

# Are Daughters Always the Losers in the Chore War? Evidence Using Household Data from Vietnam

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# Chores allocation and children

- An overview of Vietnam,
- Son preference & demographic trends,
- Child labor, housework, and chores.
- Adolescent children data
- Household fixed effect
- Gender gap by age
- Chores, school attendance, paid work

# Vietnam



- Population: 90 mill.\*
- Ethnics: 54 (85% Kinh).
- Provinces: 64.
- Life expectancy: 72/76.
- Literacy rate: 90.3%.
- GDP p.c: US\$1,527.
- GDP growth rate (1990-2008) ~5% p.a.

Source: <http://en.wikipedia.org/wiki/Vietnam>

\* 2012 data

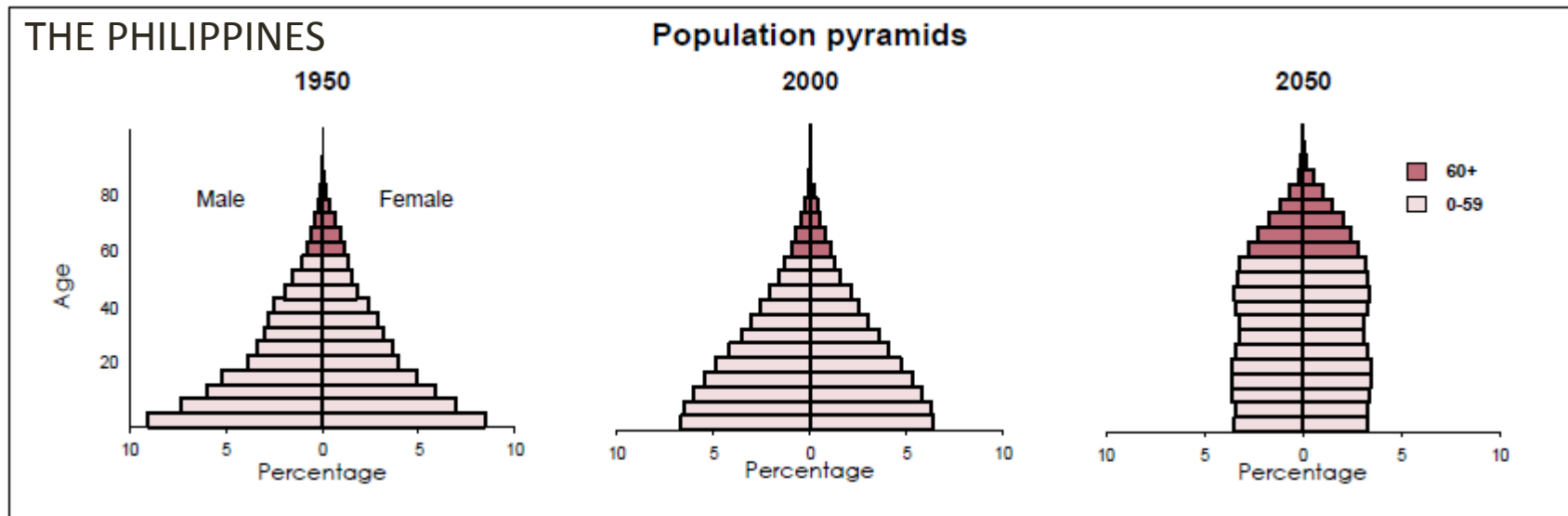
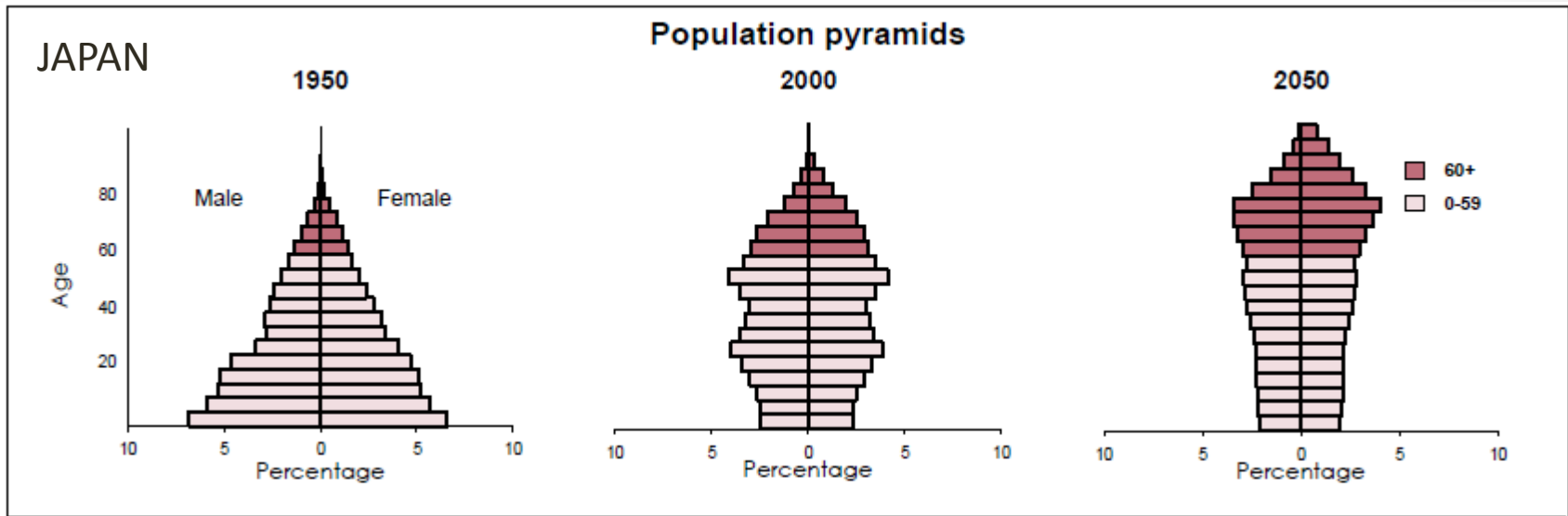
# Son preference

- Where?
  - China, Taiwan, India, Bangladesh, Nepal, Pakistan, Vietnam, South Korea.
  - NOT in Thailand, the Philippines, Indonesia, Sri Lanka
- Why?
  - Labor work,
  - Old age support,
  - Patrilineal kinship, leaving bequest (Das Gupta et al. 2003), high dowry costs.
  - Ancestor worship.

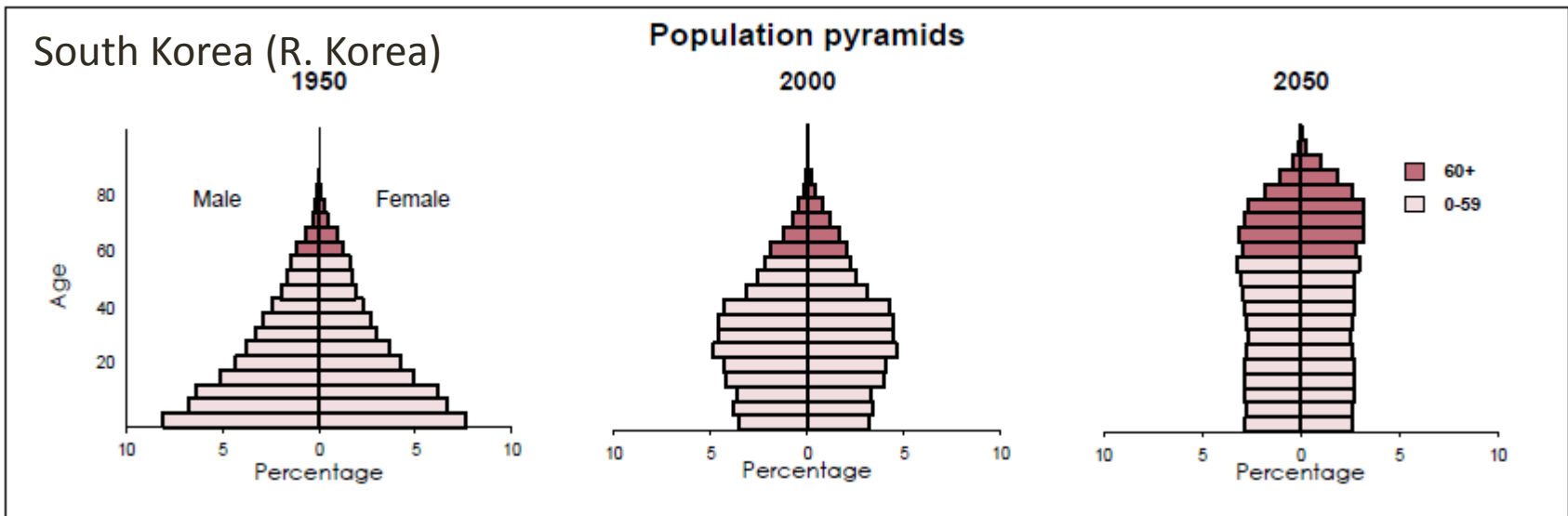
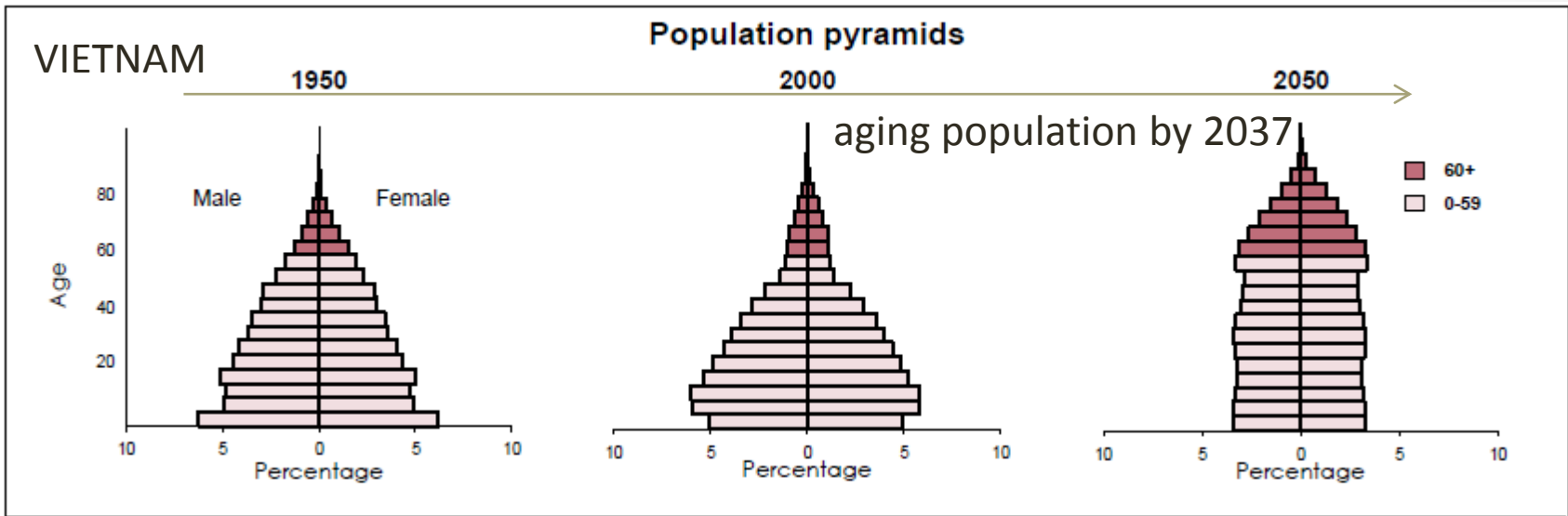
# Quantity v.s Quality of child

- Population trend:
  - Demographic transition
    - Lower infant mortality rate
    - Longer life expectancy (better health care)
  - Smaller family size
    - Women involvement in labor market
  - Aging population
- [-] number of children and [+] childcare

# Population aging forecast



# Population aging forecast



# Vietnam

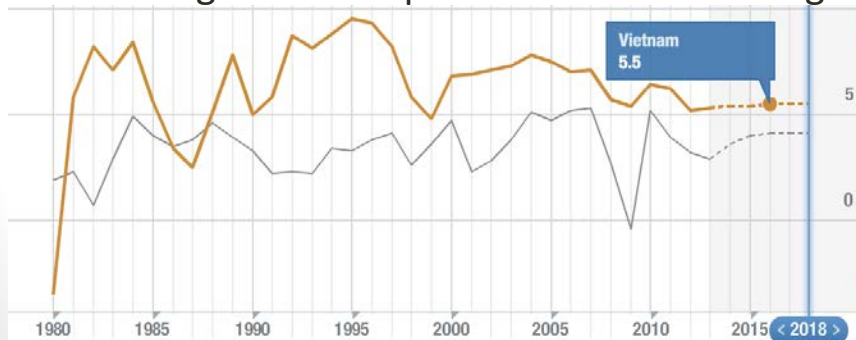
1990

- Life expectancy: 65
- Population growth rate: 1.8 %
- Son preference (Haughton and Haughton 1995).

2008

- Life expectancy: 74
- Population growth rate 1.1 %
- 2004 Vietnamese law on child protection, care, and education
- 2009 universal primary education.
- One male offspring preference (Vu 2013)

Real GDP growth compared with world average



Source: <http://www.imf.org/external/datamapper/index.php>



# Research questions

- Does daughter do more housework?
  - if so, she has some value over sons.
  - given a decrease of son preference
- How the difference varies by age?
- Gender gap in housework and school attendance?
- Gender gap varying with paid work?

# Child labor (ILO, 2002)

- aged 5–17 involved in economic activity
- excluding
  - >12 w a few hours pw (light work),
  - >15 w.o 'hazardous' classified work.

# Some literatures

- [+] wage → child does not work (Basu, 1998)
- [+] income can be +/- child labor (Edmonds, 2005; Roger & Swinnerton, 2004).
- Sons w market work, daughters w domestic work (Dammert, 2010).
- [+] 2.5 h.p.w in India (Lin & Adsera, 2013).

→ Unpaid housework: domestic work, pure routine and non-economic activity.

# Problematic assumptions

- NOT consider
  - Appearance of children aged 1-5,
  - Sharing rules differ across regions, cultures, villages, families.
  - Individuals can be siblings in household survey → non-autocorrelation assumption violated.  $E(\varepsilon_{ij}, \varepsilon_{kj}) = \rho\sigma_\varepsilon^2 > 0$

# Vietnam Household Living Standard Survey 2008

- Country wide 2-stage stratified sampling.
- 289,948 individuals in 45,945 households.

# Vietnam Household Living Standard Survey 2008

- Chore placed in two questions
  - Do [name] do any housework?  
(cleaning, shopping, cooking, washing clothes, fetching water and wood, and repairing tools)
  - If yes, **how many hours?** (per day in the last 12 months on average).

# Data selection

- Children of the head of the household
  - Declared as child of the head,
  - Initial letter of the family name.
- Eldest co-residing child: 1-17 years old
- Mother aged <35
- Excluding: family w a child.

# Descriptive statistics

Variables	Explanation	Obs.	Mean	Std. Dev.
House work	Unpaid housework hour per day on average a year before the survey	12,159	0.3473	0.7110
Gender	= 1 if female, 0 if male	12,159	0.4832	0.4997
Paid work hours	Paid work hours per day on average a year before the survey	12,159	0.0842	0.5081
Absent days	Absent days from routine activities due to health problems a year before the survey	12,159	2.3717	7.1775
School attendance	= 1 if attending and if age > 6 years, 0 otherwise	12,159	0.6191	0.4856
Birth order	The order of pregnancy of the mother	12,159	1.7505	0.8107
Birth order × Birth order		12,159	3.7214	3.8659
Age 1	= 1 if age = 1, 0 otherwise	12,159	0.0670	0.2501
Age 2		12,159	0.0713	0.2573
Age 3		12,159	0.0670	0.2501
Age 4		12,159	0.0788	0.2694
Age 5		12,159	0.0798	0.2710
Age 6		12,159	0.0702	0.2556
Age 7		12,159	0.0823	0.2749
Age 8		12,159	0.0731	0.2603
Age 9		12,159	0.0678	0.2514
Age 10		12,159	0.0569	0.2317
Age 11		12,159	0.0420	0.2007
Age 12		12,159	0.0291	0.1681
Age 13		12,159	0.0089	0.0938
Age 14		12,159	0.3473	0.7110
Age 15		12,159	0.4832	0.4997
Age 16		12,159	0.0842	0.5081
Age 17		12,159	2.3717	7.1775



# OLS with household fixed effect

$$\text{Housework}_{ij} = X_{ij} \alpha + C_j \beta + \varepsilon_{ij}$$

- $X_{ij}$ : individuals characteristics
- $C_j$ :
  - family characteristics (obs & unobs),
  - fixed over time,
  - 5,230 household identity dummies,
  - captures all variation in culture, customs, and practices by household.
- Household clustered robust variance.

# Gender gap in housework

- 5.25 minutes per day in average



- 36.75 min per week ~0.61 hour





- 147 min per month ~2.45 hour



- 1,764 min per year ~ 29.4 hour

# Housework

VARIABLES	Housework (hours)
Gender	0.0875*** 
Hours of paid work	-0.0011
Absent days	-0.0008
School attendance	-0.0343
Birth order	-0.2068*** 
Birth order × Birth order	0.0067
Constant	0.5368***
Dummies for ages (16 dummies)	Yes
Household fixed effects (5,230 dummies)	Yes
Observations	12,159
Adjusted R-squared	0.4524
R-squared	0.6890

Notes: Household clustered robust standard errors in parentheses,  
\*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

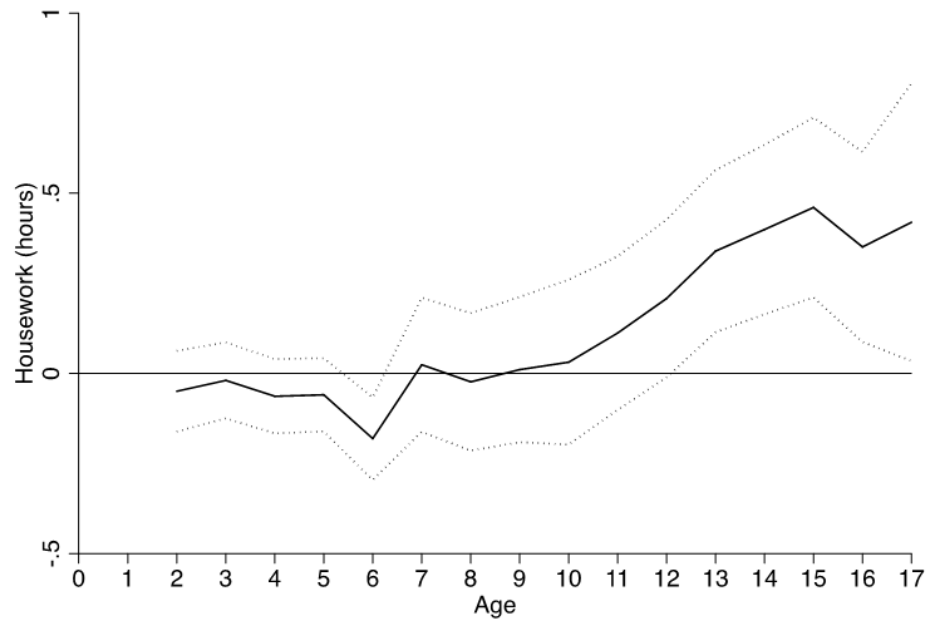
# Housework

VARIABLES	Housework (hours)
Age 2	-0.0492
Age 3	-0.0180
Age 4	-0.0597
Age 5	-0.0554
Age 6	-0.1772***
Age 7	0.0307
Age 8	-0.0176
Age 9	0.0163
Age 10	0.0389
Age 11	0.1191
Age 12	0.2173*
Age 13	0.3495***
Age 14	0.4097***
Age 15	0.4700***
Age 16	0.3640***
Age 17	0.4260**
Age 2 × Gender	0.0120
Age 3 × Gender	-0.0298
Age 4 × Gender	0.0083
Age 5 × Gender	-0.0748
Age 6 × Gender	-0.0036
Age 7 × Gender	-0.0614
Age 8 × Gender	0.0148
Age 9 × Gender	0.0750
Age 10 × Gender	0.1046
Age 11 × Gender	0.0891
Age 12 × Gender	0.0713
Age 13 × Gender	0.1609
Age 14 × Gender	0.3991***
Age 15 × Gender	0.1775
Age 16 × Gender	0.4853***
Age 17 × Gender	0.7919***

Notes: Household clustered robust standard errors in parentheses, \*\*\*  $p < 0.01$ , \*\*  $p < 0.05$ , \*  $p < 0.1$ .

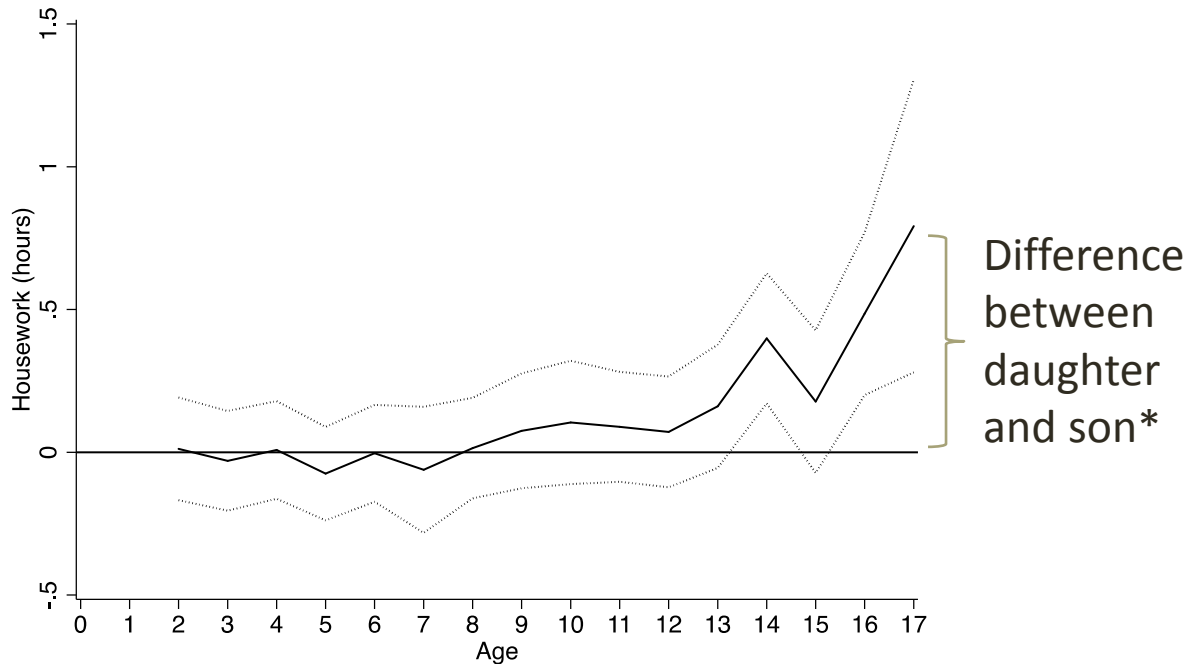
# Age

**Figure 3.1** Estimated coefficients for age nexus



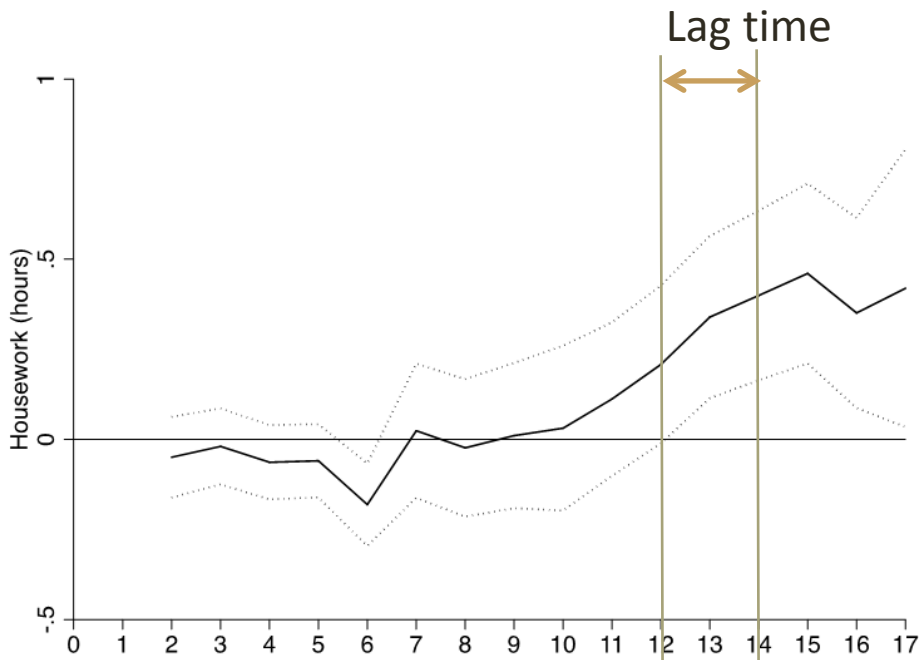
# Age $\times$ gender

**Figure 3.2** Estimated coefficients for gender gap (Age  $\times$  Gender nexus) by age

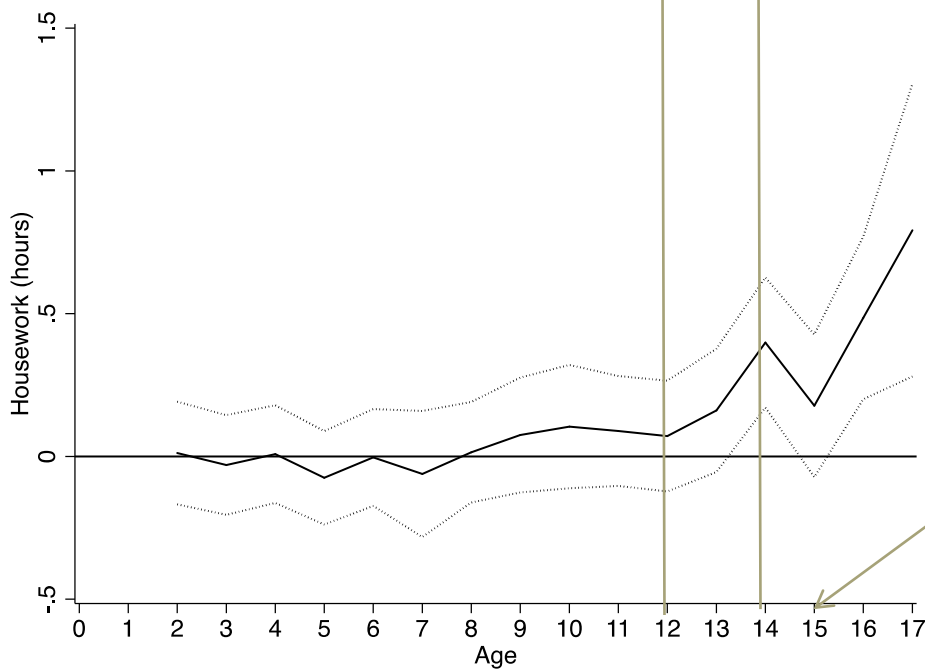


\* Age nexus is already considered and shown in previous graph

**Figure 3.1** Estimated coefficients for age nexus



**Figure 3.2** Estimated coefficients for gender gap (Age  $\times$  Gender nexus) by age




Age preparing for the exams to senior high school

# Daughters not always losers

- Gender gap does not appear when age nexus first appears
- Parents would consider daughters' education



# Gender × school attendance

VARIABLES	Housework (hours)	Housework (hours)
Gender	0.0201	0.0043
Hours of paid work	-0.0014	-0.0012
Absent days	-0.0007	-0.0004
School attendance	-0.0914	0.0045
Birth order	-0.2086***	-0.2049***
Birth order × Birth order	0.0072	0.0074
School attendance × Gender	0.1078***	-0.0890 
Age dummies (Age 2–Age 17)	Yes	Yes
Ages × Gender (Age 2–Age 17 × Gender)	No	Yes
Constant	0.5685***	0.5631***
Household fixed effects (5,230 dummies)	Yes	Yes
Observations	12,159	12,159
Adjusted R-squared	0.4537	0.4620
R-squared	0.6897	0.6951

# Gender $\times$ school attendance

- Perhaps, gender gap in housework would not vary [+] w school attendance.
- Possible explanation
  - High correlation btw school attendance and age (0.7427 from age 1-15)

# Housework and paid work

VARIABLES	Housework (hours)	Housework (hours)
Gender	0.0798***	0.0042
Hours of paid work	-0.0536	-0.0162
Absent days	-0.0008	-0.0004
School attendance	-0.0350	-0.0426
Birth order	-0.2067***	-0.2046***
Birth order × Birth order	0.0071	0.0074
Paid work hour × Gender	0.0003*	0.0001
Age dummies (Age 2–Age 17)	Yes	Yes
Ages × Gender (Age 2–Age 17 × Gender)	No	Yes
Constant	0.5370***	0.5623***
Household fixed effects (5,230 dummies)	Yes	Yes
Observations	12,159	12,159
Adjusted R-squared	0.4537	0.4619
R-squared	0.6897	0.6951



# Housework and paid work

- Daughters would do more housework while having more paid work.
- Also, this can be contributed by age x gender.

# Predictions & discussions

- Gender gap would link with the development of gender.
  - Lag in time
  - Gender gap starts at 13-14 years of age
    - Sexual maturity (be aware of their own femininity)
    - Females guided toward housework based on social norms
      - Womanly virtues
        - Morality
        - Proper speech
        - Modest manner
        - Diligent work (housework).

# Predictions & discussions

- Parents would care about daughters' education.
- If true, expansion of universal education up to junior high school can reduce the gender gap in unpaid housework.
- Daughters do more housework than sons with the same paid work hour because the marginal wage rate of female might be lower than that of male.

# Conclusions

- The gender gap in unpaid housework exists
  - 5.25 min per day
- Daughters are not always losers
  - Gender gap only appears from 14 years old
  - A lag of time for the gender gap compared with age
- Gender gap is minimal at age of 15

Thank you very much!