Perceived Skills Gaps in Alternative Postsecondary Education as Determinants of Hireability

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Abstract

This paper explores an original data set to understand the influence of perceived skill gaps on hiring. Results show that employers expect low skill from non-college graduates, even when the candidate is technically certified. Respondents expect non-college graduates to break formal and informal rules. Interestingly, this is considered a valuable behavior. State and industry effects each explain about 5 percent of outcomes, skill gaps explain about 10 percent, and interviewer perspectives on rule breakers explains about 15 percent. Perceived soft skill gaps are particularly important.

Keywords: education economics, alternative education, candidate fit, job fit, candidate matching

2010 MSC: I21, I22, J20

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1. Introduction

A substantial gap exists between the skills expected by employers and those possessed by college graduates[1, 2, 3, 4]. Vocational school and other non-college means of higher education are seen to endow technical skill, but the traditional degree remains associated with higher wages. This paper tests the hypothesis that perceived skill gaps explain the salary variance. In particular, this paper hypothesizes a perceived soft skills gap among non-college graduates.

The signaling model has become a standard explanation of the value of the degree. Following this model, scholars claim that the college degree signals intelligence, work ethic, and conformity[5]. Alternatives to college signal intelligence and technical skill. This paper tests the hypothesis that employers assume a deficit in the differential candidate properties of conformity and concientiousness.

Concientiousness is associated with a variety of positive outcomes, but there is reason for employers to value imperfect conformity. Firm innovation is attributable to underlying employee innovation, but conformity is antithetical to innovation. Leaders and high performers also behave abnormally, but in a way that is seen as desirable.

Risk aversion represents a seperate reason to select for conformity. A risk averse employer with low ability to distinguish high performing outliers from low performing outliers may prefer not to hire an outlier at all. The gamble is particularly expensive for small employers that are unable to spread risk across many hires. A secondary investigation in this paper will be to look for employer size effects. If large employers are favorable to alternatively educated individuals, this will add weight to an explanation based on risk aversion.

Alternative credentials refer to credentials other than the undergraduate degree[6]. The category includes, for example, industry certifications, portfolios of work, and transcript, badges, or other records of unaccredited learning and achievement. Individuals pursuing alternative credentials typically intend to leverage the credential toward better employment. That is, they have the same

ends as college students. Many individuals obtain alternative credentials as a supplement to the degree. Such a situation is pareto-superior to degree attainment alone and is therefore intentionally excluded from analysis. This paper focuses on alternatively credentialed non-college graduates in order to better identify stigmata of interest.

2. Methodology

This study uses an ordinary least squares approach to identify the effect of perceived skill gaps on willingness to hire. Perceived skill gaps and willingness to hire are included in original response data collected by online survey ($n = 212$). Observations are cross-sectional and taken at the individual level. The data is available for replication or any other use[1].

Respondents were obtained through the Amazon Mechanical Turk crowdsourcing service. Respondents were United States citizens at or over the age of eighteen. Respondents were paid for participation. The survey administration took place in July of 2020.

Respondents were asked 65 questions in two sections. The first section of responses describe the respondent. There are 13 questions in this section. The second section identifies perceived skill gaps for 13 skills. Each section beings with a contextual message to normalize response anchoring. Questions are provided in nonrandom order for the same reason. Appendix A includes a sample of the survey that includes the contextual messages.

Data from the second section is used to calculate perceived skill gaps. For each of 13 skills, the respondent is asked to imagine four types of candidates. One type of candidiate is an ideal candidate. At a high level, skill gaps are calculated by differencing job candidate skill and this ideal.

Perceived skill levels are reported for the ideal candidate, the average actual employee, the average recent college graduate, and the average alternatively

[1] See `https://osf.io/8qtxf/?view_only=95b0c0b0c65e4b7983198cc87c2ab733` for data used in this study.

credentialed non-college graduate. Skill gaps are technically computed in two ways. One method allows for overqualification of job candidates and the other does not. Overqualification effects have been identified as important[7, 8], but these effects are often ignored during skill gap analysis[9].

When overqualification is allowed, the skill gap is measured as a raw skill gap. The raw skill gap is the skill level of the ideal candidate less the skill level of the actual candidate. The skill gap without overqualification is calculated as the raw skill gap or zero if the raw skill gap value is negative.

The second section asks the respondent to imagine a hypothetical job candidate. The section section gathers perception data on this hypothetical candidate from the respondent point of view. The second section contains responses on a scale from 1 to 10. Each of these questions describes a skill and a kind of candidate. The response indicates the degree of skill expected by the respondent for such a candidate. The contextual message of the second section gives the same information just given to the present reader. That is, it describes how to answer questions in that section. The message also advises that each question is meant to take only a few seconds.

In total, the cross-sectional data allows an analyst to describe a type of indi

how is skill gap measured? typically, skill of candidate compared to ideal; but this produces on overestimate of the skill gap imo. The typical employee also has a skill gap compared to ideal, so: 1. if the candidate is as skilled as an actual employee, they should be hireable (well, maybe not if org wants to upskill or correct for onboarding costs) 2. if the organization routinely hires recent college graduates, an alt ed candidate should be higherable if their gaps are similar to a college grad.

overqualification concern? aggregate excess attractiveness by recent college grads against ideal. aggregate excess willingness to break rules by alt ed noncollege grads. many non-aggregate, or respondent-level, cases of alt ed overqualification; in fact, some such responses for every question kind (the 13 types)

Only unassailable approach is to compare alt ed to ideal; bc typical employees and recent grads are not always theoretically hireable. Left hand param is

Table 1: Factor Group Explanatory Power in a Simple Regression

Effect Group Name	Adj R-Sqr	R-Sqr	Max p-value
Industry	0.0185	0.0510	0.288
Rulebreaker	0.1432	0.1554	0.053
Skill Gaps with Overqualification	0.0558	0.0737	0.106
Skill Gaps without Overqualification	0.0758	0.0933	0.115
State, Robust	0.0177	0.0503	0.227
State, Semi-Robust	0.0034	0.0648	0.831

favorability. Optional but interesting: college grad to ideal or college grad to alt ed; so that we can indirectly associate favorability to actual propensity to hire. (which we have for college grads)

3. Results

TODO: Table 1 should have skill gaps from preferred model, model 5. so-called semi-robust skill gaps.

This paper acknowledges that own analysis proceeds through a technocentric lens. This is an important anchoring point for the analysis, and it may skew application of results in low-technology or low-skill sectors. The technocentric lens is an important caveat and anchoring point, but I argue that it is about as proper as any anchoring point. In economics, after all, technology operationalizes the theory of innovation per se. All skills can be viewed as point-in-time innovations, so that if there was no innovation then neither would there be a need for any skill. By the same token, a technocentric lens at the present seems close to a cross-industry lens at a future time. Anchoring to any other industry

would be both asymmetric and unusuful in the future. Perhaps this analysis is slightly skewed, but at least it is skewed only against the past, and will be increasingly useful in the future without partiality to any particular industry. In addition, we did check for industrial effects, but the analytical skew may persist pass the data.

4. Conclusions

It's not a nerd / geek stereotype wherein a technical individual lacks social skill rather, it's a general devaluation of vocational schooling as devoid of soft skill improvement the notion being that college to some degree endows social skill, or at least filters for or signals it.

In David Blake's approach / Degreed's Approach skills are 1-8 and there is no notion of 'overqualification' (for better or worse) https://degreed.com/skill-certification (in this idea, overqualified candidates are qualified; discounts overqualification as detrimental, ie hiring manager doesn't want to hire a report with many years of mgr experience) ... The Expertise Economy measure skill gap as skills quotient: https://www.expertiseeconomy.com/speaking

...

Notice that the alternatively credentialed individual doesn't need the average employer to value him or her. He or she simply needs some significant chance of being hired, and that certainly exists. Moreover, the average employer is already favorable to alternative credentials. As more alternatively credentialed individuals are highered and promoted through society, there is reason to think the number of opportunities afforded to alternatively educated individuals may grow. The problem doesn't seem to be about whether alternative credentials work, but whether they exist in a given industrial context, and whether an individual would like to pay the college premium for better favorability when both options are feasible.

Table 2: Table of Multiple Regression on Favorability, Selected Variables

	Model 1	Model 2	Model 3	Model 4	Model 5
Gap, Body Language	-2.240e-01*	-3.831e-01**	-1.507e-01+	-3.155e-01*	-3.060e-01*
	(8.314e-02)	(1.124e-01)	(8.980e-02)	(1.173e-01)	(1.145e-01)
Gap, Body Language-IT	2.199e-01+	2.298e-01	1.837e-01	2.791e-01	2.771e-01+
	(1.269e-01)	(1.656e-01)	(1.334e-01)	(1.707e-01)	(1.665e-01)
Gap, Commute		-2.320e-01++	-4.953e-02	-1.197e-01	-1.582e-01
		(9.720e-02)	(6.862e-02)	(1.023e-01)	(1.010e-01)
Gap, Conscientiousness	2.416e-01*	3.223e-01*	1.387e-01	2.174e-01+	2.175e-01++
	(8.000e-02)	(1.045e-01)	(8.483e-02)	(1.129e-01)	(1.093e-01)
Gap, Customer Service	-1.259e-01+	-1.512e-01	-1.253e-01+	-1.276e-01	-1.323e-01
	(6.389e-02)	(9.599e-02)	(7.162e-02)	(1.037e-01)	(1.009e-01)
Gap, Rule Breaker		-6.336e-02	-3.896e-02	-8.535e-02	-1.034e-01
		(1.028e-01)	(6.054e-02)	(1.082e-01)	(1.036e-01)
Gap, Salary		-1.135e-01	3.873e-02	-6.250e-03	
		(8.284e-02)	(6.597e-02)	(8.575e-02)	
Gap, Teamwork		1.227e-01	6.812e-02	1.287e-01	1.131e-01
		(9.179e-02)	(6.963e-02)	(9.697e-02)	(9.505e-02)
Gap, Technical	-1.274e-01+		-9.408e-02	-1.010e-01	-9.806e-02
	(7.443e-02)		(7.702e-02)	(1.023e-01)	(1.001e-01)
Rulebreaker, Culture Add	2.612e-01**	2.829e-01**	2.114e-01*	2.279e-01*	2.235e-01*
	(7.057e-02)	(7.015e-02)	(7.187e-02)	(7.190e-02)	(7.036e-02)
Rulebreaker, Risky	1.688e-01**	1.758e-01**	1.517e-01*	1.472e-01*	1.686e-01**
	(4.993e-02)	(4.813e-02)	(5.160e-02)	(5.063e-02)	(5.006e-02)
Rulebreaker, Rockstars	1.406e-01+	1.748e-01++	1.669e-01++	1.546e-01++	1.655e-01++
	(7.646e-02)	(7.245e-02)	(7.851e-02)	(7.754e-02)	(7.599e-02)
Adj R-sqr	0.3100	0.3491	0.2317	0.2554	0.2866
R-sqr	0.4408	0.4663	0.3409	0.3613	0.3880

Standard errors in parentheses

+ $p < 0.10$, ++ $p < 0.05$, * $p < .01$, ** $p < .001$

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