

Back to work: Employment effects of tighter Disability Insurance eligibility in the Netherlands

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Content

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- 2 Institutional Context
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Motivation

Current debate

- DI program is overly generous
- Liberalization of the DI scheme has made eligible "subjective" health conditions



FIGURE: Share of current benefits per cause

⇒ **healthier** DI population (Duggan, 2015), retaining high capacity of employment

Motivation

- To which extent is this claim true ?
- If it is true, is tightening the eligibility criteria going to foster employment ?

Previous literature

Literature on work capacity and labor supply elasticity of DI recipients

- In general, sizable labor supply effects from DI
- Mainly, use labor supply of rejected applicants (Bound (1989), Watcher et al. (2011), Maestas et al. (2013), French et al. (2014))
 - Comparability of the groups ?
- Less look at the labor supply from these leaving DI (Borghans et al. (2014), Kostol et al. (2013)), Moore (2014))
 - Measure of residual capacity to supply labor

Literature on heterogeneity of labor supply response by diagnosis

- Lack of consensus on which diseases retain higher residual employment capacity

Approach

- Reform of the Dutch DI scheme entailing the reassessment of current claimants
 - Trend adjusted differences in differences (Bell et al. 1999)
 - Allows exploration of heterogeneous labor supply by age and diagnosis
- ⇒ Measure of retained employment capacity
- ⇒ Accurateness of administration's beliefs

Reform Under Analysis

- Evaluation of all claimants younger than 45 in July 2004 ⇒ **Eligible Group**
- Change in the eligibility criteria
 - More flexible evaluation of the jobs suitable for the claimants
 - Medical criteria left unchanged
- Reassessment from younger to older
- Political opposition made difficult the implementation of reassessments

TABLE: Outcomes of the reassessments

Outcome of the reassessment	Percentage
Higher DD	6%
Lower DD	12%
Unchanged DD	62%
Left DI (DD < 15%)	20%

Source : Uitvoeringsinstituut Werknemersverzekeringen (2009)

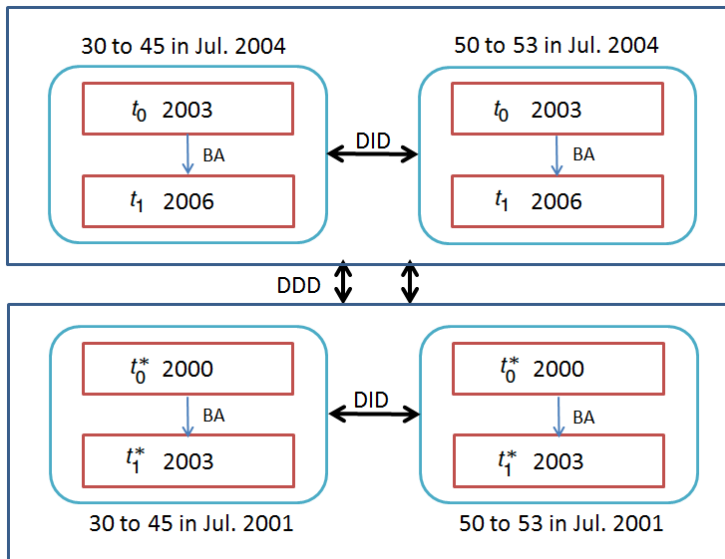
Criteria of the Reassessment

Detailed outcomes

Data

- Social Insurance records : all DI claimants from 2000 to 2006
- Matched with employment and demographic characteristics at the individual level (RIN-number)
- Selected as in DI initially, and followed thorough \Rightarrow **balanced panel**

Triple Differences : Illustration



Triple Differences : Model to be estimated

$$Y_{igt} = \kappa T_t + \delta D_g P_i T_t + \gamma_g m_t + \mu_i + \epsilon_{igt}$$

- Y_{igt} is the probability to be in DI or employment
- $P_i = 1$ for the groups followed from 2003 to 2006. **Period Dummy**
- $D_g = 1$ for those aged in between 30 to 45 both in 2001 and 2004. **Age Dummy**
- $T_t = 1$: **pre-/post-reform dummy**
- μ_i : individual unobservable term
- $\gamma_g m_t$: age specific linear time trend, with $m_{t+1} = m_t + 1$

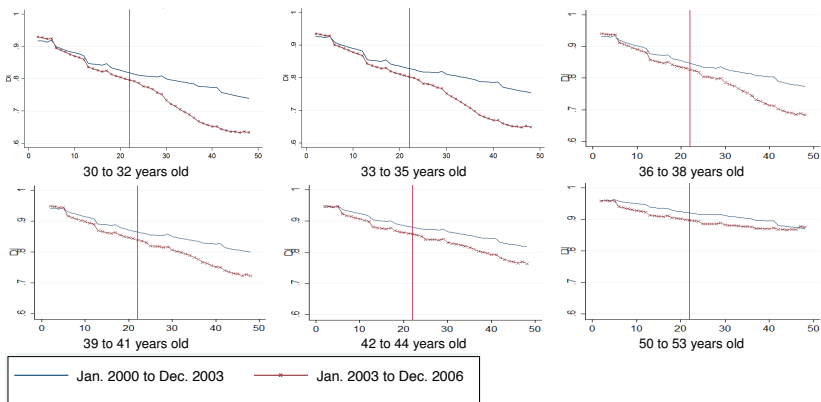
δ is the parameter of interest

Assumptions

$$[(\tilde{Y}_{it_1}^T - \tilde{Y}_{it_0}^T) - (\tilde{Y}_{it_1}^C - \tilde{Y}_{it_0}^C)] - [(\tilde{Y}_{it_1}^Y - \tilde{Y}_{it_0}^Y) - (\tilde{Y}_{it_1}^O - \tilde{Y}_{it_0}^O)] = \\ \delta + (\gamma_Y - \gamma_O)(m_{t_1} - m_{t_0}) - (\gamma_Y - \gamma_O)(m_{t_1}^* - m_{t_0}^*)$$

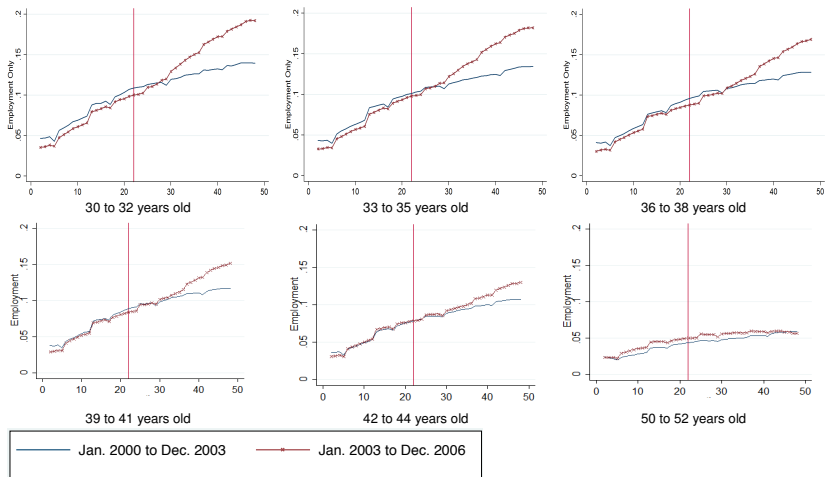
- 1 Same length of observation periods for all groups
- 2 Linear time trend for m_t that allows the comparison between groups from different periods
- 3 **Identifying Assumption** : No "cohort effects"

Graphical Analysis I



Probability to remain in DI

Graphical Analysis II



Probability to be Employed

Average Impact of the reform

$$Y_{igt} = \kappa T_t + \delta D_g P_i T_t + \gamma_1 \sum_{t=1}^3 time_t + \gamma_2 D_g \sum_{t=1}^3 time_t + \mu_i + \epsilon_{igt}$$

- With $time_t$ a yearly linear trend
- $T_t = 1$ for 2005 and 2006

Average Impact of the reform

TABLE: Effect of the reform by age. Yearly data.

Age Group	Estimates		
	DI	Employment	Individuals
30 to 32	-5.81*** (0.28)	5.59*** (0.25)	213486
33 to 35	-5.41*** (0.24)	4.99*** (0.21)	232406
36 to 38	-3.43*** (0.23)	4.03*** (0.19)	241618
39 to 41	-2.78*** (0.21)	3.09*** (0.18)	252936
42 to 44	-1.47*** (0.19)	1.84*** (0.16)	264035
Aggregate	-3.5*** (0.14)	3.66*** (0.12)	572229

Significance levels : *** 1%, ** 5%, * 10%.

Standard errors reported in parenthesis.

Estimates are from a linear probability model, x100

Estimation through *ID* fixed effects.

Clustered s.e. at the *ID* level.

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- Employment response outweighs DI response

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- Employment response outweighs DI response
- Potential bias of estimates
 - Overestimation of employment

Significance levels : *** 1%, ** 5%, * 10%.
 Standard errors reported in parenthesis.
 Estimates are from a linear probability model, x100
 Estimation through *ID* fixed effects.
 Clustered s.e. at the *ID* level.

Age Heterogeneity

TABLE: Effect of the reform by age. Monthly Data.

Age Group	Estimates		Individuals
	DI	Employment	
30 to 32	-7.06*** (0.25)	3.2*** (0.2)	213486
33 to 35	-6.6*** (0.2)	2.9*** (0.2)	232406
36 to 38	-4.8*** (0.2)	1.9*** (0.2)	241618
39 to 41	-3.8*** (0.2)	1.6*** (0.1)	252936
42 to 44	-2.2*** (0.2)	0.90*** (0.2)	264035

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Clustered s.e. at the individual level.

- Confirms potential bias from using yearly data
- Decreasing impact of the reform with age
- Increase in DI exit rate not one-to-one with employment increase

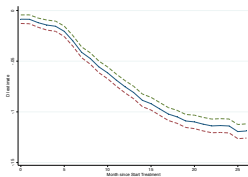
Age Heterogeneity. Flexible specification

$$Y_{igt} = \kappa \sum_{t \in R} time_t + \delta D_g P_i \sum_{t \in R} time_t + \gamma_1 \sum_{t=2}^{48} time_t + \gamma_2 D_g \sum_{t=2}^{48} time_t + \mu_i + \epsilon_{igt}$$

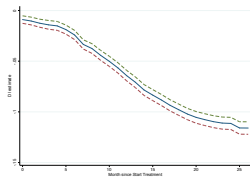
R contains the post-reform time periods

$time_t$ is a monthly linear trend

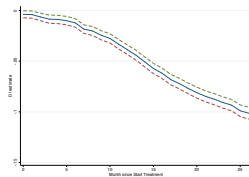
Age Heterogeneity. Flexible specification



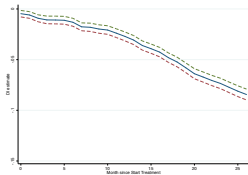
30 to 32 years old



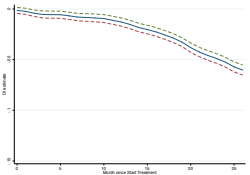
33 to 35 years old



36 to 38 years old



39 to 41 years old

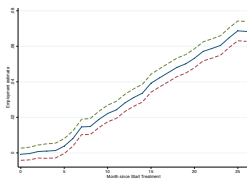


42 to 44 years old

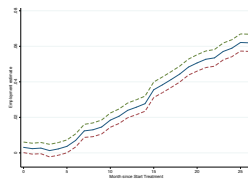
— Parameter estimate
 - - - 95% confidence limit

Flexible Specification Estimates : Probability to be in DI

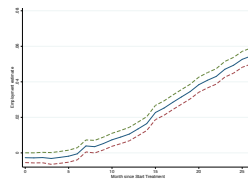
Age Heterogeneity. Flexible specification



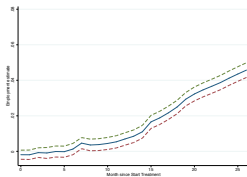
30 to 32 years old



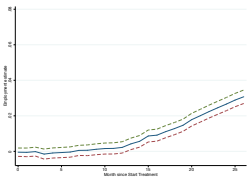
33 to 35 years old



36 to 38 years old



39 to 41 years old



42 to 44 years old

— Parameter estimate
 - - - 95% confidence limit

Flexible Specification Estimates : Probability to be Employed

Diagnosis Heterogeneity

	Endocrine	Cardio.	Musc.	Mental
DI	-3*** (0.3)	-2.12*** (0.78)	-7.06*** (0.25)	-4.4*** (0.2)
Employment	1.21*** (0.22)	1.16*** (0.56)	3.66*** (0.19)	1.78*** (0.15)
Observations	95353	15523	154720	258592

Significance levels : *** 1%, ** 5%, * 10%. Standard errors reported in parenthesis.

Estimates are from a linear probability model, x100.

Estimation through individual fixed effects. S.e. clustered at the individual level.

- Administration beliefs : musculoskeletal disorders retaining higher employment capacity
- Employment rates follow, but not the relative proportion
- Mental illness have the lowest relative employment

Robustness Check

Summary

- Sizable labor supply retained capacity
- But evidence of impediments to employment
 - 1 Error type II in the award of DI benefits
 - 2 Labor market frictions and discrimination faced by the disabled
 - 3 Low taste for work
- Even in the longer run, sizable gap between DI outflow and employment
- Musculoskeletal and mental disorders more affected by the reform...
- ... but not necessarily retaining higher employment capacity

Future research

- Dig deeper to identify the factors behind the gap
 - Health Status
 - Transition to other SS
- Analysis of employment at the intensive level

Thank you for your attention !

- Degree of Disability : determined by medical criteria and employment criteria

$$DD = 1 - \frac{\bar{\omega}}{\omega^p}$$

Level of Disability	Benefit as a % of the Daily Wage
0-15%	0
15-25%	14%
25-35%	21%
35-45%	28%
45-55%	35%
55-65%	42%
65-80%	50.75%
80-100%	70%

TABLE: Levels of Benefit

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New Employment Criteria

- Full time jobs for part-time applicants
- Jobs requiring the use of Dutch and computer skills
- Jobs involving night shifts
- maximal weekly hours worked to 38
- 3 instead of 10 highest paying suitable jobs were used to calculate the DD

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Detailed Outcome Reform (2005)

TABLE: Outcomes of the reassessments, detailed- End of 2005

Old Level	New disability level								
	< 15%	15 – 25%	25 – 35%	35 – 45%	45 – 55%	55 – 65%	65 – 80%	80 – 100%	unknown
15 – 25%	63.2	27.2	2.6	0.8	0.5	0.5	0.3	4.1	0.9
25 – 35%	42.2	21.2	26.0	2.7	1.3	0.7	0.5	5.0	0.5
35 – 45%	35.9	11.7	16.5	23.6	3.2	1.1	1.3	6.5	0.3
45 – 55%	36.2	5.4	6.7	8.9	26.8	2.9	1.9	10.9	0.3
55 – 65%	33.8	8.0	5.3	5.7	10.5	20.7	3.1	12.6	0.3
65 – 80%	24.4	7.1	7.1	6.7	7.0	9.7	20.8	16.8	0.3
80 – 100%	25.8	2.9	2.3	1.9	2.2	1.5	1.5	61.4	0.5
total	32.3	7.7	5.7	3.9	4.0	2.3	1.9	42.0	0.5

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Estimation through *ID* fixed effects. Clustered s.e. at the *ID* level.

TABLE: Placebo Reforms

	February	May	November
30 to 33			
DI	-0.05 (0.21)	0.012 (0.21)	-0.05 (0.18)
Employment	-0.173 (0.153)	-0.123 (0.148)	-0.86 (0.14)
33 to 36			
DI	0.09 (0.18)	0.17 (0.17)	0.04 (0.15)
Employment	-0.3* (0.15)	-0.1 (0.14)	-0.06 (0.15)
36 to 39			
DI	0.11 (0.17)	0.12 (0.16)	0.07 (0.14)
Employment	0.17 (0.14)	0.22 (0.13)	0.28 (0.136)
39 to 42			
DI	-0.12 (0.15)	-0.22 (0.15)	-0.08 (0.13)
Employment	-0.2 (0.13)	-0.2 (0.13)	-0.17 (0.12)
42 to 45			
DI	0.08 (0.14)	0.09 (0.14)	0.12 (0.12)
Employment	-0.01 (0.12)	0.01 (0.11)	-0.01 (0.117)

Significance levels : *** 1%, ** 5%, * 10%. Standard errors reported in parenthesis.

Estimates are from a linear probability model, x100.

Estimation of (10) of the year 2003 and setting the placebo reform in February, May and November of that year.

Estimation through individual fixed effects. S.e. clustered at the individual level.