

# University Quality and the Labour Market Outcomes of Canadian Youth

Joniada Milla



# Motivation

Why are returns to university quality important?

- Screening instrument for employers
- The right career choice: student-university match
- Resource allocation for Universities

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- Resource allocation for Universities

- EU universities: tuition-free & mainly public
- US universities: high tuition & mainly private
- EU and US study findings may not be generalized for CA

# Introduction

Mincer (1958) Earnings Regression:

$$\ln(w_i) = \alpha_0 + \alpha_1 S_i + X\beta + u_i \quad (1)$$

Card (1999) for a review of the literature

1.  $u_i = \gamma A_i + \epsilon_i$  leads to  $\text{Cov}(S_i, u_i) \neq 0$

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## 2. Nonlinearities in the 8<sup>th</sup>, 12<sup>th</sup>, 16<sup>th</sup> year of education:

- "Sheepskin effect"

⇒ New dimension additional to quantity - **Quality of Education**

$$\ln(w_i) = \alpha_0 + \alpha_1 S_i + \alpha_2 \mathbf{Q}_i^* + \gamma \mathbf{A}_i^* + X\beta + \epsilon_i \quad (2)$$

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## Preview of findings

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## Literature on University Quality

- Black and Smith (2004, 2006)
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- Long (2008, 2010)
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# Canadian Literature on University Quality

Betts, Ferrall and Finnie (2007)

- National Graduates Survey (1982, 1986, 1990)
- University fixed effects model
- “partially causal” returns to university attributes



## Data Sources

- Youth in Transition Survey - Cohort B for years 1998-2008
- *Maclean's Magazine* University Ranking Issue of November 2002

# Maclean's magazine data

## Reputation Ranking of 45 universities

- Highest quality
- Leaders of tomorrow
- Most innovative

## University quality ranking using PCA of:

- Average GPA of entering cohort
- Proportion who graduate
- Classes taught by tenured faculty
- Faculty with PhD's
- Faculty and Student awards
- Faculty-Student ratio
- Faculty SSHRC and Medical/Science grants
- Student Services, Operating budget, Scholarships and bursaries
- Library holdings per student, Acquisitions, Expenses
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## Treatment Variable

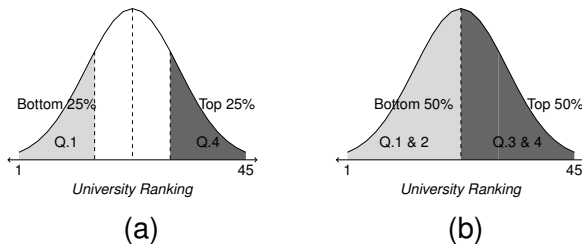


Figure : Visual representation of the ranking indicator variables

# Main Specification

$$\ln(w_i) = \alpha_0 + \alpha_1 S_i + \alpha_2 Q_i^* + \gamma A_i^* + X\beta + \epsilon_i \quad (3)$$

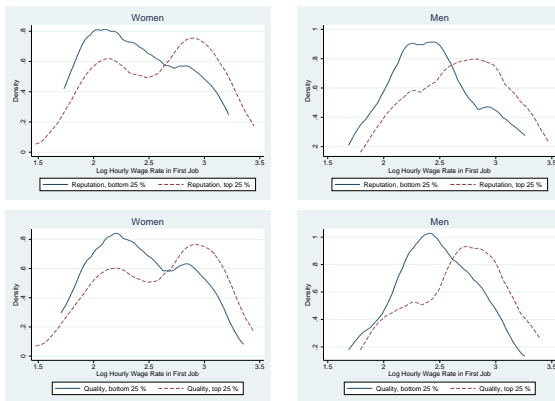
where  $X$  is

- Own characteristics: major dummies, rural and residence province dummy, number of dependent children, citizen dummy, marital status, full-time worker dummy.
- Parental education

# Methodology

- Abadie and Imbens (2002) Matching Estimator
- Propensity Score Matching Estimator
- Dose-response and treatment effect functions

## Descriptive Statistics



**Figure :** Empirical distribution of log hourly wages by gender & rankings

## Descriptive Statistics

## Sorting in universities by ability

Table : Cross tabulation by high school GPA and university reputation

High School Grade(%)	Ranking quartiles				
	First Quartile	Second Quartile	Third Quartile	Fourth Quartile	Total
60-79	<b>8.39</b>	5.93	3.85	13.75	31.87
80-89	<b>8.35</b>	<b>11.21</b>	<b>9.56</b>	<b>20.22</b>	49.34
90-100	2.31	5.16	3.74	<b>7.58</b>	18.79
Total	19.01	22.31	17.14	41.45	100

Note: The numbers in each cell are the cell percentage determined by the university reputation ranking and ability. The total number of observations is 910.



Table : Return to Reputation Rankings of BA's: Top vs. Bottom 25%

Y=log(hourly wage)	OLS	NNM	NNM BCE	PSM	Obs.
Women	<b>0.171***</b> (0.053)	<b>0.215***</b> (0.057)	<b>0.152**</b> (0.061)	<b>0.157**</b> (0.068)	322
Men	<b>0.191***</b> (0.063)	<b>0.227***</b> (0.076)	<b>0.299***</b> (0.084)	<b>0.254***</b> (0.102)	214

Standard errors in parenthesis. \*\*\*Significance at 1%, \*\*Significance at 5%, \*Significance at 10%.

Table : Return to Reputation Rankings of BA's, NNM BCE

Y=log(hourly wage)	Top vs. Bottom 25%	Top vs. Bottom 50%
Women	<b>0.152**</b> (0.061) 322	<b>0.103**</b> (0.045) 620
Men	<b>0.299***</b> (0.084) 214	<b>0.134***</b> (0.051) 400

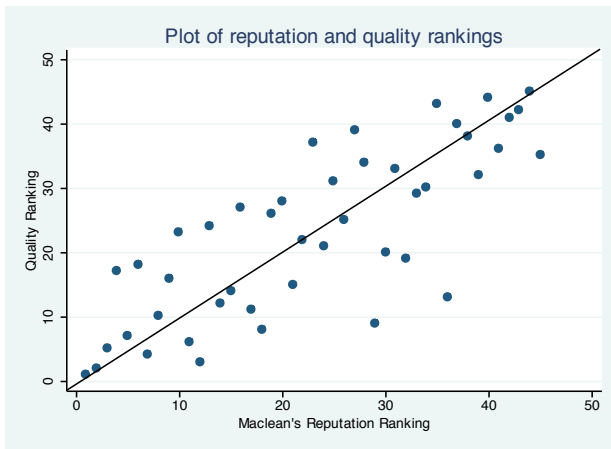
Standard errors in parenthesis. \*\*\*Significance at 1%, \*\*Significance at 5%, \*Significance at 10%.

Table : Return to Quality Rankings of BA's, NNM BCE

Y=log(hourly wage)	Top vs. Bottom 25%	Top vs. Bottom 50%
Women	<b>0.209***</b> (0.057) 332	0.009 (0.047) 620
Men	-0.031 (0.081) 193	<b>0.115**</b> (0.053) 400

Standard errors in parenthesis. \*\*\*Significance at 1%, \*\*Significance at 5%, \*Significance at 10%.

## University Quality Ranking 2002



## Dose-response Functions

## University Reputation

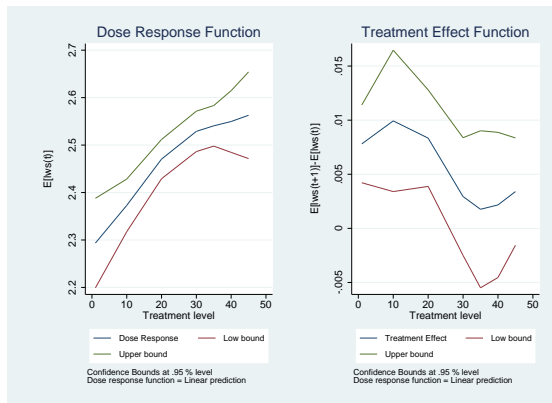


Figure : Dose-response and treatment effect functions

## Dose-response Functions

## University Quality

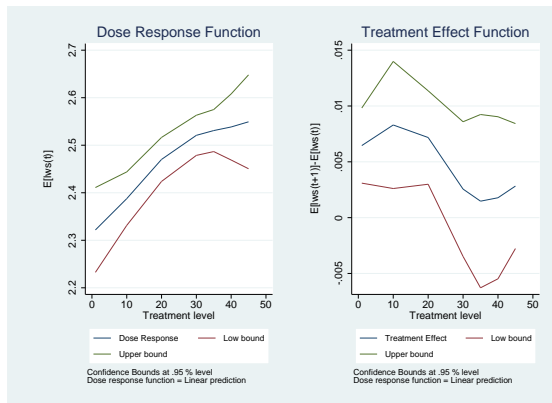


Figure : Dose-response and treatment effect functions

# Conclusion

- Returns to ranking are non-linear, higher for men than women.
- Returns to university ranking:
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# Future Research

- Wage profiles and university quality
- Other pecuniary and non-pecuniary outcomes
- A better university quality index?

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Thank you!

# EDUCATION VS. THE LABOUR MARKET FUTURISM IN HIGHER EDUCATION

PAUL JARVEY  
HIGHER EDUCATION STRATEGY ASSOCIATES



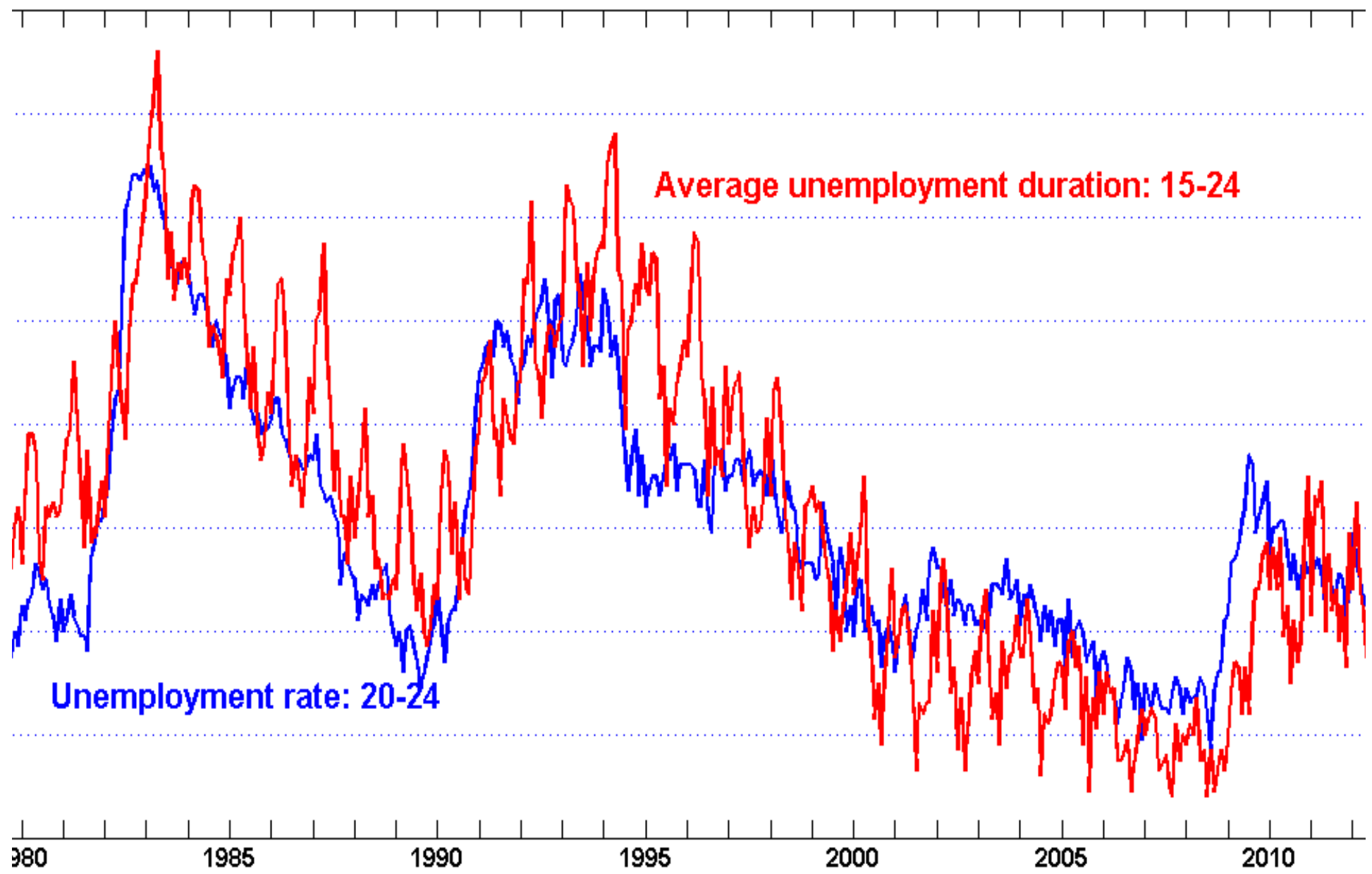
HEQCO

Fredericton, New Brunswick – October 24, 2011

# Competing visions

- *Paradigm one:*
  - *Outcomes-oriented, labour supply & demand, technical appropriateness*
- *Paradigm two:*
  - *Experience-oriented, long-term adaptability, generalist skillset*

## Youth unemployment rates and unemployment durations





# The Student Perspective

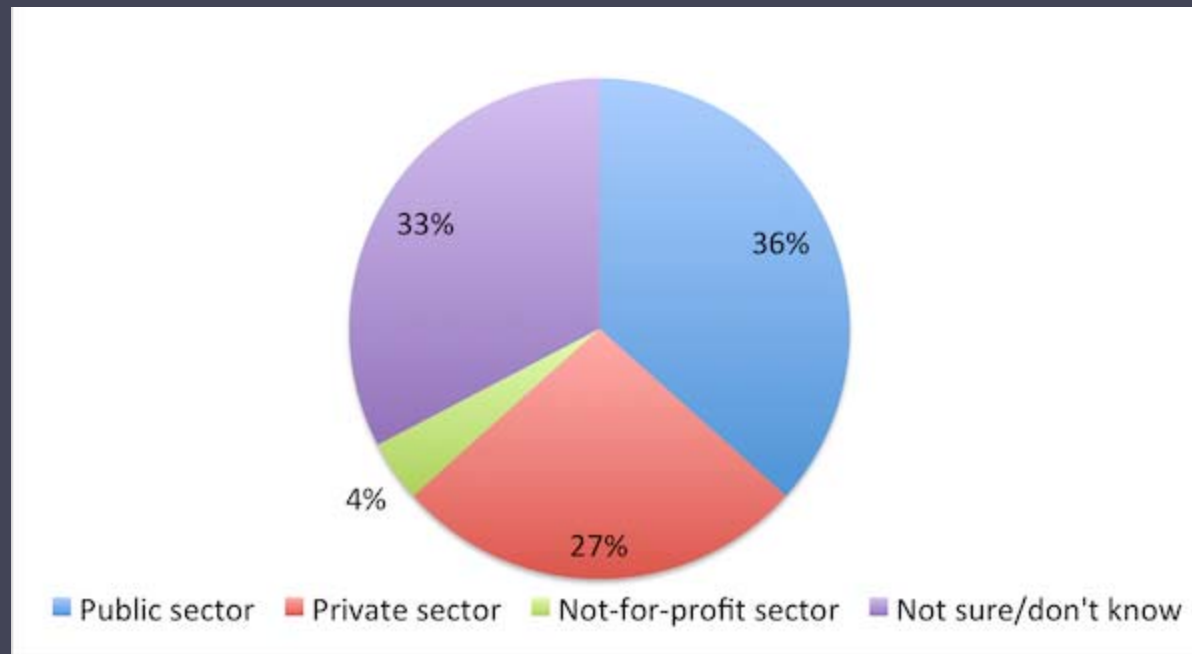
- ❑ MyCanEd monthly panel
- ❑ Mixed quantitative and qualitative instrument
- ❑ Roughly 2,000 students across Canada

Work-In-Learning

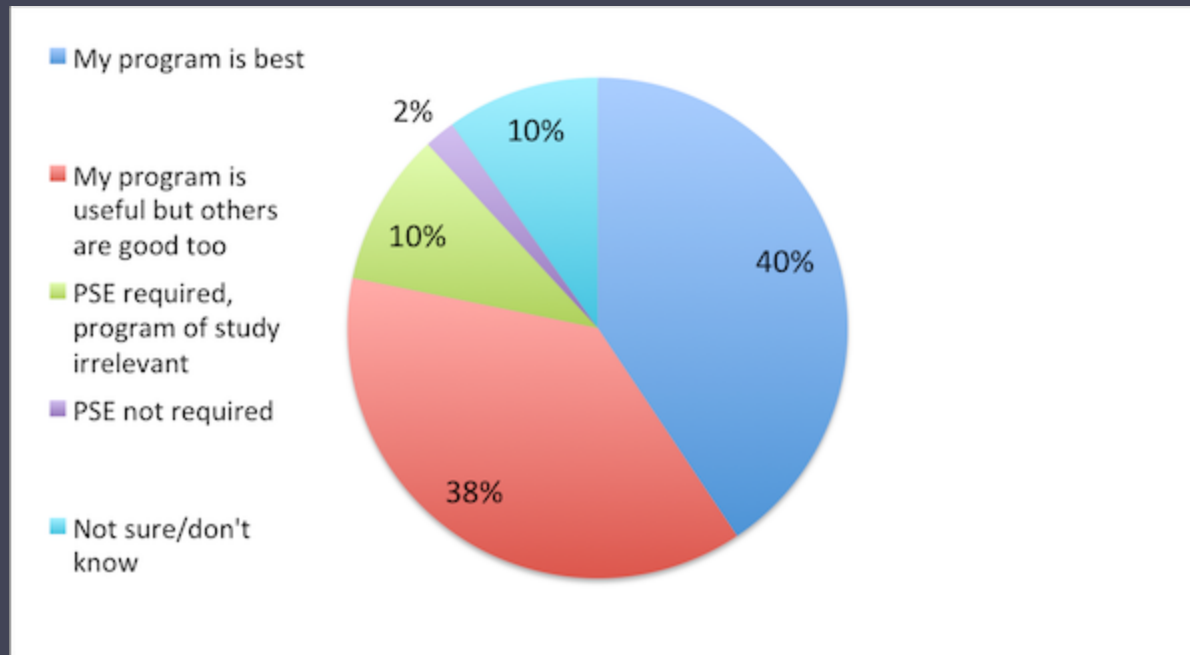
Why do students value postsecondary?

What do students perceive as valuable skills?

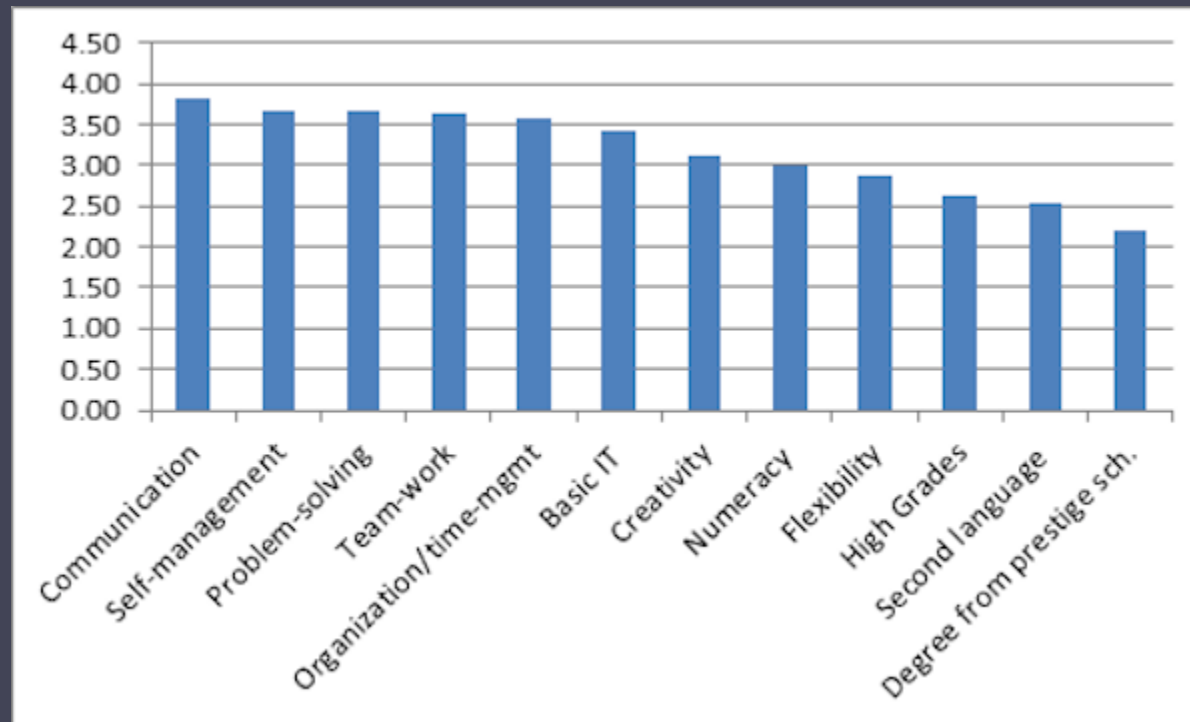
# Where students expect to work



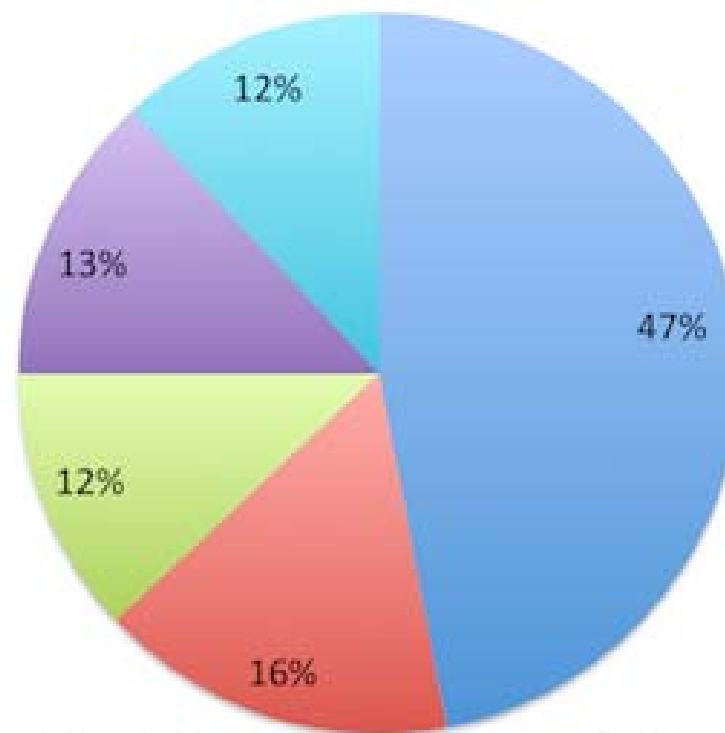
# Relation of future job to study



# Perceived importance to getting a job

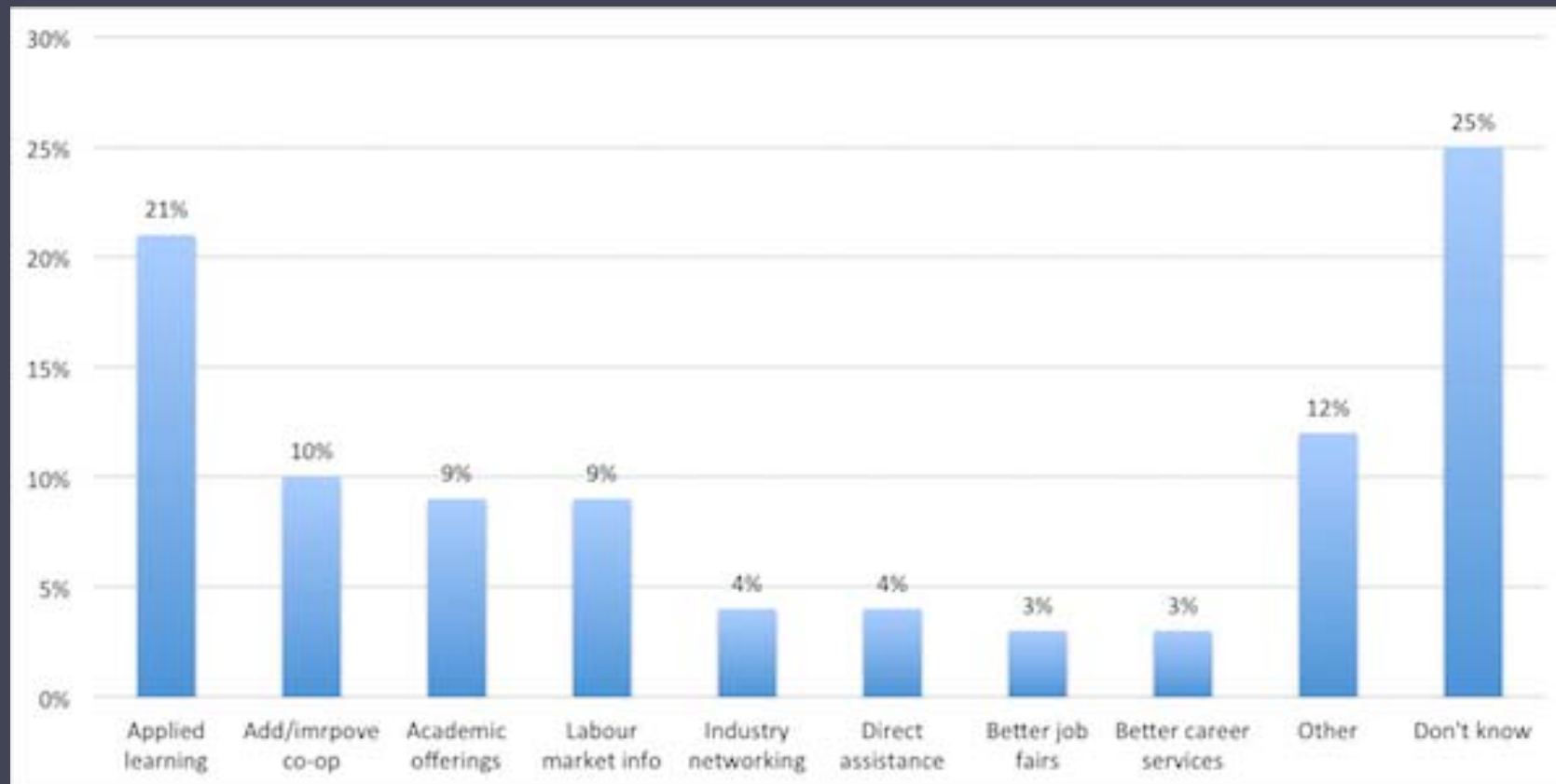


# Skills students think they lack for getting a permanent job



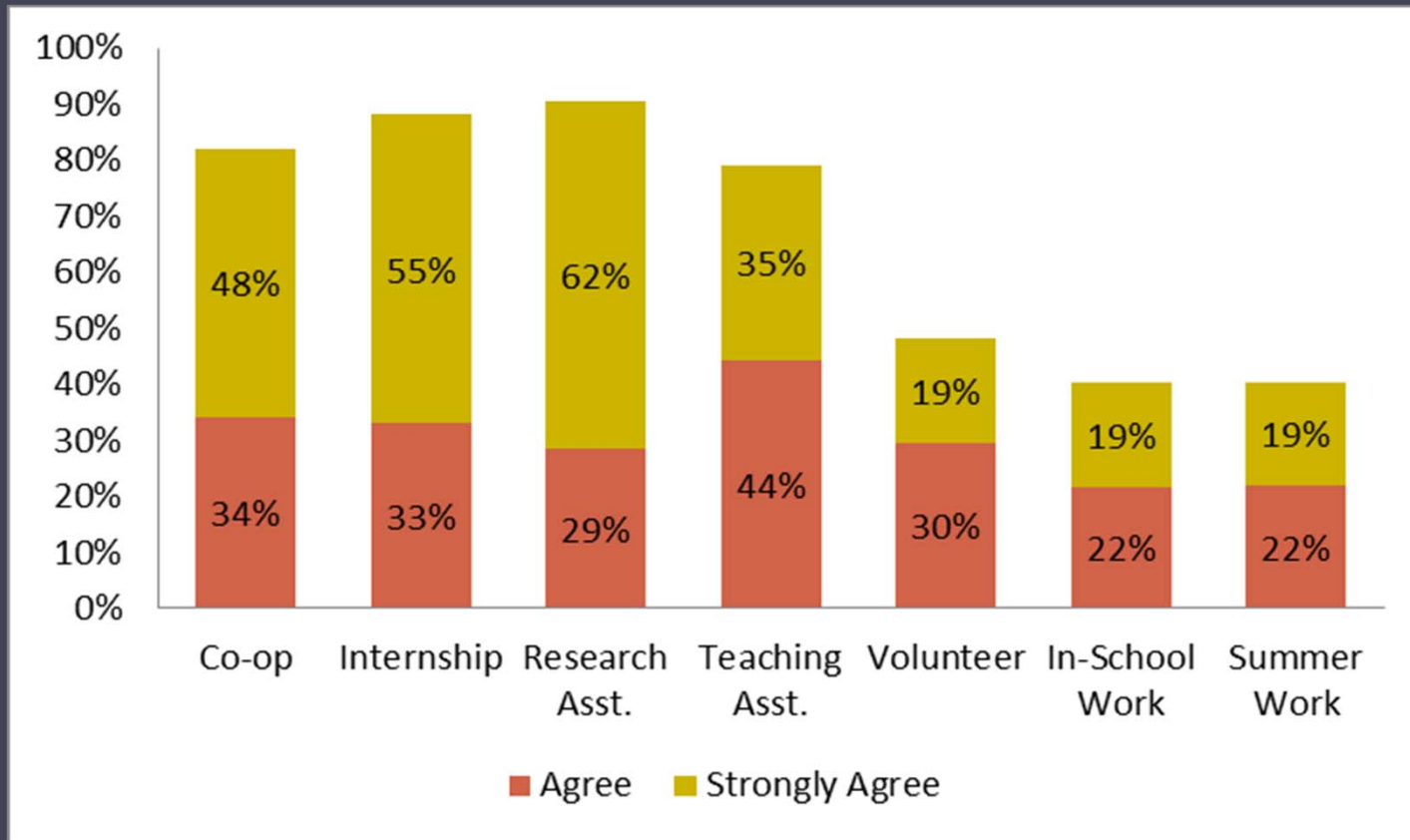
■ Soft skills ■ Work-related knowledge ■ Accomplishments and achievement ■ Other ■ Don't know

# What could your institution have done to better prepare you?

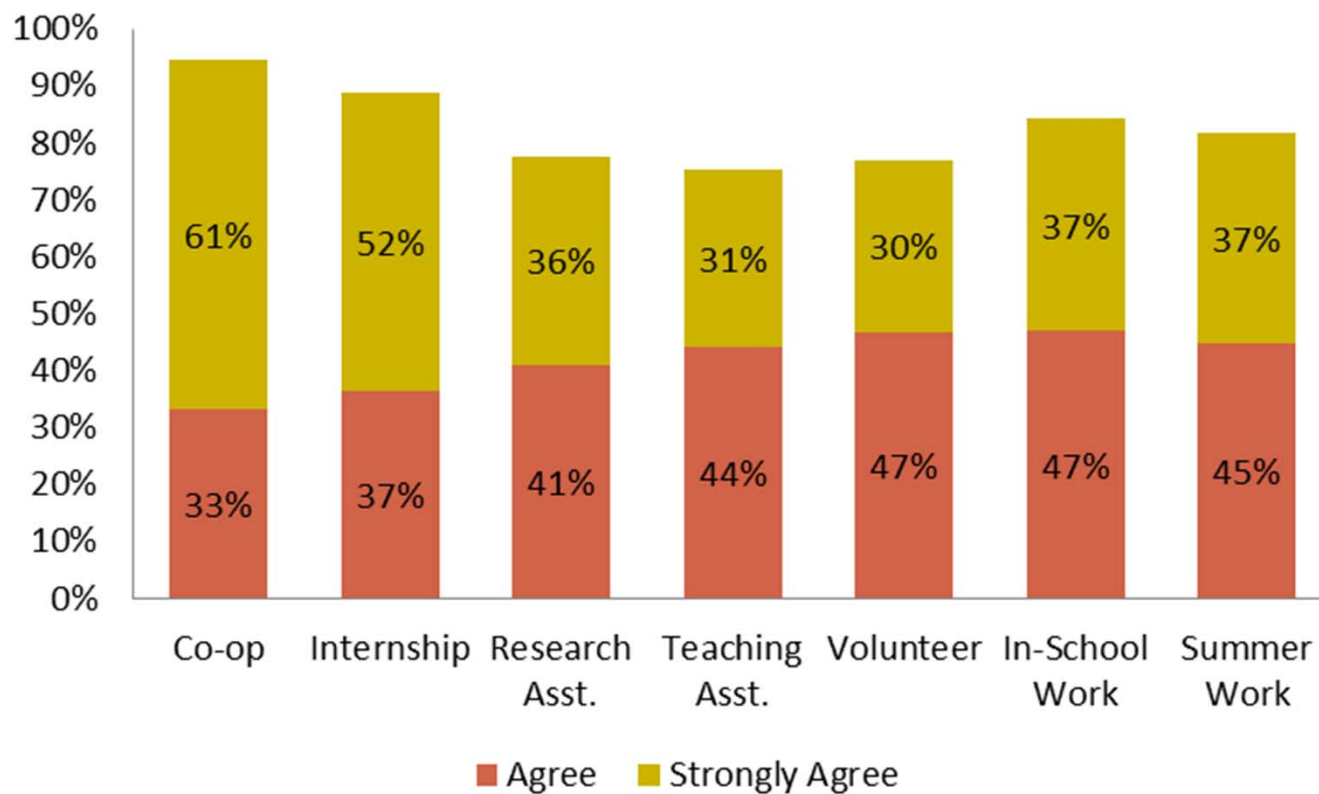


# Applied education: Why it's important

Work Improved Knowledge and Technical Skills in Areas Related to Field of Study

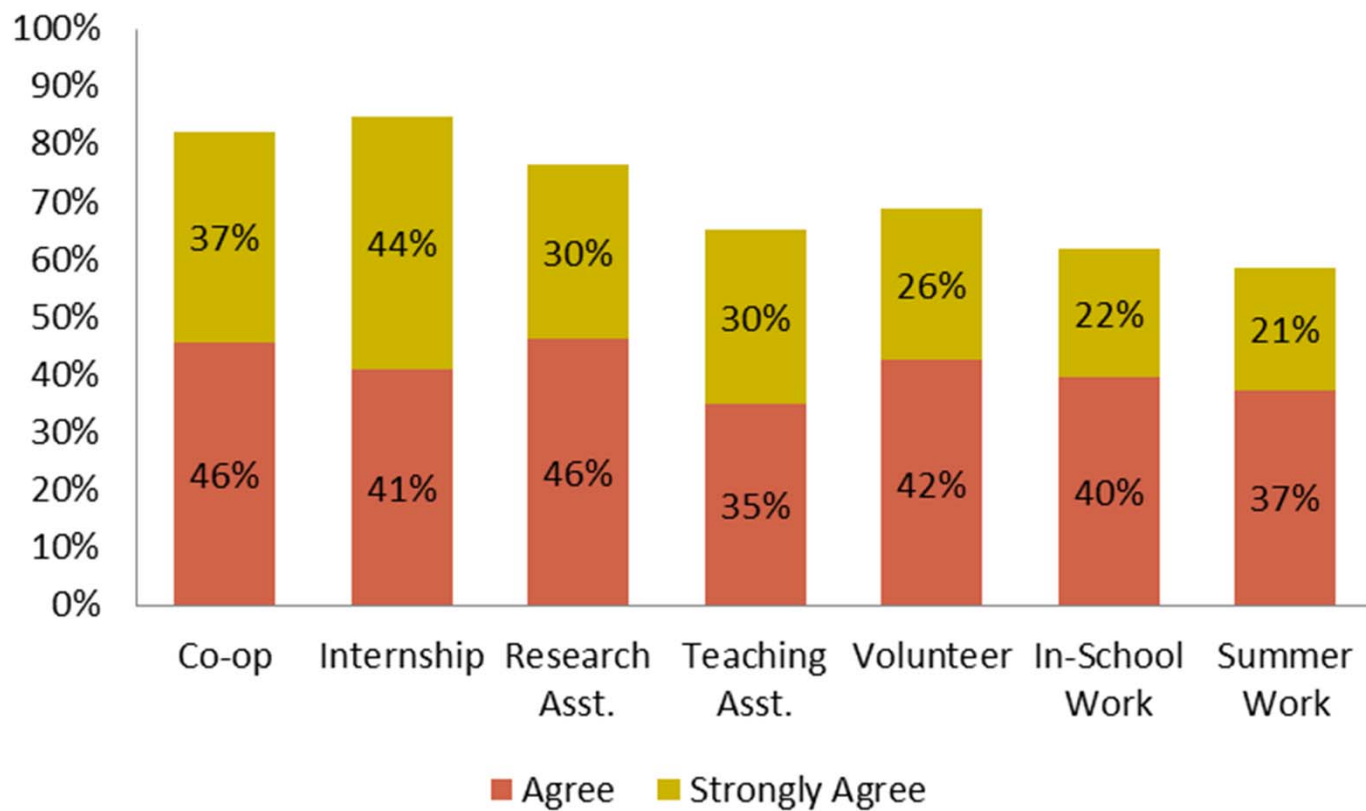


# Work Provided a Better Understanding of General Workplace Culture, Norms and Behavior





# Work Gave Me A Better Understanding of What I Want to Do With My Life



# Resolving the paradigm conflict

- Student perspective integrates elements from both rhetorics

- Alex Usher [ausher@higheredstrategy.com](mailto:ausher@higheredstrategy.com)
- Paul Jarvey [pjarvey@higheredstrategy.com](mailto:pjarvey@higheredstrategy.com)

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One Thought To Start Your Day