

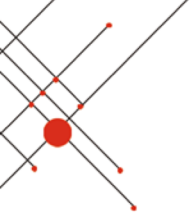


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Divorce Risk, Family Decision Making, and Savings: Evidence from China

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-  2. Literature Review
-  3. Modeling
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Motivation



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- The relationship between **risk** and **savings**.
 - **Savings**: a family behavior of intertemporal resource allocation.
 - **Precautionary savings**: the probability of risk increases, savings increases, too.
 - Family economics: **family structure & family decision making**.
- How savings change when divorce risk increases?
 - **Divorce risk**: would **change family structure**, and **affect family decision**.

Background



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- Divorce & divorce system.
 - The purpose of the marriage system, especially notarized marriage, is to deal with divorce.
 - Jointly possessed property & Custody of children
 - Two types of regimes regarding property distribution: **Title-based Regime** and **Equitable Distribution Regime** (Doepke & Tertilt, 2016).
 - The Marriage Law in China: jointly possessed property should be equally divided.

- 1. Savings
 - **Demographic structure** (Modigliani & Cao, 2004; Schultz, 2005).
 - **Income uncertainty** (Blanchard & Giavazzi, 2005; Chamon et al., 2013).
 - **Social security** (He, 2008; Chamon & Prasad, 2010; Zhang & Ling, 2015).
 - **Life stress** (Banerjee et al., 2010; Wei & Zhang, 2011; Bussiere et al., 2013; Chen & Yang, 2013;)
 - **Family income gap** (Yang & Zhu, 2007).
 - **Labor participation rate of married females** (Yin & Zhang, 2019) .

- 2. Divorce & Savings
 - + Savings $\uparrow$:
 - Costly event & Precautionary motive (Cubbedu & Ríos-Rull, 1997).
 - Empirical outcomes: positive correlation (González & Özcan, 2013) .
 - - Savings $\downarrow$:
 - The problem of property division (Yamaguchi et al., 2014).

Model-1: Basic Model



- 1. Basic Model: Joint Family Decision Making Model

$$\max_{c_f, c_m, a'} \left\{ \lambda_f \log(c_f) + \lambda_m \log(c_m) + \beta [\lambda_f (\pi V_f^D(a') + (1 - \pi)V_f(a') + \lambda_m (\pi V_m^D(a') + (1 - \pi)V_m(a'))] \right\}$$

s.t.

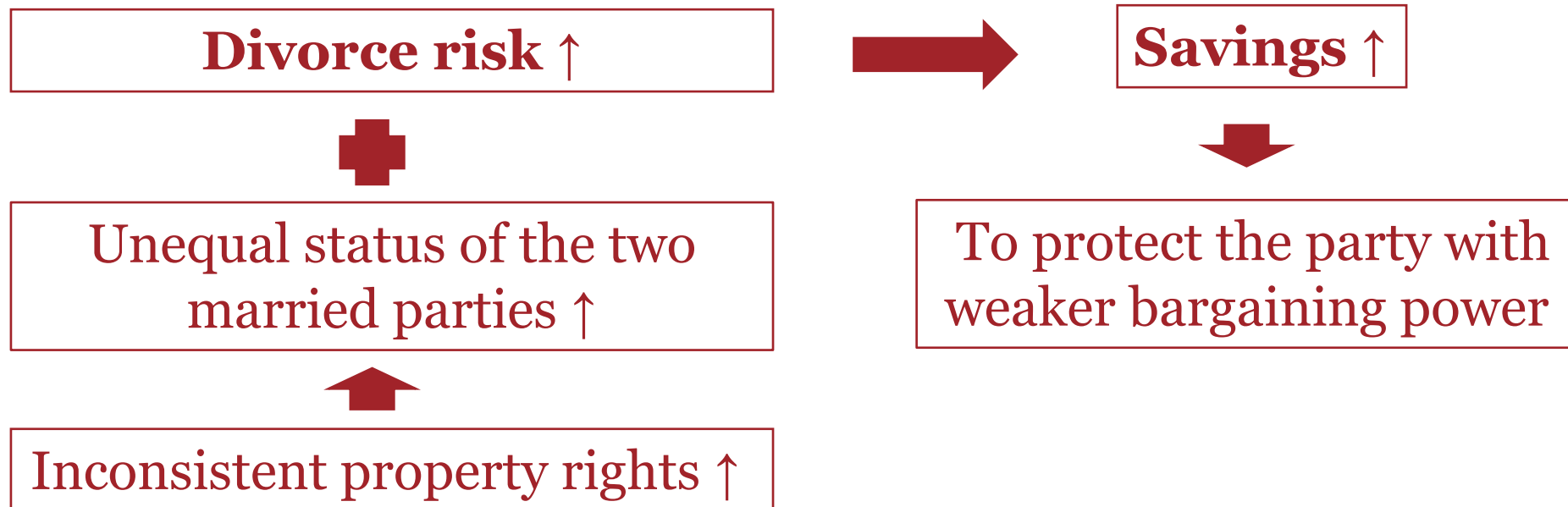
$$c_f + c_m + a' = w_f + w_m$$

- λ : bargaining power weights; c : consumption; π : divorce probability; a' : savings in 1st period.
- Here $V_g^D(a') = \log(w'_g + (1 + r)\kappa_g a')$ is the second period value function for spouse $g \in \{f, m\}$ if they got a divorce, and $V_g(a') = \log(\lambda_g(w'_f + w'_m + (1 + r)a'))$ is the value function otherwise. κ_g stands for allocation ratio.

Model-1: Basic Model



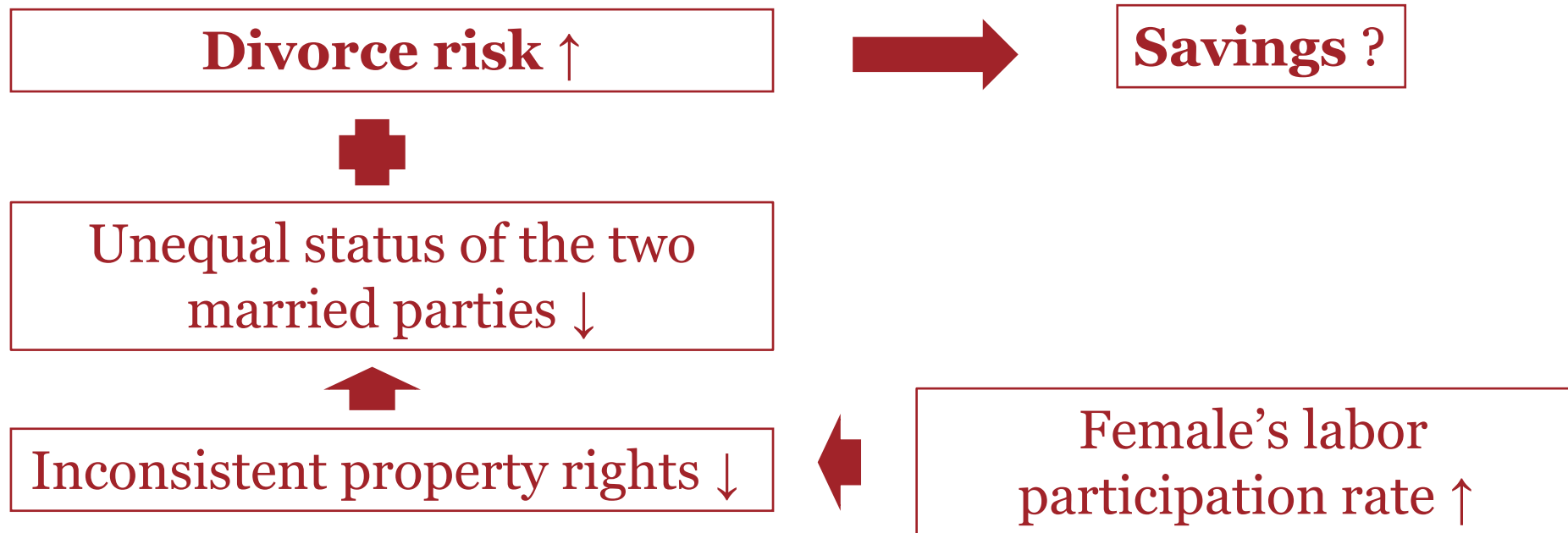
- After calculating derivatives, we find that **divorce risk increases savings**.
- Intuitively, the risk of divorce is one of the motives for saving.



Model-1: Basic Model



- When female's wage and labor participation rate rise, precautionary savings motive weakens. (Doepke & Tertilt, 2016)
- However, a higher level of labor participation rate of married females leads to higher savings rate in China. (Yin & Zhang, 2019)



- 2. Revised Model: Independent Family Decision Making Model

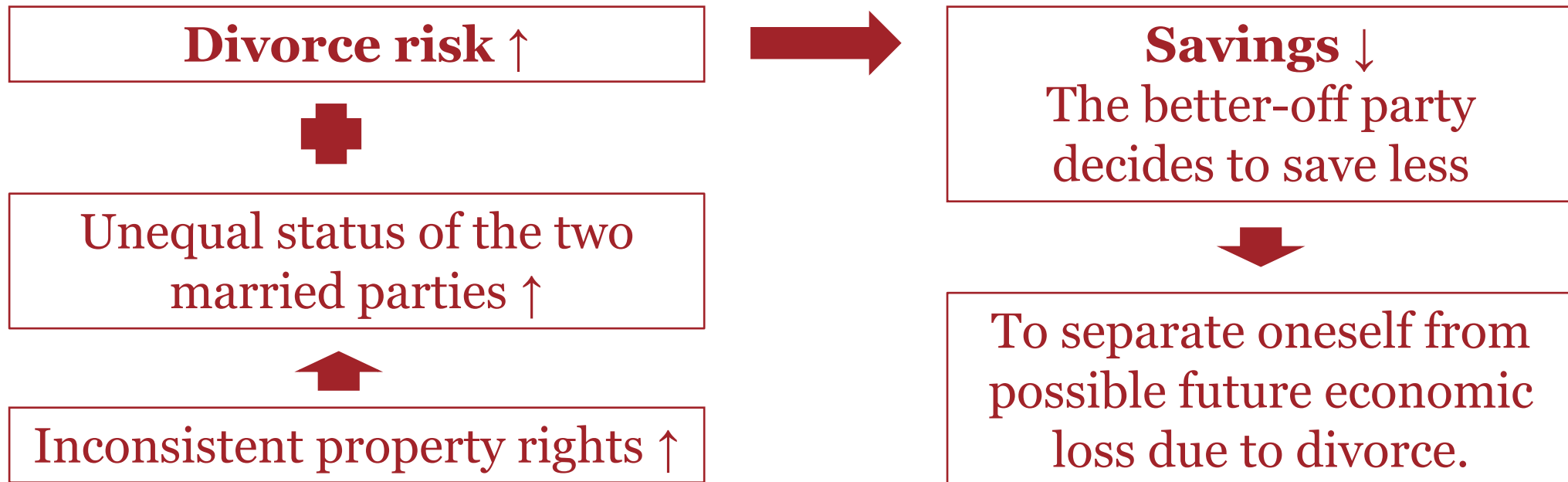
$$\max_{s_m} \left\{ \log \left((0.5 * (1 - s_m)(w_f + w_m)) \right) + \beta [\pi \log(w'_m + 0.5 * s_m(w_f + w_m)) + (1 - \pi) \log(0.5 * (w'_f + w'_m + s_m(w_f + w_m)))] \right\}$$

- Two amendments to the basic model:
 - Let $\kappa_m = \kappa_f = \lambda_m = \lambda_f = 0.5$ (Equitable Distribution Regime)
 - Another family decision making regime: $s_h = \min\{s_f, s_m\}$

Model-2: Revised Model



- When $w_m > w_f$, $\pi \uparrow \rightarrow s_m \downarrow$ & $s_f \uparrow \rightarrow s_h \downarrow$, i.e., we find that **divorce risk decreases savings**.
- Intuitively, the effect on savings rate that works in opposite directions is due to **different decision regimes** when it comes to family savings.



- **Data**
 - *Source: China Statistical Yearbook* (31 provincial administrative divisions, from 2013 to 2017)
 - **Y: Savings rate**
 - Savings Rate=(Disposable Income Per Capita–Average Expenditure Per Capita)/(Disposable Income Per Capita)×100%
 - **X: Divorce rate** (denoted as Divorce Rate I), **Divorce risk** (denoted as Divorce Rate II)
 - Divorce Rate I: reflects the percentage of people registered for marriage through government institutions over the entire population.
 - Divorce Rate II: the ratio of divorced population over number of people above the age of 15.
 - **C: Economic development index** (GDP per capita), **Social security index** (pension and healthcare insurance coverage), and **Life stress index** (CPI, gross dependency ratio, average household size).

- Pooled Regression Model

$$savingsrate_{it} = \alpha + \beta divorcerate_{it} + \gamma control_{it} + \varepsilon_{it}$$

Variable	(1)	(2)	(3)	(4)
			Savings Rate	
Divorce Rate I	-1.400*** (0.362)	-0.804* (0.445)	-2.065*** (0.419)	-1.381*** (0.505)
Pension Coverage		0.150*** (0.0360)		0.102** (0.0432)
Healthcare Insurance Coverage		0.00913 (0.0145)		-0.0135 (0.0159)
GDP Per Capita	0.509*** (0.148)			0.631*** (0.198)
CPI			-1.475* (0.754)	-1.081 (0.761)
Gross Dependency Ratio			0.135 (0.0823)	0.121 (0.100)
Average Household Size			-4.163** (1.825)	-1.008 (1.902)
Constant	28.46*** (1.566)	18.07*** (3.522)	191.4** (78.01)	130.0 (80.11)
Observations	155	155	155	155
R-squared	0.095	0.121	0.106	0.184

Robust standard errors in parentheses, *** p<0.01, ** p<0.05, * p<0.1

- Fixed-Effects and Random Effects Regression Model

Variable	(1) One-Way Fixed Effects	(2) Two-Way Fixed Effects	(3) Random Effects
Divorce Rate I	-1.150 (0.726)	-1.064 (0.786)	-1.260** (0.606)
GDP Per Capita	1.221** (0.533)	1.166* (0.662)	0.898*** (0.342)
Pension Coverage	0.00708 (0.0652)	-0.0190 (0.0739)	0.0414 (0.0627)
Healthcare Insurance Coverage	0.00497 (0.00755)	-0.00206 (0.0101)	0.00361 (0.00751)
Gross Dependency Ratio	0.0922 (0.113)	0.0801 (0.110)	0.152* (0.0784)
CPI	-0.367 (0.309)	-0.508 (0.531)	-0.338 (0.335)
Average Household Size	-1.948 (1.422)	-1.018 (2.697)	-0.967 (1.423)
Constant	63.22* (32.60)	77.62 (51.31)	54.71 (36.86)
Observations	155	155	155
R-squared	0.289	0.307	
Number of id	31	31	31
Province FE	YES	YES	
Year FE	NO	YES	

Robust standard errors in parentheses,*** p<0.01, ** p<0.05, * p<0.1

Empirical Evidence



- Robustness Test
 - Explanatory variables: Divorce Rate II

Variable	(1) Pooled	(2) One-Way Fixed Effects	(3) Two-Way Fixed Effects	(4) Random Effects
Divorce Rate II	-1.907*** (0.671)	-1.813** (0.845)	-2.041** (0.919)	-1.804*** (0.671)
GDP Per Capita	0.521** (0.216)	1.290** (0.476)	1.168* (0.593)	0.903*** (0.321)
Pension Coverage	0.0709 (0.0507)	-0.0253 (0.0715)	-0.0661 (0.0753)	0.00811 (0.0644)
Healthcare Insurance Coverage	-0.0118 (0.0154)	0.00268 (0.00766)	-0.00654 (0.00927)	0.00121 (0.00756)
Gross Dependency Ratio	0.0699 (0.0963)	0.162 (0.127)	0.148 (0.126)	0.220** (0.0917)
CPI	-0.894 (0.749)	-0.401 (0.302)	-0.543 (0.478)	-0.356 (0.341)
Average Household Size	0.464 (1.867)	-2.709 (1.661)	-0.932 (2.792)	-1.354 (1.695)
Constant	110.8 (79.93)	68.84** (32.04)	82.87* (46.03)	57.68 (37.38)
Observations	155	155	155	155
R-squared	0.218	0.290	0.313	
Number of id		31	31	31
Province FE		YES	YES	
Year FE		NO	YES	

Robust standard errors in parentheses,*** p<0.01, ** p<0.05, * p<0.1

- Robustness Test
 - **reverse causality**: could it be that lower savings rate actually accounts for higher divorce rate?
 - competitive saving motive: regions with higher savings rate tend to have **higher marriage rate** as well. (Wei & Zhang, 2011)
 - savings rate ↓ → marriage rate ↓
 - divorce is only possible under the **premise of marriage**.
 - Our logic: divorce rate ↑ → savings rate ↓ → marriage rate ↓

Conclusion



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- **1. Family decision making matters:** the same factors may lead to contrasting effects through different family decision making regimes.
- **2. Two ways to understand divorce risk:** to improve the welfare of both parties after divorce or to avoid property damage caused by divorce.
- **3. Savings rate is negatively correlated with divorce rate in China,** and this phenomenon has a lot to do with the Chinese marriage market.

It's important for policymakers to evaluate the microeconomic foundations, as well as the role of family members. If the concept of marriage was once created to protect certain parties, is this protection still effective today, given unique inherent features of the Chinese marriage market? Future public policy calls for more research.



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Thank you