The Influence of Labor Market Outcomes Data on Major Choice

Alex Ruder & Michelle Van Noy
Heldrich Center for Workforce Development, Rutgers University

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Concerns About Students’ Workforce Success

- College education is widely believed to be essential for workforce success

- Yet, policymakers and the public hold mounting concerns about the workforce success of college graduates
  - High levels of student loan debt
  - Reports of diminishing employment prospects of college graduates
One response to these concerns is to provide data on labor market outcomes to inform student decision making about majors and careers.

Initiatives focused on informing consumer choices are making labor market outcomes data accessible, including the College Scorecard, State data initiatives, CollegeMeasures.org.

The provision of labor market data should be informed by models of student decision making, as well as how students use and interpret data.
The Role of Earnings in Student Decision Making

- Prior research shows that earnings are an important part of student decision making, along with many other factors.

- Economics literature documents the relationship between expected earnings and schooling decisions (Willis and Rosen 1979; Altonji et al. 2012).

- Earnings information changes student expectations about earnings and influences educational decisions (Jensen 2010; Wiswall and Zafar 2013).

- Theories of decision making under uncertainty and the role of risk; some research shows students prefer to avoid risk, especially low-SES students (Nielsen and Vissing-Jorgensen 2006; Attanasio and Kaumann 2011).
Debate about How to Present Labor Market Data

- Little research exists on how to present labor market outcomes data and its effect on consumers

- Many questions about how to present these data in a way that incorporates models of student decision making

- We focus on one specific debate about how to display earnings data:
  - Average/Median – simple, provides sense of typical earnings (e.g. LaLonde & Jacobson, 2013)
  - Range/Variation – more complex, shows range of possible earnings, provides information on risk (e.g. Hershbein & Hollenbeck, 2014)
Key Question: How do alternative displays of labor market outcomes data influence decision making?

We test two core hypotheses:

- Earnings data that includes information on risk leads to different choices compared to median earnings alone.
- Earnings data that includes information on risk leads to different earnings expectations compared to median earnings alone.

We further examine the role of academic achievement in the choice of major with alternative displays of labor market outcomes data.
Data and Experimental Design
The Experiment

- National survey of approximately 600 adults using Amazon’s Mechanical Turk (Mturk) for the sample recruitment

- Sample characteristics: median age = 28, 47% with a college degree, 37% female. Characteristics balanced across experimental groups.

- On-line survey using Qualtrics, took approximately 6 minutes to complete on average, conducted in November 2013

- Used vignette approach, 2x2 design
The Experiment

- Treatment focused on presenting earnings for two majors with similar medians but different ranges: economics and math
  - Economics ("high risk") has a wider range of earnings than math ("low risk")

- Subjects randomly assigned to different conditions:
  - Academic achievement of hypothetical student: high or low
  - Information on risk (median and the range) or no information on risk (median only) for the two majors

- Calculated earnings information based on New Jersey’s higher education data linked with wage records data through the Workforce Data Quality Initiative
The Vignette

- Steve is a sophomore at a large public university and is trying to decide on a major. He is choosing between mathematics and economics. He has always [been a high achiever academically / struggled somewhat academically], and expects to perform equally well in each major. He will graduate with approximately $30,000 in student loans.
No Information on Risk Condition

<table>
<thead>
<tr>
<th>Major Category</th>
<th>Average Earnings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>$57,000</td>
</tr>
<tr>
<td>Economics</td>
<td>$55,000</td>
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</tbody>
</table>
Information on Risk Condition

<table>
<thead>
<tr>
<th>Major Category</th>
<th>25% Make Less Than</th>
<th>Average Earnings</th>
<th>25% Make More Than</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mathematics</td>
<td>$49,000</td>
<td>$57,000</td>
<td>$67,000</td>
</tr>
<tr>
<td>Economics</td>
<td>$34,000</td>
<td>$55,000</td>
<td>$73,000</td>
</tr>
</tbody>
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Survey Questions

- After viewing labor market outcomes data, respondents answer the following questions:
  - How much is Steve likely to earn in a given major on average?
  - How likely is Steve to earn above $70,000 per year?
  - How likely is Steve to earn below $38,000 per year?
  - Which major do they recommend that Steve pursue?
Findings
## Recommendation of Major

<table>
<thead>
<tr>
<th></th>
<th>Percent Choosing Mathematics (Low risk major)</th>
<th>Estimated Effect*</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Control (No Information on Risk)</td>
<td>Treatment (Information on Risk)</td>
</tr>
<tr>
<td>Overall</td>
<td>82%</td>
<td>63%</td>
</tr>
<tr>
<td>High Achievement</td>
<td>85%</td>
<td>60%</td>
</tr>
<tr>
<td>Low Achievement</td>
<td>80%</td>
<td>65%</td>
</tr>
</tbody>
</table>

All effect estimates significantly different from zero at the 0.01 level.
What Explains Shift To Economics?

• **No difference** in expectations of **average earnings**

• **Large difference** in expectations of **risk**:
  • Respondents were more likely to expect higher and lower earnings in economics than in math

• Possible explanations for shift to economics:
  • Sorting based on risk preferences
  • Sorting based on decision-making biases
Implications and Future Research

- Information on variation in earnings is influential, and displays of labor market data should consider incorporating this information.

- On-going research will examine:
  - Prior literature suggests information on risk may be particularly important for low-SES students.
  - More research is needed on the effect of information on variation with student populations, as well as parents and counselors.
  - Research is needed to understand how students make sense of these data.
  - Research is needed on many other aspects of how to present data to inform career and major decisions.
For More Information

Contact us at:
Michelle Van Noy: mvannoy@rutgers.edu, 848.932.1079
Alex Ruder, alex.ruder@rutgers.edu, 848.932.1094

Visit our website:
www.heldrich.rutgers.edu

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John J. Heldrich Center for Workforce Development