
Martin Bros. Individual Appendix

Appendix A Interview Summary

There are recruiting challenges in getting qualified candidates to keep up with workforce demands in warehouse and truck driving jobs. Specifically, the problem has been a growing issue for the past 5 years and it is more serious right now than that of pre COVID. Some possible reasons might be: an increasing trend of people going to colleges, people's long-term conception that blue-collar workers are not as prestigious as white-collar workers and the pandemic influence where the benefits and actions by the government can push the applicants away. However, the pandemic does not influence the application process that much because the industry is recovering at a fairly good pace and there are less applicants that disappeared for a while than last year.

The company is more content with drivers than warehouse workers because drivers are in a higher skills position. The company is proud of its growth opportunities. Specifically, the average time for workers to move to higher positions is 3 to 5 years due to the various promotion opportunities. If a worker ever shows interest in other jobs, he/she will be directed to meet with relevant personnel. As for rewards and recognition, there are programs based on safety and lack of missed time. Drivers are offered quarterly safety incentives and for warehouse workers, incentives happen every two weeks and the top 3 with the highest speed and accuracy will get rewarded. One possible way to help relieve job shortages is using autonomous labor. The company will not make investment in the near future but will consider it in the five year span.

Appendix B Martin Bros. Data Analysis

We received an excel file which contained multiple spreadsheets from Martin Bros. Distributing. The excel file contained data about job performance, employee information, including wage data on warehouse and transportation hires. Additionally, there was employee termination data that spanned from 2017 - 2020. We also received qualitative information on warehouse and driver-specific roles, including statistics on the average hours worked, number of stops made (drivers), and average weight of a case (warehouse). We reviewed the employee data provided in the excel file to answer several meaningful recruitment-related questions for Martin Bros. Distributing.

1. **Do people stay longer have a higher hourly wage? Any difference between those who left and those who are still at the company?**

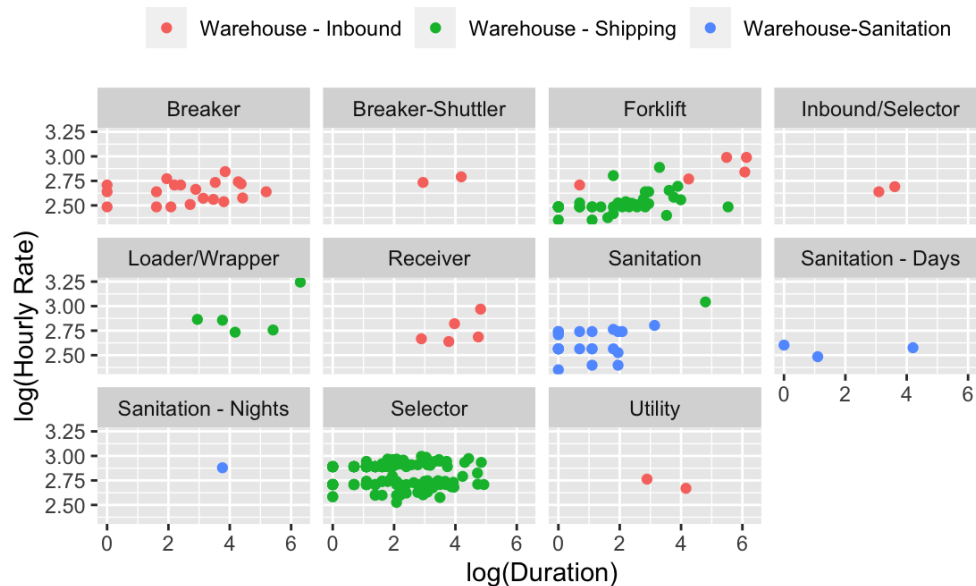


Figure 1: Log(Hourly Rate) vs. Log(Duration) for Warehouse Terminated Employees by Department

From Figure 1, we can see that for people in the shipping and inbound department, it seems that the longer the duration (number of months stayed at the company), the higher the hourly wage. For the sanitation department, it is hard to get the conclusion. However, since people who retired from the company are not identified from the data set, our conclusion may be biased.

Taking a closer look at the job positions, we find that for forklift, the positive relationship might be held but for selectors, it seems that people who stay longer do not necessarily have higher hourly wage and the reason needs to be further investigated.

For current employees in Figure 2, we see a clear positive relationship in all the departments, longer duration is associated with higher hourly wage. For specific jobs, we observe a positive relationship in almost all the departments.

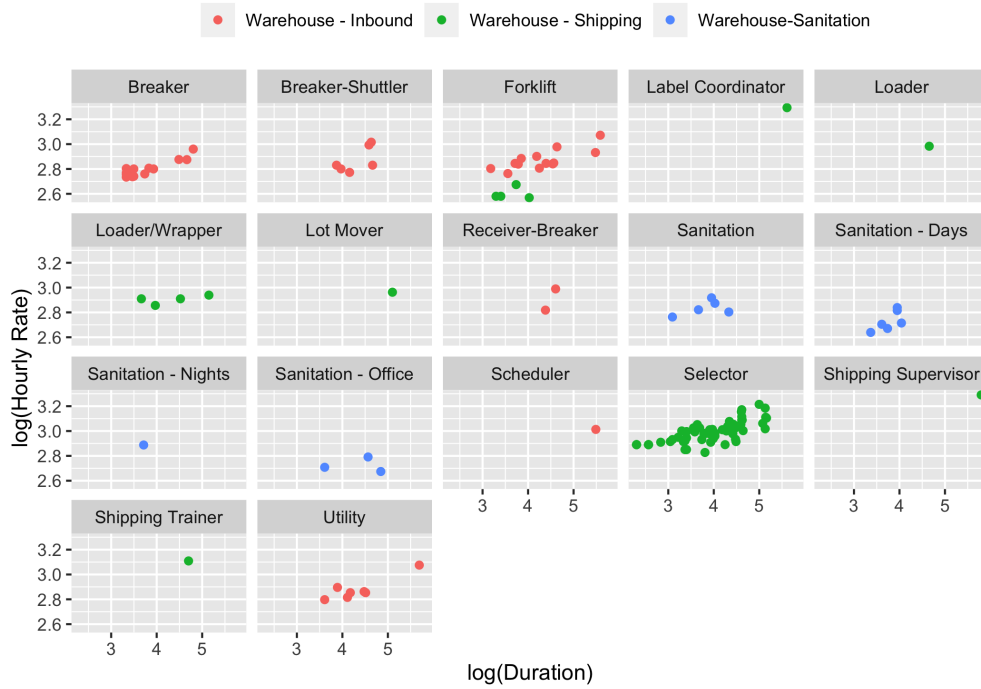


Figure 2: Log(Hourly Rate) vs. Log(Duration) for Warehouse Current Employees by Department

Comparatively, we find that the non-increasing hourly wage within the time people stay at the company is a major difference between terminated and current employees.



Figure 3: Log(Hourly Rate) vs. Log(Duration) for Transportation Terminated Employees by Department

From Figure 3, we can see that for semi delivery driver jobs, it seems that the longer the duration (number of months stayed at the company), the higher the hourly wage but the relation seems very moderate. For other positions, it is hard to get the conclusion. However, since people who retired from the company are not identified from the data set (for instance , $\log(\text{dur}) = 6$ would be duration = 400 months \rightarrow more than 30 years), our conclusion may be biased.

Taking a closer look at the job positions, we find that most of the people are in delivery driver, semi delivery driver and shuttle driver positions. For those positions and within the interval of less than 15 years ($\log(\text{duration}) < 5$), we notice that for those who left the company, there is not a positive correlation between the time they stay and their hourly wage.

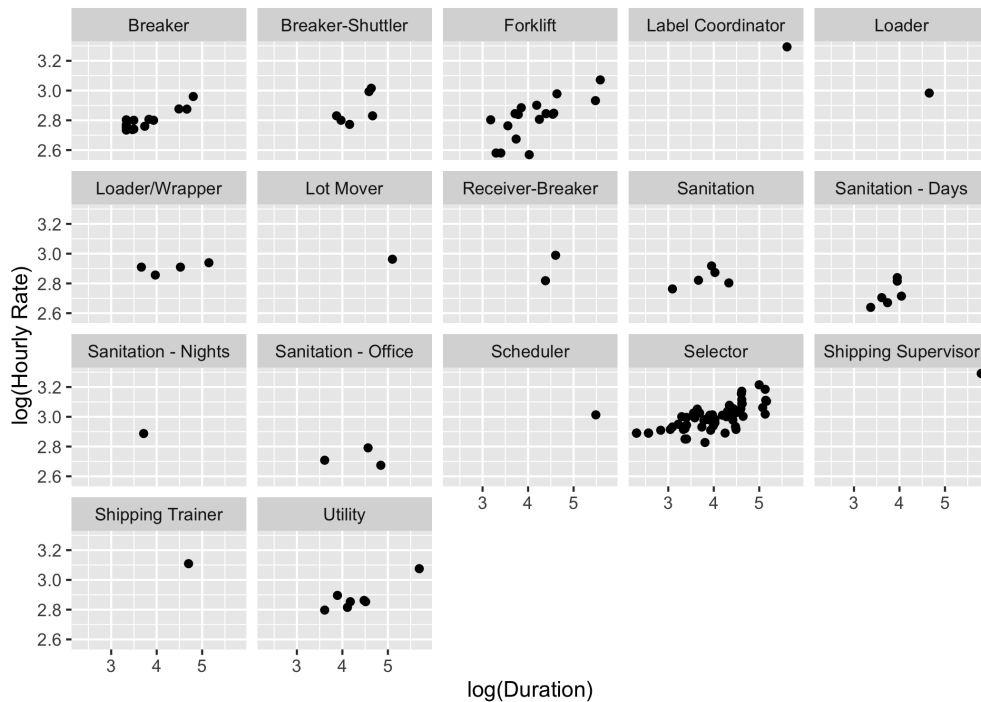


Figure 4: Log(Hourly Rate) vs. Log(Duration) for Transportation Current Employees by Department

For current employees in Figure 4, we see a clear positive relationship in almost all the positions that longer duration is associated with higher hourly wage. For delivery driver, semi delivery driver and shuttle driver positions, we observe that almost all of the log hourly wages are above 3 (hourly wage = 20) while for terminated employees, the lower boundary is about 2.8 (hourly wage = 16).

Comparatively, we find that the non-increasing hourly wage within the time people stay at the company is a major difference between terminated and current employees.

2. Do hourly rates differ in different departments?

From Figure 5, we observe that people in the shipping department work at night and their hourly wage tends to be higher. For Sanitation, people tend to work during days and nights but the hourly

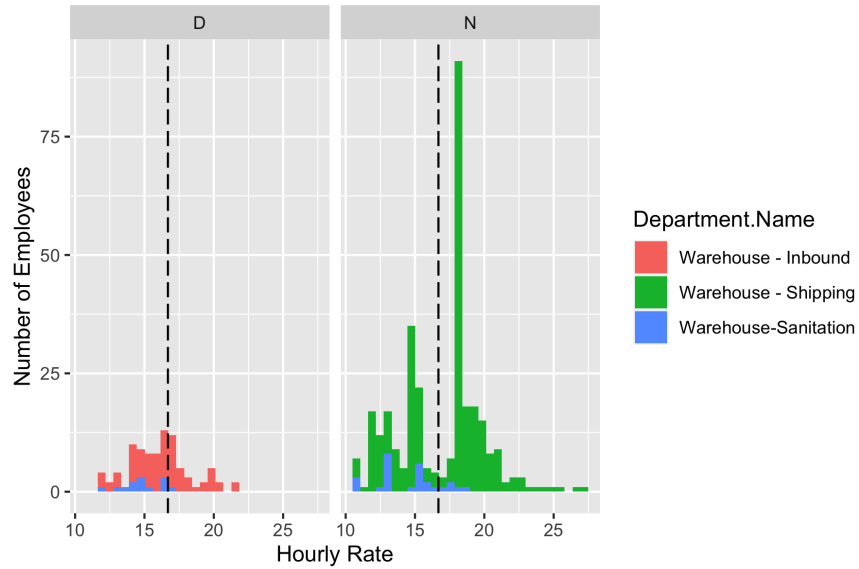


Figure 5: Hourly Rate for Day/Night Shifts by Warehouse Department



Figure 6: Hourly Rate for Day/Night Shifts by Transportation Department

wage is similar. Comparing to the average hourly wage of "Laborers and freight, stock, and material movers, hand" in 2020 ¹, which is 16.69, we find most of the shipping department workers pass the average line and half of the inbound and almost all of the sanitation department do not pass the average.

From Figure 6, we observe that people in the shuttle driver position usually work at night and their hourly wage tends to be higher than some of the other positions. For semi-delivery driver and

¹<https://www.bls.gov/iag/tgs/iag493.htm>

delivery driver positions, people tend to work during days with a similar hourly wage as shuttle driver positions. Comparing to the average hourly wage of "Industrial truck and tractor operators" in 2020, which is 18.75, we find almost all of these three positions pass the average line.

3. How does pandemic affect each department?

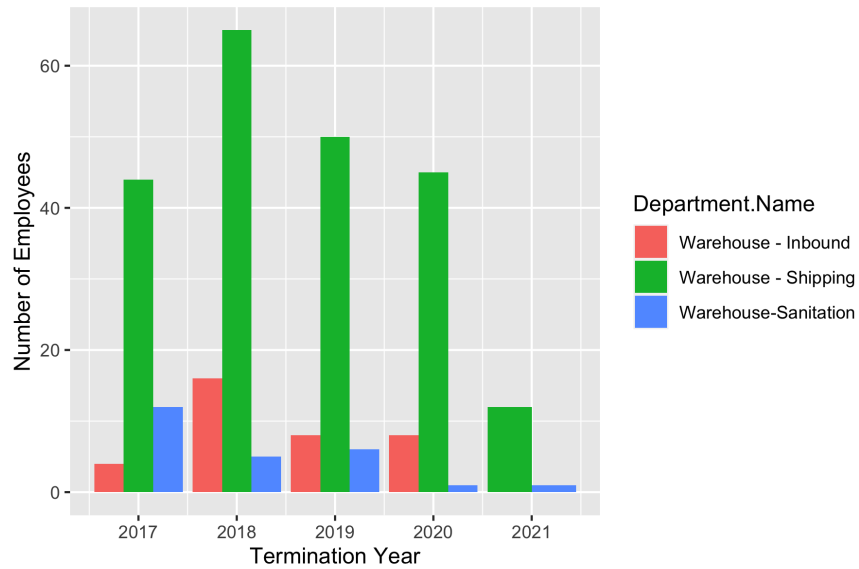


Figure 7: Number of Employees Each Year by Warehouse Department



Figure 8: Number of Employees Each Year by Transportation Department

For the shipping and inbound department, most people terminated in 2018 and for sanitation, most people left in 2017. It seems that the number of people left in 2020 is very low for the sanitation

department and is slightly lower for shipping and inbound departments compared to its previous years.

For semi delivery driver and shuttle driver positions, the termination value is high before 2020 but slightly decreases in 2020. However, for delivery drivers, we see the termination value is high in 2020 and this might be the position that gets affected most by the pandemic among all the jobs in the transportation department.