Tying benefits to earnings when tax evasion is prevalent

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Motivation 1

- Policy makers in developing and middle-income countries face tremendous challenges in combating various forms of tax evasion
- Distributional effects of tax evasion:
  - Higher income inequality
  - Higher poverty
- Growing literature examines the relationship between available social security benefits and informality.

Motivation 2

- Main takeaways of this literature:
  - Once there are incentives to pay taxes people will start doing that;
  - Large effects on declared labor supply;
  - Large effects on declared wages.
- Hence if the objective of the policy maker is to reduce informality then the design of the social security system can be used as a tool to achieve this goal.

Motivation 3

Recent examples of this literature:

- Kumler et al (2013) show that a reform tying future pension benefits to the payroll tax in Mexico increased tax payments after the reform;
- Cruces and Bergolo (2013) and Bergolo and Cruces (2014, JPub) show that a reform tying healthcare insurance of children to the legal earnings of parents increased legal labor supply in Uruguay;
- Becerra (2015) documents an increase in formal labor supply in Columbia in response to a reform which eased pension qualifying conditions for some cohorts.

Motivation 4

On the other hand - evidence of income shifting in response to tax incentives:

- Kreiner et al (2014, AER), Kreiner et al (2016, AEJ) document intertemporal income shifting in Denmark to enjoy significantly lower marginal tax rates;
- Kleven and Waseem (2011) provide evidence of income shifting between tax bases in Pakistan;
- Waseem (2015) - documents income shifts into informality in response to tax incentives in Pakistan.

Motivation 5

Hence:

- We might experience very perverse effects if it is possible to temporary change labor supply decisions/ wage declaration policy to obtain large social security benefits;
- The only result in this case is the net loss to government finances.

Motivation 6

To induce those incentives we need:

- Relatively generous social security benefits;
- Short time period when you need to pay taxes to increase social security benefits.

This Paper

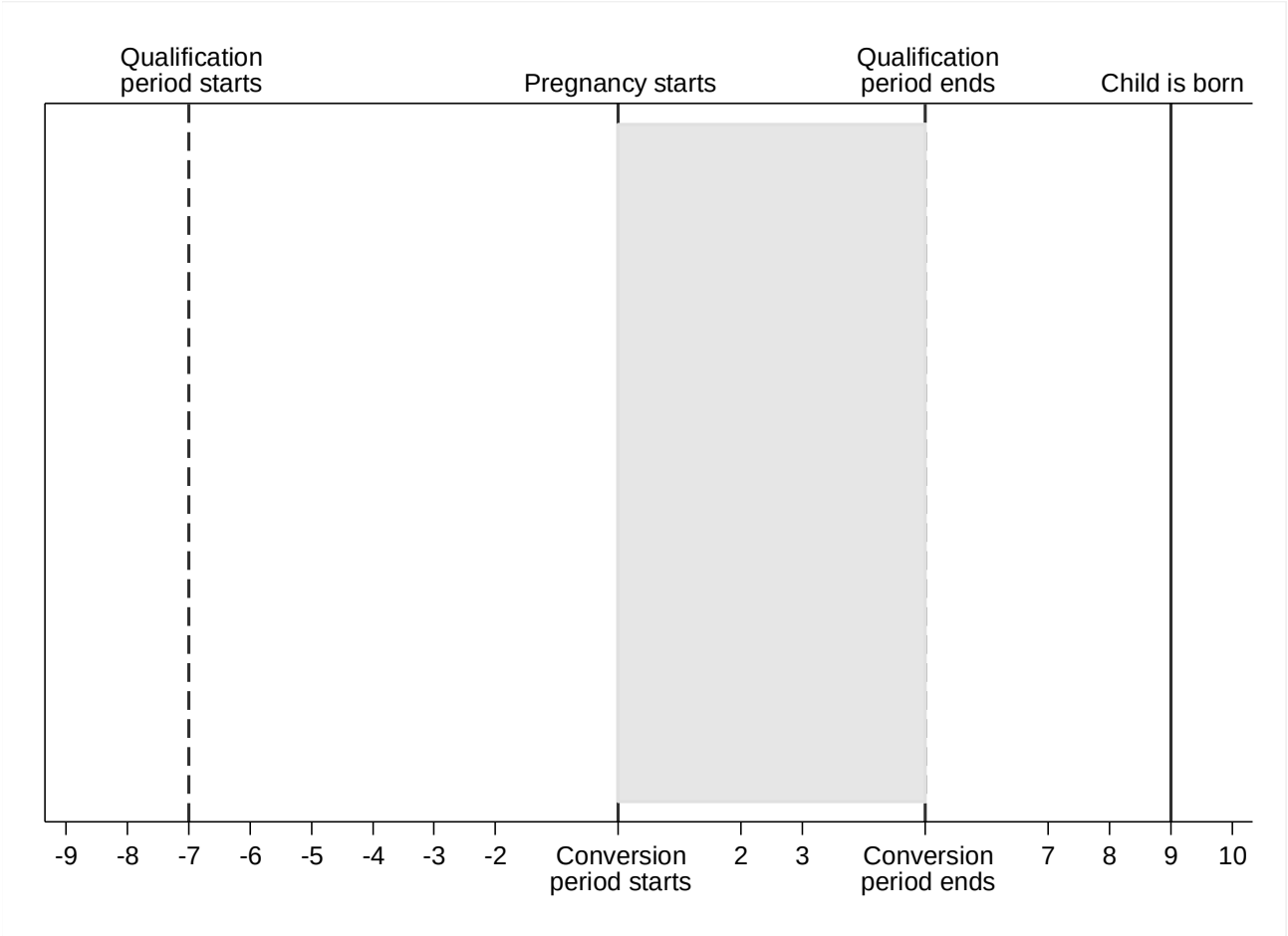
- We analyze generous childcare and parental benefit in Latvia;
- Using cross-sector/time variation we show that:
  - Earnings increase during the time period, which is taken into account for the calculation of the benefits;
  - Increase is larger for smaller firms, in line with previous literature on tax evasion.

Institutional background 1

- In Latvia - high degree of informality, in particular in the form of undeclared wages;
- Earnings dependent maternity benefit present at all times, but in January 2005 a new (longer) contributory childcare benefit came into force;
- Benefit initiated in August, 2004, passed in the parliament in November, 2004;
- Monthly amount: 70% of the individual's gross wage during the 12 month period, which ends 3 months prior to the birth of the child;
- Capped at 558 EUR per month;
- Paid until child reaches 1 year.

Institutional background 2

Figure: Benefit qualification period and wage conversion period



Institutional background 3

- Only one of the parents can receive the benefit;
- Initially incompatible with employment;
- Starting March, 2006 an employed parent became eligible for 50% of the benefit;
- Starting March, 2007 an employed parent became eligible for full benefit amount;
- Uncapped starting January, 2008 (and renamed to "parental benefit")

Identification 1

- At the most basic level:

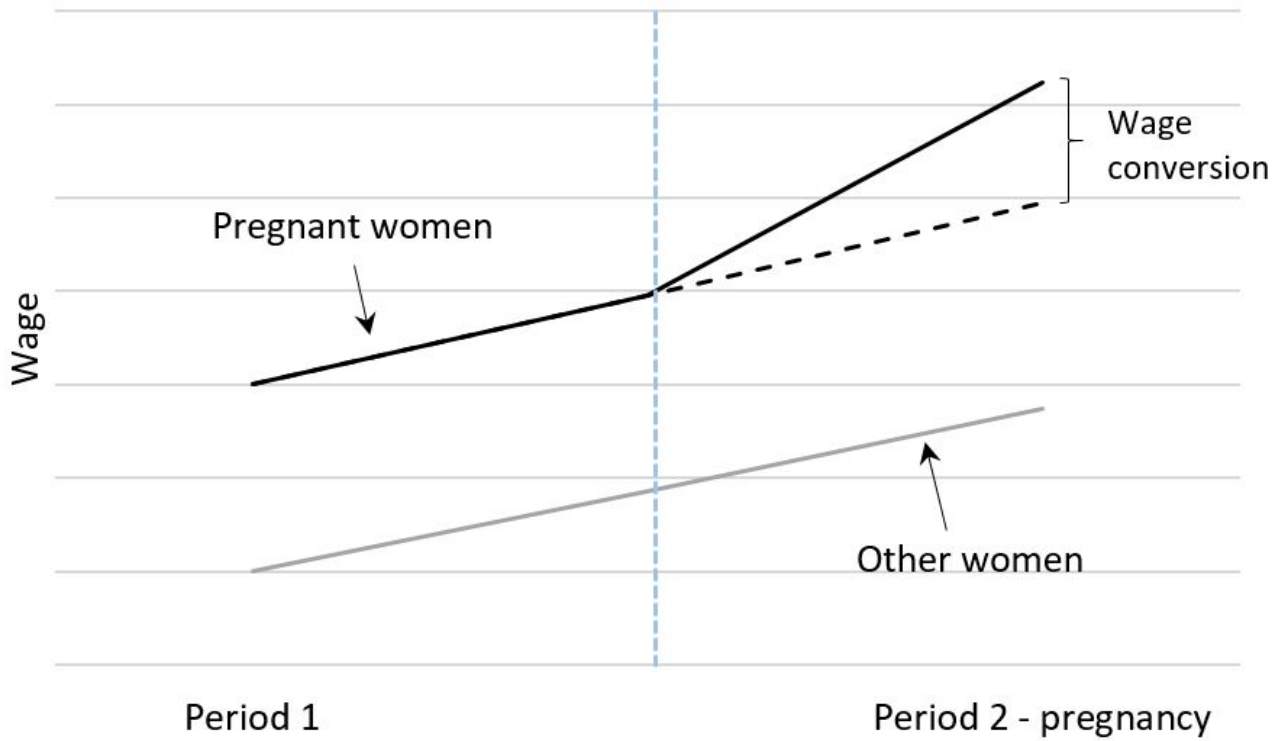
$$log(y_{ijt}) = \alpha_0 \cdot conv_{it} + \eta_{ij} + \lambda_t \cdot yob_i + \epsilon_{ijt}$$

where y_{ijt} is the observed wage, $conv_{it}$ is equal to 1 during the period when the woman has incentives to convert wage and 0 otherwise, η_{ij} and λ_t are individual-firm and time fixed effects and yob_i is year of birth.

- Here we compare wages of women who got pregnant with wages of women who did not get pregnant
- Identifying assumption: in the absence of pregnancy wages of women who got pregnant would follow the same trend as wages of women who did not get pregnant (during the conversion period).

Identification 2

Figure: Identification - difference in growth of wages of pregnant women vs. all other women



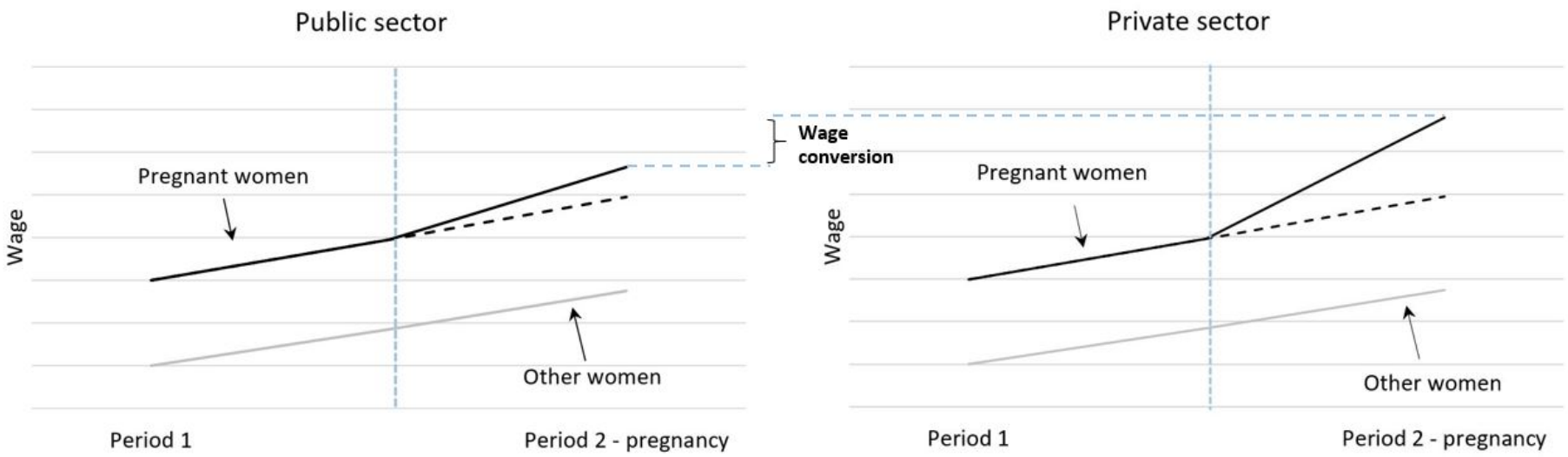
Identification 3

- Problem: pregnancy is not a random event, it can depend on expectations about future income (hence wages of those pregnant and not pregnant can be different);
- We control for diverging trends by comparing private sector with public sector, where conversion is presumably absent:

$$log(y_{ijt}) = \alpha_0 \cdot conv_{it} + \alpha_1 \cdot (conv_{it} \cdot private_j) + \eta_{ij} + \lambda_t \cdot yob_i \cdot private_j + \epsilon_{ijt}$$

Identification 4

Figure: Identification - difference in difference in growth of wages



Identification 5

- Still a problem: we need to assume that anticipation effects in private and public sectors are the same;
- We address this by making use of the new contributory childcare benefit, which was introduced in 2005. Now we only have to assume that the difference in anticipation effects does not change as a result of the reform:

$$log(y_{ijt}) = \alpha_0 \cdot conv_{it} + \alpha_1 \cdot (conv_{it} \cdot private_j) + \alpha_2 \cdot (conv_{it} \cdot after_t) + \\ + \alpha_3 \cdot (conv_{it} \cdot private_j \cdot after_t) + \eta_{ij} + \lambda_t \cdot yob_i \cdot private_j + \epsilon_{ijt}$$

Data

- Matched employer - employee administrative dataset allows to study earnings histories of all employed workers in Latvia during the time period 1996 - 2010;
- Information on gender, date of birth and type of firm;
- Type of firm allows to identify the sector (private or public);
- Data on recipients of child-related benefits allows us to identify children;
- Only the instances of first child are analyzed.

Results 1

Table: Baseline estimation results

	ln(wage)	ln(wage)	ln(wage)
	(1)	(2)	(3)
Conv	0.037***	0.028***	−0.080***
	(0.006)	(0.006)	(0.006)
Conv x Private	0.019**	0.022***	0.055***
	(0.008)	(0.008)	(0.008)
Conv x After	−0.018**	−0.019**	0.012
	(0.008)	(0.008)	(0.008)
Conv x Private x After	0.061***	0.061***	0.023**
	(0.011)	(0.011)	(0.011)
Fixed effects:			
Ind x Firm	Y	Y	Y
Time x Private	Y	N	N
Time x Private x Year of Birth	N	Y	Y
Trend x Ind x Firm	N	N	Y
N	4,994,358	4,994,356	4,994,356
Adjusted R^2	0.86	0.86	0.9

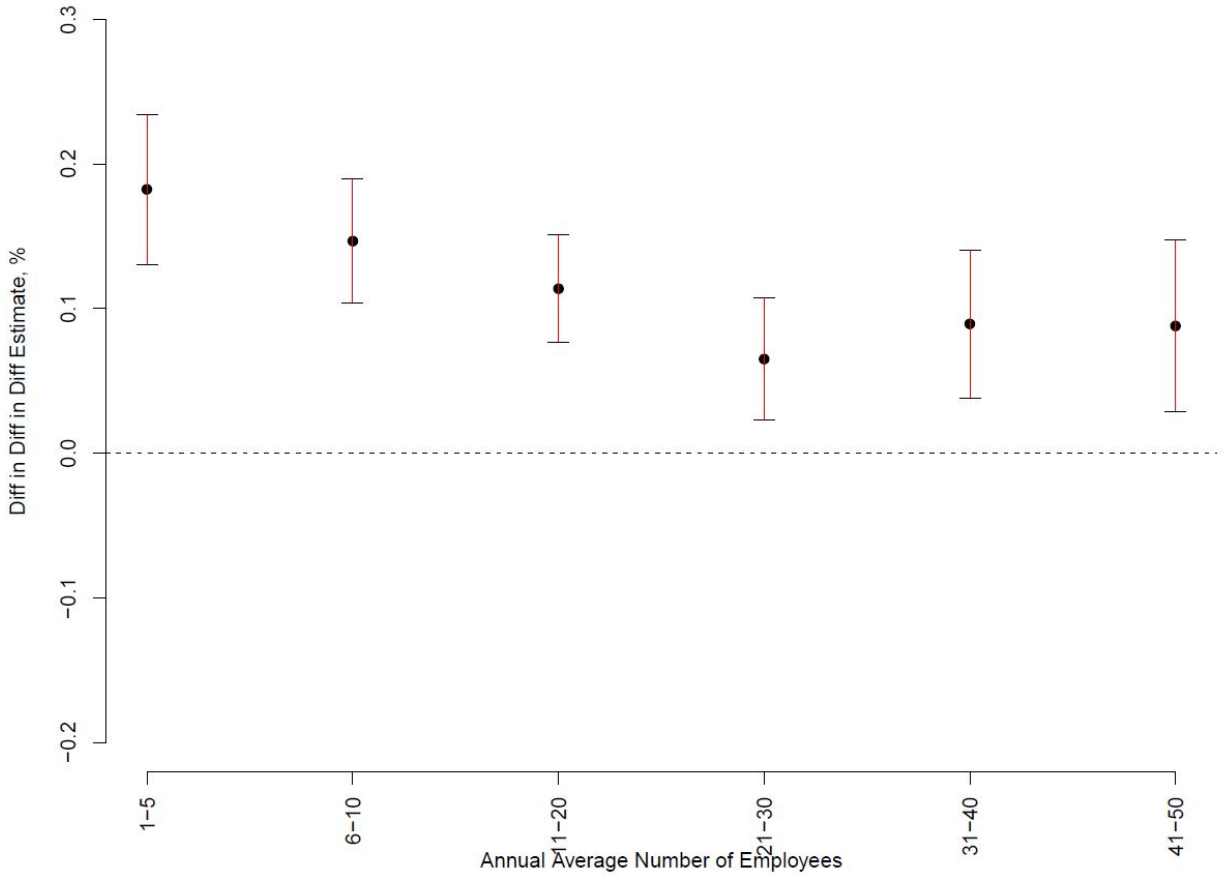
Notes: This table presents baseline estimation results for the sample of women.
Level of significance: ***p<0.01, **p<0.05, *p<0.1

Results 2: Heterogeneity by firm size

$$log(y_{ijt}) = \alpha_0 \cdot conv_{it} + \alpha_1 \cdot conv_{it} \cdot after_t + \sum_k \beta_k \cdot size_{jtk}$$
$$+ \sum_k \gamma_k \cdot conv_{it} \cdot size_{jtk} + \sum_k \mu_k \cdot size_{jtk} \cdot after_t$$
$$+ \sum_k \xi_k \cdot conv_{it} \cdot size_{jtk} \cdot after_t + \eta_{ij} + \lambda_t \cdot yob_i + \epsilon_{it}$$

Results 3: Heterogeneity by firm size

Figure: Heterogeneity by firm size

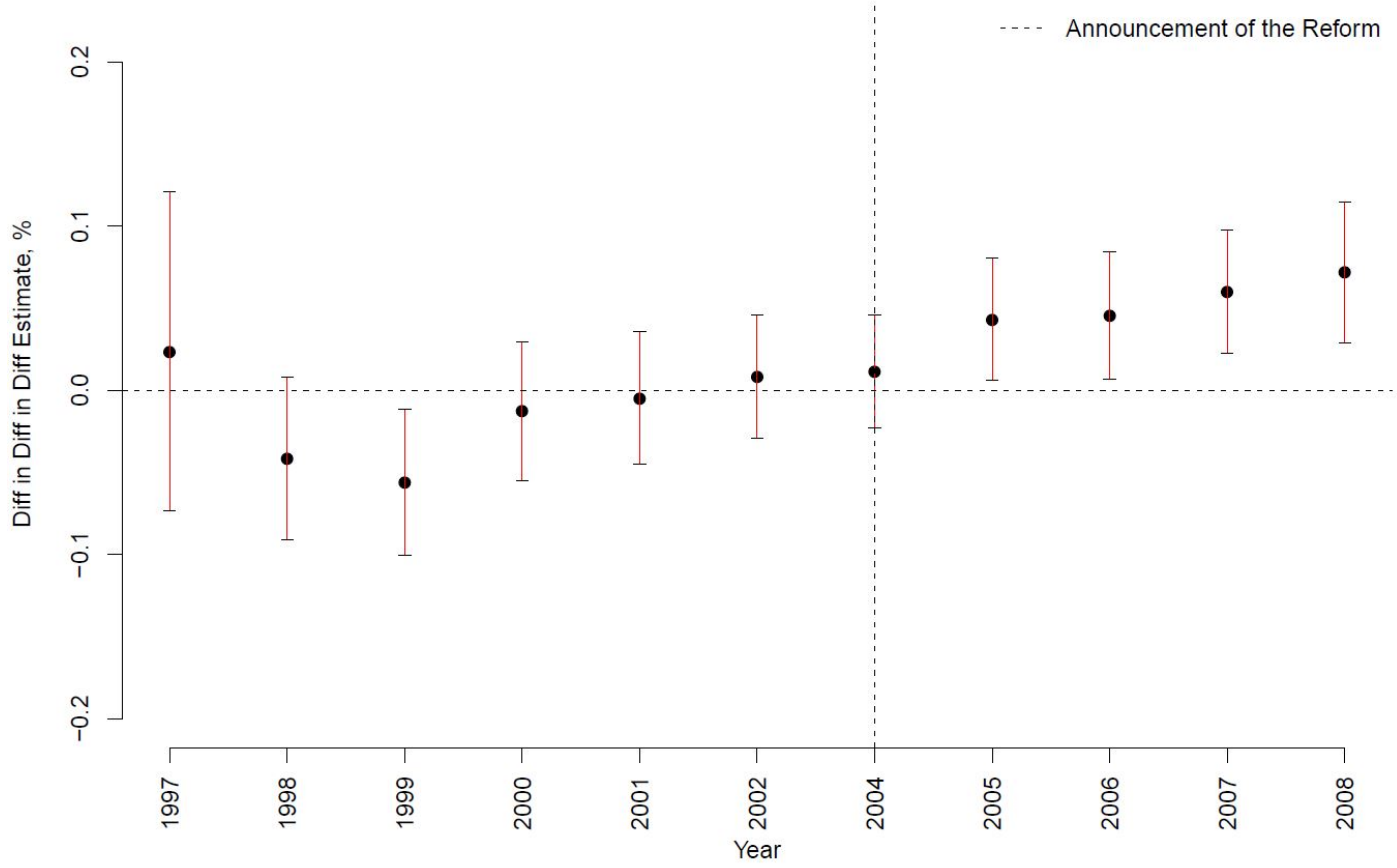


Results 4: Placebo by year

$$log(y_{ijt}) = \alpha_0 \cdot conv_{it} + \alpha_1 \cdot conv_{it} \cdot private_j +$$
$$+ \sum_k \beta_k \cdot conv_{it} \cdot year_k + \sum_k \gamma_k \cdot conv_{it} \cdot private_j \cdot year_k +$$
$$+ \eta_{ij} + \lambda_{it} \cdot private_j \cdot yob_i + \epsilon_{ijt}$$

Results 5: Placebo by year

Figure: By year



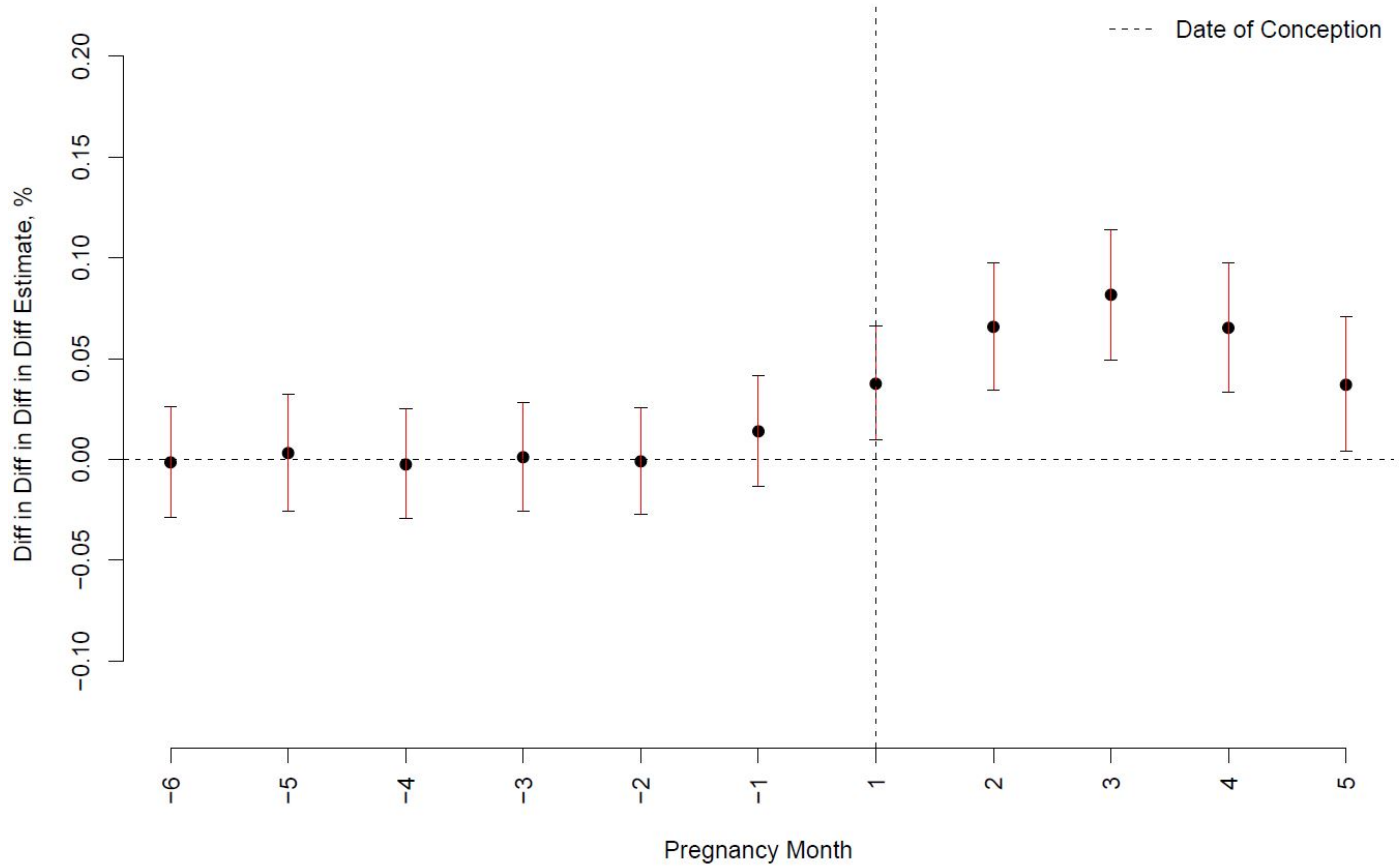
Results 6: Placebo by month of pregnancy

$$log(y_{ijt}) = \alpha_0 \cdot before_{it} + \sum_k \beta_k \cdot conv_{itk} \cdot private_j +$$
$$+ \sum_k \zeta_k \cdot conv_{itk} \cdot private_j + \alpha_2 \cdot before_{it} \cdot private_j \cdot after_t +$$
$$+ \sum_k \gamma_k \cdot conv_{itk} \cdot private_j \cdot after_t + \eta_{ij} + \lambda_t \cdot private_j \cdot yob_i + \epsilon_{ijt}$$

where $before_{it}$ is 1 for all pregnant women in the period up to 5 months before the start of pregnancy, $conv_{itk}$ is 1 in k^{th} month of pregnancy.

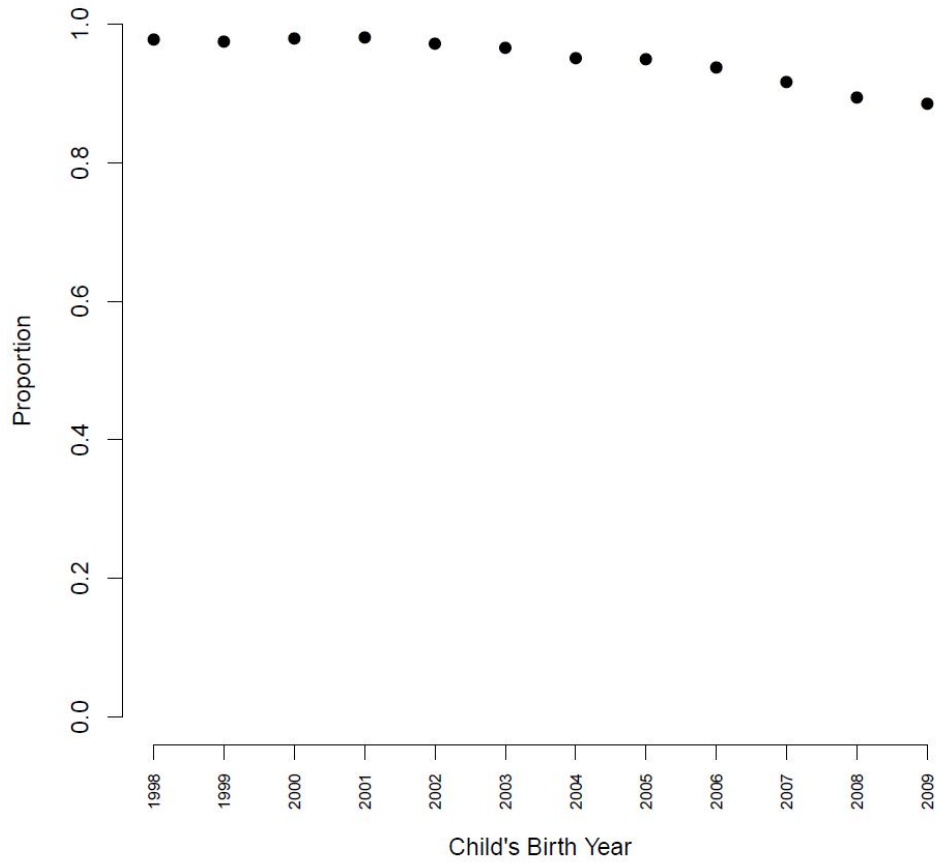
Results 7: Placebo by month of pregnancy

Figure: By month of pregnancy



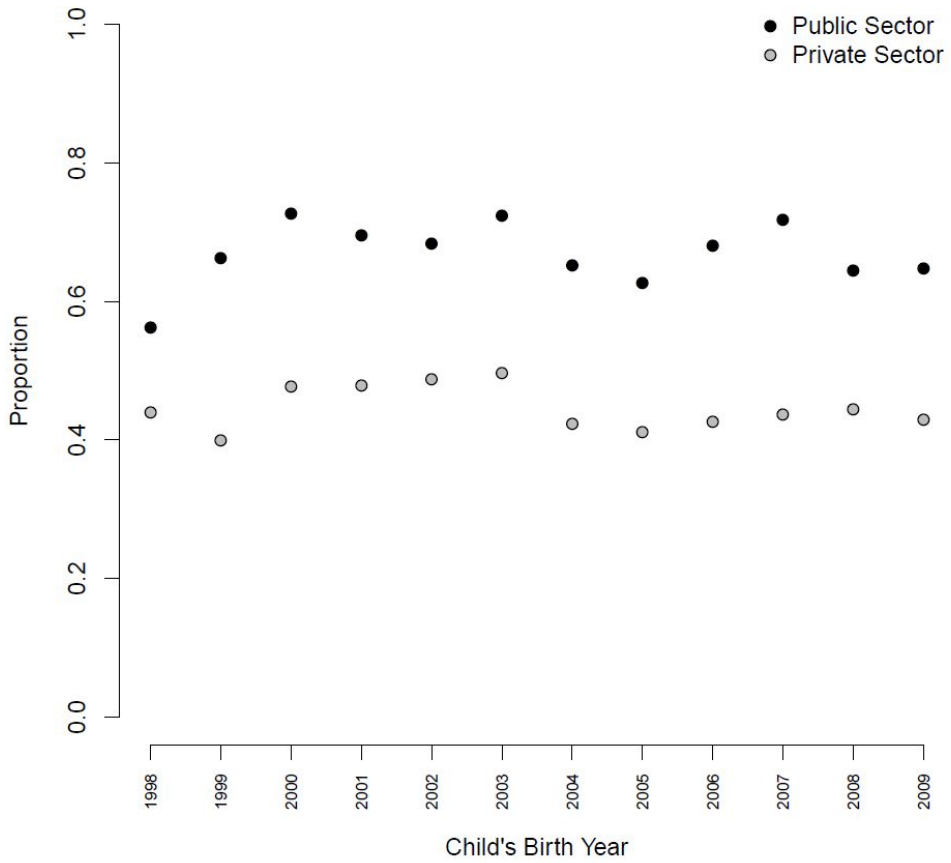
Results 8: Proportion of women returning to the labour market

Figure: Proportion of women returning to the labour market



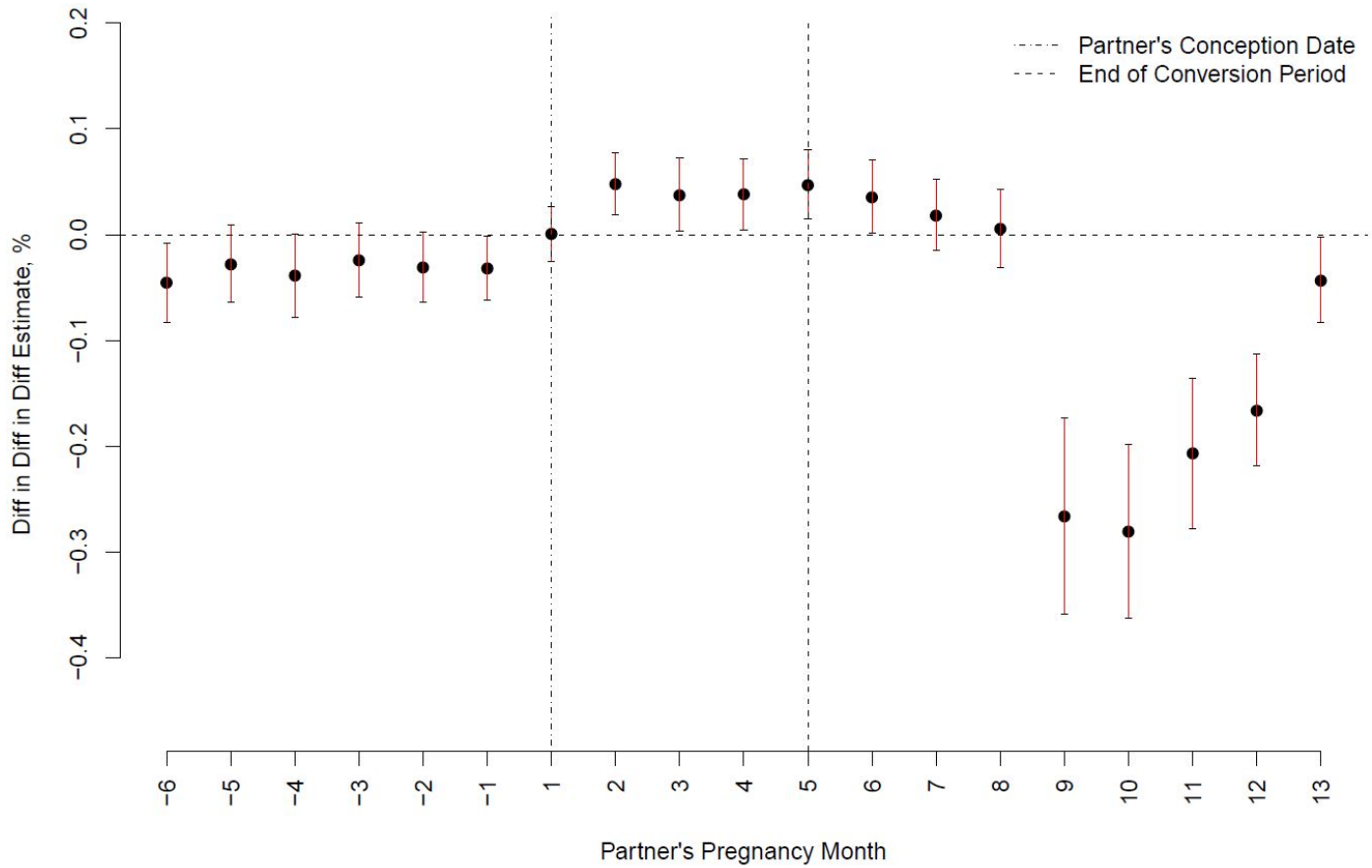
Results 9: Proportion of women returning to the same employer

Figure: Proportion of women returning to the same employer



Results 10: Results for men

Figure: Results for men



Conclusions

- Using cross sector/time variation we find that during pregnancy the wage of the woman increases;
- Rationalize this by conversion of the undeclared wage into declared ones;
- Tying benefits to earnings can be not effective in reducing informality if benefit qualification period is short and includes time when the person knows if/when she will be eligible for the benefits;
- Such benefit design creates incentives to increase income reporting only temporarily, resulting in net losses to the government budget.

Identification

- Assumption: there were no incentives for wage conversion before the reform;
- This is not entirely true due to contributory maternity benefit that existed before the reform;
- However, the 2005 reform has, if anything, increased the incentives to increase wage during pregnancy.

Identification

Figure: Incentives to convert wages before and after the 2005 reform