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## Education Mismatches and Wage Effects: Evidence from the 2010 DLSU Graduate Cohort

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**Abstract:** Educational mismatches – which result when graduates land jobs unrelated to their degrees – are typically viewed as inefficient, signs of a failed labour and higher education market. In this paper, we pursue an idea first broached by Robst (1995, 2006): that even in the most efficient labour markets, individuals may find themselves mismatched early in their careers, as they accept mismatched jobs to gain transferable skills and experience needed to eventually land jobs related to their degrees.

We provide survey evidence (n=225) from the 2010 (and earlier) graduate cohorts of DLSU and test two hypotheses: first, degrees that impart “specific” skills are more likely to lead to early-career mismatches, and second, that mismatched individuals earn lower wages. The results from our ordered logit and standard wage regressions indicate that graduates of specific-skill degrees are in fact less likely to be mismatched, and that mismatched graduates do not necessarily earn lower wages.

The results are preliminary but offer a promising line of enquiry for universities keen on developing more sophisticated methods of tracking graduate outcomes.

**Key words:** educational mismatches; wage regressions; labour markets

### 1. INTRODUCTION

When investing in higher education, students usually contemplate a particular career path, and base their choice of degree programme on it. Should they end up in careers unrelated to their degrees, there is said to be a labour-education mismatch. Actual figures for the Philippines are difficult to come by, but the Philippine Daily Inquirer (2016) reports estimates from the Trade Union Congress of the Philippines that up to 1.2 million graduates will find their job prospects

hampered by a mismatch between their skills and those required by the market.

It should be no surprise that labour-education mismatches are viewed as market failures and evidence of wasted resources. But a line of research by Robst (1995, 2006) considers that possibility that even in reasonably efficient labour and education markets, graduates may still find themselves mismatched and likely underpaid – particularly early in their careers – as they continually acquire transferable skills and



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experience that later allow them to re-orient to more matched careers.

Is there any evidence that such a process is at work, say for DLSU graduates? In this paper, we take an approach meant to work around considerable data restrictions: Robst took advantage of the 1993 US National Survey of College Graduates, for which there is no Philippine equivalent. Our intention is to provide a proof-of-concept of the survey and methodology that may be developed and eventually implemented by DLSU's Quality Assurance Office. It might help DLSU better track graduate careers and outcomes, as tracer studies have remained limited in scope and frequency.

## 2. METHODOLOGY

*Defining mismatch.* The first step is to define a labour-education mismatch. Traditionally, this has been done by comparing the years of schooling obtained by an employee to the years of schooling required for their present job. Mismatch by this definition is seen as a case of over-qualification; under-qualification is not as problematic, as firms are entitled in a free market to gamble on the productivity of any under-qualified employees.

Following Robst, however, we seek a better definition based on the actual *type* of degree and one's job. This of course becomes much more complicated given the thousands of available degree names and perhaps millions of job titles available. Our recourse is to categorise degrees into two types: those that impart "general" skills (more transferable across different job types and industries), and those that impart "specific" skills (less transferable). We then adopt Biglan's (1973) classification of liberal arts (and similar degree programmes) as "general", and all others as "specific".

*Administering the survey.* Without access to a national pool of respondents, we limited our sample to the 2010 cohort of DLSU graduates: still early-career and likely to be mismatched, but with possibly enough experience to consider career changes. Our

sample also includes roughly 50 respondents who are a bit older, but fewer than ten who are above 35. Limiting the cohort means being unable to make more solid claims about the temporariness of mismatches, as this requires data over a longer career arc, but future larger scale surveys carried out institutionally should address this.

Through social media invitations, we obtained 255 respondents, from a 2010 graduate cohort of 3,040.

Following Biglan, we considered CLA (liberal arts), BAG-CED (education), and RVR-COB (business) graduates as possessing "general" degrees, while GCOE (engineering), COS (science), CCS (computer science), and SOE (economics) graduates as possessing "specific" degrees. We caution readers against imputing any pejorative or complimentary meaning to the terms "general" and "specific"; they are merely categories meant to create the broadest possible distinction between degree types.

*Items.* We sought from respondents information about the following: *demographics* (age, gender, civil status), *education* (attainment, degree, number of awards received upon graduation), *employment* (principal job, industry, salary, years of experience). Most importantly, we solicited responses for *degree of mismatch*: self-reports on the question "To what extent is your present employment closely related, somewhat related, or not related to your undergraduate degree?" We ended with an open-ended item seeking reasons for their acceptance of mismatched jobs.

*Ordered logit regression.* We then estimated a model with (perceived) mismatch as the dependent variable, regressed against the battery of demographics and education variables. The results would indicate whether mismatches were more likely among graduates with "general" or "specific" degrees within the sample.

*Standard wage regressions.* We then estimated a Mincer equation using the natural logarithm of wages as the dependent variable, and degree of mismatch, educational attainment, age, gender, civil status, number of awards, degree classification, and years of experience as regressors. We also introduced an additional age-squared variable to see if the data will allow us to project the age at which wages are maximised for the respondents.



3.

## RESULTS

*Selected descriptives.* We obtained 225 responses. Of these, exactly 50% were from CLA, RVR-COB, and BAG-CED (“general” degrees), while the remaining half were from “specific” degree colleges (GCOE, COS, CCS, SOE). Among males, 57.38% assessed their jobs as closely related to their degrees, 26.23% somewhat related, and 16.39% not related. Among females, the percentages were 59.22%, 24.27%, and 16.51% respectively. And for wages, 175 (78%) earned up to PhP100,000 monthly, an additional 14 (6%) earned up to PhP200,000; 44 (20%) however did not provide wage data.

*Are graduates with “specific” degrees more likely to experience mismatch than graduates with “general” degrees?* Our ordered logit regression predicting the degree of mismatch indicated that the degree dummy (1=specific) was significant and negatively related to mismatch. If one graduated with a “specific” degree, the log-odds of landing a mismatched job declined by 1.16, *ceteris paribus*. Thus, contrary to the intuition that “specific” degrees might prove more restrictive and thus result in a greater likelihood of mismatch, our data suggest that possessing a specific degree is associated with a lower likelihood of landing a mismatched job.

*Within the sample, were mismatched graduates earning lower wages compared to those not mismatched?* Our standard wage regression, tested for heteroscedasticity, with wages as the dependent, and mismatch dummies (base category=completely matched) yielded insignificant coefficients, *ceteris paribus*. This suggests a benign (non-) relationship between mismatches and wages. Put another way, there is no apparent financial penalty to being in a mismatched job, from the sample data.

## 4. DISCUSSION

How reliable are these findings? From the start, the paucity of data has been an issue,

and these results are at best considered preliminary. To fully test whether job mismatch results in lower wages, or whether mismatches are temporary, we need graduate cohorts with much more work experience, requiring more respondents from years much earlier than 2010. Only a more institutional effort can generate a dataset of this size; this student paper is essentially a proof of concept of the survey instrument. If this is the bar, the results are preliminary but promising.

Yet even for the current respondents, self-selection might be an issue. The survey was administered online, with invitations sent to as many accounts as possible, via student and alumni networks. In doing so, we had to account for the possibility of bias resulting from some characteristic common to those who chose to respond. To address this, we ran a Heckman model; the p-value of the inverse Mills ratio (0.369) suggested minimal self-selection bias.

In future survey waves, we will need a more systematic way of recruiting respondents – certainly through social media, but also through more traditional channels, especially for graduates who prefer to stay off online networks. We observed relatively large attrition from questions about salaries, so it might help to more formally assure respondents of the confidentiality of the survey, say by a guarantee from a DLSU office such as Quality Assurance, as well as a more complete description of what the data will be used for.

## 5. ACKNOWLEDGMENTS

This was an undergraduate thesis supervised by the corresponding author. To merit co-authorship following the Vancouver Protocol, he sought the permission of the group and wrote this version of the paper.

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