Revisiting the Employment Effects of the Americans with Disabilities Act

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- Root of academic, policy and judicial debate: although ADA, especially accomm'n mandate, benefits *all*
  - its burden imposes costs *only on firms*

Existing Evidence on Employment Effects

- Given salience of this debate: over the years large literature has developed
  - to assess impact of ADA on employment (mostly, and wages) of workers with disabilities

- Consensus so far has been ADA has had negative effects on employment of disabled workers
  - as documented by Acemoglu and Angrist (2001) (AA) and DeLeire (2000, 2003)
  - and summarized by Monthly Labor Review of BLS in November 2008 which concluded
    "*[ADA] may have reduced employment for those with disabilities*"

- This adverse effect has been attributed to unintended consequences of policy
  - simply put: anticipated costs of accommodation and of litigating claims of wrongful employment termination
  - have ended up discouraging firms from hiring individuals with disabilities

Starting Point of Our Analysis: Who Is a Disabled Worker?

- Although scope of policy very broad, ADA was meant to provide work incentives
  - only to those disabled still able to work: by design it was *not* supposed to stimulate employment of *all* disabled workers

- However, focus of literature so far has been *only on individuals with work disabilities*
  - consistently surveyed in various US data and identified in response to the question: "*Do you have a ...*"
  - "*health problem or disability which prevents you from working or limits the kind or amount of work you can do?*" (CPS)
  - "*physical, mental, or other health condition that limits the amount or kind of work you can do?*" (SIPP)

- Yet many have disabilities that while protected by ADA, do not necessarily limit or prevent work
  - impact of ADA on those with non-work disabilities, though, has not been much studied at all (Kruse and Schur, 2003)
  - in fact they have been considered as *non-disabled and so part of "control" population* in existing work

What We Do: Work vs. Non-Work Disability

- In paper make two simple points: one empirical (group studied) and one conceptual (interpretative lens)

- Empirically, literature has effectively considered individuals like Stephen Hawking as *non-disabled*
  - most accomplished physicist who was able to produce brilliant work *once accommodated*
  - although he was severely physically limited (amyotrophic lateral sclerosis) so he was not WD but rather NWD
  - couldn't ADA have helped individuals who are limited but not in their work? Yes, it did *once you look at them*
  - e.g. worker on wheelchair in job moving furniture (WD) vs. call center (NWD): ADA helped second *not* in usual samples

- Conceptually, literature has mostly interpreted ADA from viewpoint of static frictionless labor markets
  - whereby imposing costs on firms *can only decrease E*: but labor mkts for the disabled may be frictional
  - also E-relationships are long-lasting so that when firms face hiring and dismissal costs as those ADA imposed
  - they are ex ante less likely to hire workers but ex post less likely to fire so E can very well ↑: we find this is case for NWD

To Summarize: Paper Goal and Main Results

- Goal: revisit evidence on impact of ADA on E and w of individuals with disabilities by examining
  - *much longer period* and *much larger group* of work- and *non-work disabled* than previously studied

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    - i.e. employment of individuals with non-work disabilities has increased with almost no effects on wages

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- We propose framework that reconciles all evidence with standard intuition on how *frictional* labor mkts work
  - idea missing from literature: costly job creation does depress hiring but critically discourages job destruction
  - if rate at which jobs are destroyed ↓ by more than rate at which jobs are created, *E increases*: we documnet so for NWD

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- What went wrong for WD? Find issue is equal-pay not accomm'n requirement
  - even w/o any subsidy, their E would have ↓ *much less* had equal-pay provision allowed greater w-flexibility
  - reason: this *strong form of no-discrim.* has prevented efficient pass-through of accomm'n costs to wages

Plan for Rest of Talk

- Provide some background about ADA and data we use

- Document employment and wage responses to ADA for the different groups of disabled we consider

- Discuss the robustness of our findings and their extensions

- Present the model we propose to interpret them and its estimates

- Evaluate the importance of each component of the policy (in progress: its optimality)

Background About ADA and Data

ADA: Requirements

- Signed into law in July 1990 and come into effect in July 1992, ADA consists of three main components
  - accommodation mandate to allow the disabled to participate in output mkts as consumers/labor mkts as workers
  - no-discrimination clause in form of an "equal price" and "equal pay" criterion
  - tax subsidies and incentives to support employment of individuals with disability

- In labor mkt context, law imposes on firms broad obligation of *reasonable accommodation*
  - by making facilities accessible, providing PT/modified work schedules, acquiring or modifying existing equipment, etc.
  - so as to grant individuals with disabilities an equal opportunity not only to *become employed*
  - but also to *successfully perform their job tasks* to same extent as individuals without disabilities can
  - yet firms do *not* have an obligation to provide any accommodation that imposes "undue hardship"

- No-discrimination clause is other main requirement
  - prescribes that job offers and wages cannot depend on a worker's health
  - entails administrative and other costs of hiring and terminating an employment relationship with a disabled worker

Data Description

- In our empirical analysis we use SIPP: large longitudinal survey conducted by US Census since 1984
  - consisting of representative sample of households interviewed every four months
  - our main sample focuses on years 1986-2013 for total of more than 15M person-month observations

- The survey is organized into distinct *panels* that comprise both *core* and *topical* modules
  - with latter designed to gather specific information on selected topics of interest
  - e.g. "functional limitations and disability," "work disability history" and "health status" modules we use
    * provide detailed information on work and non-work limitations of sampled individuals
    * *unlike CPS* used by AA that only allows to construct binary indicator for work-related disability alone

Definitions of Disability

- Following literature, we classify individuals as self-reported work disabled (WD) if
  - suffer from limitations to "kind or amount of work" they can do i.e. if answer "yes" to the question:
    "Do you have a physical, mental, or other health condition that limits the amount or kind of work you can do?"

- We define as non-work disabled (NWD) those who answer "no" to this question but report other disabilities
  - at least two limitations in ADL (e.g. taking bath or shower, dressing or eating)
  - any physical or sensory functional disability (to walking, seeing, hearing, speaking, etc.)
  - limitations in the "kind or amount of work around the house" they can do
  - mental health limitations from either cognitive or non-cognitive conditions such as
    * learning (e.g. dyslexia), developmental (e.g. autism) or intellectual disability
    * depression or anxiety, difficulty "making/keeping friendship," coping "with daily stress," and others

- Whereas first type of limitations sampled since the beginning of SIPP, the remaining were added in 1990

Shares w/ or w/out Disabilities
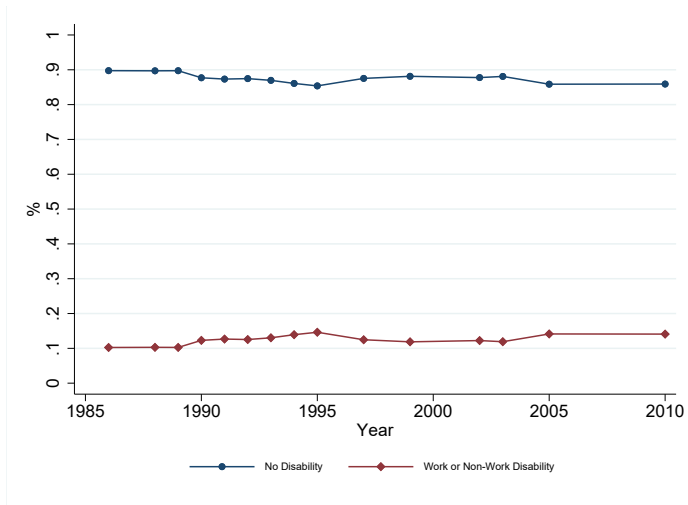
Shares of individuals w/ disabilities (red) and w/o disabilities (blue) have been remarkably constant over time

Zooming in on Individuals with Disabilities
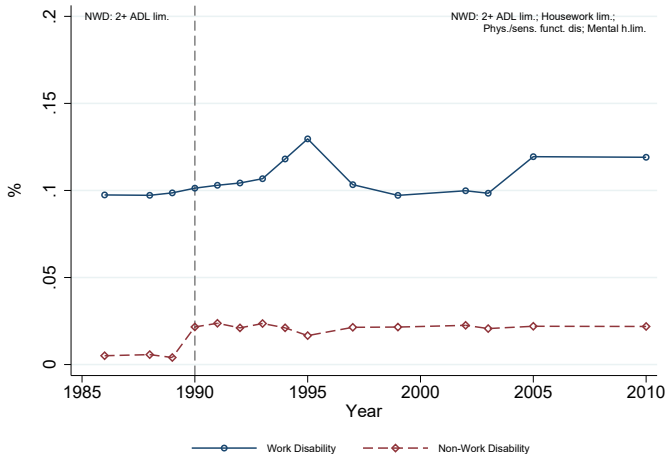
Proportion of *each group* has similarly been quite stable (although in 1990 and 1996 questions on disabilities added)

Demographic Statistics About Disabled Pre ADA

	(1) No Disability	(2) Work Disability	(3) Non-Work Disability
Employed	0.81	0.46	0.60
Weekly Salary (empl.)	464.92	360.60	411.12
Hourly Wage (empl.)	11.37	9.49	10.20
Age	36.81	41.66	39.28
White	0.86	0.83	0.85
Black	0.11	0.15	0.13
College educated	0.51	0.33	0.41
Male	0.49	0.50	0.40
Married	0.65	0.54	0.57

Relative to WD, NWD are more likely to be employed, earn higher wages, younger, college educated and female

Employment and Wage Responses to ADA

Measuring Employment and Wage Effects of ADA

- We follow Acemoglu and Angrist (2001)
  - who measure impact of ADA on employment (and wages) of disabled workers via DiD estimation approach
  - using observations on individuals (i) aged 21 to 58

$$y_{it} = x'_{it}\beta_1 + \beta_2 \text{Post-ADA}_{it} + \sum_j \beta_3^j d_{it}^j + \sum_j \beta_4^j (\text{Post-ADA}_{it} \times d_{it}^j) + \varepsilon_{it}$$

- In this specification, estimated first jointly for men and women and then separately for each group, notation is as follows
  - y_{it}: indicator variable for working at least one week in a month
  - x_{it}: set of controls that include year effects
  - d_{it}^j: dummies for each disability group j
  - main effect of interest captured β_4^j: in event-study version of this specification, allow β_4^j to *vary over time*

- Impact of ADA is measured by how E of disabled has changed between years *preceding* ADA and years *following* it
  - like AA we interpret 1991 as year of the "event" (implementation of ADA) and 1992 as first year post reform

Replicating and Extending Previous Findings

- We proceed by first repeating AA analysis
  - we choose their same sample selection rules
  - we define as *disabled* all those reporting a work disability
  - therefore assume all those with a *non-work disability* are *not disabled* and so part of the control population

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- When doing so, we confirm AA results and extend them to more recent period: we find that ADA has had
  - significant negative impact on employment of WD and this effect becomes more negative over time

	(1) CPS 1987-1996	(2) SIPP 1986-1997	(3) SIPP 1986-2010
Work Disability	-0.390***	-0.306***	-0.306***
	(0.002)	(0.004)	(0.004)
After 1991	0.024*	0.022	-0.019
	(0.010)	(0.013)	(0.012)
Work Disability × After 1991	-0.044***	-0.042***	-0.119***
	(0.003)	(0.006)	(0.004)

Controls: Year dummies, age dummies, race dummies, education dummies, region dummies and interaction of year dummies with age, race, education, and region dummies.

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- But what happens once we isolate the NWD by separating them from the non-disabled?

Considering a Broader Disability Group

- We redefine as disabled all those with a work or a non-work disability who are both (potentially) covered by ADA

- Once account for presence of NWD, effect of ADA on employment of the disabled becomes much less negative

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| | SIPP, 1986-2010 | |
	Narrow Definition of Disability	Broader Definition of Disability
Disability	-0.306***	-0.295***
	(0.004)	(0.004)
After 1991	-0.019	-0.027**
	(0.012)	(0.012)
Disability × After 1991	-0.119***	-0.069***
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- In fact, negative effect is now *half as large* which implies impact of ADA on *E* of NWD must have been positive

- Show you indeed the case once examine impact of ADA on *E* of these two groups of disabled *separately*

	All	Men	Women
Work D.	-0.311***	-0.346***	-0.280***
	(0.004)	(0.004)	(0.006)
Non-Work D. Only	-0.187***	-0.181***	-0.164***
	(0.009)	(0.012)	(0.013)
After 1991	-0.022*	0.019	-0.044**
	(0.012)	(0.020)	(0.019)
Work D. × After 1991	-0.116***	-0.114***	-0.111***
	(0.004)	(0.005)	(0.007)
Non-Work D. Only × After 1991	0.123***	0.124***	0.117***
	(0.011)	(0.014)	(0.015)
N	401,899	191,677	210,222

Controls: Year dummies, Age dummies, Race dummies, Education dummies, Region dummies, and interaction of year dummies with age, race, education, and region dummies.

Literature has missed: positive effect of ADA on E of NWD (same magnitude in a.v. and very similar across m/w)

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ADA did not back fire: it had effects of *opposite* sign on employment of different groups of disabled

Job-Finding and Job-Separation Rates

- To shed light on origins of these opposite E effects for the two disabled groups of interest

- We exploit panel dimension of SIPP to calculate monthly job-finding and job-separation rates

	Job-Finding Rates				Job-Separation Rates			
	Before	Diff.	After	Diff.-in-Diff.	Before	Diff.	After	Diff.-in-Diff.
No D	0.077	0.010	0.086		0.008	-0.001	0.006	
	(0.013)	(0.014)	(0.004)		(0.001)	(0.001)	(0.000)	
WD	0.027	-0.004	0.023	-0.014	0.015	0.007	0.022	0.008
	(0.011)	(0.011)	(0.002)	(0.018)	(0.007)	(0.007)	(0.003)	(0.007)
NWD	0.042	0.034	0.076	0.025	0.011	-0.005	0.006	-0.004
	(0.041)	(0.045)	(0.020)	(0.047)	(0.011)	(0.011)	(0.002)	(0.011)

- The negative effect of ADA on E of WD is associated with ↓ in JF and ↑ in JS rates

- The positive effect of ADA on E of NWD is associated with ↑ in JF and ↓ in JS rates

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- What about impact of ADA on *wages* of these two groups of workers?

	All	Men	Women
Work D.	-0.208***	-0.224	-0.210***
	(0.009)	(0.012)	(0.013)
Non-Work D. Only	-0.106***	-0.104***	-0.054**
	(0.020)	(0.029)	(0.026)
After 1991	-0.127***	-0.133***	-0.052
	(0.026)	(0.046)	(0.039)
Work D. $\times$ After 1991	-0.066***	-0.088**	-0.022
	(0.011)	(0.015)	(0.016)
Non-Work D. Only $\times$ After 1991	-0.026	-0.032	-0.033
	(0.022)	(0.033)	(0.029)
N	268,911	138,041	130,870

Controls: Year dummies, Age dummies, Race dummies, Education dummies, Region dummies, and interaction of year dummies with age, race, education, and region dummies.

ADA has had negative effect on w of WD but relatively muted on w of NWD (comparable across m/w for NWD)

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All E and w estimates treat *post-ADA years as single period* so may mask important variation in E and w over time

Event-Study Evidence on Employment
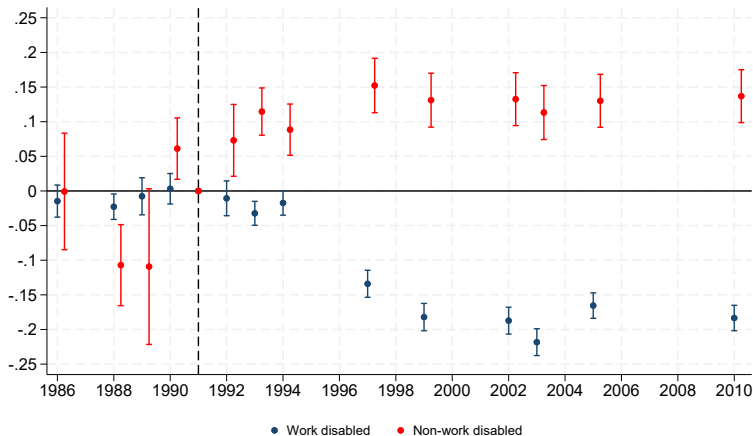
Confirms ADA had persistent opposite impacts on E of WD (more < 0) and NWD (more > 0) over t ⓜ ⓦ

Event-Study Evidence on Hourly Wages

● Work disabled   ● Non-work disabled
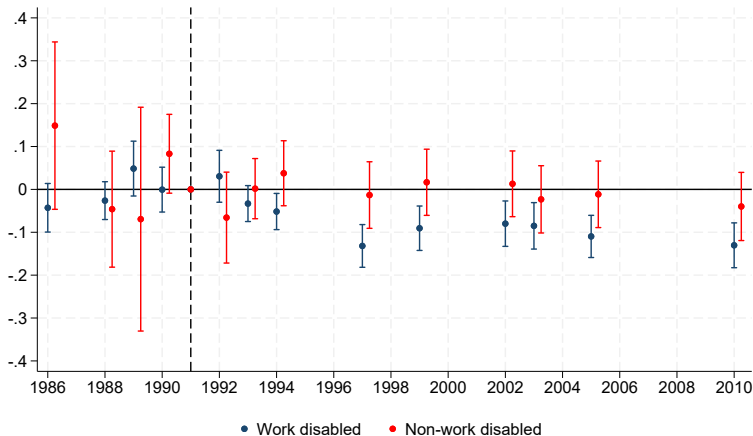
Reaffirms ADA has had *persistent negative effects* on w of WD but *almost no effects* on w of NWD

Robustness and Extensions

- First verify similar effects arise according to *less conservative* or *more conservative* definition of disability
  - consider *more expansive definition* of NWD that includes answers to questions introduced in SIPP 1996
  - examine *less expansive* definition of NWD using only info from 1986-2010 consistent questions (2+ ADL)

- Then present suggestive evidence that ADA did not change disability reporting patterns
  - because of either "stigma removal" or "receiving job accommodations" (we test and *fail to reject* these HPs) evidence

- Finally examine differences in intensive margin of E for the two groups of disabled: find that post ADA
  - on average the WD work 0.48 *fewer weeks* whereas the NWD work 0.54 *more weeks*
  - the WD are more likely to work part time and fewer hours but *no clear trend among the NWD*

Model

What Is Natural Framework for These Employment and Wage Responses?

- Just saw that for WD: job-creation rates ↓ and job-separation rates ↑ post ADA
  - NWD *experienced opposite patterns*: job-creation rates ↑ and job-separation rates ↓ post ADA

- Search model with endogenous JC and JS would easily imply that E should ↓ for WD and ↑ for NWD
  - but for w of the NWD *not to increase* as their E ↑, some job and worker reallocation must have taken place
  - i.e. newly created jobs must be of lower quality o.w. wages would have increased for NWD
    - so natural questions: what induced firms and workers to form lower-quality matches (jobs paying lower w)?
    - do we see such employment reallocation in data post ADA? Yes

- Formalize these ideas to shed light on workings of policy, examine role of components and assess optimality
  - show this reallocation predicted by model as underlying observed responses of E and w is *validated* by data

- In the model, firms are ex-ante homogeneous and incur costs to creating and destroying jobs
  - jobs can have *high or low skill requirements*
  - their productivity is idiosyncratic but persistent over time for given firm-worker match

- Workers are ex-ante heterogeneous: differ in disability status $d = \{$ND, WD, NWD$\}$ and productive skills s
  - can be unemployed or employed in either "low-skill" or "high-skill" jobs

- We allow for directed search by disability group so that labor mkts are segmented by workers' type of disability
  - but let search be undirected within each such submarket

- Wages are determined by Nash bargaining with γ denoting a worker's bargaining weight

Firms

- Firms create jobs by posting vacancies in submarkets defined by
  - the technology $j = \{H, L\}$ used to produce output and worker disability $d = \{ND, WD, NWD\}$

- Firms incur fixed costs to
  - posting a vacancy: k_j
  - hiring WD/NWD: k_d^{FIX} is additional fixed hiring cost if worker accommodated (e.g. for equipment purchases)
  - employing WD/NWD: k_d^{FLOW} is flow cost of accomm'n (e.g. for flexible hours or modified work schedules)
  - separating from WD/NWD: $\mathbb{E}[k_d^{\text{SEP}}]$ is expected separation cost imposed after ADA introduced

- Output of technology j with worker of disability d, skill level s, match-specific prod. ε and acco'n $a = \{0, 1\}$

$$f_j(s, \varepsilon, d, a) = \begin{cases} (\phi_{0,j} + \phi_{1,j}s)\,\varepsilon & \text{if } d = ND \\ (\phi_{0,j} + \phi_{1,j}s)\,\varepsilon \times \phi_d\,[e_d + (1 - e_d)\,a] & \text{if } d \neq ND \end{cases}$$

- Disabled workers who are *not* accommodated have efficiency units of labor $e_d < 1$
  - $\phi_d < 1$ so that accomm'n does not fully restore efficiency units of disabled workers ($e_{ND} = 1$ and $\phi_{ND} = 1$)

# How to Discipline Hiring Costs From Job Accommodations?

- Obtain estimates of distribution of fixed cost k_d^{FIX} from JAN (Job Accommodation Network) (example)
  - of US Dept of Labor's Office of Disability Employment Policy (ODEP): provides list of suggested accomm'n products
  - w/ direct links to products' vendors, prices and specifications
  - since info available separately by condition, able to match with SIPP respondents reporting each specific limitation
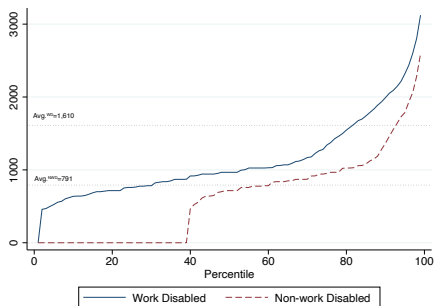
- When estimate distribution of such costs by d-group: find *higher* for WD than for NWD (figure)

- Obtain estimates of distribution of $\mathbb{E}[k_d^{\text{SEP}}]$ for the disabled from EEOC
  - which provides info about the claims of unlawful employment termination filed within it
  - in particular, it reports no. of cases of wrongful dismissal concluded with a "merit resolution" (about 20% of all)
  - publishes corresponding monetary awards *separately* by disability condition (we match it with SIPP respondents)
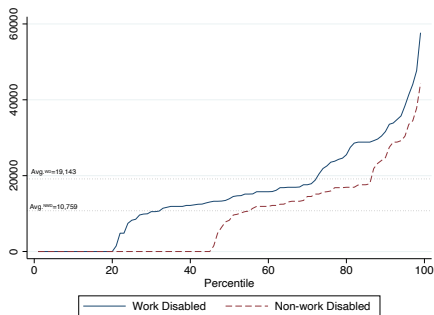
- Estimate distr. of these awards by d as $\mathbb{E}[k_d^{\text{SEP}}] = \Pr(\text{file}|\text{sep.}) \Pr(\text{win}|\text{sep., file}) \mathbb{E}[\text{Award}_d]$: *higher* for WD

How Firm Profits and Worker Wages Differ Pre and Post ADA

- In the pre-ADA world, firms voluntarily choose whether or not to accommodate disabled workers
  - firm static profits

  $$\Pi = \begin{cases} f_{j,ND} - w_{j,ND} & \text{if } d = ND \\ f_{j,d}^0 - w_{j,D}^0 & \text{if } \{d \neq ND, a = 0\} \\ f_{j,d}^1 - w_{j,D}^1 - k_{j,d}^{FLOW} & \text{if } \{d \neq ND, a = 1\} \end{cases}$$

  - worker wages convex combination of output in each job and outside option (value of U): accomm'n costs are passed

  $$w_{j,ND} = \gamma f_{j,ND} + (1 - \gamma)(1 - \beta) U_{ND} \qquad \text{if } d = ND$$

  $$w_{j,d}^0 = \gamma f_{j,d}^0 + (1 - \gamma)(1 - \beta) U_d \qquad \text{if } \{d \neq ND, a = 0\}$$

  $$w_{j,d}^1 = \gamma(f_{j,d}^1 - k_{j,d}^{FLOW}) + (1 - \gamma)(1 - \beta) U_d \qquad \text{if } \{d \neq ND, a = 1\}$$

- In the post-ADA world
  - accomm'n is *mandated* if PDV of match surplus exceeds fixed cost of accomm'n due to "reasonableness" rule
  - accomm'n is *subsidized* at rate τ up to a cap
  - wages may depend on ε but *not on accomm'n costs* due to "equal pay for equal gross output" rule

How ADA Affects Firm Hiring and Retention Decisions

- Through its provisions, ADA influences endogenous thresholds for hiring workers in the different submkts
  - subsidy *lowers hiring thresholds* (firms *more* willing to hire)
  - equal pay-requirement and accommodation mandate *raise them* (firms *less* willing to hire)

- ADA also induces a change in endogenous thresholds for match termination
  - expected separation costs *decrease it* (firms *more* willing to retain)
  - equal-pay requirement *increases it* (firms *less* willing to retain)

- Changes in these thresholds differ across WD and NWD workers bc of heterogeneity in accomm'n costs
  - so in their value of E as well as bc of differences in firms' profits from employing them in high- and low-skill jobs

- These hiring and employment incentives at core of firms' and workers' responses predicted by model

- Formally establishing empirical content of our model difficult since it is *equilibrium dynamic Roy model*
  - w/ search frictions, selection on multiple unobservables and endogenous returns (wages) nonlinear in param's
  - w/o any obvious exclusionary restrictions or special regressors

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- How are key novel parameters of technology and skill identified? $\{\phi_{1,j}/\phi_{0,j}\}$ and those of s
  - idea is variant of identification-at-infinity: if there exist "non-marginal workers" in terms of occ-choice
    $\lim_{w_{1,ND} \to \underline{w}_{1,ND}} \Pr(j = 1 | X, w_{j,ND}) = 0$ and $\lim_{w_{2,ND} \to \overline{w}_{2,ND}} \Pr(j = 2 | X, w_{j,ND}) = 1$

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  - test above restrictions on individuals with low wages in low-skill/high wages in high-skill jobs: *cannot* reject them

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- Instead, parameters specific to each disability group are identified from pre-ADA data: idea
  - they affect distributions of wages of two latent classes of workers (accommodated and not) for each observable d-group
  - so they can be recovered by standard arguments for the identifiability of finite mixture distributions

- Target pre-ADA btw-group Δ and post-ADA within-group Δ in E rate, sep. rate and w (vs. ND) (moments)

		Value	Source
Meeting function	α	0.500	Petrongolo and Pissarides (2001)
	A_L, A_H	0.153, 0.123	Normalize $\theta_{\mathrm{ND},j} = 1$
Barg. power	γ	0.500	Efficiency (ND submkt)
Vacancy cost	k_L, k_H	0.175, 0.278	UN to E flows (ND submkt)
Subs. accomm. costs	$(1-\tau)$	$\min\{0.5k, \overline{k}\}$	Tax code
Distr. accomm. costs	$H(k^{\mathrm{FIX}})$	Empirical CDF	JAN
Exp. separ. costs	$\mathbb{E}[k^{\mathrm{SEP}}]$	Empirical CDF	EEOC
Skill distn.	$\log s$	$N(0.354, 1.228)$	First Stage
Match prod. distn.	$\log \varepsilon$	$N(-1.390, 1.157)$	First Stage
Production Function	$\phi_{L,0}$, $\phi_{L,1}$	1.0, 0.410	First Stage
	$\phi_{H,0}$, $\phi_{H,1}$	0.957, 0.553	Low skill share in (ND submkt)
		NWD	Source
Flow cost accomm.	$k_L^{\mathrm{FLOW}}/\mathbb{E}[w]$	0.035	Model estimation
Flow cost accomm.	$k_H^{\mathrm{FLOW}}/\mathbb{E}[w]$	0.801	Model estimation
Production shift	ϕ_d	0.933	Model estimation
Eff. units, unaccomm.	e	0.794	Model estimation
Value non-market time	$\mathbb{E}[z]/\mathbb{E}[w]$	0.661	Model estimation
Prob. match shock	δ_L	0.111	Model estimation
Prob. match shock	δ_H	0.078	Model estimation

- Find that model fits most moments fairly well (in progress): discuss some of key estimates for NWD

- Target pre-ADA btw-group Δ and post-ADA within-group Δ in E rate, sep. rate and w (vs. ND)

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- Salient feature: accomm' in high-skill jobs *more than 20 times more expensive* than in low-skill jobs

Why Are These Costs Important?

- For NWD, key that cost of accommodating them in high-skill jobs is *higher* than that in low-skill jobs
  - pre-ADA firms mostly accommodate low-skill jobs
  - post-ADA forced to accommodate: prefer *not to create* high-skill jobs (unless accomm'n cost low/worker skill high)
  - so ADA effectively makes creating high-skill jobs unprofitable because wages cannot depend on these costs

- With fewer high-skill vacancies, value of searching in high-skill submarket ↓
  - only highest-skilled workers search for jobs in high-skill market
  - marginal workers switch from searching in high-skill to low-skill market: lower value of E and so of U depresses w

- Although ADA subsidy has positive effect on v-creation, also distorts it toward low-skill jobs (capped)
  - so overall the increase in E that ADA stimulates is almost exclusively in low-skill jobs

- Same logic applies to WD: overall effect is negative since costly to accommodate in first place

After ADA: NWD are much more likely to be employed in low-skill jobs because accommodation is cheaper

Occupation Share Changes in Data Pre-Post ADA?

- Define high-skill occupations as those with highest-median wage employing 15% of workers pre ADA

- As consistent with model: in data E of NWD primarily $\uparrow$ post ADA in low-skill occupations

Difference-in-Difference Effect	Work Disability	Non-Work Disability
Employment Change in Low Skill	-0.047	0.128
Employment Change in High Skill	-0.039	0.007
Total Employment Change	-0.086	0.135

- Whereas for WD, $E \downarrow$ in both occupations ($\simeq$ both in model and in data)

- So occ'l shifts predicted by model *broadly in line with data*: validates our mechanism for E and w patterns

Examining Role of ADA Components: Non-Work Disabled

- Examine impact of ADA's main components for our results by comparing to baseline alternative scenarios
  - with only one component present *at a time*: accomm'n mandate, equal-pay requ't and subsidy (of various amounts)

	ΔE	$\Delta \log w$	E^{accom}/E	E_L/E
Mandate only	-0.013	-0.024	1.000	1.000
Equal pay only	-0.067	0.040	0.022	0.066
Subsidy only				
25% subsidy	0.033	0.002	0.485	0.476
75% subsidy	0.072	0.034	0.720	0.549

In the pre-ADA period, $E^{accom}/E = 0.33$ and $E_L/E = 0.34$.

- From table: equal-pay requirement *not* accomm'n requirement primarily exerts negative pressure on E
  - for the WD: this negative effect dominates overall

- Issue: equal-pay requirement does not allow pass-through of costs to w that *both parties would agree to*
  - bottom line is not possible to stimulate both $\uparrow E$ and $\uparrow w$ that are insensitive to ADA costs *unless as society we pay*

Conclusion

- ADA: landmark legislation aimed at improving working conditions and E of individuals with disabilities

- We revisit the evidence on its impact using *longer time period* and *more expansive definition of disability*
  - confirm findings from previous work of *negative impact* on employment of WD both in SR and LR
  - however, also document that employment of NWD significantly *increases* post ADA

- We find that equal pay provision and compositional shifts towards lower-quality jobs
  - are key to E and w effects of the policy among the WD and NWD

- Next: extend model to include
  - statutory exemptions from ADA (e.g. for small firms)
  - changes in flow value of non-market time post ADA to capture *lower cost of participation in labor mkts* for disabled

- Next: what combinations of provisions would get the policy closer to optimal?

Did Reporting Patterns Change Due to ADA Affecting Our Results?

- One possible concern: reporting patterns of disability have changed *because of ADA* for two opposite reasons

- One the one hand, those *who would* have reported a work disability pre ADA
    - may benefit from post-ADA job accommodations
    - accordingly, they may report they are *not* work disabled which would *decrease* the work disability share

- On the other, those *who would not* have reported a work disability pre ADA due to the stigma of being disabled
    - may switch to truthfully reporting their work disability due to the ADA removing such stigma
    - which would *increase* the work disability share

- These two countervailing forces may keep disability shares stable over time
    - leading however to ambiguous E effects that may affect our inferences

Some Suggestive Evidence Refuting Both Hypotheses

- First: workers in small firms are not covered by ADA `evidence`
  - if reporting a work disability is more likely for those receiving job accommodations
  - we should expect a *larger decline in work disability reports among workers employed in large firms than in small firms*
  - in fact, we find the *opposite*

- Second: ADA has worked towards removing stigma of disability in all realms of life not just work `evidence`
  - younger individuals may more often (because of ↓ stigma) or less often (because of job accom'n) report a work disability
  - *older* (≥ 65) face only the reduced stigma effect so they *should report relatively more often than the young*
  - in fact, there is *no significant age difference* in reporting patterns `back`

Reporting Patterns in Small vs. Large Firms

- Use CPS 1988-2010 as it includes information on firm size

- Define: Large firm=$\mathbf{1}\{N > 25\}$

- Estimate the impact of ADA on the probability of reporting work limitation (DiD estimate)

	(1)	(2)
Large firm	-0.010***	-0.009***
	(0.001)	(0.001)
Post-ADA	-0.005***	-0.005***
	(0.001)	(0.001)
Large firm × Post-ADA	0.001*	0.001*
	(0.001)	(0.001)
Demographics	N	Y
Obs.	1,725,999	1,725,999

Note: Demographics include age, race dummies, gender dummy, education dummies.

- We barely detect *any effect* back

Reporting Patterns for Young vs. Old Workers

- Use again CPS 1988-2010

- Define: Older worker$=\mathbf{1}\{65 \leq \text{Age} \leq 75\}$

- Run simple diff-in-diff for probability of reporting work limitation

	(1)	(2)
Older worker	0.005***	0.006***
	(0.001)	(0.001)
Post-ADA	-0.0003	-0.0001
	(0.0002)	(0.0002)
Older worker $\times$ Post-ADA	0.0001	0.0004
	(0.0006)	(0.0006)
Demographics	N	Y
Obs.	3,635,403	3,635,403

Note: Demographics include race dummies, gender dummy, education dummies, firm size dummies.

- We barely detect *any effect* back

	(1) Baseline	(2) Consistent Definition
Work disabled	-0.310***	-0.308***
	(0.004)	(0.004)
Non-work disabled	-0.186***	-0.355***
	(0.009)	(0.018)
After 1991	-0.024*	-0.020
	(0.012)	(0.012)
Work disabled × After 1991	-0.116***	-0.117***
	(0.004)	(0.004)
Non-work disabled × After 1991	0.123***	0.145***
	(0.011)	(0.030)
Obs.	401,899	401,899

Results are quite similar (even more pronounced) if we adopt a more expansive definition of disability back

SPASM/TIC/TREMOR/BLINKING

Home   Limitations

Individuals may have limitations that stem from a variety of medical impairments resulting in spasms, tics, tremors, or blinking. Depending on the reason for onset, progression, and underlying causes of the spasm/tic/tremor/blinking, individuals may need accommodations in order to perform tasks at work or maintain productivity. Accommodations can come in a variety of solutions for a specific limitation. See below for some ideas to help you get started.

Solutions:

- Aide/Assistant/Attendant
- Alternative Input Devices
- Alternative Keyboards
- Alternative Mice
- Alternative Mice - Limiting Tremors
- Augmentative and Alternative Communication (AAC) Device
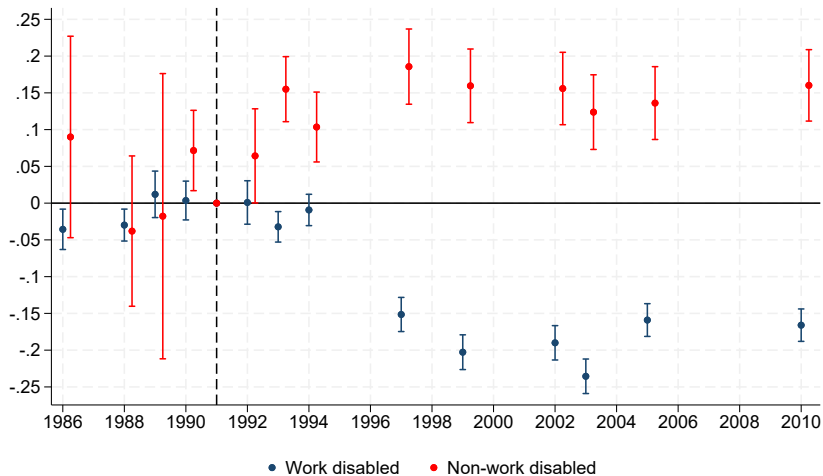- Auto-dialers
- Book Holders

One handed keyboards assist individuals who must enter data into a computer but have no or limited use of one hand. Keyboards can be configured to be used by either the left or the right hand. Due to the placement of the keys, individuals may benefit from using a one handed keyboard may need some time to learn how to type in a different way.
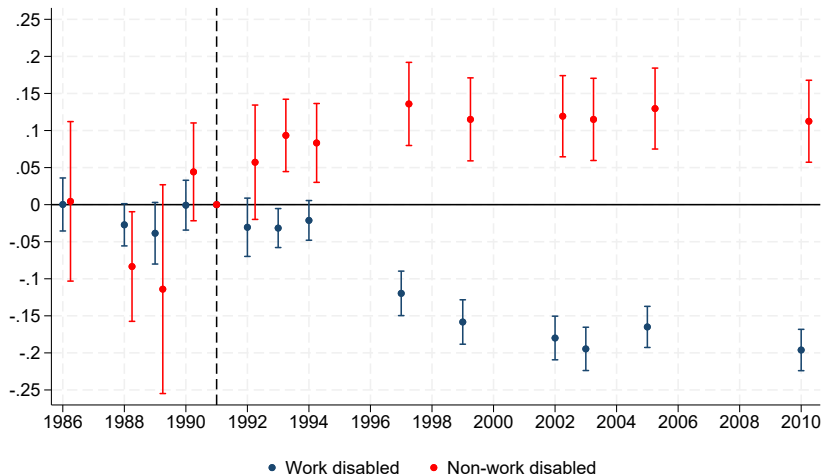
Vendors and Products

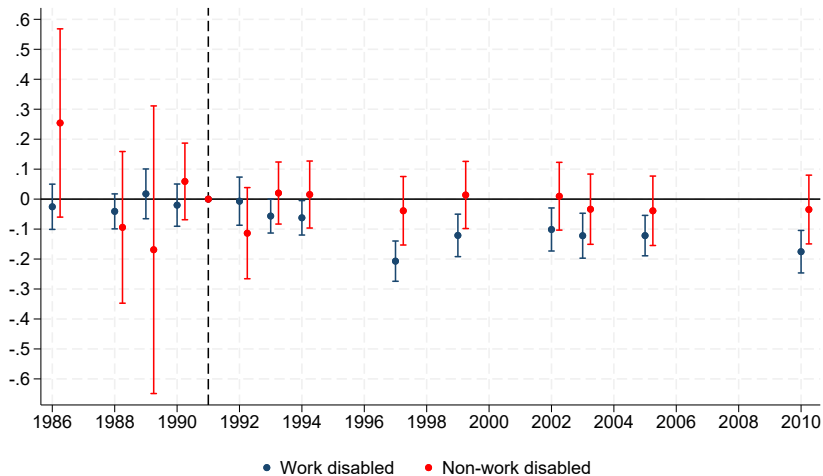| Amazon.com, Inc. | • Koolertron Single-Handed Programmable Mechanical Keyboard with OEM Gateron Red Switch
• Redragon K585 DITI One-Handed RGB Mechanical Gaming Keyboard |
BeeRaider Keyboards	• Optimized 2.4 GHz Wireless Radial Keyboard & Mouse
Boundless Assistive Technology	• Matias 508 Keyboard
Cadan Assistive Technologies	
Infogrip Inc.	• BAT Keyboard USB - dual hand set

back

EMPLOYERS   INDIVIDUALS   ADA LIBRARY   A TO Z LISTS   ACCOMMODATION SEARCH   PUBLICATIONS & ARTICLES   ABOUT JAN   MyJAN

Event Study: Employment of Men

- Work disabled
- Non-work disabled

back

Event Study: Employment of Women

● Work disabled   ● Non-work disabled

back

Event Study: Hourly Wages of Men

Legend: ● Work disabled ● Non-work disabled

Event Study: Hourly Wages of Women

Legend: • Work disabled   • Non-work disabled

back
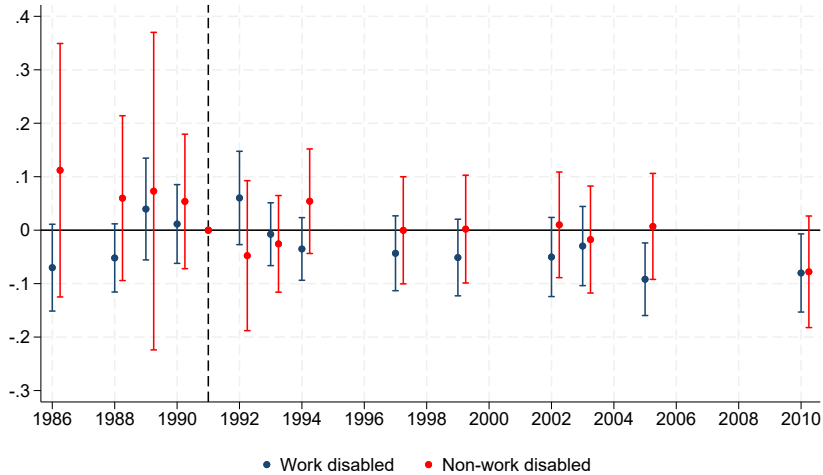
Estimation: Targeted Moments

- Target pre-ADA btw-group Δ and post-ADA within-group Δ in E rate, sep. rate and w (relative to ND)

		WD		NWD	
		Data	Model	Data	Model
Employment pre-ADA	$E_d - E_{\mathrm{ND}}$	-0.311	-0.414	-0.187	-0.230
		[0.01]		[0.01]	
Separ. prob. pre-ADA	s_d/s_{ND}	2.027	2.031	1.480	1.650
		[0.95]		[1.49]	
Wages pre-ADA	$\log(w_d/w_{\mathrm{ND}})$	-0.208	-0.207	-0.106	-0.169
		[0.02]		[0.03]	
Accomm. share pre-ADA (Daly and Bound, 1996)	E_d^1/E_d	0.333	0.329	0.333	0.317
Post-ADA Δemployment	$\Delta(E_d - E_{ND})$	-0.116	-0.091	0.123	0.082
		[0.01]		[0.01]	
Post-ADA Δsepar. prob.	$1 + \Delta(s_d - s_{ND})/s_d^{\mathrm{Pre\text{-}ADA}}$	1.513	0.890	0.658	1.004
		[0.69]		[0.69]	
Post-ADA Δlog wages	$\Delta \log(w_d/w_{ND})$	-0.066	-0.058	-0.026	-0.037
		[0.02]		[0.03]	

'

- We find that the model fits most moments fairly well (in progress) back