

PBA Research Project Final Report Evaluation - Group 8

Project Title: Occupational Abilities and Wage Outcomes

Group #: 8

Authors: names and student IDs removed

I. Research Question & Objectives (30% weight)

Clarity and Specificity of Research Question(s)

Score: 5/5

The research question examines how different occupational abilities (cognitive, physical, psychomotor, sensory) relate to wages, drawing on human capital theory and the task-based approach to labor economics. This is a well-defined, theoretically grounded question with clear connections to important literatures in labor economics.

Feasibility of Objectives

Score: 5/5

The objectives are ambitious but achievable. The integration of O*NET occupational data with wage data demonstrates careful data wrangling. The decomposition of abilities into distinct categories enables nuanced analysis.

II. Methodology (25% weight)

Appropriateness of Methods

Score: 5/5

The methodology is strong:

- **Data integration:** Merging O*NET ability requirements with occupation-level wage data is non-trivial and well-executed
- **Variable construction:** The creation of ability indices from multiple underlying measures is carefully done with attention to dimensionality
- **Model specification:** The regression framework appropriately controls for occupation characteristics while examining ability premiums
- **Diagnostics:** Extensive attention to model diagnostics (multicollinearity, heteroskedasticity, influential observations) demonstrates methodological maturity

Rigour and Ethical Considerations

Score: 5/5

The rigor is strong for an introductory course:

- VIF analysis for multicollinearity
- Residual diagnostics
- Robustness checks with alternative specifications

- Careful discussion of identification limitations (cross-sectional, potential omitted variables)

The acknowledgment that correlations cannot establish causality, that higher-paying occupations may require certain abilities, but abilities don't necessarily cause higher pay, is appropriately cautious.

III. Results/Findings (15% weight)

Clarity and Presentation

Score: 5/5

Results are presented clearly. Tables are well-formatted, figures are informative, and the progression from descriptive statistics to regression results to diagnostics is logical. The coefficient plots effectively communicate the relative magnitudes of ability premiums.

Interpretation and Significance

Score: 4.5/5

The interpretation is careful and substantive. The finding that cognitive abilities carry the largest wage premium, followed by psychomotor, with physical abilities showing smaller or even negative associations, aligns with theoretical predictions and is thoughtfully discussed. The interpretation appropriately avoids overclaiming causality.

IV. Discussion & Conclusion (15% weight)

Relation to Existing Literature

Score: 4.5/5

The literature review effectively situates the work within human capital theory (Becker, Mincer) and the task-based approach (Autor, Acemoglu). The connection to recent work on skill-biased technological change adds policy relevance.

Conclusions and Implications

Score: 5/5

The conclusions are well-reasoned and appropriately scoped. The discussion of implications for education policy and workforce development is concrete and actionable. Limitations are honestly acknowledged without undermining the contributions.

V. Writing Quality (15% weight)

Organization and Structure

Score: 5/5

The report is well-organized. The theoretical framework is clearly established before the empirical analysis, and findings are systematically connected back to the motivating questions.

Clarity and Precision

Score: 4.5/5

Writing is clear, professional, and precise. Technical concepts are explained accessibly without sacrificing accuracy. The report reads like a professional research paper.

General Comments

This is a strong project that demonstrates solid engagement with both theory and methods. The integration of O*NET occupational data with labor market data, combined with careful attention to model diagnostics and identification concerns, reflects genuine research skills.

Your proactive engagement throughout the semester, i.e., seeking feedback, asking questions, and iterating on your approach, reflects the kind of initiative that produces strong work. The iterative refinement of the research question and methodology is evident in the polished final product.

Notable aspects:

1. **Data work:** Merging O*NET with wage data required substantial data wrangling done carefully
2. **Diagnostics:** The attention to VIF, residual analysis, and robustness checks reflects solid methodological practice
3. **Theoretical grounding:** Strong connection to labor economics literature
4. **Causal humility:** Appropriate acknowledgment that cross-sectional correlations cannot establish causality

This project demonstrates the kind of careful, methodologically sound work that provides a solid foundation for more advanced research.

Areas for Further Development

- Panel data on occupational wages over time could help address some identification concerns by examining whether changes in ability requirements predict changes in wages
- Extension to individual-level data (matching workers to occupations) would add richness and allow for within-occupation variation
- Minor note: when using heteroskedasticity-robust standard errors, HC2 is conventionally recommended over HC0 or HC1 as it corrects for leverage (high-leverage observations have systematically smaller residuals). HC3 also corrects for leverage but more aggressively, making it better suited for small samples where the extra conservatism improves coverage.

Class Performance Context

Statistic	Value
Class Mean	84
Class Median	82
Standard Deviation	5.3
Range	77 – 92
Your Score	92

Overall Score: 92 / 100

(This will contribute 23.0 / 25 to your final letter grade)

Score Breakdown

Section	Weight	Score
I. Research Question	30%	5/5, 5/5
II. Methodology	25%	5/5, 5/5
III. Results	15%	4.75/5

Section	Weight	Score
IV. Discussion	15%	4.75/5
V. Writing	15%	4.75/5
TOTAL	100%	92/100