Are Millennials more likely to quit?

Satwik (Net ID : wh3517)

2022-10-07

Introduction

Anyone born between 1981 and 1996 (ages 23 to 38 as of 2019) is considered to be a **Millennial**. Here is a helpful chart to get a more visual distinction of the different generations we'll be dealing with, in this project.

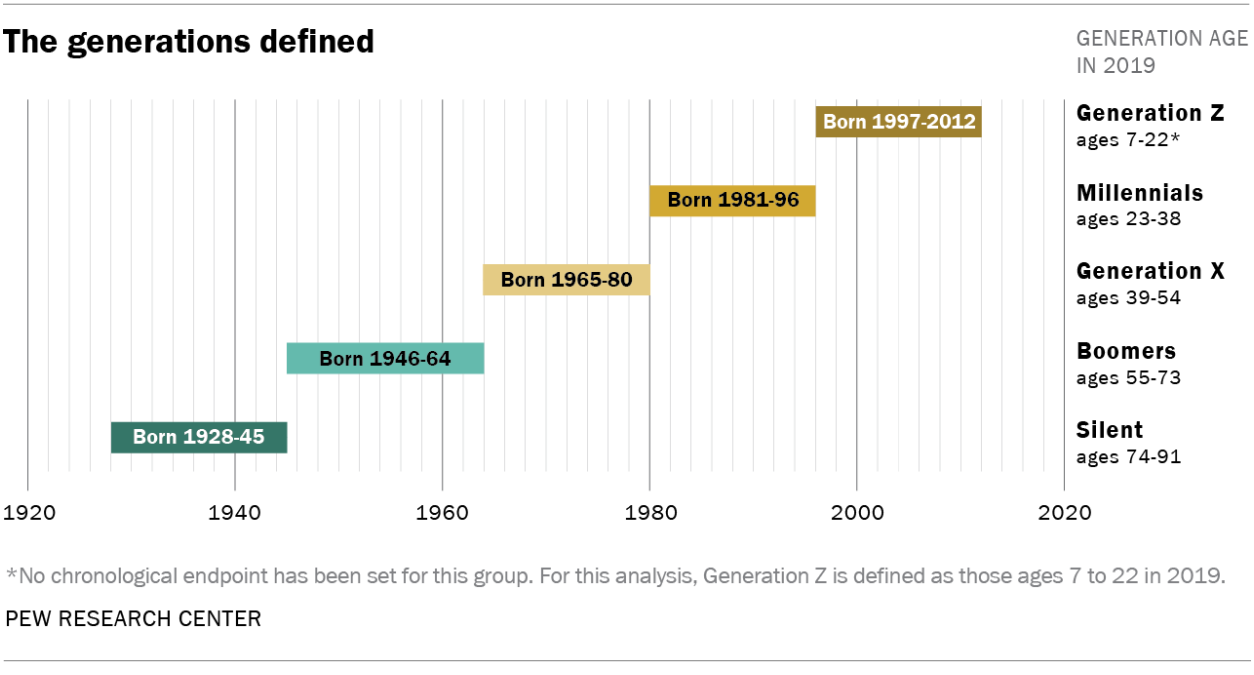


Figure 1: Image Source : Pew Research Center [1]

The U.S. Bureau of Labor Statistics reported that the median age of US working population as of 2021 is 41.7, and projects the median age to increase to 42.6 by the year 2031 [2]. This is not a good trend, because the younger generation usually helps support the older generation, and the increasing trend indicates that the bigger older population would have to get support from a much smaller population of the younger working generation. The current and the near future working population would mostly be comprised of Millennials.

We are living in a strange time, where we're seeing an increase in the level of education throughout the nation, and yet the rate of labor force participation of the population age 25 and over is falling for all education groups[3]. Many millennials, on a very large scale, are quitting their jobs, a phenomenon known as **The Great Resignation**[4], and yet others are doing a silent revolution, where they have restricted their participation to the bare minimum, a phenomenon known as **Quiet Quitting**[5].

We take a look at a dataset to look if it's really the case that Millennials are more likely to quit, or is there some other confounding variable that is causing these changes in the work force. We'll also check other trends

that correlate with the attrition, like overall job satisfaction

Data Description

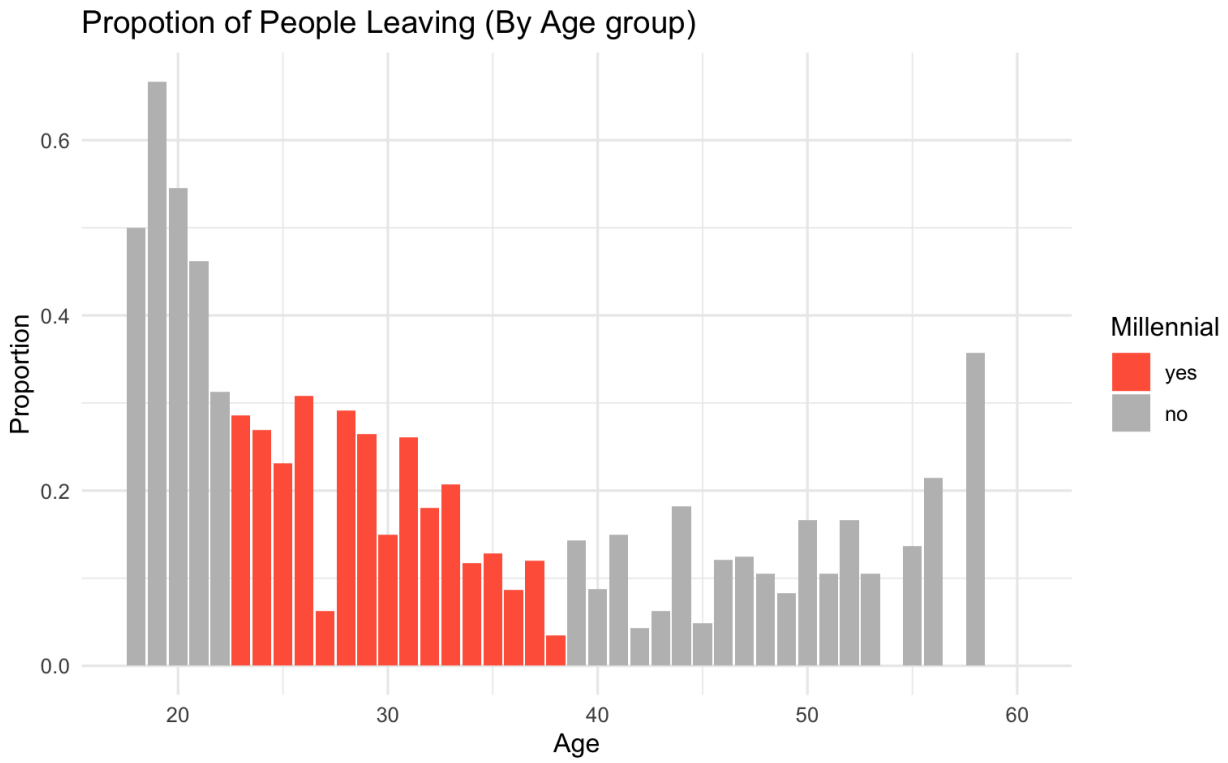
IBM HR Analytics Employee Attrition & Performance[6] is a dataset created by IBM scientists to predict attrition of any particular employee. This dataset was taken from Kaggle and was last updated 6 years ago (in 2016). The Great Resignation and Quiet Quitting are relatively recent phenomenon, so we'll use this dataset to check whether the trend had been going on before the outbreak of Covid-19.

We'll be categorizing different people into different age groups (or generations) and contrast the attrition rate of those generations, and compare other potentially confounding factors as well.

The dataset has 1470 rows and 35 columns. After removing IDs, constant columns, and other irrelevant columns, we are left with these columns of interest/potential confounders:

1. Age (main predictor) : Age of the employees
2. Attrition (outcome): Whether they left the company or not
3. MonthlyIncome : the amount of money employees are paid per month. Maybe the younger generation are being paid less purely because of their age
4. Education : On a scale of 1 to 5. How educated they are
5. EnvironmentSatisfaction : On a scale of 1 to 4, how satisfied are people with their job environment
6. JobInvolvement : On a scale of 1 to 4, how involved are people with their jobs
7. JobLevel : On a scale of 1 to 5, how high is their job position.
8. JobSatisfaction : On a scale of 1 to 4, how satisfied employees are with their jobs
9. OverTime : 1 for "Yes" and 0 for "No", representing whether they the emplyees do overtime or not
10. MonthlyIncome : The monthly compensation an employee gets
11. NumCompaniesWorked : Number of companies an employee has worked before joining IBM
12. PercentSalaryHike : Salary hike from the last job they worked, or the last promotion they received
13. WorkLifeBalance : On a scale of 1 to 4, how good is their work-life balance

Results

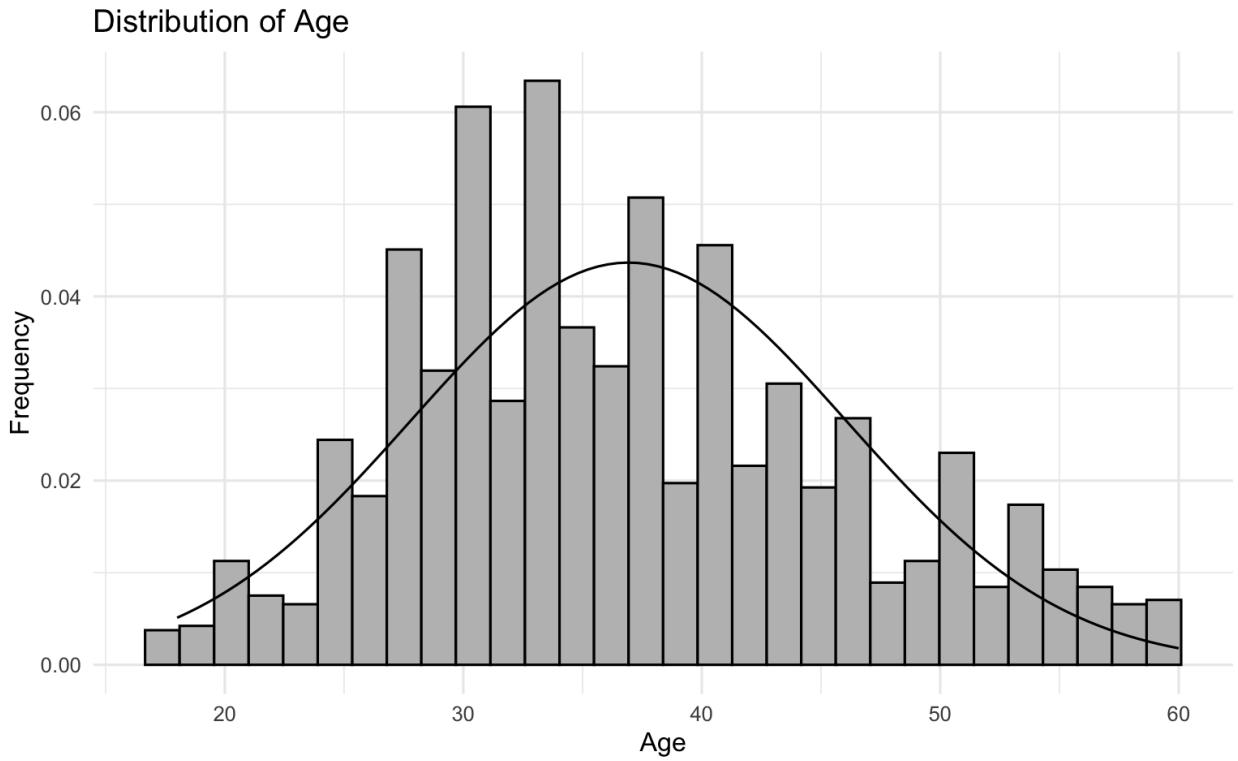


The distribution of Attrition looks like a bimodal distribution and right of the bat, we can see very clearly that younger people have the highest rates of attrition being more than 40%. We could argue that younger people are leaving the company to go for higher educations and better job opportunities, both of which are the most common reasons to leave the company at the beginning of the career. And in contrast, the attrition rate also increases at the higher end, probably people in the high age are more susceptible quitting their jobs due to some illness and are, in general, more likely to opt for an early retirement. The attrition rate of the Millennials can be seen to be higher than that of Generation X (the generation above them from the range of 39-54).

Generation	avg_MonthlyIncome	avg_JobLevel	count_OverTime	avg_JobSatisfaction
Gen-Z	2500	1	23	3
Millennial	4377	2	225	3
Gen-X	6811	2	141	3
Boomer	10312	3	27	3

Other factors, like JobInvolvement, PercentSalaryHike, RelationshipSatisfaction and WorkLifeBalance either show expected trends, or no trend whatsoever.

Although the number of OverTimes seems to be significantly higher for Millennials, a quick look at the population distribution signals that this pattern is to be expected



All this points to the conclusion there was no abnormality in job market before Covid-19 epidemic, and that Millennials quitting their job has to do more with the Epidemic itself, than the market

Further Research

This research could be improved if we had a more historical data of all the employee attrition across multiple other companies from various areas of market expertise.

References

1. The generations defined
2. Median age of the labor force, by sex, race and ethnicity
3. U.S. Census Bureau Releases New Educational Attainment Data
4. Great Resignation
5. Quiet Quitting
6. IBM HR Analytics Employee Attrition & Performance

Code

All the data files, images, this markdown file, and codes to this project has been uploaded on GitHub