

# Sex selection and health at birth among Indian immigrants in Spain

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# In a nutshell

- Indian-born parents in Spain are much more likely to give birth to boys than girls.
  - About 119 boys per 100 girls.
  - This son-bias increases dramatically with parity.
- Babies born to Indian parents have worse health at birth.
  - Than natives and other immigrants.
  - But no gender gap.
- I explore the roles of maternal endowments, prenatal investments, and selection.
  - Poor health of Indian babies probably due to low maternal endowments.
  - No gender gap likely due to parents who would invest less in girls practicing sex-selective abortion.

# 1. Motivation

- Well-known parental preference for boys in some Asian countries, resulting in:
  - Unbalanced sex-ratios.
  - Lower investments in girls, higher female mortality.
- In Spain, 28% of all births in 2007-2013 had at least one immigrant parent.
  - 6% of them Asian-born (over 52,000 births).
  - Should we worry about these girls?

# Related literature

- Unbalanced sex-ratios at all ages.
  - In South and East Asia (Sen 1992, 2003, Jha et al. 2006, Bhalotra & Cochrane 2010).
  - As well as among Asian immigrants in the US (Abrevaya 2009, Almond & Edlund 2008), Canada (Almond et al. 2013), and the UK (Dubuc & Coleman 2007).
- Poor child health in India.
  - Height, weight, mortality (Tarozzi 2012, Jayachandran & Pande 2015).
  - Lower parental investments in girls (Oster 2009, Jayachandran & Kumzienko 2010).

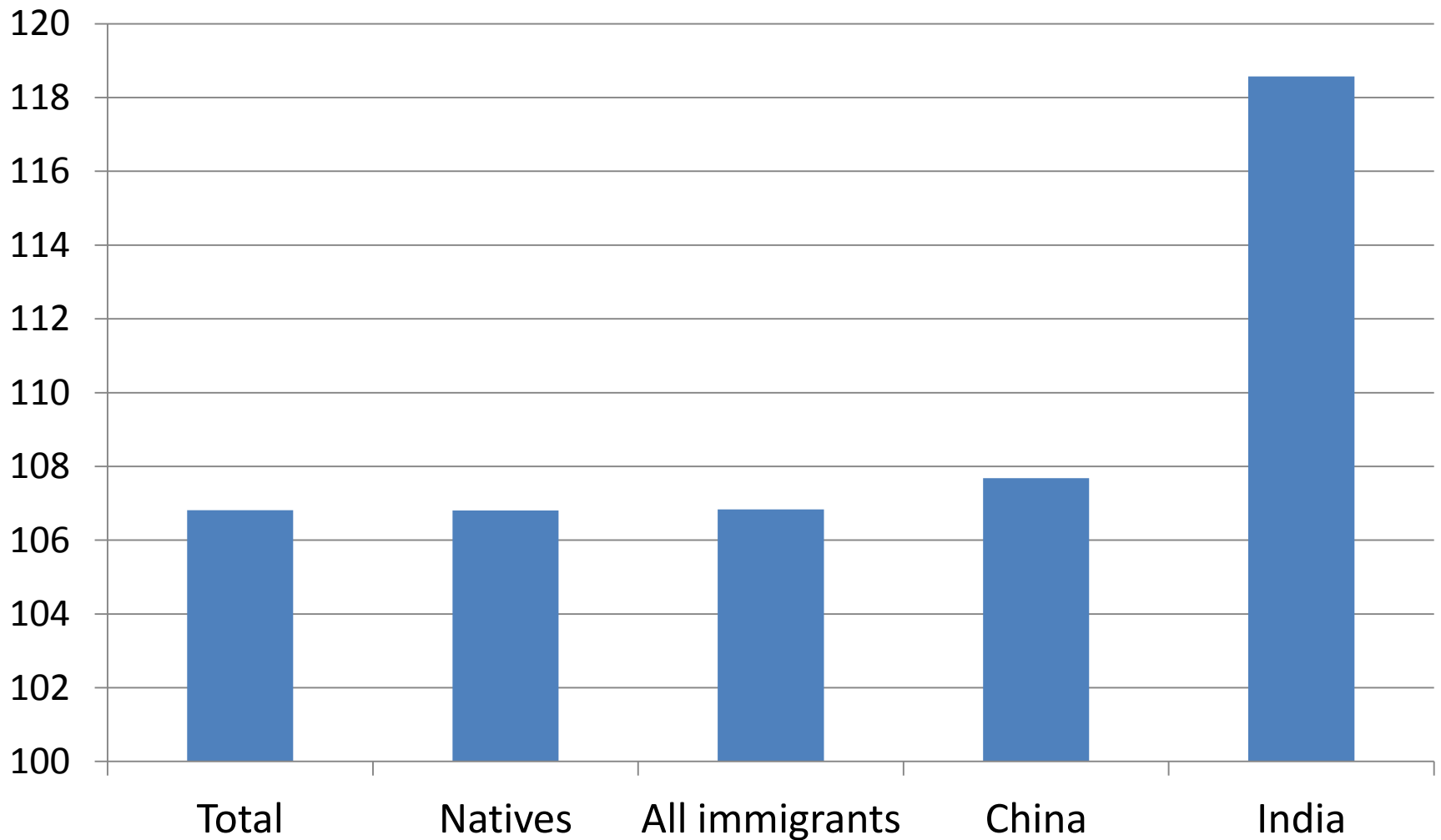
# My contribution

- First to document son-biased sex ratio at birth among Asian (Indian) immigrants in Spain.
- I combine rich evidence on *sex ratios* at birth with detailed data on *health* at birth.
  - This allows for analysis of some mechanisms (stillbirths).
  - As well as (some) parental endowments and pre-natal parental investments.
  - Limited existing evidence on health at birth for Indian children (in India or elsewhere).

## 2. The data: Spanish birth certificates, 2007-2013

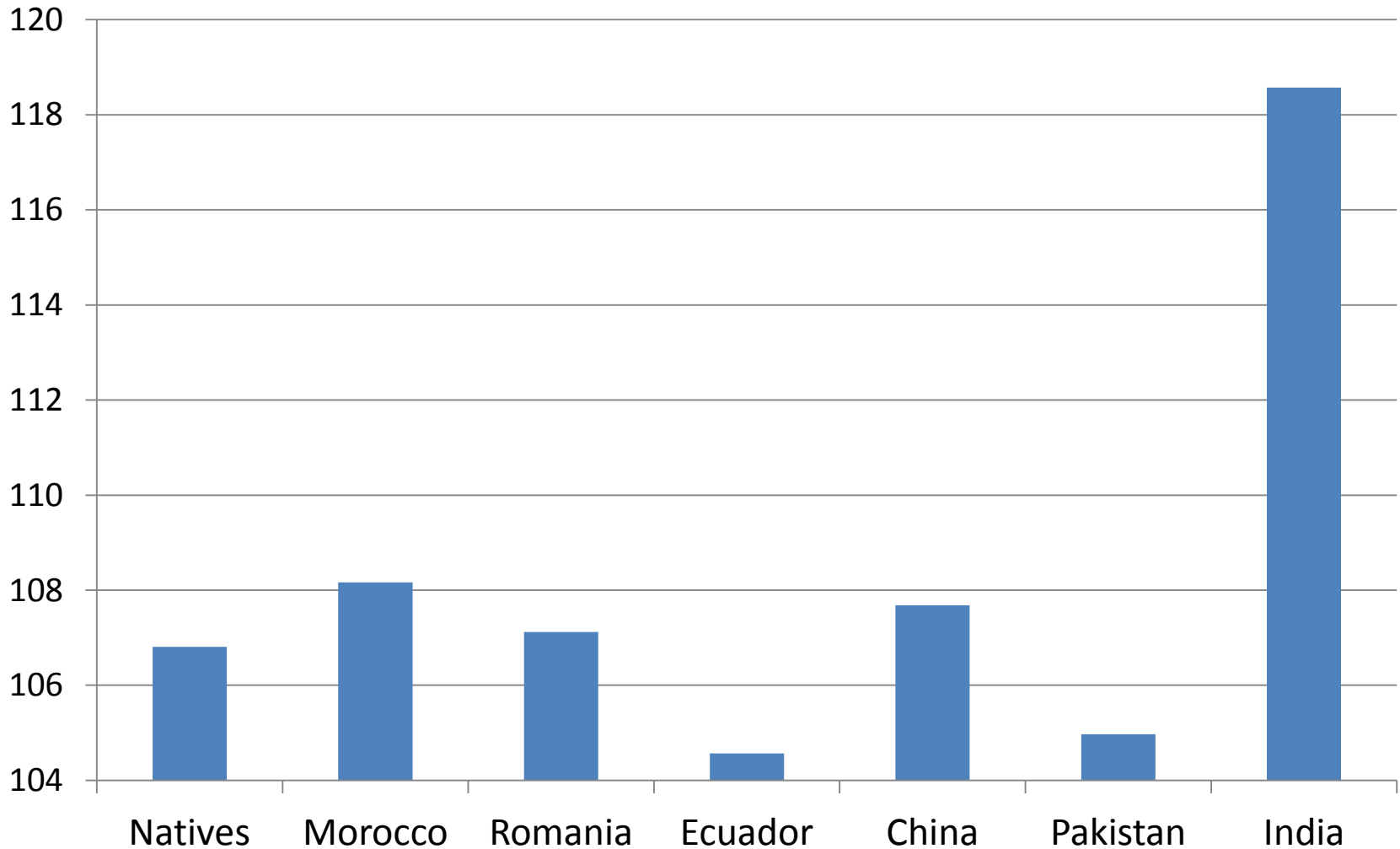
- Micro data for the universe of births registered in Spain.
- Information on country of birth of the parents, as well as demographic variables.
- Also newborn health and mortality variables.
  - Birth-weight, weeks of gestation, stillbirth, neonatal death.
- Sample of singleton live births:  $N=3,209,697$ .

# N. of boys born per 100 girls, by country of birth of the parents (Spain, 2007-2013)



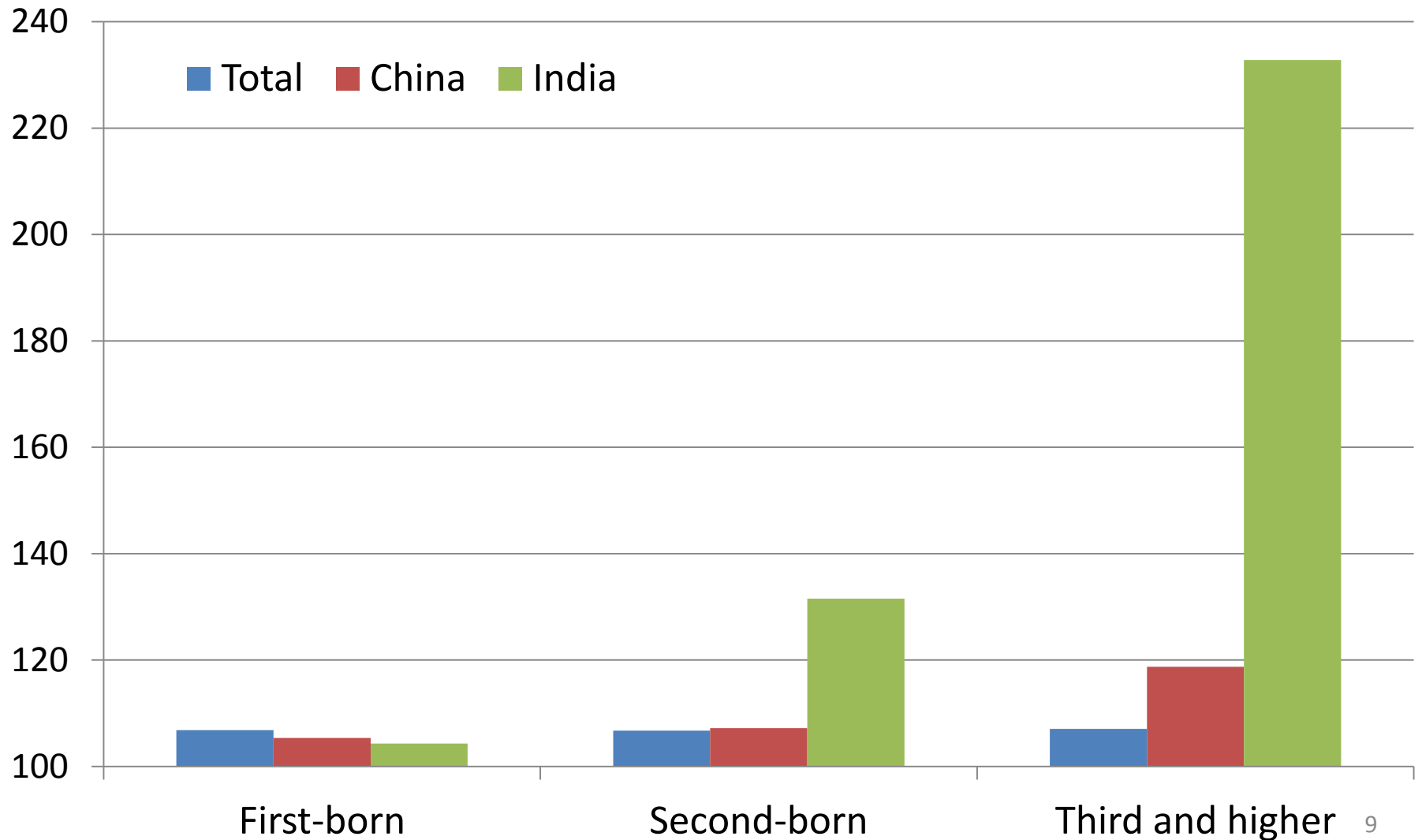
# Other source countries?

Number of boys per 100 girls, by country of birth of the parents





# N. of boys born per 100 girls, by country of birth of the parents and parity



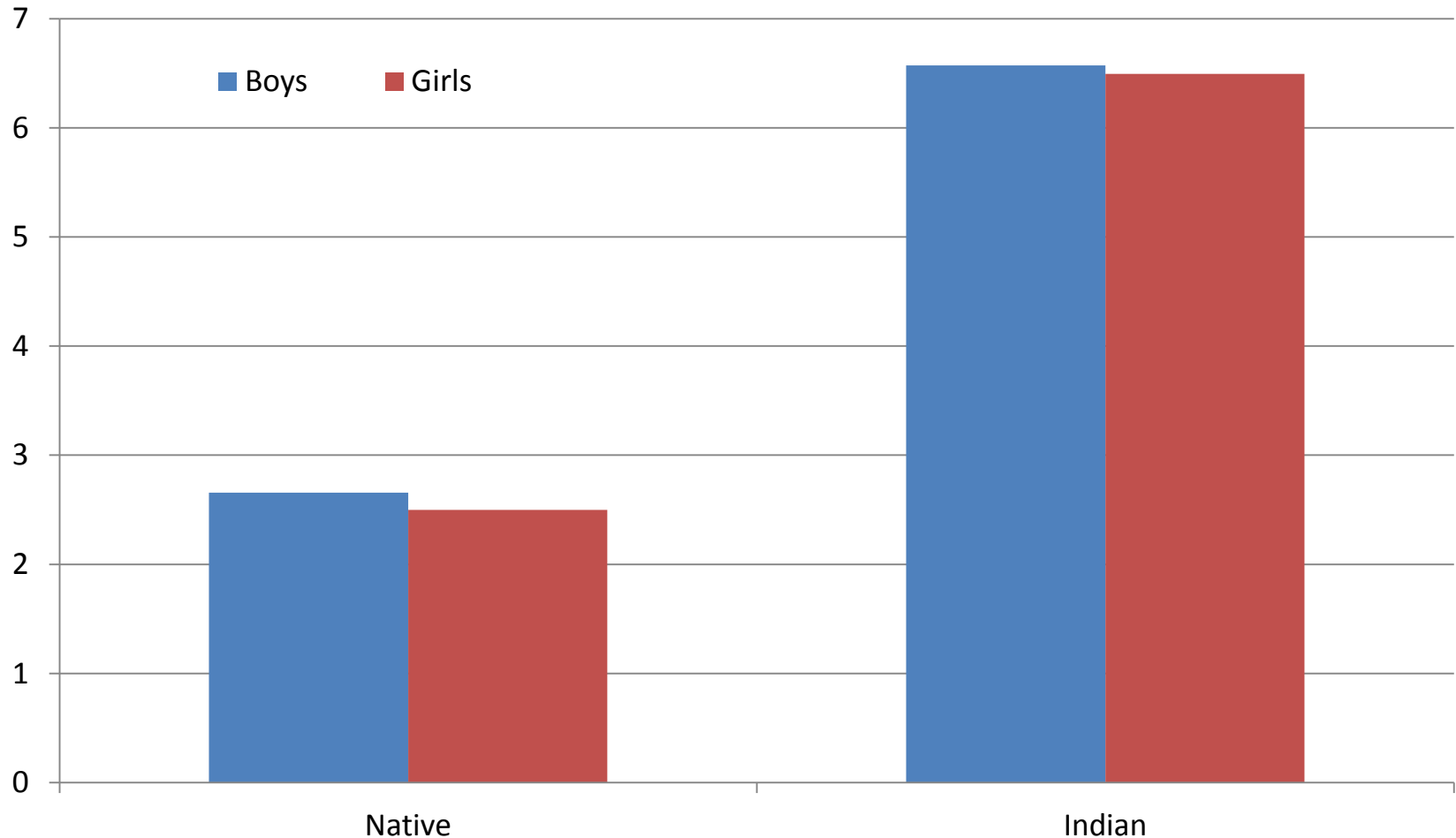
# Mechanisms?

- Sex-selective abortion.
  - Once the sex of the baby has been determined (via ultrasound).
- Sex selection at conception (IVF or sperm sorting).
  - Not legal in Spain (and many other countries).
- Differential miscarriages or stillbirths.
  - Testable!
- Girls more likely to not be registered (or registered as boys).
- Parents pregnant with girls, more likely to leave Spain.

# Abortions

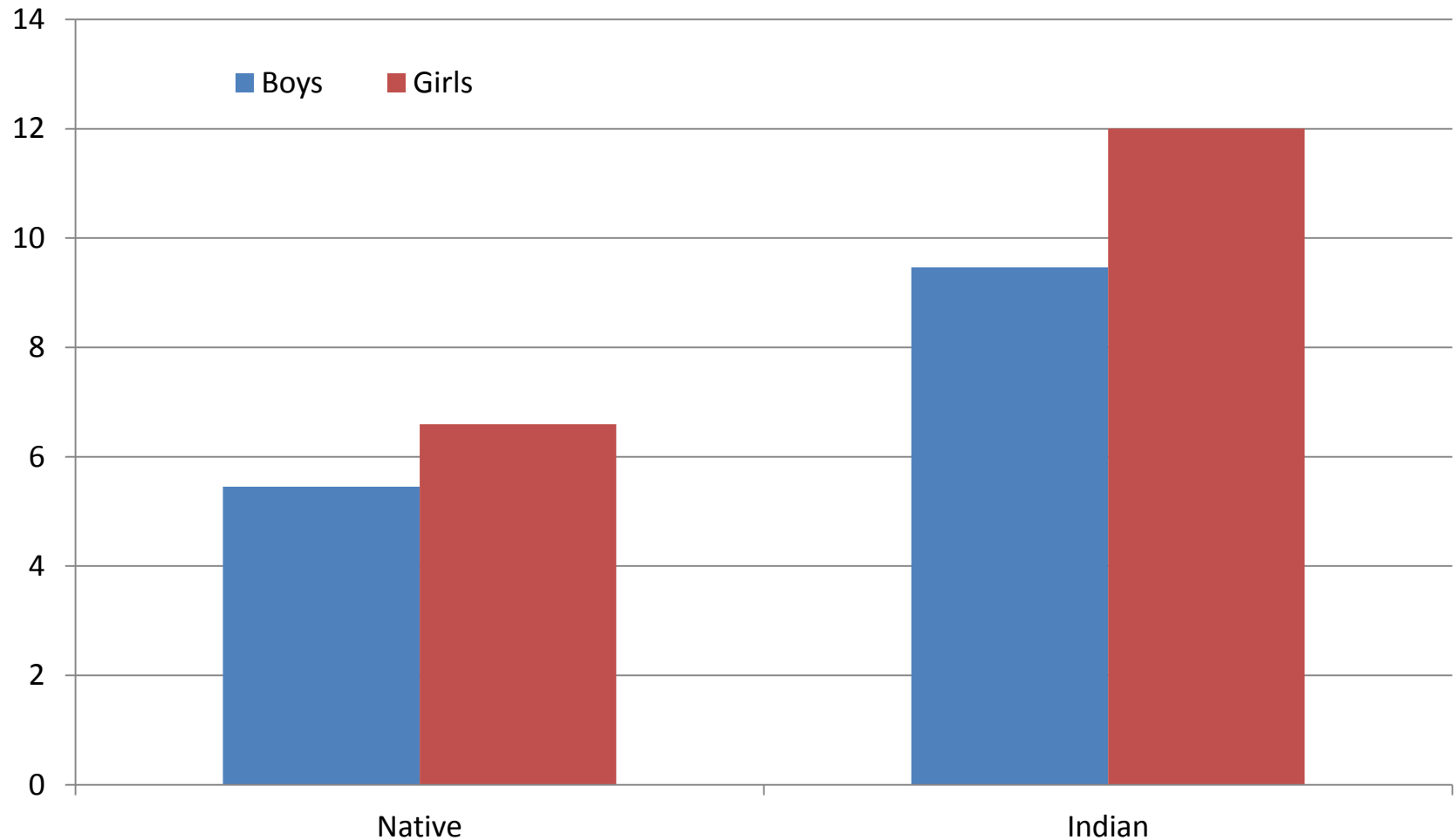
- The sex of the baby is typically found out around weeks 16-20 of the pregnancy via ultrasound.
- During the period of analysis, about 5% of all abortions in Spain took place after week 16 of the pregnancy (2% after week 20).
- Almost all (97%) registered abortions in Spain claim “health risks for the mother”.
  - No limit in terms of weeks.

# Stillbirths per 1,000 births, by parents' origin and sex

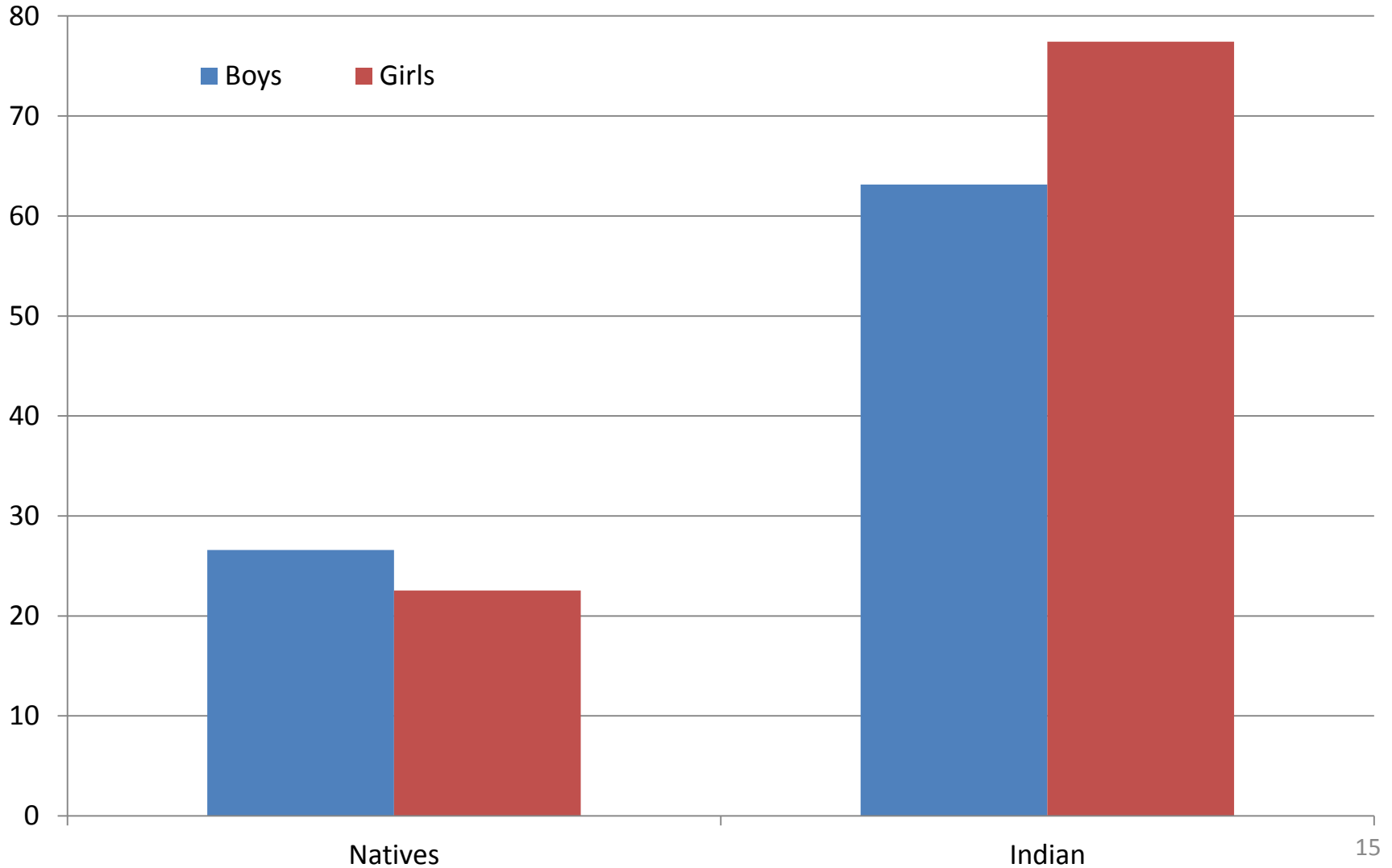


Next: Health outcomes

# Fraction low birth-weight, by country of birth of the parents and gender



# First-month mortality rate by nationality and gender



# Summary of health results

- Newborns with Indian parents are less healthy
  - Shorter gestation, lower birth-weight.
  - Both boys and girls (no significant gender gap).
- Same pattern for newborn, infant, and child mortality.
- Mechanisms:
  - Mother endowments, prenatal investments, and selection (in potential investments).



# Mechanisms

- Indian boys' poor health at birth probably related to mother endowments.
- Absence of a gender gap not related to (observed) mother characteristics or prenatal investments.
  - Parents who don't interrupt the pregnancy of a girl do not invest differentially by sex.
  - Positive selection likely!

# Conclusions

- Over 200 “missing girls” in Spain since 2007.
- Plus over 2,000 “at risk”!
  - Vaccination, nutrition, health care, etc.
- The health and education systems should look out for potential under-investment in girls from Indian families.
- Banning sex-selective abortion probably not a good idea.
  - Parents who practice it would probably under-invest in girls.

Thanks for your attention!