Driving, Dropouts, and Drive-throughs: Mobility Restrictions and Teen Human Capital

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**Teen Human Capital Decisions**

- Teens make big, lasting human capital decisions
- Work part-time or focus on school?
- Finish HS or dropout?
- Complicated by the interrelated nature of teen choices regarding work, schooling, and leisure
  - E.g., making employment less desirable/accessible may have an indirect effect on decision to complete schooling
- Policies intended to affect only 1 teen activity may impact all 3

**Research Question**

This paper explores the consequences of a policy that was only intended to impact teen car safety (GDL laws) on educational attainment and teen labor force participation

- GDL laws limit teen mobility
- This should have a direct, negative effect on schooling, work, and leisure
- Harder to commute to school; lower attendance; more HS dropouts
- But may also have indirect effects through complementarity/substitutability of activities
- Limit access to leisure activities; high school attendance; fewer HS dropouts

**Graduated Drivers Licensing**

- Teen drivers experience high fatality risk from driving
- Starting in the mid 1990s, most states adopted graduated driver licensing (GDL) laws
- These laws: (i) limited intermediate stage licenses to older (>16) teens, (ii) restricted nighttime driving, and/or (iii) restricted the number of passengers with a teen driver
- Such restrictions reduced teenage (especially 16-year-old) driving-related fatalities

**Data & Empirical Strategy**

Data:
- We develop a database of GDL laws from 50 states + DC for 1990-2017
  - Compulsory Schooling (CS) law data on minimum school-leaving age
  - Limit sample to 16-year-olds (most impacted by GDL laws)

**Triple-Difference Research Design:**
1. compare states before and after GDL law adoption
2. compare states that adopt early vs. late in analysis period
3. compare states where teens dropout behavior is unrestricted vs. states where teens face a legal requirement to stay in school (via CS laws)

**Reduction Form Estimation Results**

<table>
<thead>
<tr>
<th>Not In School = 1</th>
<th>(1)</th>
<th>(2)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Min. Unres. Driving Age &gt;16</td>
<td>0.0022</td>
<td>0.0014</td>
</tr>
<tr>
<td>School-Leaving Age ≤ 16</td>
<td>0.0197***</td>
<td>0.0182***</td>
</tr>
<tr>
<td>Min. Unres. Driving Age &gt;16 × School-Leaving Age ≤ 16</td>
<td>-0.0129***</td>
<td>-0.0119**</td>
</tr>
<tr>
<td>Min. Unres. Driving Age &gt;16 × School-Leaving Age ≤ 16</td>
<td>(0.0048)</td>
<td>(0.0048)</td>
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<tr>
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<td>-0.0107**</td>
<td>-0.0105**</td>
</tr>
<tr>
<td>School-Leaving Age ≤ 16</td>
<td>0.0500</td>
<td>0.0494</td>
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</tbody>
</table>

Effect of GDL Laws on 16-year-old Dropout:
- \( \beta_2 = 0 \): No effect of GDL laws in states where dropout not allowed (placebo test)
- \( \beta_2 + \beta_3 \): In states where dropout is legal, restricting teen mobility leads to a 1.1pp reduction in high school dropouts (28% at mean)

**Multiple Discrete Choice Model**

- Teens choose work, school, both activities, or neither activity
- Allow work & school to act as complements or substitutes in utility equations
- Identification comes from exclusion restrictions:
  - Compulsory schooling laws only enter into utility of schooling equation
  - State minimum wage & unemployment rate only enter into work equation
- Normalize value of outside option with additional sign restrictions
- Set identifies indirect utility cost of GDLs on “leisure” activities
- Estimate using GHK Simulator

**Model Results**

- Parameter estimates show that school & work are complements for teens
- Simulate counterfactuals to replicate total effects from reduced-form and decompose into direct channels and indirect channels

**Data & Empirical Strategy**

- Decomposition Results:
  - Very little of the effect of GDL on dropout is due to substitution away from employment
  - Substitution away from leisure is causing reduction in HS dropout
  - The effect of GDL on employment is almost entirely a direct effect (it’s harder to commute to work)

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