Corruption in a Hierarchy

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  - No evidence on corruption in the hierarchy

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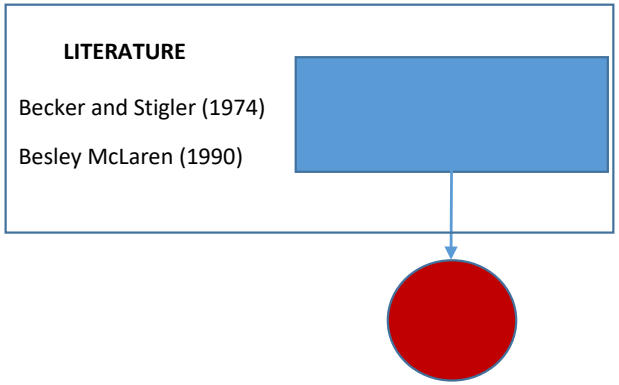
  3. Supervisor *in kind* taxation: negative externality on service

Literature



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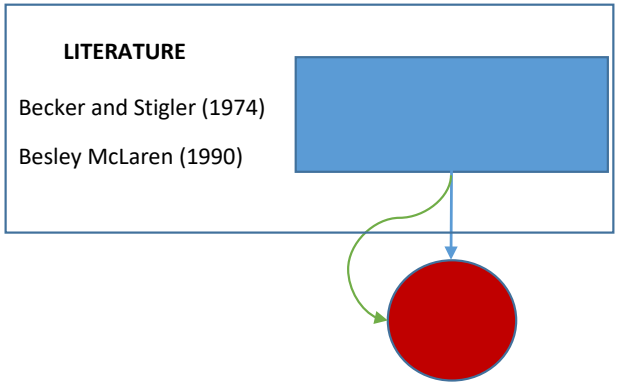

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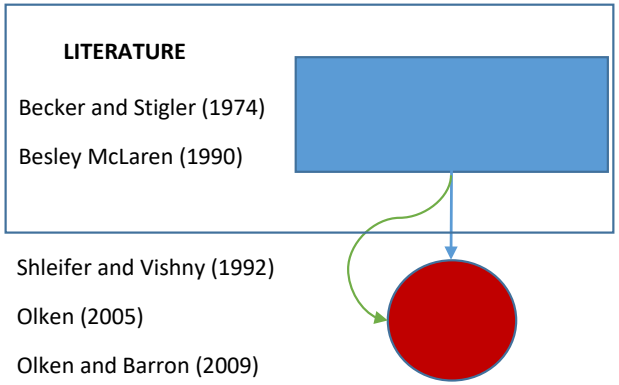
LITERATURE
Becker and Stigler (1974)
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Shleifer and Vishny (1992)
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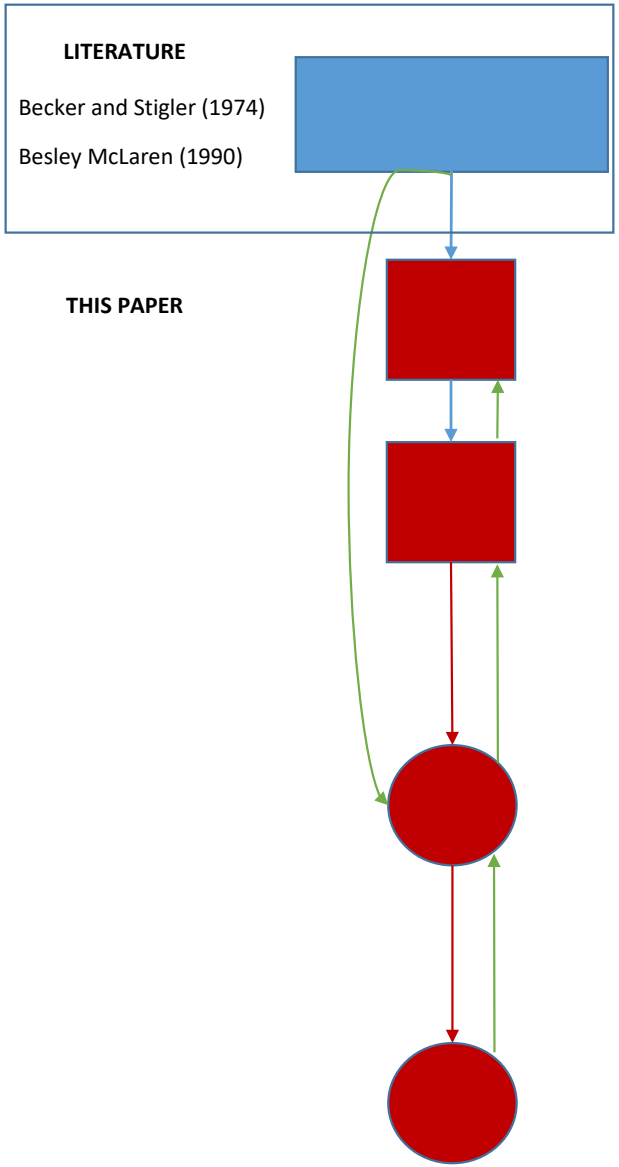
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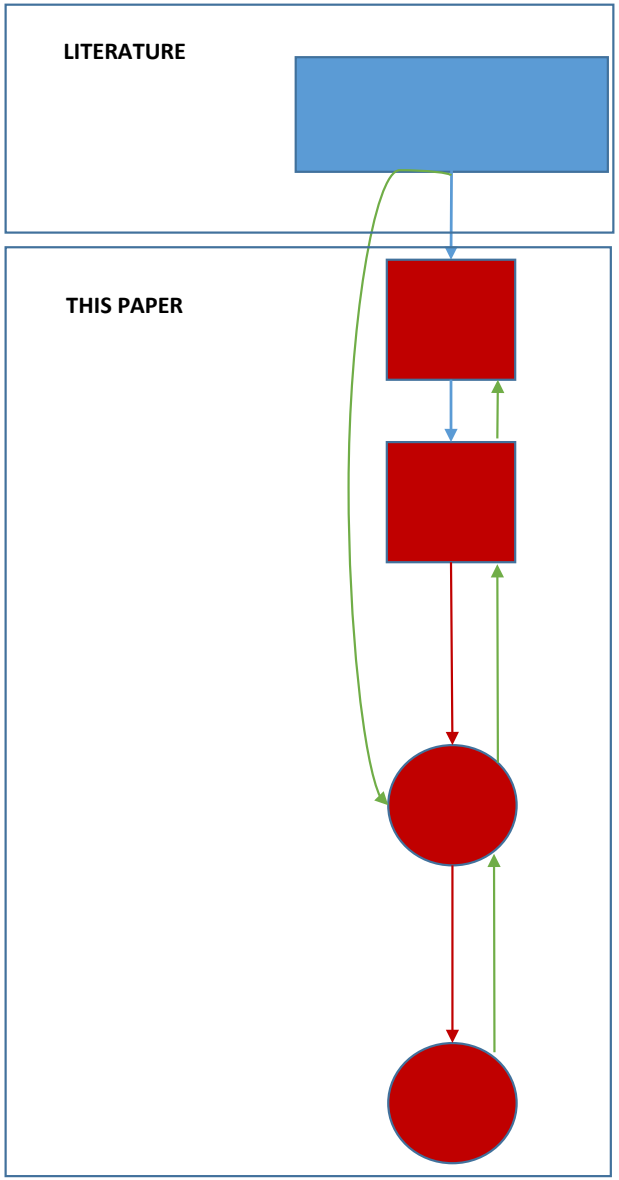

Outline

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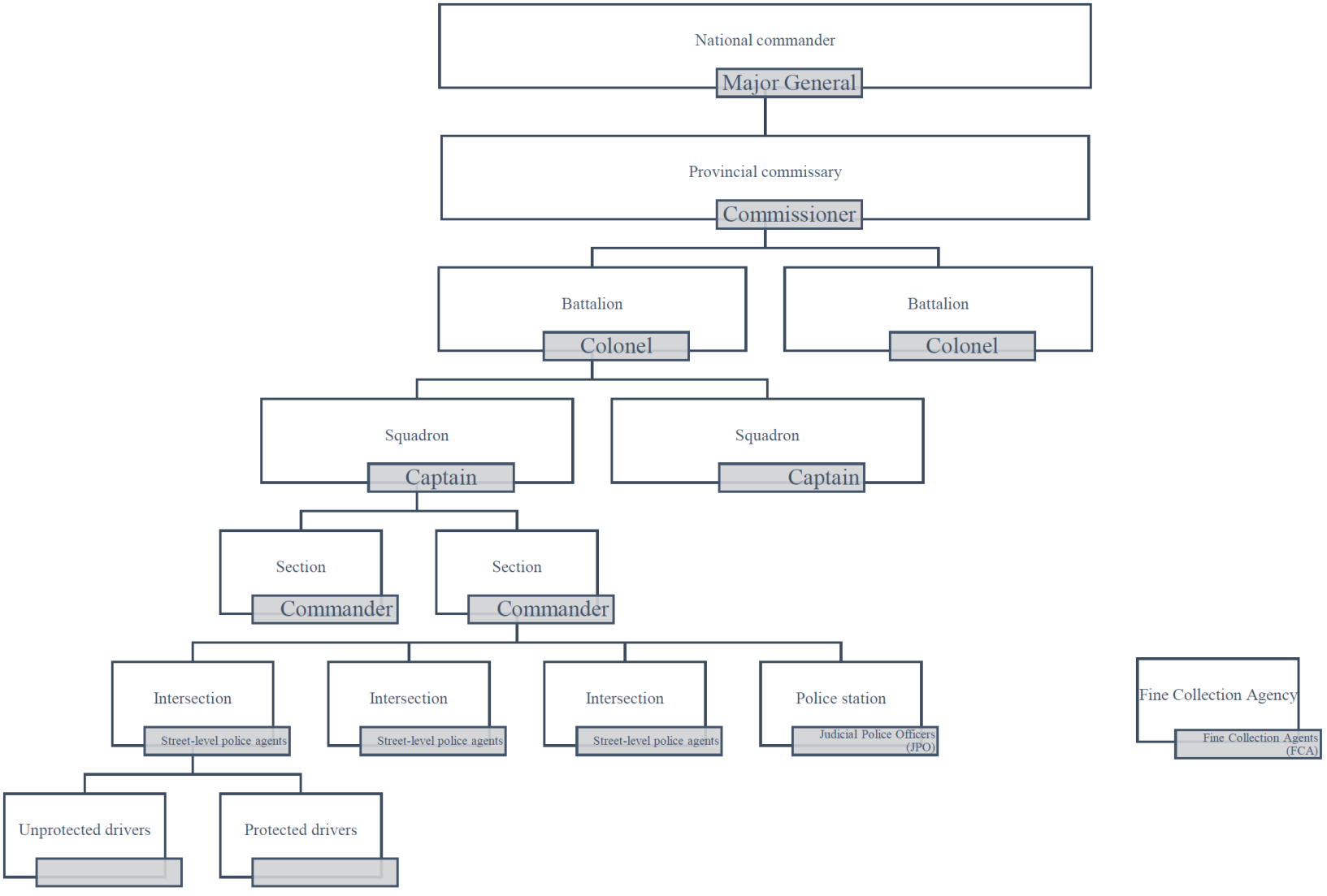
Battalion’s location

De jure organizational's structure



29 police stations in the city

Intersections

Street-level police agents: task 1

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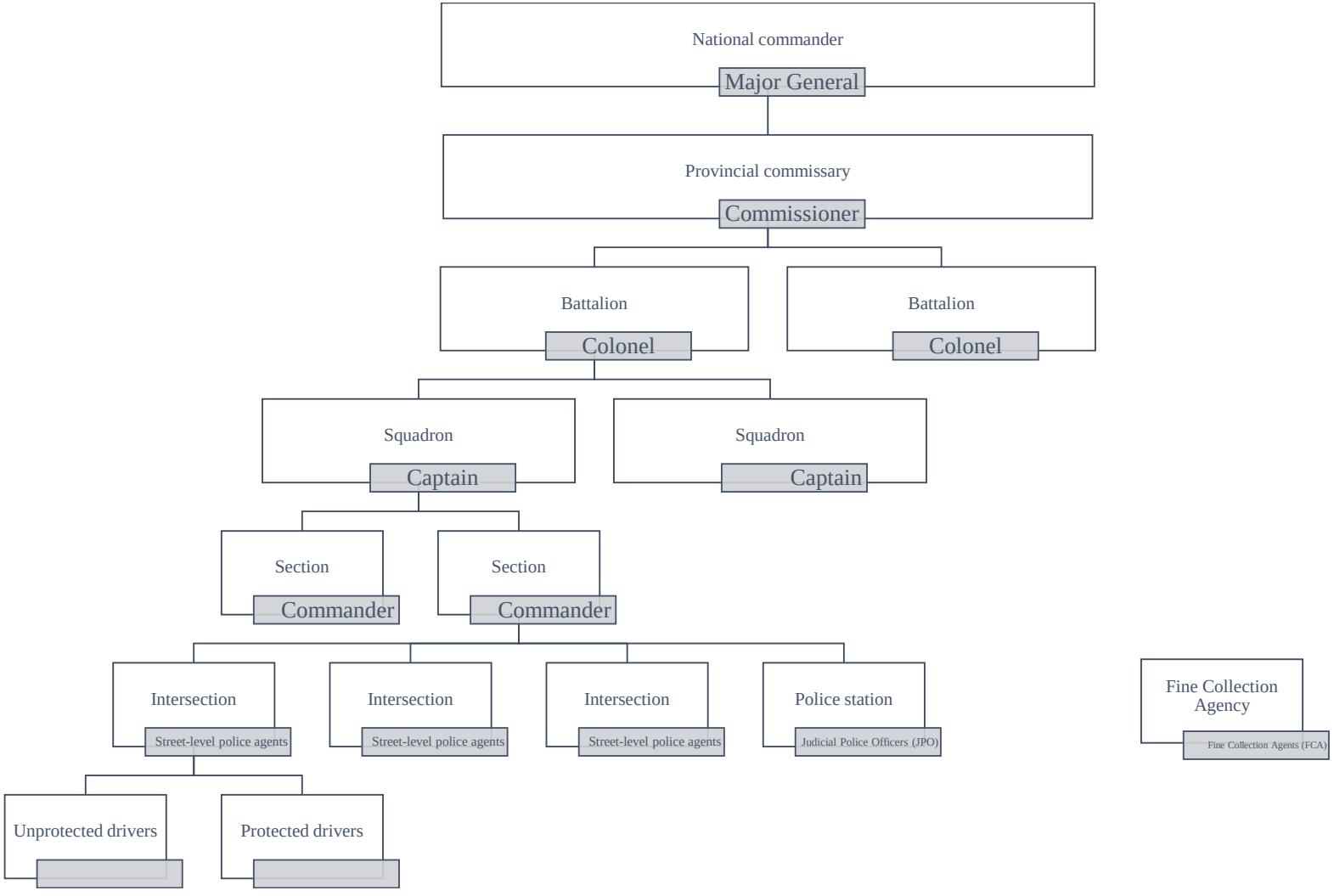
Street-level police agents: task 2

De facto: organizational structure of a protection racket



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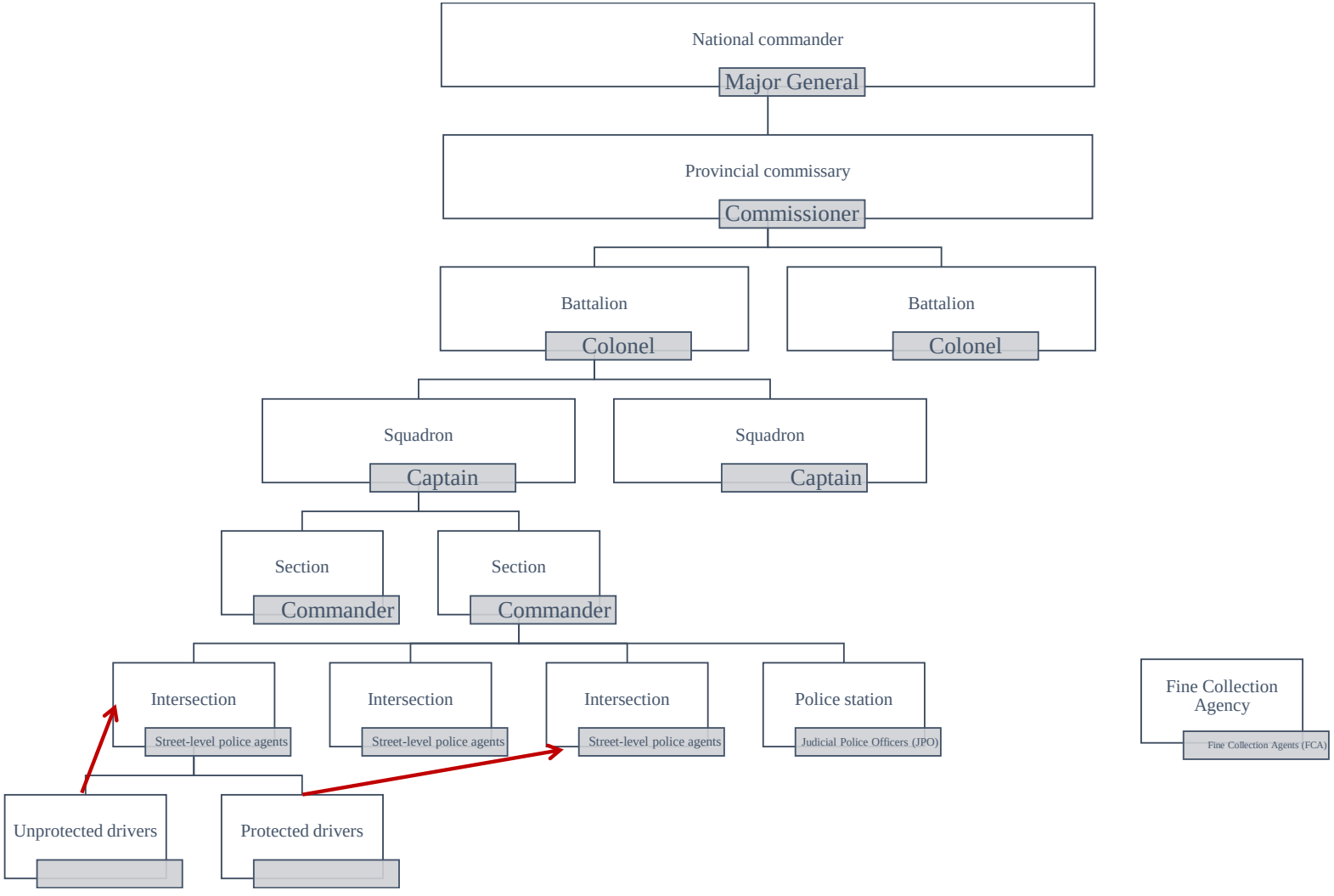

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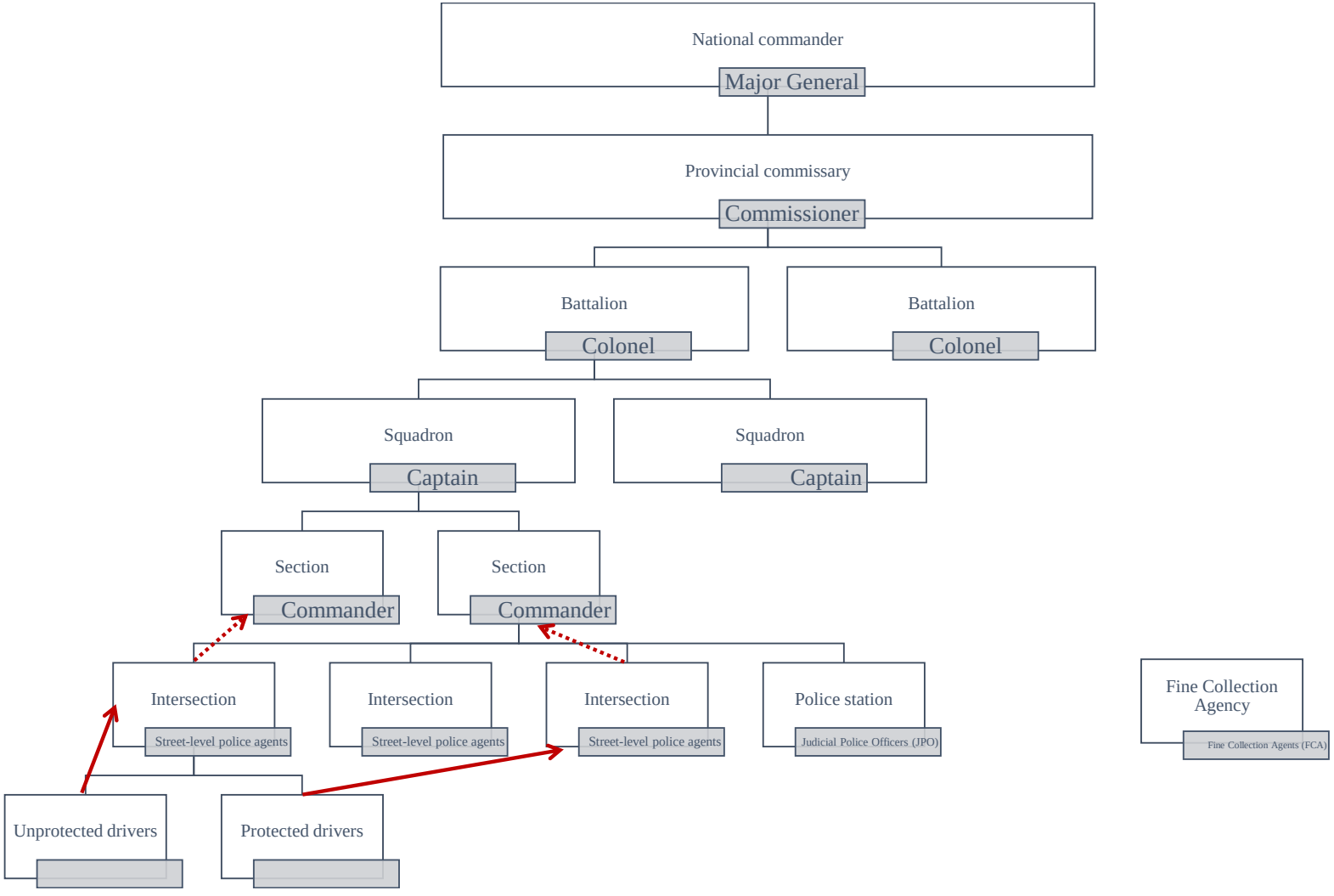

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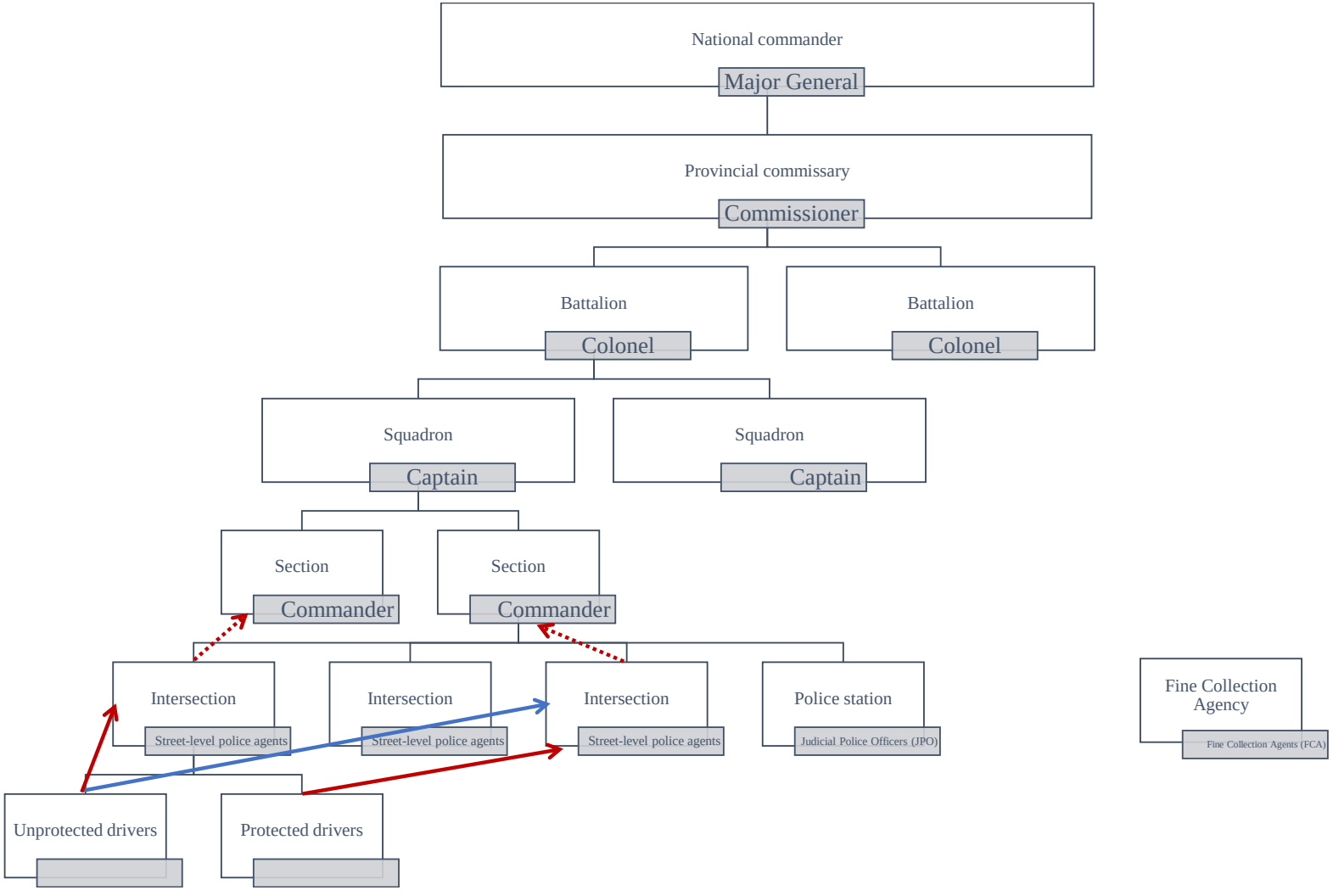

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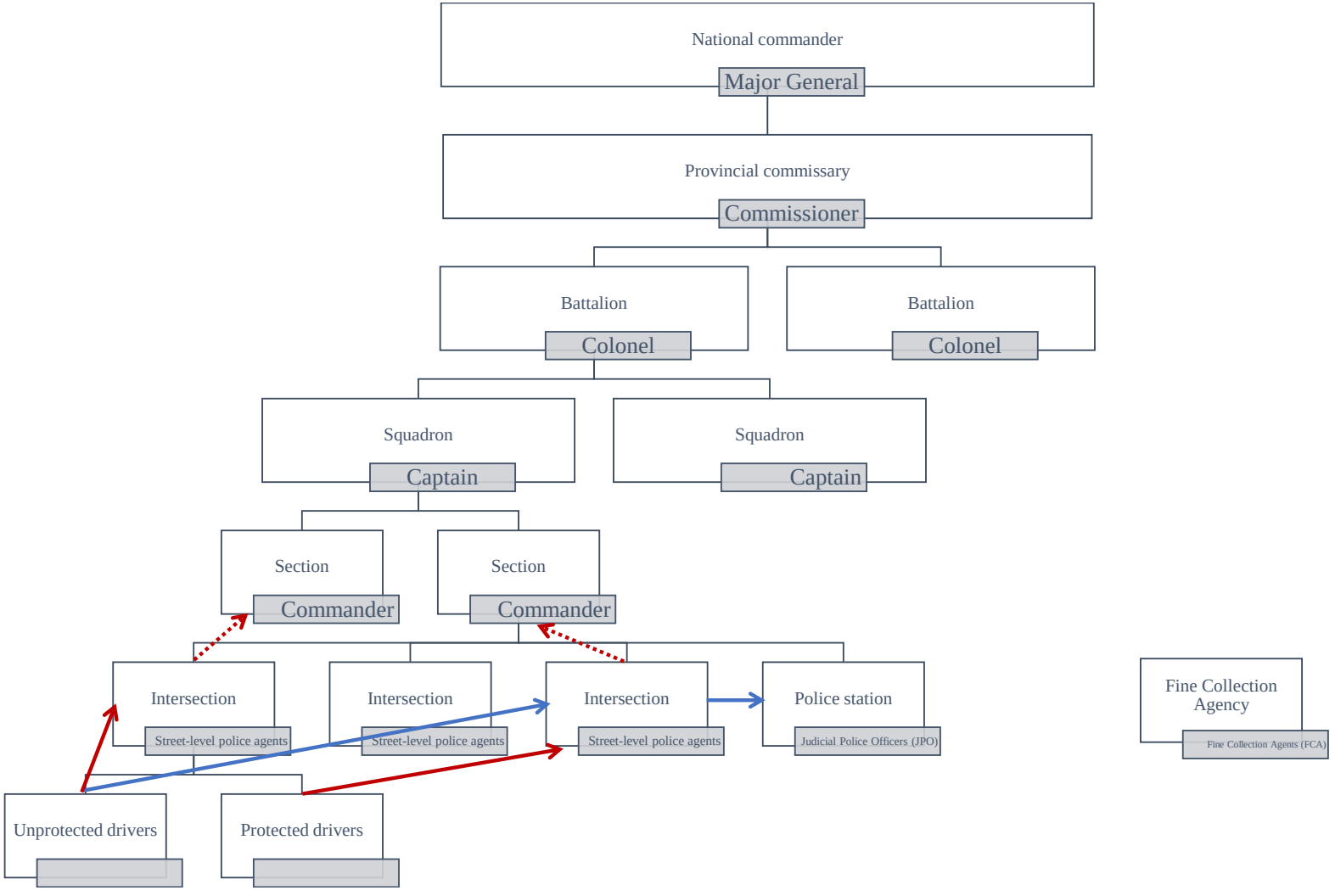

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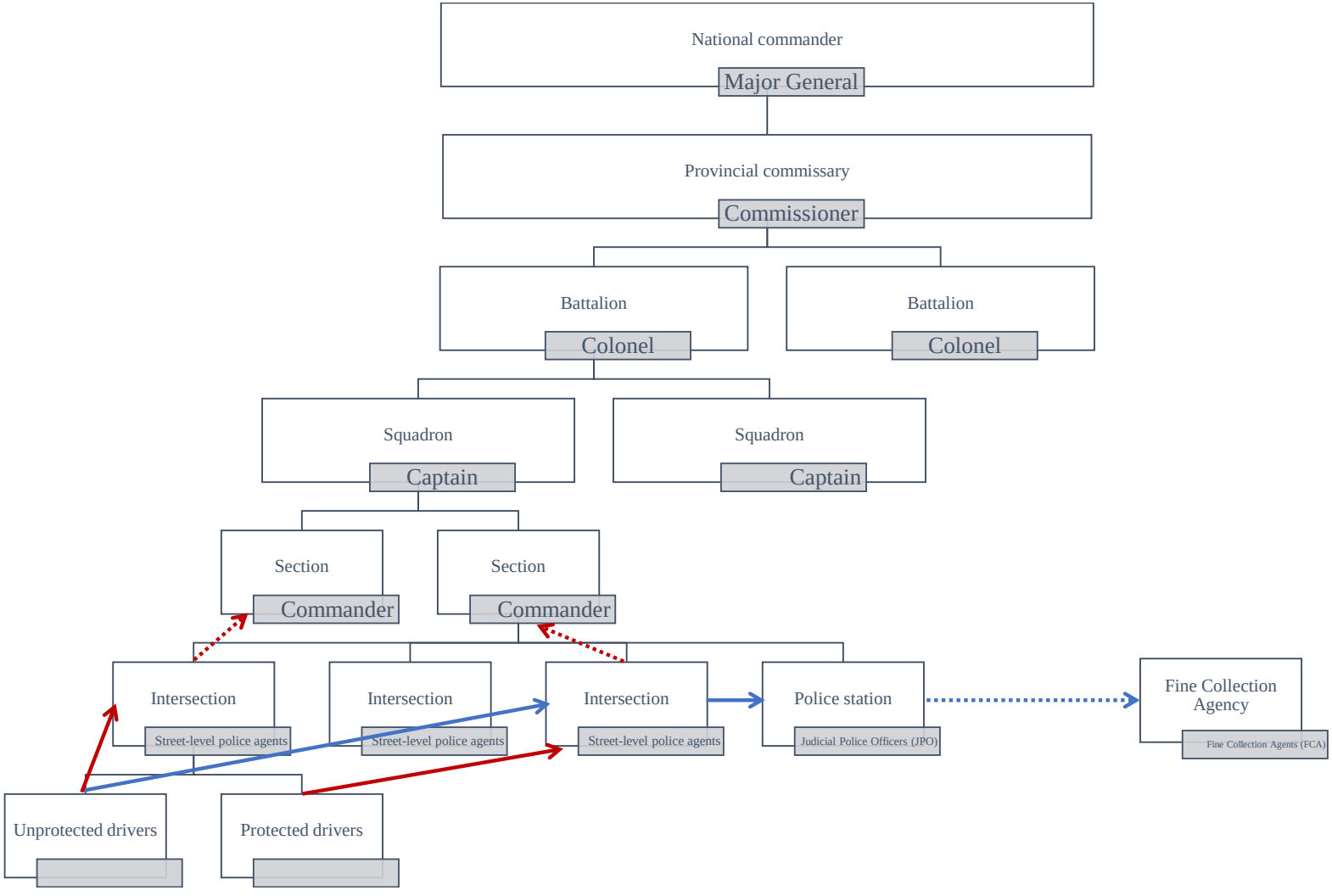

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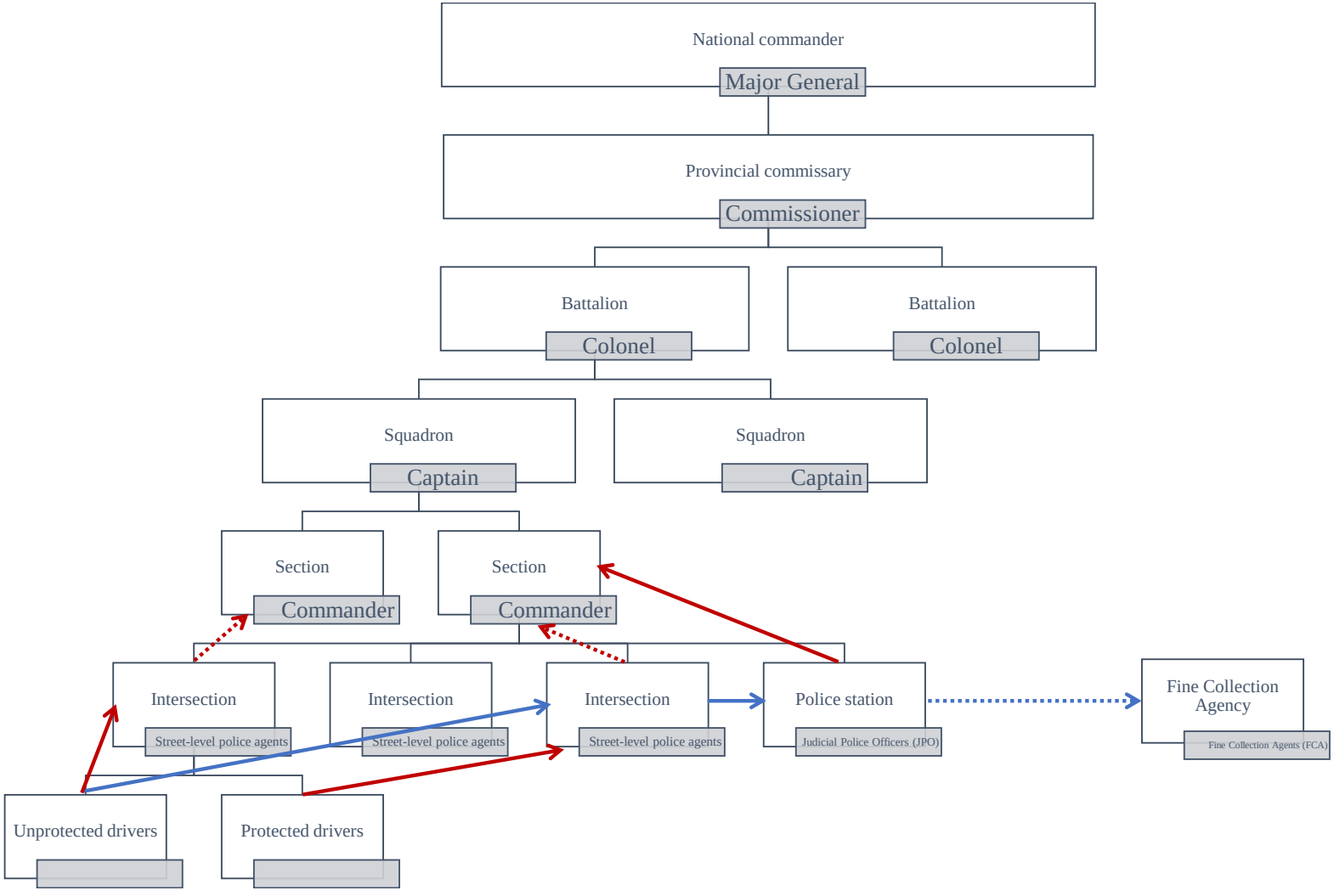

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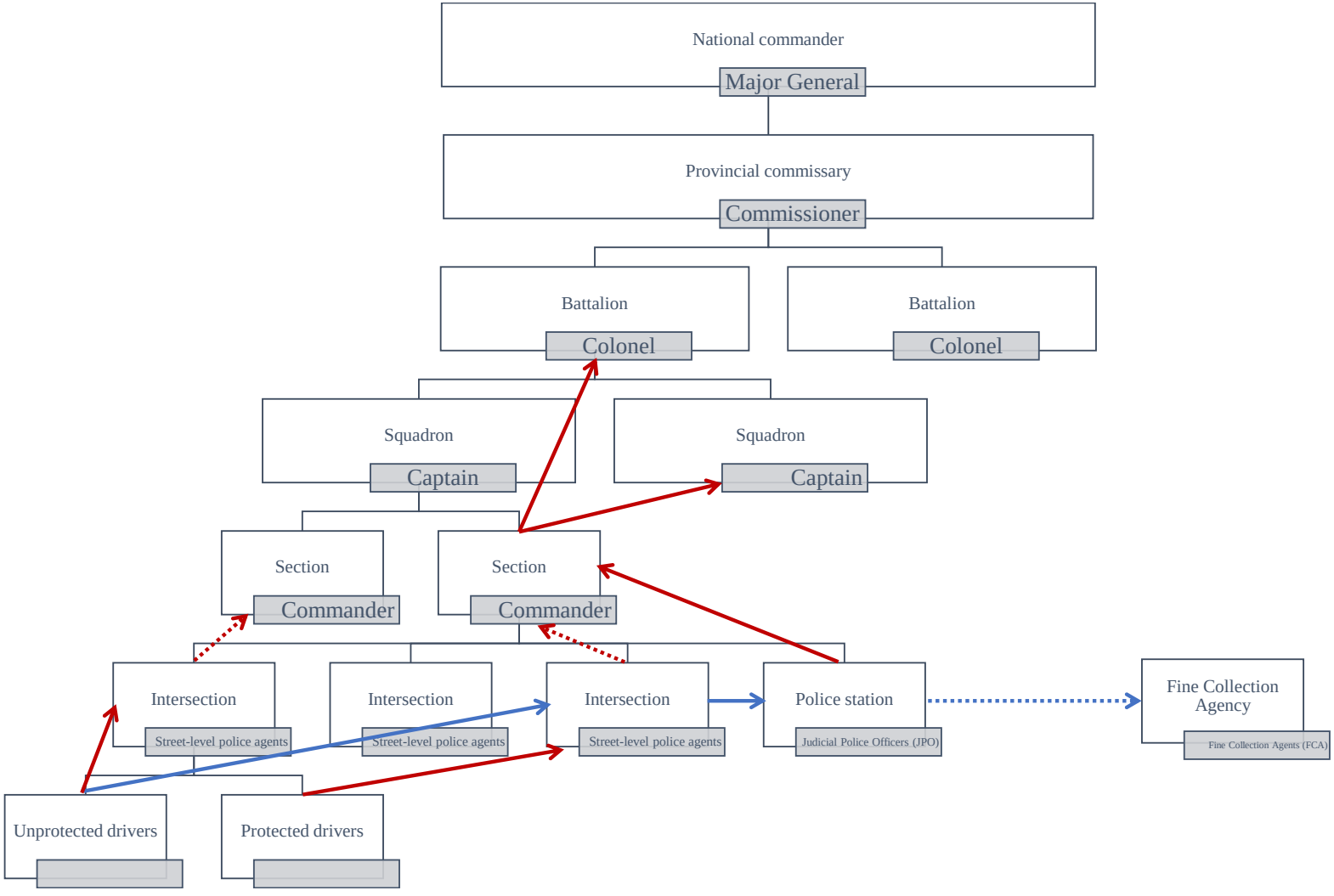

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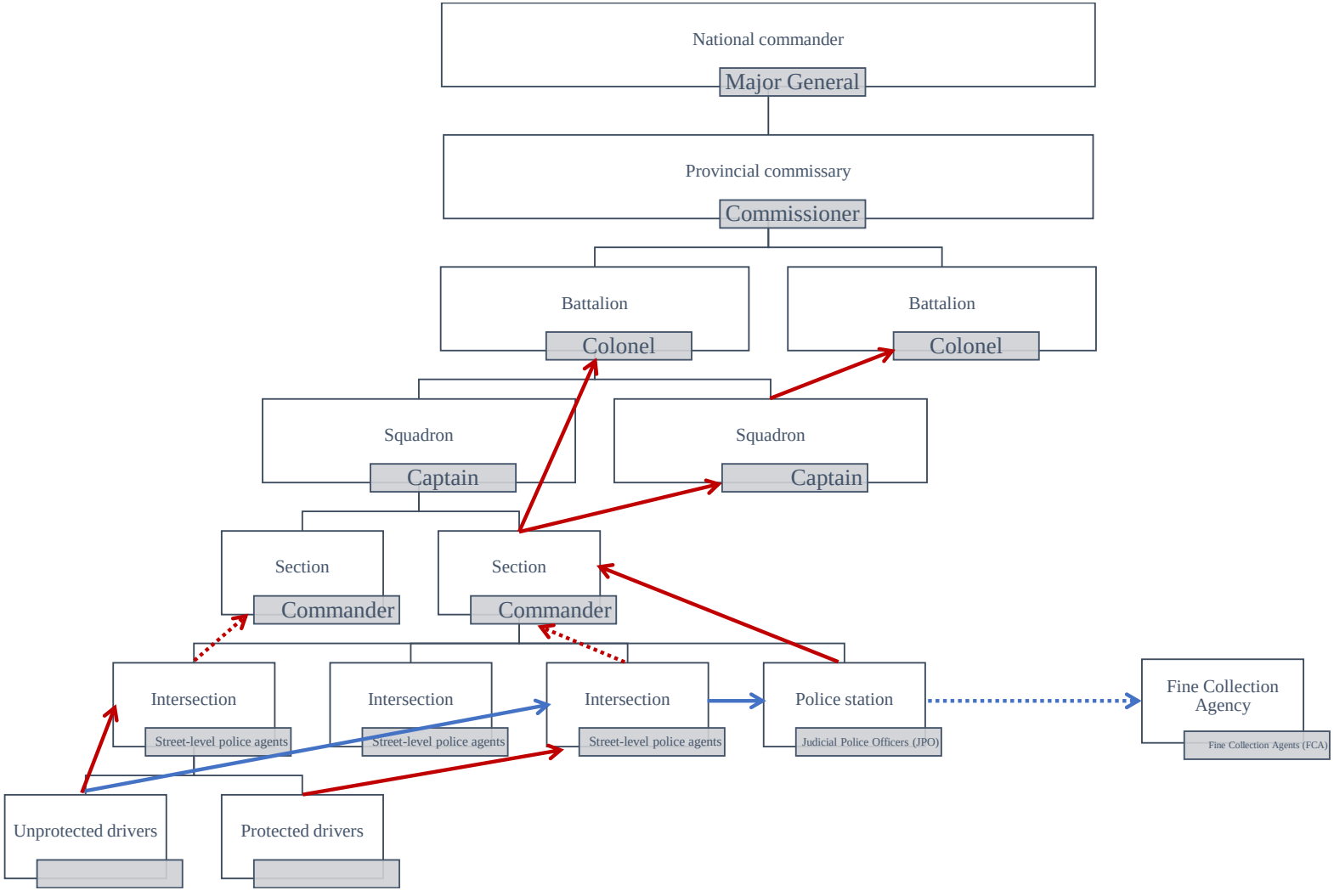

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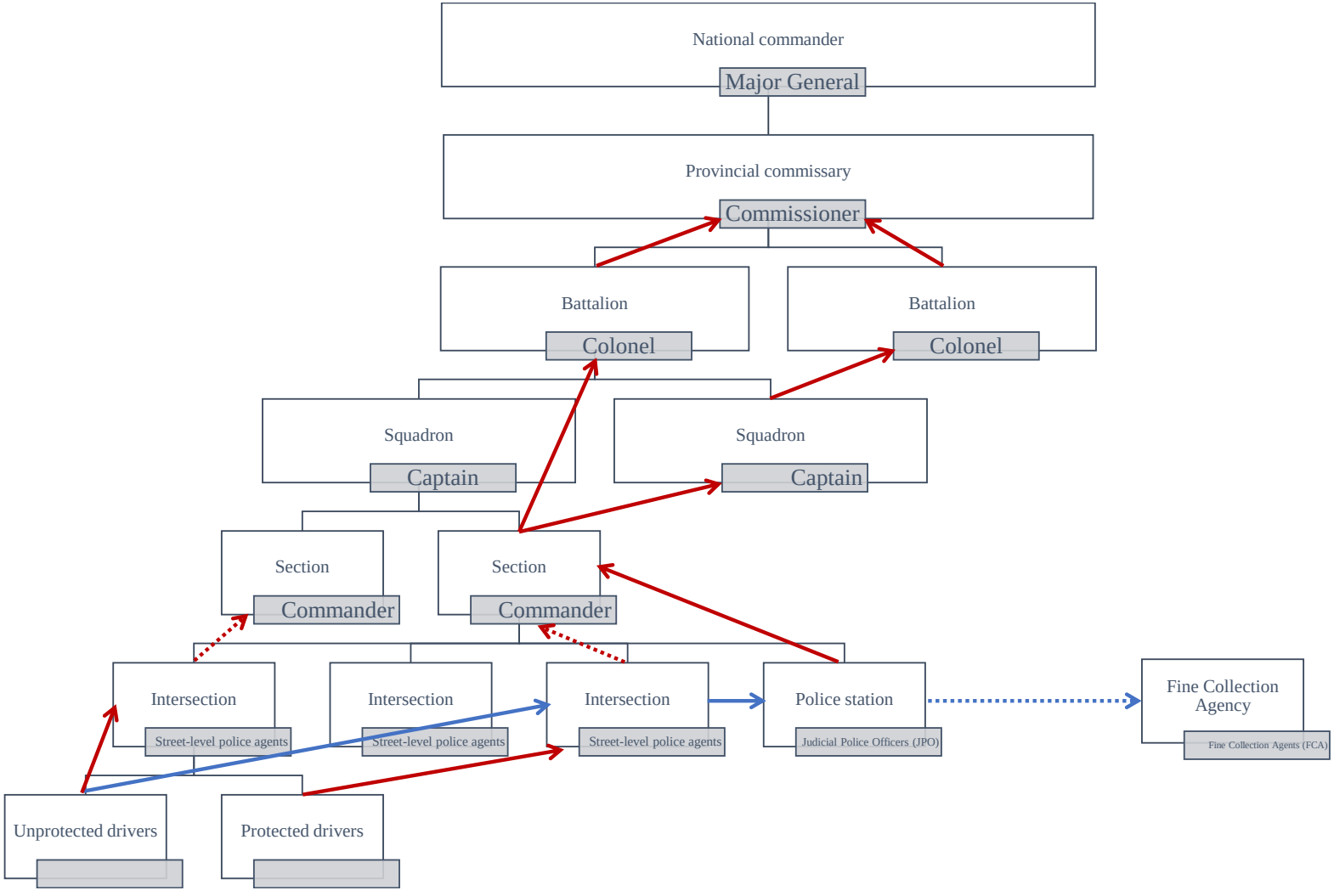

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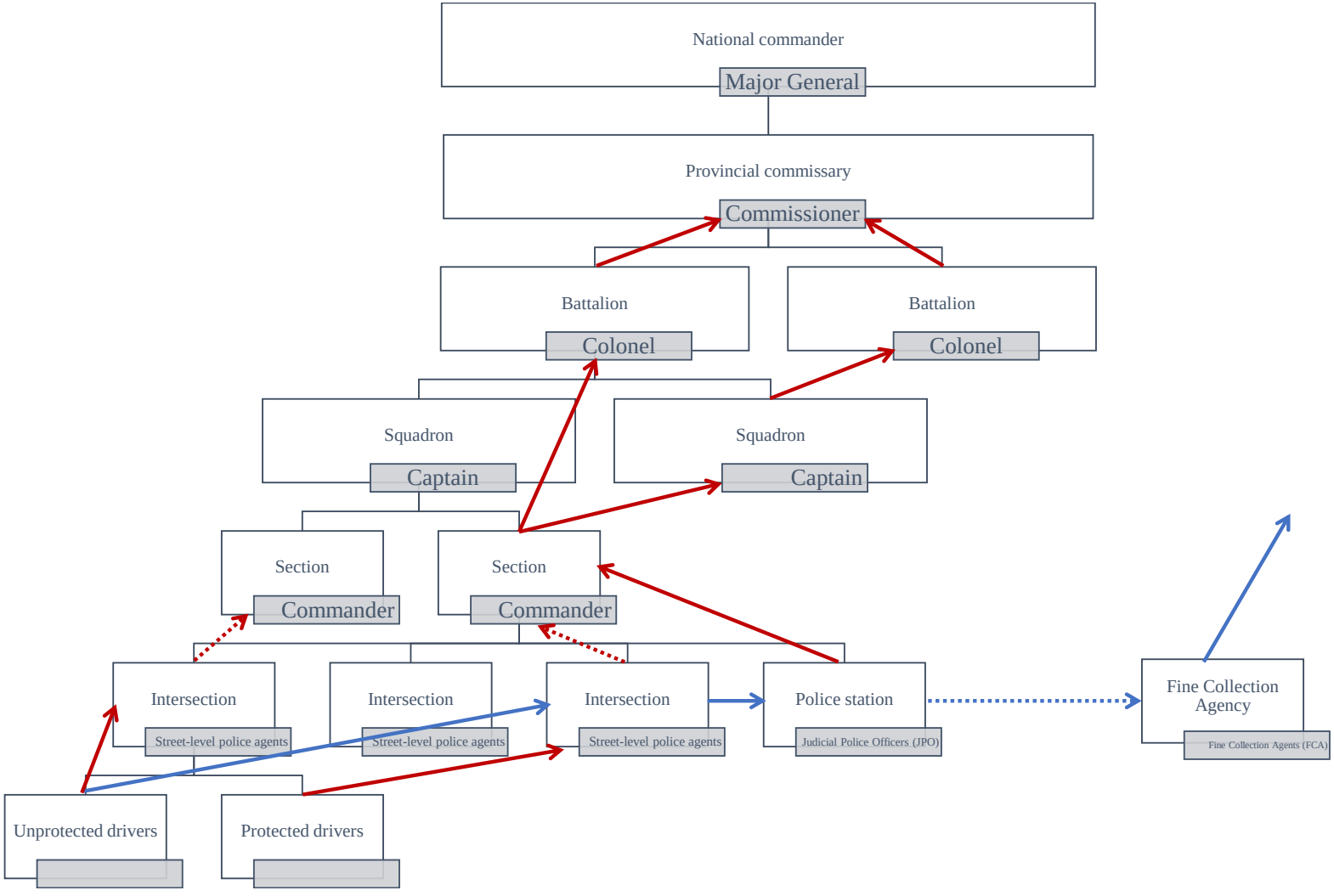

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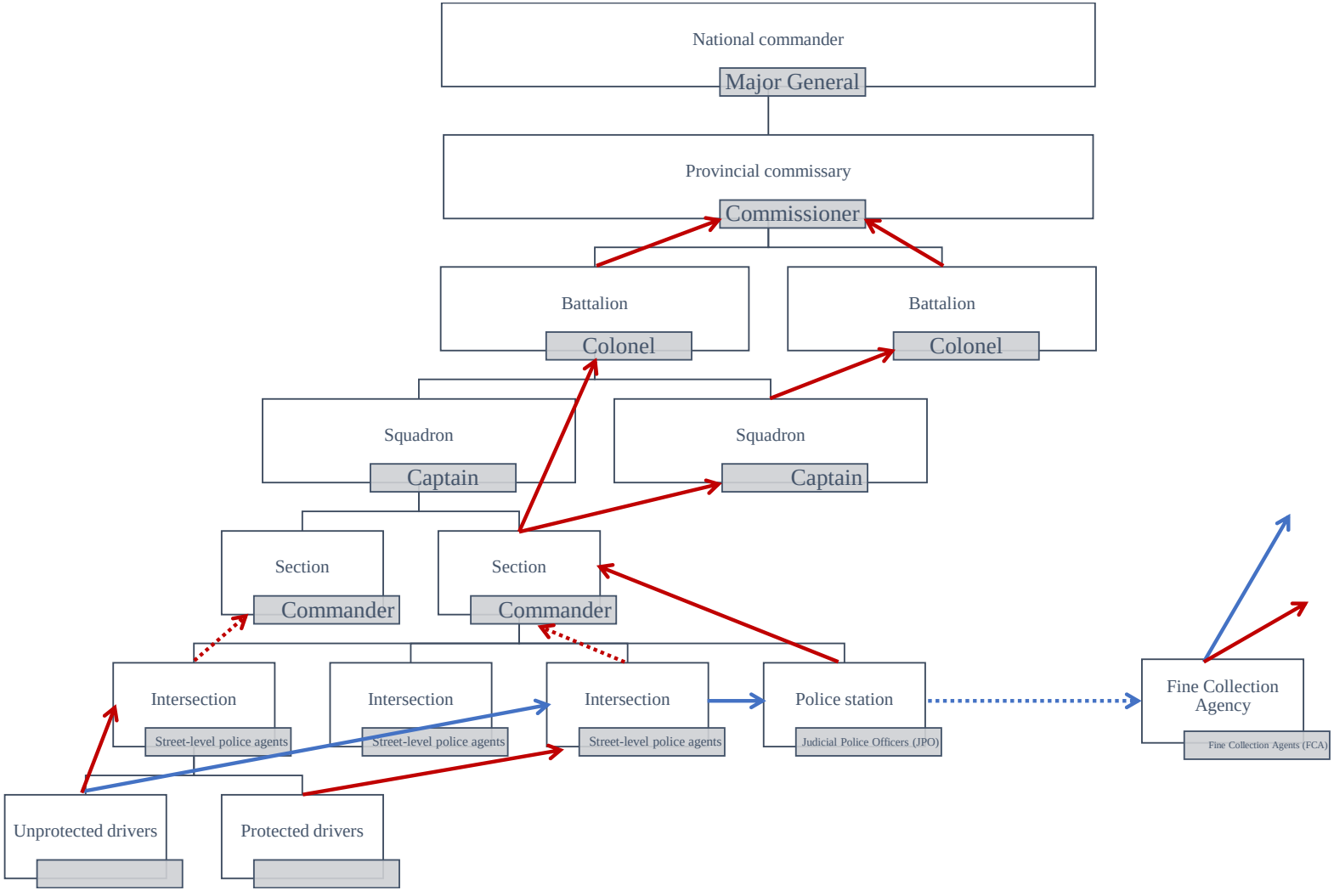
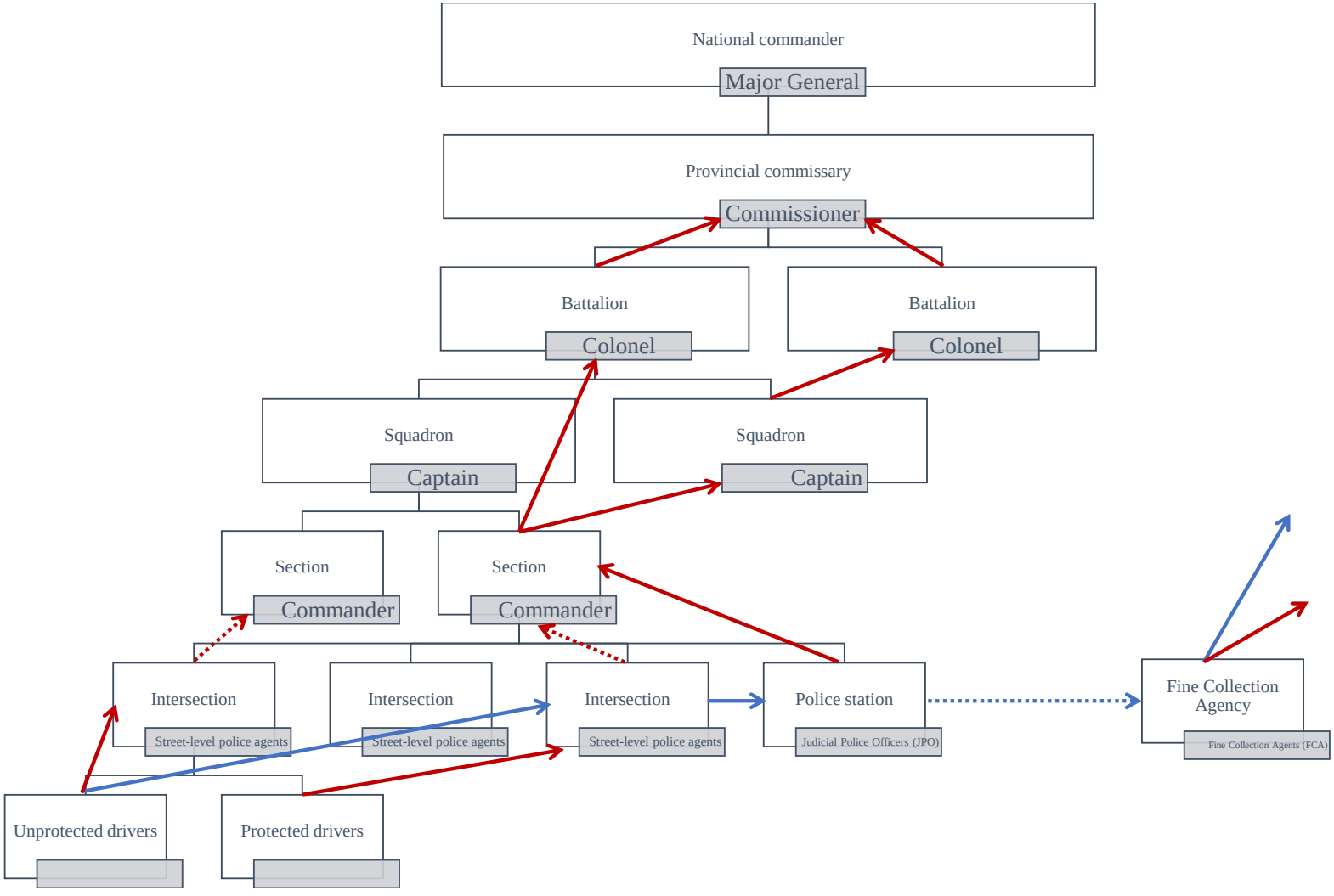


De facto: “profitable commercial enterprise”



Drivers-Street level police agents

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Street level police agents - commanders

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Commander - protectors

De facto organizational structure: Street-level agents

Interviews with street-level agent and commander:

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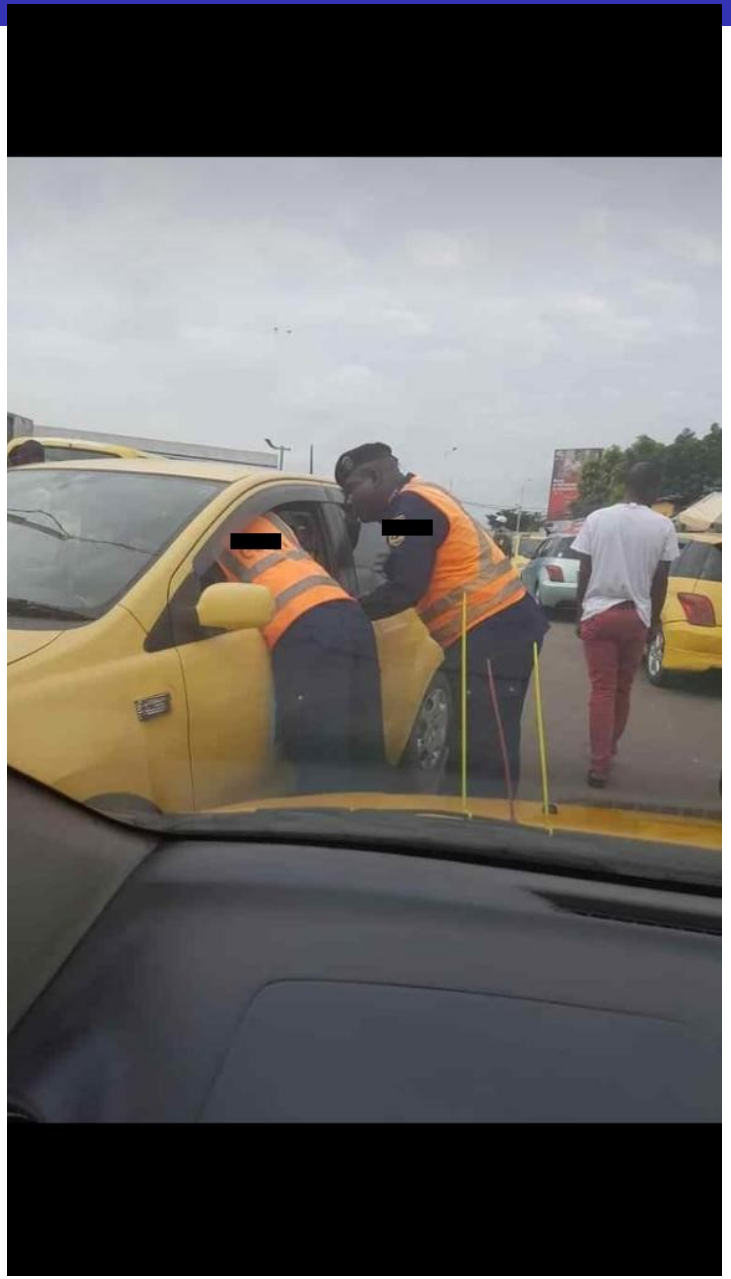
→ Ransom drivers: harassment bribes (bargaining)

Harassment bribes



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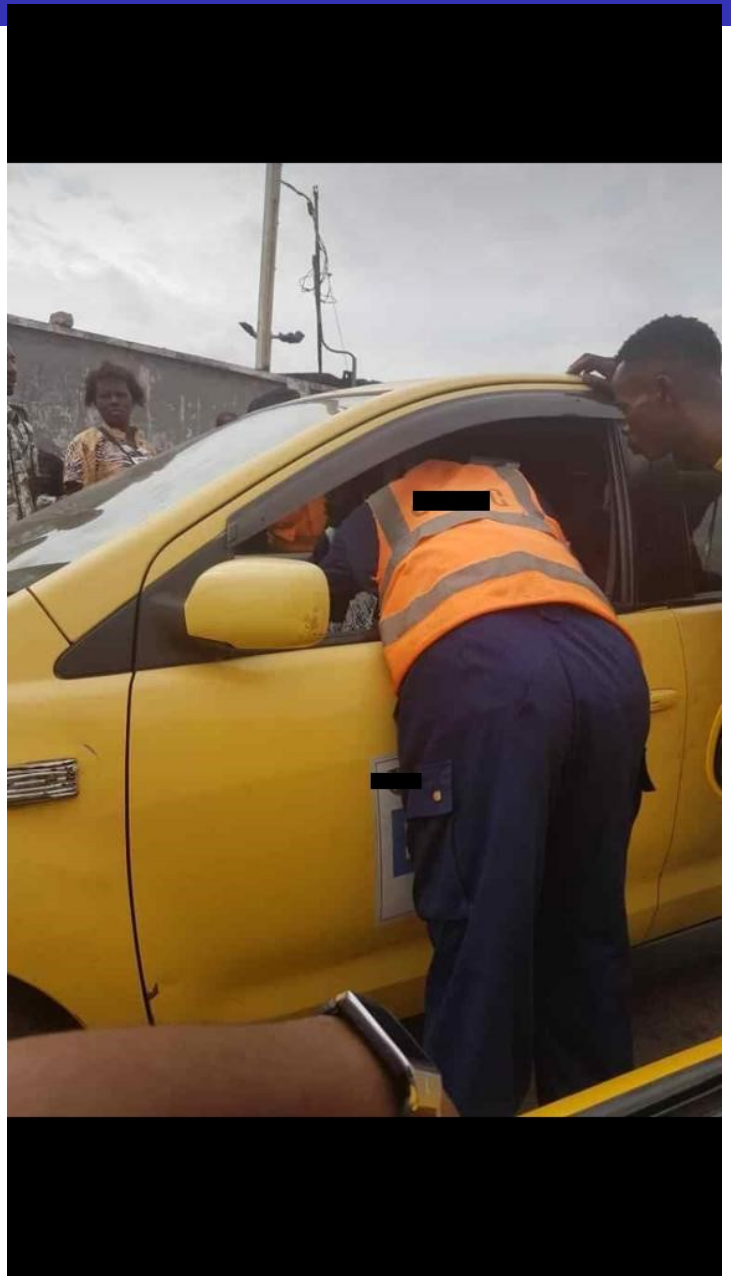

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  “The street-level police agent and a soldier quarreled yesterday over the soldier’s motorbike. The soldier said ‘tomorrow you’ll see what I do!’

  The soldier came today with a jeep of soldiers, heavily armed. They threw the street-level agent in the jeep in front of everyone! The other agents wanted to intervene. The soldiers said: ‘if you intervene, we will shoot;’ they were almost going to shoot! All other agents fled. The soldiers left with the street-level police agent, and they are going to beat him up.”

Frequent/poorer drivers

- **Personalize relationships**
  - Toll fee system - major source of officer revenue
  - 50 cents for transport of persons, 1 USD for transport of goods

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"The driver will tell you that on this line, he has already 'bought the land.' It means that between him and the police on all the intersections it is difficult for him to be stopped because he is known to them. Here, in contrast, I am new. It's easy to get arrested here."

Toll fees

Toll fees

“If we have to be honest, we have to acknowledge that our vehicles are generally in bad shape, and that we also lack transport documents. And even when we have these, it are fake documents. You therefore need a relationship of trust between us and the police agents. It is a question of understanding.”

Street-level police agents and commanders

The quota system

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  "If a street-level police agents is unable to bring his quota, I hunt him. That means I keep him at the office the next day as punishment."

Role of monetary payments to commander

Quota + **Monetary transfers**

A street-level police agent recounts:

> *"the 'retrocession' is a form of quota: when a commander learns that a street-level police agent has received money, he imposes a 'retrocession' of that money"*

Commanders and the hierarchy

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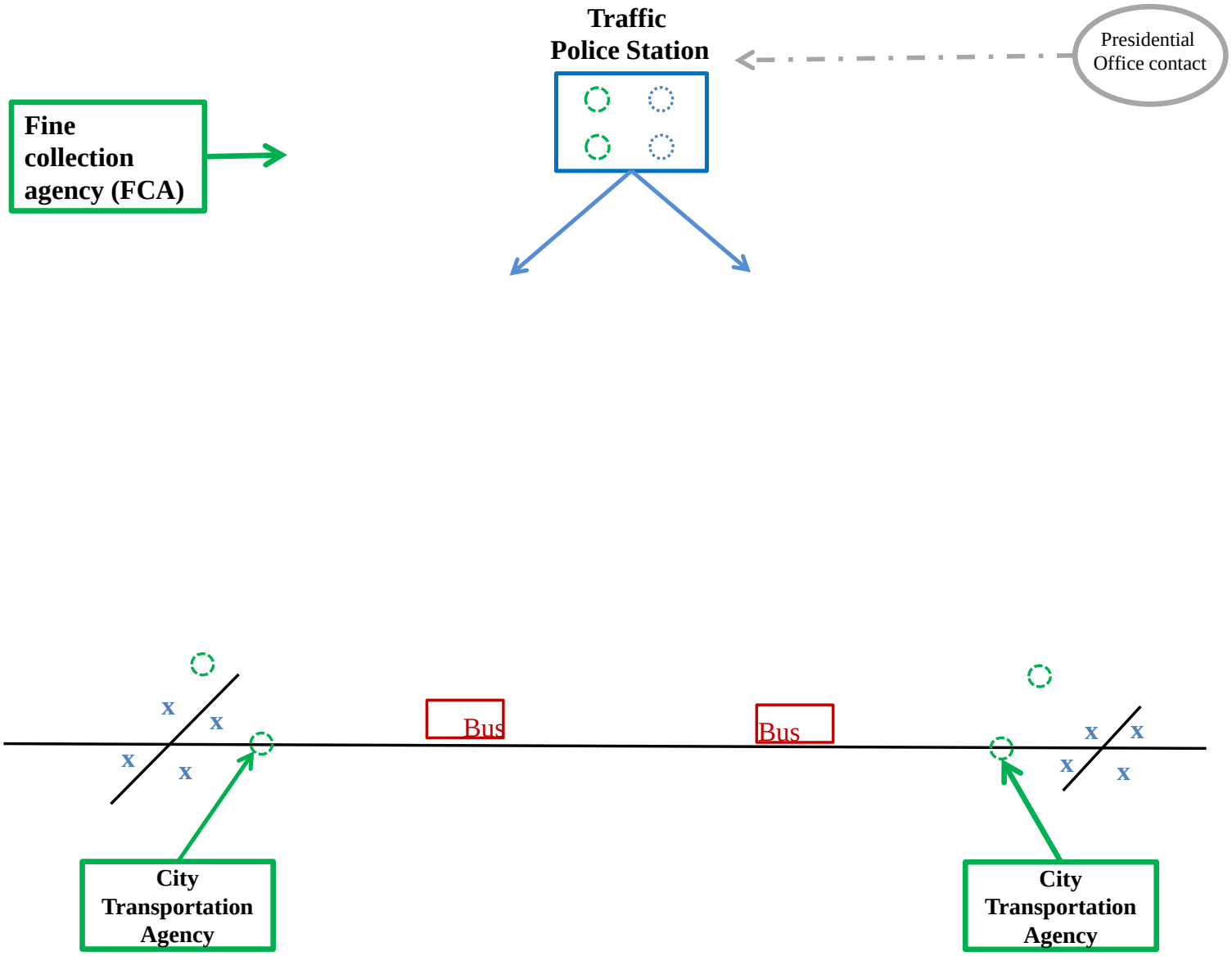
Police station as franchise company

Summary statistics of the battalion staff

	Mean outcomes			Difference
	Traffic police			
	Street agents	Commander	JPO's	Commander-Street agents
	(1)	(2)	(3)	(4)
Panel B: Job properties				
Formal recruitment process	0.87	0.14	1.00	-0.73***
	(0.33)	(0.38)	(0.00)	(0.13)
Appointed by protector	0.13	0.86	0.00	0.73***
	(0.33)	(0.38)	(0.00)	(0.13)
Works in the traffic police since (number of years)	10.12	2.07	8.98	-8.05***
	(5.18)	(1.46)	(5.46)	(1.98)
Formal wage in 2015	70.00	100.00	105.58	30.00
	(0.00)	(0.00)	(5.89)	(0.00)
Delay since last wage (number of days)	98.06	110.00	98.84	11.94
	(21.69)	(3.65)	(15.16)	(8.27)
Daily informal revenue (USD)	17.69	.	15.09	0.00
	(4.13)	(.)	(5.05)	(0.00)
Daily savings	2.69	.	2.21	0.00
	(2.16)	(.)	(1.89)	(0.00)
Days can survive with current savings	13.34	.	17.00	0.00
	(20.06)	(.)	(30.98)	(0.00)
Obs	79	7	44	.

Outline

Data collection system



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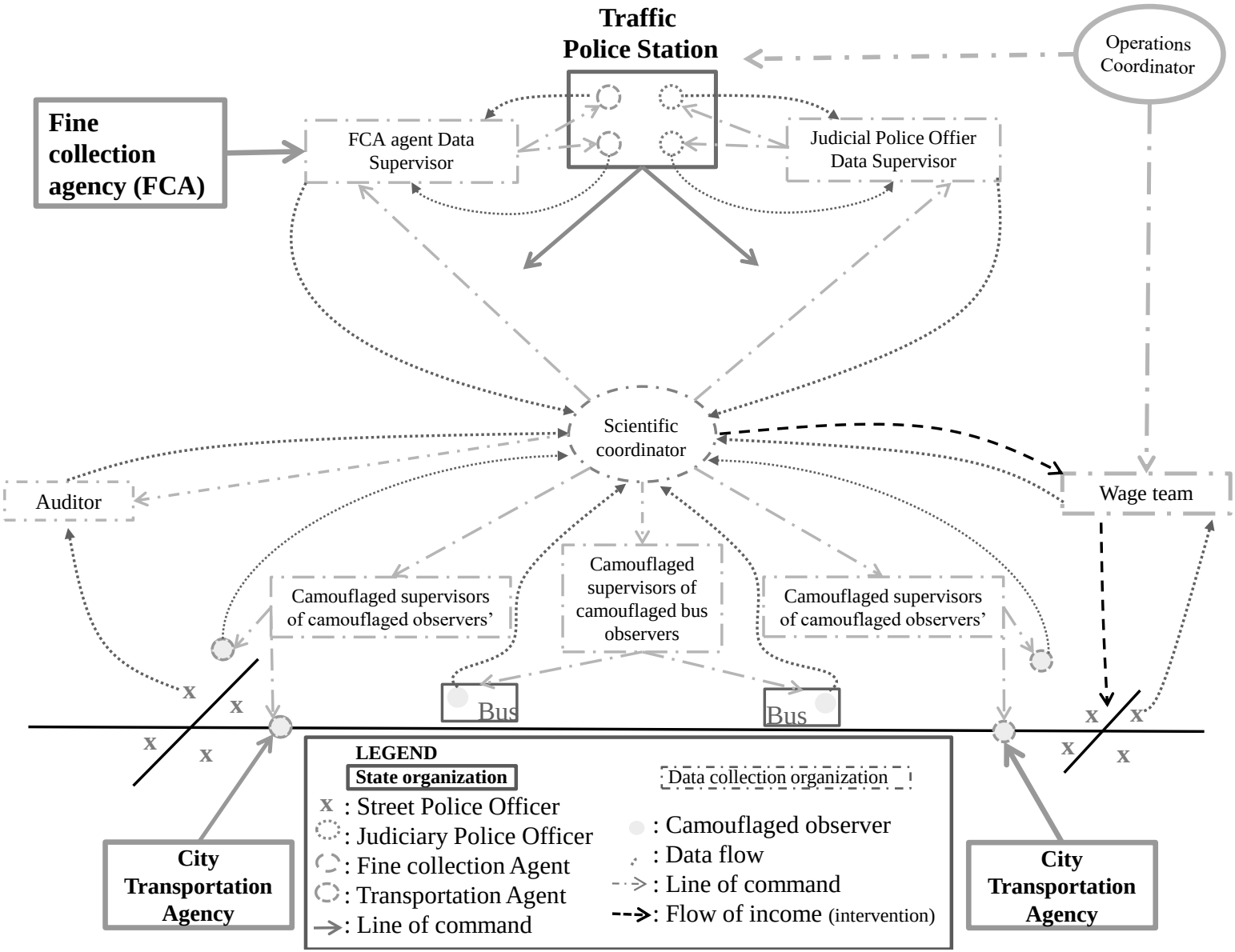

Descriptives of the street business

Table II: Stylized facts of corruption in the hierarchy

	Mean outcomes
	(1)
Panel A: Daily corruption revenue per intersection police team - 4 police agents	
Harassment bribe, count	1.60
	(3.16)
Toll fee, count	37.54
	(48.71)
Tip, count	11.35
	(20.62)
Daily harassment bribe revenue, USD	7.04
	(22.46)
Daily tip revenue, USD	12.36
	(21.77)
Daily toll revenue, USD	21.95
	(27.60)
Total revenue from bribes paid to street police agents, USD	47.09
	(56.83)
Beer consumption, USD	16.52
	(8.94)
Share police staff present	0.83
	(0.32)
A traffic jam took place am	0.26
	(0.44)
A traffic jam took place pm	0.45
	(0.50)
Obs	527

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Descriptives of the police station business

Panel B: Vertical corruption properties per intersection police team - 4 police agents	
Share income surplus kept by commander	0.30
	(0.37)
Quota level (number of drivers per day)	5.40
	(3.68)
Number of drivers from the intersection agents escort to the police station	5.02
	(6.21)
Of those, number who settle at the station by paying to the commander	2.86
	(3.95)
Average level of police station bribe, to commander	11.58
	(5.80)
Of those, number who settle at the station by paying the formal fine issued by F	1.12
	(2.34)
Average level of police station fine, issued by FCA agents	6.30
	(4.82)
Total revenue from bribes to commander at police station	71.63
	(103.65)
Total fiscal revenue from fines issued by FCA agents at police station	25.05
	(54.17)
Difference between harassment bribe at station and harassment bribe at intersect	4.09
	(8.56)
Time lost escorting a driver, in minutes	41.93
	(41.88)
Revenue per minute, police agent at intersection	0.04
	(0.04)
Estimated opportunity cost of escorting one driver to the corresponding police s	1.44
	(1.49)
Corresponding opportunity cost of the quota of drivers at its equilibrium level	9.85
	(9.44)
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Share income surplus kept by commander	0.30
	(0.37)
Quota level (number of drivers per day)	5.40
	(3.68)
Number of drivers from the intersection agents escort to the police station	5.02
	(6.21)
Of those, number who settle at the station by paying to the commander	2.86
	(3.95)
Average level of police station bribe, to commander	11.58
	(5.80)
Of those, number who settle at the station by paying the formal fine issued by F	1.12
	(2.34)
Average level of police station fine, issued by FCA agents	6.30
	(4.82)
Total revenue from bribes to commander at police station	71.63
	(103.65)
Total fiscal revenue from fines issued by FCA agents at police station	25.05
	(54.17)
Difference between harassment bribe at station and harassment bribe at intersect	4.09
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Time lost escorting a driver, in minutes	41.93
	(41.88)
Revenue per minute, police agent at intersection	0.04
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Estimated opportunity cost of escorting one driver to the corresponding police s	1.44
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Corresponding opportunity cost of the quota of drivers at its equilibrium level	9.85
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Obs	527

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Outline

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  - 70 USD de jure wage
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Economic revenue to commanders and JPO's

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Battalion generates 913,584 USD (74%) in bribe revenue yearly, and 307,440 USD (26%) of fine revenues from police stations

Span of control and compensation ratios

- **Span of control**
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  - Average small and medium firms: 5-7

Span of control and compensation ratios

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  - Commander: 7.5
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- **Compensation ratio**
  - Commander / street-level police agent: 6.13
  - Average: 1.2-1.5
  - Levitt and Venkatesh's gang: 5

Outline

Agent's payoff

Objectives of the model

Economic rationale of the quota

Agent's payoff

Objectives of the model

Economic rationale of the quota

Testable implications of economic maximization

Agent's payoff

Objectives of the model

Economic rationale of the quota

Testable implications of economic maximization

Guide experimental design

Agent's payoff

$$V_{\text{agent}}(e) = Eu(w + b^I + (1 - s)b_i e - cs - T) + v_l(1 - e)$$

Problem

$$\max_{s,T} T + s(1+\gamma)\bar{b}$$

Problem

$$\max_{s,T} T + s(1+\gamma)\bar{b}$$

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$$\text{WC: } w + b^I + (1-s)b_L e^* - cs - T \geq -K$$

Are quotas consistent with economic maximization?

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  - If $\gamma \bar{b}^h - c$ is low, and
  - If $p(b_H^h - b_L^h)$ is large
- **Complementarity s and T:** threat of bargaining breakdown
  - If $b'^I(s) > 0, b'^i(s) > 0$

Contracts that are chosen to maximize corrupt profit:

Equilibrium contracts

- s increases in $\gamma \bar{b}^h - c$

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Equilibrium contracts

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- If $\gamma \bar{b}^h - c$ is low, then $p(b_H^h - b_L^h)$ increases s

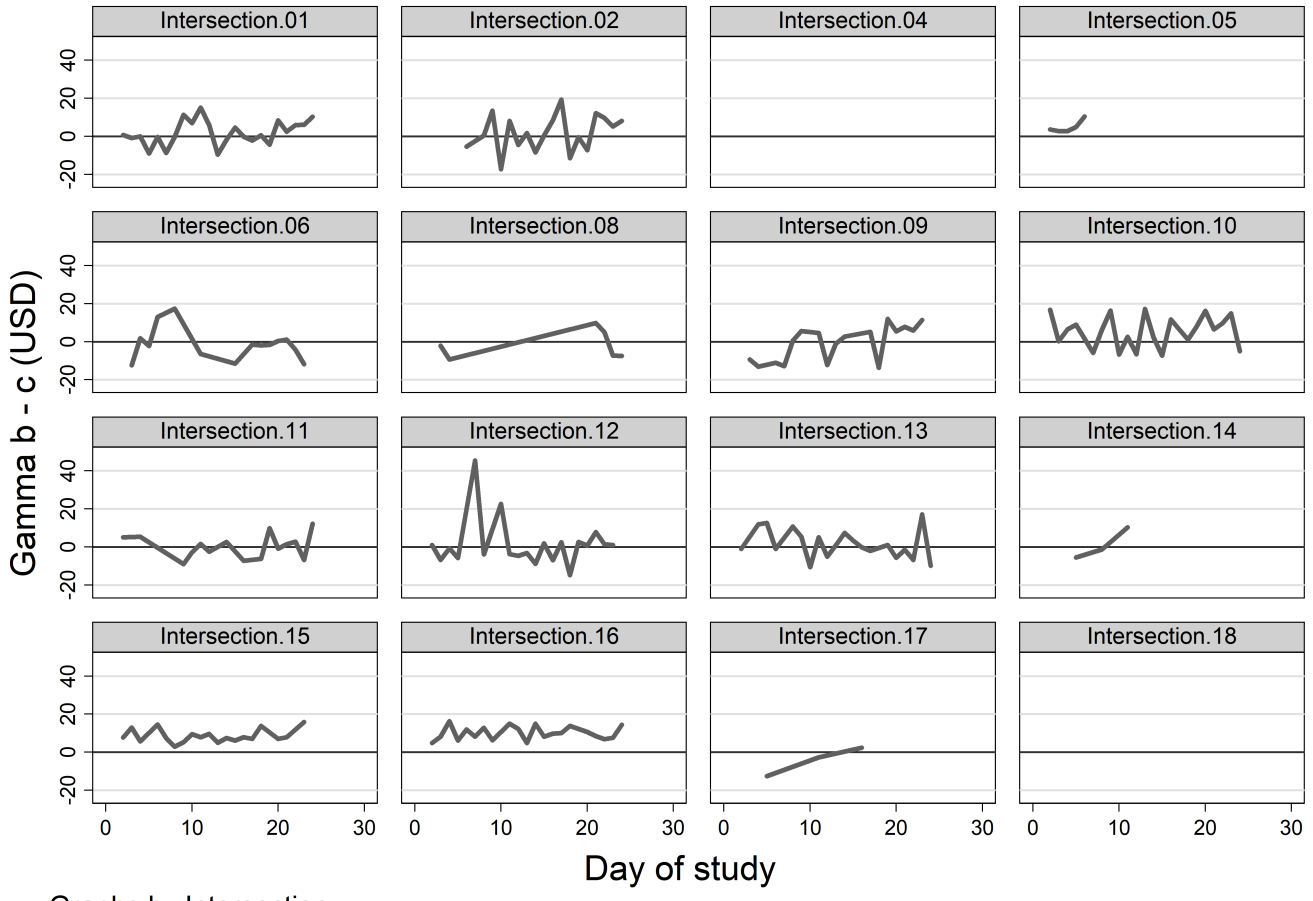
Economic maximizing organizational structure:

empirical test

Econometric specification

$$s_{it}, T_{it} = \alpha + \beta_1 \left(\gamma \bar{b}_i - c_i\right) + \beta_2 p \left(b_H - b_L\right) + \eta_t + e_{it}$$

Estimated parameters by intersection: $\gamma\bar{b} - c$



Econometric specification

Panel A: Observed quota level s

VARIABLES	(1) s	(2) s	(3) s	(4) s	(5) s
$\gamma\bar{b}_i - c_i$	0.48***	0.49***	0.51***		
	(0.12)	(0.13)	(0.13)		
$\mathrm{p}(b_H - b_L)$			0.30**	0.49**	-0.12
			(0.15)	(0.24)	(0.27)
Formal fine revenue per car (i)		0.01			
		(0.16)			
Constant	6.08***	6.02***	4.09***	2.29*	9.92***
	(0.62)	(1.35)	(1.01)	(1.26)	(2.62)
Observations	321	321	321	171	150
R-squared	0.46	0.46	0.54	0.49	0.29
Sub-sample	full	full	full	$\gamma b - c \leq 0$	$\gamma b - c \geq 0$
Mean dep var	5.402	5.402	5.402	4.006	6.942

Outline

Revenue from bribes incentivizes (productive) effort

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income →

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income →

Revenue from bribes incentivizes (productive) effort

income → ↓ Mu(income)

Revenue from bribes incentivizes (productive) effort

income $\rightarrow$ $\downarrow$ Mu(income) $\rightarrow$ $\downarrow$ effort

Revenue from bribes incentivizes (productive) effort

income → ↓ Mu(income) → ↓ effort

Introducing supervisors

Revenue from bribes incentivizes (productive) effort

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Introducing supervisors

income →

Revenue from bribes incentivizes (productive) effort

income → ↓ Mu(income) → ↓ effort

Introducing supervisors

income → *Supervisor tax*

Revenue from bribes incentivizes (productive) effort

income → $\downarrow$ Mu(income) → $\downarrow$ effort

Introducing supervisors

income → *Supervisor tax* → $\uparrow$ Mu(income) → $\uparrow$ effort

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quota →

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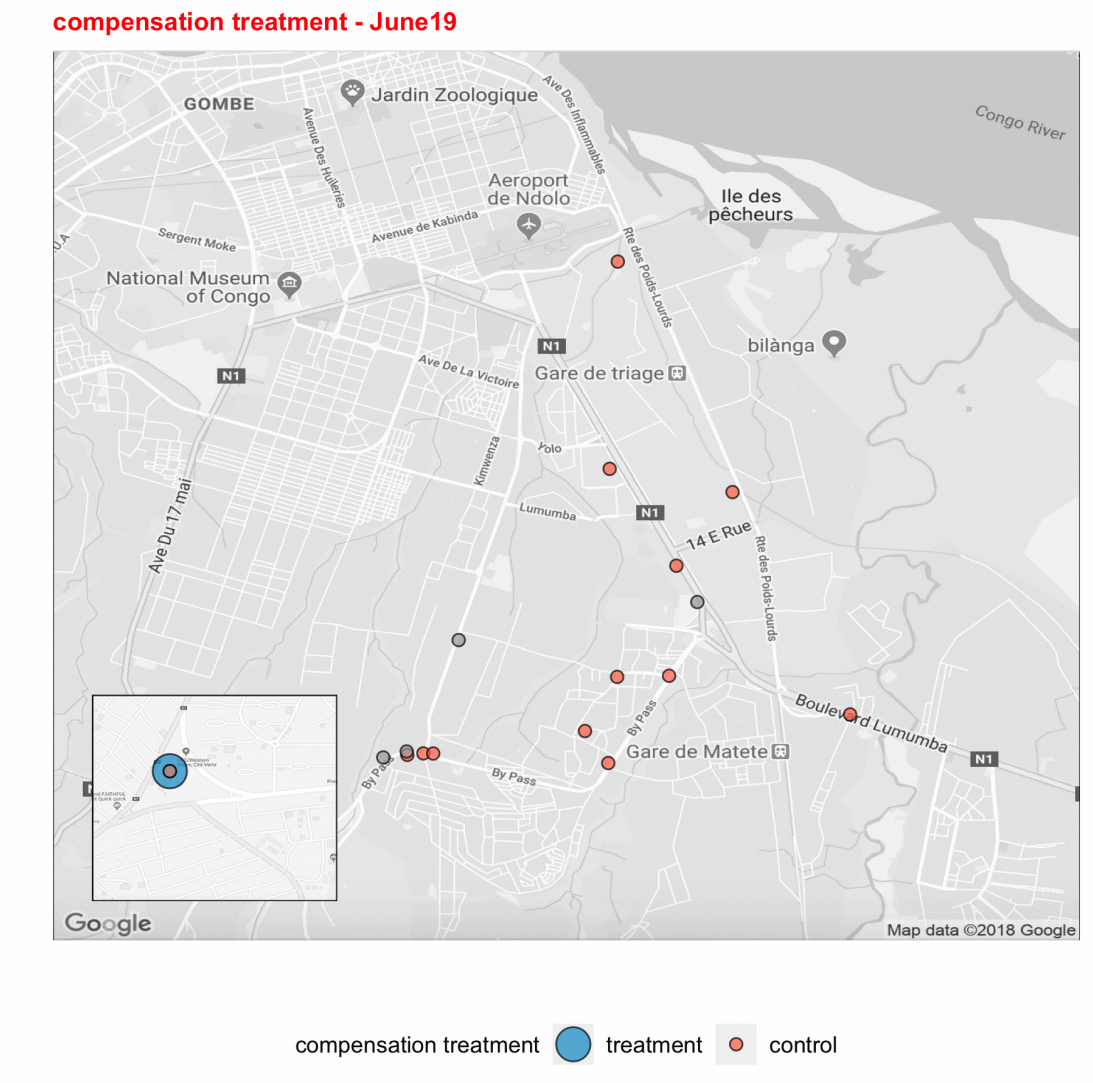
income → ↓ Mu(income) → ↓ effort

Introducing supervisors

income → *Supervisor tax* → ↑ Mu(income) → ↑ effort

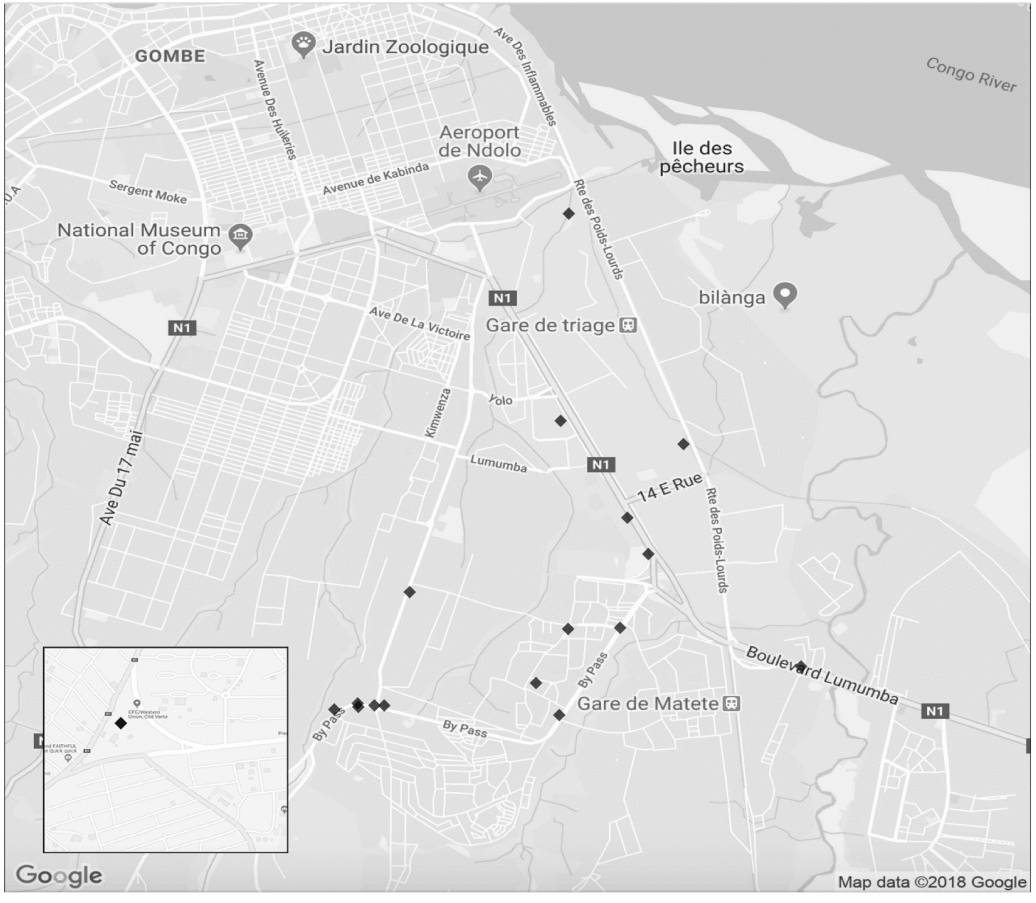
quota → ↑ ↓ effort
→ ↓service

Assignment to higher income



Assignment of the quota reduction treatment

compensation and quota reduction treatments - June19



treatments ◯ quota reduction ╳ compensation ⊗ both ◆ neither

Randomization balance

Table 3: Randomization balance

	Mean outcomes				Difference	
	Baseline		Treatments			
	Full sample	Pure control	Income	Quota	Income-Pure control	Quota-Pure control
	(1)	(2)	(3)	(4)	(5)	(6)
Panel A: Balance table						
Monday	0.20	0.19	0.19	0.22	0.00	0.03
	(0.40)	(0.39)	(0.40)	(0.41)	(0.05)	(0.05)
Tuesday	0.12	0.14	0.12	0.11	-0.02	-0.03
	(0.33)	(0.34)	(0.33)	(0.32)	(0.04)	(0.04)
Wednesday	0.16	0.13	0.17	0.18	0.05	0.05
	(0.37)	(0.33)	(0.38)	(0.38)	(0.05)	(0.05)
Thursday	0.16	0.14	0.15	0.19	0.01	0.05
	(0.36)	(0.34)	(0.36)	(0.39)	(0.05)	(0.05)
Friday	0.16	0.25	0.14	0.10	-0.11**	-0.15***
	(0.37)	(0.43)	(0.35)	(0.30)	(0.05)	(0.05)
Saturday	0.20	0.16	0.22	0.20	0.06	0.04
	(0.40)	(0.37)	(0.42)	(0.40)	(0.05)	(0.05)
June	0.34	0.36	0.31	0.31	-0.05	-0.07
	(0.47)	(0.48)	(0.46)	(0.47)	(0.06)	(0.06)
July	0.66	0.64	0.69	0.69	0.05	0.07
	(0.47)	(0.48)	(0.46)	(0.47)	(0.06)	(0.06)
Date	13.51	13.93	12.81	13.09	-1.20	-1.14
	(7.60)	(7.65)	(7.75)	(7.63)	(0.99)	(0.94)
Day of Market	0.36	0.41	0.36	0.30	-0.05	-0.10*
	(0.48)	(0.49)	(0.48)	(0.46)	(0.06)	(0.06)
Officers present early	4.14	4.09	4.19	4.14	-0.00	0.00
	(0.51)	(0.42)	(0.59)	(0.51)	(0.00)	(0.00)
Rank of day	12.75	12.47	12.75	12.91	0.15	0.81
	(7.31)	(7.23)	(7.10)	(7.55)	(0.90)	(0.89)
After FCA letter	0.04	0.05	0.03	0.03	-0.02	-0.01
	(0.19)	(0.21)	(0.18)	(0.17)	(0.02)	(0.02)
Income	0.43	0.00	1.00	0.46	1.00	0.47***
	(0.50)	(0.00)	(0.00)	(0.50)	(0.00)	(0.05)
Income(t-1)	0.43	0.39	0.44	0.46	0.02	0.07
	(0.50)	(0.49)	(0.50)	(0.50)	(0.07)	(0.06)
Income(t-2)	0.44	0.52	0.40	0.41	-0.14**	-0.10
	(0.50)	(0.50)	(0.49)	(0.49)	(0.07)	(0.07)
Quota	0.49	0.00	0.52	1.00	0.53***	1.00
	(0.50)	(0.00)	(0.50)	(0.00)	(0.05)	(0.00)
Quota(t-1)	0.48	0.48	0.44	0.52	-0.05	0.01
	(0.50)	(0.50)	(0.50)	(0.50)	(0.07)	(0.06)
Quota(t-2)	0.47	0.53	0.47	0.45	-0.06	-0.11*
	(0.50)	(0.50)	(0.50)	(0.50)	(0.07)	(0.07)
Income delivered am	0.30	0.00	0.69	0.33	0.68***	0.33***
	(0.46)	(0.00)	(0.46)	(0.47)	(0.04)	(0.05)
Evening delivery	0.09	0.00	0.22	0.09	0.24***	0.10***
	(0.29)	(0.00)	(0.42)	(0.29)	(0.04)	(0.03)
Obs	359	110	155	175	.	.

Econometric specification

intersection i
day t

Econometric specification

intersection i
day t

$$g_{it} = \alpha + \sum_{l=t-2}^{l=t} \beta_{ly} \; T_{it}^{y} + \sum_{l=t-2}^{l=t} \beta_{ls} \; T_{it}^{s} + \eta_i + \theta_t + e_{oit}$$

Econometric specification

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g_{it} : bribe-taking effort, public service
T_{il}^{s}: quota reduction treatment status
T_{il}^{y}: income treatment status
η_i : randomization block fixed effects
θ_t : day fixed effects

Measuring public service

Public service

- **Traffic congestion**

Measuring public service

Public service

- **Traffic congestion**
- **Harassment of drivers**
  - Events vs bribes

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- **Harassment of drivers**
  - Events vs bribes
- **Safety**
  - Accidents

Econometric specification: effects by time of day

intersection i
day t

$$g_{it}^{am,pm} = \alpha + \sum_{l=t-2}^{l=t} \beta_{ly}^{am,pm} T_{it}^{y} + \sum_{l=t-2}^{l=t} \beta_{ls}^{am,pm} T_{it}^{s} + \eta_i + \theta_t + e_{oit}$$

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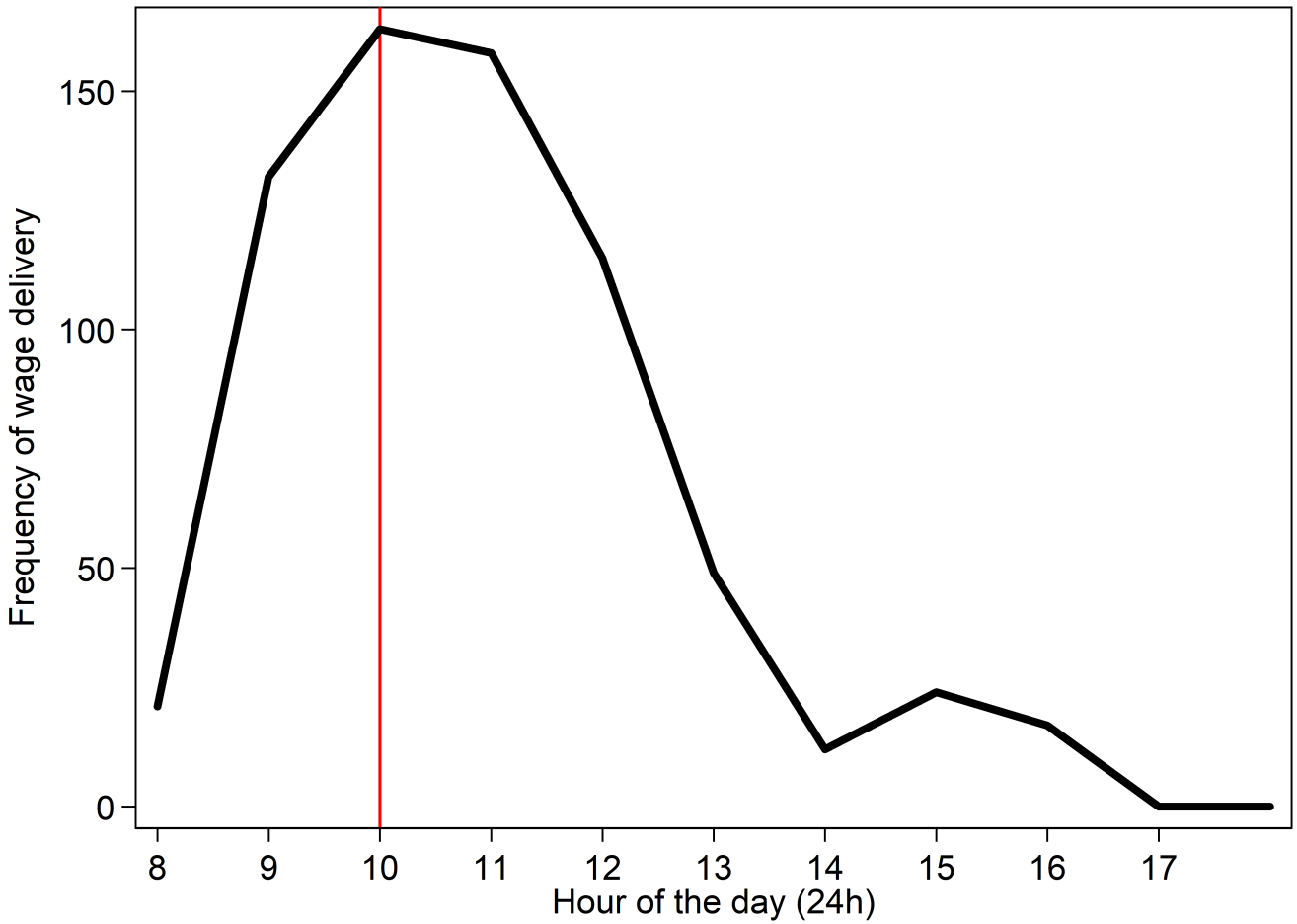
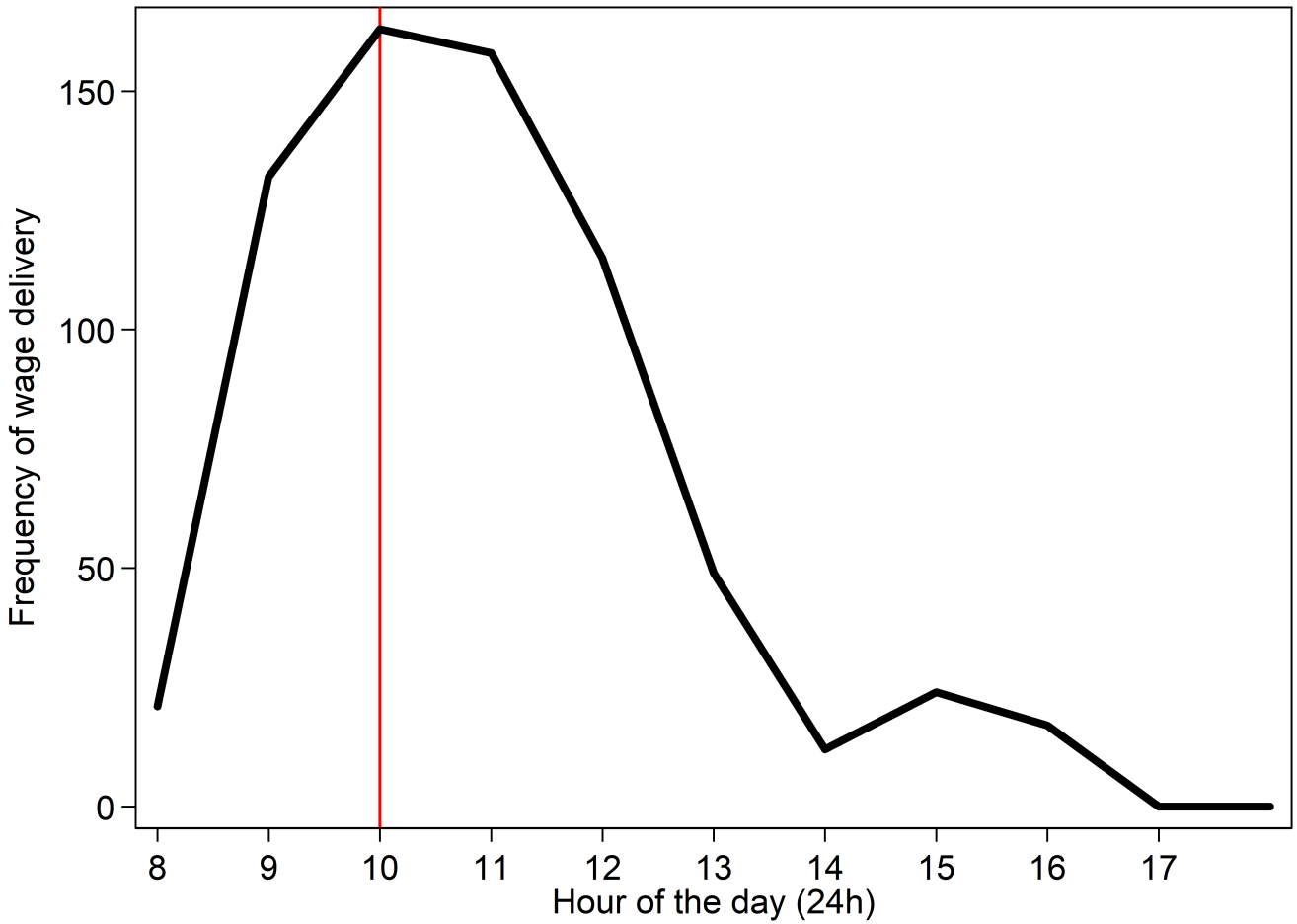
Injecting transitory income: variation by hour



50% of deliveries take place after 11am

Injecting transitory income: variation by hour



50% of deliveries take place after 11am → Examine before/after

Econometric specification: hour level event study

intersection i
day t

$$g_{it} = \alpha + \sum_{l=t-2}^{l=t} \beta_{ly} \; T^{y}_{it} + \sum_{l=t-2}^{l=t} \beta_{ls} \; T^{s}_{it} + \eta_i + \theta_t + e_{oit}$$

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T^{y}_{il}: income treatment status
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θ_t : day fixed effects

Econometric specification: hour level event study

intersection i
day t

$$g_{it}^{h} = \alpha + \sum_{l=t-2}^{l=t} \sum_{h=h_T-1}^{h=h_T+5} \beta_{ly}^{h} \; T_{ith}^{y} + \sum_{l=t-2}^{l=t} \beta_{ls} \; T_{it}^{s} + \eta_i + \eta_h + \theta_t + e_{oit}$$

g_{it} : bribe-taking effort, public service
T_{il}^{s}: quota reduction treatment status
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η_i : randomization block fixed effects
η_h : hour fixed effects
θ_t : day fixed effects

Revenue from bribes incentivizes public service

$\rightarrow$ Positive income shock

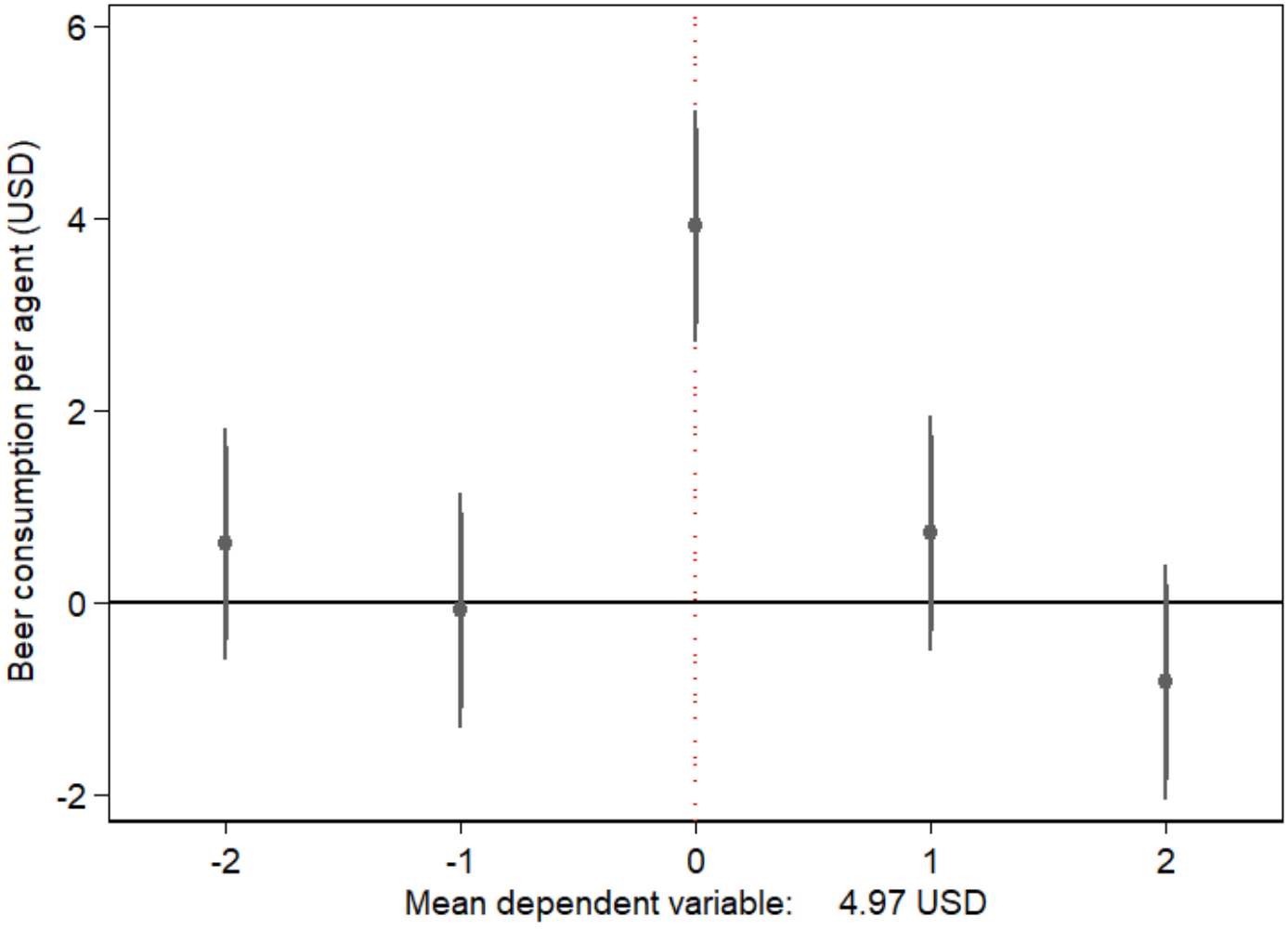
Demonstrating imperfect savings technology: Consumption

Treatment effects, ethnographic evidence

Notes from observers and supervisors

> *“When they get a lot of money they go get a beer and eat. One of them took 7 beers after the cash withdrawal, then got drunk and could not work the day after. ”*

Treatment effect on consumption - imperfect savings



(Bribe-taking) effort

Treatment effects, ethnographic evidence

Exit interviews

> *“I did not have many worries and so I was not forced to ask money on the back of drivers”*

Treatment effects, ethnographic evidence

Exit interviews

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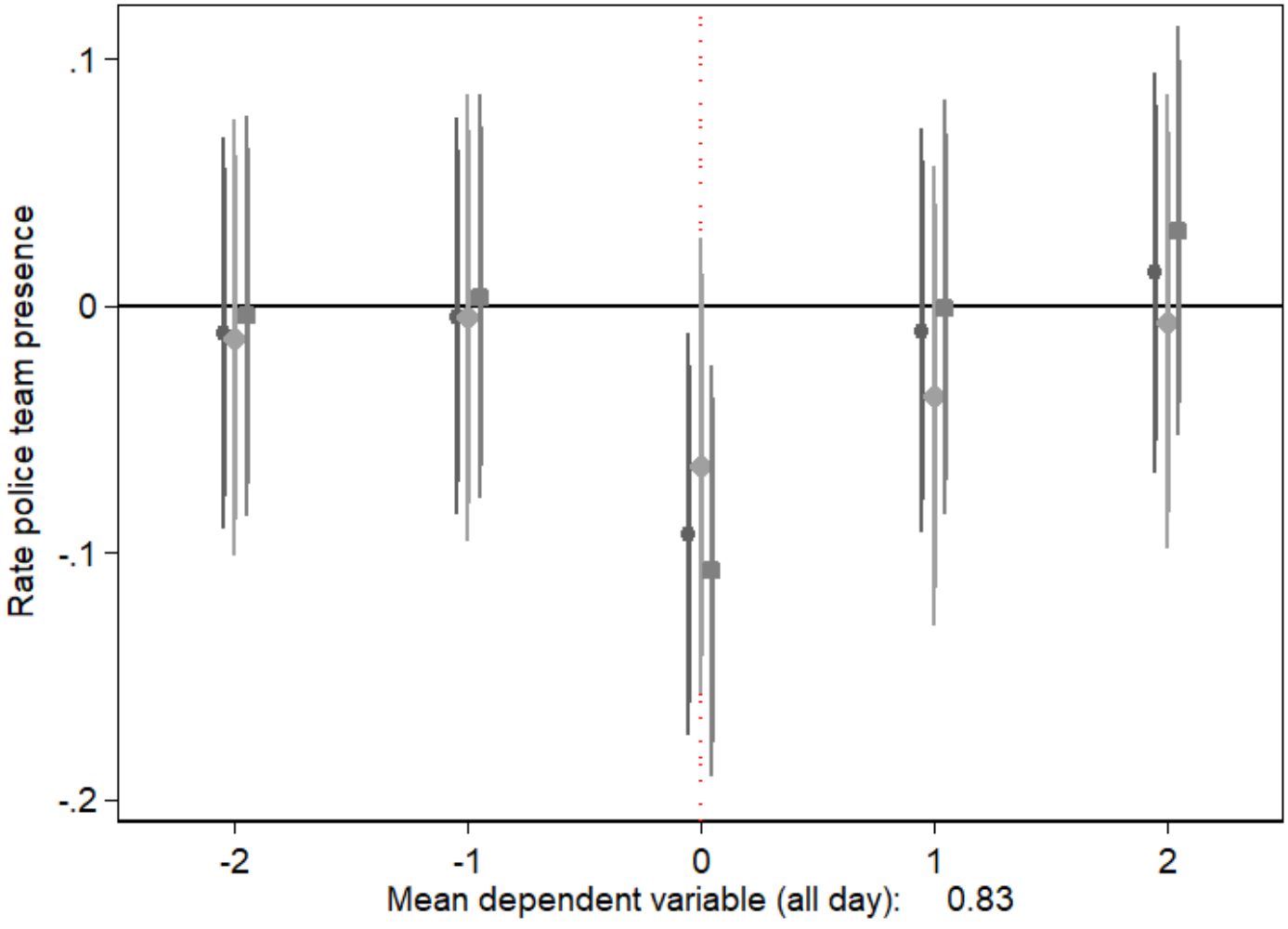
Treatment effects, ethnographic evidence

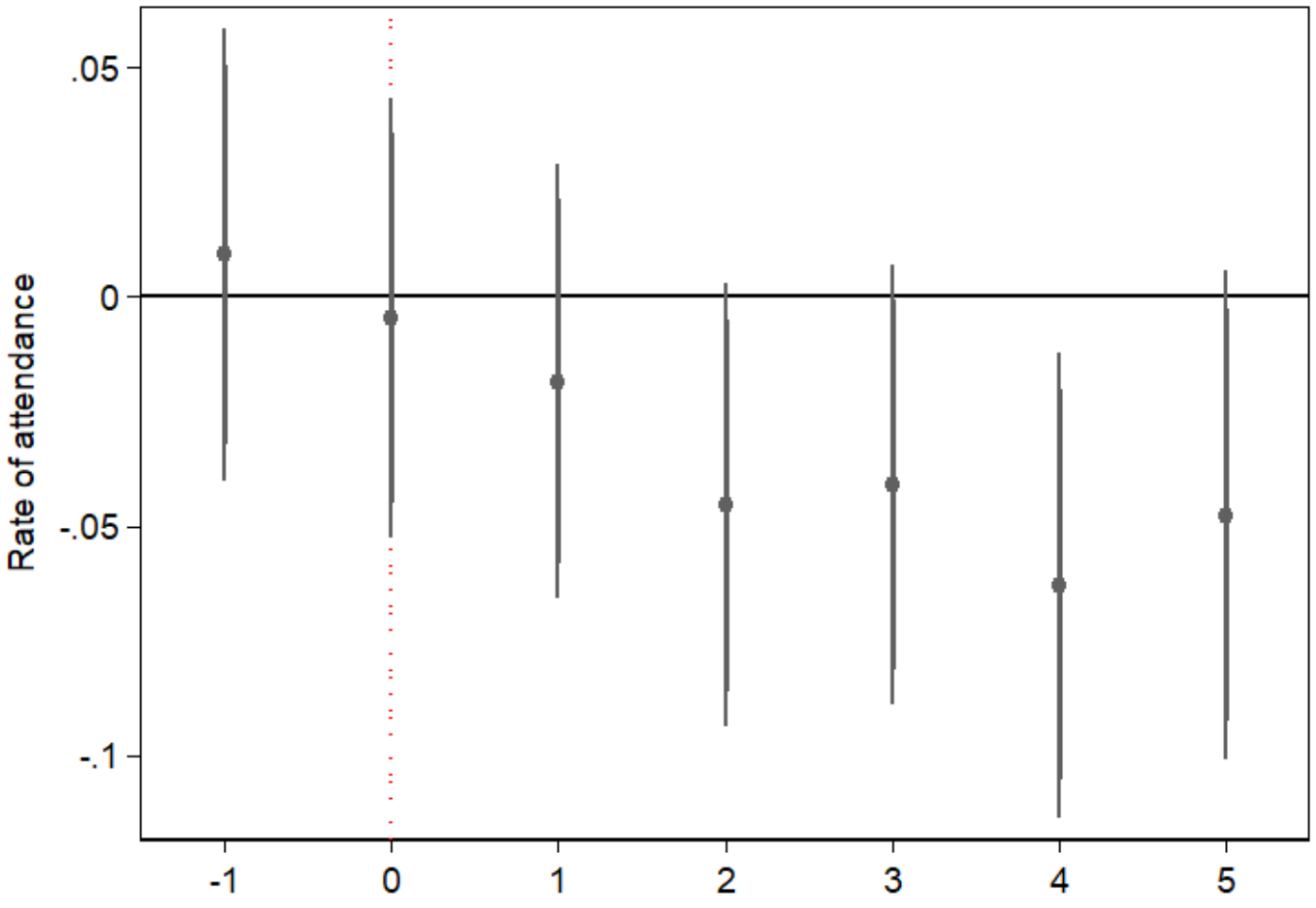
Exit interviews

> *“I did not have many worries and so I was not forced to ask money on the back of drivers”*
>
> *“We felt in security, and we begun finding something to eat in the evening. We were not much at the intersection.”*
>
> *“I was not seeking money from drivers anymore because I already had my own.”*

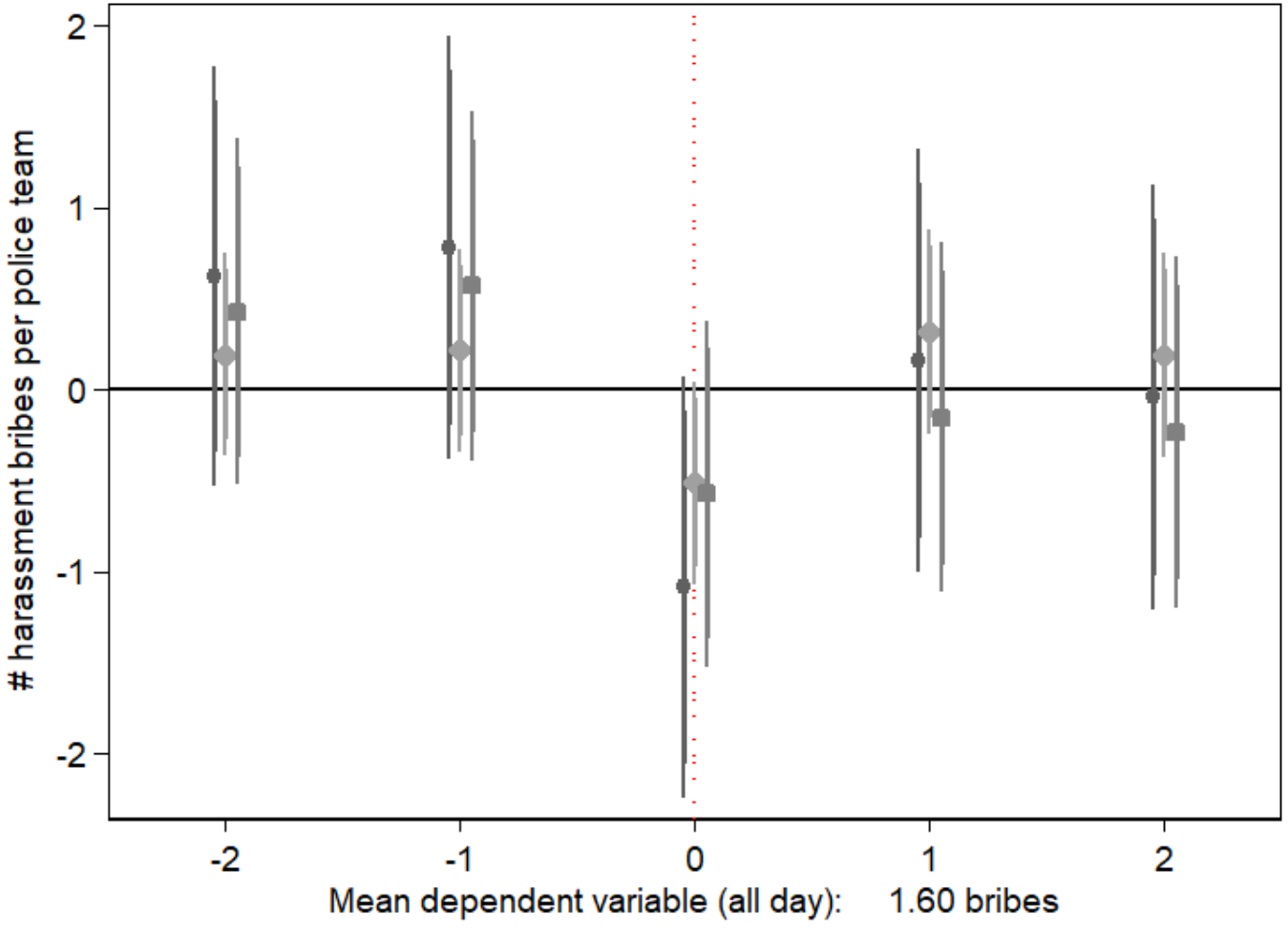
ITT - Attendance



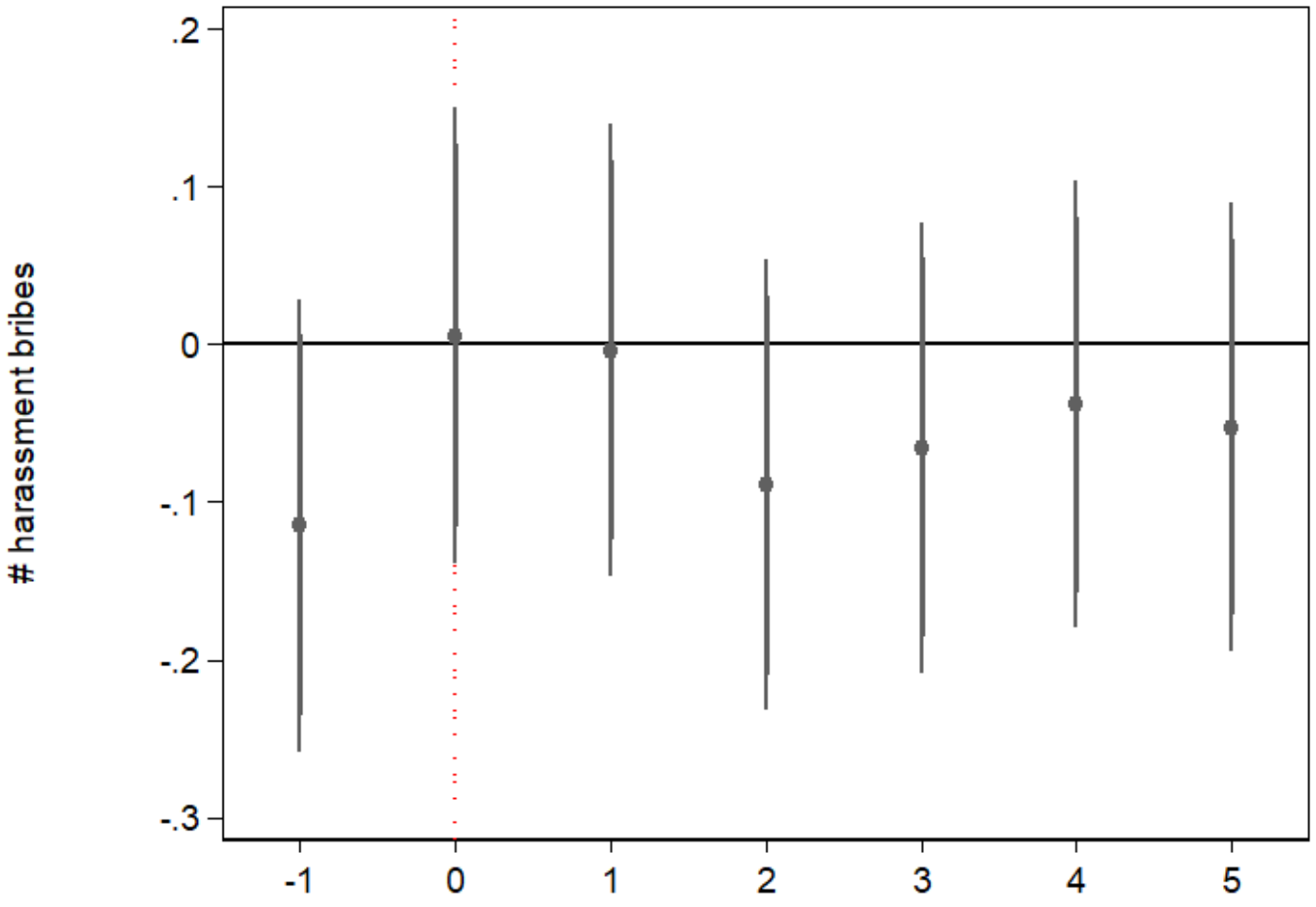
ITT - Attendance, by hour



ITT - Harassment bribes



ITT - Harassment bribes, hourly



Externality on public service:

traffic congestion,

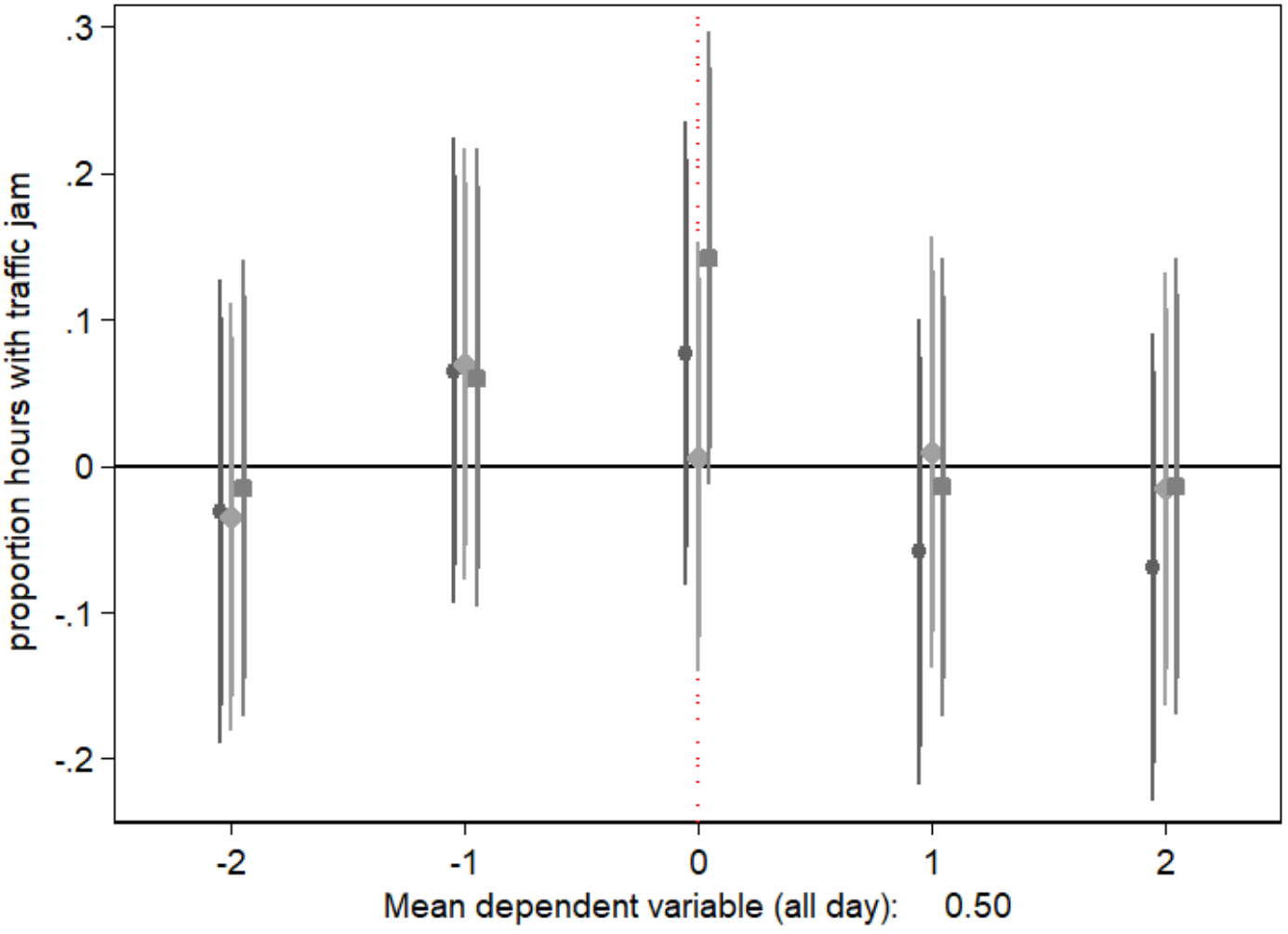
Externality on public service:

traffic congestion, driver harassment,

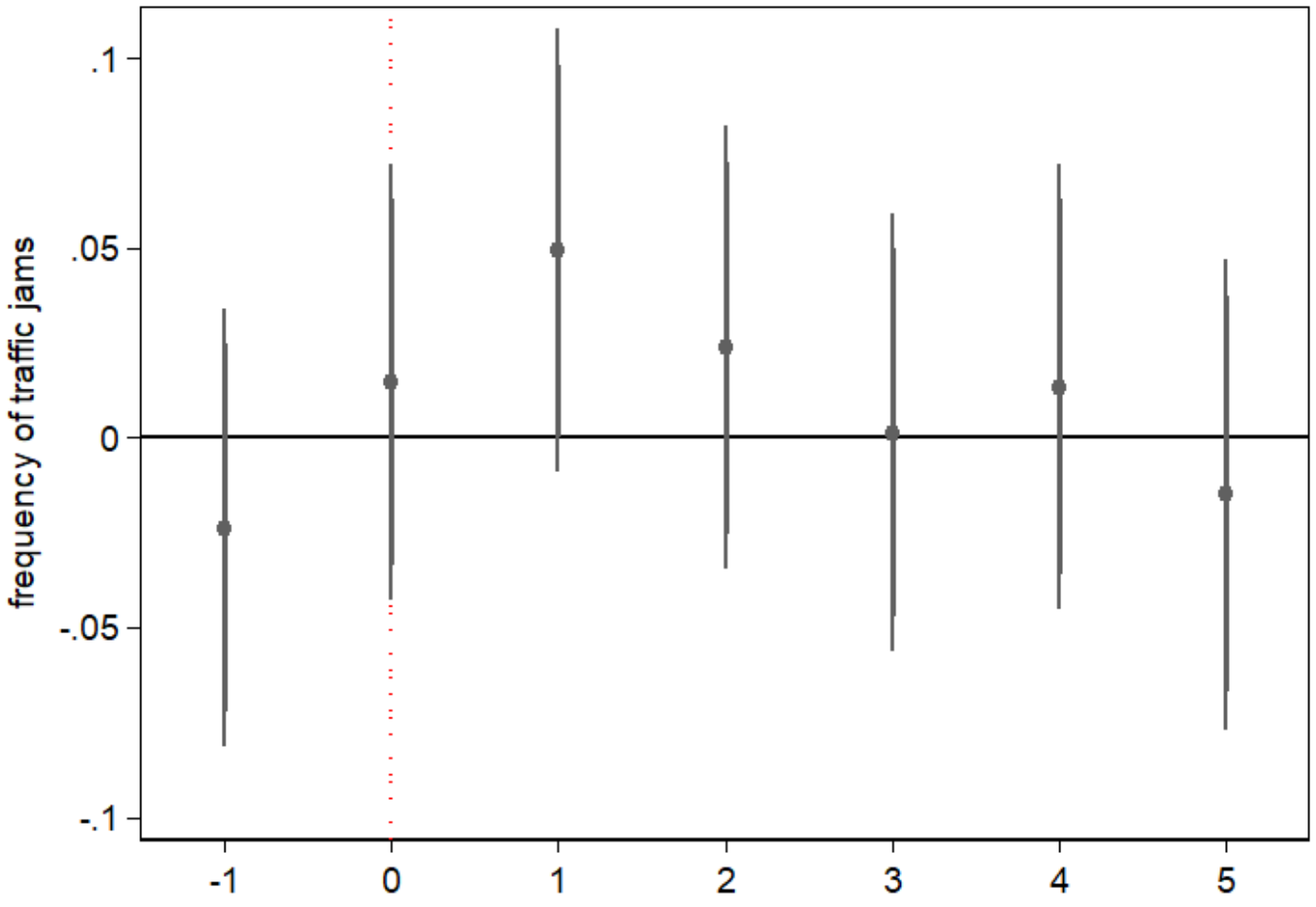
Externality on public service:

traffic congestion, driver harassment, accidents

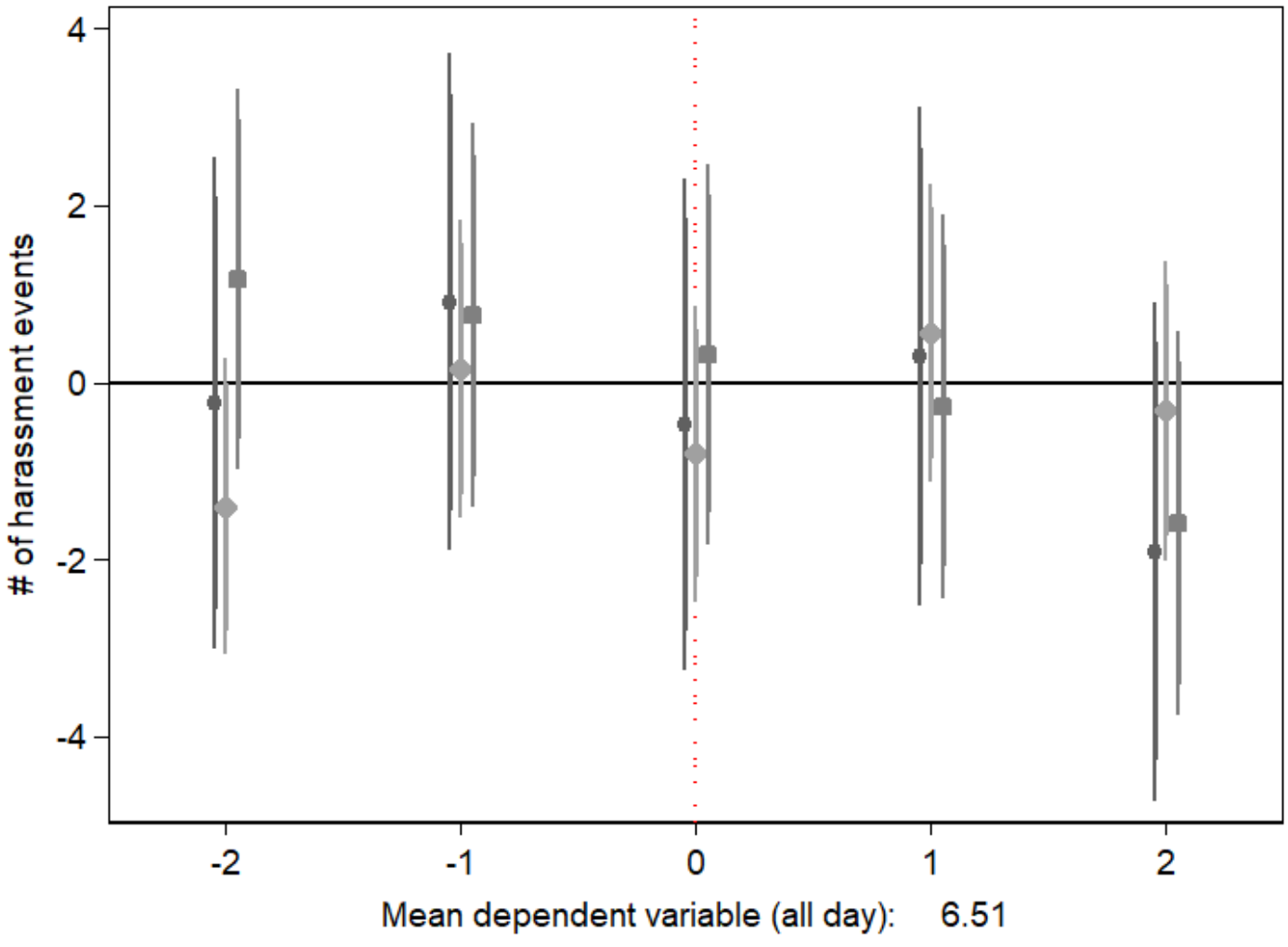
ITT - Traffic jams



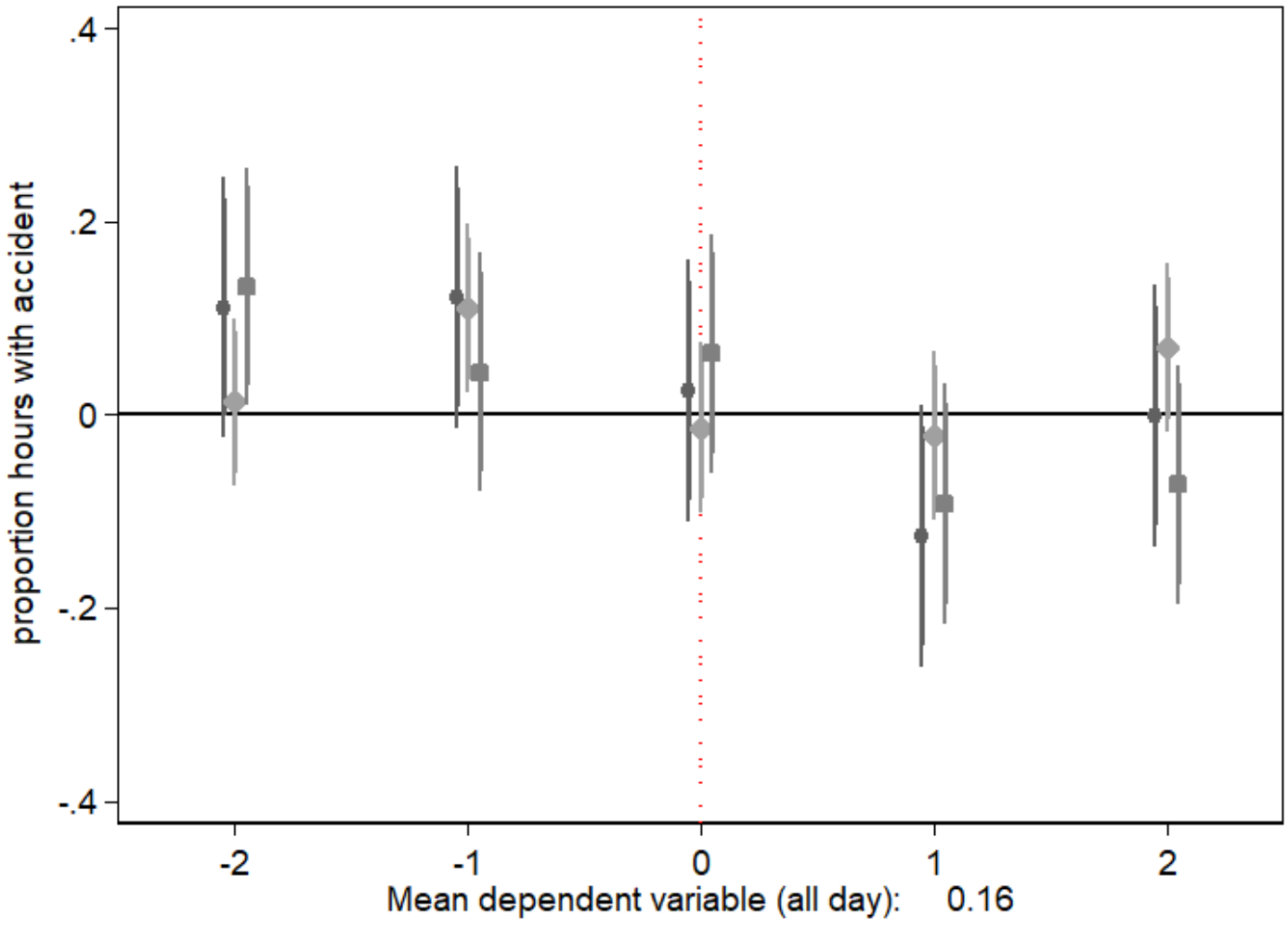
ITT - Traffic jams, hourly



ITT - Harassment occurrence



ITT - Accidents



Treatment effects, ethnographic evidence

Qualitative notes taken by observers during collection

“Absence of street-level police agents creates traffic jams”

Treatment effects, ethnographic evidence

Qualitative notes taken by observers during collection

> *"Absence of street-level police agents creates traffic jams"*

> *"This intersection is sterile, for that reason [there are no agents] which cases perpetuate traffic jams"*

Treatment effects, ethnographic evidence

Qualitative notes taken by observers during collection

> *"Absence of street-level police agents creates traffic jams"*

> *"This intersection is sterile, for that reason [there are no agents] which cases perpetuate traffic jams"*

> *"There was only one pedestrian [police agent] until 5pm, for that reason there were jams the whole day"*

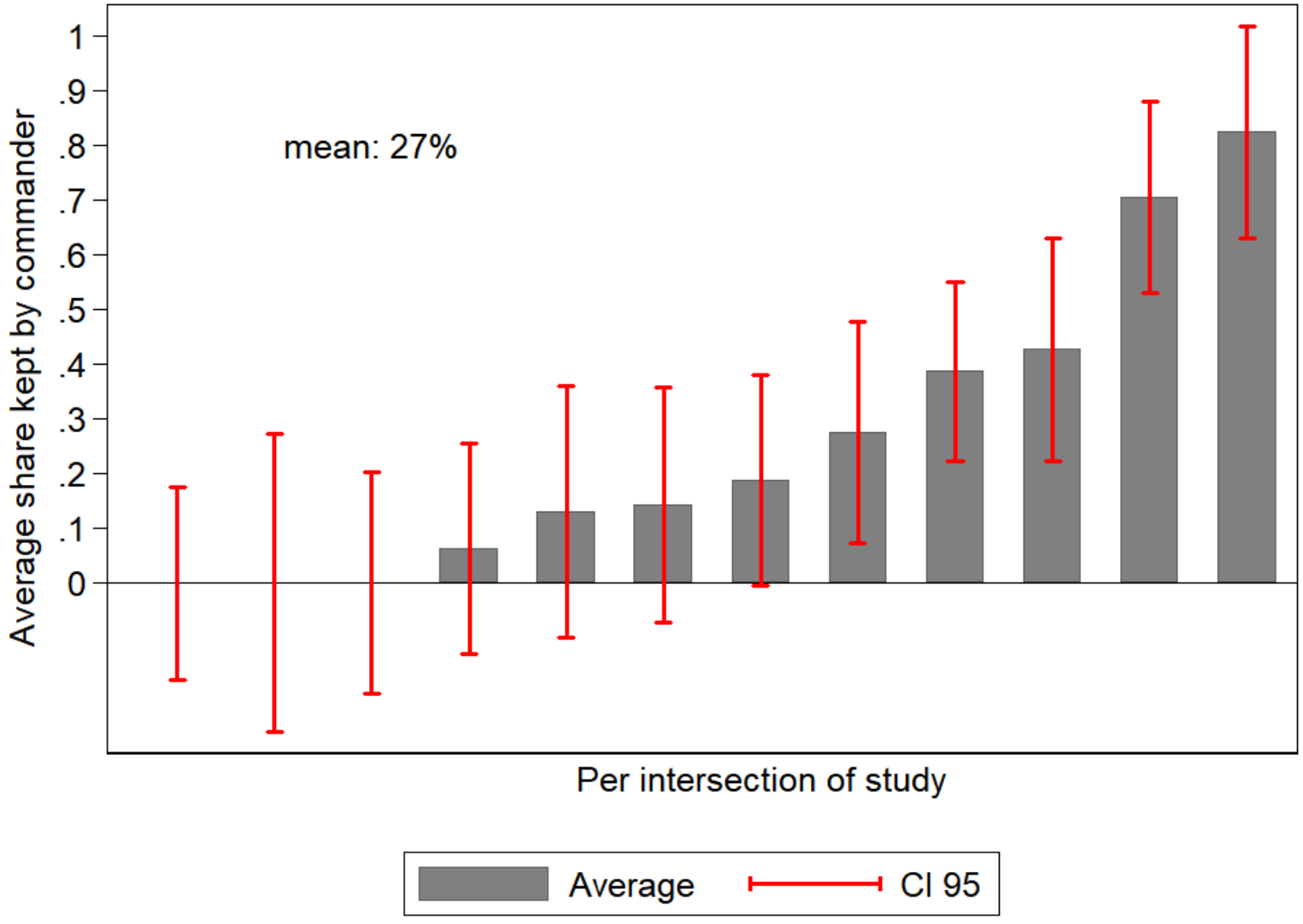
Intervening effect of supervisor taxation on agent's incentives

$\rightarrow$ Positive income shock

Street-level police agents of the battalion recounted:

> *“the ‘retrocession’ is a form of quota: when a commander learns that a street-level police agent has received money, he imposes a ‘retrocession’ of that money”*

Short term adjustment of taxation by commanders



Dampening effect of commander taxation

Table V: Treatment effects, ITT estimates

Panel A: all day

VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tip	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
T income	3.79***	-1.23**	6.47	-0.60	-0.07*	0.21	0.07	0.03
	(0.58)	(0.57)	(6.94)	(4.05)	(0.04)	(1.54)	(0.08)	(0.07)
T quota	0.04	-0.05	-0.23	0.10	0.00	-0.37	-0.02*	-0.03**
	(0.10)	(0.10)	(1.18)	(0.69)	(0.01)	(0.26)	(0.01)	(0.01)
Observations	300	300	300	300	264	300	295	295
R-squared	0.57	0.28	0.51	0.21	0.53	0.43	0.41	0.22
Mean d. var	4.969	1.601	37.54	11.35	0.830	0.830	0.830	0.830
Quota removal	0.271	-0.283	-1.424	0.589	0.00751	-2.234	-0.149	-0.157

Table VI: Treatment effects, IV estimates

Panel A: all day

VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tip	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
Extra 100 USD	7.94***	-2.60**	14.21	-1.41	-0.15*	0.79	0.16	0.07
	(1.43)	(1.27)	(14.82)	(8.69)	(0.09)	(3.29)	(0.17)	(0.15)
Quota level	-0.06	0.07	0.40	-0.25	-0.00	0.58	0.03*	0.04**
	(0.17)	(0.15)	(1.78)	(1.05)	(0.01)	(0.39)	(0.02)	(0.02)
Observations	296	296	296	296	263	296	291	291
R-squared	0.43	0.24	0.51	0.21	0.50	0.43	0.40	0.17

Taxation by commander dampens incentive effect

Panel C: pm

VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tips	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
T income	3.79***	-0.62	2.84	-0.20	-0.08**	0.97	0.14*	0.05
	(0.58)	(0.47)	(5.22)	(2.92)	(0.04)	(1.12)	(0.07)	(0.06)
T quota	0.04	-0.03	0.32	-0.10	0.00	-0.30	-0.03***	-0.02*
	(0.10)	(0.08)	(0.89)	(0.50)	(0.01)	(0.19)	(0.01)	(0.01)
Observations	300	300	300	300	264	300	294	295
R-squared	0.57	0.23	0.49	0.22	0.52	0.38	0.43	0.16

Panel C: pm

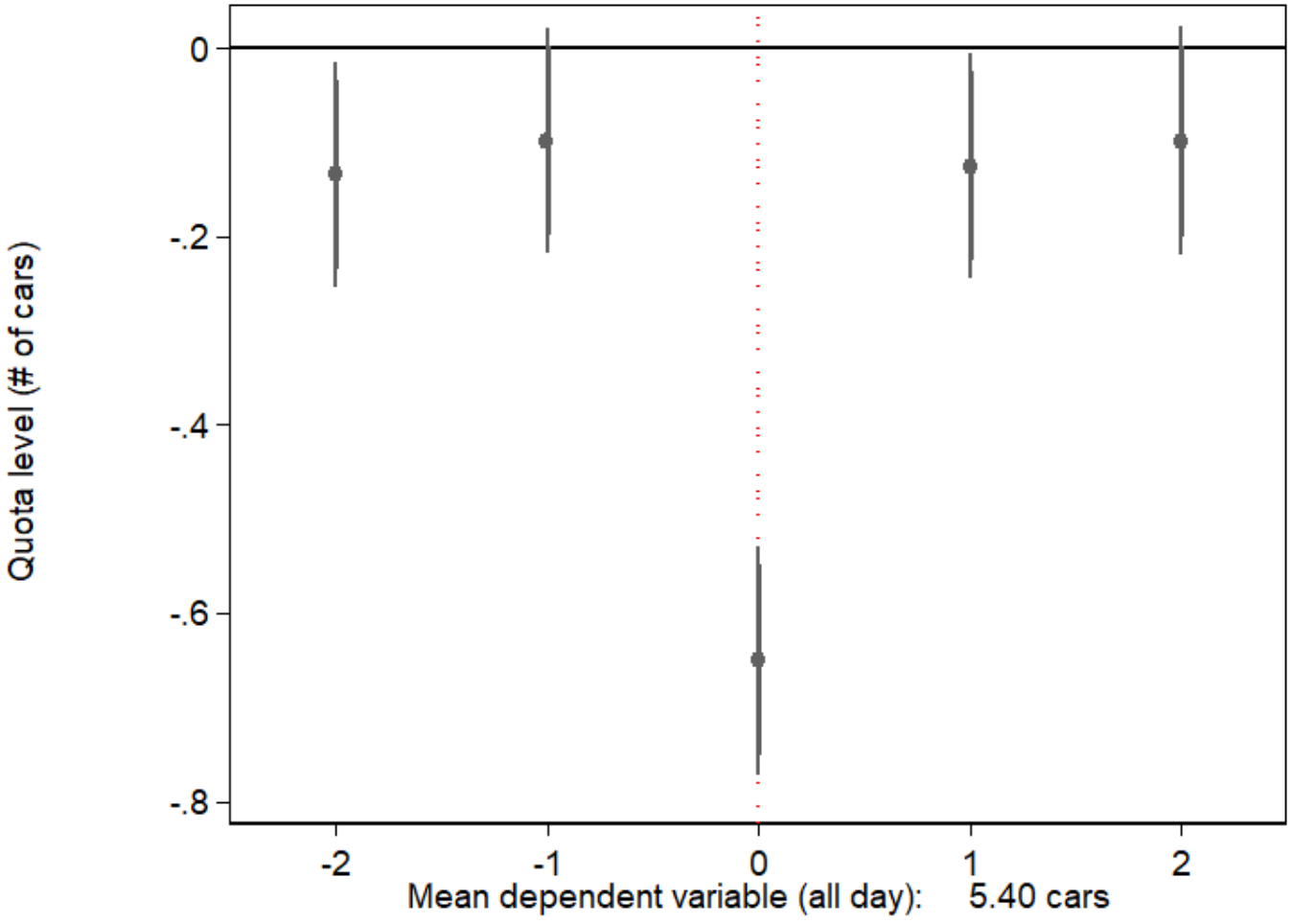
VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tip	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
Extra 100 USD	7.94***	-1.30	5.90	-0.61	-0.17*	2.33	0.31*	0.10
	(1.43)	(1.02)	(11.13)	(6.27)	(0.09)	(2.41)	(0.16)	(0.13)
Quota level	-0.06	0.05	-0.48	0.06	0.00	0.48*	0.05**	0.03*
	(0.17)	(0.12)	(1.34)	(0.75)	(0.01)	(0.29)	(0.02)	(0.02)
Observations	296	296	296	296	263	296	290	291
R-squared	0.43	0.21	0.49	0.22	0.48	0.38	0.40	0.11

Externality of supervisor-agent corruption on society

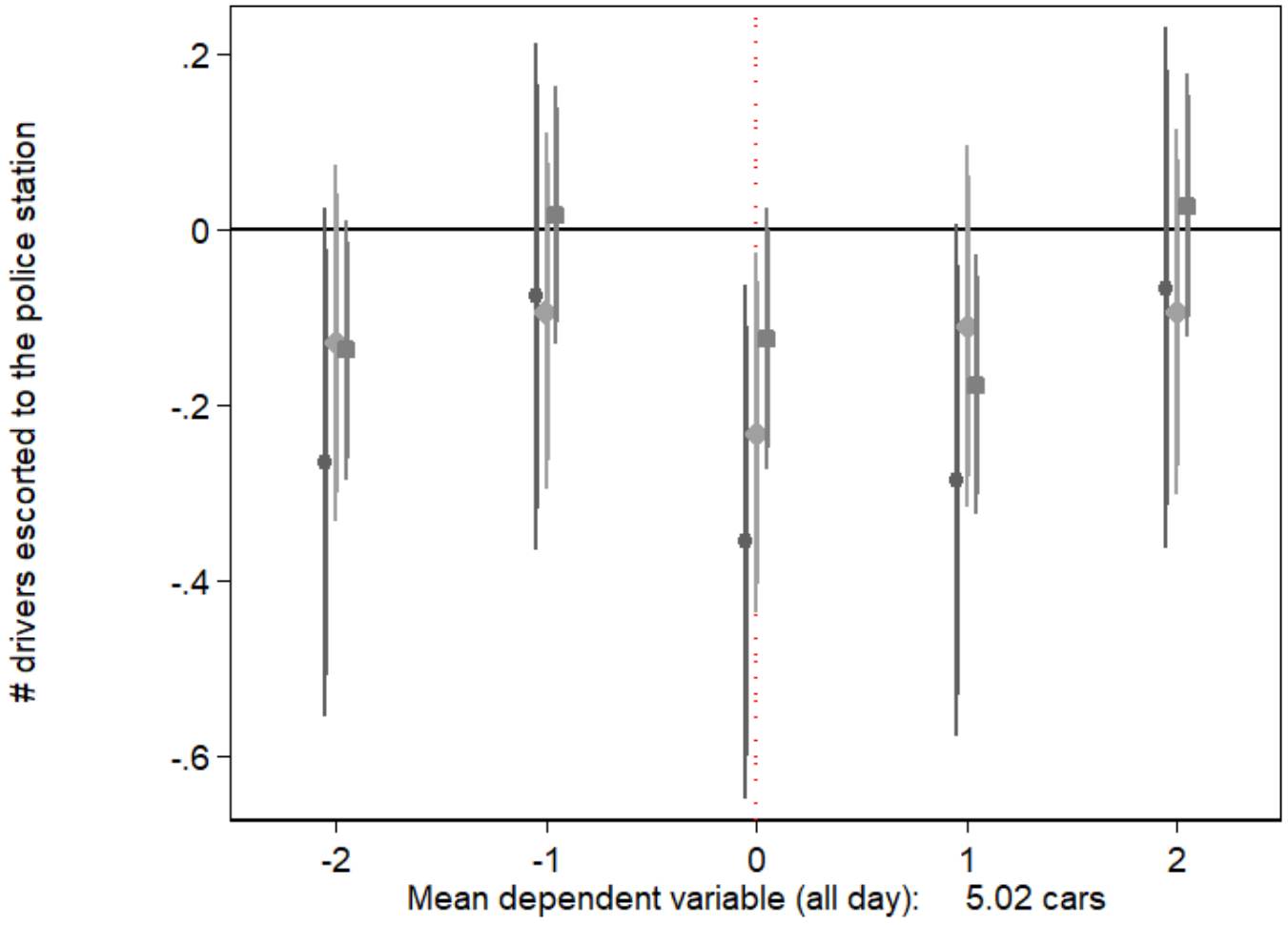
→Reduction of quota level

First stage

Quota treatment first stage: observed quotas



Quota treatment first stage: escorted cars



Quota treatment first stage: ethnographic evidence

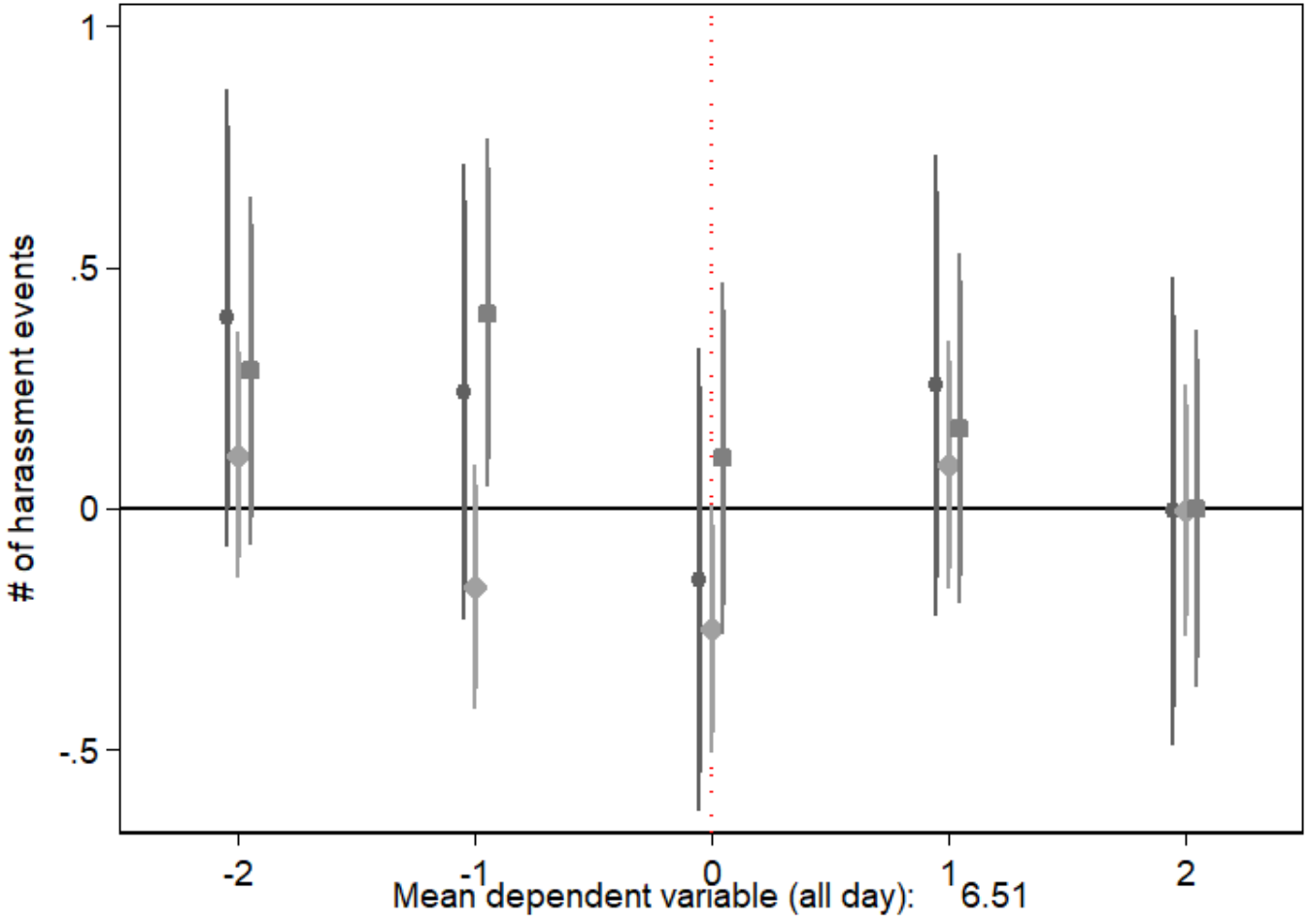
Notes from study supervisor:

> *"In police station [...], the JPO say that our intervention is having a huge effect. The JPO says that commanders now say to only detain cars when they really committed a bad violation."*

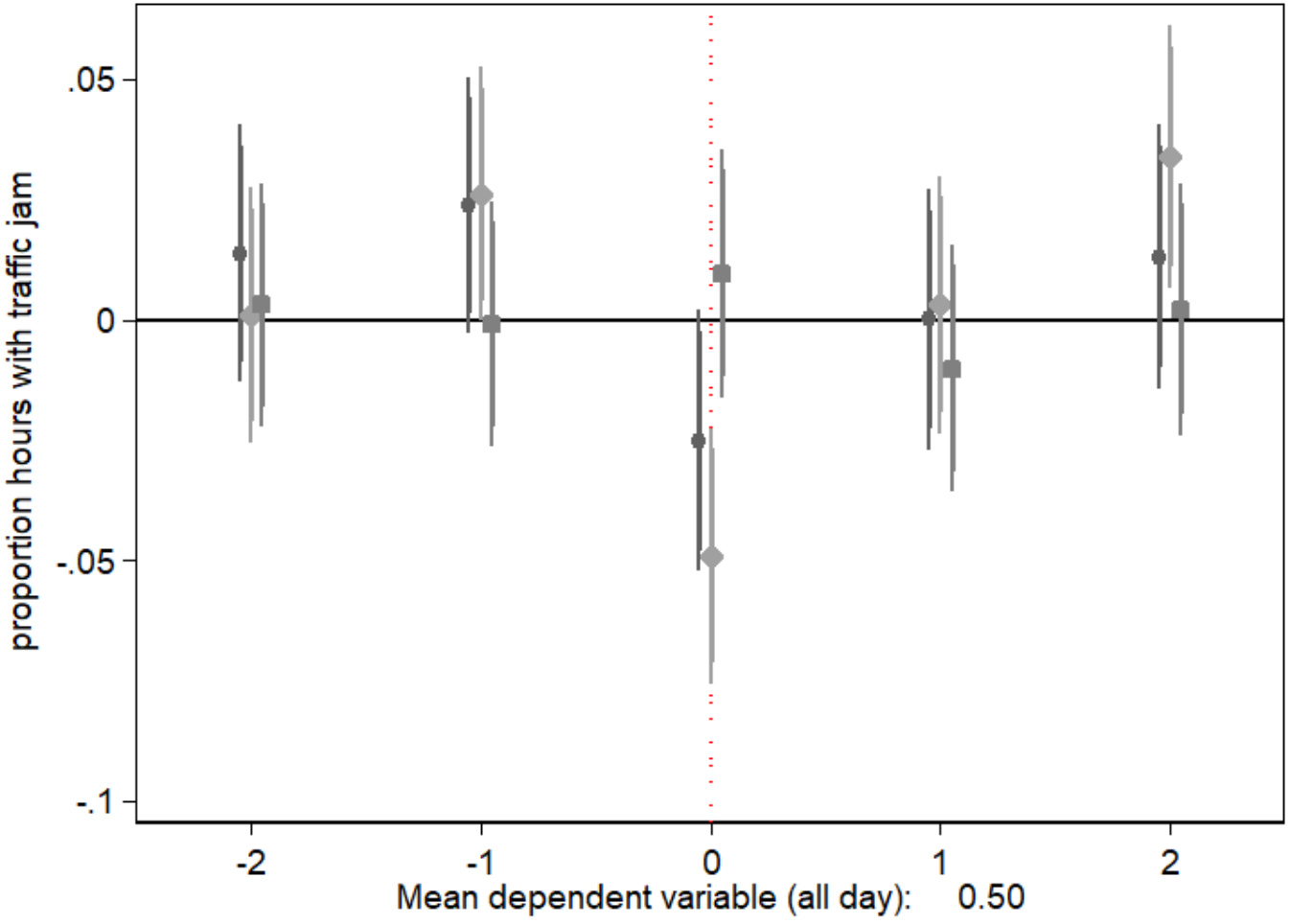
Externality on drivers welfare:

harassment, traffic congestion, accidents

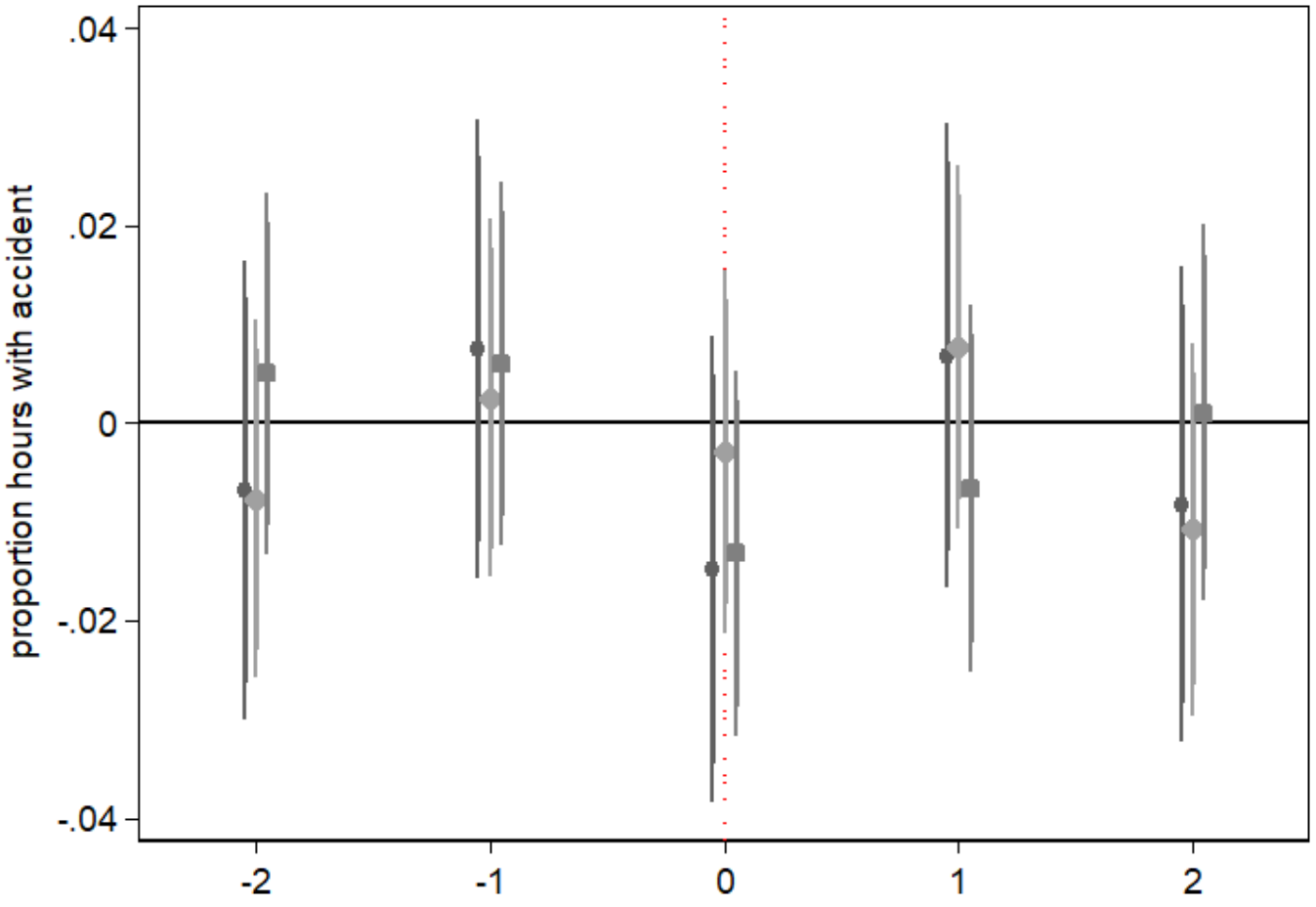
Treatment effect of quota, ITT: harassment of drivers



Treatment effect of quota, ITT: traffic jams



Treatment effect of quota, ITT: accidents



anticipation

Treatment effect of quota, IV: effect of the quota - am

Panel A: all day

VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tip	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
Extra 100 USD	7.94***	-2.60**	14.21	-1.41	-0.15*	0.79	0.16	0.07
	(1.43)	(1.27)	(14.82)	(8.69)	(0.09)	(3.29)	(0.17)	(0.15)
Quota level	-0.06	0.07	0.40	-0.25	-0.00	0.58	0.03*	0.04**
	(0.17)	(0.15)	(1.78)	(1.05)	(0.01)	(0.39)	(0.02)	(0.02)
Observations	296	296	296	296	263	296	291	291
R-squared	0.43	0.24	0.51	0.21	0.50	0.43	0.40	0.17

Treatment effect of quota, IV: effect of the quota - morning

Panel B: am

VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tip	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
Extra 100 USD	7.94***	-1.30**	8.31	-0.80	-0.13	1.33	0.29*	0.10
	(1.43)	(0.61)	(5.89)	(2.91)	(0.10)	(1.64)	(0.17)	(0.11)
Quota level	-0.06	0.02	0.88	-0.31	-0.00	0.48**	0.07***	0.01
	(0.17)	(0.07)	(0.71)	(0.35)	(0.01)	(0.20)	(0.02)	(0.01)
Observations	296	296	296	296	240	296	290	291
R-squared	0.43	0.16	0.40	0.25	0.48	0.29	0.34	0.16

Treatment effect of quota, IV: effect of the quota - pm

Panel C: pm

VARIABLES	(1) Consumption Beers (USD)	(2) # Bribes harassment	(3) # Bribes toll fee	(4) # Bribes tip	(5) Effort Attendance	(6) Harassment # events	(7) Congestion dummy	(8) Accidents dummy
Extra 100 USD	7.94***	-1.30	5.90	-0.61	-0.17*	-0.54	0.01	-0.02
	(1.43)	(1.02)	(11.13)	(6.27)	(0.09)	(2.45)	(0.15)	(0.12)
Quota level	-0.06	0.05	-0.48	0.06	0.00	0.10	-0.02	0.03**
	(0.17)	(0.12)	(1.34)	(0.75)	(0.01)	(0.29)	(0.02)	(0.01)
Observations	296	296	296	296	263	296	291	291
R-squared	0.43	0.21	0.49	0.22	0.48	0.39	0.41	0.16

Conclusion

1. **Vertical organization of corruption**: Consistent with economic maximization
   - Hinges on drivers and agents limited liability
   - Mobile money?

2. **Impact of vertical organization of corruption**
   - Revenue from bribes finances public service by low level officers
   - Supervisor's corruption dampens effect of external interventions
   - Supervisor's corruption negative externality

Street-level police agents and commanders

- **Before 2014**

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
  - Agents paid protector to keep “productive” intersection

Street-level police agents and commanders

Interviews with police commander:

> *"The Colonel gave me a particular intersection, for which he asked me to pay his brother in law, who is a colonel, 550 USD per week, as this would guarantee me an easy life. The problem was that I was based on a sterile intersection: no cars were passing by! So I could no longer pay this amount, and I lost my position."*

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
  - Agents paid protector to keep “productive” intersection
- **2014 Reform**

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
  - Agents paid protector to keep “productive” intersection
- **2014 Reform**
  - Creation of Police of the Police to target harassment bribes

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
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- **2014 Reform**
  - Creation of Police of the Police to target harassment bribes
  - Number of police stations increased: 2 $\rightarrow$ 29

Street-level police agents at risk of arrest

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
  - Agents paid protector to keep “productive” intersection
- **2014 Reform**
  - Creation of Police of the Police: target harassment bribes
  - Number of police stations increased: 2 $\rightarrow$ 29
- **After 2014**

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
  - Agents paid protector to keep “productive” intersection
- **2014 Reform**
  - Creation of Police of the Police: target harassment bribes
  - Number of police stations increased: 2 $\rightarrow$ 29
- **After 2014**
  - $\rightarrow$ Development and entrenchment of the “quota system”

Street-level police agents and commanders

- **Before 2014**
  - 2 police stations in the city
  - Agents paid protector to keep “productive” intersection
- **2014 Reform**
  - Creation of Police of the Police: target harassment bribes
  - Number of police stations increased: 2 → 29
- **After 2014**
  - → Development and entrenchment of the “quota system”

◂ Quota system

Anticipation?

Commander supervisor:

> *“If they know there’s the next day intervention quota: they wouldn’t change their behavior that day! But he will not tracass more or less the day before. ‘’*

◂ ITT accidents