



Evidence-based Policy Meets Big Data: Using Admin. Data for Program Evaluation

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What is Admin Data?

- usually: derived from tax/benefit system
- Italy=INPS records
- Germany, Austria=soc. sec. data
- US: soc. sec. *or* UI system (LEHD) *or* IRS (income tax system)
- Nordic countries, Brazil, France, Belgium, Netherlands,.....



Admin data (2)

- best case: admin data=individual micro records
- BUT: admin systems can create very useful 'aggregated' statistics. QCEW program in US creates wide variety of county/sub-county level aggregates



What's in a typical admin data base?

- "PY" structure = 'person-year' (i,t)
- person id (PID)
- amount paid by firm/establishment j to person i in year t
- age/gender of person i (sometimes ft/pt or blue-collar/white-collar status)
- some chars of firm/est. j: **location**, industrial sector (SIC), and a firm/est id (fid). Often this is an EIN (tax number)



What's in the "best" admin data bases?

- start and end date of any job spell within the year → ***days worked***
- education, occupation (Germany, Brazil)
- immigrant status (Germany)
- home address (rare)
- records of benefit receipt – UI in Germany/Austria; Social security/DI in US
- Portugal (QP): firm sales, hours of work



Key strengths of admin data

1. full coverage of formal/legal sector
 - granularity to study uncommon events
 - eliminate sampling error
 - find matched comparisons
2. complete longitudinal histories for i, j
 - enables pre-post comparisons
 - facilitates "controls" for pre-program
 - and long term followup



Key strengths (2)

3. access to the “history” variables that determine eligibility/benefit levels
4. reduced measurement error (less slippage in determining eligibility; less noise in outcomes)
5. pid and fid allow links to other data sets (extreme version – Nordic countries)



Limitations

1. no data on informal/untaxed sector
2. no direct information on how time not working is allocated (unemployment vs. ?)
3. no family linkages (some work-arounds)
-- particular problem for studying family-related issues like child rearing
4. no information on non-labor income or transfers → hard to make welfare assessments
5. no data on consumption



“the build” for evaluation

A. in some cases the admin data base has a direct measure of program participation

e.g., Germany – can see UI spells

US – can see SS and DI participation

- IRS data have tuition payment recs

B. in some cases a program is universal – eg min. wages, labor market reforms

C. researcher can bring in list of participants (ALMPs), or link to other data bases (crime)



more sophisticated “builds”

D. researchers can use the admin data base as a sample frame and collect/merge survey data – eg Krueger-Mueller surveys of unemployed

E. researchers can use the admin data base as universe file for conducting RCT – e.g. some ALMP's in Nordic countries

- many builds require inter-agency co-operation. Can be extreme hurdle in US (beaurocratic silos), Germany (post-WWII laws)



Research designs

1. diff-in-diff (Ashenfelter 1974) - build a comparison group and compare pre/post differences for T's and C's (comparisons)
 - many recent studies use matched C's, based on propensity score matching, synthetic control groups, nearest neighbors....)
2. RD (sharp eligibility threshold) – UI systems
3. RKD – kinked policy rules (max benefit)
4. RCTs



Some examples

1. **ALMP's** – now a huge literature using admin earnings records for participants and matched C's (CKW, 2010, 2017)

- admin data solves “comparability problem” (Lalonde) if T and C data are derived differently
- admin data allow matched comparisons; long term followup;



Examples (2)

2. **welfare system reforms.** US states implemented welfare reforms in 1990s, in some cases with randomized comparison group and admin data for earnings pre/post
- SSP project in Canada – linked T/C to admin data on welfare participation (never successfully obtained admin earnings recs!)
 - new projects to go back to the data and study long term outcomes for mothers and kids



Examples (3)

3. **UI system:** series of papers studying UI policies in Austria, Germany, ...

- duration of benefits (RD design based on age/tenure thresholds)
- replacement rate (RKD design using min/max of benefit formulas)
- spillovers (French study, Cahuc et al; Austrian study, Lalive et al) look at impacts of program on outcomes of non-participants



Examples (4)

4. **minimum wages:** Dube et al. studies of state-specific min wages using border design (matched D-D); Lindner et al study of new law in Germany using IAB data

5. **labor market reforms:** Cappellari et al (2012); Dariuch DiAddario Saggio (2017) study law 368/2001 easing rules on temp contracts. DDS look at job flows, firms and workers using INPS based data



Examples (5)

6. **pension reforms.** Gelber et al study sharp discontinuity in benefit formula for people born after 1917 in US (“notch cohort”) using 100% SS data base and RD design. Studies of reforms in France, Switzerland....

7. **immigration reforms.** Dustmann et al (2017) study of German law allowing Czechs to work in Germany (in areas close to the border); Dustmann et al (2017) study of reform in refugee policies in Denmark



Examples (6)

8. **criminal justice system reforms.**

- require merge of CJ and tax records
- Shem-Tov and Rose (2017): NC sentencing reform creates sharp RDs in jail time
- Doyle study of foster care system reforms
- lot of interesting possibilities in Italy



The Frontier

1. **environmental policies.** Major pollution sources have geographically localized impacts. Chay-Greenstone studies in 2000s used 100% birth record files. Admin records on health utilization and earnings (Borghshulte et al) are promising avenues.

2. **education policies.** (require link of education system to tax system – already feasible in some US states, or with access to IRS recs)