

The impact of a disability insurance reform on labor participation of couples

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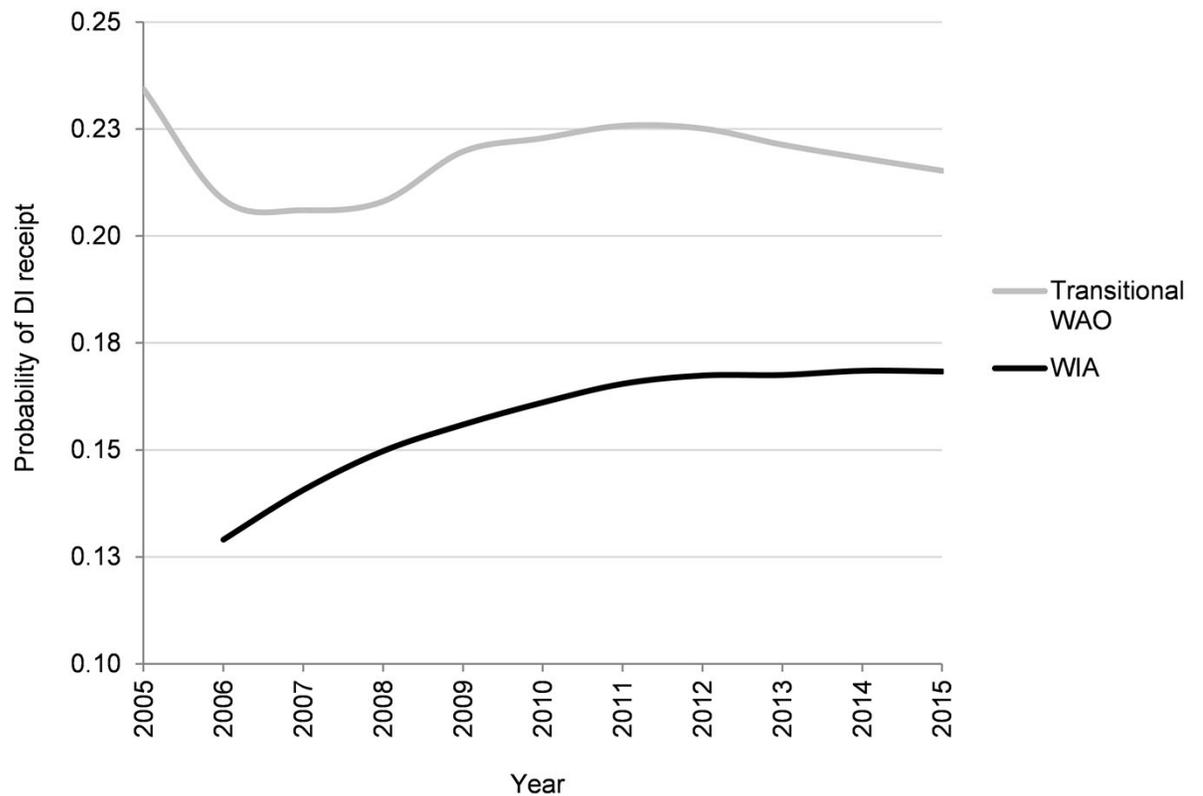
Netspar Pension Day, October 2020

Introduction

- In 2002, the total number of DI recipients reached 11% of the insured population (about 1 million) in the NL.
- Successive governments implemented radical reforms in the DI scheme, WAO (by then).
- In 2006, the new DI scheme, WIA, came into effect as the final element of these reforms.
- WIA introduced major changes in both the DI scheme and in the sickness insurance scheme (SI) that precedes it.

Introduction

- WIA succeeded to reduce DI claims.
- Figure: Probability of DI receipt among people who fell sick in Q4.2003 (Transitional WAO) and in Q1.2004 (WIA).



Introduction

- Taking a DiD approach, [Kantarci et al. \(2019\)](#) found that, due to WIA, sick people decreased DI receipt by 5.8 pp, increased labor participation (LP) by 1.8 pp and unemployment insurance benefit (UI) receipt by 1.4 pp.
- Increases in LP and UI receipt did not fully compensate for the decrease in DI receipt: 3.2 (1.8+1.4) pp vs 5.8 pp.
- Spousal labor participation could serve as an additional mechanism to compensate for lost DI benefits.
- **Do couples coordinate labor participation when the sick partner loses DI benefits due to stricter rules to receive DI?**

Introduction

- We contribute to two strands of the literature. The first studies the impact of DI reforms (e.g. [Hullegie and Koning, 2018](#); [Deuchert and Eugster, 2019](#); [Ruh and Staubli, 2019](#)). These studies do not consider spillover effects on the spouse, and might provide an incomplete view on the consequences of policy reforms.
- The second studies if partners work more in response to a negative shock on spouse's earnings ([Lundberg, 1985](#)). Empirical evidence on the “added worker effect” is limited ([Maloney, 1987](#); [Maloney, 1991](#); [Spletzer, 1997](#)) with recent exceptions ([Blundell et al., 2016](#); [Halla et al., 2020](#)).
- Few studies analyzed the impact of DI reforms on labor supply decisions of couples ([Duggan et al., 2010](#); [Autor et al., 2019](#)). [Borghans et al. \(2014\)](#) and [Garcia-Mandicó et al. \(2020\)](#) study the impact of reassessment of DI claimants according to stricter criteria introduced in 1993 and 2004. The former: no effect. The latter: reassessment of female recipients increases the earnings of husbands.

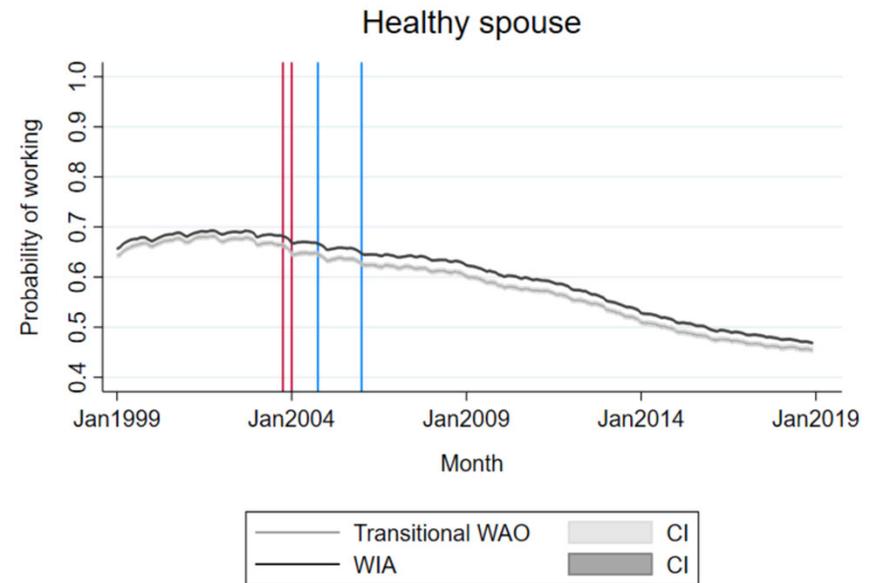
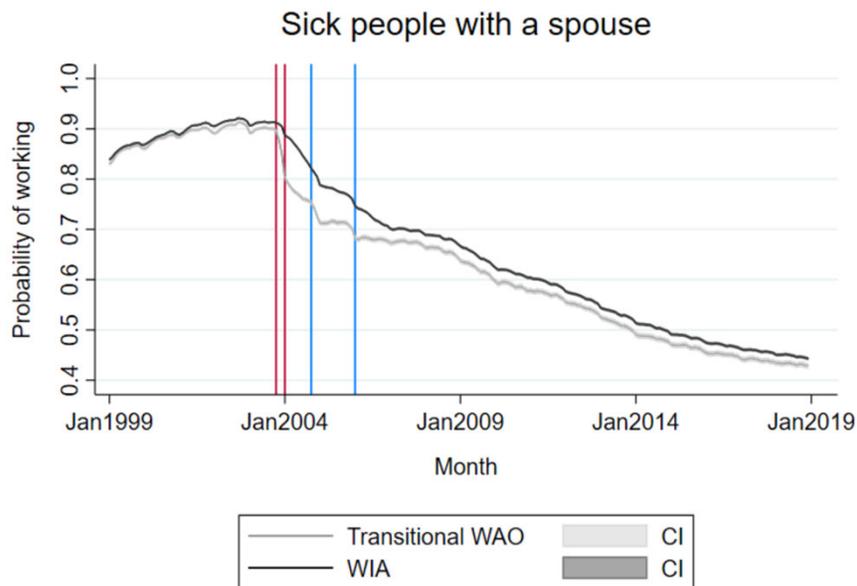
DI in the Netherlands and the 2006 reform

- **WAO.** Introduced in 1967. Major amendments in 1993. Abolished in 2006. It consists of two schemes. First admitted to SI. Duration: 1 year. After SI, admitted to DI if disability grade > 15%.
- **Transitional WAO.** Introduced (before WAO was abolished) on 10.2004 for people who fell sick between 10.2003 and 01.2004. It introduced one change:
 - i. Entry criteria made stricter: broader def. of what work could still be done.
- **WIA.** Introduced on 01.2006 for people who fell sick from 01.2004. It introduced major changes:
 - i. Duration of SI was extended from 1 to 2 years. Employer is incentivised.
 - ii. Admitted to DI if disability grade > 35%.
 - iii. Fin. incentives for work resumption for both employees and employers.

Data

- Administrative data on individuals who fell sick in Q4.2003 and insured under transitional WAO (control group), and in the first three quarters of 2004 and insured under WIA (treatment group).
- Available information: beginning and ending dates of sickness; work contract type (permanent contract, temporary contract, unemployed) at the time of falling sick.
- Sickness data linked to data on partners (married or cohabiting) from CBS, with information on labor participation. CBS data extend from 1999 to 2015.
- Sample restrictions: drop if sick less than 90 days (threshold to report sickness); if already receiving DI before falling sick; if cohabitation starts after falling sick or if it dissolves before falling sick; spouses of sick individuals who are reported sick; individuals in same-sex registered partnerships.
- Study sample: 27,476,160 observations for 114,484 sick individuals.

Time trend in outcome variable and the difference between control and treatment groups



Identification strategy

DiD regression:

$$y_{it} = \gamma (\text{Treated}_i \times \text{Post}_t) + \delta \text{Post}_t + \lambda_s + \alpha_i + \varepsilon_{it}$$

- i : sick individual or the spouse. t : month of event time (event: falling sick)
- Treated_i : 1 if i is in reform group, 0 if in non-reform group
- Post_t : 1 if post-reform period, 0 if pre-reform period
- γ : impact of the reform
- λ_s : calendar month dummy

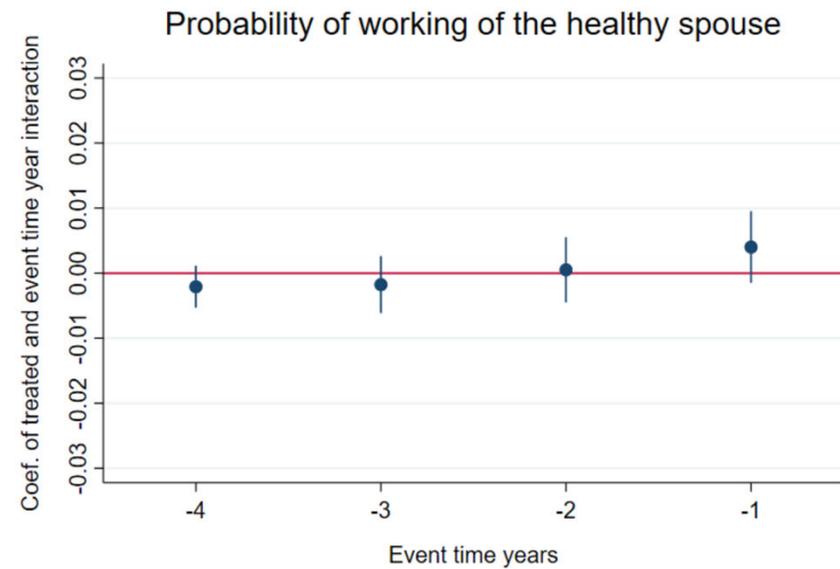
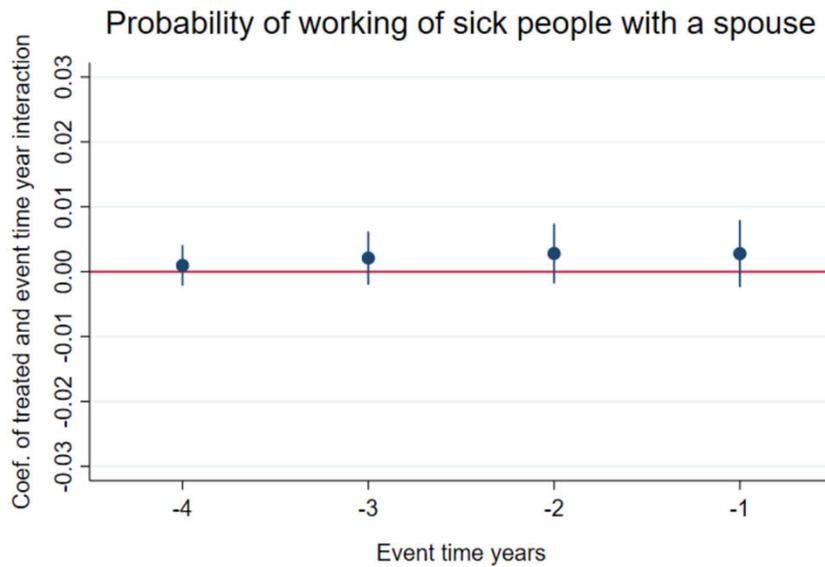
Identification strategy

DiD regression where Post_t is decomposed into ten dummies d_{lt} to disentangle the short term and long-term effects of the reform:

$$y_{it} = \sum_{l=1}^{10} \gamma_l (\text{Treated}_i \times d_{lt}) + \sum_{l=1}^{10} \delta_{lt} d_{lt} + \lambda_s + \alpha_i + \varepsilon_{it}$$

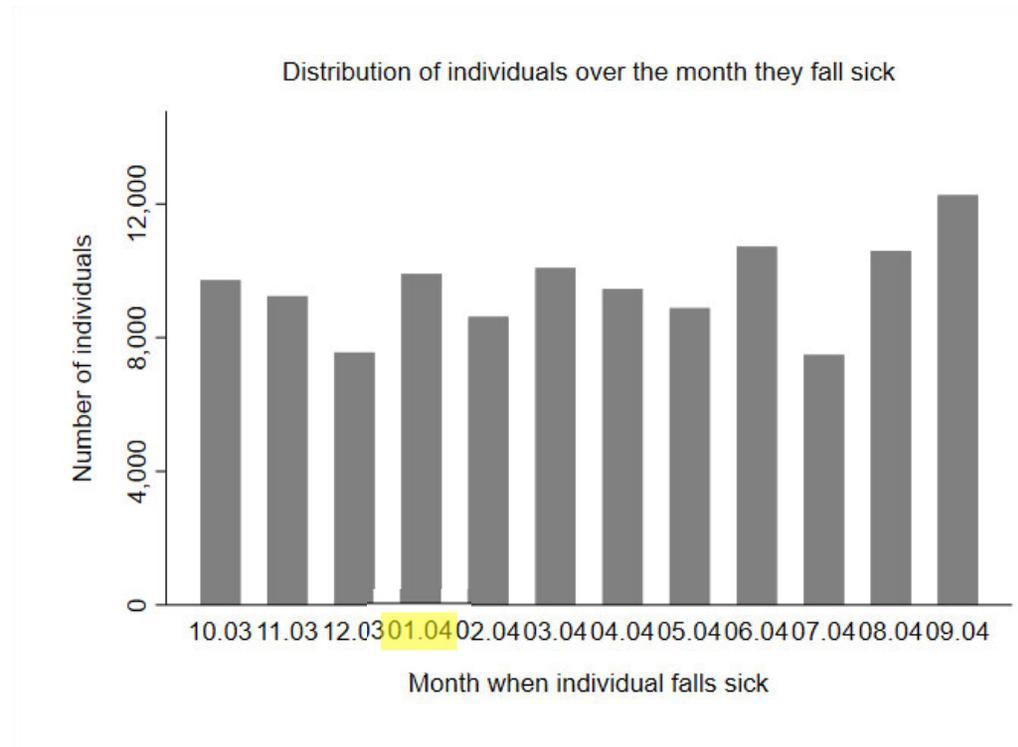
Identification strategy

Are the pre-reform time trends common to control and treatment groups?



Identification strategy

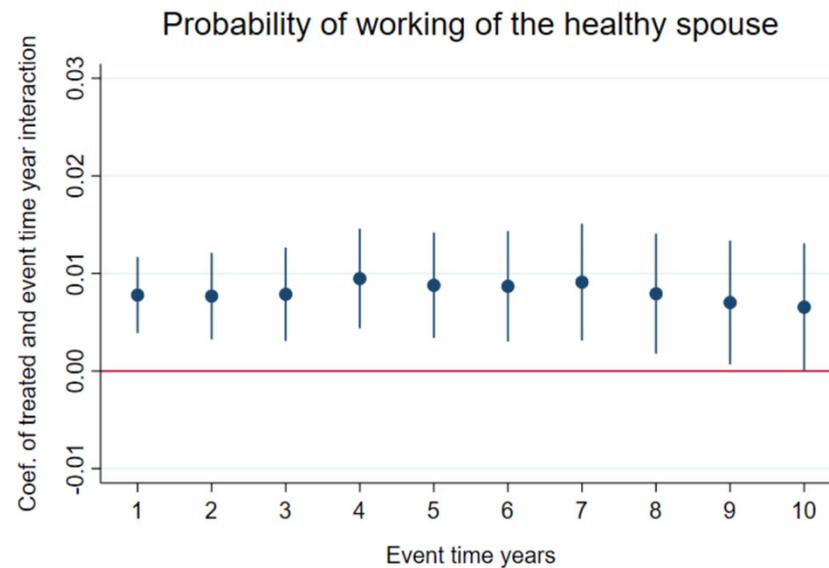
Do individuals self-select into the old or new disability scheme?



Effect of the reform on labor participation of sick individuals and their spouses – Baseline effect

Linear model explaining the effect of the reform on labor participation of the sick and healthy spouses		
	Sick spouse	Healthy spouse
Treated × Post	0.025*** (0.002)	0.008*** (0.002)
Observations	20,915,280	
Individuals	114,484	
Notes: ***, **, * denote statistical significance at 1, 5, 10 percent. SE (in parentheses) account for heteroskedasticity and clustering at the individual level. All specifications control for individual and calendar month fixed effects.		

Effect of the reform on labor participation of sick individuals and their spouses – Short term and long-term effects



Effect of the reform on labor participation of sick individuals and their spouses – By gender

Linear model explaining the effect of the reform on labor participation of the sick and healthy spouses by gender

		Sick spouse is male, healthy spouse is female	Sick spouse is female, healthy spouse is male
Sick spouse	Treated × Post	0.019*** (0.003)	0.031*** (0.004)
Healthy spouse	Treated × Post	0.008*** (0.003)	0.016*** (0.003)
Observations		12,304,022	8,611,258
Individuals		67,414	47,074

Notes: ***, **, * denote statistical significance at 1, 5, 10 percent. SE (in parentheses) account for heteroskedasticity and clustering at the individual level. All specifications control for individual and calendar month fixed effects.

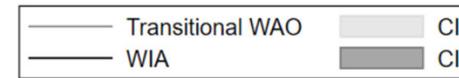
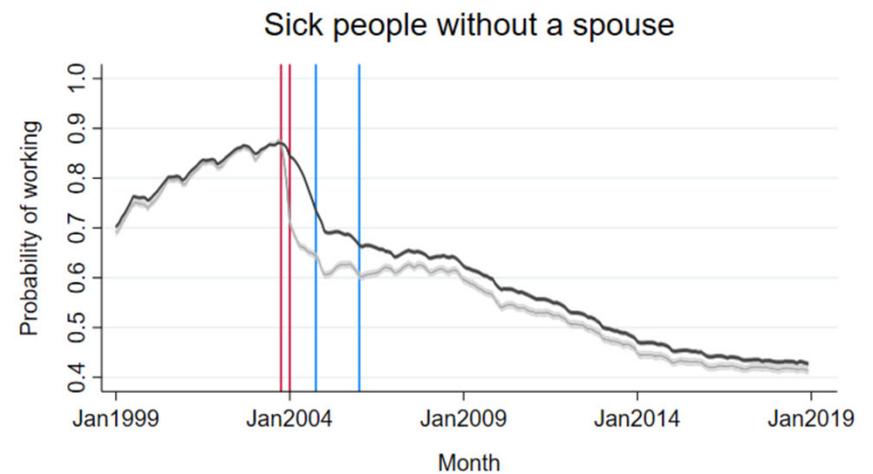
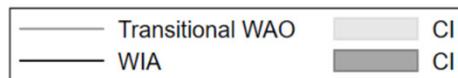
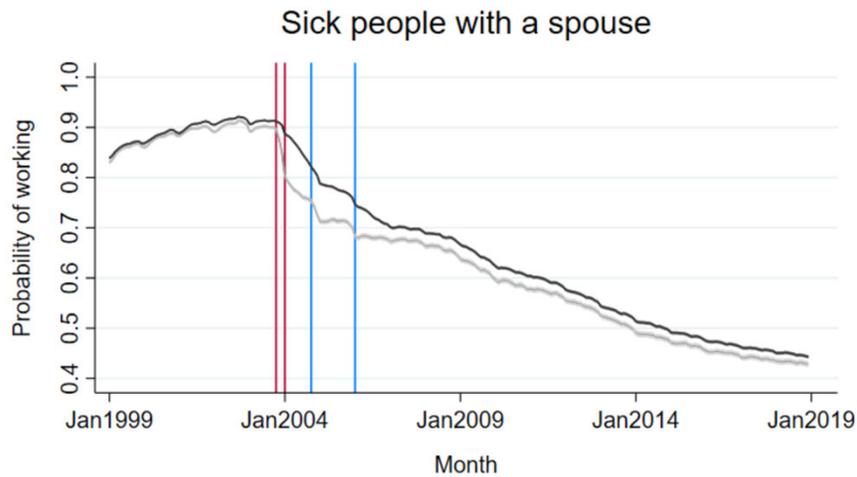
Effect of the reform on labor participation of sick individuals and their spouses – By the sick individual's work contract type

Linear model explaining the effect of the reform on labor participation of sick and healthy spouse by labor market status of the sick spouse

		Sick spouse on permanent contract	Sick spouse on temporary contract	Sick spouse unemployed
Sick spouse	Treated × Post	0.030*** (0.003)	0.013 (0.008)	-0.037*** (0.007)
Healthy spouse	Treated × Post	0.001 (0.003)	0.030*** (0.007)	0.016*** (0.006)
Observations		15,946,971	1,913,069	3,055,240
Individuals		87,183	10,523	16,778

Notes: ***, **, * denote statistical significance at 1, 5, 10 percent. SE (in parentheses) account for heteroskedasticity and clustering at the individual level. All specifications control for individual and calendar month fixed effects.

Effect of the reform on labor participation of sick people with a spouse and on that of sick people without a spouse



Effect of the reform on labor participation of sick people with a spouse and on that of sick people without a spouse – Baseline

Linear model explaining the effect of the reform on labor participation of the sick people with and without a spouse

	Sick people with a spouse	Sick people without a spouse
Treated × Post	0.025*** (0.002)	0.032*** (0.004)
Observations	20,915,280	11,024,209
Individuals	114,484	60,354

Notes: ***, **, * denote statistical significance at 1, 5, 10 percent. SE (in parentheses) account for heteroskedasticity and clustering at the individual level. All specifications control for individual and calendar month fixed effects.

Effect of the reform on labor participation of sick people with a spouse and on that of sick people without a spouse – By the sick individual's work contract type

Linear model explaining the effect of the reform on labor participation of sick people with and without a spouse by labor market status of sick people

		Permanent contract	Temporary contract	Unemployed
Sick people with a spouse	Treated × Post	0.030*** (0.003)	0.013 (0.008)	-0.037*** (0.007)
Sick people without a spouse	Treated × Post	0.030*** (0.004)	0.042*** (0.011)	-0.026*** (0.008)
Observations		7,084,331	1,233,905	2,095,138
Individuals		38,705	6,780	11,510

Notes: ***, **, * denote statistical significance at 1, 5, 10 percent. SE (in parentheses) account for heteroskedasticity and clustering at the individual level. All specifications control for individual and calendar month fixed effects.

Effect of the reform on labor participation of couples and on that of sick people without a spouse

Linear model explaining the effect of the reform on labor participation of couples and sick people without a spouse for full sample and by labor market status of sick people

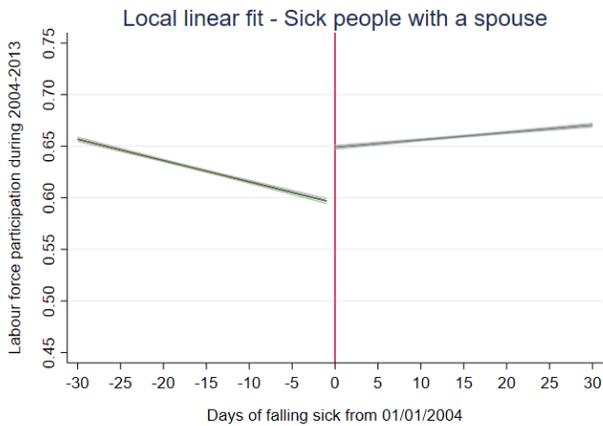
	Full sample	Permanent contract	Temporary contract	Unemployed
Sick people with a spouse	0.025*** (0.002)	0.030*** (0.003)	0.013 (0.008)	-0.037*** (0.007)
Healthy spouse	0.008*** (0.002)	0.001 (0.003)	0.030*** (0.007)	0.016*** (0.006)
Couples	0.033	0.031	0.043	-0.021
Sick people without a spouse	0.032*** (0.004)	0.030*** (0.004)	0.042*** (0.011)	-0.026*** (0.008)

Notes: ***, **, * denote statistical significance at 1, 5, 10 percent. SE (in parentheses) account for heteroskedasticity and clustering at the individual level. P-value in parentheses for Z-test.

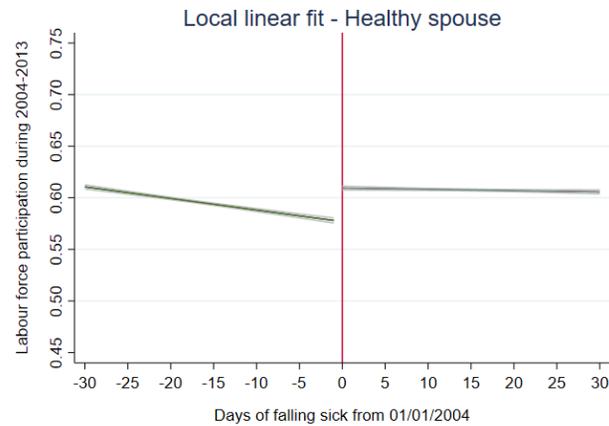
RD instead of DiD

Estimate of discontinuity at the reform day (1 January 2004) for sick people with a spouse, healthy spouse, and sick people without a spouse

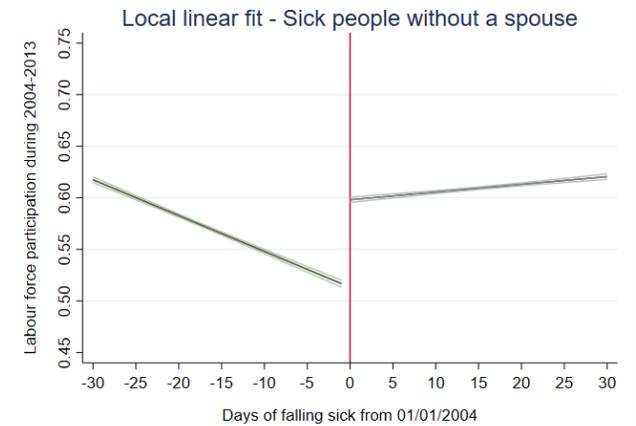
0.049*** (0.017)



0.033** (0.014)



0.072*** (0.018)



Conclusion

- Due to the reform, healthy spouses increased labor participation by 0.8 pp and sick people by 2.5 pp. Hence, around one fourth of the couples' response in terms of labor supply comes from the spouses.
- Sick people without a spouse increase labor participation by 3.2 pp. At the couple level the increase is 3.3 pp. These findings are consistent with the hypothesis that partners substitute for each other's labor supply.
- The impact of the reform is persistent in the long-run for both the sick and their spouses.
- Sick people who had a permanent contract increased labor participation (3.0 pp), while their spouses did not. On the other hand, sick people who had a temporary contract did not respond, while their spouses increased labor participation (3.0 pp).
- Spillover aspects on the spouse should be accounted for when evaluating the policy consequences of reforms: not only DI reforms but also the reform increasing the age of eligibility to state pensions (AOW). Workers approaching AOW eligibility are particularly vulnerable to health impairments limiting their ability to work until the higher AOW age.