FINAL REPORT
Diversity in the Economic Consulting Profession

Brooks Depro and Katy Rouse

With this project, our students reflected on gender diversity as they considered future economic careers. Students collected Census data that describe gender, age, and income and compared these facts across different occupations and industries.   After collecting the Census data, each team prepared a short business memorandum and oral presentation where they shared their findings. The students also coded and delivered a data visualization dashboard using Tableau software.

Background

In spring semester of 2018, the Economics Department introduced the senior research-based course for the BSBA in economic consulting major (ECO 460). In this class, we prepare students for entry-level careers in the economic consulting industry. The new midterm project addresses a key LSB goal of providing students with more knowledge and understanding of diversity-related issues in the business environment. In addition, the project addresses significant learning goals of ECO 460, such as data analysis and visualization. The Economics Department also used the midterm project for Assurance of Learning (AoL) course-embedded assessment.

Two factors pushed our interest in this topic: (1) our own personal experiences (both positive and negative) working in the economic consulting field and (2) a recent article in one of our professional association journals, *The Journal of Economic Perspectives*, that examines diversity. According to Bayer and Rouse (2016, 221-222), the lack of diversity in the economics profession continues to be a challenge and they call for "new types of research and initiatives to attack the problem."

In the process of gathering information on best practices, we came across several very useful resources (summarized in the Appendix A). For example, in an attempt to enhance diversity in the profession, the *American Economic Association* has created a video highlighting the many different careers one can pursue with a degree in economics. This video was posted to our department website and social media sites and we included a departmental discussion about some of the best practices discussed in the articles.

Midterm Project

Our students reviewed a request for proposal (RFP) created by the U.S. Small Business Administration's (SBA) Office of Advocacy. The SBA emphasized small business research focused on diversity topics including women entrepreneurship. For example, the *Research on Miscellaneous Small Business Topics on Women Entrepreneurship* RFP noted that women-owned businesses are highly concentrated in certain industries and requests "an empirical, data-intensive study on the reasons for the industry distribution of women-owned businesses." The RFP further suggests that while there exists research on the general barriers to business-

ownership for women, there is relatively little evidence on why there is a larger gap in particular industries, such as STEM fields.

The team-based midterm project included the following activities:

- ✓ collecting and summarizing occupation/industry diversity data,
- ✓ performing basic regression analysis,
- ✓ creating a data visualization presentation, and
- ✓ writing a professional business memo that addresses an open-ended question posed by a hypothetical client (U.S. Small Business Administration).

The students used the U.S. Census *American Community Survey*, statistical software (STATA), and data visualization software (Tableau), to answer midterm project's prompts. We have attached the description of the midterm project in Appendix B.

Measuring Outcomes

Assurance of Learning

We used the midterm project for an Assurance of Learning (AoL) course-embedded assessment:

Goal 3: Develop students with the ability to effectively communicate economic arguments.

Objective 3: Students will be able to use economic theory, data, and/or literature to construct an effective written argument for non-economists (e.g. citizens, clients, policy makers).

There were 11 students enrolled in ECO 460 Economic Consulting this spring. For the written project, 11 of 11 students were evaluated as competent. For the oral presentation, eight students were evaluated as competent and three students were evaluated as excellent.

Surveys

At the beginning of the semester, we administered a short anonymous survey (Appendix C) to identify student perceptions of the economic consulting industry, their primary reason for enrolling in the class, and attributes they considered during their career search.

At the end of the semester, we included a post-midterm project survey that examined student perceptions of diversity demographics after completing the project. The students answered the following questions using a Moodle questionnaire activity:

1. In the economic consulting industry, we found that the percentage of economists with a Bachelor's degree who were woman was about 40%. Prior to the midterm project, I thought this percentage would be: 1) Significantly higher than 40% 2) higher than 40% 3) equal to 40% 4) lower than 40% 5) significantly lower than 40%.

2. The results of this midterm project increased my desire to consider an economic consulting career. 1) strongly agree 2) agree 3) neither agree or disagree 4) disagree 5)strongly disagree

3. Consider two equally appealing job offers. When meeting my peers during the job interview, I notice that the gender percentage is 50% women for one firm and the other firm's gender percentage is 30% women. Now that I know the industry average percentage, I would be less likely to accept a job offer where the women percentage 30%. 1) strongly agree 2) agree 3) neither agree or disagree 4) disagree 5) strongly disagree

4. What finding in the class midterm project did you find the most surprising?

Course Reflection

Students will also complete a student reflection for the entire course during the final exam period. They may choose to discuss their midterm project findings versus their initial perceptions before the midterm project. They have the opportunity to offer critiques of the project and suggested improvements.

Brownbag Lunch

This semester, we also presented a brownbag lunch for faculty interested in replicating the midterm project for other occupations and industries.

APPENDIX A

Annotated Literature Review

Understanding the diversity issues in the economic consulting industry is well-aligned with a recent movement in the field of economics to bring awareness to and enhance both gender and racial/ethnic diversity in the discipline at large. The best resources we uncovered are summarized below:

[1] Bayer, Amanda, and Cecilia Elena Rouse. 2016. "Diversity in the Economics Profession: A New Attack on an Old Problem." *Journal of Economic Perspectives*, **30 (4): 221-42.**

In the article, note gender gaps in academia are much larger in economics than those in social sciences overall and that the field of economics has the largest observed gender gaps in tenure rates, salaries and job satisfaction among other math-intensive disciplines. The presence of minority economists is even more rare. The authors cite that "while about 30 percent of the US population is black of Hispanic, only 6.3 percent of tenured and tenure-track economics faculty is identified as such (p. 223)". The lack of diversity in the economics profession can be at least partially explained by wide gender gaps in PhD programs. According to Bayer and Rouse (2014), in 2014 only 31.4 percent of doctorates in economics were awarded to women and just 7 percent were awarded to black, Hispanic or Native American students. Further, while female representation has largely stagnated in economics over the last 20 year, the proportion of women earning doctorates has increased in other social science disciplines, the humanities, business, and even in other STEM fields. Similar are trends are seen at the undergraduate level. In 2014, only 28.4 of bachelor's degrees awarded in economics went to women, while 14.7 percent went to minorities. And while there has been growth of female representation in STEM fields, over the last decade economics has not seen progress. Given the large gaps in all stages of the economics pipeline, a growing body of research seeks to examine potential explanations for observed diversity-related trends in choice of undergraduate major. The authors summarize this literature (we include a brief synopsis of this literature at the end of the document). They also explain reasons why economists should care about diversity in the field. At the end of the article, Bayer and Rouse (2016) provide several recommendations on how to enhance diversity in the field of economics at the undergraduate level. Perhaps most relevant for purposes, they advocate less dependence on lecture and a move to more active-learning pedagogies in economics courses. They also cite survey evidence provided by Watts and Schaur (2011) which shows there are currently few references to gender, race and ethnic issues in economics courses. The introduction of this project into ECO 460 involves active learning strategies by asking students to discover these statistics themselves. It also infuses these diversity issues into the course, bringing new awareness to the issues.

[2] Undergraduate Women in Economics (UWE).
https://scholar.harvard.edu/goldin/resources (Accessed June 25, 2018).

This website managed by Claudia Goldin of Harvard University includes links to background facts and resources and articles. It also has a list of suggested interventions. These include three

key areas: (1) better information about the field of economics; (2) more use of mentoring and role models in the field and (3) improvements in content and presentation of course material. In terms of the last area, the authors argue to more use of modules and case studies in introductory and intermediate course. They argue faculty should present information in a way that better illustrates its applicability in the real-world and illustrates the many diverse areas of economics. The suggest group projects in different fields of economics such as health, education, poverty, crime, inequality.

[3] Diversifying Economic Quality: A Wiki for Instructors and Departments
http://diversifyingecon.org/index.php/Main_Page **(Accessed June 25, 2018).**

Another interesting resource we came across in this process is a web resource that promotes "inclusive, innovative, and evidence-based teaching practices in economics." The website includes the following several suggestions for instructors: "foster a growth mindset in your students; offer wise feedback; use active learning techniques; consider the impact of wait time; employ technology wisely avoid stereotype threat; use cooperative learnings; promote inclusive communication; provide students with rubrics; incorporate service learnings; join Wikipedia Education Program; flip your classroom; provide opportunities for involvement with research; reflect on personal prejudices; vary your assessments and retrieval exercises; get to know students personally; share these study tips; be aware of a third theory of discrimination; incorporate alternative economic approaches; offer course content with nuance and humility." For each of these practices, there is a link to a more thorough explanation of the practice and discussion of how to implement it successfully. In addition to the recommendations for instructors, the resource also provides a list of recommendations for departments. These include the following: "Actively recruit students who may be underprepared, unsure, or unaware; advertise the broad array of careers and research areas in economics; encourage peer and faculty mentoring; utilize bridge programs; offer a course on race, ethnicity, and gender in economics; alter the introductory textbooks; recruit and retain a diverse faculty; and educate faculty." Similar the recommendations for instructors, these recommendations include links to pages with more information.

[4] Bartlett, Robin L. 1996. "Discovering Diversity in Introductory Economics." *Journal of Economic Perspectives***, 10 (2): 141-153.**

Bartlett discusses gender and race topics in a first course in economics and shows most first textbooks treat these topics as unimportant. To address this gap, she provides teaching ideas and examples for a first principles class. Her article concludes by addressing two topics related to diversity with the economics classroom–learning styles and student backgrounds.

[5] Allgood, Sam, William B. Walstad, and John J. Siegfried. 2015. "Research on Teaching Economics to Undergraduates." *Journal of Economic Literature***, 53 (2): 285-325.**

Allgood, et al. provide the latest survey article research findings related to undergraduate economics teaching. It is published in the *The Journal of Economic Literature*, a journal designed to inform economists about the economics literature. The article examines evidence on the gender gap in economics (p:292) but offer no discussion on race/ethnicity issues. The

authors also provide updates about research related to alternative teaching methods and practices in economics.

In addition to the sources discussed above, we briefly summarize the evidence attempting to explain gender disparities in economic major choice cited by Bayer and Rouse (2016):

While differences in math ability has been one hypothesized factor, there is actually little empirical evidence to support this assertion. For example, other studies suggest females may have different perceptions of the field than their male counterparts which, in turn, decreases the likelihood they take any course in the field (Dynan and Rouse 1997). Other research suggests gender differences in major choice are driven by differential responses to the difficulty of the subject content. Rask and Tiefenthaler (2008) find females are more sensitive to relative grades in economics, suggesting the relative difficulty of the subject area may be more off-putting to women. However, Bayer and Rouse (2016) argue if this were true, we should expect to see similar gender differences in other fields where grades tend to be lower. But, as discussed above, these differences are far less pronounced in math and science majors. Another feasible explanation is the lack of both women and minority role models in the economics profession. Research on the idea that gender or racial teacher-student match affects a student's major choice is mixed. Earlier evidence suggests having a female teacher in an introductory course in economics had little impact on major choice (Dynan and Rouse 1997). However, more recent evidence suggest more female faculty leads to more students pursuing PhD program (Hale and Regav 2014) and there has been further supporting evidence of teacher-student identity matching in the hard sciences (Carrell, Page, and West 2010). In addition to these supply-side factors, Bayer and Rouse (2014) argue that there is also the possibility for either conscious or unconscious bias on the demand side. A recent work paper offers some evidence of this at least when it comes to tenure decisions (Sarsons, 2015).

References cited:

Carrell, Scott E., Marianne E. Page, and James E. West. 2010. "Sex and Science: How Professor Gender Perpetuates the Gender Gap." *Quarterly Journal of Economics* 125(3): 1101–44.

Dynan, Karen E., and Cecilia Elena Rouse. 1997. "The Underrepresentation of Women in Economics: A Study of Undergraduate Economics Students." *Journal of Economic Education* 28(4): 350–68.

Emerson, Tisha L. N., Kim Marie McGoldrick, and Kevin J. Mumford. 2012. "Women and the Choice to Study Economics." *Journal of Economic Education* 43(4): 349–62.

Hale, Galina, and Tali Regev. 2014. "Gender Ratios at Top PhD Programs in Economics." *Economics of Education Review* 41: 55–70.

Rask, Kevin, and Jill Tiefenthaler. 2008. "The Role of Grade Sensitivity in Explaining the Gender Imbalance in Undergraduate Economics." *Economics of Education Review* 27(6): 676–87.

Sarsons, Heather. 2015. "Gender Differences in Recognition for Group Work." Harvard University Working Paper, December 3

Watts, Michael, and Georg Schaur. 2011. "Teaching and Assessment Methods in Undergraduate Economics: A Fourth National Quinquennial Survey." *Journal of Economic Education* 42(3): 294–309.

Case Analysis of Data-Driven Conclusions: Economic Consulting Industry Analytics

Part of the role of the economic consultant is to take a client's question and figure out how to address it. In this assignment, your consulting team will: (1) review a request for a proposal (RFP) from the U.S. Small Business Administration's Office of Advocacy related to small business research (2) develop and complete a case analysis of the economic consulting industry.

This project is designed as if the potential client has awarded a contract to your firm and wants to explore the demographics of entry in the economic consulting industry. In this project, each consulting team will collect and code a new data set from the *American Community Survey* and deliver a presentation that visualizes their dataset. Each team will also prepare a business report discussing their findings related to entrepreneurial diversity in the consulting field, relative to a comparison industry.

This project addresses a key LSB goal of providing students with more knowledge and understanding of diversity-related issues in the business environment.

Background Readings

- *Understanding a client's question*
  (1) U.S. Small Business Administration. (June, 2017). Research on Miscellaneous Small Business Topics on Women Entrepreneurship. Solicitation Number: SBAHQ-17-Q-0009.
- *Textbook Readings*
  (2) Cameron, C. and P. Trivedi. 2010. *Microeconometrics Using Stata, Revised Edition*. Chapter 3.2 Data and Data Summary.
  (3) Garner, B. 2013. *HBR Guide to Better Business Writing (HBR Guide Series): Engage Readers, Tighten and Brighten, Make Your Case*.
- *Example Consulting Report*
  (4) Demiralp, Berna, Morrison, Laura, and Stephanie Zayed. (March, 2017). On The Commercialization Path: Entrepreneurship and Intellectual Property Outputs Among Women in STEM. Prepared for the National Women's Business Council.

ECO 460 Learning Objectives

- Explain and give examples of the links between data analysis, client strategy, and predictive analytics [Foundational Knowledge—Understanding and Remembering]
  - Register and create an account on IPUMS USA. IPUMS USA data are available free of charge. Before using the data, researchers must complete this registration and agree to abide by the usage license.
  - Use IPUMS USA to create a custom extract of the data set.
  - Open your extract using STATA
  - Create and use STATA do file to analyze two-way tables using Cameron and Travedi (2010)
    - Use `if` qualifier to restrict samples
    - Use `fweight` to deal with IPUMS USA weighted data
- Develop and use a self-learning plan for Tableau in order to create effective visual analytics for oral presentations and consulting projects [Learning How to Learn-- How to Pursue Self-Directed or Intentional Learning]
  - Visualize your results using Tableau or Excel
    - Complete online Tableau training materials outside of class
    - Review example: https://public.tableau.com/profile/reagan.buske#!/vizhome/STEM_8/Intro
- Advise project team members, supervisors, and clients on issues or induce their action using effective oral presentations, business memos, and business reports [Application—Practical Thinking]
  - Develop a professional business report that address an open ended question posed by the client.
  - Prepare an oral presentation of your findings
- Perform basic and advanced regression analyses and economic model simulations; use coding practices that other team members, project managers, and quality assurance reviewers can understand and replicate [Application—Performance Skills]
  - Describe the relationship between economic variables (such as total pre-tax wage and salary income) and demographic characteristics using a simple regression line.

Assignment Instructions

Preparation for ECO 460 In-class Friday Lab

1. Use North American Product Classification System (NAPCS) to identify appropriate industry code for: *economic consulting services* https://www.census.gov/eos/www/napcs/history.html
   Note: For the IPUMS analysis, you will use the 4-digit code vs. the 5-digit code.

2. Identify 2010 Standard Occupational Classifications (SOC) occupational codes to define the occupation code for: *economist*
   https://www.bls.gov/soc/

3. Use IPUMS USA for this exercise. According to the IPUMS website, "IPUMS USA collects, preserves and harmonizes U.S. census microdata and provides easy access to this data with enhanced documentation. Data includes decennial censuses from 1790 to 2010 and American Community Surveys (ACS) from 2000 to the present."
   i. Register and create an account. Tutorial: https://youtu.be/XC-iGAbJ2Fo
   ii. Create custom extract. Tutorial: https://youtu.be/tZR0aDwr91s
       1. Use the *American Community Survey*. More specifically, use the 2012-2016 5-Year Sample
           a. Key variables to extract:
               i. Age
               ii. Sex
               iii. Race
               iv. Hispanic Origin
               v. OCCSOC
               vi. INDNAICS
               vii. EDUC
   iii. Open your extract. https://youtu.be/Orif_kvhkMY

Create an example tabulation: Gender and Educational Attainment

4. Write a STATA do-file that covers each of the steps below. Use the template do-file (see Cameron and Travedi 2010, 27).
       i. `describe` the data (Cameron and Travedi 2010, 74)
       ii. Check the data using the `summarize` command (Cameron and Travedi 2010, 75). Use the separator option to insert a line between the output for each variables (Cameron and Travedi 2010, 7).
       iii. Repeat (ii) but restrict the sample to economists working in the economic consulting industry (4-digit NAICS).
       iv. Use the `tabulate` command to create a two-way table of **sex** against **educd** (Cameron and Travedi 2010, 77). Make sure you restrict the sample to economists working in the economic consulting industry using the `if` qualifier.

v. Repeat (iv) but account for PERWT. PERWT indicates how many persons in the U.S. population are represented by a given person in an IPUMS sample. Type "help fweights" if you need assistance (Cameron and Travedi 2010, 3).

Out-of-Class Project Assignment

5. Your client at the U.S. Small Business Administration would like a broader understanding of the demographics of entry-level economists. In other words, she would like to understand the characteristics of economists who obtained Bachelor's degrees and are currently working in the economic consulting industry. Write a short business report that addresses this broad open-ended question.

To help you get started, here are some example questions that can be answered with this data. You also should consider an example consulting report by Demiralp, Morrison, and Zayed (2017) for other ideas related to ACS. You should also revise your current IPUMS USA extract to include other demographic or economic variables that will help answer the client's question.

1. What share of economists in an average consulting firm have bachelor's degrees?

2. If you were working for an average consulting firm, what is the probability your fellow entry-level economists with a Bachelor's degree will be female?

3. If you were working for an average consulting firm, what is the probability your fellow entry-level economist with a Bachelor's degree will be a race other than white?

4. If you were working for an average consulting firm, what is average age of your fellow entry-level economist with a Bachelor's degree?

5. How do these demographics contrast with other occupations and industries that you might consider as a career?

6. How do the demographics statistics within the consulting industry compare with the U.S. population?

7. Can you perform basic regression analysis with the data to identify patterns? Use your creativity; think about answering a question the client might have if they were advising a student considering this career path.

Survey for Economic Consulting, Spring 2019

As a part of Elon's ongoing commitment to discuss diversity both in the context of the overall university and within specific departments, we are conducting the following survey. This survey is part of a faculty diversity and inclusion grant from Elon. Participation is voluntary and anonymous.

1. I identify as:
   A. Female
   B. Male
   C. Prefer not to answer
   D. Prefer to self-describe

2. I am a
   A. Junior
   B. Senior

3. I care most about
   A. Interest in the topic
   B. My final grade in the course
   C. My relationship with my professor
   D. Applicability of the course content to my employment

4. I selected this class because
   A. I am an economic consulting major
   B. I am taking this course to fulfill an upper-level elective

5. In 2015, approximately what percentage of Bachelor's degrees in Economics were awarded to women?
   A. 60%
   B. 45%
   C. 15%
   D. 30%

6. In 2015, approximately what percentage of Bachelor's degrees in Economics were awarded to minority students?
   A. 60%
   B. 45%
   C. 15%
   D. 30%

7. If you were to guess, what percentage of economists with Bachelor's degrees who are working in the economic consulting industry are women?

8. If you were to guess, what percentage of economists with Bachelor's degrees who are working in the economic consulting industry are minorities?

9. Do you intend to pursue economic consulting?

10. What other industries have you considered? List your next best alternative.

11. To what extent do you agree or disagree with the following statement: Gender and racial/ethnic diversity would be an important factor when conducting my job search.
    A. Strongly agree
    B. Somewhat agree
    C. Neither agree nor disagree
    D. Somewhat disagree
    E. Strongly disagree

12. To what extent do you agree or disagree with the following statement: Gender and racial/ethnic diversity should be an important factor for the economic consulting industry.
    A. Strongly agree
    B. Somewhat agree
    C. Neither agree nor disagree
    D. Somewhat disagree
    E. Strongly disagree