The Firm as a Long-term Lab

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IOEA Cargèse 2017

Management in economics

- Firms are a fundamental institution of any modern economy; the activities of their members are incentivized and coordinated = managed
- Management scholars have tried to understand what managers do (Mintzberg, 1973) what they should do (Barnard, 1937) and, in general, why management and managers matter
- In neo-classical economics, the firm is a production technology; traditionally there is little if any role for management

(However: Walker and Marshall on the role of management in late 19th century; Knight on entrepreneurs; a large literature on principal/agent and team theory; emergence of organizational economics as a field)

PPDs

- Syverson (2007): persistent productivity differences (PPD) in the same industry
  - i.e., total factor productivity (TFP) differences holding institutions, technology, competition constant
- What are the determinants of these PPD?

➢ Growing evidence that management practices explain a substantial part of productivity differences

Management practices: Cross-country variation

(from Bloom and van Reenen, HB of Labor Economics)

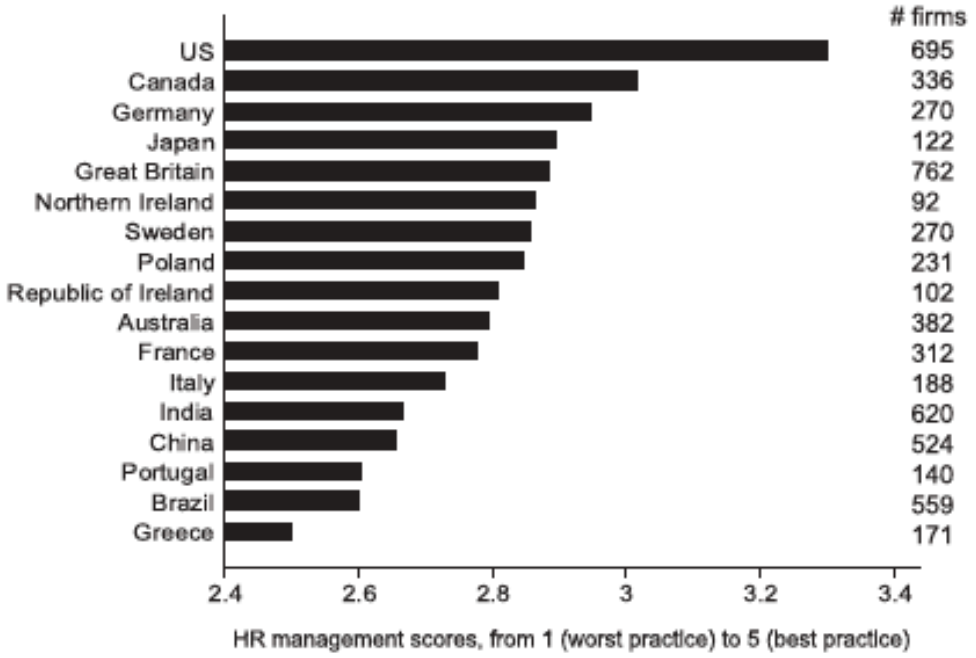


Figure 2.3 ***HR management practices across countries.*** Notes: Averages taken across a random sample of the population of medium sized (100 to 5000 employees) manufacturing firms within each country. 5850 observations in total. Firms per country in the right column. Scores firms on seven practices around pay, promotions, retention and hiring, where high scores denote stronger association with employee performance. *(Source: Authors' calculations from Bloom et al. (2009b) data)*

Management practices matter

- Bloom et al (2016), Census bureau survey, 30,000 plants in the US, MOPS
- Management practices measured as the degree to which there are
  - Clear targets
  - Systematic monitoring
  - Incentive systems
- Management practices explain a fifth of the TFP spread between 90^{th} and 10^{th} percentiles of firms
- Large intra-firm heterogeneity
- Attempts to explain adoption of practices (competition, spillovers, business environment)

Measuring the impact of management: the micro level

- Insider econometrics (Ichniowski and Shaw, HBOE)
- Three main interests:
  - Does introduction of a management practice (or a system of practices) raise productivity?
  - What are the mechanisms through which management practices raise productivity?
  - Why is the practice adopted (or not)?
- Crucial to the approach:
  - Estimate a production function in which productivity is function of management practice
  - Use micro-level data on production
  - Dig deep into the firm, run surveys and interview insiders

Insider econometrics: exemplary studies

- Lazear (AER, 2000), introduction of incentive pay in a windshield company
  - Large productivity effects
  - Half because of incentives, half because of positive selection
- Ichniowski, Shaw, Prenushi (AER, 1997), HR systems in steel mills
- Bandiera, Barankay, Rasul (various papers) on incentives and social relations of fruitpickers
- Bandiera, Hansen, Prat, Sadun: time use of CEOs as a measure of management style (cf Betrand and Schoar) and the impact on firm productivity
- For many other great studies, see the Handbook of Organizational Economics article

MANAGEMENT AS A TREATMENT

Managers have strong a priori beliefs

Managers like to experiment

RCTs in firms

- Managers do not randomize…
- … at least not in controlled ways…
- … but they can be convinced to do so
- Examples:
  - Bloom et al (QJE, 2013): management practices in India, 17% productivity effect, long observation period
  - Schoar (2016) on communication practices (importance of being nice depends on behavior at the top)
  - Barankay (2016), Blader et al (2016), Delfgaauw et al (2016) on communicating relative performance information in b2b sales, trucking, retail, respectively
  - Englmaier et al (Management Science, 2016) on making incentives salient

Challenges to one-firm studies

1. Existing and ongoing firm: strategic and informational complexity
2. Contextual factors and history:
   - Control: compare to lab experiments!
   - Culture and path dependency (Gibbons and Henderson in HBoOE, Chassang, AER 2010)
3. External validity – what works in one firm may not work in another
4. Statistical power

Challenges can be dealt with

1. Strategic and informational complexity:
   - Connect to decision-makers and sources of potential resistance
   - Continuous monitoring of progress, perceptions, resistance, threats
2. Contextual factors and history:
   - Understand and analyze history, institutions, culture
3. External validity:
   - Choose “generic” settings (caveats apply)
   - Combine with structural estimations
4. Statistical power
   - Power calculations need effect size estimates, volatility of outcome measures
   - Informed by past experience, comparable experiments, interviews with insiders

Firms as long-term labs

- Most (OECD) firms have great data (but do not use them properly):
  - Multi-dimensional outcomes
  - Long T
- Long-term *pre-treatment*
  - Helps identify confounding factors, history matters
  - Helps identify scope for treatments
  - Increases efficiency of the estimator (used for randomization)
- Long-term *post-treatment*
  - Important to understand the empirical relevance, for instance of reciprocity (see Camerer and Weber in HBoOE)
  - Checks for Halo effects
  - Can identify learning curve

What follows

- *Testing* theory: team incentives

- *Exploring*:
  - the role of middle managers,
  - communication about leadership roles

- How (not) to use firms as labs

Guido Friebel, Matthias Heinz, Miriam Krüger, Nick Zubanov,
August 2017, *American Economic Review*

TEAM INCENTIVES AND PERFORMANCE: EVIDENCE FROM A RETAIL CHAIN

Do (team) incentives work?

- ***Individual incentives*** work (Lazear, 2001...)
- ***Team incentives***: sorting/self selection
  - Hamilton et al. (2003): moving from individual to team production, incentives increases productivity
  - Bandiera et al. (2013): stronger team incentives affect productivity through effort and team composition
- Prendergast (1999): Across firms, technology and profitability are likely to differ; differences are relevant for the decision in favor of teamwork (Boning et al., 2007)

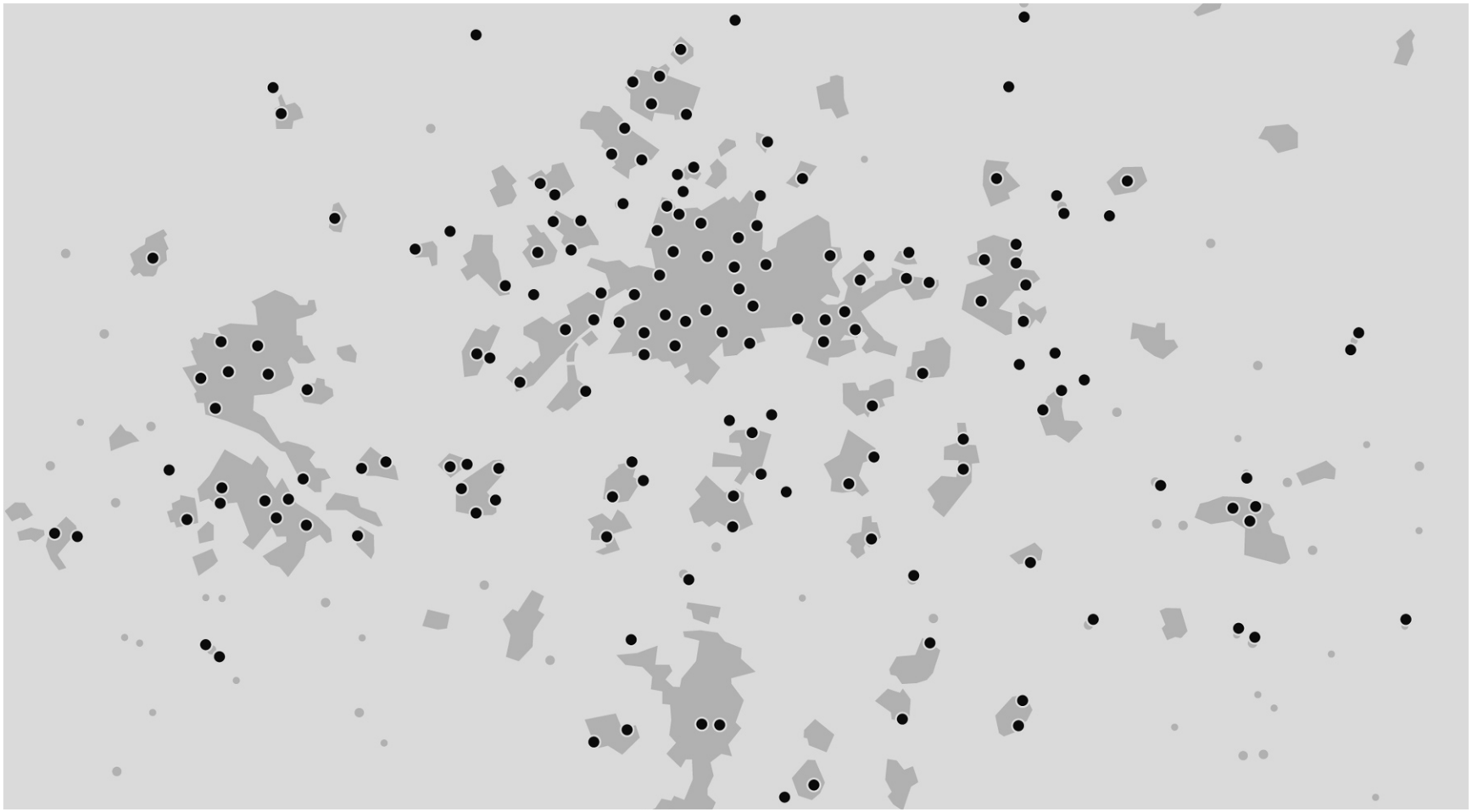
Design of our study

- No self-selection
- Teamwork technologically determined
- 193 bakeries, 1300 employees (on average 7 per shop)
- Insights into production function, complementarities:
  - Help between team mates is important
  - Flexible task allocation depending on time of day and demand is also important
- A type of team work representative for millions of employees in the global economy
- Long-term pre-experiment data: 27 months of output data, precise performance measures

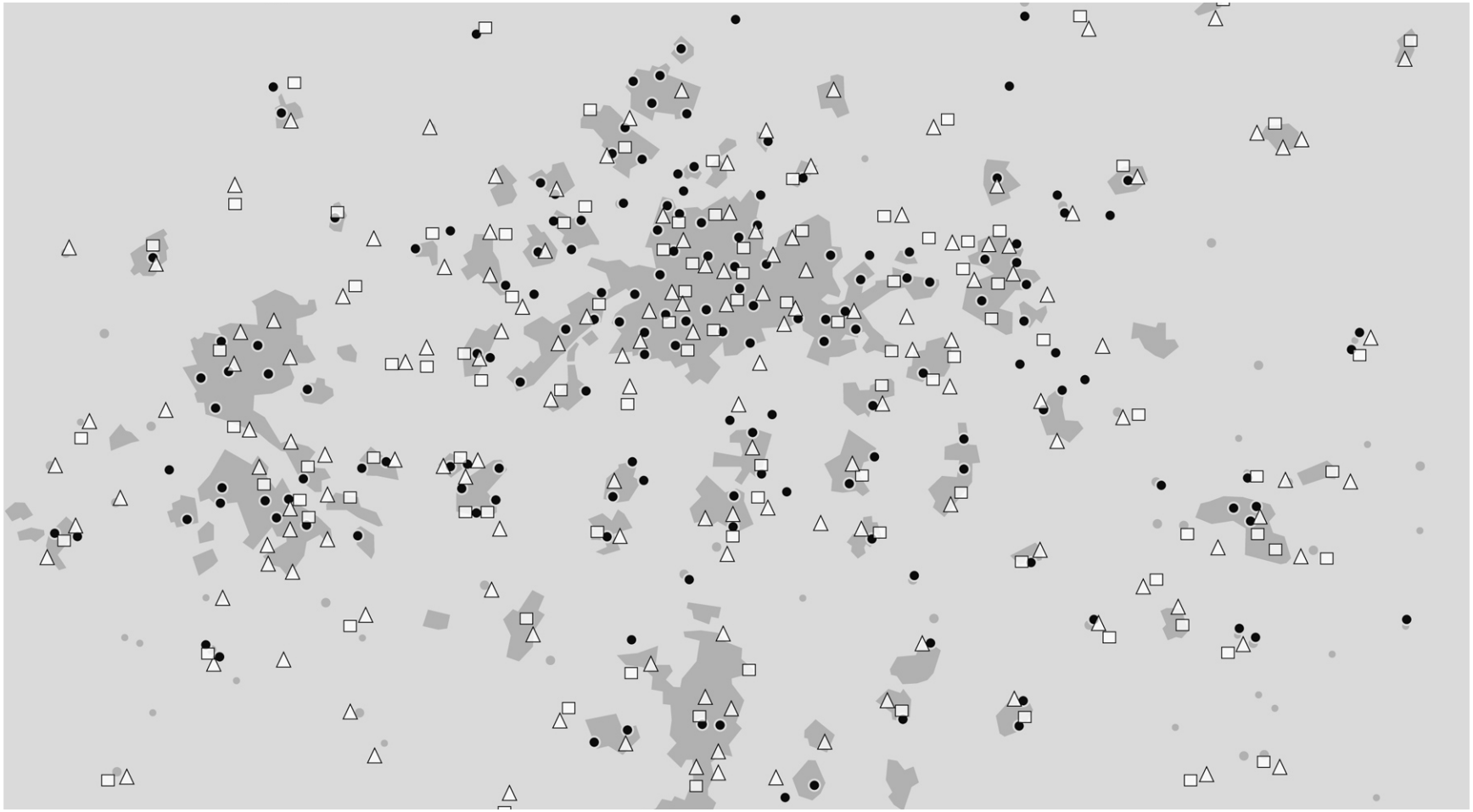
External context: The market for bread in Germany

- Traditionally, craftmanship, small firms
- Since the 1980‘s: emergence of chains
- As of today, dozens of chains of considerable size
- Economies of scale for chains
- Since 2010: LIDl and ALDI enter the market for fresh bread with automated bread ovens
- Estimated 6,000 integrated bakery shops

Our chain in its market (6,000 sq km)



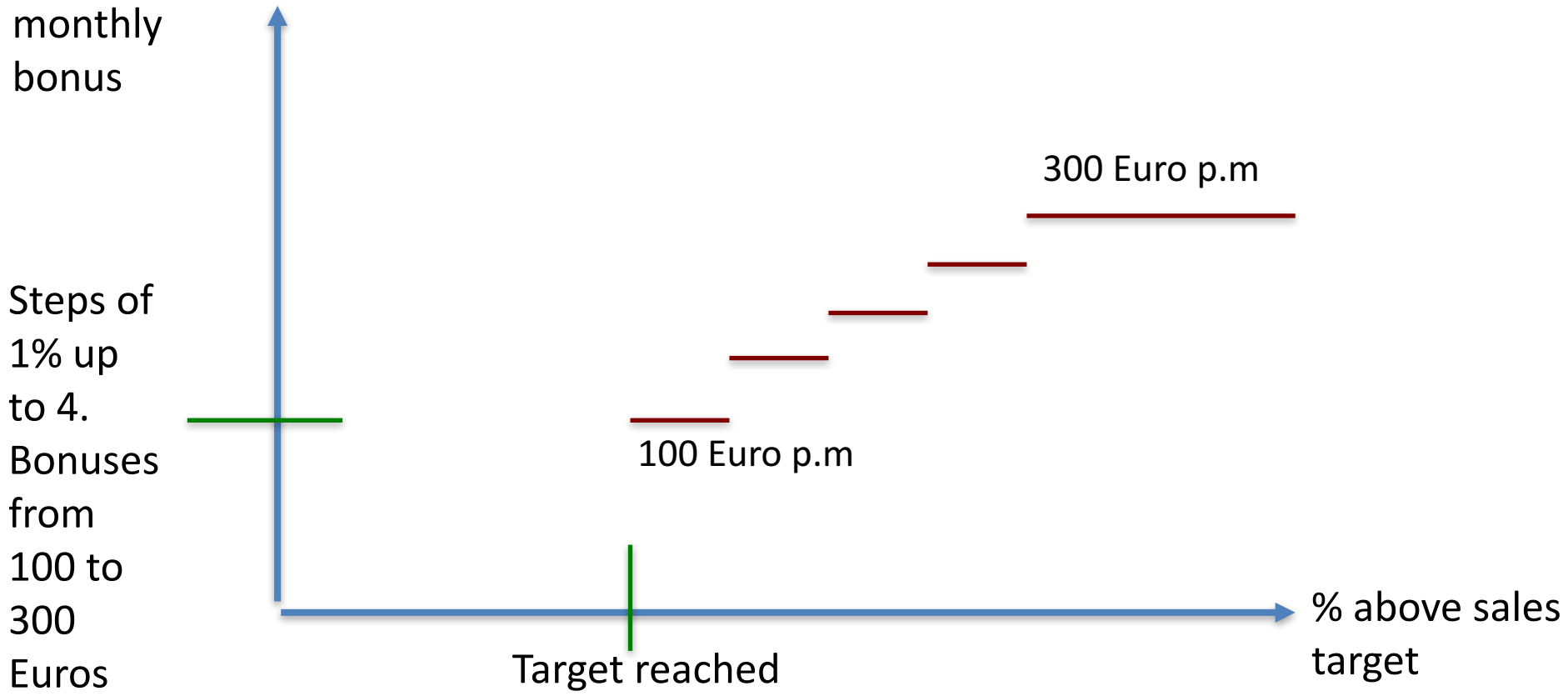
Our chain and LIDL, ALDI



The chain‘s strategy

- Cannot compete on costs, compete on quality and differentiate:
  - Premium products
  - Fast food and snacks
  - Refurbishments of shops
- More service-intensive products involve important HR changes: Operations become more involved
- What can be done to improve sales activities?
  - Firm experimented with higher skill employees, unsuccessfully, with more intensive training, and numerous marketing activities
  - Aligning incentives of sales assistants with the firm?

The team bonus



- Our bonus: (i) shared by all members of the team, (ii) excluding the mini-job employees (for tax reasons)
- Sales targets: fixed at the end of preceding year, based on sales history

Assignment of shops to treatment and control

- Stratified randomization following Barrios (2014) offers efficiency gains in treatment effect estimation

Steps:

- First, we regress pre-treatment shop sales (our key outcome variable) on its determinants, and generate predicted values
- Second, rank these values and break them into pairs of adjacent rank
- Third, we randomize within each pair
- We flip a coin for the median-ranked shop

Summary stats, treatment v. control

	Panel A: Quantitative performance indicators		
	Control (n = 96)	Treatment (n = 97)	t-test p-value
Mean monthly sales (SD)	27,453 (11,481)	28,194* (14,542)	0.695
Mean monthly sales (in logs, SD)	10.14 (0.39)	10.15 (0.41)	0.846
Unsold goods as % of sales (SD)	16.16 (7.0)	15.54 (6.9)	0.331
Mean number of customer visits (SD)	10,028 (3,921)	10,131 (4,018)	0.856
Mean monthly quit rate (SD)	1.9% (4.1%)	1.8% (4.1%)	
Frequency of achieving the sales target	35.8%	35.2%	0.860
	Panel B: Qualitative performance indicators		
Mean mystery shopping score 2013 (SD)	96.1%	95.5%	
Mean mystery shopping score 2014 (SD)	97.6%	97.6%	
	Panel C: Shop location		
Big town	37.6%	33.6%	
Medium/small town	26.0%	29.6%	
Village	36.4%	36.7%	

* The mean sales in the treatment group are 27,165 if we exclude one outlier shop.

Summary stats, continued

	Panel D: Characteristics of shop managers		
Mean age, years	39.8 (6.4)	40.9 (6.3)	
Share of females	94.9%	93.0%	
Share of full-time employees	71.8%	64.8%	
	Panel E: Characteristics of sales agents		
Total number of sales agents	552	580	
Mean number of agents per shop (SD)	7.4 (3.2)	7.4 (3.2)	
Mean age, years	39.5 (6.1)	39.9 (6.0)	
Share of females	93.1	92.4	
Share of employees with a permanent contra	66.6%	67.9%	
Share of full-time employees	9.7%	10.4%	
Share of part-time employees	56.7%	59.7%	
Share of employees with a "mini-employmer	33.6%	29.9%	
Share of unskilled workers	77.5%	72.3%	
	Panel F: Employee attitudes		
Mean commitment score (SD)	4.50 (1.55)	4.42 (1.69)	0.523
Mean work satisfaction score (SD)	4.45 (1.51)	4.33 (1.57)	0.422
Mean overall satisfaction score (SD)	4.98 (1.63)	4.90 (1.70)	0.548

More context: non-incentivized workers and sales in treatment shops

- On average 30% of the workforce are „mini-jobbers“
- Mini-jobbers can earn up to 450 Euro tax-free (if they earn more: have to tax their whole income)
- For tax and administrative reasons, they cannot be paid the bonus

➢ Exogenous variation of non-incentivized workers

Theory: Predictions from a simple agency model with complementarities

Ingredients:

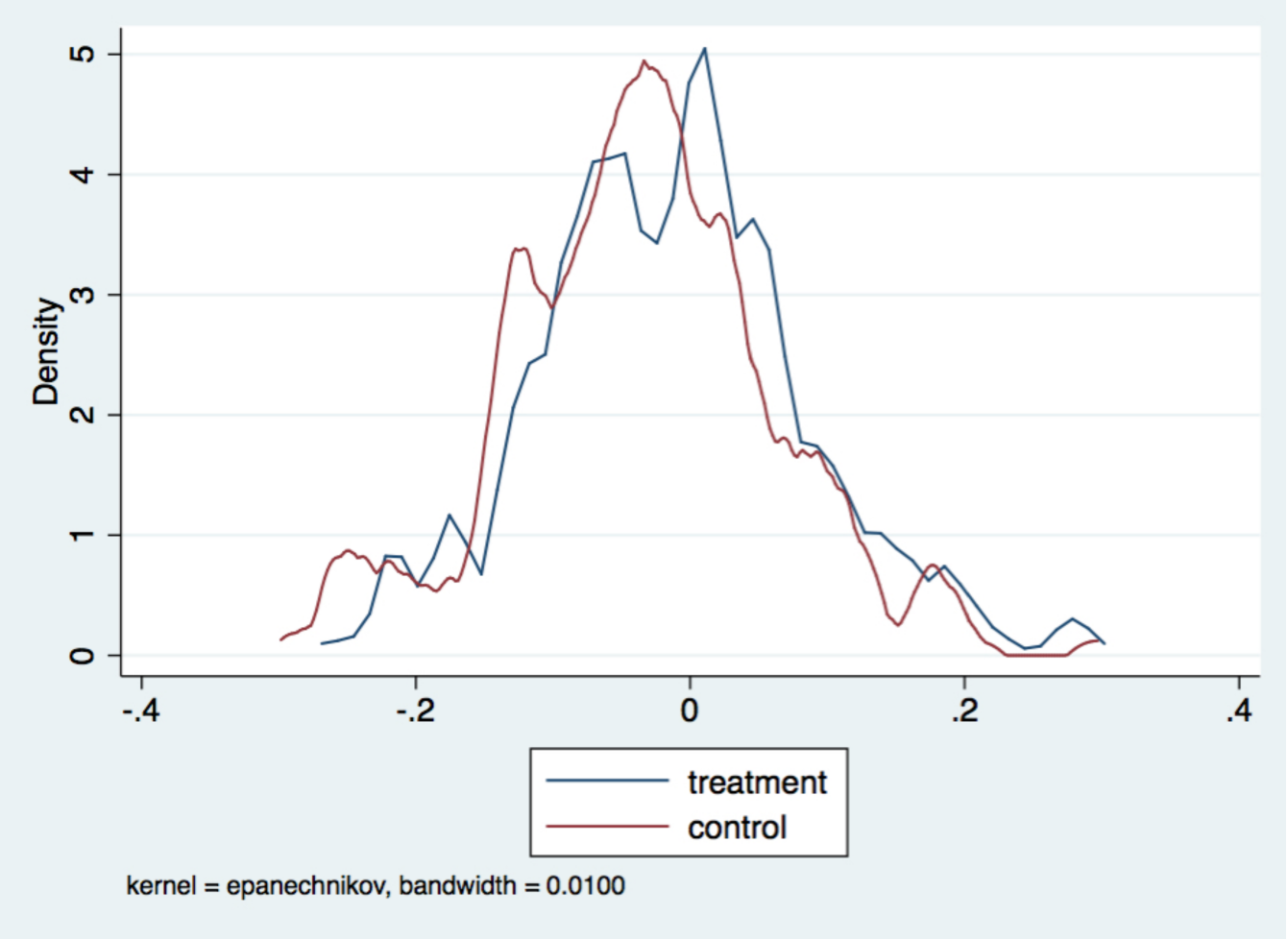
- N agents
- Individual efforts chosen in Nash equilibrium
- CES aggregation of effort into team (= shop) output
- A number of modelling choices to reflect institutional specificities

1. A sales bonus increases effort and, hence, expected sales, provided the marginal benefit of effort given the bonus exceeds its marginal costs at the minimum acceptable level e_0.

The effect of the bonus on sales

2. decreases in the share of the non-incentivized workforce in total work time;
3. is larger for teams that, historically, did not reach their targets;
4. decreases in the difficulty (costs) of effort;
5. increases in the productivity of effort.

Kernel distribution of the year-on-year sales growth, April-June 2014



Project sequence, 2014

- March: First wave of employee survey (response rate: 80%)
- End of March: Training of district managers; posters and letters for treatment shops
- April, May, June: Introduction of team bonus in half of the shops
- May: Mystery shopping to check sales people behavior
- June: Second wave of employee survey (response rate: 65%)
- June: decision to roll out to all shops in July

Average treatment effect

- CHANGE: difference-in-difference estimator
- ANCOVA: single difference, controlling for pre-treatment sales

Table 4: Average treatment effect (April-June 2014)

	Dependent variable: $\ln(sales_{it})$	
Estimators	CHANGE	ANCOVA
$Treatment_i * after_t$	0.032**	
	(0.013)	
$Treatment_i$		0.032**
		(0.014)
Month fixed effects	Yes	Yes
Shop fixed effects	Yes	No
Controls	Yes	Yes
Average ln(sales) pre-treatment	No	Yes
Observations	4916	576

Large heterogeneity in the treatment effects (P5)

- Treatment effect in large towns (>100,000 inhabitants): 7.7%
- In mid-size towns: 2.4%
- In villages: 0%

Table 6: Treatment effect by average zip code property price (April-June 2014)

	(1)	(2)	(3)
Treatment effect (TE) at mean property price	0.036**	0.031**	0.035***
	(0.014)	(0.014)	(0.014)
TE * Average per sq. meter price: Commercial	0.037*		
	(0.020)		
TE * Average per sq. meter price: Residential		0.036***	
		(0.014)	
TE * Weighted average by sq meters			0.035**
			(0.015)

Negative effects of non-incentivized workers (2) Historically week shops feature stronger treatment effects (3)

Panel A: Treatment effect by the shop-average share of work hours delivered by mini-jobbers			
Quartile 1 (mean share: 2.4%)	Quartile 2 (mean share: 8.5%)	Quartile 3 (mean share: 13.4%)	Quartile 4 (mean share: 24.5%)
0.074**	0.053*	-0.001	-0.006
(0.035)	(0.028)	(0.023)	(0.025)
Panel B: Treatment effect by pre-treatment deviation of sales targets			
B1: Distance measure: pre-treatment average sales/target difference			
Quartile 1 (mean deviation: -14%)	Quartile 2 (mean deviation: -6.5%)	Quartile 3 (mean deviation: -2.9%)	Quartile 4 (mena deviation: 2.5%)
0.055*	0.041	0.047*	0.001
(0.032)	(0.031)	(0.026)	(0.018)
B2: Distance measure: pre-treatment frequency of achieving the target			
Quartile 1 (mean deviation: 9.8%)	Quartile 2 (mean deviation: 24.3%)	Quartile 3 (mean deviation: 41.7%)	Quartile 4 (mean deviation: 68.6%)
0.057**	0.049*	0.030	-0.012
(0.024)	(0.028)	(0.030)	(0.018)

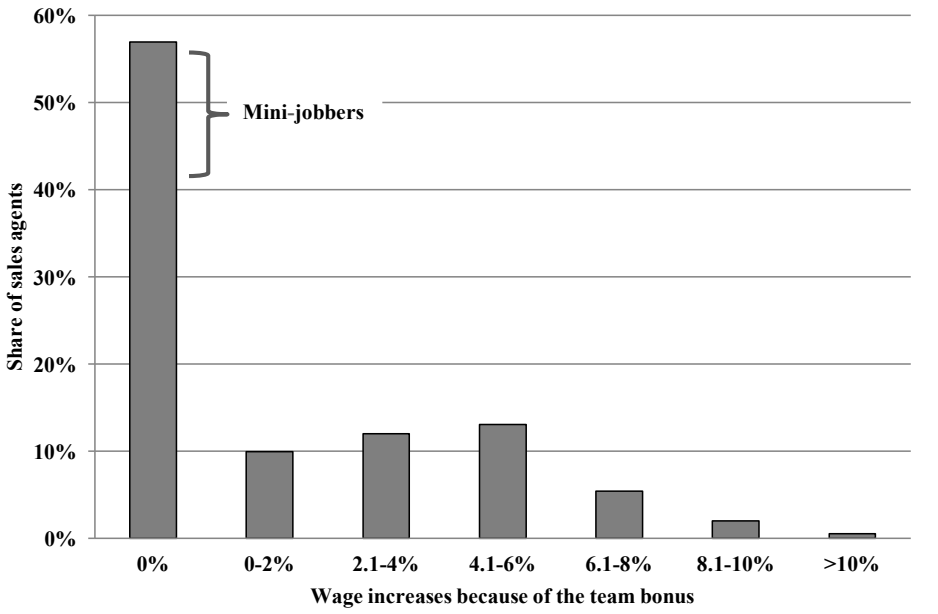
Significant effects on firm and workers

Firm

- During the experiment
  - 3% sales increase
  - for one Euro bonus payment, increase of operating profit of more than 2 Euro
- Breakeven after 2 months
- Management decided to roll out the bonus
- Increase of the profit margin by more than 50%

Workers

Figure 3: Distribution of wages increases because of the team bonus (April-June 2014)



The Roll-out

Table 7: Treatment effect by month

Treatment period			Post-treatment period					
April	May	June	July	Aug	Sept	Oct	Nov	Dec
0.031***	0.037***	0.033**	0.036***	0.014	0.003	0.010	0.005	-0.002
(0.012)	(0.012)	(0.014)	(0.013)	(0.016)	(0.016)	(0.017)	(0.021)	(0.025)

- The bonus scheme was rolled out to all shops from July 2014
- No more “treatment effect” in the roll-out phase
- July: It took a while for the control group shops to be informed about the bonus

Guido Friebel, Matthias Heinz, Nick Zubanov, work in progress

MAKING MANAGERS MATTER: EVIDENCE FROM A RETAIL CHAIN

Managers in economics

- Bloom et al. (2016):
  - A large part of TFP still unexplained.
  - What about the soft factors?

- Managers are important because of face-to-face interactions with employees

- No leading theory of middle managers…

- …and little causal evidence on their role.

Do middle managers matter?

- Historical function of middle managers:
  - transmit orders and information from top managers to workers.
  - supervise and motivate workers.
  - implement operations.
- Despite technological innovations, much support for the ongoing crucial role of middle managers.
- Lazear et al. (2015): Workplace performance has a middle manager “fixed effect”.
- Hoffman Tadelis (2016): Better middle managers have lower subordinate turnover.
- Glover et al (2016): “Biased” middle managers interact less with minority workers, leading minorities to exert less effort.

Our study in a nutshell

- Can a firm make middle managers matter?
- Field experiment in a retail chain with a considerable staff turnover problem.
  - Ask middle managers to help reduce turnover, in particular by talking more to workers.
  - Large reduction in quit rate(around 30%) because of this simple top-down communication.
  - No negative effects on other performance measures.
- What are the mechanisms leading to the reduction in personnel turnover?
  - Employee and manager surveys reveal the importance of communicating to employees, not only about job-related issues.

The Firm

- A retail network in an Eastern EU country
- 238 stores, each managed by a store manager
- average sales ca. 200,000 Euros per month
- average store ca. 23 employees
  - department managers and specialists
  - 19 cashiers

The Firm's problem: high cashier turnover

- Cashiers: Quit rate ~6-7% per month.
- Costs:
  - Direct administrative costs
  - Quality of service affected
  - Historical data -- lower sales: 1 SD increase in quit rate => 1.4-0.6% lower sales next three months
  - Total estimated costs: > **800 Euros per quit.**
- Reducing turnover is a top management priority, partly because of increasing competition (LIDL entry).

Experimental treatments (start: Sept. 2015)

Control (59 stores)

- No changes

"Manage" treatment (59 stores)

- personal letter to the store manager asking them to do what they can to reduce worker turnover in their store, in particular by talking to workers.

"Career" treatment (60 stores)

- letters to workers highlighting career opportunities at the firm.
- a personal letter to store managers asking them to inform their workers of career opportunities.

"Career + Manage" treatment (60 stores)

AEA RCT Registry

The American Economic Association's registry for randomized controlled trials

Friebel, G., M. Heinz and N. Zubanov (2015), "The impact of employer-employee communication on employee turnover", August 31.

We run a field experiment to investigate the impact of employer-employee communications on employee turnover. Our study firm - a network of 238 retail stores located in an Eastern European EU member state - has been troubled with store staff turnover averaging at 90% per year, a figure high even for the retail sector standards. Turnover is expensive, costing about 400 Euros per quit worth of time spent finding and training up a replacement. Low pay and limited career options have been blamed for high store staff turnover.

Yet, the fact that half of the leaving staff quit within the first three months on the job suggests that turnover could be reduced by better induction into the firm, which we believe can be accomplished through improved employer-employee communications. Hence, our first experimental treatment, labeled "job induction", is to send a letter signed by the firm CEO to the treatment group store managers motivating them to do what they can to reduce staff turnover. In particular, the letter mentions the importance of helping employees fully integrate into their teams, of training new hires, and of having an open ear for the concerns workers may have, especially in the beginning of their tenure.

Our second treatment, labeled "career communication", is about communication with the staff regarding career options at our study firm. Although career options for store staff are perceived as limited, the facts are that a considerable proportion of store and regional managers were promoted from cashiers, and that our study firm offers a variety of careers in its HR, logistics, finance and production divisions (we do not cover these in our experiment). Employees in the stores selected for our second treatment receive letters emphasizing these facts and encouraging them to contact a specially appointed HR officer for information on career possibilities.

Finally, our third treatment combines the above two so that we can learn whether job induction and career communication are substitutes, complements or neutral to each other in their effect on staff turnover.

We select employees into treatments or control group by store using stratified randomization. In addition to store average quit rate, which is our outcome variable, we balance the treatment and control group in terms of store sales, size and location, as these characteristics are correlated with staff turnover. We work with store and regional managers to ensure that we can detect and minimize information spillovers between stores in different treatment groups. The field experiments starts on September 01st, 2015.

https://www.socialscienceregistry.org/trials/826/history/5141

(LOGO FIRM)

Dear (NAME OF THE STORE MANAGER),

Over the last few years, (FIRM NAME) has invested much effort and resources in maintaining and further improving the quality of goods, customer service and refurbishments. We believe that we are on a good way to become the best retailer in (COUNTRY NAME)! However, much remains to be done for (FIRM NAME) to achieve the leading position. We would like to ask you for your help in dealing with an important problem that many shops are facing on a daily basis.

It is about personnel turnover. We currently have personnel turnover of around 90% per year. We also know that 50% of those who leave are leaving in the first few months of their employment at (FIRM NAME). Each employee's leaving costs us on average 400 Euros - at least.

This turnover severely impedes your efforts of improving the quality of our products and services. In this case, a biggest part of your job is for searching new employees and training them. Also, all organized training, such as practice sessions and leadership clubs, are not effective as they should be.

We would like to bring your attention to the problem and ask you to do what you can, in order to bring down turnover. In particular, please talk to your employees and make them feel fully integrated into your team, among others by putting emphasis on the buddy program. Please also note that it is important to train the new hires in the essential processes and have an open ear for problems they may have in the beginning.

Need help, consultation or you have an advice? Contact (NAME, PHONE NUMBER HR)

Best regards,

PICTURE, NAME AND
SIGNATURE OF THE CEO

PICTURE, NAME AND
SIGNATURE OF THE HEAD OF HR

(LOGO FIRM)

Dear (NAME OF THE STORE MANAGER),

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Need help, consultation or you have an advice? Contact (NAME, PHONE NUMBER HR)

Best regards,

PICTURE, NAME AND
SIGNATURE OF THE CEO

PICTURE, NAME AND
SIGNATURE OF THE HEAD OF HR

Feel free to open your career possibilities at FIRM NAME!

Did you know that:

Nearly half of our regional managers started their career working in an FIRM NAME store!

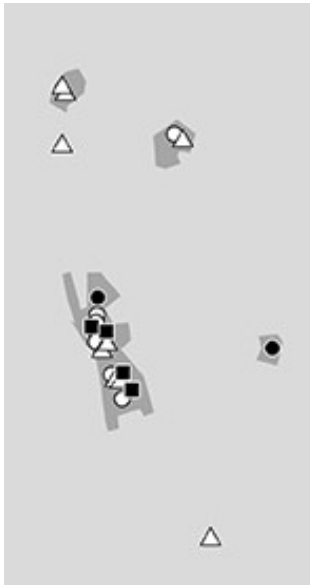
More than half of our store managers started their career as cashiers!

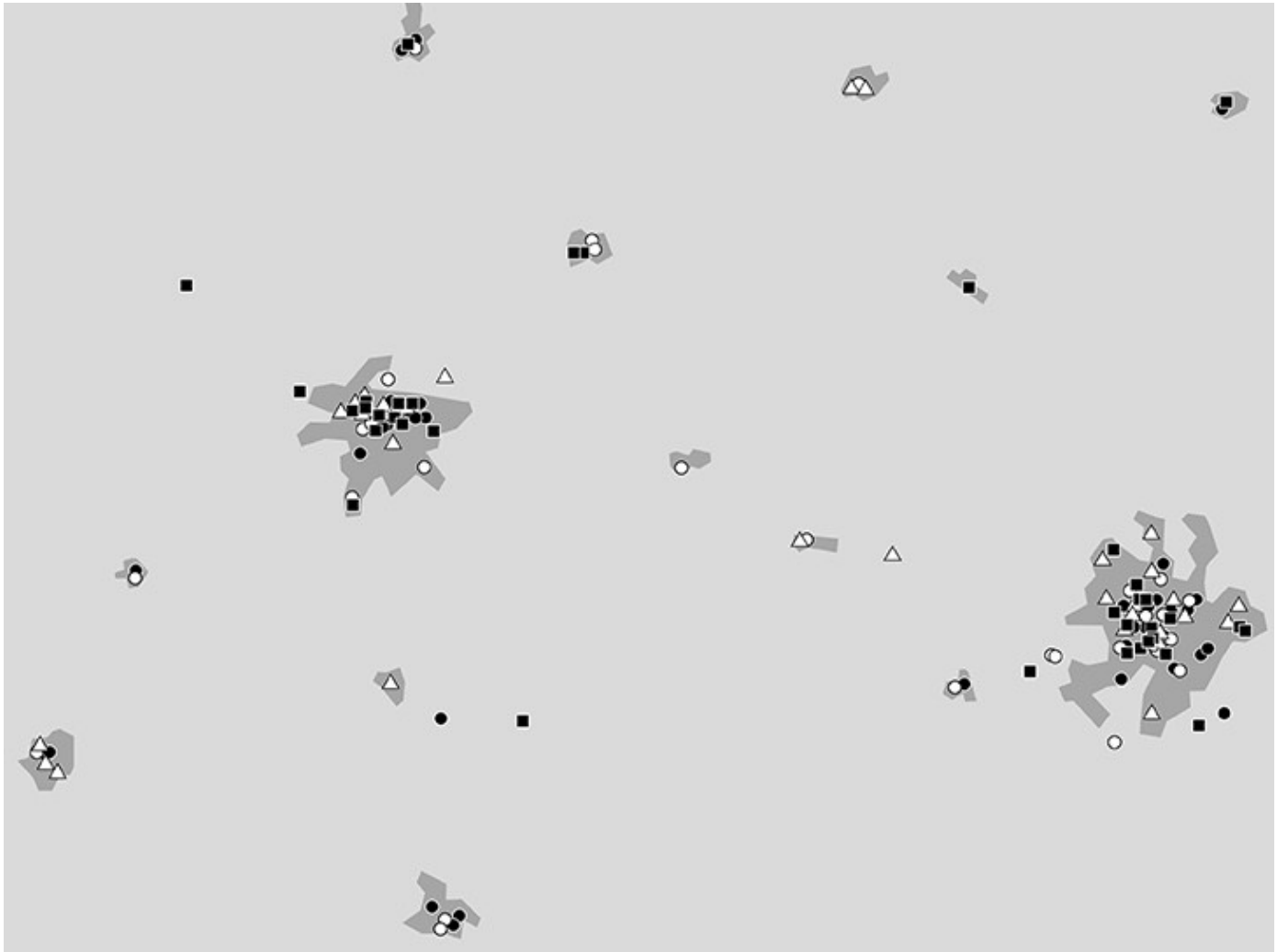
FIRM NAME has more than 200 different occupations in a wide variety of areas!

FIRM NAME offers a variety of training and development activities, ranging from professional training to university education!

Seek your Career and grow with FIRM NAME! Are you interested in career opportunities? We are waiting for your call! NAME, PHONE NUMBER

Randomization: Stratified, over quit rate, headcount and sales





Three largest cities:

- ● Control,
- ○ Career,
- △ Manage
- ■ Career+Manage stores

Summary statistics by treatment group (pre-treatment, Jan 2014-Aug 2015)

	Control (n = 59)	Manage (n = 59)	Career (n = 60)	Career + Manage (n = 60)	Mean equality test p-value
Mean monthly quit rate	5.98%	5.89%	5.92%	5.31%	0.511
	(8.22%)	(8.18%)	(7.49%)	(7.40%)	
Mean monthly sales	190,366	202,306	208,690	220,905	0.738
	(126,874)	(145,263)	(154,187)	(183,930)	
Mean number of cashiers	16.3	17.2	18.1	18.8	0.712
	(11.2)	(12.3)	(13.2)	(15.1)	
Mean store size in sq m	584.4	646.1	654.0	686.0	0.454
	(308.4)	(358.1)	(385.1)	(416.2)	
Location: Town	52.7%	56.9%	48.7%	55.9%	0.812

Average treatment effects on monthly quit rate, by time period

	Sept. 2015-Sept. 2016	Sept. 2015-Nov. 2015	Dec. 2015-Feb. 2016	Mar. 2016-May 2016	June 2016-Sept. 2016
Manage treatment	-0.015**	-0.019**	-0.029**	-0.019*	0.002
	(0.007)	(0.009)	(0.014)	(0.010)	(0.010)
Career + Manage treatment	-0.011*	-0.005	-0.026**	-0.025**	0.007
	(0.006)	(0.009)	(0.012)	(0.010)	(0.011)
Career treatment	-0.009	-0.009	-0.017	-0.017*	0.003
	(0.007)	(0.009)	(0.014)	(0.010)	(0.010)
Control group average quit rate	0.083	0.074	0.081	0.081	0.093
	(0.011)	(0.085)	(0.015)	(0.093)	(0.010)

ANCOVA: single difference controlling for baseline quit rate. Standard errors clustered at store level.

Summary of the results

Sep 2015 - Nov 2015

- *Manage*: 1/3 lower quit rate; *Career+Manage*: No effect.
- Potential explanation: Learning and information overload.
  - We primed managers to highlight careers; managers learned that highlighting careers has no effect.

Dec 2015 - May 2016

- *Manage* and *Career+Manage*: Around 1/3 lower quit rate.

Jun 2016 - Sep 2016

- *Manage* and *Career+Manage*: No effect.

Reminder treatment

End of Sep 2016

- We send a "reminder" to
  - 30 of the 59 managers in the *Manage* and
  - 30 of the 60 managers in the *Career+Manage* group.
- We reminded them to focus on turnover, talk to workers.

Oct. 2016

- Reminder stores: 1/3 lower quit rate. But: Effect vanished in Nov. 2016

Treatment effect (TE) heterogeneity

1. Store manager fixed effects

- Using 74 (only a subset!) pre-treatment manager movements: Run the quit rate regression with manager, store and time fixed effects.
- *Manage (C+M)* TE is larger for managers with higher fixed effect: One SD decrease in manager quality as measured by ability to deal with turnover = 3.2 (1.7) percentage points larger TE.

2. Store size

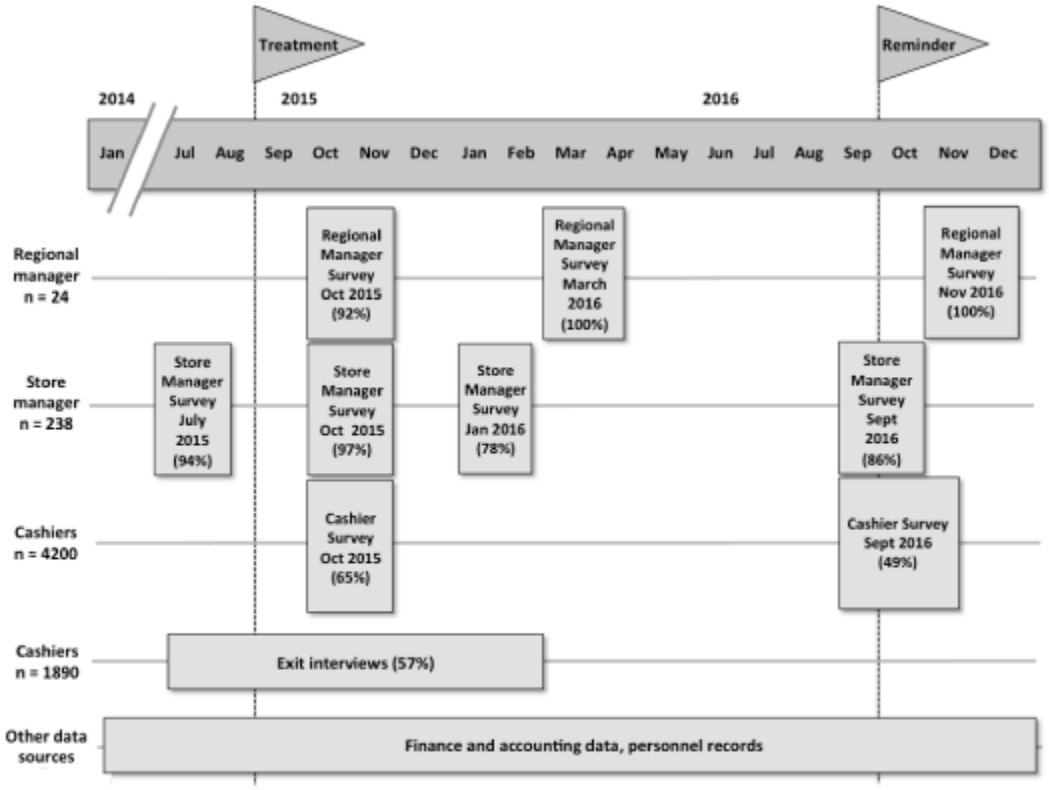
- Successful managers are promoted to larger stores.
- *Manage /C+M* TE is larger in smaller stores (one SD increase in store size = 1.7 / 1.3 percentage points smaller TE).

→ Weaker managers react more intensively to treatment.

What do managers do to matter?

- Recall: we encouraged store managers to talk more to workers.
- Our strategy to identify mechanisms: Survey
  i. store managers,
  ii. cashiers that quit and
  iii. cashiers that did not quit.

Map of surveys



Notes: Response rates in the surveys are in parenthesis. Store manager and cashier surveys were framed as "international surveys in the retail industry". Exit interviews: We only use data for cashiers who quit in the first three months in the paper (n=945, response rate: 57%). Store Manager Survey January 2016: Eleven store managers were not interviewed as they only recently moved to the store.

Jan 2016: Store manager surveys

- Native-speaking student assistant interviewed store managers in the *Control*, *Manage* and *Career+Manage* groups.
- Assistant was unaware about treatment status of the stores.
- Interview question:

  "Since summer/autumn, have you done anything in particular that you think could reduce turnover in your store?"
- Our assistant made notes about the responses of each store manager.

Store managers' responses

Sample responses

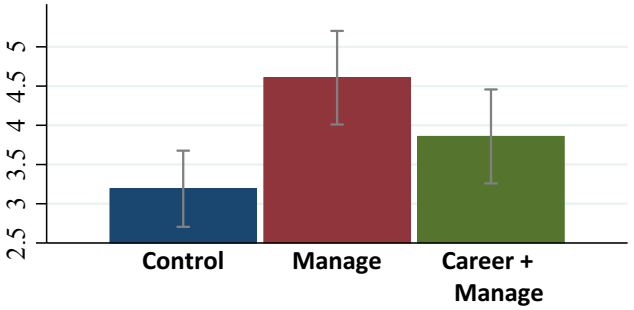
- "More team-building, meetings over coffee/sweets."
- "I became worried about a worker's alcohol problem, visited him at home, suggested medical treatment."
- "I can't do anything. Turnover is the workers' fault, not mine!"

Evaluation Study

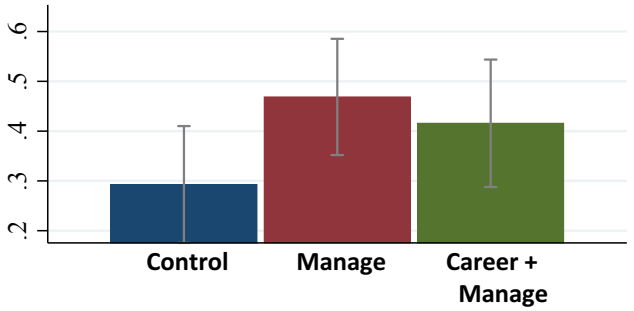
- To validate the responses, we showed ten subjects in a lab the notes from the interviews.
- We asked the evaluators three questions.

External evaluation

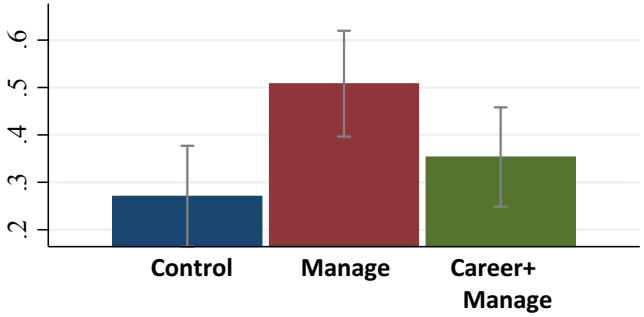
1. According to the store manager, to what extent is it possible for her/him to reduce employee turnover? (scale 1-10)



2. Has the manager increased effort to reduce the turnover in the last months compared to the time before? (no/yes)



3. Has the manager talked to (some groups of) employees more over the last few months compared to the time before? (no/yes)



Time use of managers

- Time use surveys: Percentage of time store managers allocate to different tasks.
- *Manage* treatment: Store managers spent more time dealing with HR/turnover. Extra time came from dealing with customer/admin.
- Store managers who increased the time spent dealing with HR/turnover: Larger treatment effects in *Manage* and *Career+Manage*.

Employee surveys

- Exit interviews (July 2015-Feb 2016):
  - Cashiers hired in the *Manage* treatment stores in the treatment period report more supervisor attention and support.

- Cashier survey (Sept/Oct 2016):
  - Cashiers in *Manage* and *Career+Manage* treatment stores where the manager did not change since the beginning of the treatment report that managers talk to them personally more often.

Further results

- Channels: No evidence in surveys and personnel records that hiring / firing practices or distribution of bonuses can explain our treatment effects.

- Other outcome variables (besides turnover): No significant treatment effect on sales.

- Managers were not rewarded with higher bonus payments or promotions for reducing turnover.

Summarizing the observations

(i) in stores in which managers received a direct communication from top management about the importance of bringing down personnel turnover, personnel turnover decreased substantially (by about 1/3)

(ii) managers and cashiers report changed behaviour of store managers, in particular, more intensive communication and interaction practices and more time use for HR activities

(iii) stores sales show a small but statistically not significant positive effect in the treatment stores

(iv) the effect on turnover is persistent over nine months, vanished, but appeared again (for a shorter period) after a repetition of the communication

Making sense of the observations

- Managers are incentivized and coordinated by explicit incentives and direct orders from their direct supervisors (regional managers)
- Communication from the top is very rare
- Rationally, managers are likely to interpret the communication as a shift in organizational focus (Dessein and Santos, 2016)
- This is likely to result in implicit career incentives associated with bringing down personnel turnover
- Consequently, managers shift their effort towards HR activities
- Are managers rewarded? No, neither discretionary bonus nor promotions as a function of turnover
- After a while when managers realize there is no reward, they go back to “normal”
- Upon sending a reminder, there is, again, an albeit short-term fall in personnel turnover

SOME IMPLICATIONS ON USING FIRMS AS LONG-TERM LABS

1. Firms and researchers

- Many firms have great data, but neither the time nor the technology to make use of them
- Do not try to convince a firm to implement your idea
- Rather:
  - Listen to their problems
  - Analyze their data (almost for sure, a paper!)
  - Provide them with a quick winner
- Then, convince them about a treatment

2. Testing theory vs exploring

- If you want to test a theory
  - It should be an important theory
  - Write down a model that takes into account the specific context
- If you want to explore
  - It should be an important idea
  - Theorize after the experiment

3. Statistical power and experiment design

- Get an idea of the effect sizes you could reasonably expect (from looking at past "experiments", expert knowledge, or other papers)
- Run productivity regressions on historical data: how much noise is in the outcome variable(s)?
- If you do not have enough units to get sufficient statistical power, do not do it!
- Register at AEA website
- Think early enough about heterogeneous treatment effects

4. Feasibilty and coalitions

- Too many power games in super large corporations (I tried big transportation, banks in Frankfurt 😡)
- Try firms that have a performance rather than a bureaucratic culture
- Support of top management is necessary condition
- Operations and HR: equally important
- And, in many countries, worker councils or trade unions

ELEPHANT

Heterogoneous effects and adoption

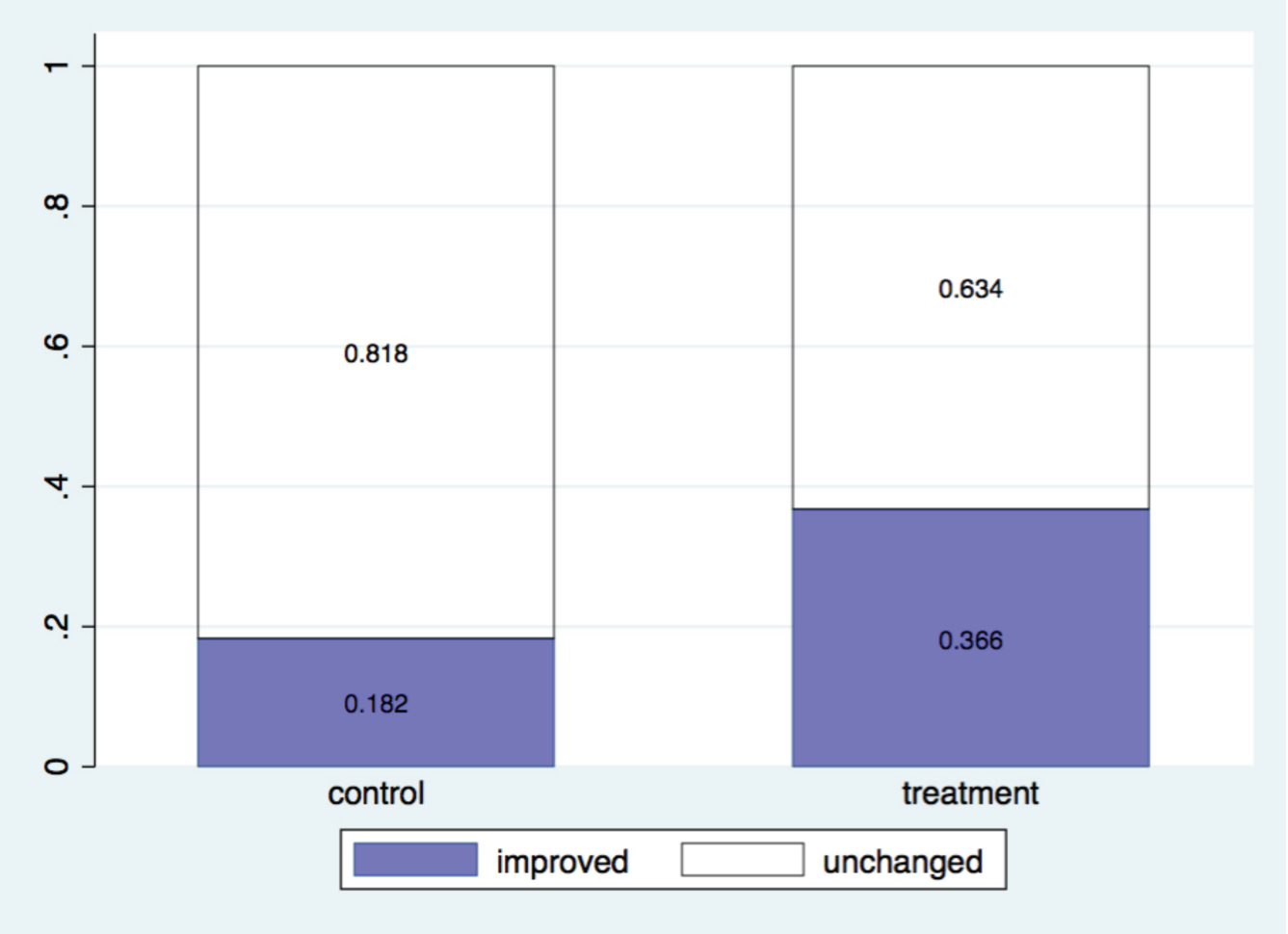
- Recall, insider econometrics
  - Does introduction of a management practice (or a system of practices) raise productivity?
  - What are the mechanisms through which management practices raise productivity?
  - Why is the practice adopted (or not)?
- Can we say anything about adoption?
  - Heterogeneous treatment effects tell us where effects can be expected to be largest (here shop size, maket conditions, location)
  - This can be used to better understand adoption as well

Other projects

- Same firm as Making Managers Matter:
  - Decentralization of decision-making power on bonuses (Friebel, Heinz, Prat, Zubanov)
  - Varying pay for referral in hiring (Friebel, Heinz, Hoffman, Zubanov)
- Fast-food chain (franchise):
  - Predicting entrepreneurship
  - Migrant entrepreneurs
- Professional services (head-hunting)
  - Predicting professional success with measures of risk aversion, overconfidence, patience
- Police (Friebel, Kosfeld, Thielmann)
  - Positive selection of applicants?
  - Using trust and norm enforcement games

BACK UP TEAM BONUS

Improvement in within-pair ranking by group, April-June 2014

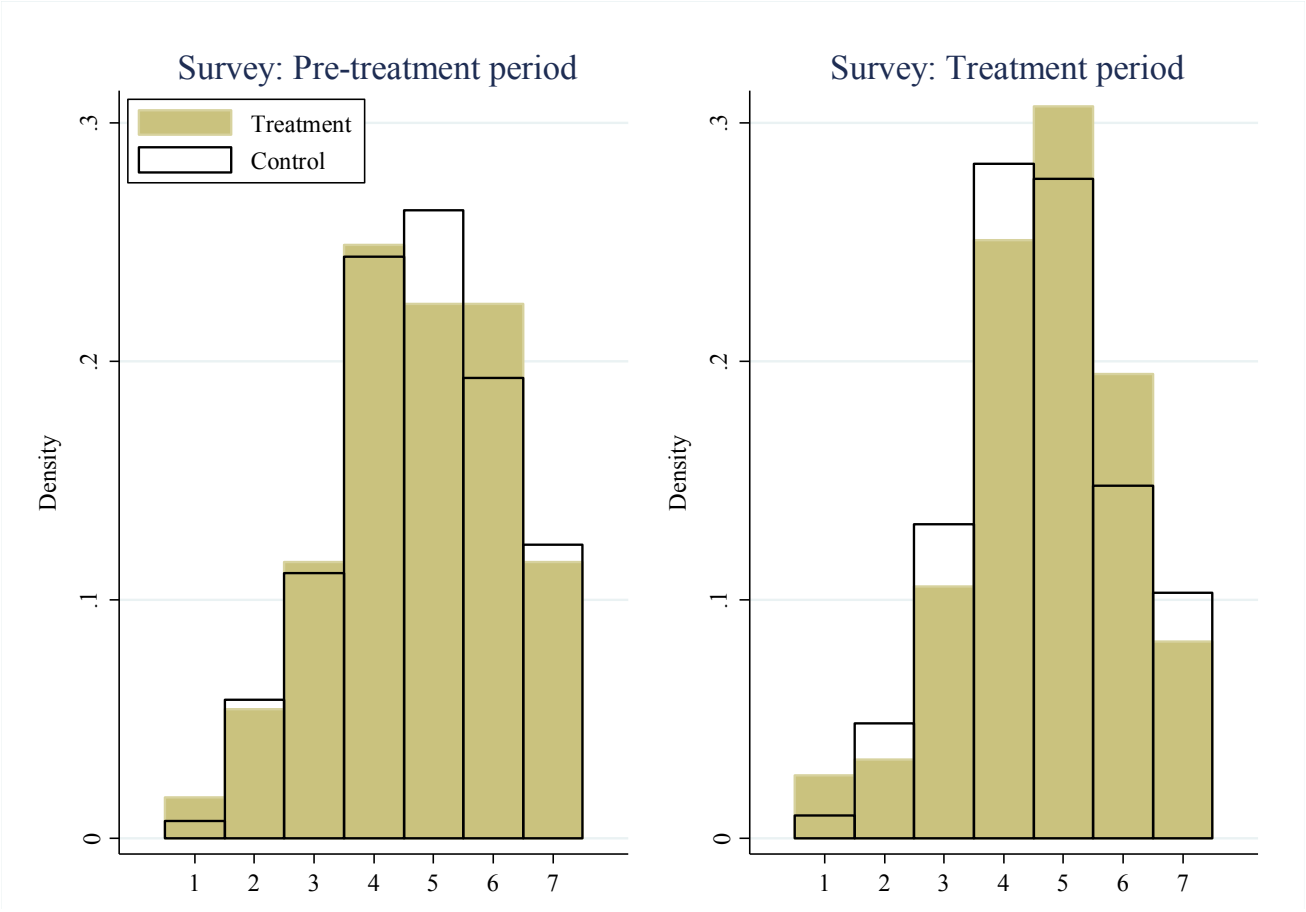


Contamination of control group?

- We monitored Facebook
- Talked regularly to district managers, gave them protocol to react if people in the control group hear about treatment → April: Two employees from control group asked; May/June: Nobody
- Results from survey 2 (excl. shop managers):
  - "How often do you interact with employees of other shops on matter related to your job?" → 80%: (Almost) never
  - "How often have you talked to employees in other shops about the team bonus?" → 83%: Never
- Controlling for the number of treatment shops in a radius of 1 km around each control shop does not change our results

No treatment effect in survey

Figure B: Distribution of commitment scores in our employee surveys



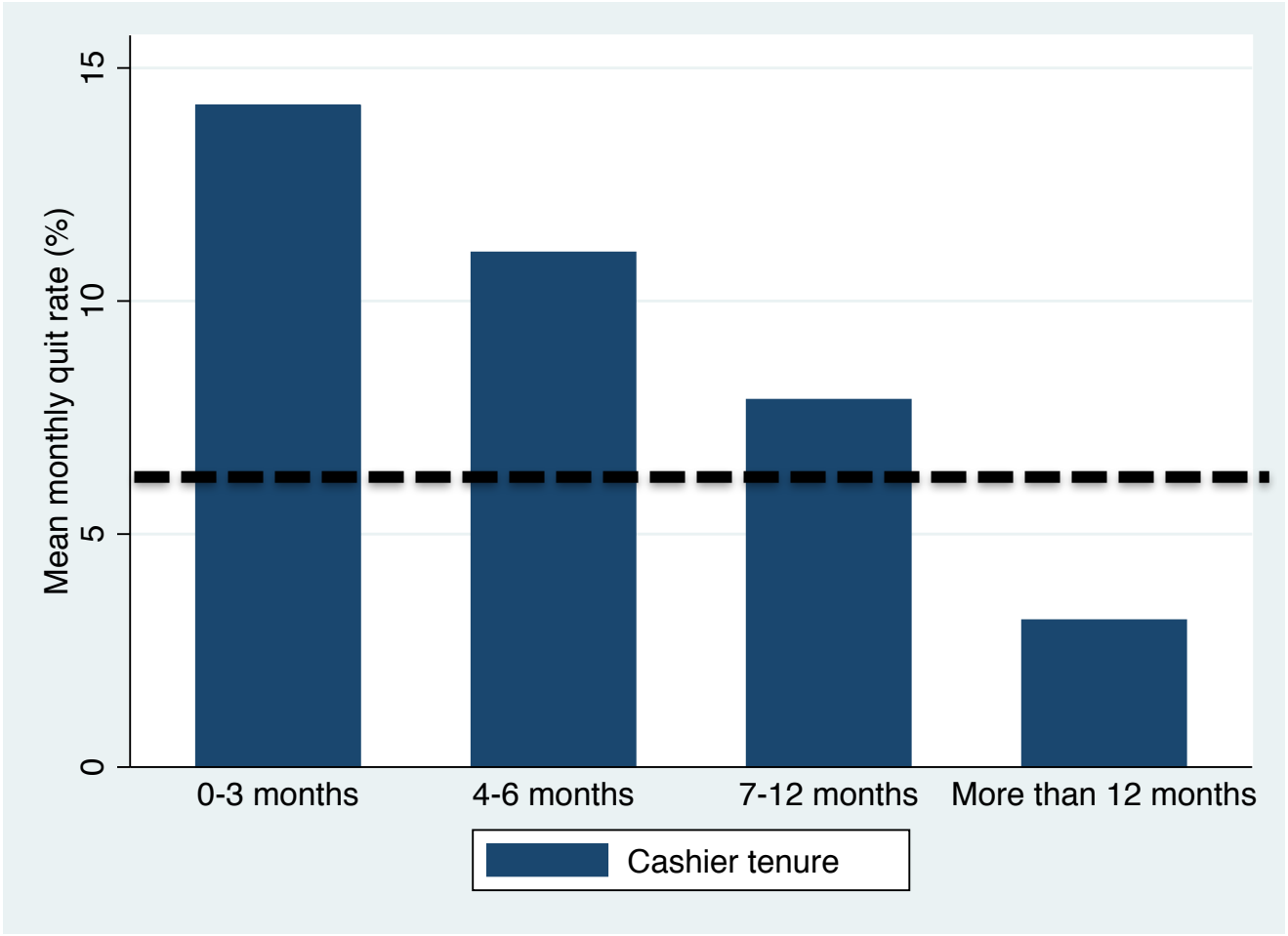
BACKUP M3

Theoretical framework

- Why simple top-down communication may work even without explicit incentives?
- Store managers have career concerns:
  - Maximize a weighted sum of performance indicators net of costs of effort
  - The weights reflect beliefs about the firm's priorities and are inferred through communications.
- The plea to help reduce turnover updates the respective weight upwards, generating a positive effort response.

The firm's problem

- Cashiers: Quit rate ~6% per month.



Descriptive statistics

	Control (n = 59)	Career (n = 60)	Manage (n = 59)	Career + Manage (n = 60)	Mean equality test p-value
	Panel A: Before treatment (Jan. 2014 - Aug. 2015)				
Mean monthly quit rate	5.98% (8.22%)	5.92% (7.49%)	5.89% (8.18%)	5.31% (7.40%)	0.511
Mean monthly sales	190,366 (126,874)	208,690 (154,187)	202,306 (145,263)	220,905 (183,930)	0.738
Mean number of cashiers	16.25 (11.18)	18.13 (13.15)	17.22 (12.33)	18.83 (15.05)	0.712
Mean store size in sq m	584.41 (308.37)	653.95 (385.08)	646.13 (358.13)	685.97 (416.18)	0.454
Location: Town	52.73%	48.71%	56.90%	55.89%	0.812
	Panel B: Treatment period (Sept. 2015 - Sept 2016)				
Mean monthly quit rate	8.37% (11.18%)	7.73% (9.53%)	6.79% (9.02%)	7.04% (8.59%)	0.185
Mean monthly sales	201,562 (124,989)	233,472 (162,454)	217,000 (149,074)	236,358 (193,535)	0.537
Mean number of cashiers	15.41 (9.91)	17.74 (12.44)	16.79 (11.99)	18.68 (14.42)	0.460

Sales: Treatment effects by time period

	Sept 2015-Nov 2015	Dec 2015-Feb 2016	Mar 2016-May 2016	Jun 2016-Sept 2016
Career treatment	0.020	0.009	0.036	0.041*
	(0.018)	(0.018)	(0.023)	(0.023)
Manage treatment	-0.003	-0.010	0.016	0.043*
	(0.019)	(0.020)	(0.023)	(0.025)
Career + Manage treatment	-0.003	-0.008	-0.010	-0.003
	(0.017)	(0.019)	(0.025)	(0.024)
Average quit rate	0.065	0.065	0.067	0.102

Treatment effect heterogeneity

- The *Manage* treatment effect is larger:
  - In smaller stores (harder to look after larger teams?).
  - For managers with higher fixed effect in the turnover regression (managers who are historically weaker in managing HR are picking up?).
- No significant differences in the treatment effect depending on
  - pre-treatment average quit rate,
  - store manager tenure and
  - workforce average age.

Other channels

- Store manager interviews: Store manager rarely reports changes in bonus payment, firing or hiring strategies.
- Firm data: Average bonus or distribution of bonus payments,
- firing rates and
- observable characteristics of workers do not differ between treatment groups.