

## **BRINGING SCIENCE AND DATA INTO THE MANAGEMENT CLASSROOM:**

### **AN EXAMPLE USING BLS REPORTS**

Management is viewed by some students as a “soft science,” lacking the tangible results of hard science disciplines. In this session, participants will explore ways in which management educators can work to bring the scientific method and data off the pages of academic journals and into the classroom. A sample student activity in which current data from the Bureau of Labor Statistics is used to explore interindustry wage differentials will be presented. To encourage dialogue about the issue, participants will then be asked to consider additional ways in which data and science can be further incorporated into the management classroom.

Keywords: data, science, classroom

## INTRODUCTION

Management is viewed by some as a “soft” science – somehow lesser-than the hard sciences of chemistry, physics, biology, and the like. Students, in particular, may hold this view. While management scholars engage with data and the science of research on a daily basis, undergraduate students are unlikely to explore the findings of academic studies. As a result, students may dismiss some of our most important findings as mere conjecture, speculation, or other “soft” analysis of intangible human behavior. To remedy this problematic student perspective, management educators may need to incorporate elements traditionally thought of by students as being reserved for the “hard” science domain. In this vein, the scientific method presents itself as a useful tool for bringing data and science back into the management classroom.

The sample exercise presented here is intended to engage students with the scientific method and the use of data from the Bureau of Labor Statistics’ (BLS) to understand why workers in different industries earn different wages. For some students, understanding the macro-level influences on compensation administration can be difficult to grasp – particularly for those students who may have a limited background in labor economics and/or strategic management. This exercise is intended for late undergraduate students and is particularly useful in a course that focuses on compensation and benefits administration. It may also be practical in strategic management and strategic human resource management courses, as it incorporates elements from both domains. The more general suggestion to explore ways in which the scientific method and data can be better integrated into classroom is, of course, applicable to any management topic and/or course.

## **THEORETICAL FOUNDATION/TEACHING IMPLICATIONS**

In the domain of compensation and benefits administration, it is widely recognized that equivalent employees performing similar work are often paid different amounts (Martocchio, 2017). While most students understand this to be true, many do not accurately understand why. While students appear to better understand how differences in workers' knowledge, skills, and abilities may demand higher wage rates, they often struggle to grasp how macro-level industry characteristics may also explain differences in pay.

Interindustry wage differentials, or the pattern of pay and benefits associated with different industries (Martocchio, 2017), are attributable to several factors. As noted by Martocchio (2017), wages tend to be lower in industries with more competition, while wages tend to be higher in industries with a high degree of capital intensity, a high level of industry profitability, and higher union membership. To effectively teach how these different industry characteristics produce higher or lower average wages, this exercise allows students to work in small groups and use real-world data from the BLS to explore contextual influences on compensation administration.

While working through the activity, students unknowingly use the scientific method to explore the research question, "Why do equivalent workers in different industries earn different wages?" By analyzing industry characteristics, students are able to hypothesize which of the two industries they have selected for comparison will pay its workers the higher average wage. To "test" their hypothesis, students then use an interactive BLS report to determine which industry indeed pays higher wages. In the final stages of the activity, students are asked to analyze the results by considering plausible alternative explanations if their hypotheses were incorrect.

## **LEARNING OBJECTIVES**

This activity is intended to serve as one example for how management educators can expose students to the scientific method and allow them to “test” real-world data in a classroom setting. By completing the specific BLS activity described herein, students are expected to gain knowledge about the different macro-level factors that influence interindustry wage differentials, including product market competition, capital intensity, industry profitability, and unionization of the workforce. In addition, by working with an interactive graph (“Employment and average weekly earnings by industry,” Bureau of Labor Statistics, 2019), students gain first-hand experience working with government compensation data. Students also have an opportunity to practice interpersonal skills as they must work with a small team to come to a consensus when comparing the different industry characteristics and determining the end effect on wages that these differences may cause.

## **EXERCISE OVERVIEW**

The exercise should take approximately 20 to 40 minutes to complete (depending on individual group dynamics). After a brief introductory lecture on industry and occupational wage differentials, students are asked to split into small groups of 3 to 5 individuals. The exercise may therefore be performed with as few as 3 students. It is expected to be adaptable to larger classes as well, so long as the classroom configuration supports small group work. Before beginning the activity, the instructor distributes to each student a copy of (a) the assignment instructions and (b) worksheet for recording answers.

In the first half of the exercise, the student groups are asked to compare any two “supersector” industries from the North American Industry Classification System (NAICS).

Each group must then come to a consensus when ranking the two selected industries as high or low on the four dimensions noted above (i.e., product market competition, capital intensity, industry profitability, and unionization of the workforce). Next, students are asked to consider how these different macro-level attributes may influence average wages in each industry. For example, is a high degree of union membership associated with relatively higher wages? Do capital-intensive industries, on average, pay more or less than industries that are not as capital-intensive? Finally, students must work together as a group to use the information presented during the brief introductory lecture to decide if each dimension increases or decreases average wages in that industry.

In the second half of the exercise, students are then asked to form a hypothesis by indicating which industry (of the two they have selected for comparison) pays higher average wages. To “test” their hypothesis, students then use laptops or another internet-capable device to visit the interactive graph, “Employment and Average Weekly Earnings by Industry” (Bureau of Labor Statistics, 2019). As shown in Figure 1 below, students can see the average weekly earnings in each supersector industry, as well as any over-the-month changes in employment. By scrolling over the different industry markers, students can explore which industries pay higher wages and how employment in each industry has increased or decreased over the previous month. Finally, students are asked to compare their hypothesis to the BLS data and provide an explanation for any predictions that were unsupported.

--- Insert Figure 1 here ---

## **SESSION DESCRIPTION**

For the conference session, I aim to provide an overview of the activity while highlighting the distinct learning objectives emphasized in different aspects of the assignment. The session is expected to last approximately 30 minutes total. During the first 10 minutes, participants will be exposed to general idea of using the scientific method and data in the management classroom. For the next 10 minutes, the interactive BLS graph is explored, and student feedback from the pilot-testing of this activity will be addressed. Participants will also be provided with a copy of the activity instructions and worksheet, to allow for active participation as the exercise is presented. The final 10 minutes of the session will be reserved for open dialogue and discussion about incorporating more data and science into the management classroom.

## REFERENCES

- Bureau of Labor Statistics (2019, December). Employment and average weekly earnings by industry [Economic News Release]. Retrieved from <https://www.bls.gov/charts/employment-situation/employment-and-average-weekly-earnings-by-industry-bubble.htm>
- Martocchio, J. J. (2017). Strategic compensation: A human resource management approach. Hoboken, New Jersey: Pearson Education, Inc.

**Figure 1.** Employment and average weekly earnings by industry for all employees, December 2019, seasonally adjusted (Bureau of Labor Statistics, 2019)

