ABSTRACT: SUPERVISOR EFFECTS ON PRODUCTIVITY OF WORKFORCES

Abstract for a working paper developed in collaboration with Evolv and the Center for Human Resources at the Wharton School of the University of Pennsylvania. Abstract represents an initial draft of a larger collaborative study.

Supervisors can have similar levels of impact on performance as the employees do themselves.

Identifying the scope of supervisor effects

Research question: How much variance in the various performance outcomes can be explained by supervisor effects?

Methodology: We examined determinants of four performance measures: average handling time, schedule adherence, and absences. We first regressed performance on job type, region, industry, time of year and worker tenure. We then took the residuals from those regressions to obtain a performance measure that was normalized for the effects of each of those factors. By aggregating the residuals by employee and then by supervisor, for better clustering of data, the regression was run on 8,655 observations, based on 3,981 employees and 251 supervisors.

A one-way ANOVA (analysis of variance) regression as well as a random effects regression were conducted, both yielding similar results.

Results: The model shows that supervisors impact all performance metrics including big effects for quality and handling time and significant effects for schedule adherence and absences. For handling time, in particular, the difference across supervisors seems to be around 65% of the differences across individual employees.

Interpretation: The most important takeaway is that bosses matter – a lot. In our study supervisors can have similar levels of impact on performance as the employees do themselves. Given that a supervisor affects the output of many employees, this suggests that picking the right supervisors is much more important than picking the right employees.

Not surprisingly, supervisors also have a large effect on how well employees follow their daily schedule, including when they show up to work as well as how precisely they clock into and out of lunch or breaks.

Effects of supervisor-employee match

Research question: Does the duration of supervisor/employee match matter?

Methodology: The regression analysis was run with employee and supervisor fixed effects, as well as employee tenure, program and location controls. Employee duration was calculated in total and for the current spell (since some employees work for a supervisor, go work elsewhere, and then return to the supervisor)

Results: The longevity of the supervisor/employee relationship has some interesting effects on performance. For example, Employee absence from work increases with the length of their relationship

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with the supervisor. We also see effects for average handle time – handling time seems to improve the longer employees consecutively remain with the same supervisor. However, this effect is not very strong. We also see weak evidence of increased conformity to employer practices over time the longer an employee works on the same program. We see no effects on quality.

Interpretation: Employees appear to become more productive when they've been with the same supervisor for a while, but they also end up being absent more frequently, which may suggest that they may become comfortable/lazy after a certain point in their employment under the same supervisory relationship.

Effects of supervisor pay

Research Question: Does supervisor pay effect how an employee performs?

Methodology: The regression analysis was run with supervisor pay, controlling for: job type, region, program, and employee and supervisor fixed effects. Also, tenure was examined for direction as well as slope to fully account for learning effects.

Results: We've found that supervisor pay rates actually predict employee performance in the direction expected, whereas supervisor tenure doesn't. The effects of supervisor pay on employee performance are quite strong in some instances. Better paid supervisors lead to shorter call durations, but worse quality and sub-par schedule adherence. It is consistent with the earlier results that supervisors with good average handle times have worse quality.

Interpretation: There are two interesting points that help tell the story behind the data. The more you pay supervisors, the better they enable their employees to perform, coupled with the fact that supervisor tenure at the company does not predict productivity. This may reflect the value of such attributes as education and experience elsewhere which usually lead workers to be paid more. It may also be that better paid supervisors respond by working harder or more effectively to benefit their employers.