

Social Comparison and the Value of Performance Trajectory Information

A Field Experiment in the Workplace

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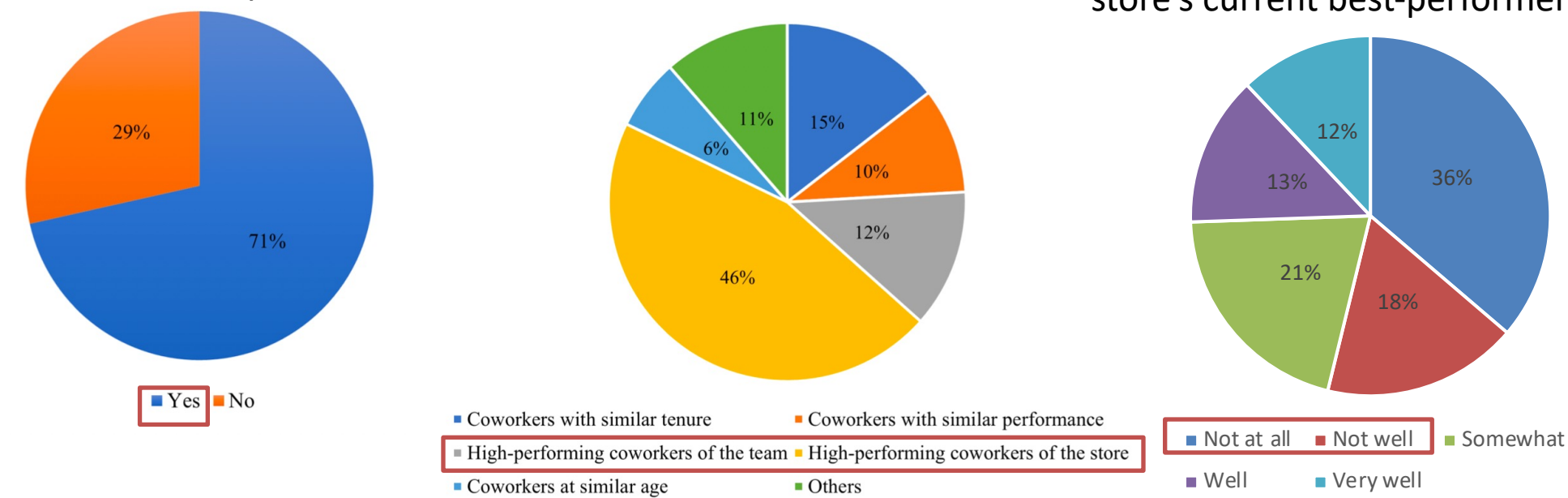
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Motivation and Research Question

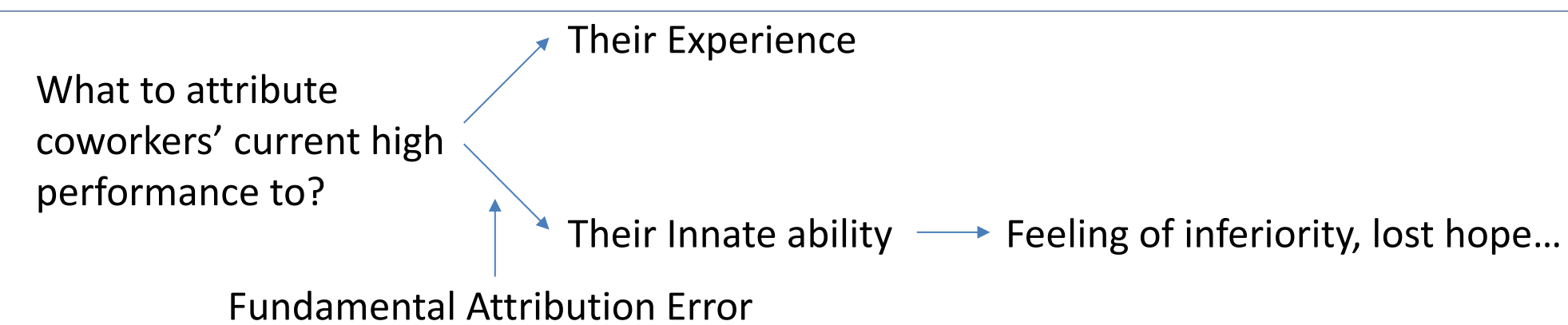
Research Motivation:

Workers often compare themselves to their high-performing coworkers, but don't know their performance trajectory.

Do you often compare your performance to your coworkers? Who do you compare yourself to in terms of performance? How well do you know the last-year performance of your store's current best-performer?



Source: Employee survey at a Chinese spa chain

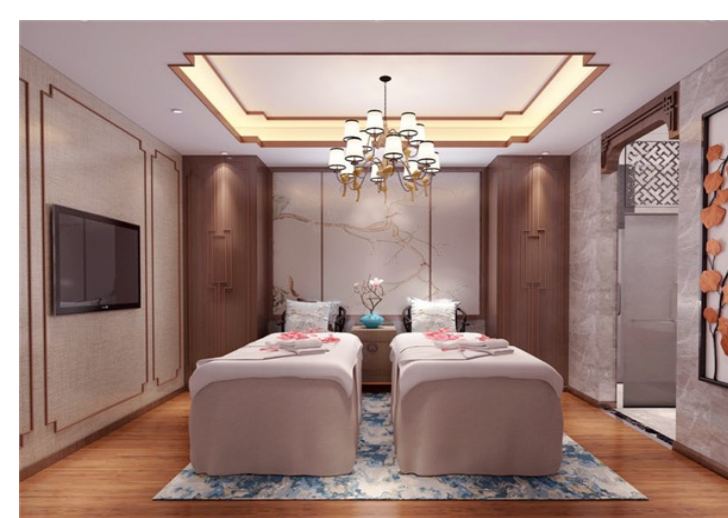


Research Questions:

Can firms mitigate the costs of performance comparison by sharing information about the past performance of high-performing workers?

Research Setting

The largest spa chain in China: 13 regions, 160 stores, 7000 workers



Worker performance measures: sales and customer picks

- Pay is linear in both measures
- Mostly reflect individual skills and efforts

Information environment

- Workers are organized into teams of 10-20 for administrative reasons
- Team managers discuss members' performance in team meetings
- High performers are highlighted

Theoretical Framework

- $Performance_{it} = InnateAbility_i + ReturnsToExp_i \times Experience_{it}$
 - Information
 - New workers know senior workers' period-1 performance, but not their period-0 performance
 - Fundamental attribution bias
 - New workers overattribute senior workers' performance to their innate ability
 - New worker's decision: stay for period 2 or quit
 - $EU(stay) = InnateAbility_N + E_N(ReturnsToExp_N) - \lambda E_N(InnateAbility_S)$
- Expected monetary payoff Social comparison cost
 ↑ ↓
 If ReturnsToExp are correlated Effects of performance trajectory information

Predictions:

- Effects of performance trajectory information on new workers
 - Belief about senior workers' early-stage performance: ↓
 - Stress: ↓
 - Expectation of own future performance: maybe ↑
 - Attrition: ↓
- No effect of peer performance information on new workers
- No effect of information treatments on senior workers

Field Experiment

Experiment: Messages are sent to workers through company's app twice a week from June 2019 – December 2019

Message Content:

- Performance trajectory treatment (40 stores): The performance trajectory of an anonymous high-performing senior worker in the same region
- Peer performance treatment (40 stores): The last-month performance of an anonymous worker in the same region with similar tenure
- Control treatment (80 stores): no message about coworker performance

Outcome Variables:

- Attrition: = 1 if employee i leaves during month t
- Productivity: Customer picks, sales, days of attendance, salary
- Store revenue
- Survey measures
 - Subjective well-being: stress, mental health, job satisfaction, manager evaluation
 - Beliefs: own performance forecasts, beliefs about coworkers current and past performance

Econometric Analysis:

$$Y_{ijt} = \beta_1 \times T_{1i} + \beta_2 \times T_{2i} + \tau_t + \gamma_j + \varepsilon_{ijt}$$

Y_{ijt} : turnover, productivity, or subjective well-being

T_{1i} : = 1 if in trajectory information group; T_{2i} : = 1 if in peer information group

γ_j : region fixed effect; τ_t : month fixed effect

Empirical Results

Result 1. Performance trajectory information lowers new workers attrition (especially for high-performing ones)

Table 3: Average Treatment Effects on Attrition (Linear Probability Models)

Dependent Variable	Attrition			
	New Workers		Senior Workers	
Worker Type	(1)	(2)	(3)	(4)
Trajectory	-2.429** (1.110)	-2.200** (1.114)	0.917 (0.805)	1.009 (0.700)
Peer	-0.065 (1.276)	-0.326 (1.171)	0.130 (0.870)	0.110 (0.716)
Month fixed effects	✓	✓	✓	✓
Region fixed effects	✓	✓	✓	✓
Mean DV if Treatment=0	20.31	20.31	9.70	9.70
Number of observations	10171	9579	21799	18448

Table 5: Do High-performing Employees Stay? (New Workers)

Dependent Variable	Attrition	
	Low-performing	High-performing
Worker Type	(1)	(2)
Trajectory	-1.455 (2.398)	-2.210** (0.896)
Peer	-0.877 (2.359)	-0.256 (1.099)
Month fixed effects	✓	✓
Region fixed effects	✓	✓
Mean DV if Treatment=0	31.97	9.70
Number of observations	3761	5818

Result 2. Performance trajectory information lowers stress and improves mental health of new workers

Table 7: Average Treatment Effects on Individual Survey Outcomes

Dependent Variables	Job Satisfaction		Evaluation of Managers		Low Stress		Mental Health	
	New	Senior	New	Senior	New	Senior	New	Senior
Worker Type	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Trajectory	-0.040 (0.067)	-0.037 (0.046)	0.016 (0.076)	-0.021 (0.040)	0.180** (0.079)	-0.004 (0.046)	0.172** (0.075)	-0.023 (0.043)
Peer	-0.104 (0.081)	-0.012 (0.051)	-0.053 (0.069)	-0.034 (0.048)	0.006 (0.088)	-0.081* (0.046)	-0.028 (0.080)	-0.073 (0.051)
Month fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
Region fixed effects	✓	✓	✓	✓	✓	✓	✓	✓
Mean DV if Treatment=0	3.93	3.87	3.99	3.89	2.98	3.00	3.69	3.58
Number of observations	36891	69415	35519	73726	37716	73664	35951	71232

Result 3. Performance trajectory information does not affect new workers' forecasts about own performance or effort.

Table A11: Average Treatment Effects on New Workers' Forecasts on Own Future Performance

Dependent Variables	log (forecast on next month's sales)		log (forecast on sales in three months)	
	(1)	(2)	(3)	(4)
Trajectory	0.153 (0.0976)	0.0473 (0.0766)		
Peer	-0.125 (0.0913)	-0.128 (0.0806)		
log (sales)	0.419*** (0.0289)	0.332*** (0.0241)		
Month fixed effects	✓	✓		
Region fixed effects	✓	✓		
Number of observations	3023	3088		

Table 4: Average Treatment Effects on Individual Labor Supply

Dependent Variables	Attendance		Customer Pick		log (sales)	
	New	Senior	New	Senior	New	Senior
Worker Type	(1)	(2)	(3)	(4)	(5)	(6)
Trajectory	0.530 (0.434)	-0.359 (0.345)	-0.033 (1.529)	-0.160 (2.997)	0.010 (0.054)	0.000 (0.046)
Peer	-0.456 (0.393)	-0.209 (0.369)	-1.083 (1.033)	-8.094* (4.183)	-0.008 (0.061)	-0.073 (0.046)
Month fixed effects	✓	✓	✓	✓	✓	✓
Region fixed effects	✓	✓	✓	✓	✓	✓
Mean DV if Treatment=0	22.17	25.68	17.27	57.01	9.43	9.91
Number of observations	9573	18408	9413	17983	9568	18347

Conclusion:

- Information about high-performing senior workers' past performance improves the retention of new workers
- Mechanism: a novel upward social comparison channel: comparing to the past of high-performing senior workers
- Information friction exacerbates social comparison costs, but fixing this friction can improve worker and firm outcomes.

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