Public Policy and Risky Behavior

Black, Devereux & Salvanes, "Fast Times at Ridgemont High? The Effect of Compulsory Schooling Laws on Teenage Births"

Synopsis -

Looks at effect of compulsory schooling on teenage births in the US and Norway.

Compulsory Schooling - measured (in US) by

- Maximum age by which a child must be enrolled
- **Minimum age at which a child may drop out**... this is the main measure because it's what is used in Norway
- Minimum years of schooling before dropping out
- Minimum age for a work permit
- Minimum schooling required for a work permit

Changes -

US - various changes over time and between states; data for 1924, 1924, 1944, 1954, 1964, 1974 for each state + DC (Appendix Table 1 p.42)

Norway - 1959 - increase minimum level of education from 7 to 9 years (i.e., dropout age from 14 to 16); implementation not completed until 1972

Result - compelling women to stay in school until age 16 reduces probability of teen birth by 4.7% in the US and 3.5% in Norway

Policy Implication - teenage childbearing adversely affects outcomes of the mothers and the children; legislation aimed at improving education outcomes may have spillover effects on teen births

Data -

US - IPUMS extracts; 1% 1940 sample, 1% 1950 sample, 1% 1960 sample, two 1% 1970 samples, all 5% 1980 samples from US Census

Restrictions - (a) children only observed if living in household with mother; (b) restrict to women between 20 and 30, (c) assign state based on state of birth, not state of residence

Random Mobility - creates measurement error that will bias estimates towards zero; (on p.18 says mobility is "significant")

Norway - Statistics Norway, "comprehensive data set has been compiled for the entire population in Norway... linked administrative data that covers the entire population of Norwegians aged 16-74

Restrictions - use 1960 data to link women to municipality of birth

Advantages - large and representative data sets; compare effect across two countries

Appropriate - focus on changes in dropout ages rather than school entry ages like McCrary & Royer (2003); also use all women, not just those who did in fact have children (like McCrary & Royer)

Identification - how does author identify policy effects

US - $TEENBIRTH = \alpha_0 + \alpha_1 COMPULSORY + \alpha_2 COHORT + \alpha_3 STATE + \alpha_4 WHITE + \nu_1$

COMPULSORY - vector of three dummies for minimum drop out age (14, 15, 17... 16 is default)

Norway - $TEENBIRTH = \alpha_0 + \alpha_1 COMPULSORY + \alpha_2 COHORT + \alpha_3 MUNICIPALITY + \nu_2$

COMPULSORY - 1 if affected by reform (i.e., drop out age 16), 0 if not (drop out age 14)

TEENBIRTH is binary indicator for whether woman had first birth as teenager ∴ estimate with maximum likelihood probit

Cluster - adjust standard errors for clustering at the state level

Cause - look

- **Incarceration Effect** - "extent that compulsory schooling reduces the time available to engage in risky behavior"
- **Human Capital Effect** - "higher level of human capital could change fertility decisions"

2 Strengths

- **Assumptions are backed up** -
  - Changes in compulsory schooling laws not related to other state characteristics (manufacturing wages, manufacturing employment, expenditures on education, demographic characteristics) - Lleras-Muney (2001) in US; Lie (1973, 1974) in Norway
  - Reform-induced migration not a significant consideration - Meghir & Palm (2003) in Sweden; Telhaug (1969) in Norway
  - **Exception** - compulsory schooling $\Rightarrow$ educational attainment
- **Robustness check** -
  - Urban vs. Rural... law has greater effect in urban
  - US sample tied to race... law has greater effect on whites
  - Inclusion of State-Year trends
  - Alternative weight schemes for Census data (weigh each year the same)
  - Effect of future laws
  - Alternative measures of compulsory schooling
  - Still get same result (more school $\Rightarrow$ lower teen birth rates)

2 Weaknesses

- **Wrong Ages**
  - Exclude women who have first birth before age 15... these are usually the ones that are the most concern when talking about teen pregnancy
  - Although, testing 17-19 is correct for identifying "incarceration effect" vs. "human capital effect"
  - **Younger Pregnancies** - if sole reason for teen pregnancy is lack of human capital, you'd expect girls to get pregnant as soon as they hit puberty
  - "Since children tend to start leaving home about age 16... can only get an accurate count on teenage births for the sample of women aged no more than about 31 (15 + 16). Thus, we restrict out Census sample to women aged between 20 and 30"... seems rather artificial; leave home at 18 and they dropped 3 years of data (20-33)
- **Rational choice**
  - "We know that low-educated women are more likely to have a teenage birth..." see Younger Pregnancies comment above
  - "Assumes women make optimal decisions on timing of births taking into account all the costs and benefits involved. This is often discussed in conjunction with an alternative approach that sees many teenage pregnancies as 'mistakes' resulting from thoughtless behavior, lack of knowledge about the long run consequences, or lack of knowledge about birth control. It is this view that fertility behavior may not be optimal that underscores much of the policy interest in this topic" (Footnote 21, p.21)
  - So policy is interesting because of 'mistakes' view, but paper is based on 'rational choice' view
- **Multicolinearity?**
  - Changes in compulsory schooling in US from 1920s to 1970s... long period of time with few changes; some states don't change at all or only have one change

Other Comments

- **Title** - "Fast Times at Ridgemont High" movie has nothing to do with topic of paper
- **Rhetoric** - US is "punitive in its treatment" of teen mothers (p.2)... p.6 says "unsupportive;" those aren't the same

Vocabulary - "Woman's fertility choices" (p.5)... might choose to get pregnant or to have abortion, but women usually don't have a choice on their fertility

Relevance - bring up abortion (p.7) and claim it's not relevant to the women in the study... but it is relevant today because it's legal so their results don't carry to current situation

Tables - hard to follow which tables are being talked about... "Table 1" vs. "Appendix Table 1"

Selective Reporting - 4.7% is "significant"... 4.7% drop from 17%... actual drop is only 0.8%-points so birth rate drops from 17% to 16.2%... it's all in how you report it (like tax cuts for the rich vs. poor)

David's Comments

Question - can public policy impact undesirable behavior... overall question for this section; for this paper:

Undesirable Behavior - teen pregnancy

Public Policy - compulsory schooling

Question - "Does compulsory education affect one's propensity to become pregnant as a teenager?"

Problem - this sounds like a clearly defined dependent variable (teen pregnancy), but really only use teen birth and may not capture that because of abortion and adoption

Underlying Theory -

Incarceration Effect - more credible story in other work because time in school is not significant compared to time out of school (and time required to get pregnant)

Human Capital Effect - basic cost-benefit analysis... should've spelled this out more

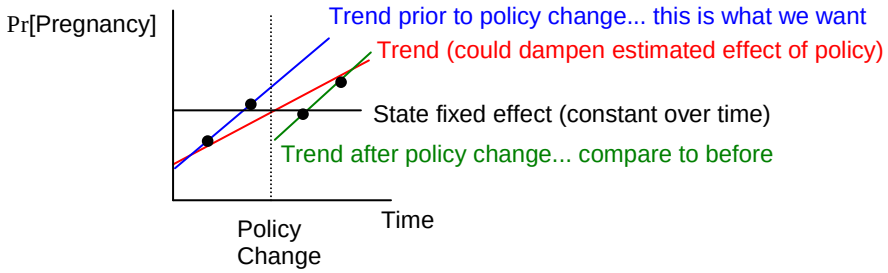
True Relationship? - cost of teen birth high in US and low in Norway, but get similar result; authors use this to argue the relation is correct because it exists in two different settings

Problem - if teen pregnancy is based on cost-benefit test, effect of policy should be bigger in US where cost of pregnancy is higher (relative to Norway)

Methodology -

US - control for state fixed effects (can't compare New York to Mississippi)

Problem - long time frame; industrialization took place at different times in different states; time invariant assumption of state fixed effects is not valid



Trend - should use data prior to policy change, but want lots of data before the change (2 or 3 points is not good for estimating trend)

Better Approach - use fewer cohorts and do difference in difference... probably didn't have enough variation to do this

Endogeneity Problem - why change minimum drop out age? may not be random policy... need to find exogenous event causes policy change (might be able to use political variables to explain timing of change)... need **instrumental variable**

Norway - almost no variation: 1 time change from 14 to 16... effectively only 2 observations; "They act as if they have a million observations but really they have two."
Correction - the change is spread over 12 years so it's OK, but have to ensure time of adoption is exogenous (e.g., socio-economics status not related to time of adoption)
Problem - city size probably related to time of adoption; large city has more capacity/ability to hire more teachers

Questions

- What's drop out rate
- How is compulsory education enforced
- Does average daily attendance change when compulsory schooling changes

Instrumental Variables - can always think of it as omitted variable problem; if OV is related to both dependent and independent variables, could have endogeneity problem

"The plural of anecdote is not data."

Potential Study - school attendance during WADA (used for funding) vs. normal