Article title

An Analysis of Data: Factors Affecting Job Satisfaction

Author

Meesun Yang

Affiliations

University of Virginia, University of Minnesota

Corresponding author's email address

tby8aj@virginia.edu

Keywords

age; gender; race; education; degree; children; salary; IPUMS

Abstract

This project gathered data from the IPUMS Higher Ed database for the years 2003 - 2013 in order to analyze how various factors affect job satisfaction amongst the workforce with higher levels of education. For this project, we examined the effects of age, gender, race, education level, salary, and number of children on overall job satisfaction. The results of the analyses are presented as an interactive dashboard that enables the end user to select the desired factor to see its impact on job satisfaction.

Specifications table

Subject	Data Science

Specific subject area	Data Engineering and Analysis
Type of data	Table Graph Figure
How the data were acquired	The data was obtained from the IPUMS Higher Ed site (https://highered.ipums.org/). This site provides options to select and export various sets of data that were gathered through surveys.
Data format	Raw Analyzed Filtered
Description of data collection	The data was gathered from the IPUMS site, which is affiliated with the University of Minnesota. Data on age, gender, race, education level, salary, number of children, and overall job satisfaction were collected, which resulted in 531,216 rows. Any NA values (and their equivalents) were excluded from analysis.
Data source location	IPUMS 50 Willey Hall, 225 - 19th Avenue South Minneapolis, MN 55455 The data was obtained from the IPUMS Higher Ed site (https://highered.ipums.org/).

Data accessibility	Direct URL to data: https://github.com/meesuny/de-job-satisfaction
Related research article	N/A

Value of the data

Usefulness

People spend the vast majority of their lives in the workplace, and job satisfaction is a significant component of overall well-being. This data helps us understand the factors that contribute to overall job satisfaction and therefore well-being.

Benefits

From the employees' perspective, the vast majority of the adult population works, so anyone in the workforce can benefit from knowing which factors could affect their levels of job satisfaction, which would enable them to lead better lives. From the employer's perspective, job turnover results in huge costs to the company annually. Increasing job satisfaction and thus reducing job turnover could result in significant savings for the company. Moreover, increased job satisfaction could result in heightened company morale, which could lead to improved productivity, thereby increasing profits.

Future Developments

Only a limited number of factors potentially affecting job satisfaction were analyzed in this project, but there are likely to be many more factors at play. Some may be related to the factors already analyzed in this project, while others may be entirely different. Moreover, certain additional factors may diminish or amplify the impact of some of the factors analyzed here via an interactive effect. It would be interesting to examine all of these potential effects in a future analysis.

Objective

Because people spend so much of their lives in the workplace, having a certain level of job satisfaction is important for mental and emotional health. Identifying the factors that influence

this the most would help us understand how best to improve job satisfaction in the workplace. This has repercussions not only at an individual level but also at societal, industrial, and commercial levels.

Data description

The data was collected from the IPUMS Higher Ed site (https://highered.ipums.org/). The data available there was gathered through the following surveys:

National Survey of College Graduates 2003, SESTAT
Survey of Doctorate Recipients 2003, SESTAT

The site enables collection of specific pieces of data, and for this project, data for the following categories were collected: age, gender, race, education level, salary, and number of children. The data used for this project covers surveys conducted in 2003, 2006, 2008, 2010, and 2013 and resulted in 531,216 rows of data.

Experimental design, materials and methods

For this project, python was used to import the collected data to a Postgresql database contained within a docker image. Both python and SQL were used to filter the collected data by variable so that each variable could be stored in its own temporary dataframe to be compiled into a consolidated table for generation of the dashboard figure. This data was then fed to a dashboard using JupyterDash, which connects to an external interface where the user is able to select the desired factor to see how it affects job satisfaction. The dashboard is available at http://127.0.0.1:8050/.

Ethics statements

No relevant information.

CRediT author statement

No relevant information.

Acknowledgments

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Declaration of interests

X The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

☐ The authors declare the following financial interests/personal relationships which may be considered as potential competing interests:

References

Minnesota Population Center. IPUMS Higher Ed: Version 1.0 [dataset]. Minneapolis, MN: University of Minnesota, 2016. https://doi.org/10.18128/D100.V1.0