China's Imbalanced Growth

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# Current Account Balance as a Share of GDP (percent) in China, US, LAC from 1990 to 2013
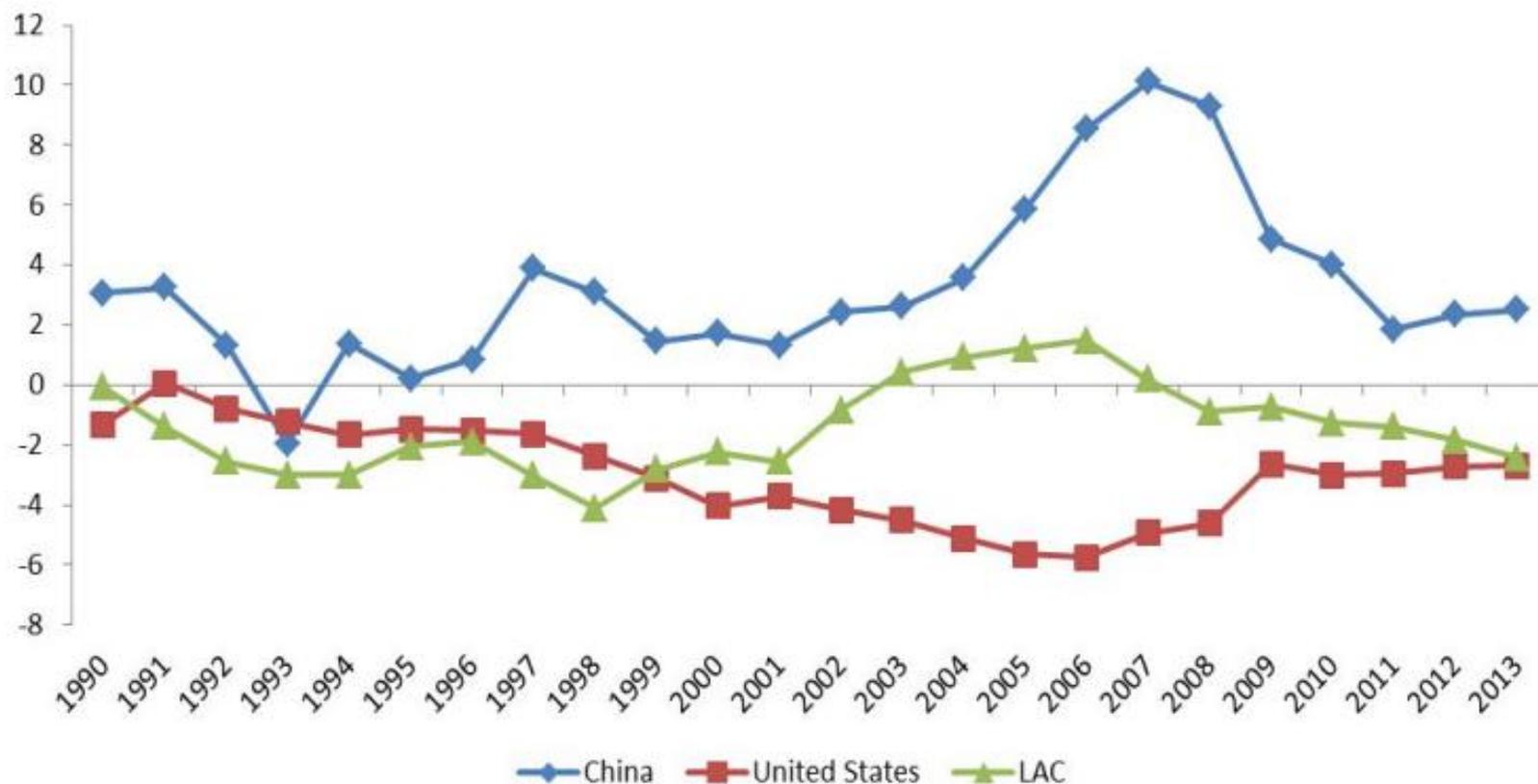
Source: International Monetary Fund, World Economic Outlook Database, October 2013.
Notes: Values for 2013 are based on IMF staff estimates.

Explaining China's Current Account Imbalances

CA=(Export-Import)+Net income from abroad

- **Currency manipulation**: Undervalued Renminbi (CNY) makes Chinese exports competitive, causing trade surplus.

- If it is the case, then with Renminbi appreciation, trade surplus should drop.

Trade balance
to GDP
[right axis]

Log real value
of CNY
[left scale]
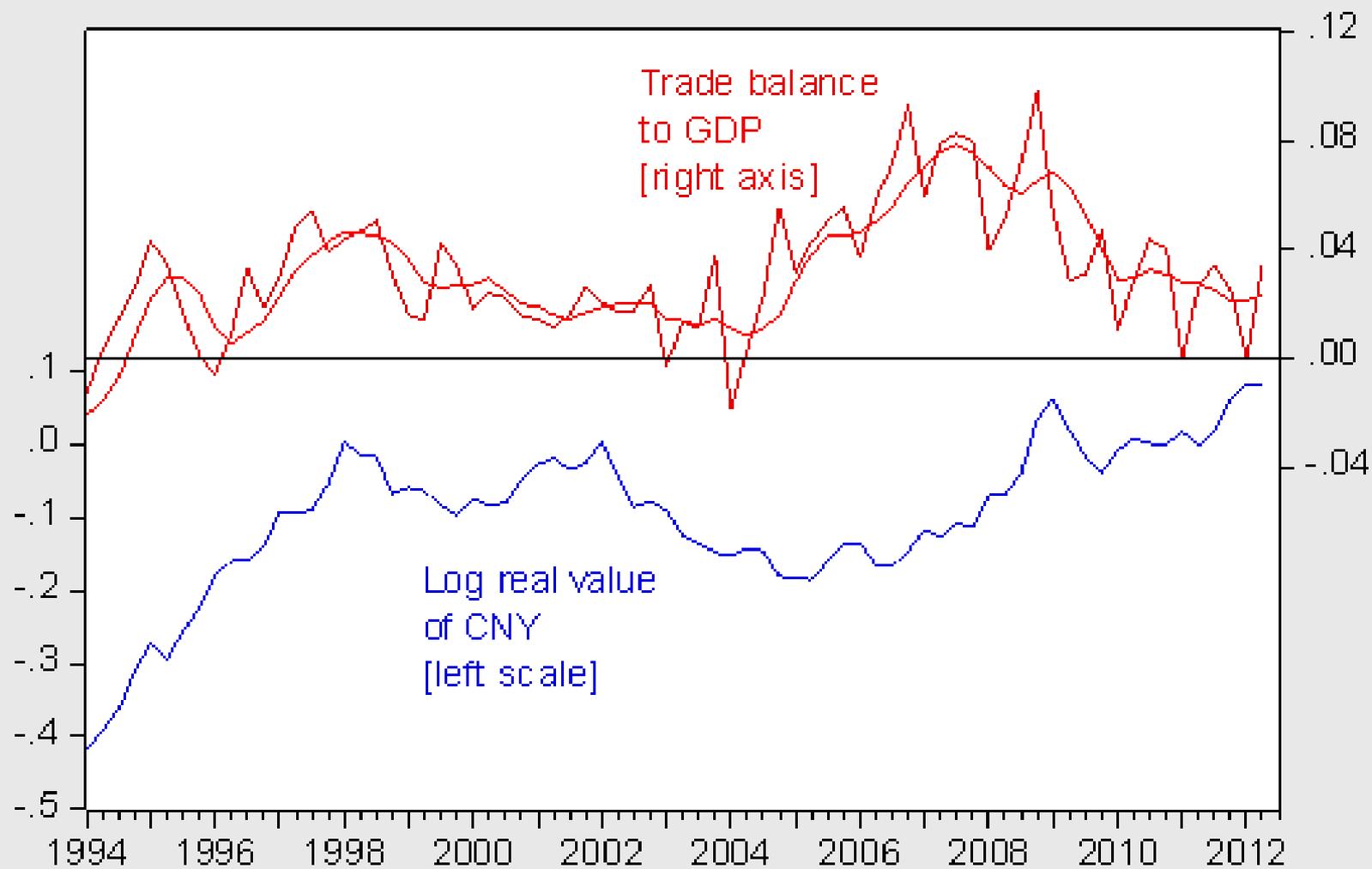
Explaining China's Current Account Imbalances

CA=Savings - Investment

- **High domestic savings**: the current account imbalance is largely driven by domestic imbalance, i.e. extremely high savings.

Share of Household Consumption in GDP (Percent) in China, US, LAC from 1990 to 2013.
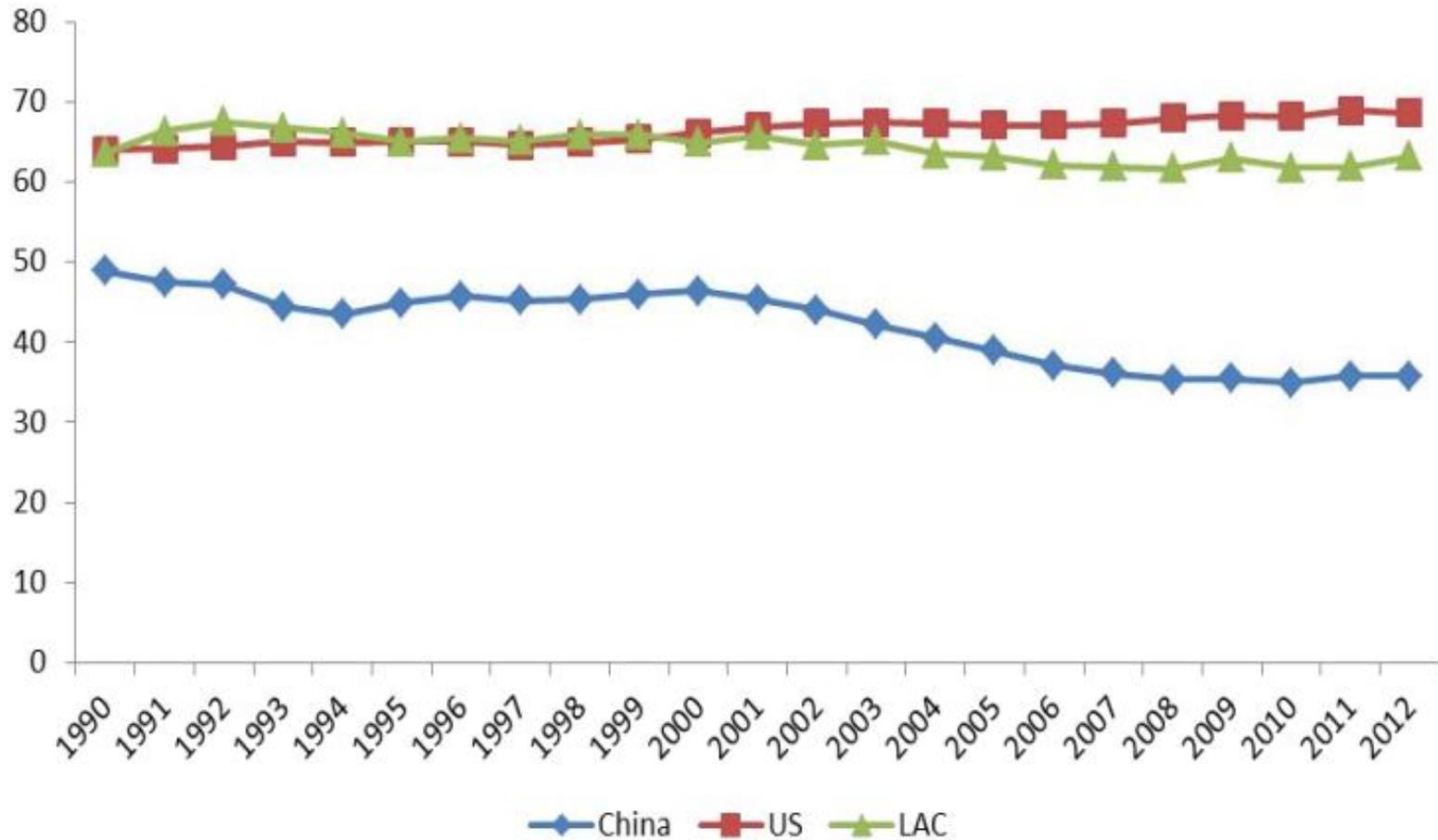
Source: United Nations Statistical Division, National Accounts Datasets

Share of Investment in GDP (Percent) in China, US, LAC from 1990 to 2013.
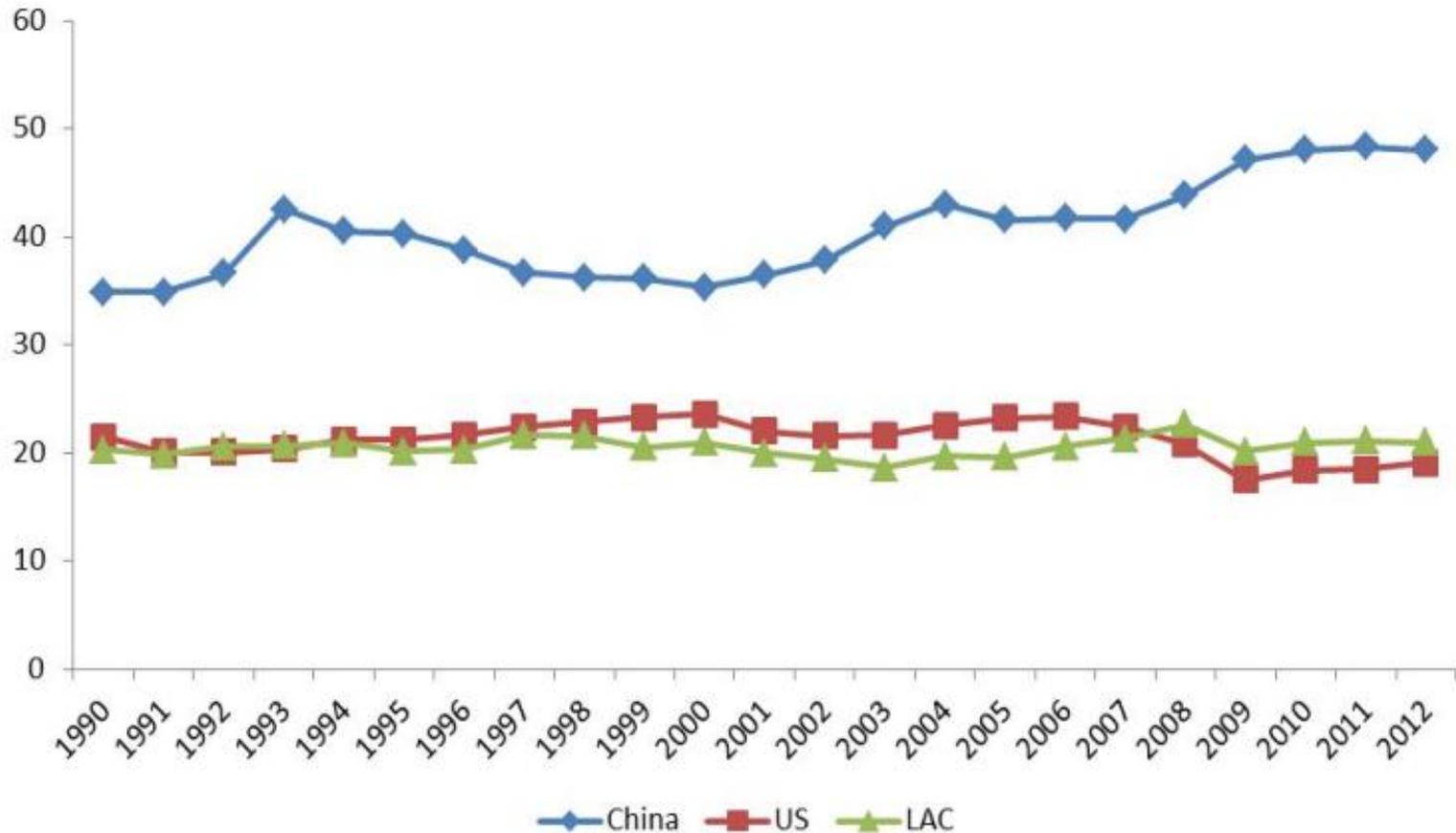
Source: United Nations Statistical Division, National Accounts Datasets

Chinese Savings

Household savings account for the largest share
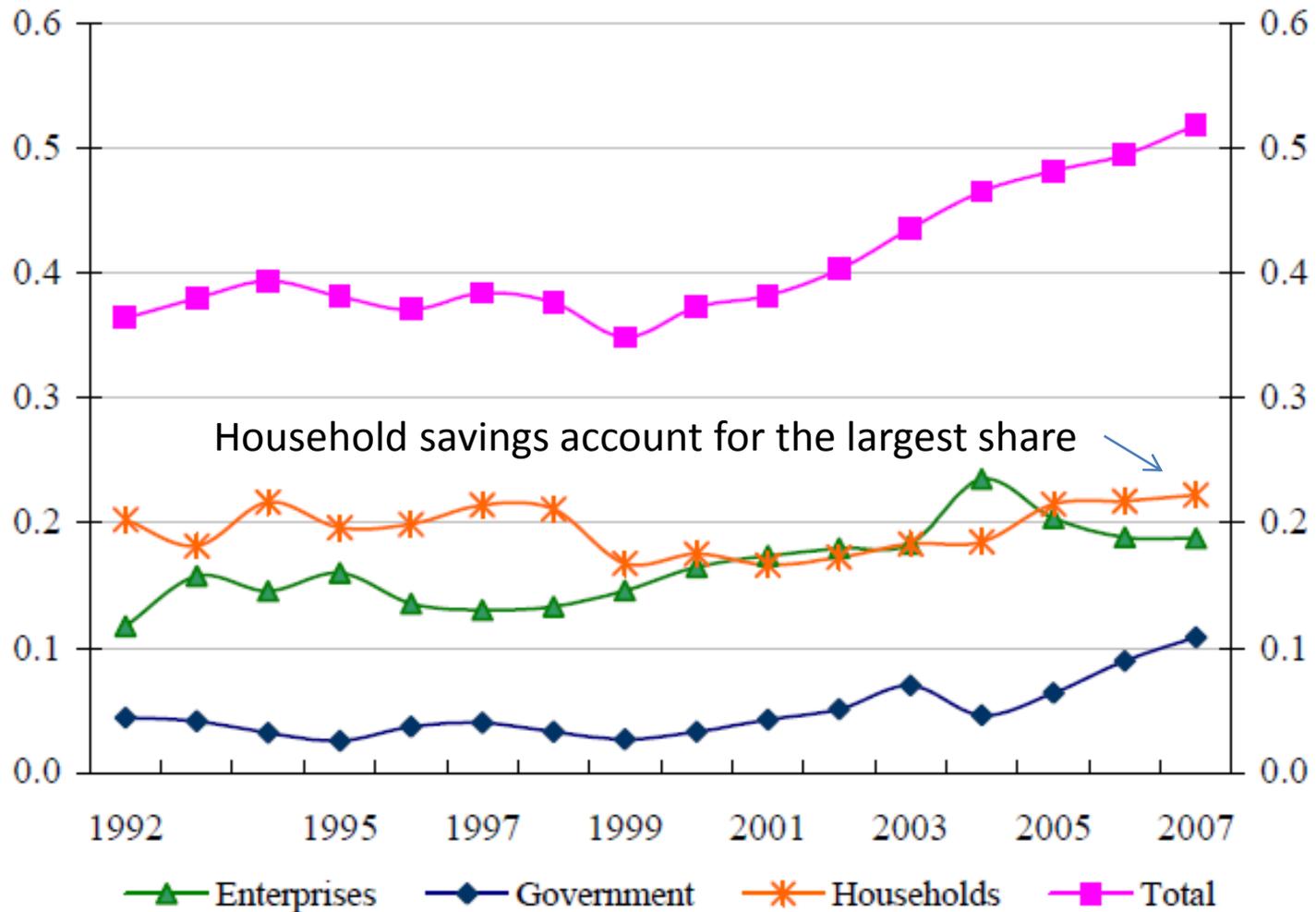
Why do the Chinese save so much?

- Life-cycle hypothesis
- Inadequate social safety net
  - + rising uncertainty
- Low level of financial development
- Culture
- Habit
- Corporate savings
- Unintended consequence of social policies?

Why do the Chinese save so much?

- Life-cycle hypothesis (Modigliani, 1970, and Modigliani and Cao, 2004) predicts that the savings rate rises with the share of working age population in the total population. But it doesn't appear to be consistent with the profile of savings at household level (Chamon and Prasad, 2008)

China's One Child Policy

- Since the late 1970s, China has adopted a very stringent one-child policy. Couples were only allowed to have one child with a few exceptions:
  - both parents were only children;
  - parents were from officially recognized ethnic minorities;
  - the first child was a girl or disabled in rural areas.

Rising Sex Ratio Imbalance

- Sex ratio imbalance:
  - Too many men, too few women

- Nature intended ratio:
  - 105 boys / 100 girls

- A surge in sex ratio in China
  - From 107/100 in 1986 to about 122/100 today.
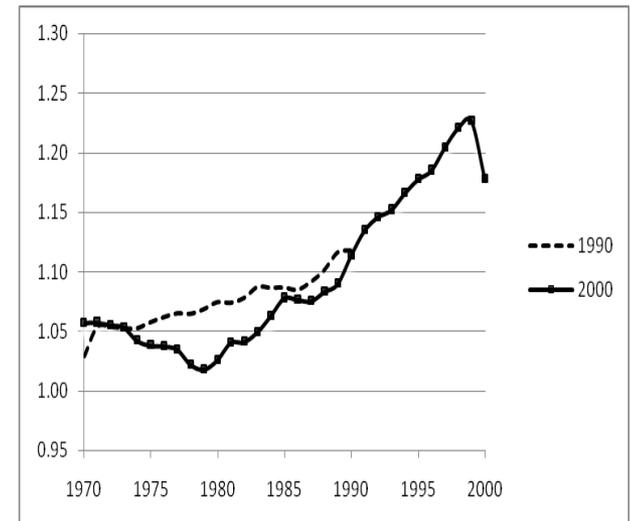
Our Hypothesis: Competitive Saving Motive

- Assuming most men want to be married
  - Parents of a son want their son to get married

- An increase in male/female ratio -> increase competition in marriage market -> men (parents) try things in their power to improve marriage prospect, including raising savings rate.

- Spillover: Competitive pressure raise local housing prices -> necessitates other households to also raise their savings rates

Keep up with the "Zhangs"

- Ironically, increased savings does not change the total number of men who get married in the aggregate. In this sense, the increased savings is socially inefficient.

- However, from an individual household's viewpoint, when the competition for a marriage partner is tough, it cannot afford to save less than its competitors.

Philosophers

Madonna Louise Ciccone Ritchie (1958-)

"We are living in a material world, and I am a material girl.

Some boys try and some boys lie, but I don't let them play.

Only boys who save their pennies, make my rainy day"

From Material Girl

Darwin's sexual selection

- Defined as "struggle between the individuals of one sex, generally the males, for the possession of the other sex.

From *The Descent of Man and Selection in Relation to Sex* by Charles Darwin

Sexual Selection

- Darwin felt that natural selection alone was unable to account for certain types of apparently non-competitive adaptations, such as the tail of a male peacock.

- He commented: "The sight of a feather in a peacock's tail, whenever I gaze at it, makes me sick!"

Sexual Selection

- Visits to the National Zoo

- Sexual dimorphism – evolutionary biology: Males try to be more attractive to potential mates by making themselves physically larger

- Men have tried that before …

- Now they think making their bank accounts larger might be a little bit more effective;

- However, money on the bank is fungible. It is better to signal wealth using other means, such as housing.

Marriage Market in Rural China

- Having son married is a top concern;
- 87% of marriages occur within the same county;
- Arranged marriages still dominate;
- Groom families are supposed to offer a (new) house, bride price to brides' parents, and a lavish wedding banquet.

Marriage Market in Rural China

- 31 years old. Both his younger brother and him have worked in Zhejiang for 10 years. Their parents have passed away. The sole purpose to build a house in his home village is to find a wife.

- He uses all his savings earned in the past 10 years to build the house. But he still needs to save $3,000 (two years' net savings) more for brideprice.

- 30% of males older than 30 years old in this village are single.

2004, Guizhou

2006, Guizhou

2010, Guizhou

(Standardized) **Sex Ratios and Housing Prices**
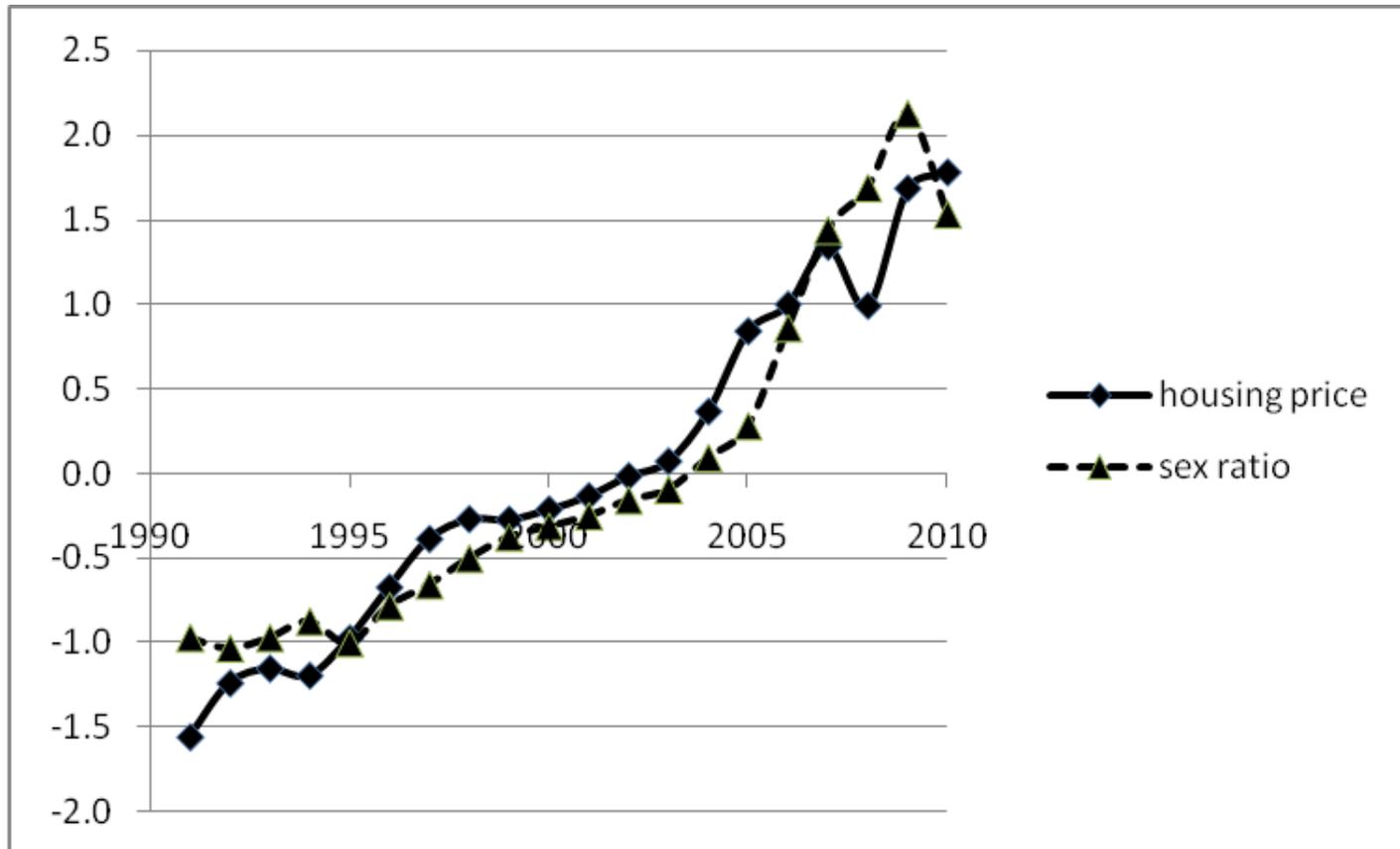
Sex ratios for 18 years old, inferred from the sex ratio at birth lagged by 18 years.
Average house sale prices (per square meter) are deflated by national fixed asset price index.
Both variables are rescaled by subtracting the mean and dividing by the standard deviation.

Wei, Zhang, and Liu (2012)

# Sex Ratios and House Price-to-Income Ratios

Graphs by city
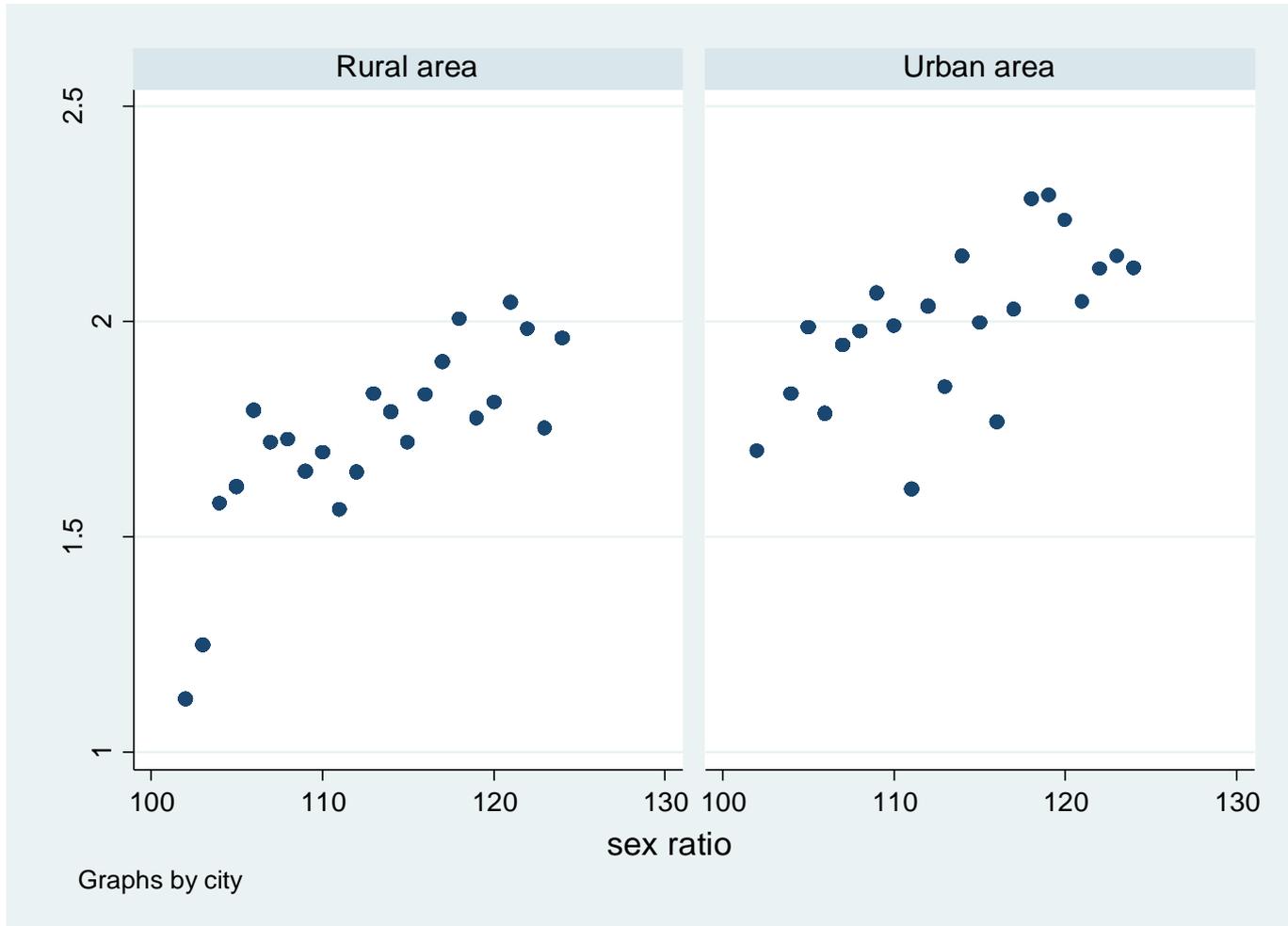
On the vertical axis is the ratio of housing value to household income in 2005,
averaged over all cities that had the same value of sex ratio (up to a basis point).
The housing value refers to either sale price or construction cost computed from
a 20 percent random sample of China 1% Population Survey in 2005.

Wei, Zhang, and Liu (2012)

Sex Ratios and House Value-to-Rent Ratios

Graphs by city
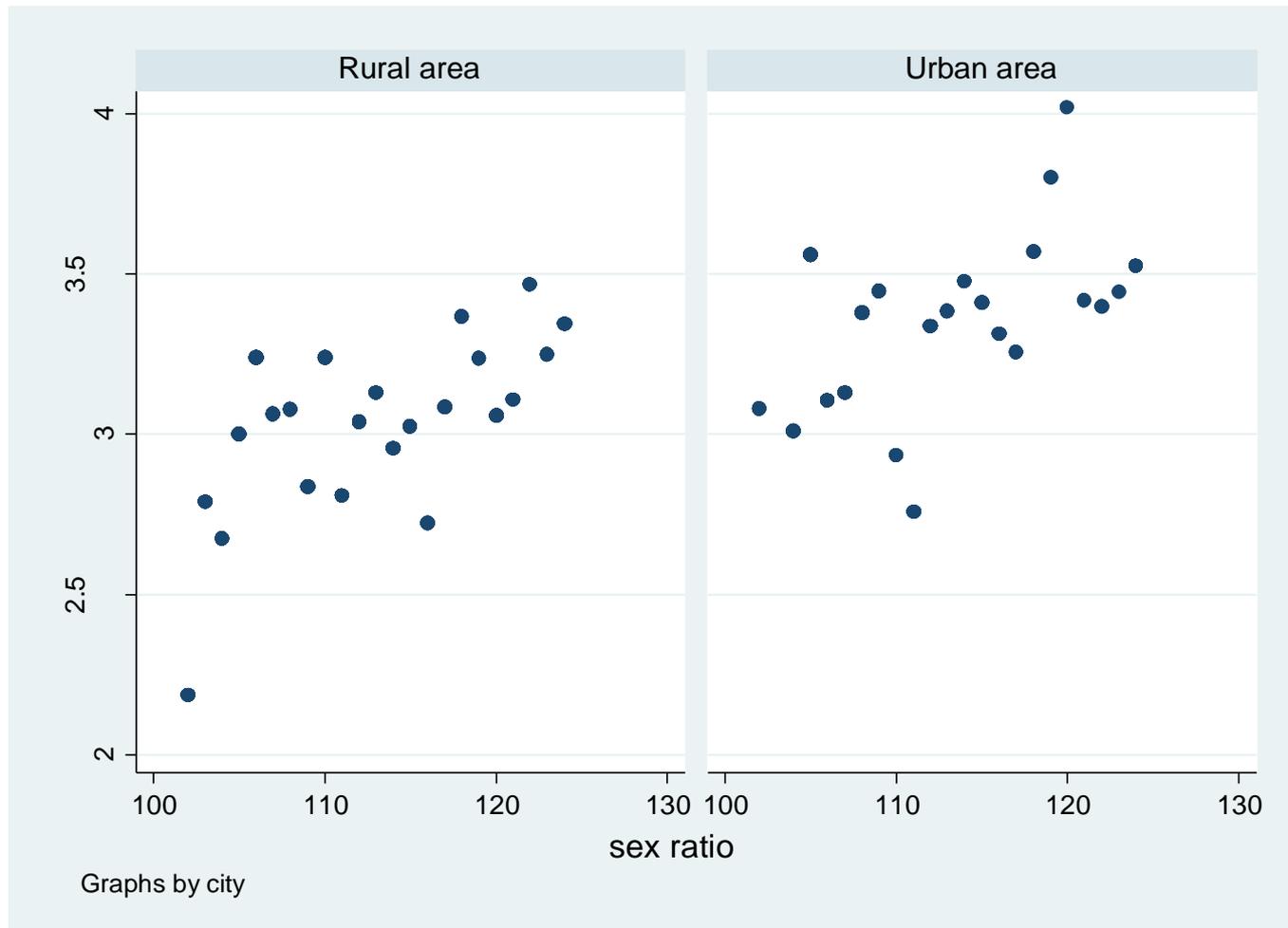
On the vertical axis is the ratio of housing value to rent in 2005,
averaged over all cities that had the same value of sex ratio (up to a basis point).
The housing value refers to either sale price or construction cost computed from
a 20 percent random sample of China 1% Population Survey in 2005.

Wei, Zhang, and Liu (2012)

High Housing Price

- Housing prices in China's large cities have risen so fast that they are a frequent source of citizen complaint on the internet and was the subject of a popular soap opera (蜗居) that was later soft-banned by the government.

- A 1,076-square-foot apartment in one of China's most affluent cities today costs about 40 years' annual income (*Bloomberg BusinessWeek*, 2013).

- In the U.S. on average slightly less than 9% of a borrower's monthly disposable income goes toward mortgage payments, while In China the proportion is 30-50%.
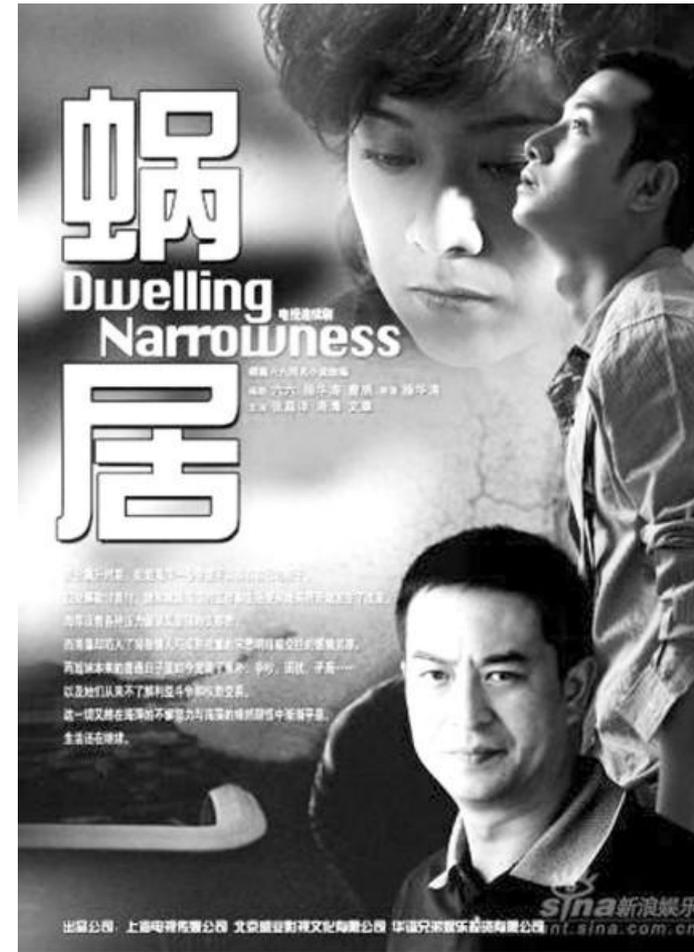
Economic Significance

- China's home ownerships is nearly 90% according to CHFS and CFPS surveys (two national representative surveys), one of the highest in the world!

- A rise in the sex ratio accounts for 30-48% of the rise in real urban housing prices in China during 2003-2009.
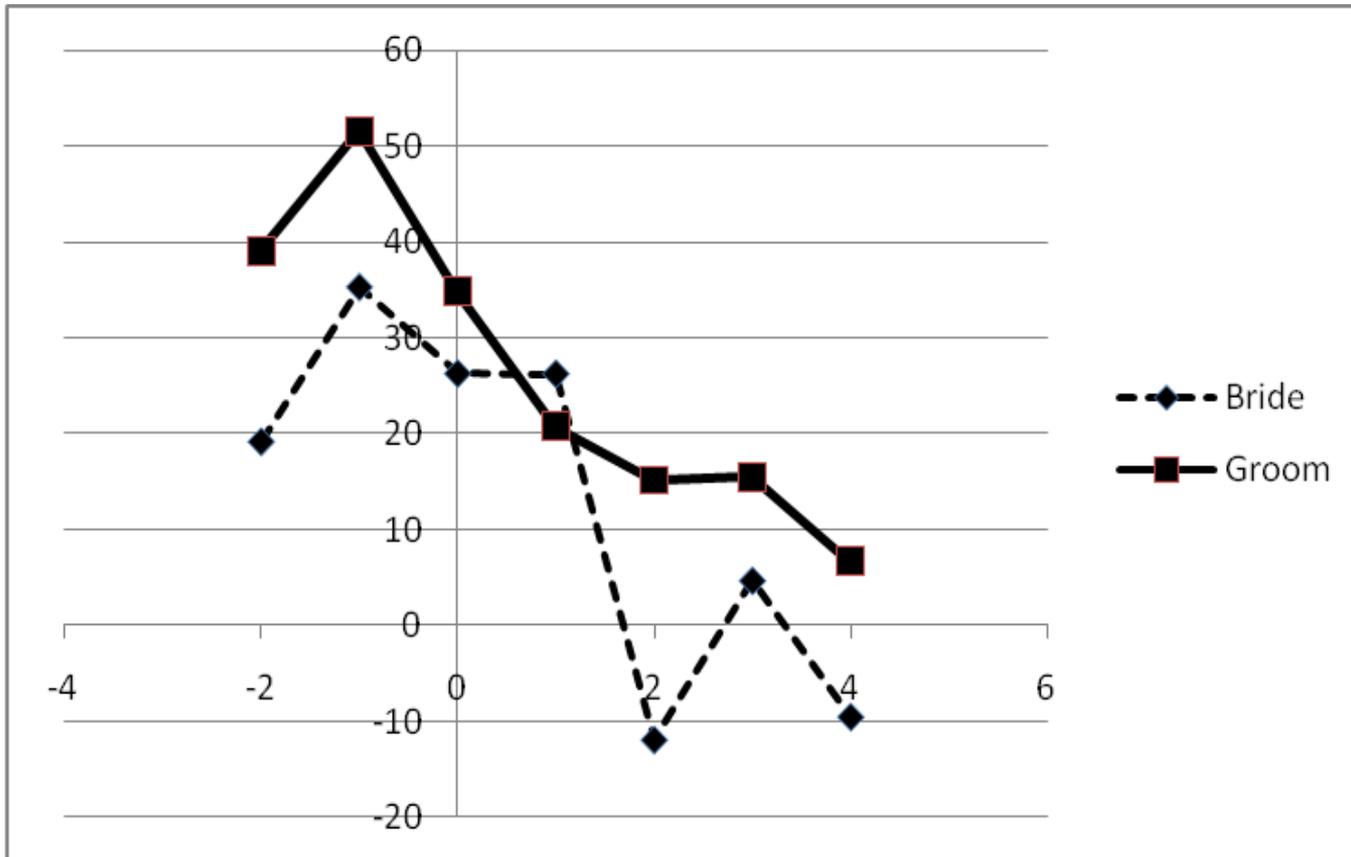
Household savings rate in relation to the timing of a wedding in the family in rural Guizhou Province
Source: Authors' calculation based on household surveys conducted by IFPRI in 2005 and 2007

Wei and Zhang (JPE, 2011)

Sex ratio and saving rate in China:1975- 2005
Sex ratio at birth lagged by 20 years
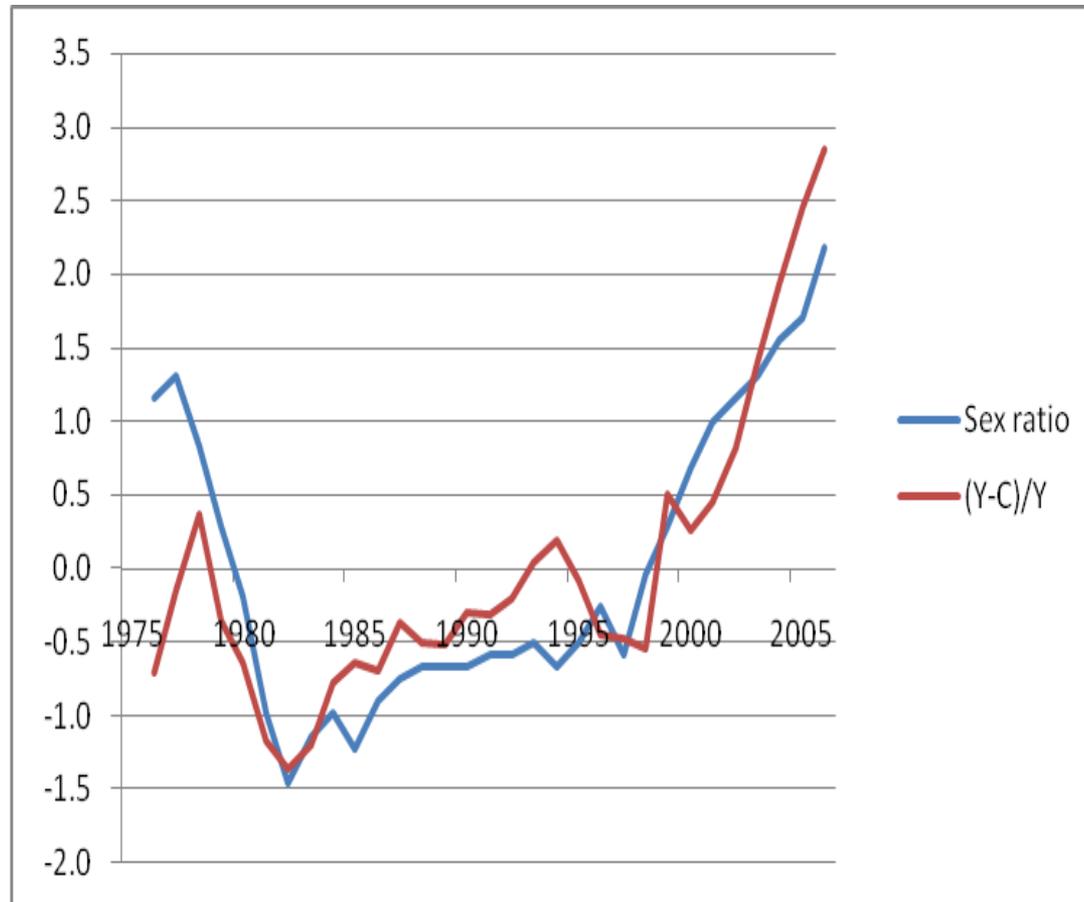
Wei and Zhang (JPE, 2011)

Importance of Sex Ratio on Rising Savings Rate

- According to Wei and Zhang (JPE, 2011), rising sex ratios can potentially account for about half of the actual increase in household savings rate from 1990 to 2007.

The Desire to Accumulate Wealth Stimulates People's Work Ethic

- Higher degree of entrepreneurship
- More likely to take risky jobs
- Work longer hours

Who Are More Likely to Be Entrepreneurs
Rural nuclear families with one child; Probit

	son	daughter
Local sex ratio	0.57**	0.20
for age cohort 5-19		
Year of education	0.24**	0.29**
Year of education (squared)	-1.16**	-1.38**
Household head age	0.00	-0.01**
Female household head	0.26**	0.18**
Poor health by family members	-0.26*	-0.31**
Age of a child 6-10	0.09**	0.10**
Age of a child 11-15	0.10**	0.12**
Age of a child 16-20	0.10*	0.11*
N	29315	22323

Source: 2005 1% Population Survey

Wei and Zhang (2011)

Who Are More Likely to Be Entrepreneurs
Urban nuclear families with one child; Probit

	One son	One daughter
Local sex ratio for age cohort 5-19	0.50**	0.10
Year of education	0.24**	0.23**
Year of education (squared)	-1.68**	-1.57**
Household head age	0.01*	0.01**
Female household head	0.00	-0.06*
Poor health by family members	-0.73**	-0.82**
Age of a child 6-10	-0.03	-0.02
Age of a child 11-15	-0.05	-0.10*
Age of a child 16-20	0.01	0.12
N	15848	13538

Source: 2005 1% Population Survey

Wei and Zhang (2011)

Growth rate of # private firms (1995-2004) vs **sex ratio** (age cohort 0-14) in 1995 across Chinese counties, unconditional plot
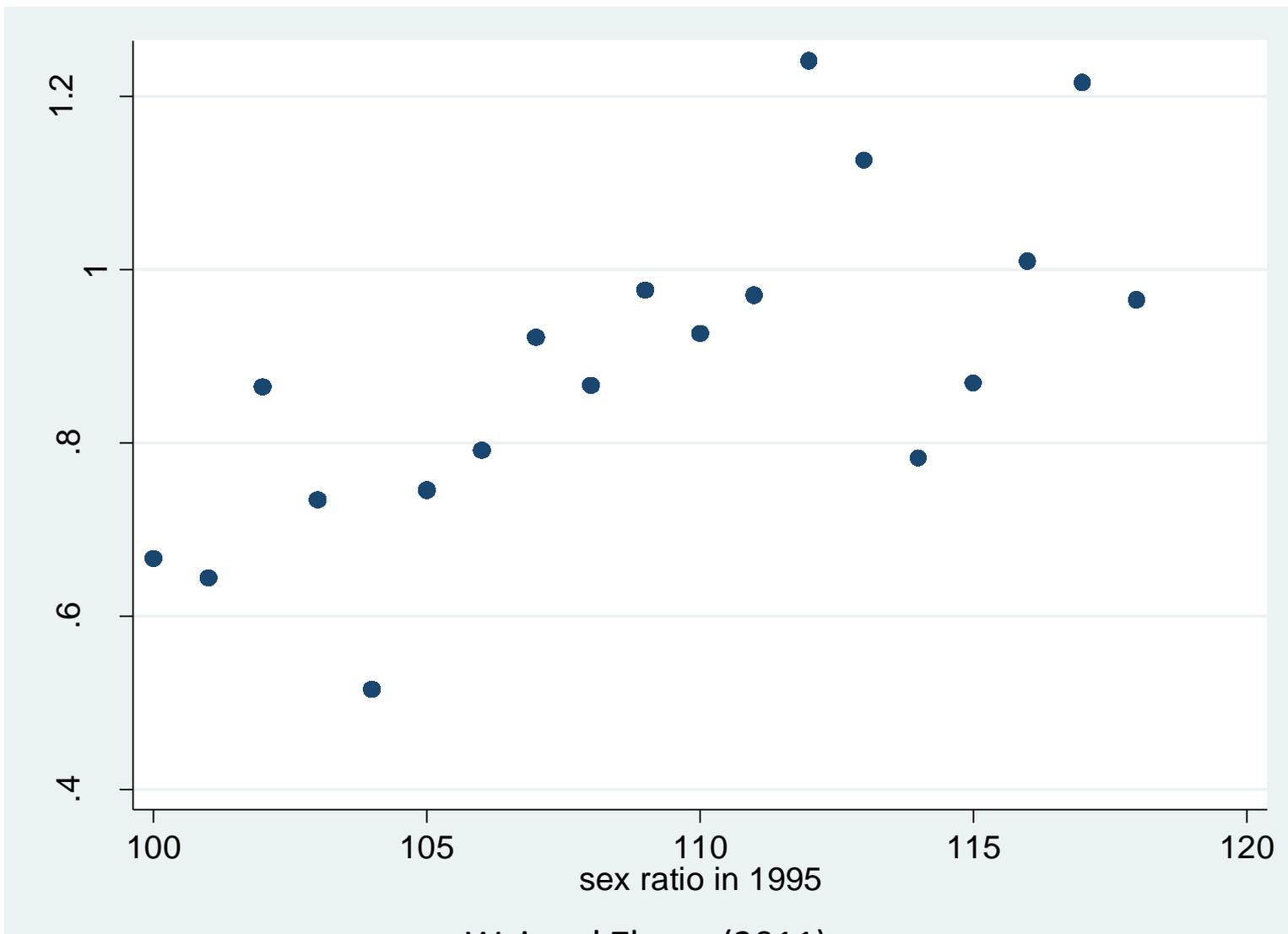
sex ratio in 1995

Wei and Zhang (2011)

Growth in the Number of Private Firms from 1995 to 2004 in Counties
Sex ratio: 5-19 in 1995

	5-19	5-19	5-9	10-14	15-19
Initial sex ratio	0.019**	0.015**	0.008**	0.009**	0.004
Log number of firms in 1995	-0.498**	-0.576**	-0.572**	-0.574**	-0.568**
Log GDP in 1995	0.294**	0.530**	0.526**	0.538**	0.539**
Average year of schooling	-0.066**	-0.170**	-0.171**	-0.172**	-0.176**
Share of agri. output in in 1995	-0.893**	-0.902**	-0.915**	-0.902**	-0.898**
The ratio of local revenues in 1995	0.098**	0.002	0.003	0.001	0.001
Population growth (1990-2000)	0.420**	0.177*	0.182*	0.172*	0.165*
Share of labor force (aged 20-64)	-0.469	-0.699	-0.838*	-0.69	-0.737
Share of old population (> 64)	13.175**	11.285**	11.485**	11.417**	11.480**
Log local household savings in 1995		0.402**	0.401**	0.405**	0.406**
Adjusted R square	0.32	0.39	0.39	0.38	0.38
AIC	3786	3548	3545	3560	3565
N	1790	1764	1764	1764	1764

Note: Aggregated at the county level based on China Industrial Census (1995) and China Economic Census (2004).

Wei and Zhang (2011)

Economic Significance

- An increase in the sex ratio by 3 basis points
- Rural sample
  - -> increase in logN by 0.39
  - -> accounting for 47% of the actual increase in # of private firms in rural areas
- Urban sample
  - -> increase in logN by 0.18
  - -> accounting for 20% of the actual increase in # of private firms in urban areas

Dangerous/unpleasant jobs

- Jobs in mining, construction, or jobs with exposure to extreme heat, extreme cold or hazardous materials

Images of
migrant workers

Probit Estimation of Household Propensity to Take a Dangerous Job in 2002

	One son	One daughter
Local sex ratio for age cohort 0-14 in 1990	0.05**	-0.02
Log household income	0.06	-0.02
Year of education	-0.02	-0.04
Household head as minority ethnic group	-0.22	-0.36
Poor health by family members	-0.21	-0.74
Head younger than 35	-0.24*	-0.03
Age of a child 5-9	0.53**	0.21
Age of child 10 or older	0.31	0.35
N	480	262

Data Source: CHIP 2002.
Wei and Zhang (2011)

Tobit Estimation on the Number of Off-farm Working Days in 2002

	One son	One daughter
Local sex ratio for age cohort 0-14 in 1990	27.8**	7.5
Log household income	78.4**	-39.1
Year of education	-4.76	13.03
Household head as minority ethnic group	88.05	50.2
Poor health among at least one family member	-56.21	-93.49
Household head younger than 35	-49.99	-54.2
Age of child 5-9	85.18	-56.56
Age of child 10 or older	41.92	-66.54
N	480	262

Data source: CHIP 2002.
Wei and Zhang (2011)

Economic significance of the estimates

- An increase in sex ratio by 9 basis points (about the actual increase from 1990 to 2007) ->

- three more working days off farm (compared with 36 days/year on average in 2002)

- An increase by 9 basis points in the probability of taking a risky job (compared with 27.6% unconditional mean in 2002)

- The sex ratio effect only works on households with a son

Engines of Export Growth

- Rising labor productivity is the growth engine of Chinese export. Its growth has outweighed the speed of CNY appreciation.

- People's hard work and entrepreneurship contributes to labor productivity growth.

Some Negative Consequences

- When people spend many years' savings on housing, they have little left for other invisible consumption, resulting in domestic imbalance (over-savings and under-consumption).

# The Higher Floors will be Used for Storing Grain Bags

Some Negative Consequences

- When people work too hard, their health outcomes are more likely to be comprised.

- Despite rapid economic growth, the degree of happiness has declined.

# Declining Happiness in spite of a Rapid Growth in Income and Consumption

Real Per Capita Consumption and income
(in constant 2000 dollars, normalized to 100 in 2005)

Trends in Happiness
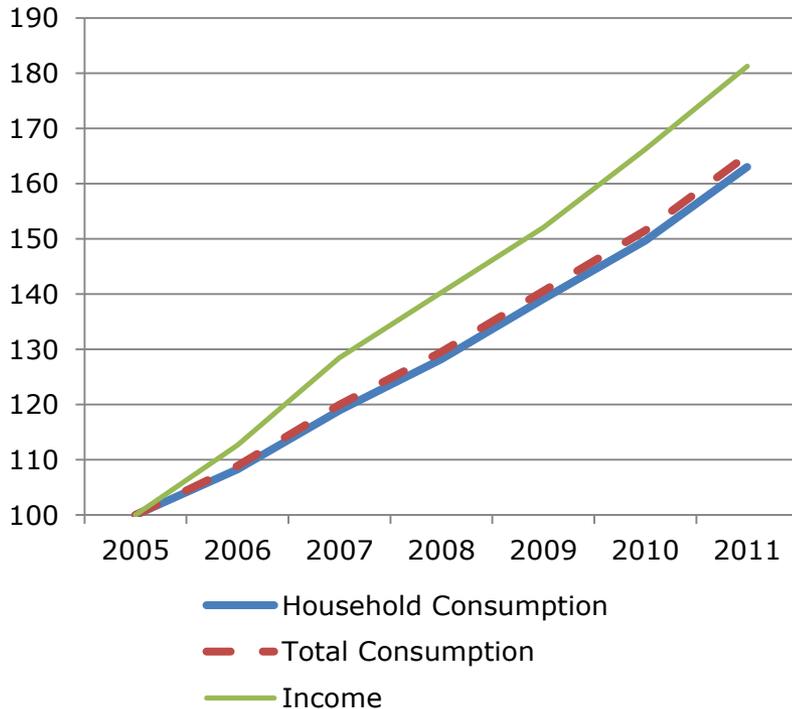
Source: World Bank WDI
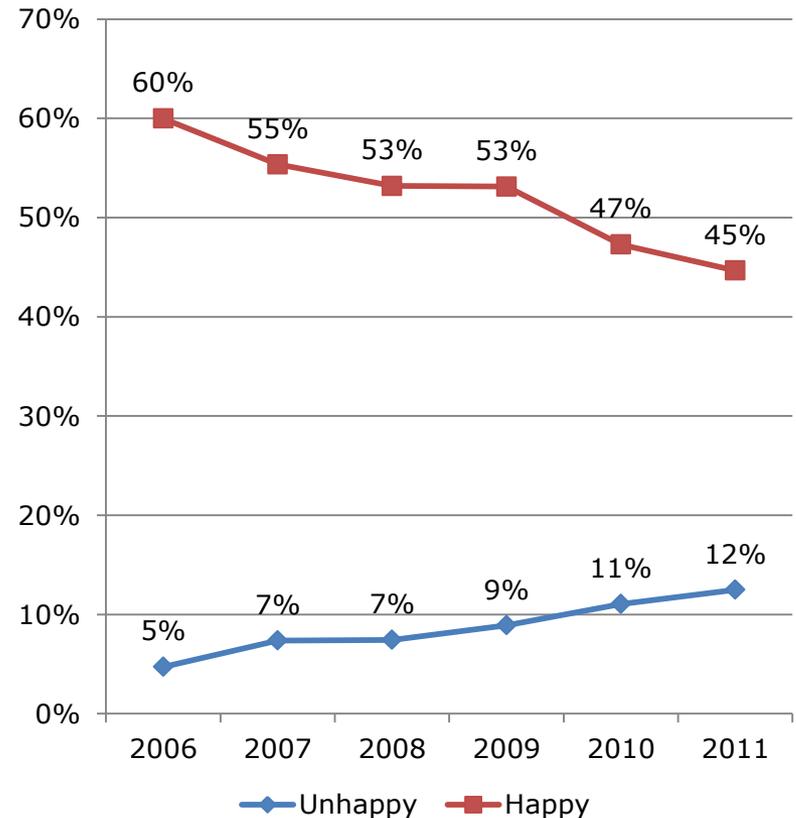
Excluded answer = "so-so."
Source: CCTV Postcard Survey

Sex Ratios and Work-Related Deaths across Provinces
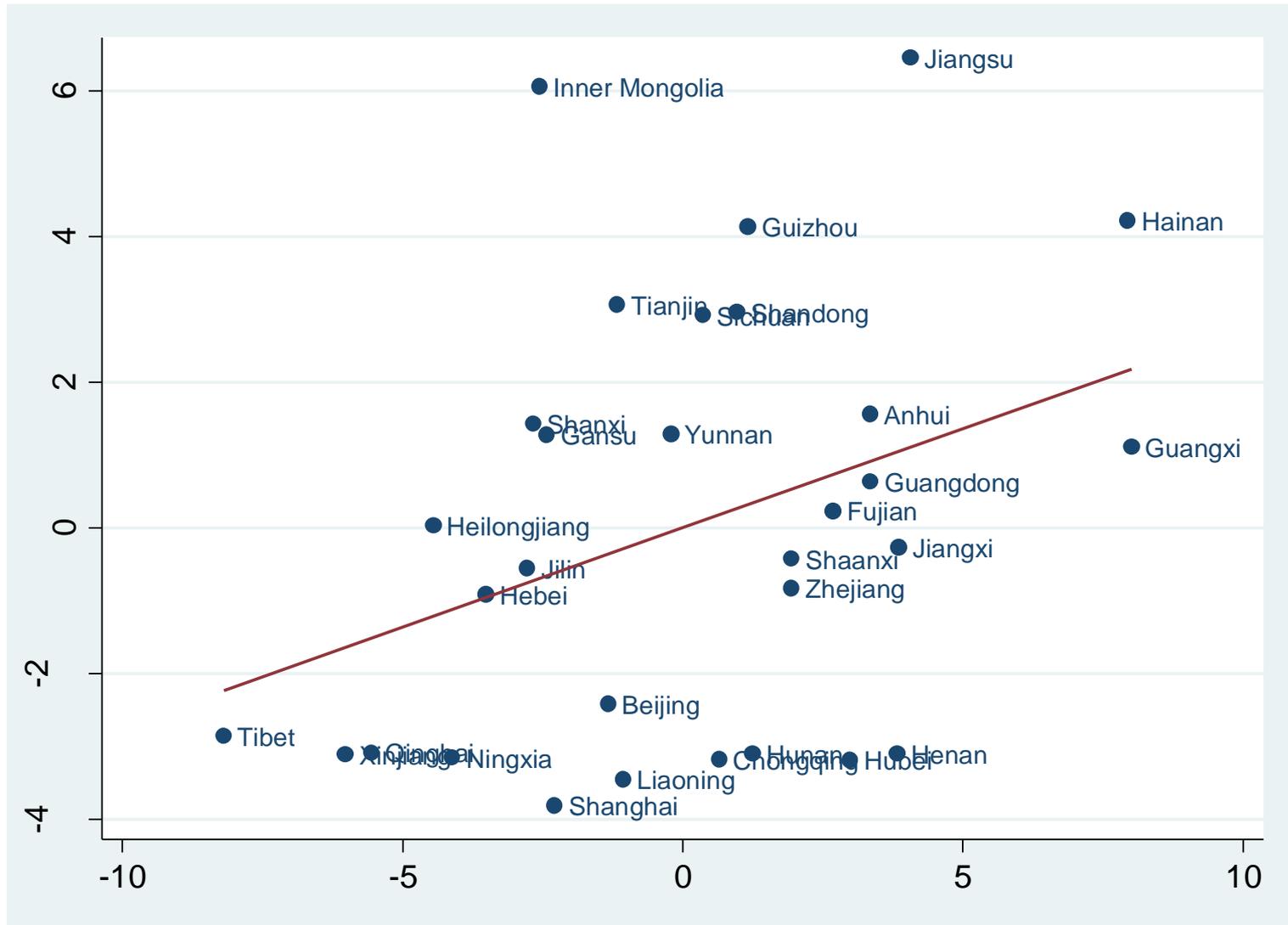
Wei, Tan, and Zhang (2014)

Recent Policy Change

- In 2013, In 2013, the Chinese government loosened the one-child policy by allowing married couples in which just one parent is an only child to have two children.

- It will have implications on savings, housing market, growth models, and other developing countries in the years to come.
  - A slow down in housing market will depress the construction sector, which in turn will reduce the import demand for raw materials from other countries.

Related Papers

- "The Competitive Saving Motive: Evidence from Rising Sex Ratios and Savings in China," (Shang-jin Wei and Xiaobo Zhang), <u>Journal of Political Economy,</u> 119 (3): 511-564, 2011.

- "China's One-Child Policy and 'the Mystery of Missing Women': Ethnic Minorities and Male-Biased Sex Ratios" (Erwin Bulte, Nico Heerink and Xiaobo Zhang). <u>Oxford Bulletin of Economics and Statistics</u>, 73 (1): 21-39. 2011.

- Wei, Shang-jin and Xiaobo Zhang, 2011. "Sex Ratios, Entrepreneurship, and Economic Growth in the People's Republic of China." National Bureau of Economic Research Working Paper No. 16800.

- Wei, Shang-jin, Xiaobo Zhang, and Yin Liu, 2012. "Status Competition and Housing Prices." NBER Working Paper #18000.

- Chang, Simon and Xiaobo Zhang, 2012. "The Economic Consequences of Excess Men: Evidence from a Natural Experiment in Taiwan." IFPRI Discussion Paper #01203.

- Zhibo Tan, Shang-jin Wei, and Xiaobo Zhang. 2014. Deadly Discrimination: Implications of "Missing Girls" for Workplace Safety with Evidence from China, working paper.