One Bed, Two Dreams: Female Migration, Conservative Norms and Foreign Brides in South Korea

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Motivation

1) Rural to urban migration as global phenomenon:

- Industrialization → urbanization → rural-to-urban migration
- In many countries rural-to-urban migration more popular for women (Cattaneo & Robinson, 2019)
  - ↓ women available in rural areas → marriage market may be affected
  - Fertility rates may also be affected

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→ RQ 2: Does female internal migration affect the demand for international marriages?

This Paper

Setting: South Korea

- Fast and recent economic development → rural-to-urban internal migration
- High fraction of marriages between local men and immigrant women
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- Extensive number of datasets: population and marriage statistics, social surveys, family and marriage surveys
- Strategy: 223 municipalities, years 2005-2019; two-way fixed effects model, enclave IV
  - Enclave instrument: use migrants' networks (past migration) to predict actual migration

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Main Findings:

1. Higher outflow of local women → ↑ marriages between local men and foreign brides
2. Effect reinforced by conservatism of local men towards family and gender roles
3. Outflow of local women depresses fertility, foreign brides help recover (partially)

Related Literature

Migration

- Migration and social outcomes (Fuoka et al., 2022, Adda et al. 2020; Daudin et al. 2019; Carlana and Tabellini, 2018)
- Enclave instrument (Card 2001; Card 2009; Foged and Peri 2016; Lewis 2011; Morales 2018; Mayda, Peri and Steingress 2022; Marie and Pinotti 2024)

Contribution→ Evidence on the effect of internal migration for marriage market outcomes

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Contribution→ Evidence on the effect of internal migration for marriage market outcomes

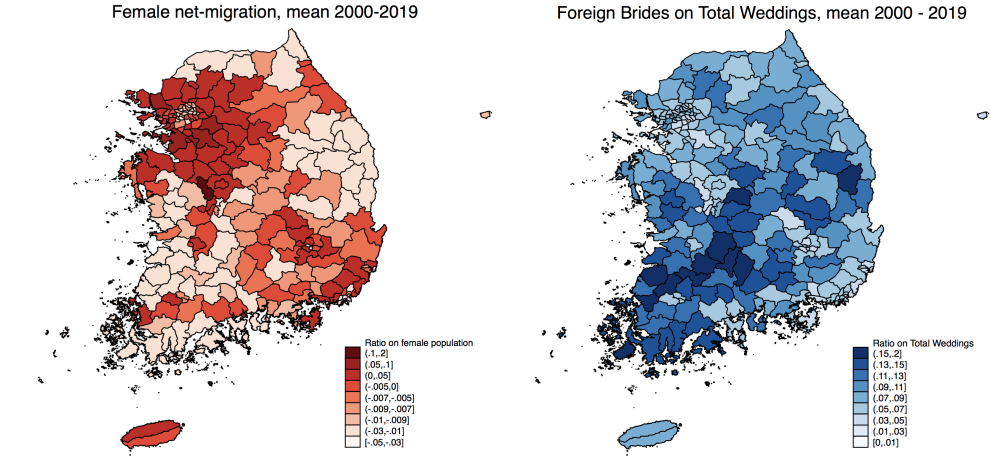
Marriage Market

- International marriages (Adda et al. 2024; Weiss et al. 2018; Kawaguchi and Lee, 2016; Tura, 2020)
- Demographic changes and marriage outcomes (Raymo and Park 2020; Grosjean et al., 2019; Rotz, 2016; Abramitzki et al. 2011)

Contribution→ First empirical evidence on the demand for international marriages

Contribution→ Additional evidence on effects of marriage squeeze for men

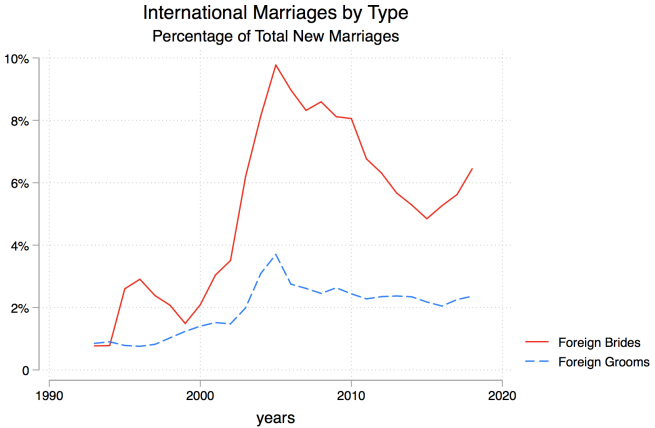
Female Internal Migration and International Marriages



- Districts more exposed to **out-migration of local women** → high concentration of **foreign brides**

reasons to migrate | rural-to-urban | brides rural/urban

Mail-Order Brides



brides by origin

The New York Times

Korean Men Use Brokers to Find Brides in Vietnam

From left, Bui Thi Thuy and Kim Tae-goo and To Thi Vien and Kim Wan-su prepared for weddings in Vietnam and life in South Korea. Norimitsu Onishi/The New York Times

Empirical Strategy - OLS

I regress the fraction of foreign brides on female internal migration at marriage age (20-34) for the period 2005-2019:

$$\left(\frac{F\ Brides}{Total\ Marriages}\right)_{c,t} = \beta_0 + \beta_1 female\ flight_{c,t-1} + \delta_c + \theta_{t*p} + \epsilon_{c,t} \quad (1)$$

Where:

- $\left(\frac{F\ Brides}{Total\ Marriages}\right)_{c,t}$ = fraction of foreign brides in district c and year t
- $Female\ Flight = \left(\frac{Outflows}{Inflows+Onflows}\right)_{c,t-1}$ of women at marriage age, in c at $t-1$
- δ_c, θ_{t*p} = districts FE and year×province FE

female flight

Building the Enclave IV

I predict outflows from a district, using inflows into all other districts:

$$Outflows\ IV_{o,t} = \sum_{d} inflows_{d,t} \times \lambda_{o,d_{02-04}} \tag{2}$$

- d, o are districts of destination and of origin
- $inflows_{d,t}$ = inflows at destination d in year t
- $\lambda_{o,d_{02-04}}$ = fraction of internal migrants from o to d, in 2002-2004.

example

I predict inflows into a district, using outflows form all other districts:

$$Inflows\ IV_{d,t} = \sum_{o} outflows_{o,t} \times \gamma_{d,o_{02-04}} \tag{3}$$

- The IV is:

$$Female\ FlightIV_{c,t} = \left(\frac{Outflows\ IV}{Inflows\ IV + Outflows\ IV} \right)_{c,t} \tag{4}$$

Data

For the **OLS specification**: administrative data at the districts level

- 223 districts, years 2005 to 2019
- Marriages by type, population and internal migrants by gender and age

For the **instrumental variable**: Internal Migration Census (KOSIS), 2002-2004

- Individual level data - district of origin, destination, gender and age
  - Aggregated at district level for adult migrants
  - No full information after 2010 $\rightarrow$ I cannot use it for the whole specification

Baseline Estimates Results

Table 2: Main Estimates and First Stage - *Dep. Variable* = $\frac{foreign\ brides}{total\ weddings}$

	All districts			Urban			Rural		
	(1) First stage	(2) OLS	(3) IV	(4) First stage	(5) OLS	(6) IV	(7) First stage	(8) OLS	(9) IV
Fem outflows/tot mig (t-1)		0.125***	0.145***		0.112***	0.093*		0.134***	0.191**
		(0.013)	(0.040)		(0.014)	(0.041)		(0.019)	(0.070)
Fem outflows/tot mig IV	1.862***			2.725***			1.449**		
	(0.368)			(0.486)			(0.416)		
Obs.	3122	3122	3122	1022	1022	1022	2100	2100	2100
Clusters	223	223	223	73	73	73	150	150	150
F-stat F	25.51			31.36			12.14		

- ↑ *female flight* → ↑ demand for foreign brides the following year
- Effect stronger in rural areas

Time-lapse of Female Flight

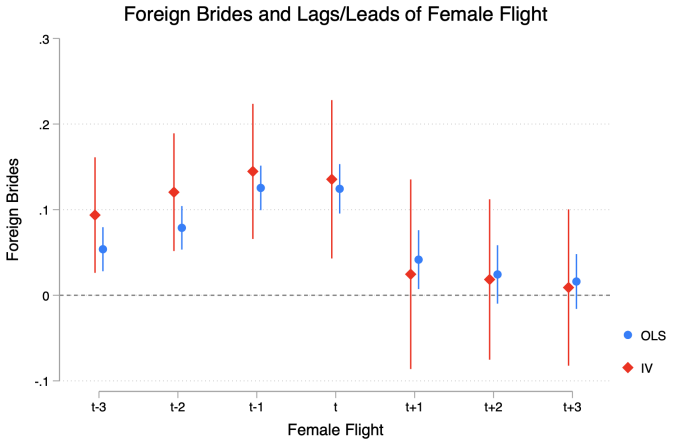


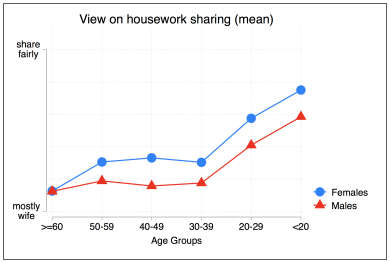
table unique equation

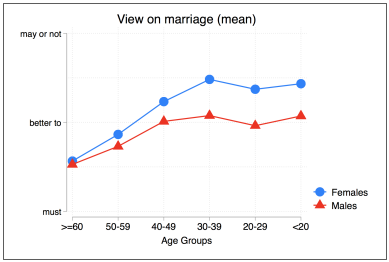
- *female flight* affects marriages with foreign brides, not the other way around
- Effect persists up to 3 years after *female flight*

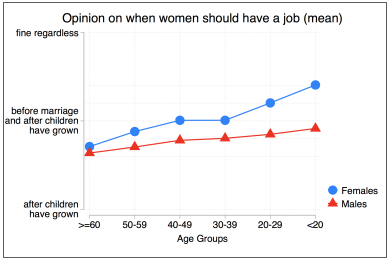
Heterogeneity: Level of Conservatism

- Heterogeneous effect for level of **conservatism in traditional family roles**
- Growing **gender gap in gender norms** for locals
  - Women more progressive
  - Men more conservative
- Foreign brides as better match to conservative men
- Empirical analysis using indexes for conservatism
- Data: Family, Welfare and Labor Survey, 2002; World Value Survey, 2001

The gap in gender roles in South Korea

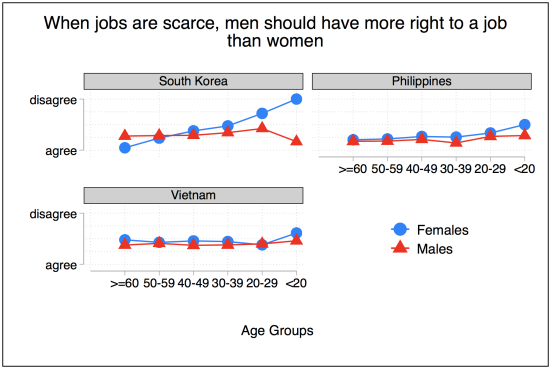


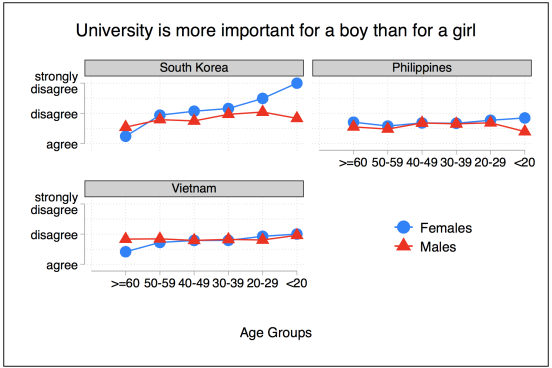




- Gap in family values between local men and women

Foreign Brides as Better Match for Local Men





- Big cultural distance only in SK
- Women in FB's origin countries share similar views with SK men

Heterogeneity Analysis: Conservative vs Progressive Areas

Table 4: Conservatism - *Dep. Variable* = $\frac{foreign\ brides}{total\ weddings}$

	Progressive		Conservative		Progressive - PCA		Conservative - PCA	
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV
Fem outflows/tot mig (t-1)	0.105***	0.124	0.135***	0.150***	0.119***	0.147	0.129***	0.144**
	(0.024)	(0.109)	(0.015)	(0.041)	(0.022)	(0.091)	(0.016)	(0.043)
Obs.	1316	1316	1806	1806	1568	1568	1554	1554
Clusters	94	94	129	129	112	112	111	111
F-stat		18.15		16.55		21.60		15.53

- **Effect connected** with men sharing **conservative views** on family and gender norms

Implications for Fertility

Hypothesis:

1. The outflow of local women at marriage age lowers fertility rates at origin
2. The arrival of foreign brides increases fertility rate

To investigate the implications for fertility:

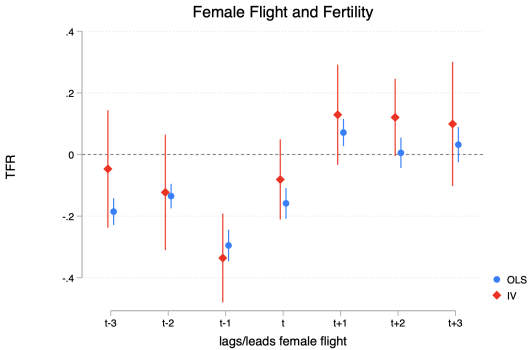
1. Main equation using TFR as outcome variable
   - Use lags and leads of *female flight*

$$log(TFR)_{c,t} = \sum_{t-3}^{t+3} \beta log(female\ flight)_{c,t} + \delta_c + \theta_{t*p} + \epsilon_{c,t} \tag{5}$$

2. Regress TFR on *foreign brides*:

$$log(TFR)_{c,t} = \sum_{t-3}^{t+3} \beta log(F\ Brides)_{c,t} + \gamma log(tot\ wedd)_{c,t} + \delta_c + \theta_{t*p} + \epsilon_{c,t} \tag{6}$$

Implications for Fertility



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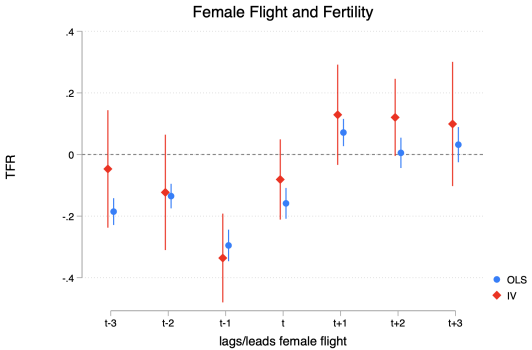

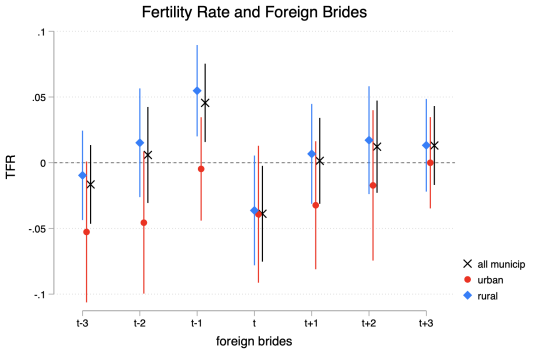

- *female flight* depresses fertility rates
- Foreign brides partially help fertility rates to recover in rural areas

Robustness Checks

- Structural Form
  - Different specification for Female Flight
  - Alternative specification: Outflows from conservative areas
- Different Controls
  - Sex Ratio at Marriage Age
  - Male Migration
- Test for the validity of the SSIV
  - SSIV Checks (Goldsmith-Pinkham, 2020)

Conclusions

- Causal evidence on **marriage responses** to the *flight* of local women
  - $outflow > inflow$ of local women $\rightarrow \uparrow$ demand for foreign brides
  - A 10% increase in *female flight* in district $c \rightarrow$ increase in foreign brides by approx. 1.2%
    - ★ Effect stronger in rural areas
- Effect connected with **men's conservative views on family roles**
- *Female flight* depresses fertility, the arrival of **foreign brides** helps to **partially recover fertility rates**

Thank you!

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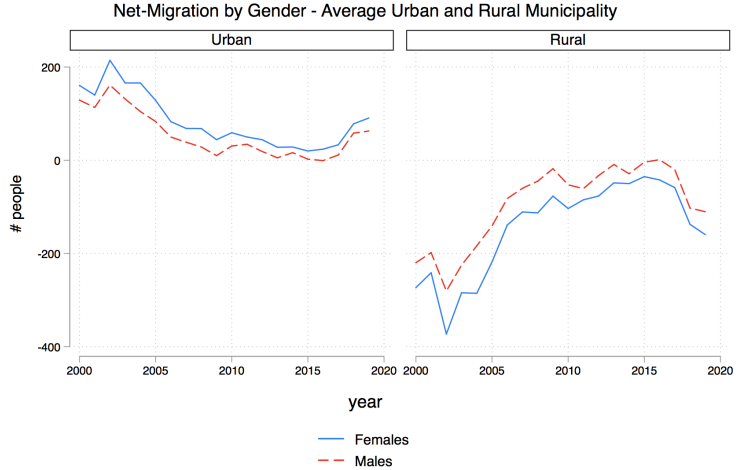
Reasons for Internal Migration

Table 6: Internal Movers by Reason (2001-2019)

Reason	*Males (%)*	*Females (%)*	*Total (%)*
Job	46.54	39.02	43.54
Family	15.75	26.29	19.96
Housing	22.50	17.99	20.70
Education	3.44	3.58	3.49
Health	1.36	1.47	1.40
Other	10.05	11.17	10.50
Total	100	100	100

Back to maps

Net-migration by gender at marriage age, South Korea



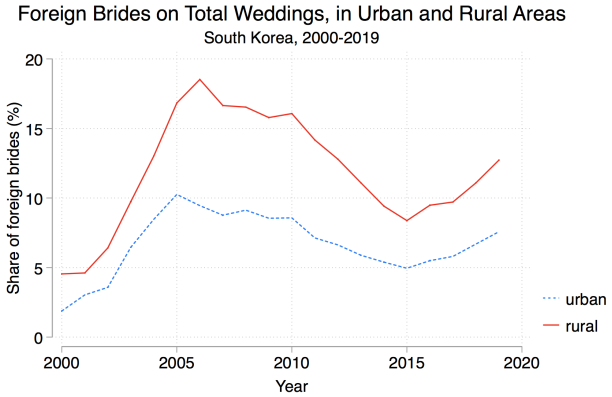
- Internal migration is rural-to-urban oriented
- Urban-to-Rural migration: female > male

Back to maps

Historical Background - South Korea

- 1980s: fast economic growth and **urbanization**
- Many **rural women moved to the city**, farmers and fishermen (men) stayed
- ↑ **sex ratio at marriage age** in rural areas (number of men over women)
- Marriages between local (rural) men and foreign brides popular with **international marriage brokers**
- **Brides "imported"** from less developed countries (Vietnam, Philippines, Uzbekistan, Thailand, etc)

Foreign Brides and Rural Areas



- International marriages popular in **rural** rather than urban areas

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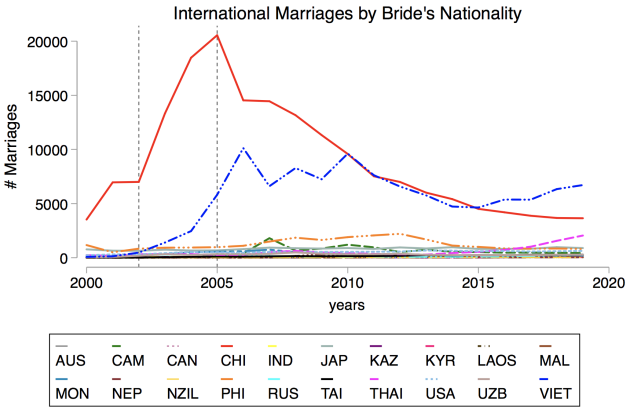
Foreign Brides by Origin



Back to international marriages

Female Flight

To measure female internal migration I use *female flight*:

$$Female\ Flight_{c,t} = \left(\frac{Female\ Outflows}{Female\ Inflows + Female\ Onflows} \right)_{c,t}$$

- Only women of age 20-34, active in the marriage market marriage age
- Suggests level of *"attractiveness"* of a district
  - If *female flight*$> 0.5 \rightarrow$ district is **unattractive** for women
  - If *female flight*$< 0.5 \rightarrow$ district is **attractive** for women

Back to empirical strategy

Summary Statistics

Table 1: Summary Statistics

Variables	*Mean.*	*SD*	*Min*	*Max*	*Obs*
Panel A: Key Outcomes and Controls					
Foreign brides (%)	9	5.1	0	38	3,345
Foreign brides	91.61	89.40	0	758	3,345
Tot. weddings	1,282.58	1,341.10	40	8,615	3,345
Tot. population	219,107.8	208,761.3	9,538	1,202,628	3,345
Female pop.	109,563	104,643	4,387	596,793	3,345
TFR	1.25	0.27	0.50	2.53	3,345
Panel B: Internal Migration					
Fem. inflows	5,668.27	6,237.47	114	46,074	3,345
Fem. outflows	5,533.50	6,040.46	159	42,153	3,345
Panel C: Enclave IV, stock = 2002 - 2004					
Fem. Predicted inflows	5,654.33	5,635.60	204.41	35,504.57	3,345
Fem. Predicted outflows	5,631.44	4,930.80	250.79	27,766.78	3,345

Endogeneity of Migration

- The **location decision of migrants** likely to be endogenous (Borjas, 2003; Ottaviano and Peri, 2012)

This case:

- Possibility for **reverse causality**
- Fixed effects do not control for **time-variability of districts** within the same province
  - **Confounders** for internal migration and international marriages **within a province, over time**

- I use an **enclave IV** based on past internal migration patterns (Card, 2009)
  - **Networks** strong determinant of location decision for migrants
  - Instrument built on the stock of adult internal migrants, years 2002-2004:
  - t_0 = 2002-2004

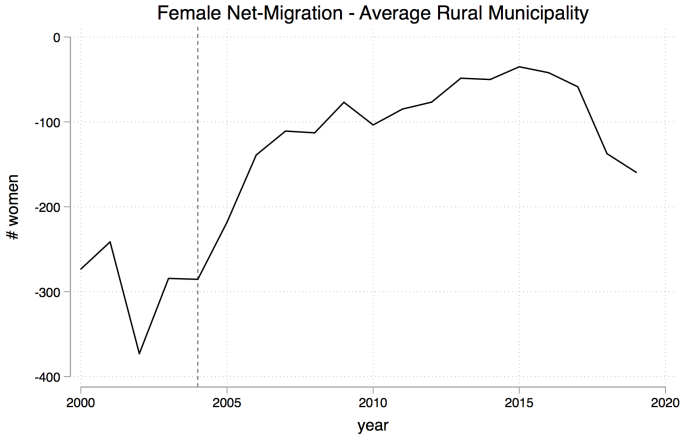
enclave iv

Enclave Instrument

Instrument built on the stock of female internal migrants of age 20-34, years 2002-2004:

- t_0 = 2002-2004
- **Threat:** serial correlation between IV and the endogenous variable (Jaeger et. al, 2018)
  - Unlikely: inauguration of the **Korean Train Express** (KTX) in 2004 changed patterns of internal migration
  - **Low correlation** between internal migration in 2002-2004 and post period

Net-Migration of Women at Marriage Age, South Korea



- From 2004, **change in intensity** of internal migration

Back to endogeneity issues

IV: Example

4 Cities: Turin, Milan, Palermo, Napoli

$$Outflows\ IV_{Palermo,2019} =$$

$$Inflows_{Turin,2019} \times \left(\frac{Palermo \to Turin}{tot.\ outflow\ Palermo} \right)_{2002} +$$

$$+Inflows_{Milan,2019} \times \left(\frac{Palermo \to Milan}{tot.\ outflow\ Palermo} \right)_{2002} +$$

$$+Inflows_{Napoli,2019} \times \left(\frac{Palermo \to Napoli}{tot.\ outflow\ Palermo} \right)_{2002}$$

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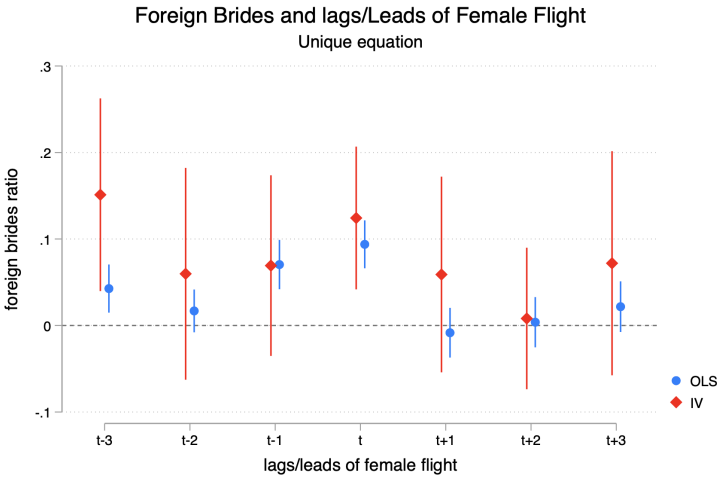
Time-lapse of Female Flight - unique regression



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Empirical Analysis with Conservative Areas Only

1. Split sample between Progressive and Conservative areas

2. Empirical Analysis using only *outflows* from conservative areas
   - Build IV using *inflows* into progressive areas

$$log(F\ Brides)_{C,t} = \beta_1 log(fem\ outflow)_{C,t-1} + \delta_C + \theta_{t*p} + \epsilon_{C,t} \tag{7}$$

- **Outflows from conservative into progressive areas**, based on past settlement patterns (enclave IV)

Empirical Analysis with Conservative Areas Only

The IV in this case:

$$Predicted\ Outflows_{C,t} = \sum_{P} inflows_{P,t} \times \lambda_{C,P_{02-04}} \tag{8}$$

- 2 sources of variation:
  1. People from different conservative districts living in different progressive districts (2002-04)
  2. Time-series variation in emigration rates, from different conservative areas for each year (2005-2019)

- Outflows of women in t conditional on fraction of migrants from conservative districts who went into progressive areas in pre-period

Outflows from conservative areas

Table 5: Conservatism - *Dep. Variable* = $log(foreign\ brides)$

	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV	(7) OLS	(8) IV
Panel A: Conservatism Index by PCA								
Log(Outflows) t-1	0.580***	1.693***	0.534***	2.488***	0.794***	0.814***	0.999***	1.364*
	(0.0801)	(0.415)	(0.103)	(0.712)	(0.035)	(0.048)	(0.230)	(0.625)
Log(Inflows) t-1			0.048	-0.870*			-0.195	-0.534
			(0.064)	(0.360)			(0.204)	(0.573)
Obs.	1553	1553	1553	1553	1553	1553	1553	1553
Clusters	111	111	111	111	111	111	111	111
F-stat		9.08		7.65		310.46		14.35
Panel B: Conservatism Index by Categorical Analysis								
Log(Outflows) t-1	0.558***	1.804***	0.532***	2.665***	0.790***	0.807***	1.014***	1.287*
	(0.078)	(0.382)	(0.103)	(0.628)	(0.032)	(0.043)	(0.224)	(0.540)
Log(Inflows) t-1			0.027	-0.987**			-0.212	-0.467
			(0.064)	(0.326)			(0.200)	(0.495)
N	1735	1735	1735	1735	1735	1735	1735	1735
Clusters	124	124	124	124	124	124	124	124
F-stat		12.64		13.46		341.57		18.76
District FE	✓	✓	✓	✓	×	×	×	×
Year×Province FE	✓	✓	✓	✓	✓	✓	✓	✓

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Different Definition of Female Flight

$$Female\ Flight_{c,t} = \left(\frac{Female\ Outflows}{Female\ Inflows} \right)_{c,t} \tag{9}$$

Table 7: Different Form of Female Flight. Dep. Variable: *Foreign brides ratio*

	All districts			Main Cities - Urban			Provinces - Rural		
	(1) OLS	(2) IV	(3) First stage	(4) OLS	(5) IV	(6) First stage	(7) OLS	(8) IV	(9) First stage
outflows/inflows (t-1)	0.030***	0.045***		0.028***	0.023*		0.031***	0.068**	
	(0.003)	(0.011)		(0.011)	(0.005)		(0.005)	(0.020)	
outflows/inflows IV			1.797***			2.382***			1.422***
			(0.279)			(0.417)			(0.326)
Obs.	3122	3122	3122	1022	1022	1022	2100	2100	2100
Clusters	223	223	223	73	73	73	150	150	150
F-stat			41.35			32.56			18.99

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Control for Sex Ratio at Marriage Age

Table 8: Control: Sex Ratio at Marriage Age. Dep. Variable = $\frac{foreign\ brides}{total\ weddings}$

	All districts		Main Cities - Urban		Provinces - Rural	
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV
Fem outflows/tot mig (t-1)	0.125***	0.144***	0.112***	0.093*	0.133***	0.189**
	(0.013)	(0.040)	(0.015)	(0.041)	(0.019)	(0.070)
log(sex ratio)	0.007*	0.007*	-0.003	-0.004	0.008*	0.007*
	(0.003)	(0.003)	(0.024)	(0.024)	(0.003)	(0.003)
Obs.	3122	3122	1022	1022	2100	2100
Clusters	223	223	73	73	150	150

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Control for Male Flight

Table 9: Control: Male Migration. Dep. Variable = $\frac{foreign\ brides}{total\ weddings}$

	All districts		Main Cities - Urban		Provinces - Rural	
	(1) OLS	(2) IV	(3) OLS	(4) IV	(5) OLS	(6) IV
Fem outflows/tot mig (t-1)	0.159***	0.304	0.180*	0.183	0.153**	0.361
	(0.041)	(0.225)	(0.071)	(0.169)	(0.049)	(0.433)
Male outflows/tot mig (t-1)	-0.036	-0.168	-0.073	-0.094	-0.021	-0.181
	(0.042)	(0.240)	(0.072)	(0.162)	(0.051)	(0.469)
Obs.	3122	3122	1022	1022	2100	2100
Clusters	223	223	73	73	150	150
F-stat F		17.92		14.97		9.59

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Concerns of the SSIV

Following Goldsmith-Pinkham et al. (2020)

- **Concern:**
  - power of the IV driven by few districts with the highest power in generating the identifying variation
- **Solution:**
  - calculate how relevant each district is
  - exclude 5 most relevant districts, one by one, when building the instrument
- **This paper:**
  - identify 5 most relevant districts for both inflows and outflows
  - the coefficients are stable when IV is built excluding these districts

Shift-Share IV Test

Table 11: IV robustness check with Rotemberg Weights

	(1) baseline	(2) check 1	(3) check 2	(4) check 3	(5) check 4	(6) check 5
Log(outflows/inflows) (t-1)	0.125***	0.127***	0.123***	0.124***	0.129***	0.124***
	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)	(0.013)
Obs.	3122	3094	3094	3094	3094	3094
Clusters	223	221	221	221	221	221
F-stat	25.51	55.29	23.29	24.39	48.12	22.20

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Shift-Share IV Test

Table 10: Rotemberg Weights

district Name	Weight
Panel A: Inflows	
Buk-gu (Gwang-ju)	0.0200
Changwon-si (Gyeongsangnam-do)	0.0197
Dalseo-gu (Dae-gu)	0.0173
Jeonju-si (Jeollabuk-do)	0.0154
Suwon-si (Gyeonggi-do)	0.0139
Panel B: Outflows	
Changwon-si (Gyeongsangnam-do)	0.0206
Cheongju-si (Chungcheongbuk-do)	0.0202
Jeonju-si (Jeollabuk-do)	0.0171
Seongnam-si (Gyeonggi-do)	0.0162
Suwon-si (Gyeonggi-do)	0.0160