

PAPE Tutorial #4

Before the Tutorial: Watch the video summary and read the introduction

Minni, Virginia (2024) "[Making the Invisible Hand Visible: Managers and the Allocation of Workers to Jobs](#)" working paper. [Video summary](#).

1) What is the broad research question this paper tackles?

- 1.1. The author is interested in the causal effect of on
- 1.2. She finds strong effects, and the main mechanism she highlights is
- 1.3. The paragraph below describes the structure of the data:

I collaborate with a private consumer goods multinational with offices in more than 100 countries worldwide. This firm is one of the largest in the world and is headquartered in Europe. It has a workforce of about 120,000 workers each year, of which approximately 60,000 are white collars, and its turnover in 2020 was over €50 billion. I collect novel data on the full population of white-collar and management employees and construct a panel dataset that links workers to their managers and tracks workers' career progression inside the firm (see Appendix Figure A.1 for an overview of the data sources).

What does panel data allow to do (in general)?

2) How to identify good managers from the data?

- 2.1. The author defines good managers ("high-flyers") as those who reach a managerial position ("work-level 2") before they were 30. NB: She chooses this criteria because the majority of promotions to managerial status occur when workers are between 30 and 40 years old in this specific firm. What are the data and variable requirements she needed to be able to code this definition? Who are the non high-flyers or "low-flyers"?
- 2.2. In Table III below, the author compares the characteristics of high-flyer versus not high-flyer managers. (i) Explain why Panel (a) serves as a validation of the authors definition of high-flyer managers. (ii) According to you, what is the format of each of the four variables and how are they constructed?

3) The “natural experiment”: Manager rotations

74% of the managers observed in the dataset make at least one rotation, a rotation meaning that the manager is assigned to a new team of workers. These rotations happen on average within 15 and 30 months of a manager’s position with a given team. They are part of the firm’s usual management procedure.

3.1. In the abstract and introduction of the paper, the author writes that thanks to these rotations, she can leverage “exogenous variation” in a worker’s exposure to a good manager. What does she mean by this? Select all that apply if any. Discuss why the others are not correct if any.

a. The rotation of managers does not depend on how well the manager was doing with his or her current team.

b. If you correlate teams' current performance with their probability of getting a good manager in the next months, you would find a positive correlation.

c. Workers' probability of being exposed to a good manager does not depend on workers' demographics and past performance.

d. The directors of the firm try to assign the best managers to the most promising teams.

e. This is equivalent to saying that she can draw conclusions on the causal effect of being assigned a good manager.

f. All workers in her sample are exposed to a good manager at least once.

3.2. Why would it be a problem for the author’s identification strategy if the assumption that these rotations are exogenous is violated? In which type of situation would the observed effects of having a good manager be over-estimated? Under-estimated?

Table III: High-flyer managers

Variable	(1) Not High Flyer	(2) High Flyer	(3) Difference
<i>Panel (a): performance after high-flyer status is determined</i>			
Monthly salary growth	0.006 (0.029)	0.011 (0.034)	0.005*** (0.000)
Promotion work-level 3	0.049 (0.204)	0.135 (0.331)	0.086*** (0.000)
Perf. rating (1-150)	100.932 (18.236)	104.042 (15.963)	3.110*** (0.000)
Effective leader (survey)	4.025 (0.691)	4.119 (0.681)	0.095*** (0.000)
<i>Panel (b): demographics</i>			
Female	0.493 (0.500)	0.576 (0.494)	0.083*** (0.000)
MBA	0.001 (0.032)	0.000 (0.000)	-0.001* (0.083)
Econ, Business, and Admin	0.505 (0.500)	0.549 (0.498)	0.044** (0.019)
Sci, Tech, Engin, and Math	0.279 (0.449)	0.253 (0.435)	-0.026 (0.112)
Social Sciences and Humanities	0.156 (0.363)	0.178 (0.383)	0.022 (0.124)
Other Educ	0.065 (0.247)	0.030 (0.172)	-0.035*** (0.000)
Mid-career recruit	0.310 (0.463)	0.144 (0.351)	-0.166*** (0.000)
Observations	13,925	5,690	19,615

Notes. Showing mean and standard deviations (in parentheses) and p-values for the difference in means. The difference in means is computed using standard errors clustered by manager. *Perf. rating* refers to the performance assessment given annually to each employee; *Effective leader (survey)* refers to the workers' anonymous upward feedback on the managers' leadership; and *Mid-career recruit* refers to managers who have been hired directly as managers by the firm (at work-level 2 instead of work-level 1).

3.3. To provide evidence that the assumption holds (manager rotations are exogenous with respect to team characteristics) the author estimates the following regression:

$$y_{team,t} = \alpha_0 + \pi_0 \text{High-flyer manager}_{team} + X'_{team,t}\beta + \epsilon_{team,t}$$

where $y_{team,t}$ are team characteristics in year t , respectively average salary, salary growth, share of workers making a lateral move, share of workers making a vertical move; *High-flyer manager_{team}* is a dummy taking value one for the teams that get a high-flyer manager at some point in time, and zero for teams that don't; $X'_{team,t}$ are team-level controls (country, sector within the firm). The sample is restricted to years t before the switch to high-flyer managers.

- (i) How many regressions does this imply to run?
- (ii) What do we expect for coefficients π_0 in order for us to be convinced that the assumption holds?

4) Effects of a transition to a good manager on workers and their careers: Empirical specification

4.1. The main specification to estimate the causal effects of gaining a good manager is the following:

$$y_{it} = \sum_{j \in I} \sum_{s \neq -1} \beta_{j,s} D_{i,t+s}^j + \xi_t + \alpha_i + \epsilon_{it}$$

where s indexes the months relative to a change in manager and D^j denote the event-study indicators for the periods leading up to and following a transition event $j \in \{LtoH, LtoL, HtoL, HtoH\}$. For instance, *LtoH* denotes a transition from a low- to a high-flyer manager. ξ_t comprises of year-month FE and α_i is worker FE to control for permanent differences in worker productivity³⁴. Standard errors are clustered at the manager level.

Y_{it} is an outcome for worker i in year t . The event-study window spans from 36 months before the event to 84 months after the event. The omitted category in the leads and lags of the event indicators is the month prior to the event.

In this notation, the author uses a synthetic notation where j refers to any type of transition, and t and s index years. Can you rewrite the equation, but showing all the details, i.e. with a dummy and coefficient for each type of transition, and for each year? For simplicity, assume we only have 5 years observed for a given worker, 2 observations before the manager rotation, the year of the manager rotation, 2 years after the manager rotation.

4.2. What should we expect/want for coefficients $\beta_{j,s}$ with $s < -1$? How is this called in the difference-in-differences framework? (Note that here, the identification strategy is an event-study with different groups, so in the end very similar to a difference-in-differences strategy.)

4.3. Instead of referring directly to the β_{LtoH} coefficients and interpreting them as the causal effect of gaining a good manager, the author looks at the difference between β_{LtoH} and β_{LtoL} , and it is the difference between these two coefficients that she interprets as her main effect of interest.

(i) Why does she do this according to you, what is the advantage?

(ii) Hence, what would be the structure of a sentence conveying the main results, for let's say the outcome "lateral move": *The author finds that workers who face a ($\beta_{LtoH} - \beta_{LtoL}$) higher probability of doing a lateral move compared to*

5) Effects of a transition to a good manager on workers and their careers: Results

Figures III and V display the main results from the specification studied in question (4).

5.1. Can you locate on the graph where you see each of the β coefficients that you laid out in question 4.1? Where can you see from the graph and notes that the situation described in 4.2. holds?

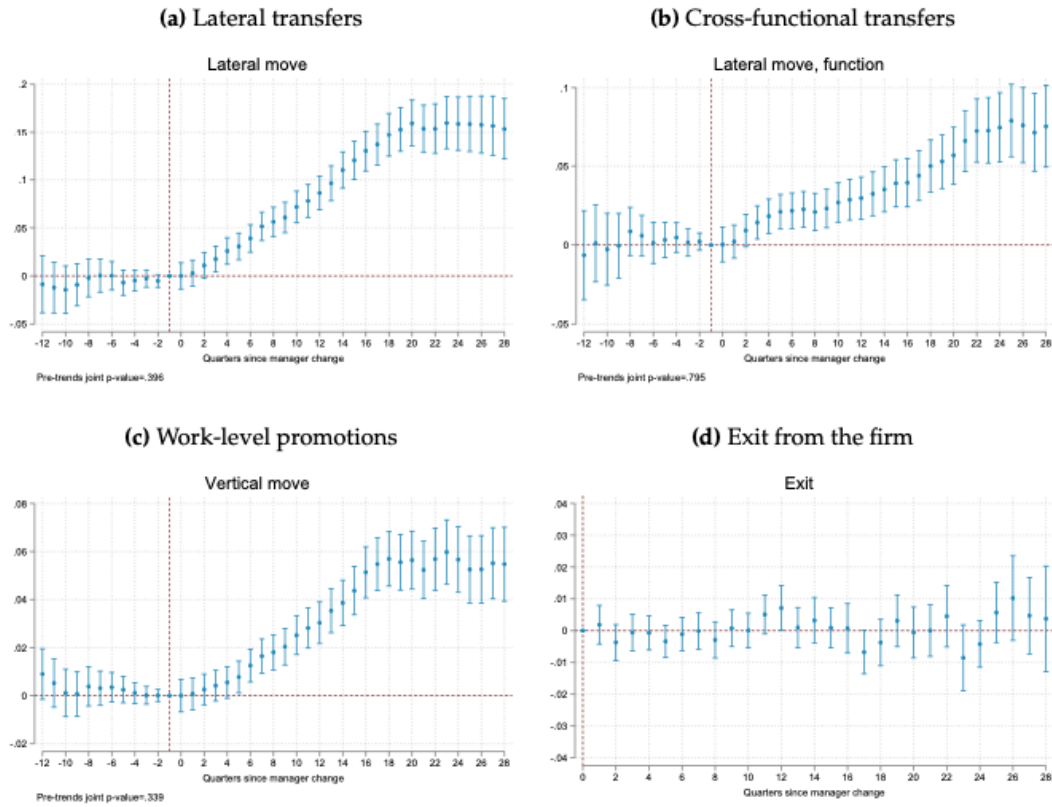
5.2. In Panel (a): the "Lateral transfers" variable is the number of transfers observed in a given period. Can you make a sentence to describe the effects observed on workers' lateral transfers from the moment a good manager is assigned to five years later (size of the effect, persistence, what are we comparing to, etc)?

5.3. Is this a small or big effect? To assess this, note that the mean value of "lateral transfers" for the sample before the transition to good managers is 0.5. What is the effect in percentage five years later?

5.4. Why do you think the scale of Panel (c) of Figure III is different than the one in Panel (a)?

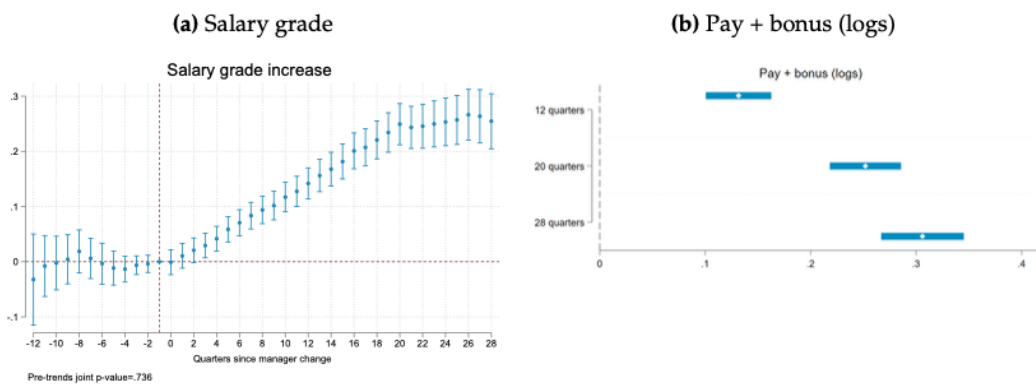
5.5. Can you make a sentence to describe the effects shown in Panel (b) of Figure V? (Note that for this sample of workers, total compensation in every period is the sum of a fixed salary or pay, and a bonus).

Figure III: Effects of gaining a high-flyer manager, $(\hat{\beta}_{LtoH,s} - \hat{\beta}_{LtoL,s})$



Notes. An observation is a worker-year-month. All coefficients are estimated from a single regression as in equation 2 and are aggregated to the quarterly level for ease of presentation. 95% confidence intervals used and standard errors clustered by manager. The outcome variables are: number of *lateral transfers*, *cross-functional transfers*, and probability of *work-level promotion* and of *exit from the firm*. A cross-functional transfer is defined as a transfer across the 14 functions at the firm, e.g. from Finance to R&D.

Figure V: Effects of gaining a high-flyer manager on salary, $(\hat{\beta}_{LtoH,s} - \hat{\beta}_{LtoL,s})$



6) Related literature: Manager fixed-effects

Another common methodology to classify managers into "good" or "bad" is to exploit "manager fixed-effects" (after a seminal study by [Bertrand and Schoar](#) in 2003). The author of this paper also conducts this analysis to verify that her results are consistent with the literature. She uses the following specification:

$$Perf_{i,j,t} = M_j + \xi_t + \alpha_i + \varepsilon_{it}$$

where $Perf_{i,j,t}$ is the performance of worker i with manager j in year-month t , M_j is the manager fixed-effect: the variable is a dummy for each manager, and the regression yields an estimated coefficient for each manager. ξ_t is a year-month fixed-effect, and α_i is a worker fixed-effect.

6.1. How would you then use the estimated M_j coefficients to classify managers into good or bad?

7) Food for thought: Your turn to be a researcher...

7.1. If you could run your own survey with the managers from the firm studied in this paper, to compare high-flyers and low-flyers, what would you be interested in measuring, in addition to the variables already shown in Table III? Think of the characteristic you are interested in conceptually, and how you could measure it in a quantitative way.

7.2. What are other types of organizations (different from a multinational firm) for which a similar study could be insightful? Think of one, and then think of what data and variables you would need to be able to answer the equivalent questions.