The effects of Social Health Insurance Expansion and Increased Choice on Perinatal Health and Health Care Use: Lessons from the Uruguayan Health Care Reform

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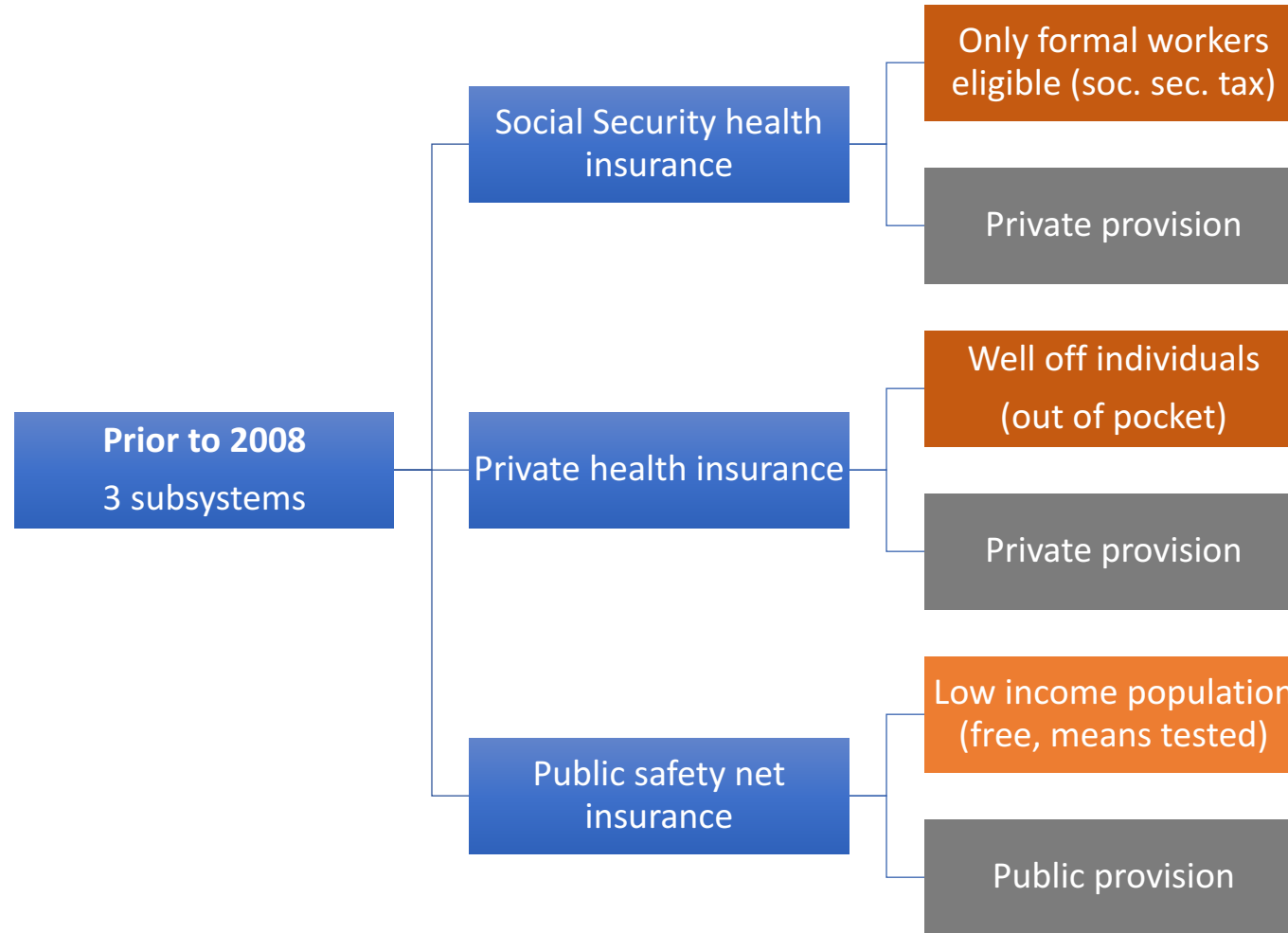
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Outline

- Motivation and Research question
- Background
  - The health care reforms in LAC
  - The literature on Choice, Competition and Health Care Quality
  - The Uruguayan Health Care Reform
  - Expected effects of expanded choice on quality
- Methodology
- Data
- Results
- Conclusions

MOTIVATION AND RESEARCH QUESTION

The Uruguayan Health Care Reform

- In 2008 Uruguay introduced a health care reform that tripled the number of social security health insurance (SSHI) beneficiaries from 24% of the population to 75%

- Most beneficiaries were previously covered by a public safety net (PSNI)

Health insurance before the reform

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                                    ┌─────────────────────────────┐
                              ┌─────│ Only formal workers          │
                              │     │ eligible (soc. sec. tax)     │
        ┌──────────────────┐  │     └─────────────────────────────┘
        │ Social Security  │──┤
        │ health insurance │  │     ┌─────────────────────────────┐
        └──────────────────┘  └─────│ Private provision            │
                                    └─────────────────────────────┘

                                    ┌─────────────────────────────┐
                              ┌─────│ Well off individuals         │
┌─────────────────┐          │     │ (out of pocket)              │
│ Prior to 2008   │  ┌──────────────────┐  └─────────────────────┘
│                 │──│ Private health   │──┤
│ 3 subsystems    │  │ insurance        │  │ ┌───────────────────┐
└─────────────────┘  └──────────────────┘  └─│ Private provision │
                                             └───────────────────┘

                                    ┌─────────────────────────────┐
                              ┌─────│ Low income population        │
        ┌──────────────────┐  │     │ (free, means tested)         │
        │ Public safety net│──┤     └─────────────────────────────┘
        │ insurance        │  │
        └──────────────────┘  │     ┌─────────────────────────────┐
                              └─────│ Public provision             │
                                    └─────────────────────────────┘
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# Health insurance after the reform: 2008-2010
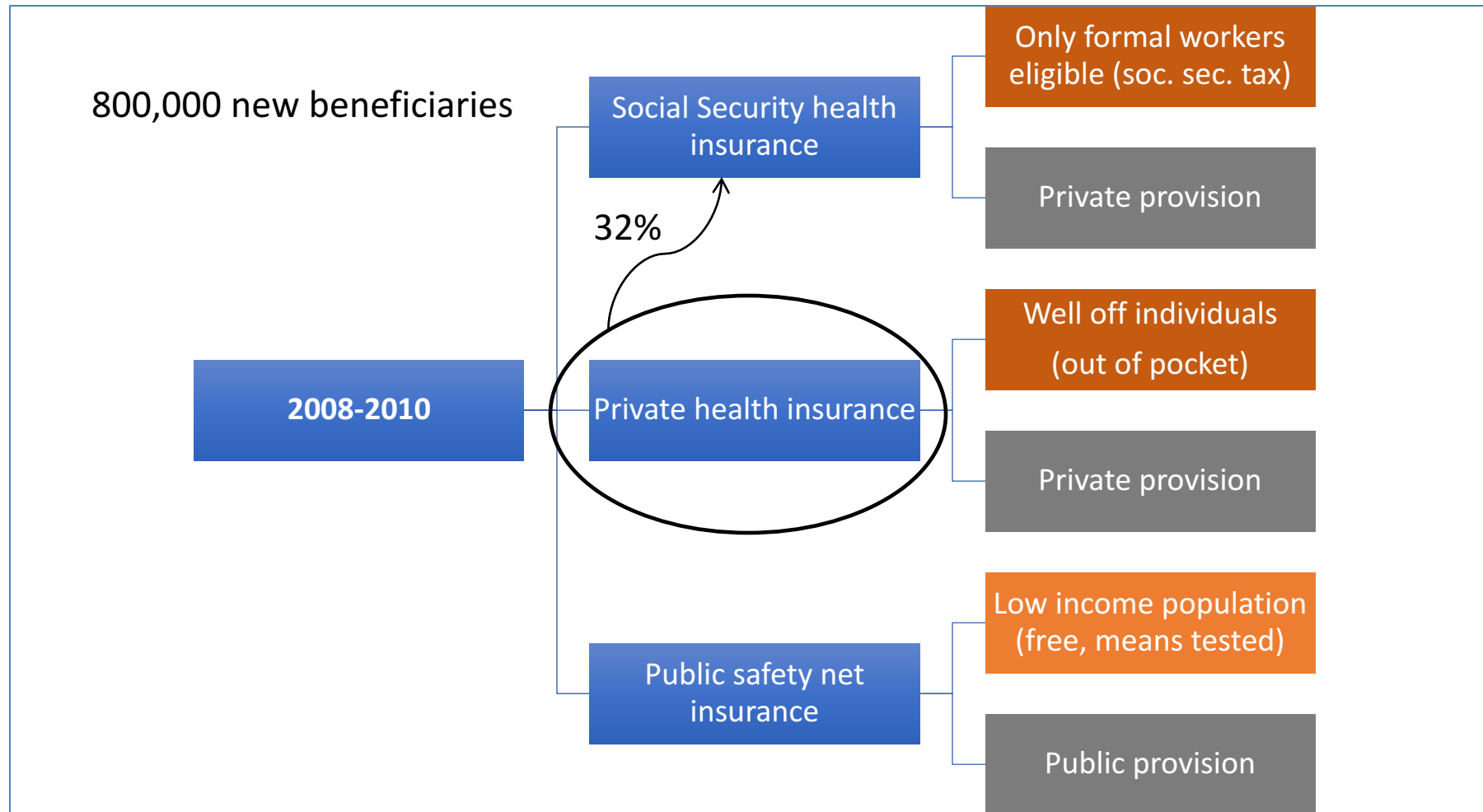
Health insurance after the reform: 2008-2010
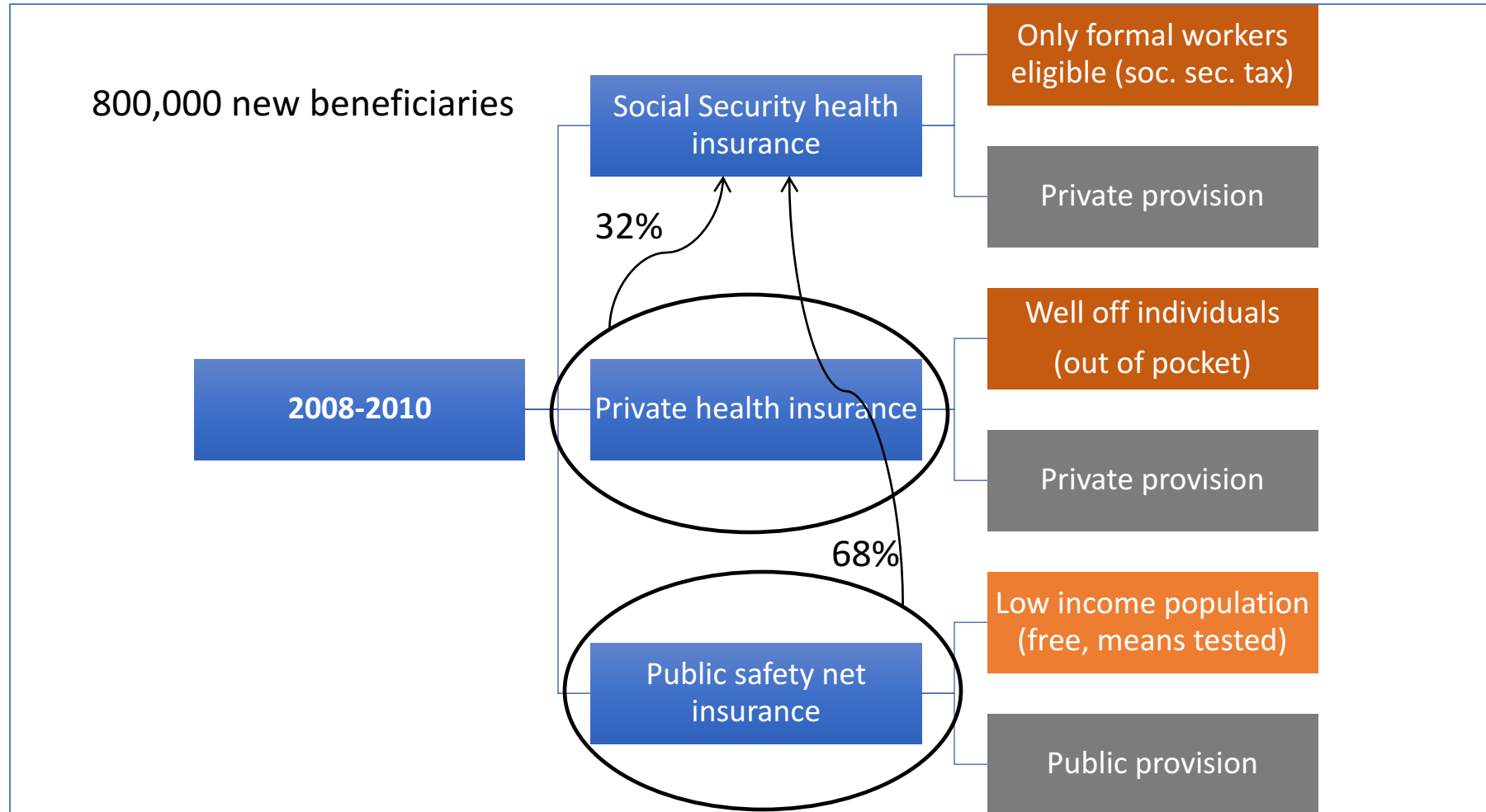
The Uruguayan Health Care Reform

- Main features of SSHI relative to PSNI
  - Freedom to choose a preferred provider either from a public or private network
  - Providers are vertically integrated
  - Lock-in for 3 years

- 1st stage of the reform (2008-2010): Expansion of SSHI to 800,000 new beneficiaries, most dependents of formal workers < 18 years old
  - 90% of them chose to get service from a private provider

Health expenditure in Uruguay (% GDP)
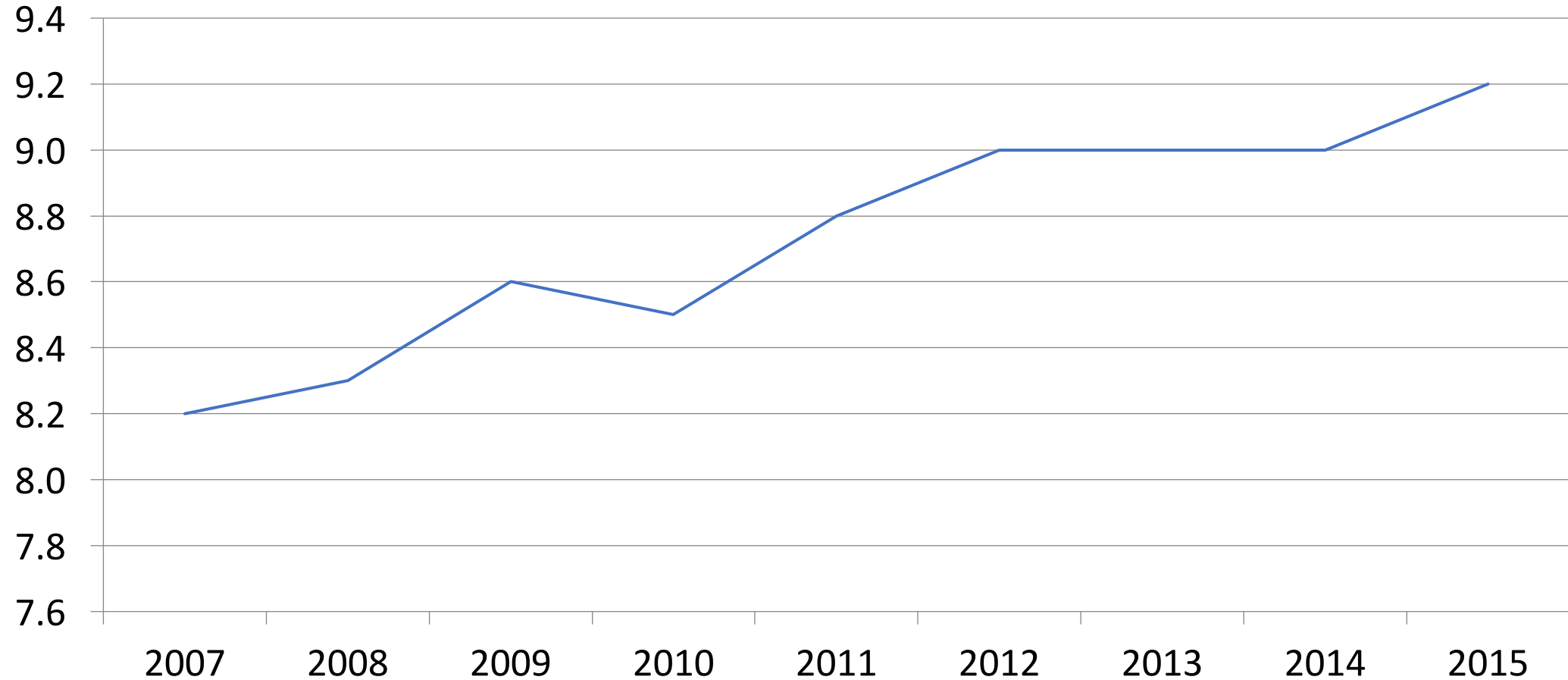
Research Question

Did increased choice and access to private providers improve perinatal health care outcomes and health care use in Uruguay?

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Exploit time and geographic variation in reform implementation

Preview of findings

- We find that the reform increased the choice of private provision of care, but did not lead to improved health outcomes or improved services

BACKGROUND

The Health Care Reforms in LAC

- In the past decades Latin America experienced widespread health care reforms aimed at expanding access to health care and strengthening health systems. Few rigorous evaluations of these reforms
  - Implementation of single payer systems: Costa Rica (Dow and Schmeer, 2013) and Brazil (Soares, 2017)
  - Expansion of health care coverage and warranties of benefit packages: Chile, Colombia, Uruguay and to a lesser extent Perú, Argentina, México and Dominican Republic). Few evidence on effects of reform.

Choice, Competition and Health Care Quality

- In settings with asymmetric information and incomplete contracts, **competition is not good or bad per se**, but depends on the institutional and regulatory framework (Hart et al. 1997, Goddard 2015)
  - Positive effects of competition on the quality of (inelastic) AMI services when prices are fixed
    - UK 2000's pro competitive reforms (Kessler and McClellan 2000, Cooper et al, 2011; Gaynor et al. 2013, 2016; Gutaker et al 2016)
    - Hospital competition in Medicare, US
  - No evidence of positive effects on the quality of services with higher demand elasticity such as knee and hip replacement (Colla et al 2016; Moscelli et al. 2016; Skellern 2017).
  - Mixed effects of competition in markets with flexible prices (Propper et al 2004; Gaynor and Town 2012)
  - Competition and choice may decrease welfare in poorly regulated markets and lead to cream skimming, unnecessary treatment and violation of medical standards (Schleifer 1998; Hart 2003; Basu et al 2012)

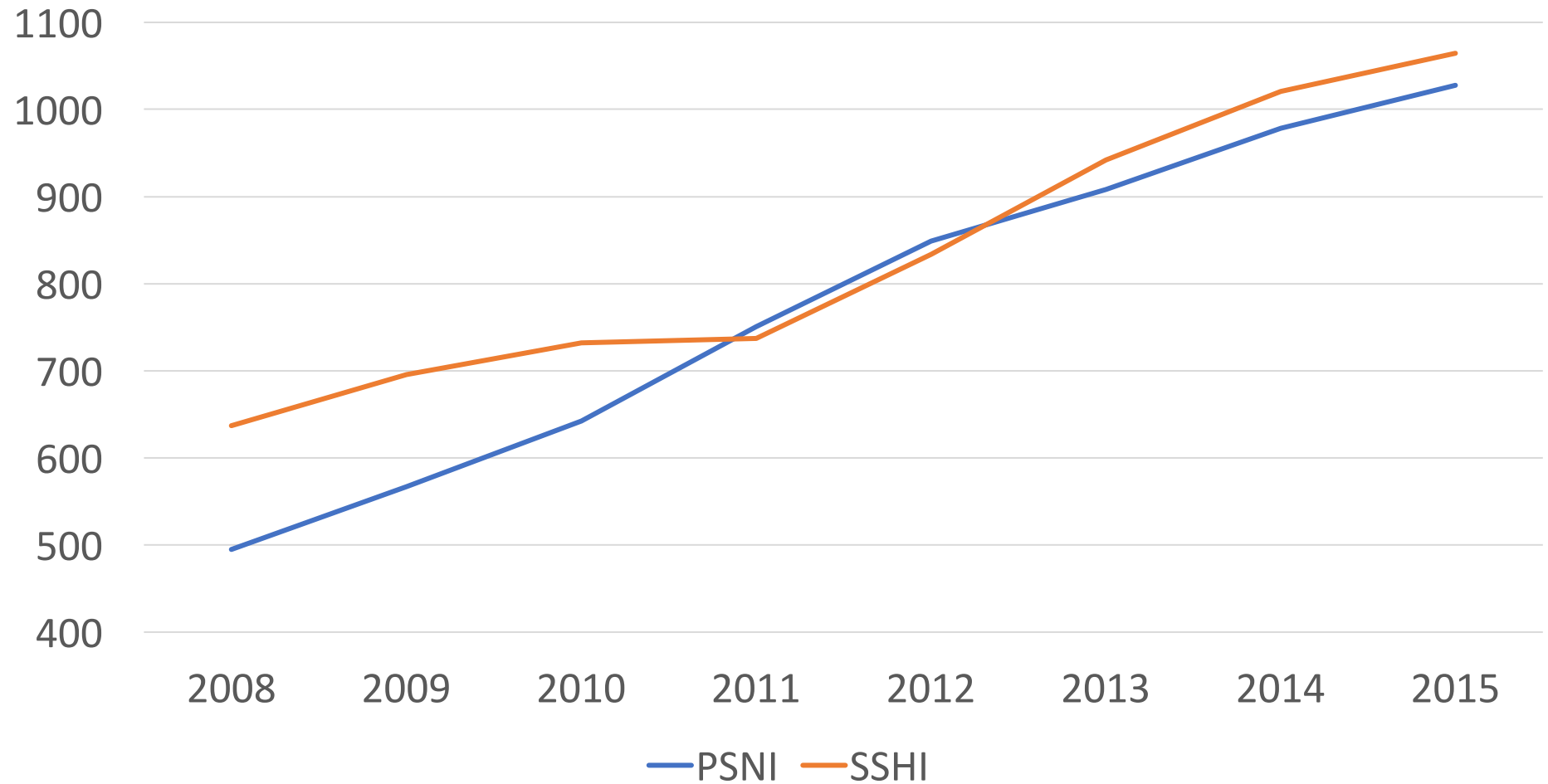# The Health Care Reform in Uruguay
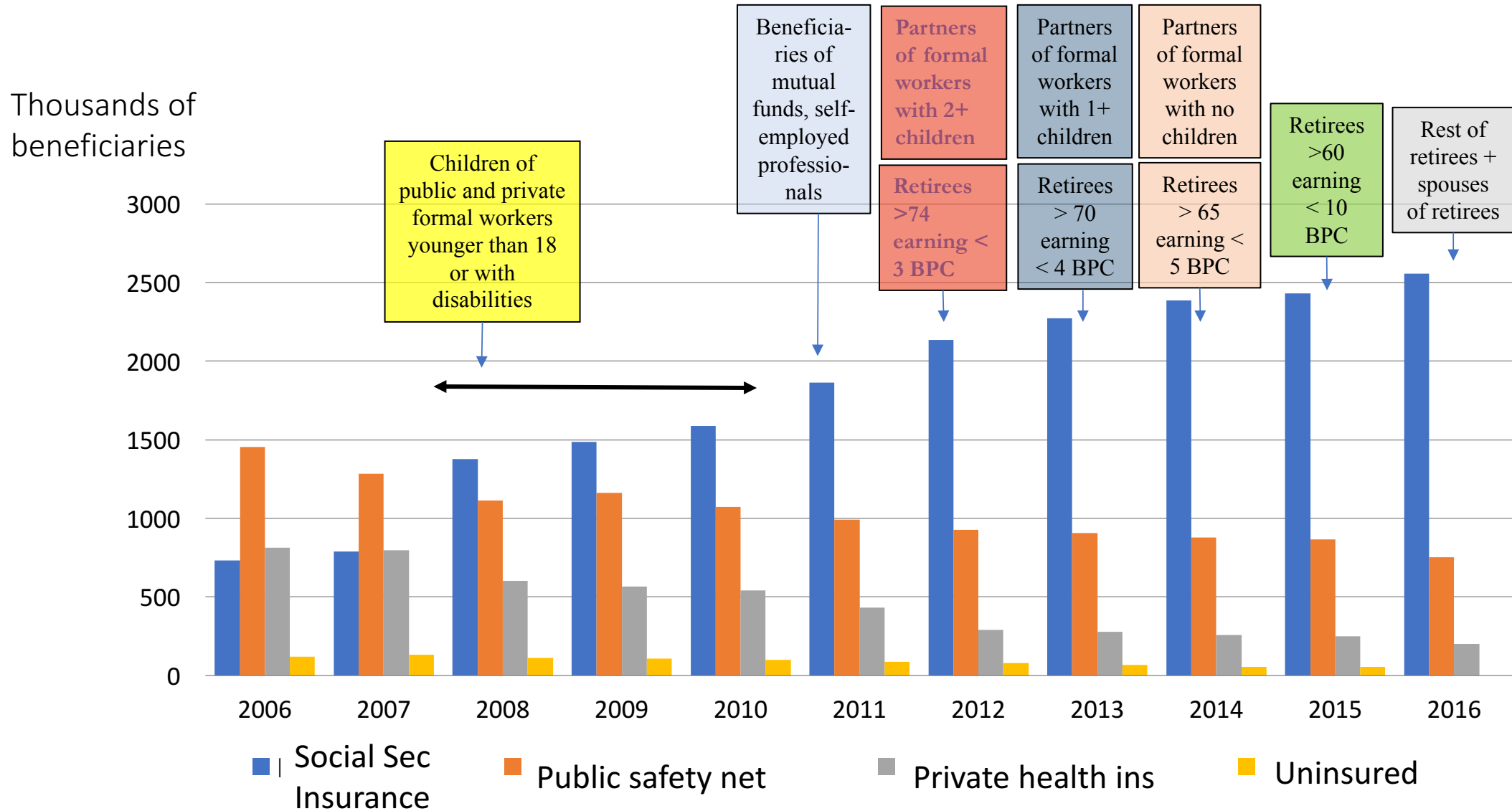
Expected effects of expanded choice on quality

- Higher expenditure per capita in SSHI than in PSNI, at least until 2010
- If quality is observable ex-ante
  - The average quality of care accessed and health outcomes should improve through sorting, after choice expansion
  - Competition would lead providers to improve quality to attract new beneficiaries
- If quality is not observable, competition may not increase quality

Per capita health expenditure
by type of insurance, in US$ of 2015

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Public vs private quality of care prior to 2008
Conditional regressions of Health Outcomes/Services on an Indicator of Private Provider 2002-2007*

	Birthweight	LBW	Premature	Onset of prenatal visits in 1st trim	At least 3 prenatal visits	At least 6 prenatal visits	At least 9 prenatal visits	C-section
Private provider	62.989*** (2.736)	-0.018*** (0.001)	-0.011*** (0.001)	0.073*** (0.003)	0.052*** (0.001)	0.101*** (0.002)	0.103*** (0.003)	0.108*** (0.002)
Mean outcome public provider	3193	0.084	0.088	0.367	0.912	0.732	0.430	0.220

* Regressions control for mother's age, education, occupation, marital status, fertility history, region, and year of delivery

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METHODOLOGY

1) DD approach

- Compare perinatal outcomes of mothers aged 17 (treatment) vs. mothers aged 19 (control) after (2008-2010) vs. before reform (2002-2007)

Deliveries in private hospitals, by mother's age group
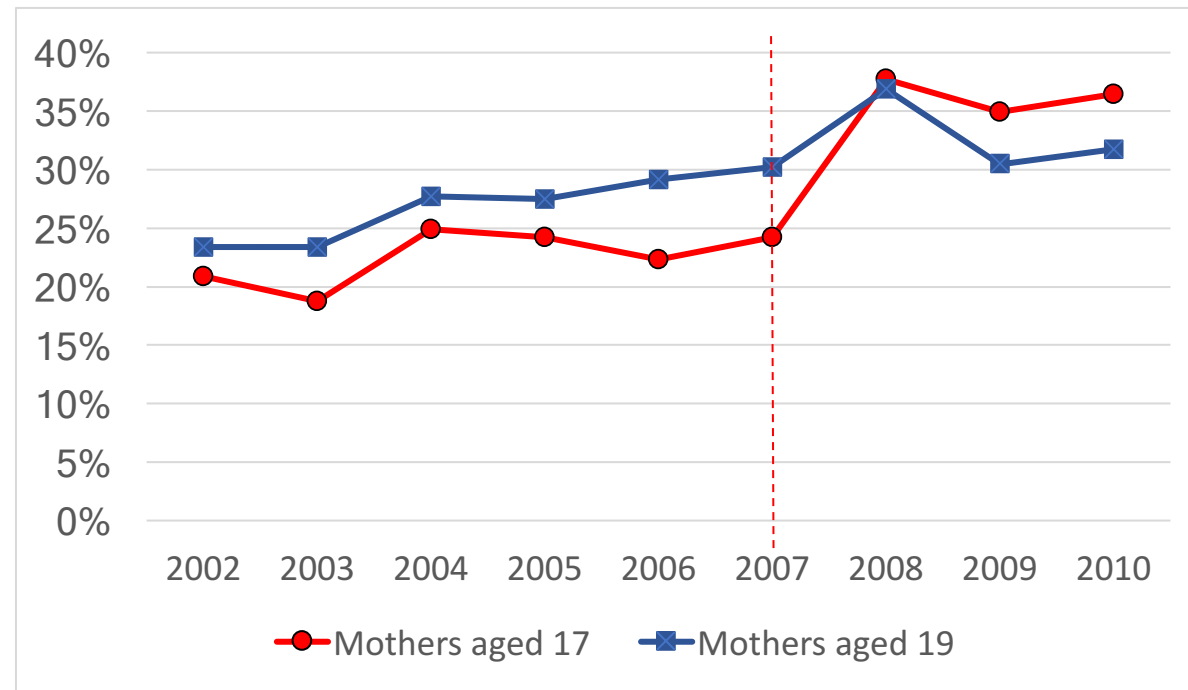
Challenges of the DD approach

- Tobacco control campaign (Harris et al., 2015; Triunfo et al., 2016)
- Adolescent mothers began receiving family allowances by the end of 2008

2) DDD approach

- Exploit geographic variation. There are 19 geographic units (departments) in Uruguay, with different levels of private health care coverage for adolescent mothers in the year before the reform (2007).

- Departments with a low fraction of private coverage in 2007 had more to gain from the expansion in SSHI

Methodology: DDD

$$Y_{igrt} = \mu_{gt} + \lambda_{rt} + \eta_{rg} + \sum_{\substack{t=2002 \\ t\neq 2007}}^{2010} \delta_{1t} D_{igt} * C_r + X'_{igrt}\zeta + v_{igrt}$$

Y_{igrt} outcome for child i born to mother in age group g (14-17 vs. 19-22) in year t and region r

μ_{gt} age group specific time effects

λ_{rt} department specific time effects (before and after the reform)

η_{rg} department r and group g specific fixed effects

D_{igt} = 1 if the mother was aged 17 at the time of birth and birth occurred after reform

C_r fraction of mothers under the age of 18 with public coverage in 2007

X_{igt} mother characteristics (education, marital status, trimester of gestation, region fixed effects, and time-varying regional characteristics such as unemployment, education, %pop adolescent)

DATA

Data

- Live Birth Certificates (Ministry of Public Health, Uruguay) 2002-2010
- Sample
  - Exclude multiple births and births with weight below 500 grams or less than 25 weeks of gestation
- N=104,125

Data: Descriptive Statistics (outcomes)

|	Age 17 Pre-reform	Age 17 Post-reform	Age 19 Pre-reform	Age 19 Post-reform	Raw difference in difference
Delivered in private hospital	0.221	0.364	0.262	0.330	0.075
BIRTH OUTCOMES					
Birth weight in grams	3117	3151	3157	3195	-4
Low Birth Weight (< 2500 grams)	0.098	0.094	0.088	0.081	0.003
Prematurity (<37 weeks)	0.106	0.104	0.092	0.087	0.003
PERINATAL CARE					
Onset of prenatal care at 1st trimester	0.317	0.407	0.341	0.441	-0.01
At least 3 prenatal care visits	0.922	0.926	0.915	0.929	-0.01
At least 6 prenatal care visits	0.730	0.757	0.733	0.773	-0.013
At least 9 prenatal care visits	0.415	0.457	0.429	0.478	-0.007
C-section	0.204	0.242	0.219	0.258	-0.001

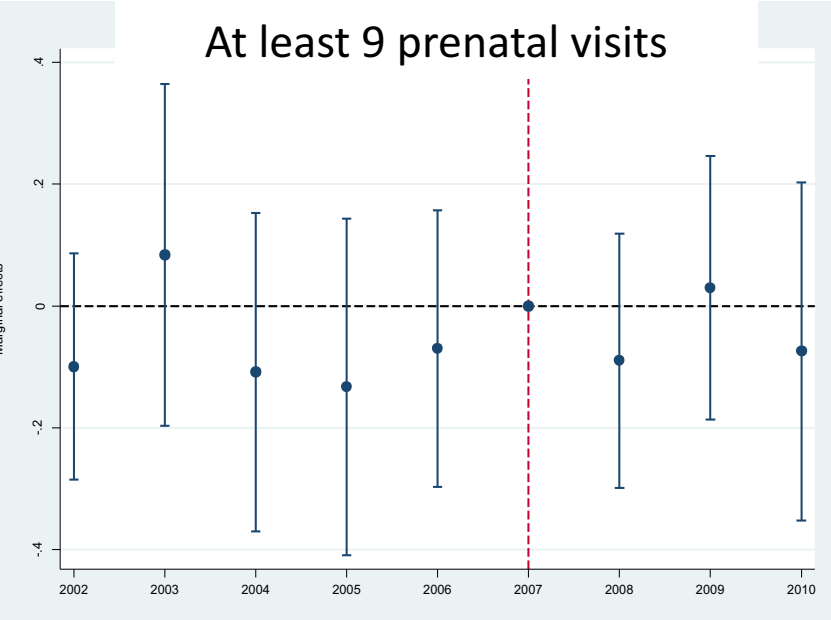# RESULTS

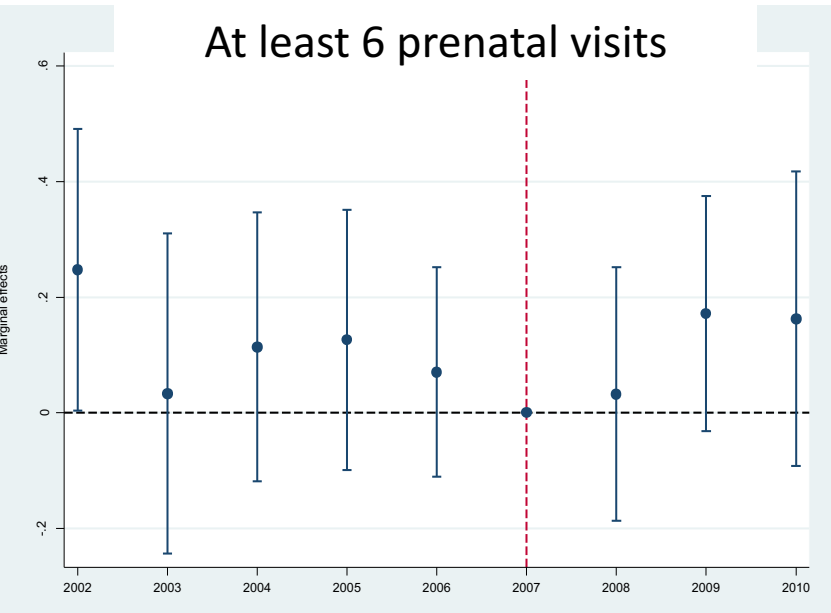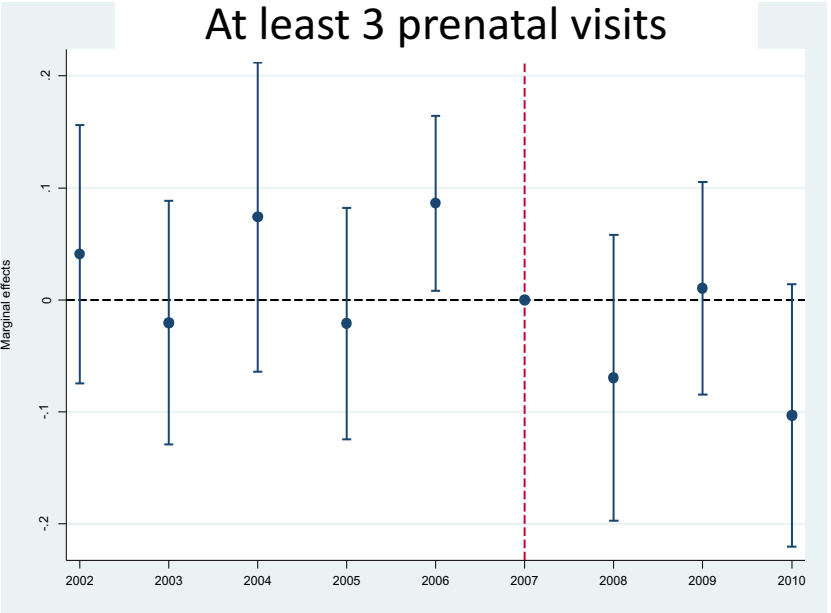# Results DDD: choice of private provider

Delivery in a private hospital
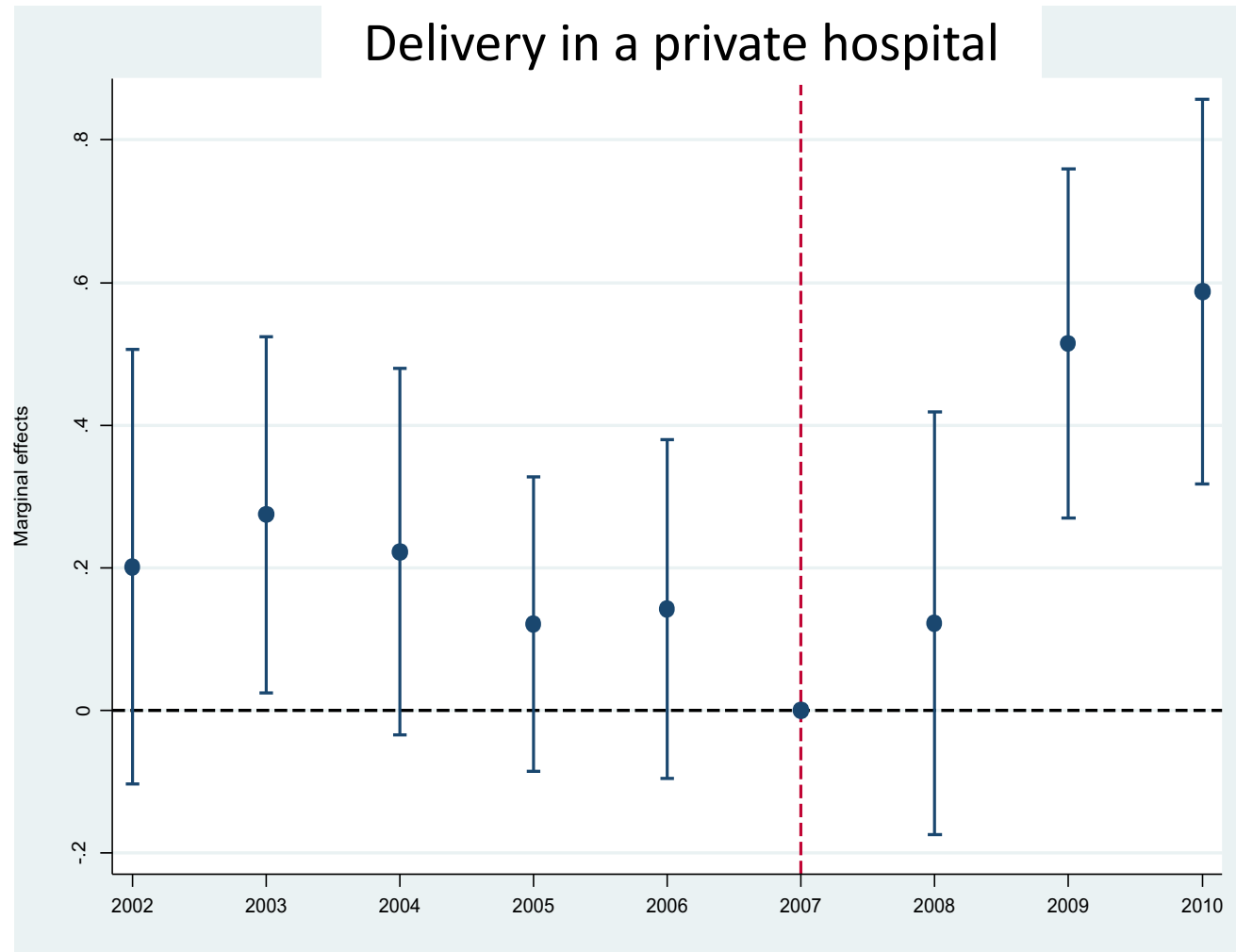
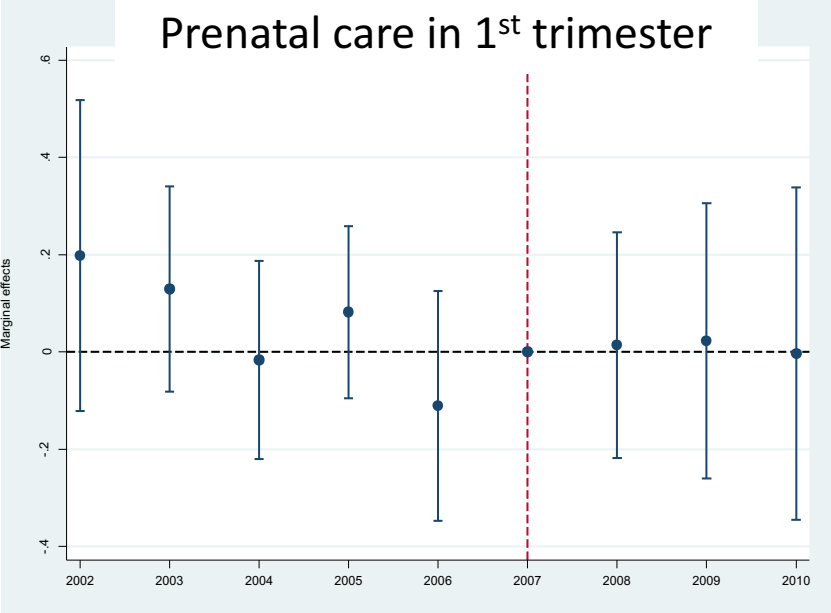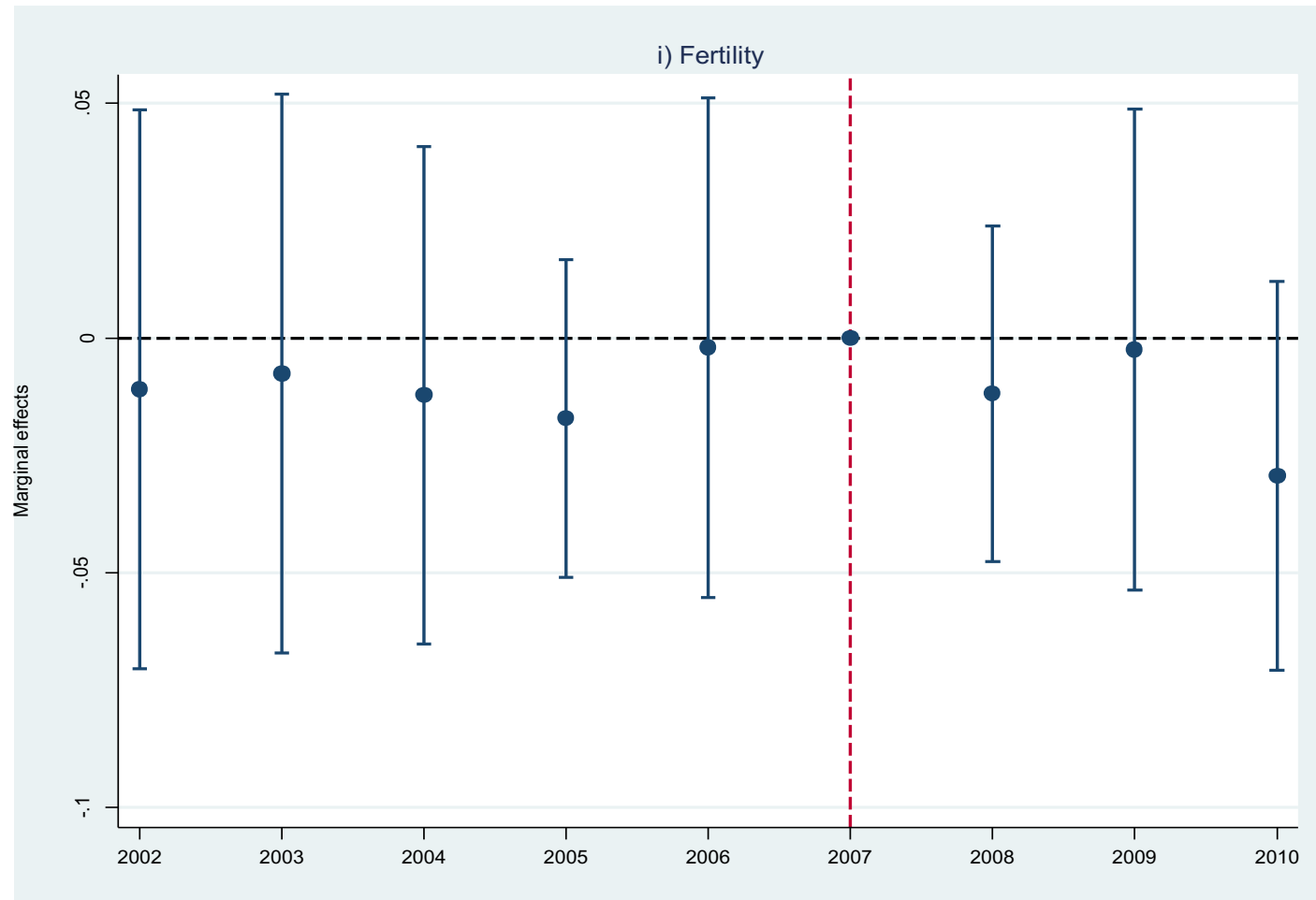# Results DDD: Birth outcomes
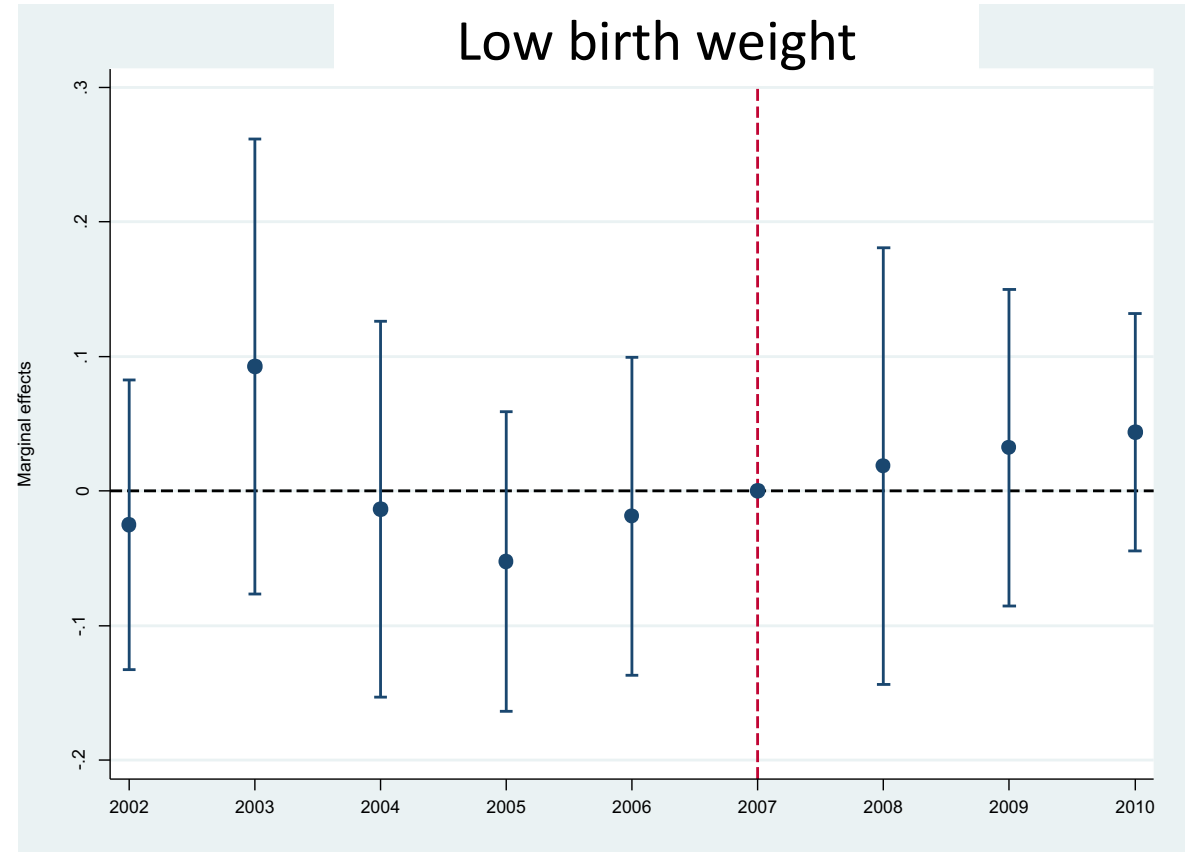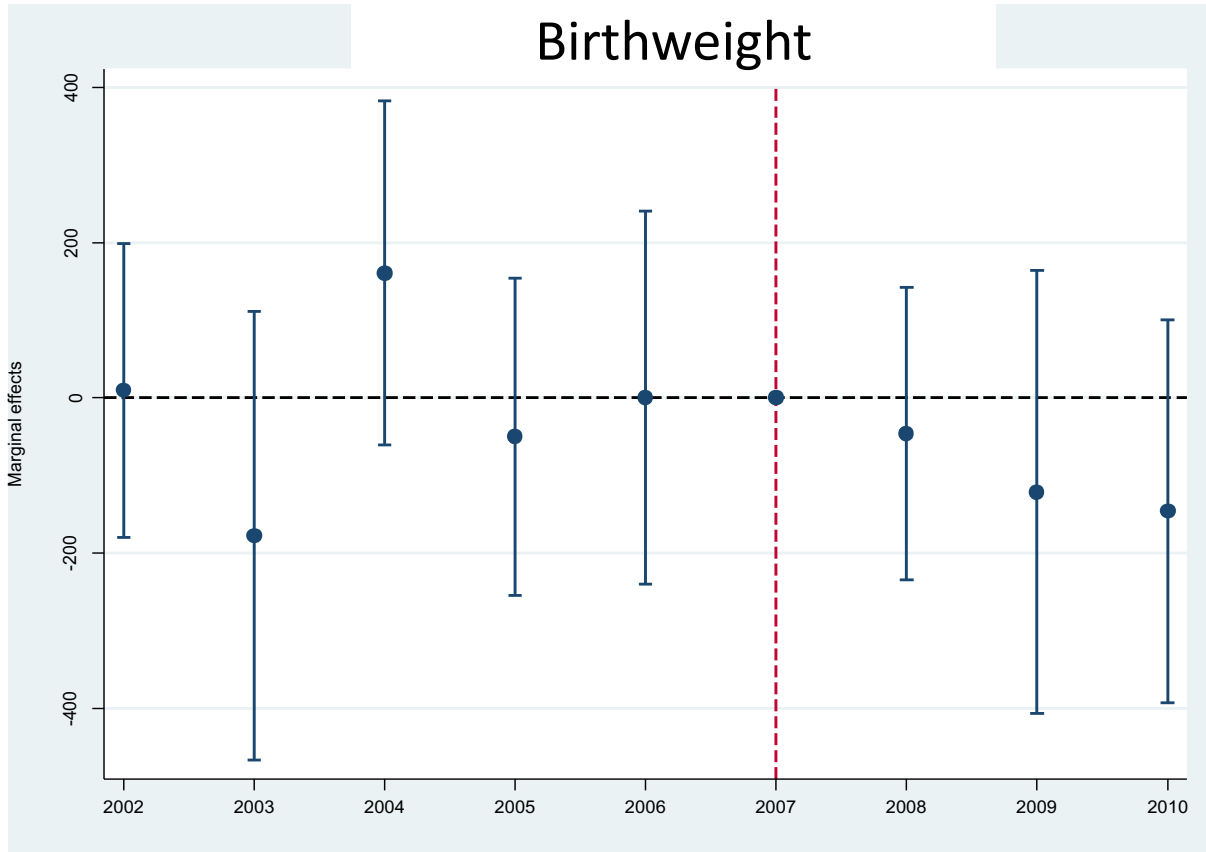
Results DDD: Birth outcomes
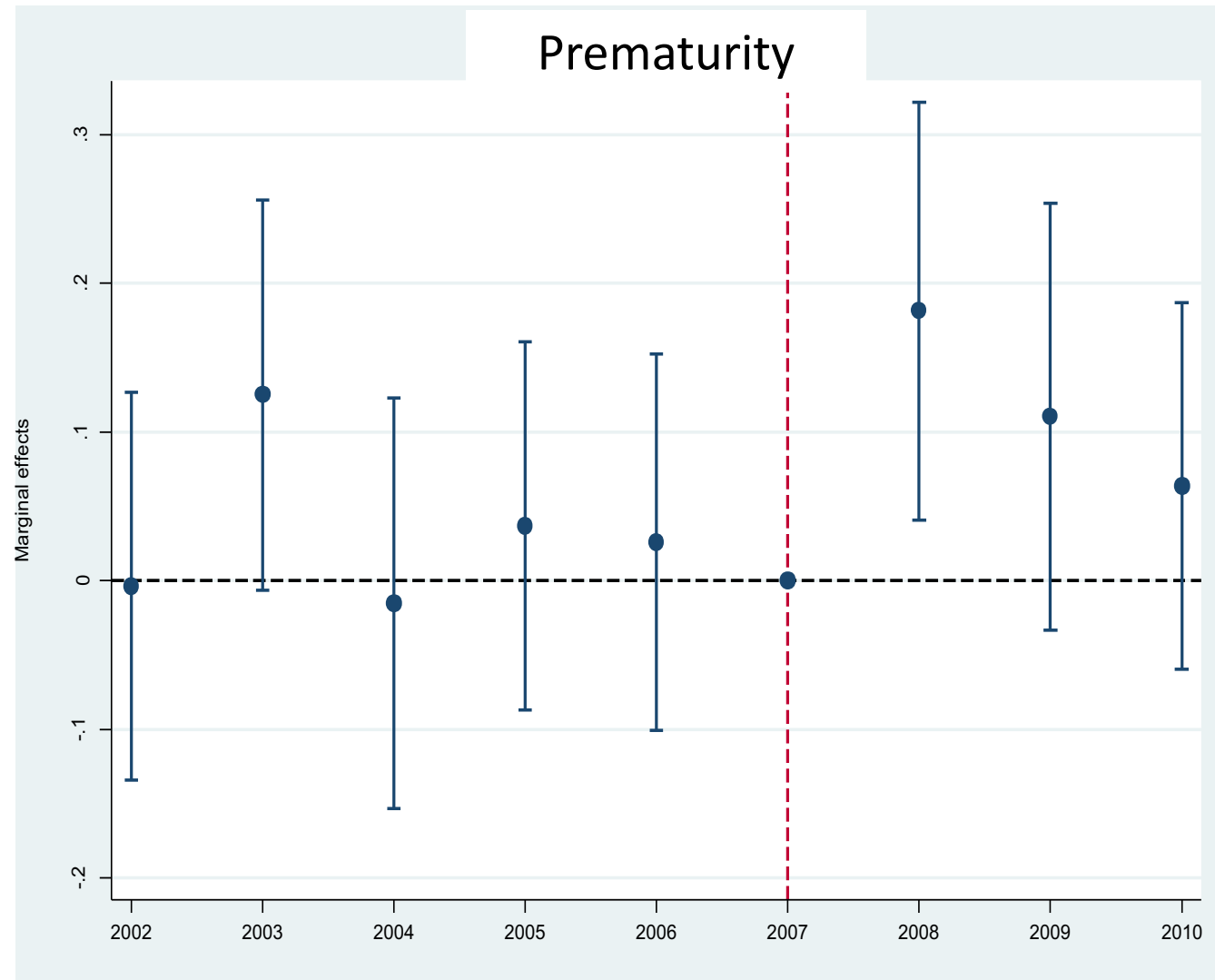
Results DDD: access to perinatal care

Results DDD: Fertility

i) Fertility

Robustness and sensitivity

- Replicate analysis without adjusting for pregnancy-specific and department time-varying characteristics

- Expanded treated and control mothers (16-17 vs. 19-20) and (14-17 vs. 19 to 45)

- Expanded period post-reform up to 2013

Discussion

- SS expansion **increased choice** of private providers but did **not lead to improved** outcomes. Modest evidence of decreased access to prenatal care (for women with small number of visits) and increased rates of prematurity

- Potential Explanations
  - Less extended primary care network for private providers and cultural barriers for more vulnerable mothers
  - Increase in the demand for fixed medical inputs raised wages relative to total costs, in a setting with non-increasing capitated payments to providers (Fleitas 2017). Providers reacted by decreasing length of consultations and increasing waiting lists.
  - Non-profit status may have led to stronger increases in wages

Physician wages and capitated payments to providers

The ratio of wages to total costs for private providers changed from 56% in January 2008 to 63% in January 2011
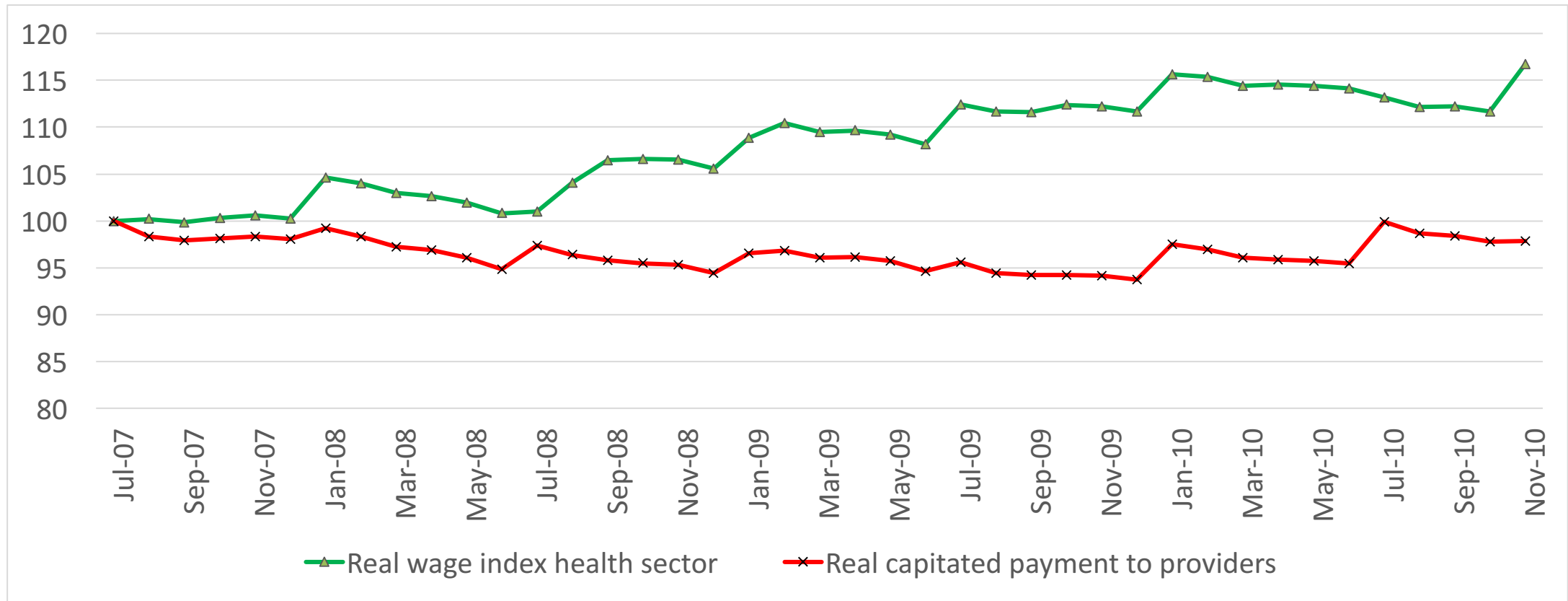
Conclusions and Policy implications

- Cost-effectiveness? Expensive reform, no positive outcomes in the short run

- Expansions in choice may not increase quality when inputs are fixed (Fleitas 2017) or when the incentives in not-for-profit providers lead to increases in wages rather than increases in quality

- Short vs. long run? Flexible supply of labor, adaptation of providers to new settings, consumers learn to shop better

- External validity. Other services with different quality elasticity of demand

Thank you

Health care financing

Type of insurance		Beneficiaries	Financing	Funds received by health care provider	Average expenditure per enrollee (US$ 2013)
Social security	Before reform (2006-2007)	Formal workers	Employee: 3% wage Employer: 5% wage Copayments	Flat premium per capita US$ 480	US$ 675
	After reform (2008-2010)	Formal workers, dependents and retirees	Employee: [4.5-8]% wage (exempted for very low income workers) Employer: 5% wage Copayments Central government subsidies	Risk adjusted premium (age, gender) Male 20-44: US$ 216 X 3.5 if < age1 X 6.5 if > 65	US$ 742
Private insurance	Before and after reform		Out of pocket premium &copays	Risk adj. premium Avg US$ 660	US$ 1230 US$ 1480
Public insurance	Before reform (2006-2007)	Low income households	General taxes	Public budget	US$ 424
	After reform (2008-2010)	Low income household	General taxes	Public budget	US$ 660

Background: Financial aspects of the reform

- Providers are paid an age and gender risk adjusted capitated fee + a pay-for-performance component for each beneficiary

- Reform was financed by an increase in wage tax (from 3% to between 4.5% and 8%) and general taxes

- Budget for public safety net insurance increased 46% between 2007 and 2010, despite a decline in the number of beneficiaries

- Redistributive impact
    - 1st decile increased participation in public health expenditure by 1 percentage point (from 11.5% in 2005 to 12.5 in 2008) and the 10th decile lost participation by a similar magnitude (from 7.5% to 6%) Llambi et al 2010

Health expenditure by source

Millions of US$ (real, 2013)
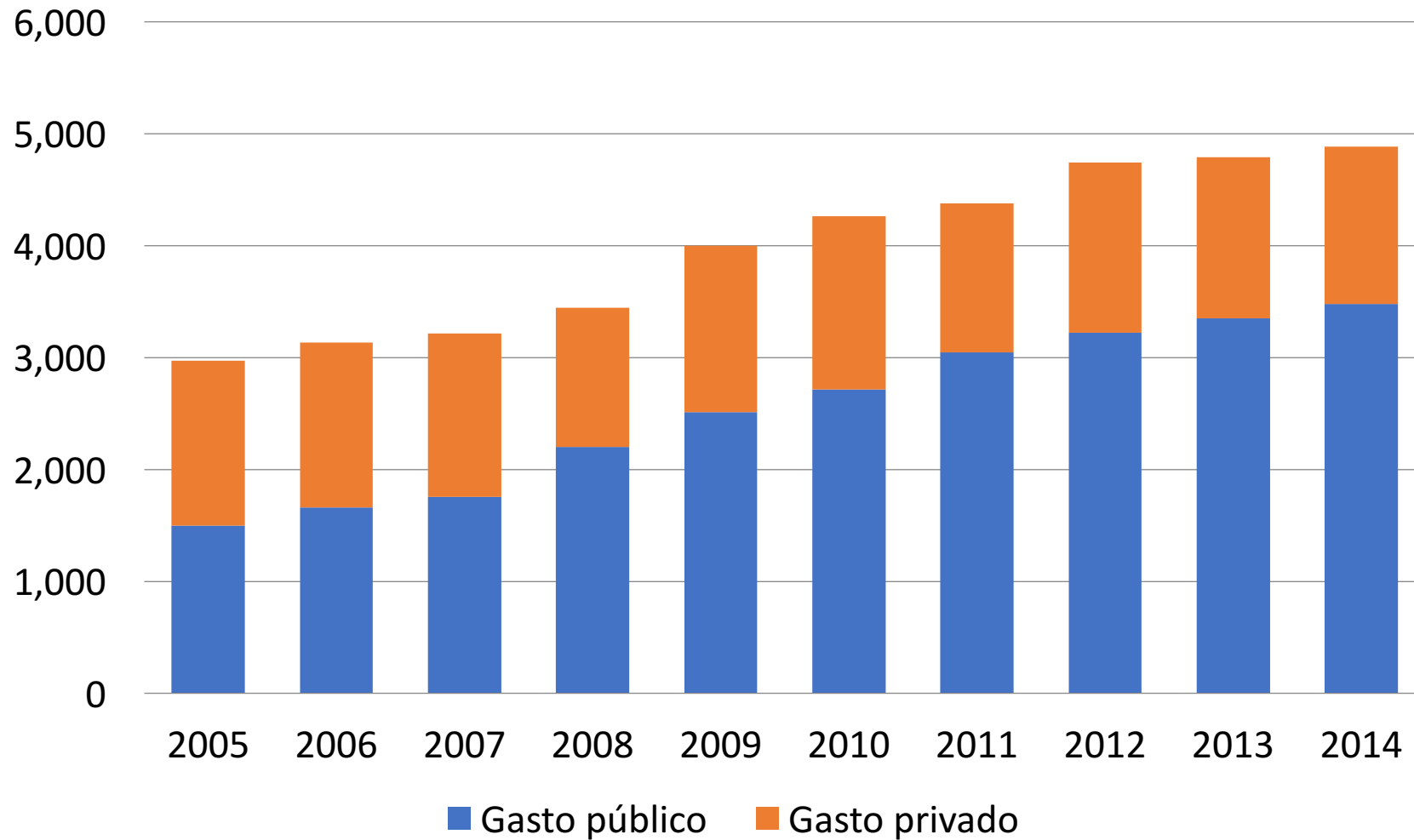
Background: Governance

- Separation of financing and provider functions

- More emphasis on primary care (pay for performance)

- Regulation of mandatory service package, to be provided by all insurers in the country