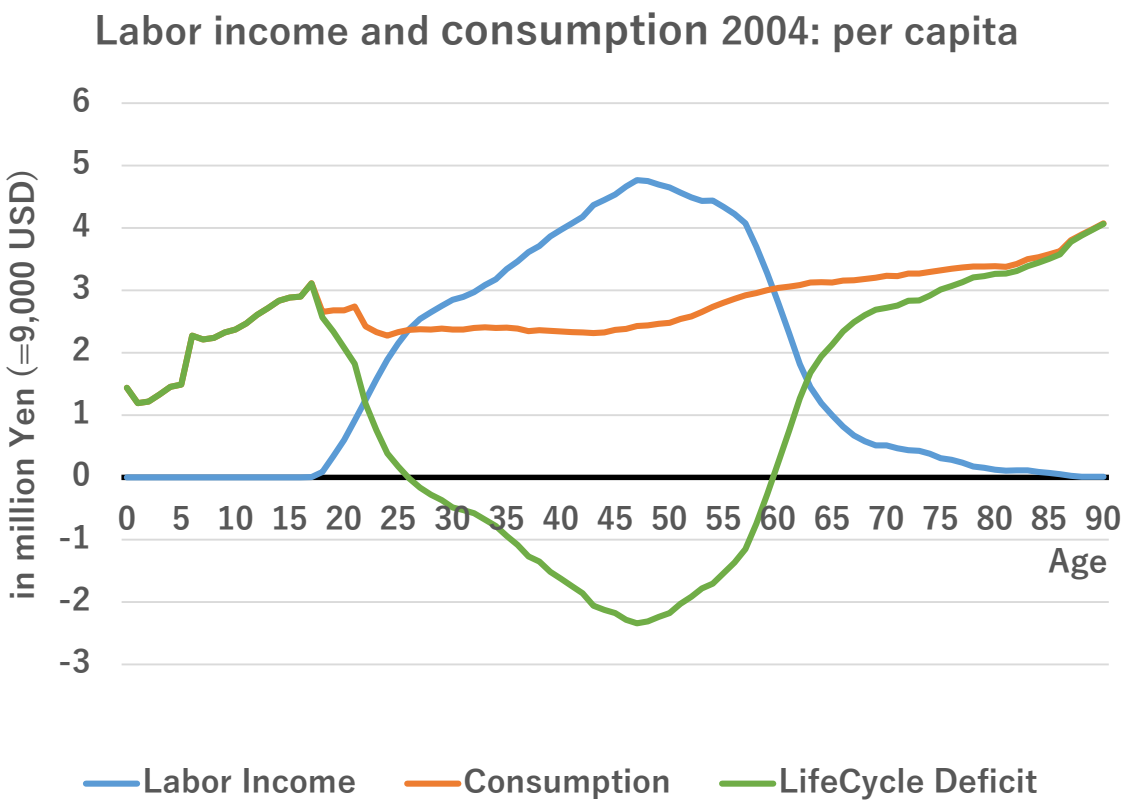
# 2. What's the NTA and how it measures cost of children?

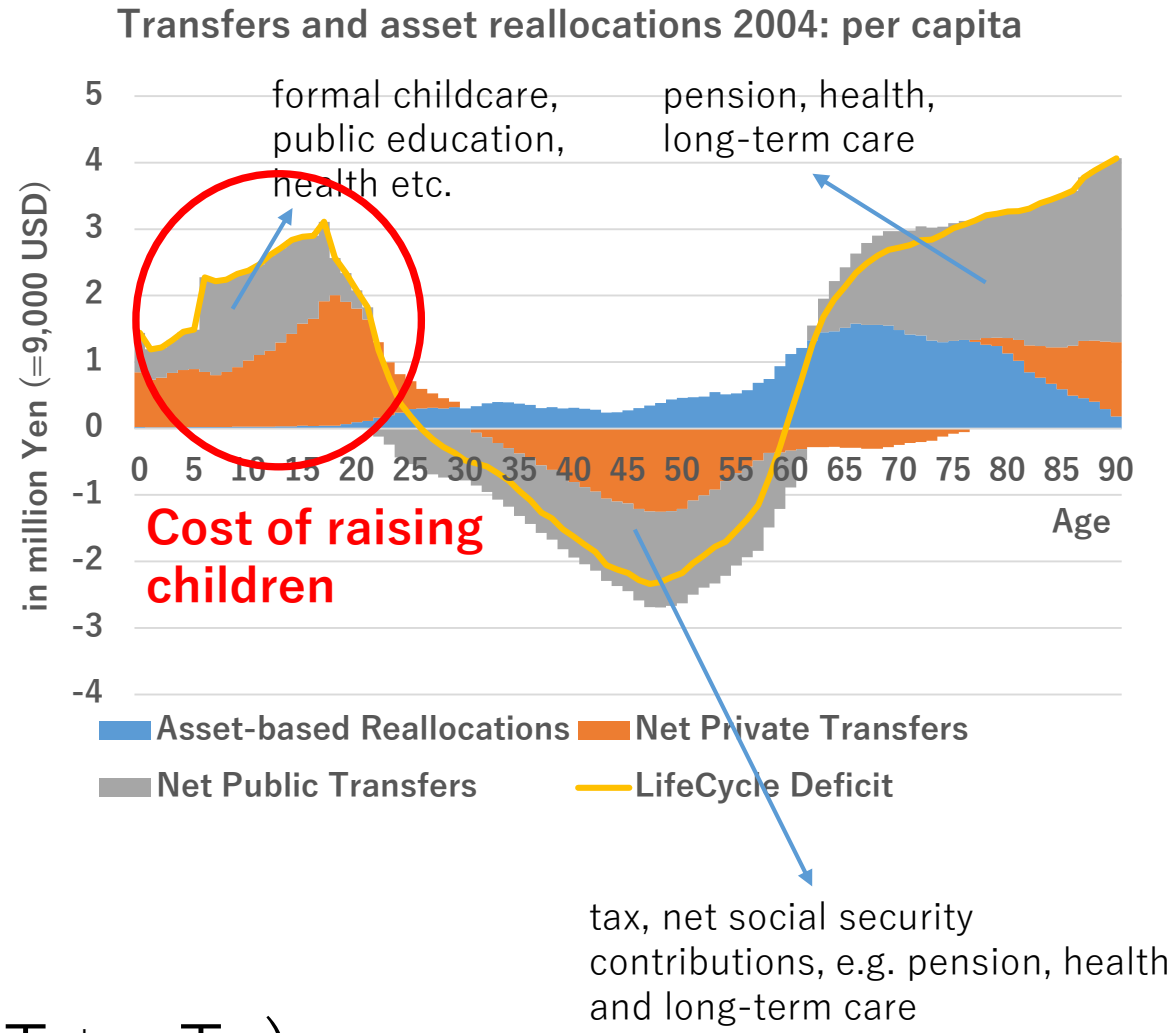
- NTA（National Transfer Accounts：国民移転勘定）

- The NTA is the age-specific national account system which measures how people generate income, redistribute it across age groups and use it for consumption and saving at each age.

- The NTA was initiated by the US population economists, Ronald Lee and Andrew Mason around 2004.

- The UN published the NTA manual in 2013 （http://www.un.org/en/development/desa/population/publications/development/NTA_Manual.shtml）




- Life cycle deficit (LCD): C- LI
- $LCD = (y^a - S) + (T_g^+ - T_g^-) + (T_f^+ - T_f^-)$

Interest, rent, dividends, HH imputed rent etc.

Asset-based reallocation

Net public transfers

Net private transfers

- NTA data for the analysis
  - Japan: Preliminary estimation of the NTA Japan team
  - Korea & Taiwan: NTA network HP (www.ntaccounts.org)
  - EU25: AGENTA HP (http://www.agenta-project.eu/en/dataexplorer.htm)

| Country | Year |
|---|---|
| Japan | 1999, 2004, 2009, 2014 |
| Korea | 2000, 2010, 2011, 2012 |
| Taiwan | 1993, 1998, 2015 |
| EU 25 | 2010 |
| Austria, Belgium, Bulgaria, Cyprus, Czech Republic, Germany, Denmark, Estonia, Greece, Spain, Finland, France, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Poland, Portugal, Romania, Sweden, Slovakia, Slovenia, United Kingdom | |

➢Measurement of fertility

1. Bongaarts and Sobotka's (2012) tempo- and parity-adjusted TFR (TFRp*)

$$TFRp^*_{(t)} = \sum_i TFRp^*_{(t,i)} = \sum_i \left(1 - exp\left[-\sum_a \frac{p_{(a,t,i)}}{1 - r_{(t,i)}}\right]\right)$$

$p(a,t,i)$: the probability of having ***i*** th birth among all women who have not experienced ***i*** th birth at age ***a*** during year ***t*** when the annual rate of change in the mean age at childbearing at birth order ***i*** is ***r***.

OR

2. 3-year moving average of Bongaarts and Feeney's (1998) tempo-adjusted TFR (TFR*)

$$TFR^*_{(t)} = \sum_i \frac{TFR_{(t,i)}}{(1 - r_{(t,i)})}$$

⇒Trying to eliminate tempo effects and capture the quantum of period fertility

※ TFRp* and TFR* values are given by Krystof Zeman using data from Human Fertility Database (www.humanfertility.org).

➢The analyses

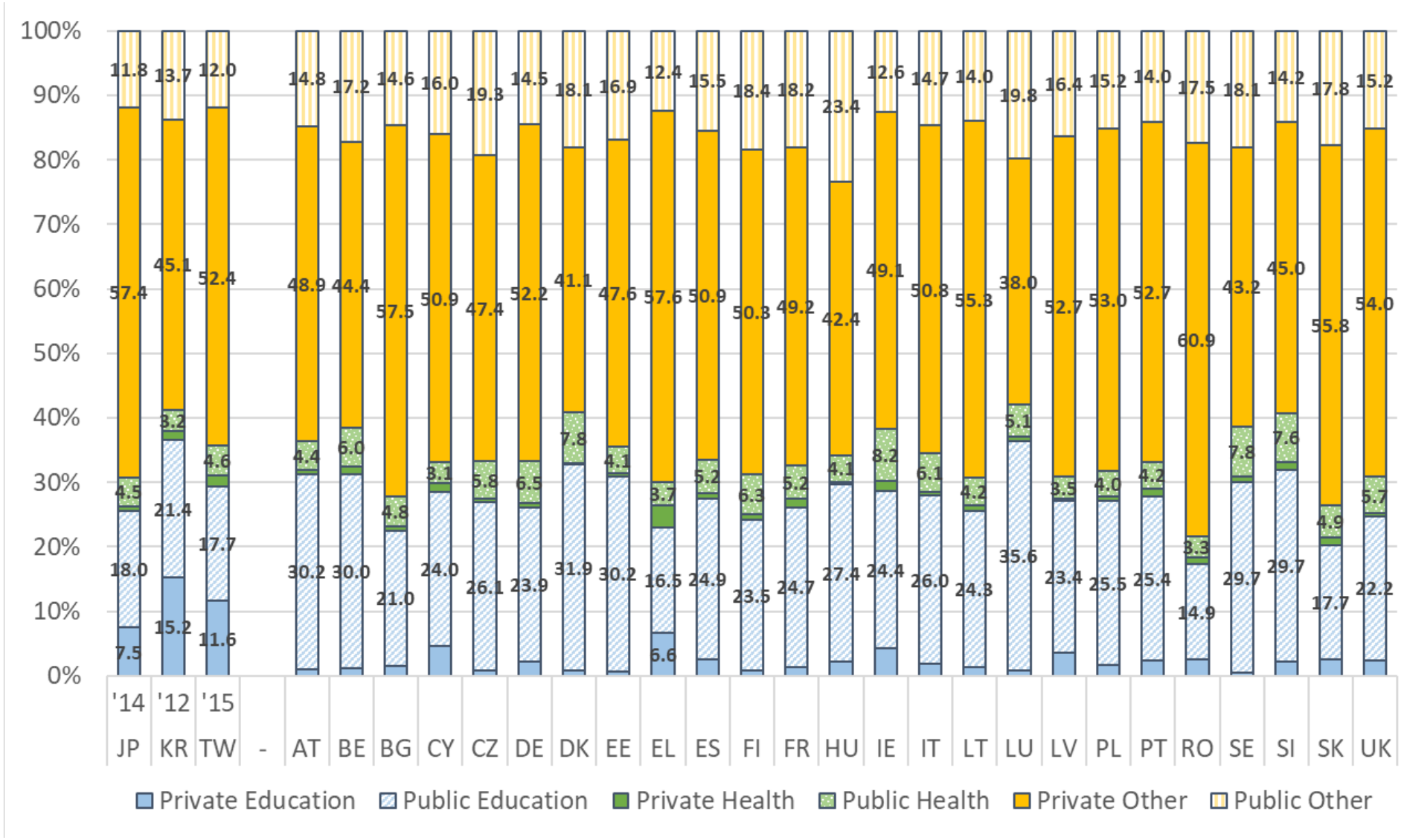
For all countries, cross-country correlation of fertility and

1. child life cycle deficit
2. child human capital spending (spending on child's edu + health)
3. private spending on child's health
4. private spending on child's education

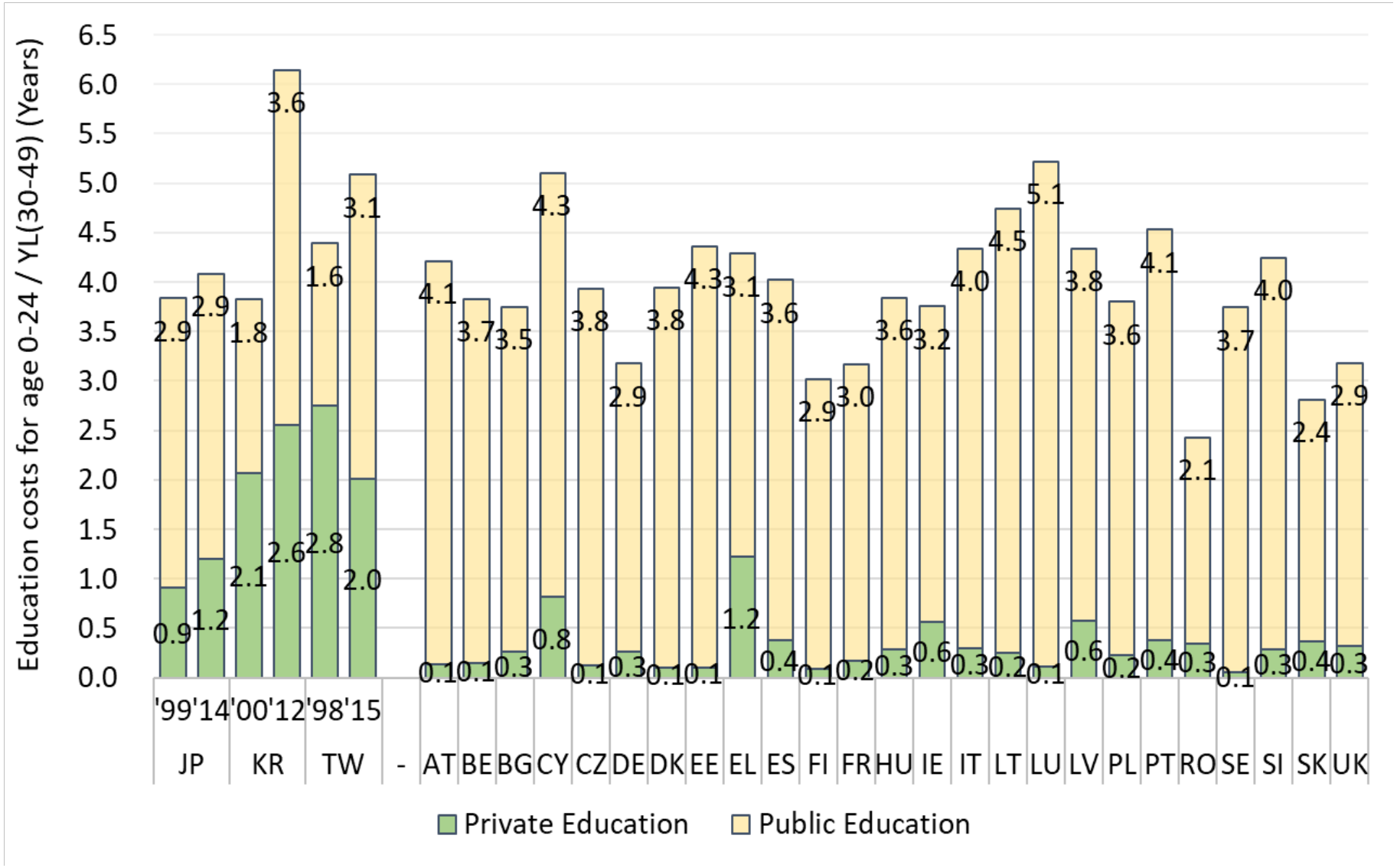
For Japan, Korea and Taiwan, **time-series correlations** are also examined to cross check whether the countries' fertility trends are correlated with the over-time trends in the above measure

# 3. Main results

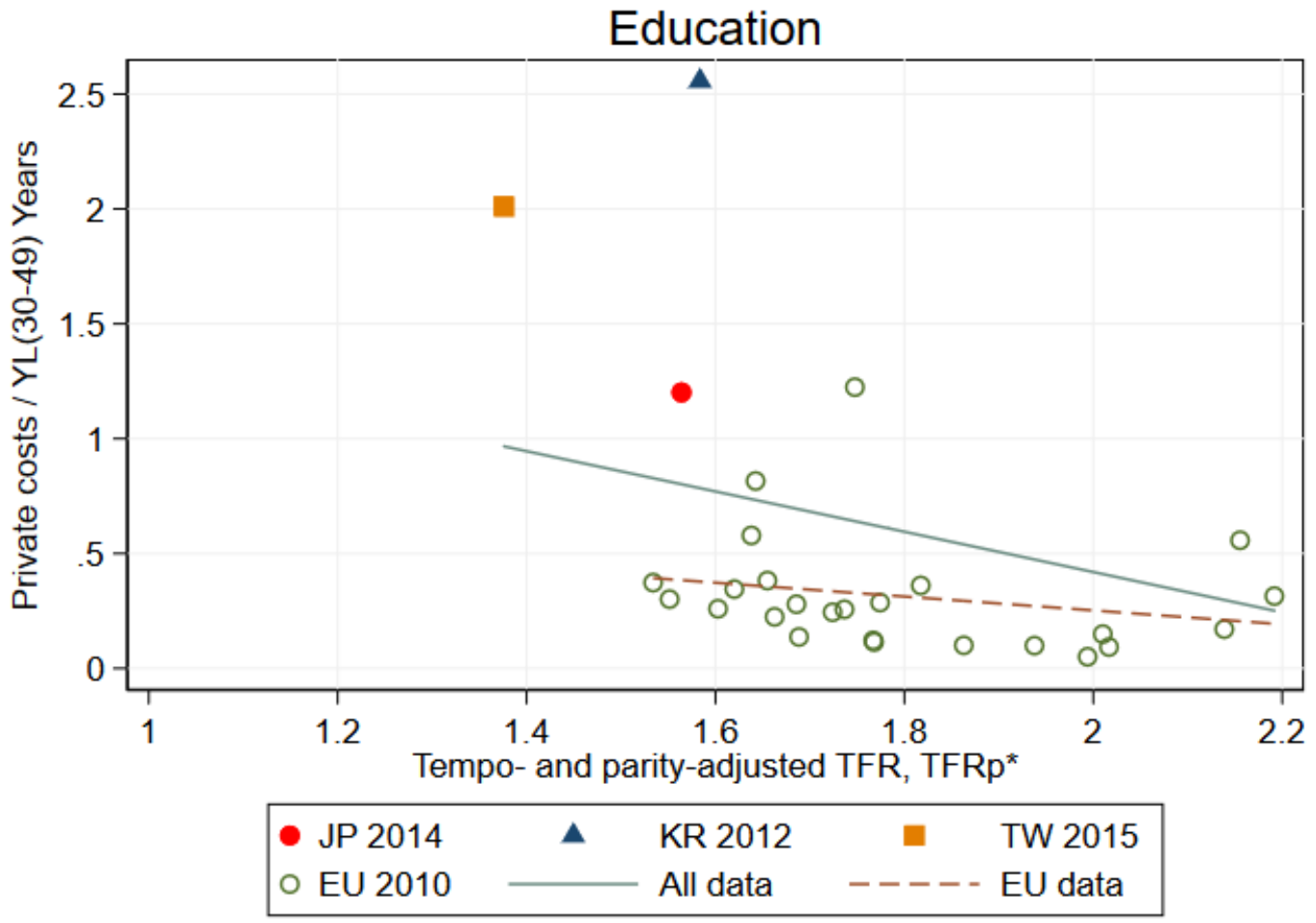
# Figure 1. Composition of per capita overall spending for children and youths aged 0-24



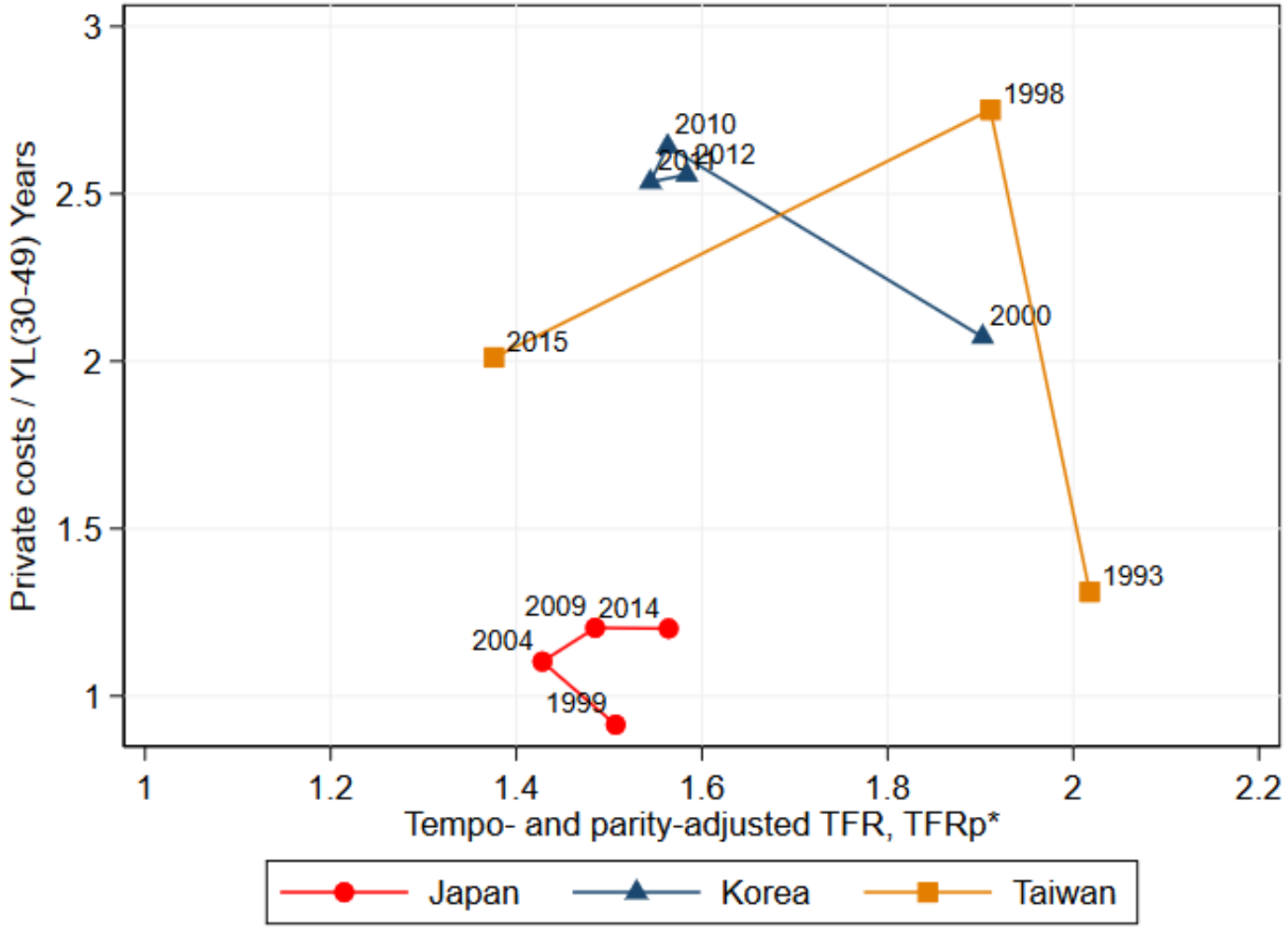
# Figure 2. The normalized per capita education costs for children and youth aged 0-24



# Figure 3. Cross-country correlation of tempo-adjusted TFR and the normalized per capita private spending on education for children and youth aged 0-24



# Figure 4. Time-series correlation of tempo-adjusted TFR and the normalized per capita private spending on education for children and youth aged 0-24 in Japan, Korea and Taiwan



# 4. Summary

- The most striking difference between East Asia and EU in the cost of raising children is the share of private spending on the education for children
  - Education costs are comparably high in Europe but much higher share of the costs is borne by the government.

- The private education costs of children and fertility are negatively correlated
  - The tendency is stronger in East Asia
  - Confirming previous findings (Lee and Mason 2010; Ogawa et al. 2009; Ogawa, Matsukura, and Lee 2016).

- Differences in East Asia: South Korea vs Japan/Taiwan

1. SK has the highest per capita private spending on child's education among all countries
2. In SK, there exists a clear trade-off between the per capita private spending on child's education and fertility
3. In Japan and Taiwan, the TFRp* and education costs do not show the trade-offs.

⇒ High education costs of children may be relevant for recent fertility decline in Korea, but it may not be the case for Japan and Taiwan.

# Thank you

Any comments or questions?

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