

# Patient Satisfaction for Health Care: does ownership matter?

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# Outline

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# Background: debate over private care

- **Pros & Cons**

- 😊 Gov't should optimize conditions for private care (Liu et al 2012)
- 😊 Competition incentivizes public providers more responsive
- 😞 Health care market is “different” (Arrow, 1963 AER)
- 😞 Poor performances as a result of profit-seeking behaviors in China

- **Lack of literature**

- Theoretical discussions surround the role (spill-over) and performance (satisfaction) of private care. However, there is insufficient empirical evidence on private care in China

# Research Design: household survey data

- **Data: the Basic Medical Insurance Household Survey**
  - Commissioned by the State Council, and conducted by Peking University, China Center for Health Economic Research (CCHER)
  - Survey from 2007 to 2011
  - Multi-stage PPS sampling, 9 representative cities
  - Including patient satisfaction, and demographics, health behaviors and status, health insurance status, utilization of outpatient and inpatient services, medical expenditures, hospital information, income, etc
  - Additionally, we coded hospital information (ownership, size, etc)

Note: hospitals size in China can be represented by level of grade  
1<sup>st</sup> level: 0-99 beds ; 2<sup>nd</sup> level: 100-499 beds; 3<sup>rd</sup> level: 500 or more beds

# Research Design: order probit model

- **Probit model overlooks “fair” patients**
  - Using a binary variable (“dissatisfied” and “satisfied”) as a dependent variable is easier to interpret but overlooks a large number of respondents without a clear view who tend to choose “fair”
- **Oder probit model address this issues**
  - By incorporating ordinal information (“dissatisfied”, “fair”, and “satisfied”), we can improve the way patient satisfaction is examined by giving patients more choices in expressing their feelings.

- **Model specification:**

$$satisfaction_i = \alpha_0 public + \sum \beta_i x_i + \varepsilon$$

$$E[\varepsilon_i | x_i] = 0, \quad \varepsilon_i \in (0, \sigma_i^2), \quad i = 0, 1, 2$$

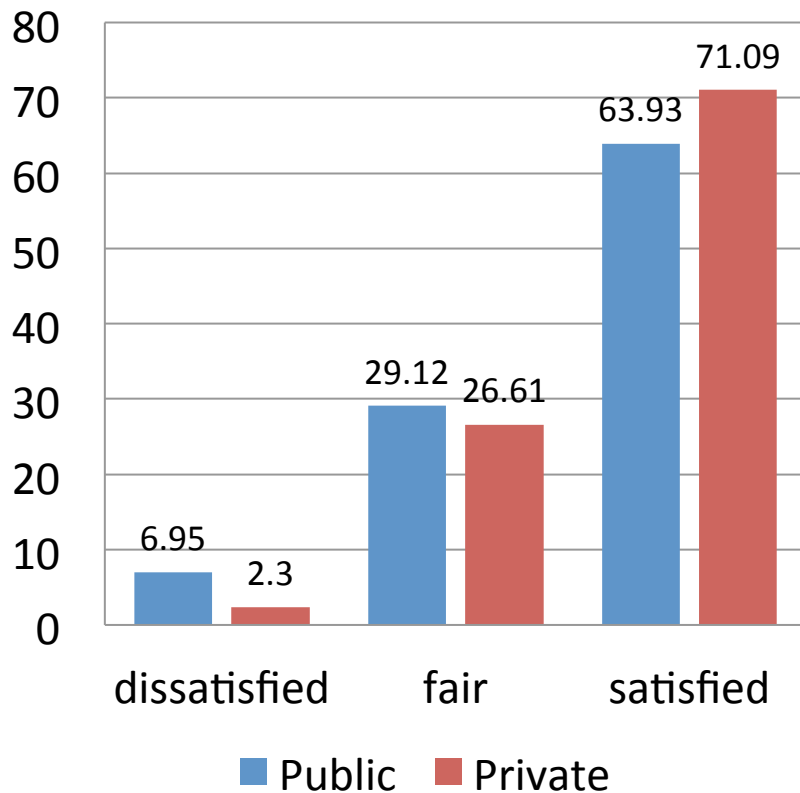
$$satisfaction_i \begin{cases} 0, & \text{if } satisfaction_i \leq \alpha_1 \\ 1, & \text{if } \alpha_1 < satisfaction_i \leq \alpha_2 \\ 2, & \text{if } satisfaction_i > \alpha_2 \end{cases}$$

# Research Design: spill-over effect

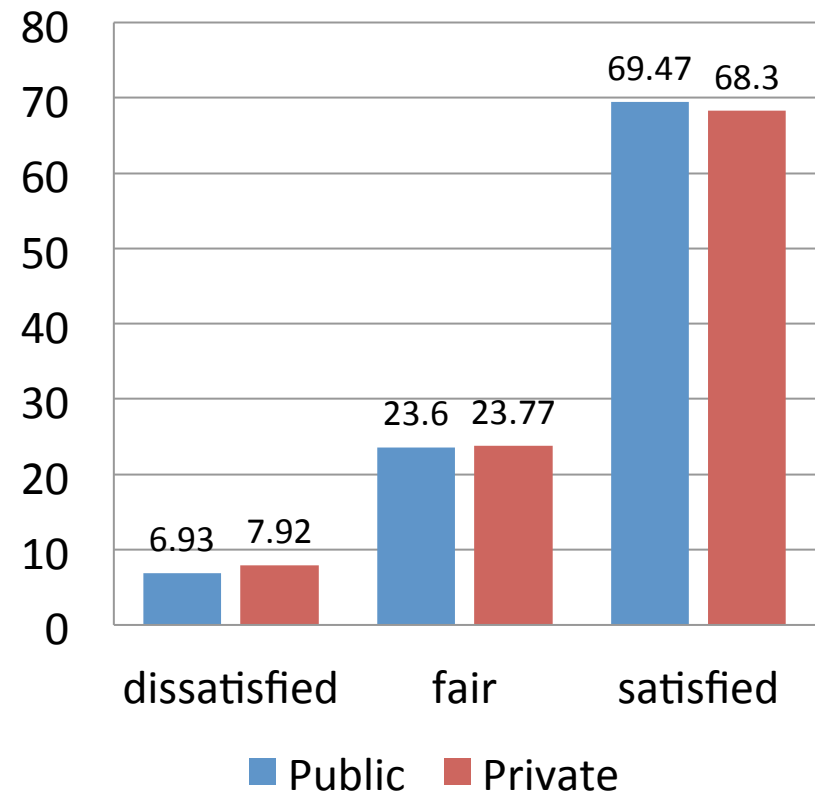
- **Sample to study spill-effect**
  - The nine randomly selected cities in the household survey are a good sample to study this research question.
- **Proxy variable for competition from private care**
  - We employ the percentage of private care used by respondents in the survey (“private ratio”) as proxy variable
- **Model specification:**  $satisfaction_i = \alpha_0 public + \sum \beta_i x_i + \varepsilon$

# Results: descriptive analysis

## Outpatient satisfaction



## Inpatient satisfaction



# Results: outpatient satisfaction

	Model (1)	Model (2)	Model (3)	Model (4)	Model (5)	Model (6)
Independent	Dependent variables : patient satisfaction (0-dissatisfied; 1-fair; 2-satisfied)					
Ownership: public	-0.236***	-0.227***	-0.218***	-0.128***	-0.058	
Sociodemographic	Yes	Yes	Yes	Yes	Yes	Yes
ICD-10		Yes	Yes	Yes	Yes	Yes
City, year			Yes	Yes	Yes	Yes
In-network, disease severity; cost, waiting				Yes	Yes	Yes
Recovery: better				-0.116**	-0.111**	-0.182***
Recovery: unchanged				-0.267***	-0.261***	-0.331***
Recovery: worse				-0.401***	-0.389***	-0.472***
Grade: 1 <sup>st</sup> level					0.077	-0.054
Grade: 2 <sup>nd</sup> level					-0.089*	-0.091
Grade: 3 <sup>rd</sup> level					-0.150***	-0.168***
Observations	7277	7190	7190	6750	6750	4522

Note: model (6) is based on public sub-sample



# Results: Inpatient satisfaction

	Model (1)	Model (2)	Model (3)	Model (4)
<b>Independent</b>	<b>Dependent variables: patient satisfaction (0-dissatisfied, 1-fair, 2-satisfied)</b>			
<b>Ownership: Public</b>	0.173	0.158	0.205	<b>0.231*</b>
<b>Grade: 2<sup>nd</sup> level</b>	0.111	0.059	0.034	0.010
<b>Grade: 3<sup>rd</sup> level</b>	0.015	-0.063	-0.101	-0.098
<b>In-network</b>	Yes	Yes	Yes	Yes
<b>Discharge, cost, waiting time,</b>		Yes	Yes	Yes
<b>Recovery: better</b>		<b>-0.173***</b>	<b>-0.258***</b>	<b>-0.252***</b>
<b>Recovery: unchanged</b>		<b>-0.507***</b>	<b>-0.584***</b>	<b>-0.579***</b>
<b>Recovery: worse</b>		<b>-0.752***</b>	<b>-0.785***</b>	<b>-0.786***</b>
<b>age, gender, marriage, employment, chronic, disease type</b>			Yes	Yes
<b>Insurance, city, year</b>				Yes
<b>Observations</b>	4180	3994	3889	3889

# Results: spill-over effects

City	Baotou	Changde	Chengdu	Jilin	Shaoxing	Wulumuqi	Xining	Xiamen	Zibo
Private ratio	29.8	22.06	23.11	20.64	7.69	13.4	13.05	18.68	26.92

	(1) Overall	(2) Public	(3) Private
Independent variables	Dependent variables: patient satisfaction (0-dissatisfied, 1-fair, 2-satisfied)		
Private ratio	0.007***	0.005*	0.026***
Hospital grade, in-network, disease, cost, waiting time, recovery	Yes	Yes	Yes
Observations	6750	5412	1338

# Conclusions

1. **Outpatient**: patients are more satisfied with private care. However, this effect disappears once hospital size is controlled for.
2. **Inpatient**: patients prefer public care to private care. Additionally, inpatient patients pay more attention to treatment outcomes than outpatient patients.
3. **Spill-over**: Further analysis finds that the higher the competition from private providers in a city, the better patient satisfactions are for all providers in the city, compared to other cities.

# Policy Implications

- The latter suggests a strong spill-over effect on patient satisfaction from the private providers, indicating a rationale for public policy to welcome and encourage private entry to healthcare market which is still dominated by the state hospitals in China.
- However, the existing policy environment is not well supportive for the roles of private providers, including invisible barriers in market access, heavier taxes, limited high-quality physicians, all hindering the development of private providers in China.
- It is thus recommended that efforts should be made to effectively implement relevant health reform policies, contributing to development of private care in China. Particularly, the development of private care will help further public hospital reform in China,

# Questions

- Thanks for your attention!