

# The Impact of Trade Liberalization on Marriage and Fertility: Evidence from China

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## Motivation

- **Trade liberalization is important**
  - Regional economic development
  - Industry adjustment and firm
  - Labor market
- **Implications to women**
  - Increased job opportunities
  - Family formation/fertility?

## Background

- Relatively close economy before WTO accession
- Become a member of WTO in 2001
- Significant trade policy change
- Dramatic increase in export value

Spatial distribution of tariff change

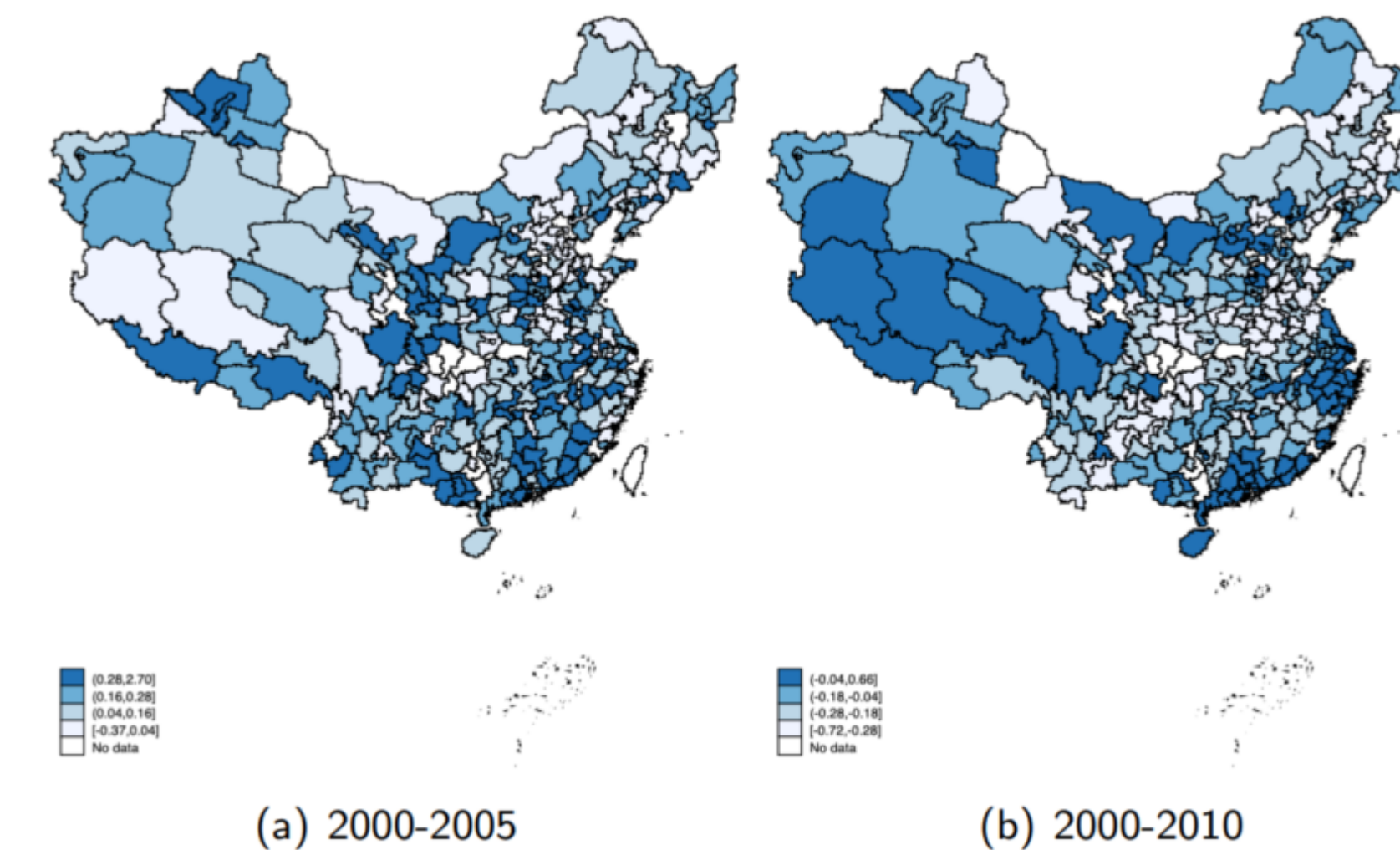


Figure 4: Prefecture-level export tariff rate change

Table 7: Impacts on female fertility

VARIABLES	Number of children			First birth before age 30		
	(1)	(2)	(3)	(4)	(5)	(6)
Δ Export tariff	0.083*** (0.028)	0.070*** (0.022)	0.066*** (0.024)	-0.015*** (0.005)	-0.012** (0.005)	-0.012** (0.005)
Δ Import tariff		-0.002 (0.008)	-0.002 (0.008)		-0.002 (0.002)	-0.002 (0.002)
Controls	N	Y	Y	N	Y	Y
Bootstrap	N	N	Y	N	N	Y
Mean in 2000	1.4	1.4	1.4	92.0	92.0	92.0

Notes: N=586 (293 prefectures\* 2 periods). Source: 2000, 2005 (Mini), 2010 China Population Censuses. All models are weighted by prefecture female population ages 20-40. Bootstrap based on 200 times. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

## This paper

- Question: women's responses to tariff liberalization in marital and fertility decisions.
- **Why China?**
  - WTO accession accelerates export expansion.
  - Large geographic diversity in industry composition, feasible for identification.

## Data

- **Outcome Variable of Interest**
  - Employment share, marital status, and fertility outcomes
  - Source: 2000, 2005 Mini, and 2010 China Population Censuses
- **Tariff Data**: World Bank UNCTAD TRAINS Database
- **Controls** from 1990 population Census and China City Statistics Yearbook

Table 3: Export tariff shock and marriage formation

VARIABLES	The share of (*100)								
	(1)	(2)	(3)	Married			Divorced		(9)
Δ Export tariff	5.607*** (1.488)	5.447*** (1.210)	5.309*** (1.309)	0.011 (0.142)	0.084 (0.122)	0.083 (0.125)	-5.618*** (1.484)	-5.531*** (1.225)	-5.391*** (1.317)
Δ Import tariff		0.006 (0.280)	0.013 (0.273)		-0.085* (0.049)	-0.086* (0.047)		0.078 (0.286)	0.073 (0.284)
Controls	N	Y	Y	N	Y	Y	N	Y	Y
Bootstrap	N	N	Y	N	N	Y	N	N	Y
Mean in 2000	86.7	86.7	86.7	1.4	1.4	1.4	11.9	11.9	11.9

Notes: N=586 (293 prefectures\* 2 periods). Source: 2000, 2005 (Mini), 2010 China Population Censuses. All models are weighted by prefecture female population ages 20-40. Bootstrap based on 200 times. \*p<0.1, \*\*p<0.05, \*\*\*p<0.01.

## Robustness Check

- Pre-trends
- Alternative employment weights
- Max export tariff
- Permutation Test
- Migration
- Initial Condition
- Simultaneous trade/ regional policies

## Key findings

- Increased female non-agricultural job opportunity.
- Marriage rate decline, delay in first marriage, and reduced fertility.

## Identification Strategy

- **Bartik Approach** (Autor et al. 2013; Autor et al. 2019)
- Cross-industry and cross-prefecture variations in export tariff change.
- Long difference model:

$$\Delta Y_{spc\tau} = \theta_1 \Delta E_{p\tau} + \theta_2 \Delta I_{p\tau} + \Delta X'_{p\tau} + R'_p + \alpha_t + \sigma_c + \epsilon_{sp\tau}$$

Table 4: Impact on the timing of marriage

VARIABLES	The share of (*100)		
	(1)	(2)	(3)
Δ Export tariff	7.530*** (1.920)	6.910*** (1.426)	6.673*** (1.491)
Δ Import tariff		1.482** (0.678)	1.468** (0.661)
Controls	N	Y	Y
Bootstrap	N	N	Y
Mean in 2000	99.5	99.5	99.5

## Conclusions

- Export tariff decline influences women
- Less likely to get married
  - Delays their first marriage
  - Reduce the number of children.