THE IMPACT OF THE FRENCH LAW 1987 ON THE EMPLOYMENT OF DISABLED PEOPLE: AN EVALUATION BY THE TRIPLE DIFFERENCE METHODOLOGY

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OVERVIEW

- **Background and aim of the paper**

- **Literature**

- **Data**

- **Methodology**

- **Results**

- **Discussion**

BACKGROUND

- **In European countries**
  - Employment rate of disabled population is lower whatever the education level

    => *lower productivity ?*

    => *statistical or pure discrimination ?*

    => *problem of access to labour market or of early exit from labour market?*

  - In France, promotion of employment policies towards disabled people :

    => law of 1987

    => law of 2005

BACKGROUND

- Law of 1987
  - Legal quota of disabled workers in more than 20 employees companies (*hiring quota of 6% of disabled workers in total employment*)
  - Financial penalties for non-compliance
  - Focused on private sector but may have effects on public sector
  - Disabled people are :
    - eligible to the legal employment obligation
    - people whose disability is officially recognized
    - recipients of disability pension, victims of work injuries or professional diseases.

LITERATURE

- **Labour market supply side policies** tend to focus on the limitation of threshold effects and moral hazard problems due to disability insurance programs (*e.g.* Campolieti and Ridell, 2012).

- **Labour market demand side policies** are dedicated to the struggle against discrimination of disabled people (*e.g.* Acemoglu and Angrist, 2001; …)
  - either by using economic incentives such as deductions of employer's social security contributions (Vall Castello, 2012)
  - or by combining hiring quotas for disabled workers and financial penalties in case of non-compliance (Wagner et al., 2001; Lalive et al., 2013).

 + One French study (DARES, 2008)

AIM OF THE PAPER

- Goal : **to evaluate the impact of the 1987 Law on the employment of disabled people** by building a panel which allows for identifying the exact onset and length of disability.

- To comply with the perimeter of the law, we choose to rely on **two definitions of disability**:
    - **permanent disability** (more than one year);
    - **and officially recognised disability**.

- We use a **triple difference methodology with exact dynamic matching**
    - to disentangle the specific effect of the 1987 Law (before-after comparison);
    - by controlling for unobservable heterogeneities

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DATA ⬤ ◯ ◯ ◯ ◯

The SIP Survey

- Designed on the basis of a partnership between the Ministries of Health and Labour, with scientific support from the Center for Employment Studies.

- Implementation carried out by the National Institute of Statistics and Economic Studies.

- The first wave, in 2006:
  - Retrospective data
  - **14,000 persons aged between 20 and 74** and living in ordinary households in France
  - Information on their life paths (family, professional, and health status) and detailed description of these different dimensions at the time of the survey.

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DATA ●●○○○

- **The SIP Survey mainly aimed for 2 objectives:**

  1. **to better understand health determinants**, **by defining health status in regard with employment status and career path**

  2. **to measure the incidence of health status,** in a broad sense, on people's career paths, career risks and potential discriminations they may know.

DATA ●●●○○

Outcome variables

- **Employment status of individuals at the date t : *employment, decomposed in public/private (up to 5 years after people's disability onset)*** *=> Decomposition between public and private employment motivated by the differences in the context of professional integration of disabled people.*

- We keep 19 years of data before and after 1987 and thus consider the following two sub-periods: 1968-1986, 1988-2006.

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Treatment Variables

○ The SIP only includes self-reported variables

=> we focus on two definitions of disability

- a ***broad definition***: **the first permanent disability** (over one year) which is likely to justify more or less the recognition of disability **(**N = 507) We exclude individuals whose evaluation period overlaps 1987 **=> *N = 419.***

- a ***more restrictive definition:* the first recognized disability** *i.e.* officially recognized disabilities or disabilities having resulted in a partial or total inability layout (N = ***324)***

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Matching variables

- ***Time-constant variables***
  - Gender;
  - Level of education (three levels);
  - Date of birth (maximal distance of three years with twins);
  - Living conditions during childhood: whether having been raised by one's parents, having encountered problems either individual (trauma, hard living conditions...) or affecting a relative (death of a family member,...).

- ***Variables that may vary over time***
  - *Labour market status before disability onset;*
  - *Types of labour contract before disability onset:*
    - permanent versus fixed-term contract
    - and part-time job versus full-time job

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METHODOLOGY ● ○

- *A before-after comparison controlling for the potential change in the distribution of some observable characteristics between both periods:*

  - First step: **Triple difference method** that compares the situations after and before disability onset in the treated and not treated groups after and before 1987.

  - Second step: **Correction of the confounding impact** of a change in the distribution of three observable variables: gender, level of education, age at disability onset.

    => 2 kinds of evaluation:
    - the effect of the reform for a population with the before-reform distribution of our three variables;
    - the effect of the reform for a population with a post-reform distribution of our three variables.

METHODOLOGY ● ●

○ An **exact dynamic matching**

=> comparison between disabled people and their "twins" who never experienced a disability at the date of disability onset of their match.

○ These techniques allows to eliminate:

- some forms of correlated unobservable heterogeneity (time-related and individual);
- the effect of the observable heterogeneity (Duguet and Le Clainche, 2014).
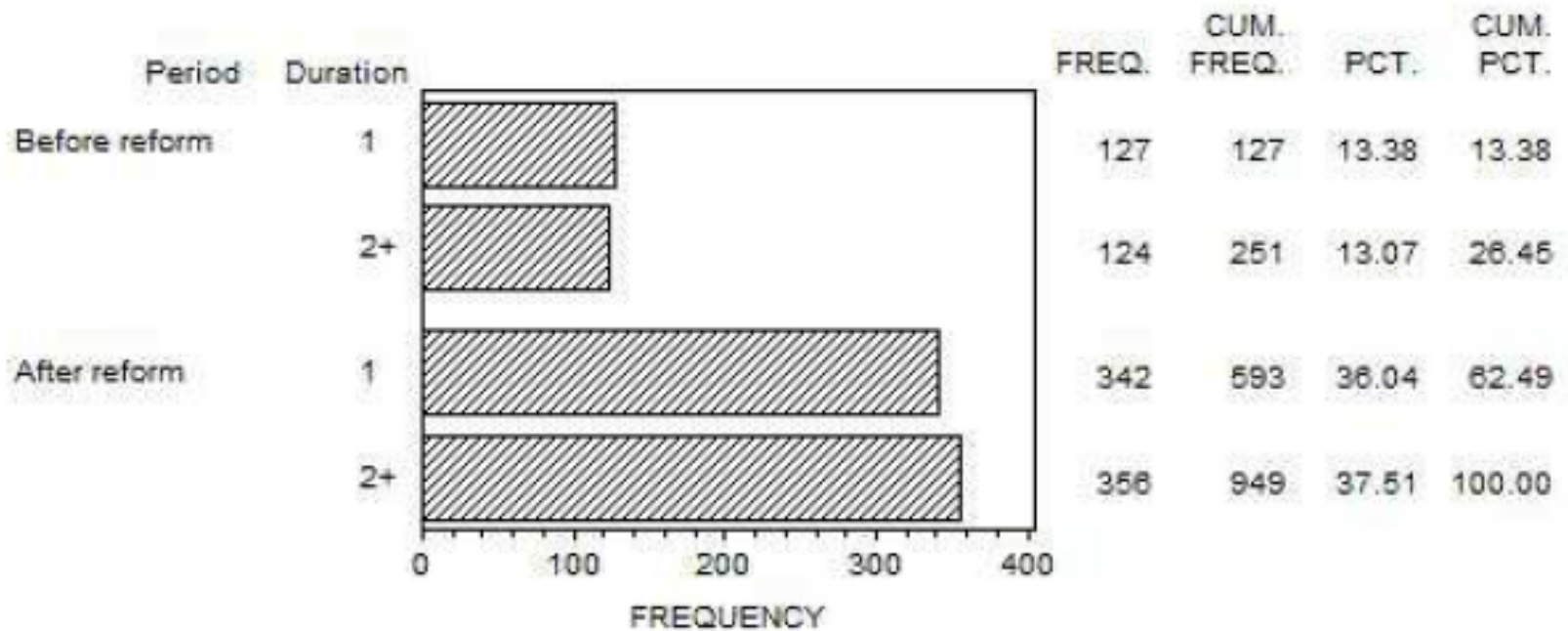
RESULTS ●○○○○○

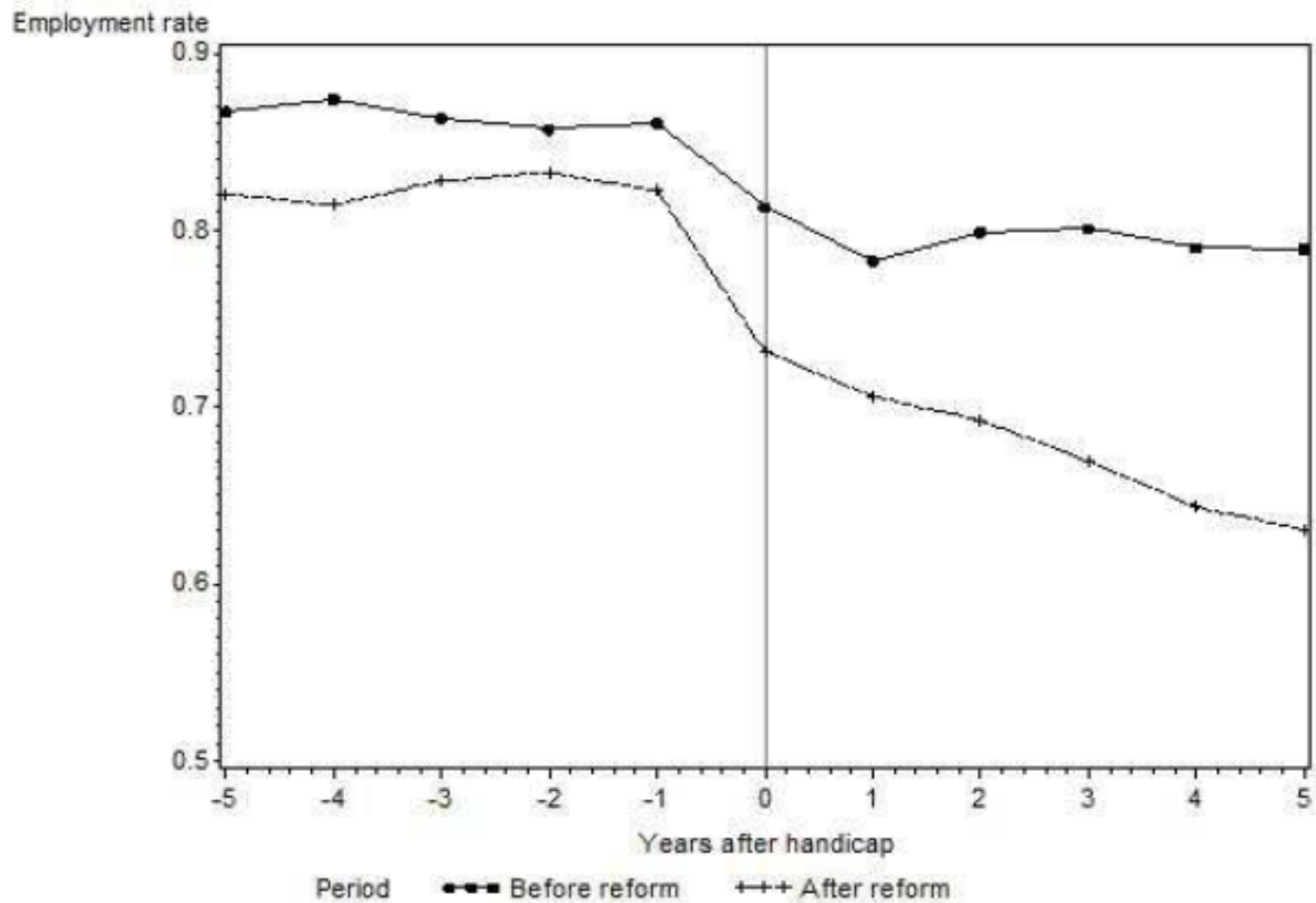Table 1: Sample structure variation between 1968-1986 and 2006-1988

The weights are given for the evaluation between $t_i + 1$ and $t_i - 1$.

Variables	1968-1986	1988-2006	Difference
Disability: Global			
Women	41.2%	52.2%	11.0%
Primary education	37.3%	23.3%	-13.9%
Secondary education	41.2%	44.6%	3.4%
Higher education	21.6%	32.1%	10.6%
More than 30 at handicap	55.9%	81.0%	25.1%
Disability: More than one year			
Women	60.5%	57.0%	-3.6%
Primary education	40.4%	30.5%	-9.9%
Secondary education	37.7%	39.4%	1.7%
Higher education	21.9%	30.1%	8.2%
More than 30 at handicap	59.7%	88.1%	28.4%
Disability: Recognized			
Women	27.6%	52.1%	24.5%
Primary education	40.2%	24.7%	-15.6%
Secondary education	43.7%	46.1%	2.4%
Higher education	16.1%	29.3%	13.2%
More than 30 at handicap	56.3%	81.9%	25.5%

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RESULTS ●●○○○○

Period	Duration	FREQ.	CUM. FREQ.	PCT.	CUM. PCT.
Before reform	1	127	127	13.38	13.38
	2+	124	251	13.07	26.45
After reform	1	342	593	36.04	62.49
	2+	356	949	37.51	100.00

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RESULTS ⬤ ⬤ ⬤ ○ ○ ○

The estimators are re-weighted. The weights are computed according to the joint distribution of gender, education (3 levels) and the age at handicap (2 classes). *: significant at 5%. †: significant at 10%.

Time	Variable	$\hat{\gamma}(1)$ After	$\hat{\gamma}(0)$ Before	$\hat{\gamma}(1) - \hat{\gamma}(0)$ Difference	$\hat{\delta}(0)$ Structure	$\hat{\rho}(0)$ Reform	$\hat{\delta}(1)$ Structure	$\hat{\rho}(1)$ Reform
				Disability: More then one year				
t_l+1	Employment	-17.9%*	-9.5%*	-8.5%*	-2.4%*	-6.1%	1.6%	-10.1%*
	Student	7.40	3.03	2.14	2.19	1.59	0.86	2.69
	Private	-15.5%*	-8.1%*	-7.4%†	-2.7%*	-4.7%	0.6%	-8.0%*
	Student	6.70	2.63	1.94	2.75	1.29	0.33	2.20
	Public	-2.4%*	-1.4%	-1.0%	0.3%	-1.4%	1.0%	-2.0%†
	Student	2.51	1.44	0.76	0.53	0.96	1.47	1.84
t_l+2	Employment	-21.0%*	-7.9%*	-13.1%*	-2.5%*	-10.7%*	1.0%	-14.1%*
	Student	8.05	2.27	3.01	2.09	2.57	0.43	3.26
	Private	-18.9%*	-5.9%†	-13.0%*	-3.0%*	-10.1%*	-0.6%	-12.5%*
	Student	7.45	1.72	3.06	2.64	2.49	0.25	2.93
	Public	-2.1%†	-2.0%†	-0.1%	0.5%	-0.6%	1.5%*	-1.6%
	Student	1.75	1.89	0.05	0.71	0.34	2.06	1.20
t_l+3	Employment	-24.2%*	-5.7%	-18.5%*	-9.9%*	-8.6%†	0.0%	-18.5%*
	Student	8.67	1.39	3.73	4.91	1.68	0.00	3.44
	Private	-21.9%*	-4.8%	-17.1%*	-10.9%*	-6.2%	-0.6%	-16.5%*
	Student	8.09	1.26	3.67	5.69	1.30	0.26	3.57
	Public	-2.3%†	-1.0%	-1.4%	1.0%	-2.4%	0.6%	-2.0%
	Student	1.75	0.41	0.51	1.38	0.87	0.37	0.67

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RESULTS ●●●●●●○

The estimators are re-weighted. The weights are computed according to the joint distribution of gender, education (3 levels) and the age at handicap (2 classes). *: significant at 5%. †: significant at 10%.

Time	Variable	$\hat{\gamma}(1)$ After	$\hat{\gamma}(0)$ Before	$\hat{\gamma}(1)-\hat{\gamma}(0)$ Difference	$\hat{\delta}(0)$ Structure	$\hat{\rho}(0)$ Reform	$\hat{\delta}(1)$ Structure	$\hat{\rho}(1)$ Reform
		Disability: Recognized						
t_l+1	Employment	-22.5%*	-13.3%*	-9.2%†	2.2%	-11.4%	0.8%	-10.0%†
	Student	7.28	3.09	1.73	0.46	1.56	0.27	1.65
	Private	-20.5%*	-13.4%*	-7.1%	3.2%	-10.3%	1.5%	-8.6%
	Student	6.92	2.89	1.29	0.68	1.38	0.45	1.45
	Public	-2.0%†	0.1%	-2.1%	-1.0%	-1.1%	-0.7%	-1.4%
	Student	1.65	0.03	0.74	1.30	0.37	0.36	0.86
t_l+2	Employment	-27.2%*	-12.3%*	-14.8%*	-1.8%	-13.1%†	2.8%	-17.6%*
	Student	8.09	2.83	2.70	0.36	1.74	0.98	2.95
	Private	-24.0%*	-13.7%*	-10.2%†	0.8%	-11.0%	3.7%	-13.9%*
	Student	7.28	2.79	1.73	0.15	1.39	1.13	2.36
	Public	-3.2%*	1.4%	-4.6%	-2.6%*	-2.1%	-0.9%	-3.7%*
	Student	2.18	0.49	1.42	2.22	0.60	0.43	1.97
t_l+3	Employment	-31.8%*	-10.9%*	-20.8%*	-1.2%	-19.6%*	0.1%	-20.9%*
	Student	9.06	2.24	3.47	0.21	2.33	0.02	2.66
	Private	-28.6%*	-12.6%*	-16.0%*	1.4%	-17.4%*	0.8%	-16.8%*
	Student	8.41	2.34	2.52	0.24	2.00	0.19	2.47
	Public	-3.1%†	1.7%	-4.8%	-2.6%*	-2.2%	-0.7%	-4.1%
	Student	1.82	0.42	1.11	2.21	0.49	0.24	0.93

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RESULTS ●●●●●●

- We find that the direct comparison is often fairly close to the correct reform evaluation => quite weak impact of the change in the distribution of main observable variables

- Against a priori intuitions, *our results even seem to indicate that the potential beneficiaries of the law of 1987 have been disadvantaged* on the labour market compared to disabled people who did not benefit from it. *But only for the private sector.*

- Besides, *this disadvantage seems to become more accentuated over time:* *e.g.* from −10% after one year, to −20.9% after three years for officially recognized disability.

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DISCUSSION ● ○ ○

○ Concerning the difference of impact between the public and private sector, it could be due to:

- The scope of the law: no "spillover effects";
- The fact that the public sector is more protective against disability than the private sector.

○ Private firms' reaction seems binary: *either a weak disposition to hire disabled* people or *a preference for the payment of a financial compensation.*

- *E.g.* in 2005, approximately 100 000 establishments had to comply with the OETH, among which 31.1 % directly employed disabled people and 27 % paid the financial contribution (Dares, 2008).

DISCUSSION ● ● ○

○ *Firms' behaviours do not seem to have been influenced by economic incentives on the right way*.

=> The introduction of a ***tax:***

● ***reveals information in situation of uncertainty ?*** (Gneezy and Rustichini, 2000);

● ***creates a market-oriented frame*** *in which the moral obligation (to hire handicapped people) is replaced by a financial compensation*

Tax regarded as the price to be paid by firms to the community to escape their social role of integrating in the labour market persons with disabilities who are costly for them (loss of productivity, cost of job or workplace arrangements…).

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DISCUSSION ● ● ●

- *Difficulty to disentangle whether the impact of disability on labour market status comes from the* supply-side or demand side of the labour market.

  => an interpretation in terms of non employment trap is possible: being officially recognized as disabled may provide better financial compensation than the situation of employment and generate disincentives to work.

- *But our study cannot estimate this effect.*

  => A next step would be :
    - to compare the income of activity relatively to transfer incomes of disabled workers over the studied period ;
    - to estimate whether the allowances for disabled workers have raised between before and after the 1987 Law.

THANKS FOR YOUR ATTENTION !

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