Impact of the Grokker Wellbeing Platform on Employee Retention

Study Results from 2020 to 2022

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1. Foreword

This report summarizes an analysis completed by Santa Barbara Actuaries Inc. (SBA) on behalf of Grokker, Inc (Grokker) to determine the impact of Grokker's Wellbeing Platform on employee retention.

2. Abstract

On behalf of Grokker, SBA independently analyzed Grokker's data from three of its enterprise customers to evaluate Grokker's performance enhancing employee retention rates in the workforce. Borrowing techniques from survival analysis, SBA showed that Grokker users from all three customers were more likely to remain employed with their employers than non-Grokker users. Specifically, Grokker users are 50% to 300% more likely to remain in employment (not terminate) compared to non-registrants. In addition, SBA conducted a statistical matching technique to select matched participants for both studied groups, aiming to mitigate the issue of selection bias. Lastly, SBA built an economic model that incorporates employee replacement cost from the Bureau of Labor Statistics to estimate savings from the employee retention that Grokker's solution provides.

3. Background

Grokker is a corporate wellbeing platform that combines personalized video content and socially-powered engagement to improve employee physical, emotional and financial health. The platform is licensed to large employer groups who provide it to their entire employee populations. The Grokker registered user base comprises a wide spectrum of users from healthy to unhealthy, with a range of wellbeing interests and needs. The end goal is for employees to live healthier, be more productive at work, and to feel more connected to their fellow employees and their employer.

Santa Barbara Actuaries Inc. was retained by Grokker to evaluate its value proposition with respect to reducing employee turnover. This report summarizes SBA's analysis to examine the potential differences in the risk of termination between employees who registered with the Grokker program and non-registrants across three enterprise customers in different industries: retail, manufacturing, and high-tech hardware.

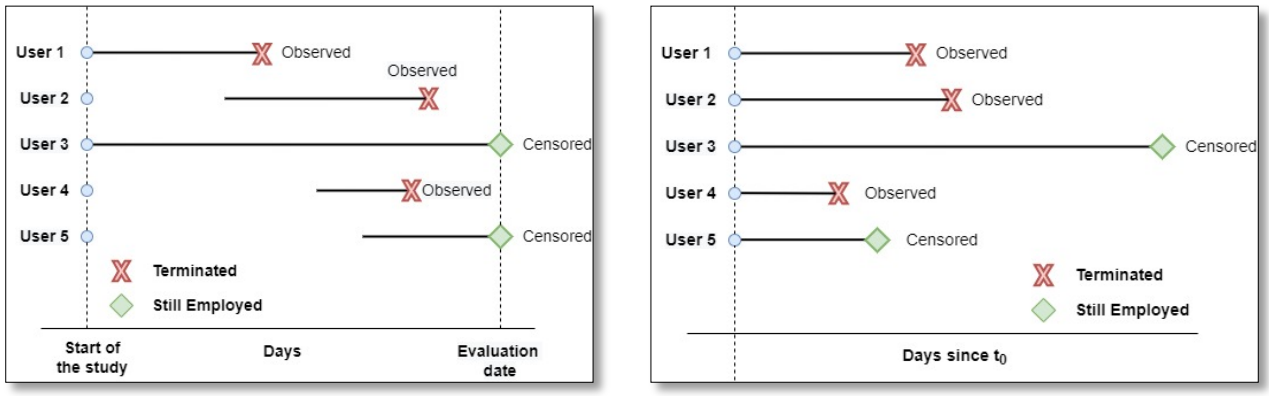
4. Study Design

In many studies, we are often interested in knowing the duration until an event occurs. For instance, our main event of interest in this study is the termination of an employee. Statistical analysis dealing with lifetime data is known as survival analysis. A survival analysis tracks the "survival" of an individual, in the case of this study, the length of time an employee is employed. An individual may survive until a "failure" occurs, which, in the case of employment is termination. One of the challenges when working with lifetime data is the presence of "censored" information. Time until a "failure" event (termination) is not observed for all members during the study period, due to the fact that some members may be event-free at the end of the study period and terminate after the end of the observations. In survival analysis, we

take into account not only how often members experience the event but also the time points at which the events occur.

This study is based on anonymized and deidentified datasets from Grokker collected between July of 2020 to April of 2022. We treated the earliest eligibility date in each file as the starting date of the study (11/07/2020 for retailers, 07/26/2020 for manufacturers, and 12/23/2020 for high-tech hardware) and data extraction date (mid-April 2022) as the end date of the study. In Figure 1(a), we illustrate an example of how members were enrolled in the program at different time points during the study period. Some members are marked as "censored" as their termination had not occurred as of the evaluation date. Figure 1(b) displays the same study but aligning all members at a common time origin (their eligibility or enrollment event). Length of time or duration (in days) for each member in the study is calculated as the difference between the termination date and eligibility date if the event is not censored, or between evaluation date and eligibility date if the event is censored.

Figure 1: Dates in survival analysis



(a) Members with different enrollment dates (b) Members with a common time origin

We employed both termination status and the specific timepoints when the event occurred to estimate several outcomes. One output of interest is the survival function that reflects the proportion of members who did not terminate their employment over time. We estimated the survival function for two populations: Grokker members (those who registered for the program) and those who did not register with Grokker. In addition, we computed the hazard ratio to quantify and assess the difference in the survival functions between the two populations. The hazard ratio is the ratio of the probability of termination between registered members and non-registrants. The hazard function measures the risk of termination (or instantaneous rate of experiencing termination) at any time point. A hazard ratio of 1.0 implies that the registered group is as equally likely to terminate as non-registrants. Comparing the relative hazards (hazard ratio) between participants and non-participants, a ratio less than 1.0 means that participants have a lower termination risk than non-participants (and vice-versa).

As Figures 2, 3 and 4 show, the comparison between terminations of registrants and non-registrants differs according to the duration of employment at which comparisons are made. One

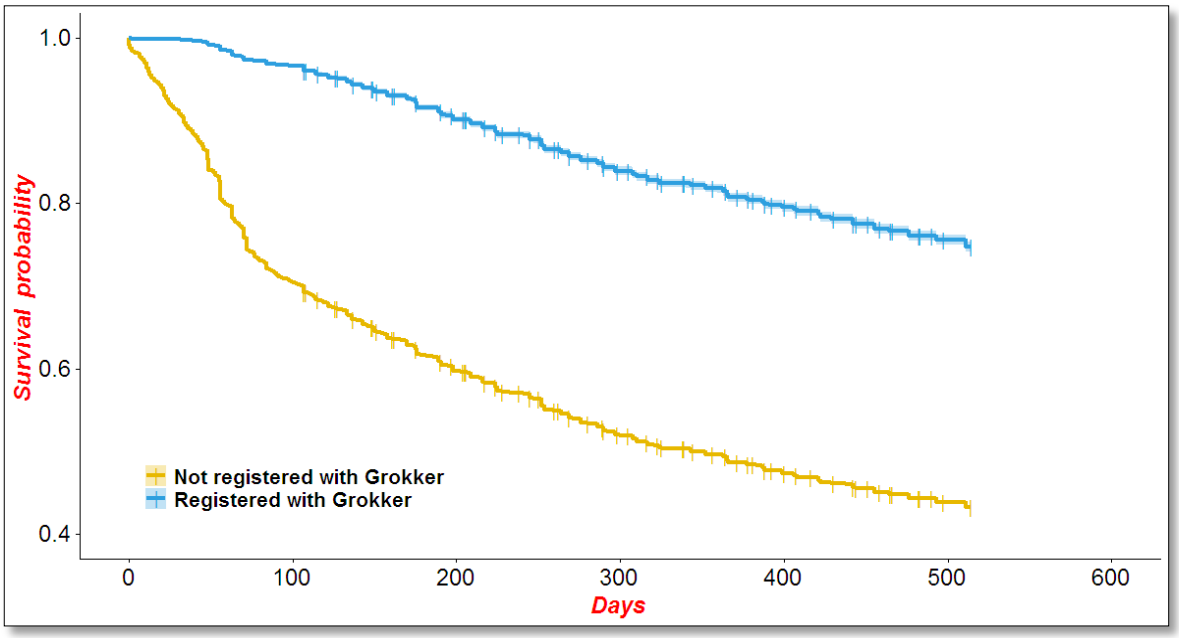
advantage of the hazard ratio approach is that the comparison holds for the entire duration for which populations are tracked, making it possible to summarize Grokker's results in a single statistic.

5. Results

Retailer

Figure 2 displays the estimated survival functions of registered members (represented by the blue curve) and non-registrants (represented by the yellow curve) for the retail populations. Overall, the proportion of Grokker members who remained in the workforce over time is higher than for members who did not associate with the Grokker service. The difference is most significant during the first 100 days since eligibility and registration on the wellbeing platform. We observed the steep decline in the survival rate among non-registrants (only 70% remain employed at the 100th day) compared to the slow decline among Grokker members (survival rate of 97% at day 100). The estimated value of the hazard ratio is 0.32, meaning the risk of termination of Grokker members is equal to 0.32 times the risk of termination of non-registrants. In this case, we concluded that compared to non-registrant population, the risk of termination for Grokker members is reduced by 68%, or a registrant is three times as likely to remain employed as a non-registrant.

Figure 2: Relative Survival of Registered and non-Registered Retail Populations

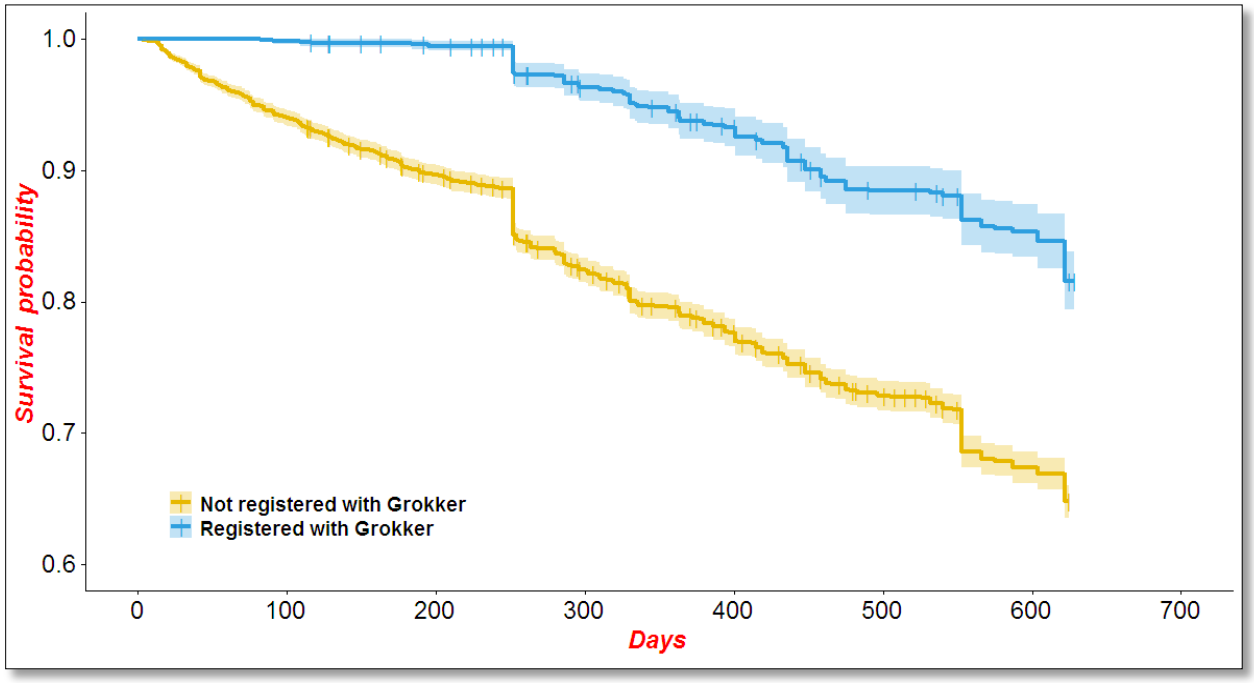


Manufacturing

Figure 3 displays the survival functions of registered and non-registered employees from the manuracturing population. Like the case with retail, we observed that Grokker members are more likely to remain employed (have higher survival rates) over time compared to non-registrants. The survival rates among Grokker members during the first 200 days remain almost

100% (due to only a few Grokker members terminating their employment during this period) while in the non-registered population the survival rates drop to 90%. Additionally, the hazard ratio of 0.45 implies that the risk of termination in the workforce for Grokker members is 55% lower than non-Grokker members. In other words, a registrant is twice as likely to remain employed as a non-registrant.

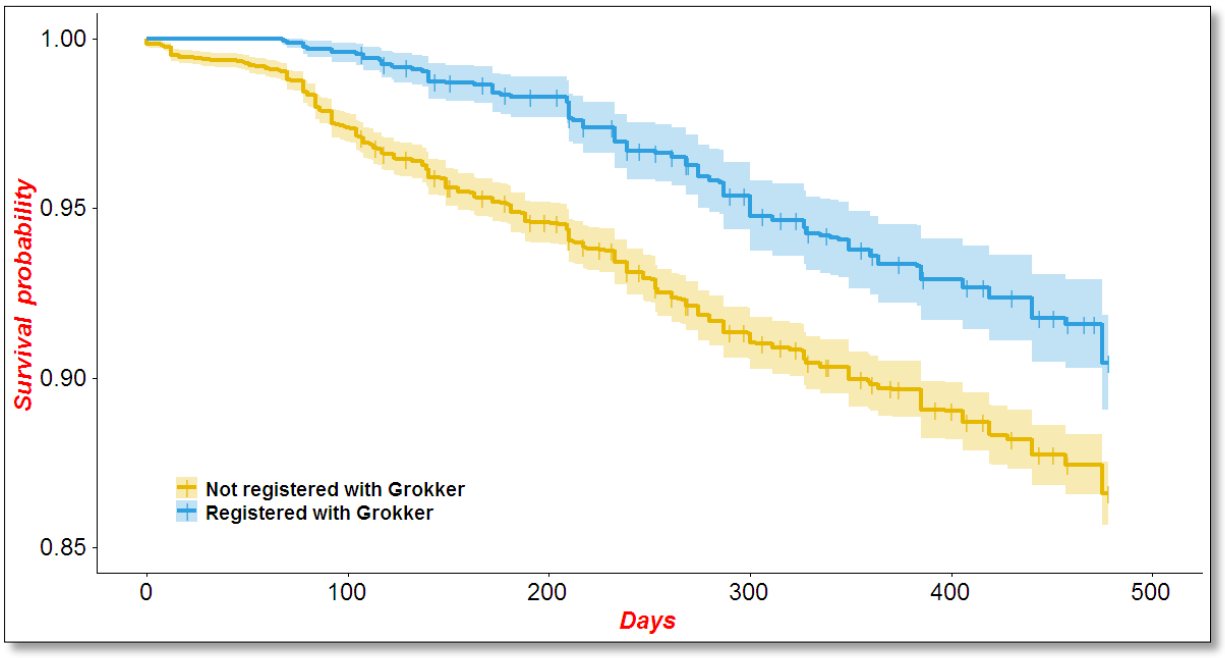
Figure 3: Relative Survival of Registered and non-Registered Manufacturing Populations



High-tech Hardware

Figure 4 displays the survival functions of registered and non-registered high-tech hardware populations. The figure suggests that registered members have lower risk of termination (32% lower as the hazard ratio is 0.68) than non Grokker members. In other words, a registrant is fifty percent more likely to remain employed as a non-registrant.

Figure 4: Relative Survival of Registered and non-Registered High-tech Hardware Populations



6. Addressing Selection Bias

SBA was provided additional demographic information (age/gender) in the retail population to conduct a statistical matching analysis in order to address the issue of selection bias. Prior to estimating the hazard ratio, we selected members with matched profiles in age and gender from the studied groups. The objective is to balance both groups (participants and non-participants) to mitigate the potential selection bias among members who registered with Grokker. Through the matching technique, we assembled a sample of non-participants that are comparable to Grokker registered populations, allowing a direct comparison in retention rates between them. Table 1 displays the comparison in age and gender between unmatched populations. It highlights the bias because older and female members are more likely to register with the Grokker program. For example, Grokker members are significantly older than non-registrants with a mean gap of plus 8 years. Similarly, more than 70% of Grokker members are females in contrast to 56% females among non-registrants. After applying the 1:10 match algorithm (i.e. a Grokker member is matched with ten non-registrants with similar age and gender), both populations share the same distribution in age and gender. See Table 2 for comparison between matched populations.

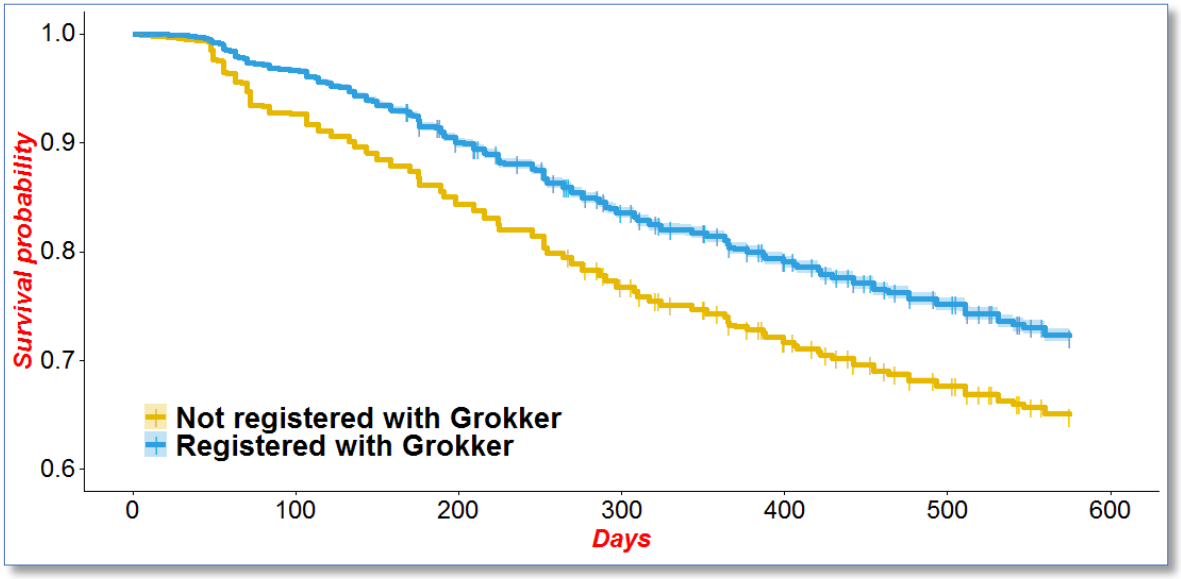
Table 1: Comparison of unmatched populations

	Non-participants	Grokker	P-value
Number of observations	812,875	20,370	-
Age: mean (Stdev)	29.31 (12.46)	37.59 (13.17)	<0.001
Gender: Male (%)	359,982 (44.3)	5,516 (27.1)	<0.001

Table 2: Comparison of matched populations (Matching ratio is 1:10)

	Non-registrants	Grokker	P-value
Number of observations	203,700	20,370	-
Age: mean (Stdev)	37.59 (13.17)	37.59 (13.17)	1.000
Gender: Male (%)	55,160 (27.1)	5,516 (27.1)	1.000

Figure 5: Survival functions of registered and non-registered retail populations in matched setting



As before we applied survival analysis to the matched samples and displayed the results in Figure 5. Survival rates among Grokker participants remain consistently higher than survival rates of non-registrants. Yet, there is a reduction in the magnitude of the difference as the gap between the two curves is not as wide as what we have observed in Figure 2. The hazard ratio of 0.75 indicates that using matched samples to adjust for the selection bias, the risk of termination among Grokker members is statistically reduced by 25%, but a matched Grokker registered employee is still "X" times as likely to remain employed as a matched non-registered employee.

Due to data limitations SBA conducted matching analysis using age and gender as key variables for demographic profiles that are only available for retail sector. It is possible the derived conclusion for the other employee populations would change if additional variables were presented.

7. Savings Estimates

We developed a dynamic economic model incorporating the industry-specific results of survival modeling to estimate potential savings for Grokker's clients resulting from lower employee turnover. For each industry, the model inputs are the population size, the average salary, the engagement rate, and the average replacement cost. Specifically, the model extracts the difference in 1-year retention rates from the survival results (see Section 4) between non-participants and the Grokker population to calculate the total savings. See an illustration below for the derivation of the total savings of a population of 20,000 retail employees. Here, we assumed the average salary in the retail industry to be $28,750[1] with 25% replacement cost and the engagement rate is 5%:

Table 3: Savings calculation breakdown using information in the retail industry

	Savings Calculation Breakdown	
[a]	Total Employees in Population	20,000
[b]	Assumed Employee Grokker Participation Rate	5%
[c]	Enrolled Employees ([a] x [b])	1,000
[d]	Difference in retention rates between Grokker members and non-Grokker members	0.32
[e]	Savings per Retained Employee (25% replacement cost; average salary of $28,750)	$7,188
[f]	**Total Savings ([c] x [d] x [e])**	**$2,314,003**

Finally, the model allows the adjustment of the 1-year difference in retention rates if matching results are available. Details of the model are fully specified in a separate file as we implemented the model using excel toolbox.

8. Conclusion

This report employed survival analysis to validate Grokker's wellbeing platform's impact in reducing employee turnover. We found that compared with non-Grokker members, those who registered with Grokker are 32%-68% less likely to terminate from their employer (or between 50% and three times more likely to remain employed) across multiple industries: retailer, manufacturer, and high-tech hardware. We addressed the issue of selection bias by conducting matching analysis for retail using age and gender information at the member level. Lastly, we built a dynamic economic model to calculate total savings for Grokker's clients.

[1] This estimate is cited from the US Bureau of Labor Statistics (https://www.bls.gov/)