Pollution in Ugandan Cities: Do Managers Avoid it or Adapt in Place?

Vittorio Bassi
USC, CEPR, IGC

Matthew E. Kahn
USC, NBER

Nancy Lozano Gracia
World Bank

Tommaso Porzio
Columbia, CEPR, NBER

Jeanne Sorin
University of Chicago

NBER SI Urban - 30thJuly 2021

Managers in Developing Country Cities

- Increasingly polluted cities in developing countries
  - High pollution from rapid motorization: Uganda's pollution at Chinese cities' levels
- Potentially important negative health and productivity impacts of air pollution
- Small firms predominant
- **This paper**: How managers cope with pollution in LIC cities
  - Joint distribution of within-city pollution and economic activity
  - Managers may mediate exposure through **avoidance** or **adaptation**

Managers in Developing Country Cities

- Increasingly polluted cities in developing countries
  - High pollution from rapid motorization: Uganda's pollution at Chinese cities' levels
- Potentially important negative health and productivity impacts of air pollution
- Small firms predominant
- **This paper**: How managers cope with pollution in LIC cities
  - Joint distribution of within-city pollution and economic activity
  - Managers may mediate exposure through **avoidance** or **adaptation**

Overview

- **A simple model of a manager maximizing profits in a polluted city**
  - Clarify the avoidance and adaptation channels
  - Study the role of managerial ability
- **Novel granular data on urban Uganda:** pollution + firms + roads
- **Key findings**
  1. **Bundling**: road traffic bundles pollution and output market access
  2. **No systematic avoidance**: managers sort to more polluted areas to meet demand
  3. **Differential adaptation**: high ability managers better protect their workers
     - protective equipment (masks) ; organizational strategies (avoid peak commute hours)

Overview

- **A simple model of a manager maximizing profits in a polluted city**
  - Clarify the avoidance and adaptation channels
  - Study the role of managerial ability
- **Novel granular data on urban Uganda:** pollution + firms + roads
- **Key findings**
  1. **Bundling**: road traffic bundles pollution and output market access
  2. **No systematic avoidance**: managers sort to more polluted areas to meet demand
  3. **Differential adaptation**: high ability managers better protect their workers
     - protective equipment (masks) ; organizational strategies (avoid peak commute hours)

Overview

- **A simple model of a manager maximizing profits in a polluted city**
  - Clarify the avoidance and adaptation channels
  - Study the role of managerial ability
- **Novel granular data on urban Uganda:** pollution + firms + roads
- **Key findings**
  1. **Bundling**: road traffic bundles pollution and output market access
  2. **No systematic avoidance**: managers sort to more polluted areas to meet demand
  3. **Differential adaptation**: high ability managers better protect their workers
     - protective equipment (masks) ; organizational strategies (avoid peak commute hours)

We contribute to three literatures

1. Literature on management practices
   - Managerial quality [Bloom Van Reenen '07, '11, McKenzie Woodruff '17, Bruhn et al. '18]
   - Managerial quality in relation to pollution [Bloom et al. '10, Gosnell et al. '19, Adhvaryu et al. '21]
   - **Contribution:** study the role of small firms' management through avoidance and adaptation.
2. Literature on agglomeration
   - Agglomeration and environmental amenities [Duranton Puga '04, Combes Gobillon '15, Kahn Walsh '15]
   - Output market frictions in LICs [Anderson et al. '18, Jensen Miller '18, Startz' 18, Hjort et al. '20]
   - **Contribution**: document bundling of pollution and market access through road traffic.
3. Literature on wage and benefit inequality across firms
   - [Song et al. '19, Card et al. '13, Sorkin '18, Morchio Moser '20]
   - **Contribution**: establish that firm quality drives heterogeneity in workers' exposure to pollution.

Conceptual Framework

Conceptual Framework: Profit Optimization in a Polluted City

The manager's problem:

$$\max_{l,e} \underbrace{f(z)}_{\text{output}} - \underbrace{w}_{\text{wage}} - \underbrace{R_l}_{\text{rental cost of loc. l}} - \underbrace{\chi(p)}_{\text{direct cost of poll.}} - \underbrace{c(e, z_i)}_{\text{cost of poll. mitigat°}}$$

$$\begin{aligned} \text{s.t. } z &= g(z_l, z_i) && \text{(Firm Productivity)} \\ p &= p_l - e && \text{(Adaptation)} \\ w &\geq \Omega(p) && \text{(Compensating Differentials)} \end{aligned}$$

Exogenous: Manager's ability z_i, wage w and rental cost R_l

Choice variables:

- **location (avoidance)**: bundle of pollution p_l and access to demand z_l
- **adaptation**: equipment and organizational strategies e

Additional choice variable in the paper: worker type h

Data Needed to Test the Model

Testable predictions on the role of manager ability in pollution mitigation from the FOCs:

1. **Location choice $l \equiv z_l, p_l$ (avoidance)**

   ⇒Granular geo-coded pollution data, geo-coded firm location

2. **Investment choice e (adaptation)**

   ⇒Questions on e to managers and employees (protective equipment, flexible schedule)

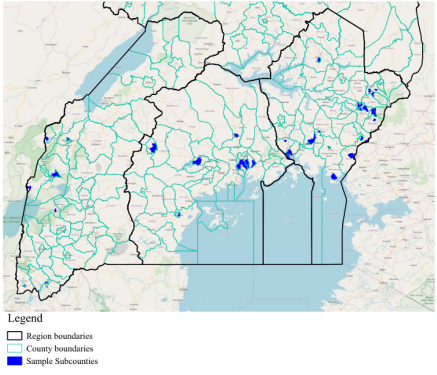
⇒ We show how 1 & 2 vary with managerial ability

⇒Standard index of managerial ability [Bloom Van Reenen '07, '11, McKenzie Woodruff '17]

Data Sources

Sampling

Figure: Sampled sub-counties



Average sampled subcounty area: 25km^2

Sampling

Figure: Sampled sub-counties

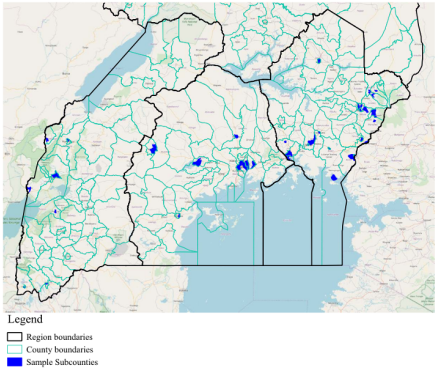
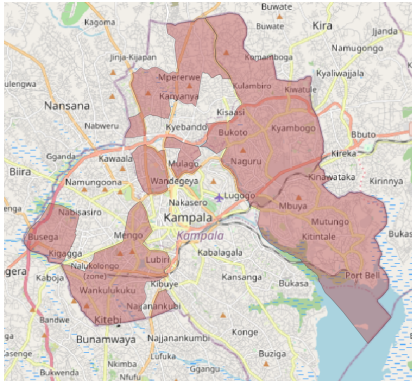


Figure: Sampled sub-counties in Kampala



Average sampled subcounty area: 25km^2

Pollution Data

- We collected **granular geo-referenced measurements of PM2.5**
  - in partnership with AirQo
  - 33 stationary monitors, 10 mobile monitors for 8 months ⇒ about 3.3 million observations

(a) Stationary Monitor

(b) Mobile Monitor

Firm and Road Data

- We ran a **representative survey of ∼1,000 firms in the same sub-counties**
  - Sectors: carpentry, metal fabrication, grain milling
  - Firms characteristics: small (4.8 employees), stable (10 years, 3.5 years employee tenure)
  - Managerial ability score [Bloom and Van Reenen '07, '11, McKenzie and Woodruff '17]

    Index Construction Index Distribution
  - Location and reasons for location choice
  - Pollution perception and mitigation

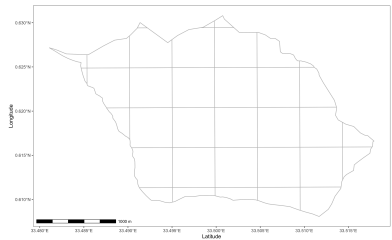
  Firms Characteristics
- 2017 network of Uganda's roads, organized by road-type (OSM)

  Roads

Data Creation

3 Steps of Data Creation

1. Creating Locations
   - Split sub-counties s into 500m x 500m grid cells j [Ahlfeldt et al. '15, Carozzi and Roth '20, Michaels et al. '17]



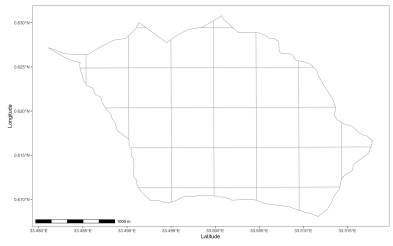
2. Isolating the Spatial Component of Pollution
   - Estimate day and hour FE using stationary monitors
   - Remove these FE from mobile measurements

Pollution Measure Construction

3. Aggregating data at the grid cell level: median road size, firm density, avg pollution

3 Steps of Data Creation

1. Creating Locations
   - Split sub-counties s into 500m x 500m grid cells j [Ahlfeldt et al. '15, Carozzi and Roth '20, Michaels et al. '17]



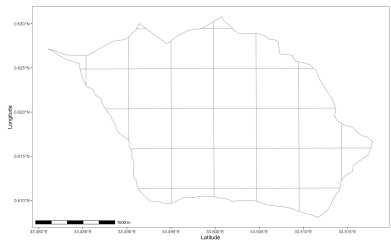
2. Isolating the Spatial Component of Pollution
   - Estimate day and hour FE using stationary monitors
   - Remove these FE from mobile measurements

Pollution Measure Construction

3. Aggregating data at the grid cell level: median road size, firm density, avg pollution

3 Steps of Data Creation

1. Creating Locations
   - Split sub-counties s into 500m x 500m grid cells j [Ahlfeldt et al. '15, Carozzi and Roth '20, Michaels et al. '17]



2. Isolating the Spatial Component of Pollution
   - Estimate day and hour FE using stationary monitors
   - Remove these FE from mobile measurements

Pollution Measure Construction

3. Aggregating data at the grid cell level: median road size, firm density, avg pollution

Empirical Strategy

Empirical Strategy: Bundling

1. Road size & Pollution

$$\text{Pollution}_{j,s,r} = \alpha_0 + \alpha_1 \text{Median Road}_j + \delta_s + \eta \log(dist_r) + \nu_{j,s,r}$$

2. Road size & Profitability

$$\text{Profitability}_{i,j,s,r} = \beta_0 + \beta_1 \text{Median Road}_j + \beta_2 \text{Manscore}_i + \lambda_l + \delta_s + \eta \log(dist_r) + \nu_{i,j,s,r}$$

δ_s: sub-county fixed effect ; λ_l: sector fixed effect ; $dist_r$: distance to the main city in the region

Identification assumptions

1. Pre-determined roads + firms not major polluters
2. Pre-determined roads + no sorting of more productive firms next to larger roads

Poll Cyclicality Additional Tests No Sorting Result

Empirical Strategy: Bundling

1. Road size & Pollution

$$\text{Pollution}_{j,s,r} = \alpha_0 + \alpha_1 \text{Median Road}_j + \delta_s + \eta \log(dist_r) + \nu_{j,s,r}$$

2. Road size & Profitability

$$\text{Profitability}_{i,j,s,r} = \beta_0 + \beta_1 \text{Median Road}_j + \beta_2 \text{Manscore}_i + \lambda_l + \delta_s + \eta \log(dist_r) + \nu_{i,j,s,r}$$

δ_s: sub-county fixed effect ; λ_l: sector fixed effect ; $dist_r$: distance to the main city in the region

Identification assumptions

1. Pre-determined roads + firms not major polluters

Poll Cyclicality Additional Tests

2. Pre-determined roads + no sorting of more productive firms next to larger roads

No Sorting Result

Empirical Strategy: Avoidance & Adaptation

1. Avoidance

$$\log(\text{Firm Density})_{j,s,r} = \alpha_0 + \alpha_1 \text{Median Road}_j + \delta_s + \eta \log(dist_r) + \nu_{j,s,r}$$

2. Adaptation

$$\text{Protection}_{i,j,s,r} = \beta_0 + \beta_1 \text{Median Road}_j + \beta_2 \text{Manscore}_i + \lambda_l + \delta_s + \eta \log(dist_r) + \nu_{i,j,s,r}$$

δ_s: sub-county fixed effect ; λ_l: sector fixed effect ; $dist_r$: distance to the main city in the region

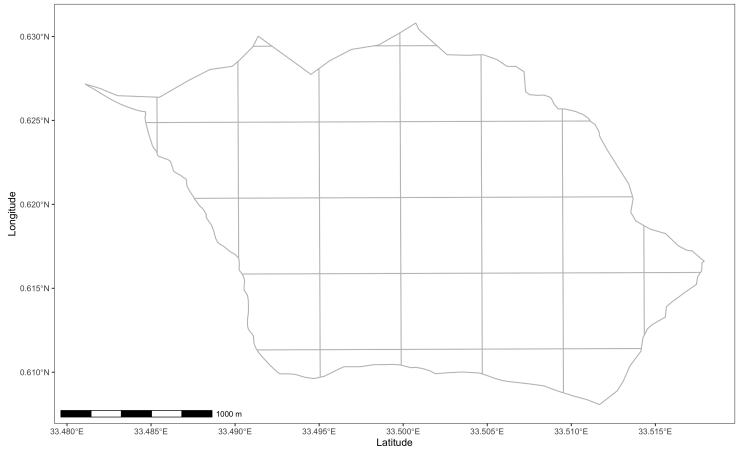
Identification assumptions

1. Pre-determined roads + firms not major polluters
2. Pre-determined roads + no sorting of more productive firms next to larger roads

Poll Cyclicality Additional Tests No Sorting Result

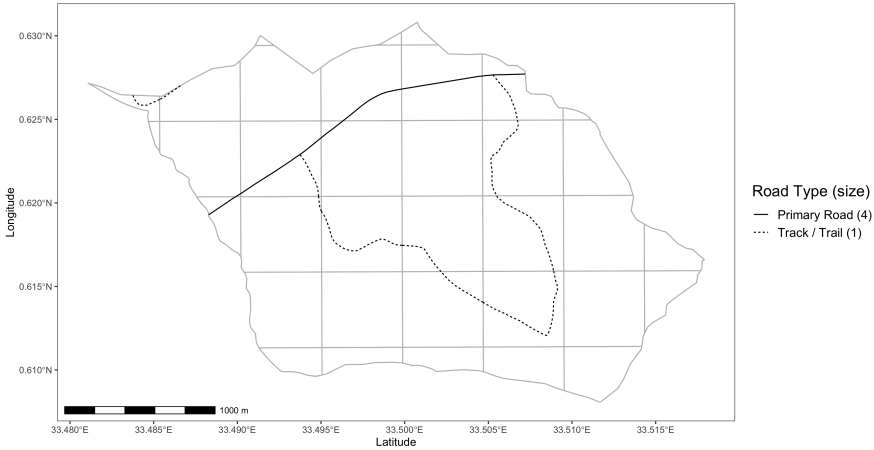
Results

Bundling (1): Larger Roads are More Polluted



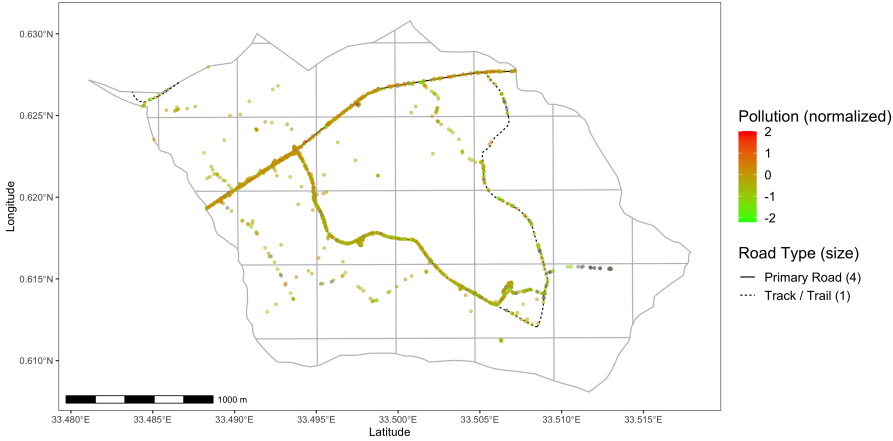
Cyclicality of Pollution Cyclicality of Pollution (alt) Regression Table

Bundling (1): Larger Roads are More Polluted



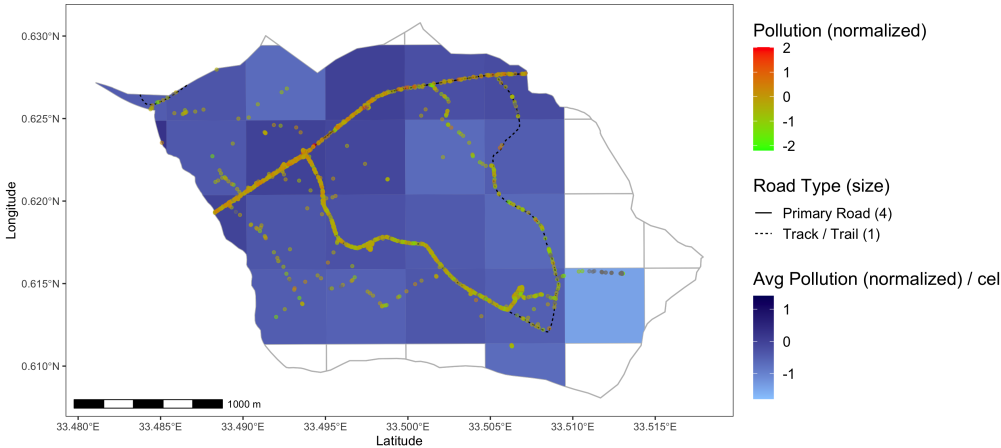
Cyclicality of Pollution | Cyclicality of Pollution (alt) | Regression Table

Bundling (1): Larger Roads are More Polluted



Cyclicality of Pollution Cyclicality of Pollution (alt) Regression Table

Bundling (1): Larger Roads are More Polluted



Cyclicality of Pollution | Cyclicality of Pollution (alt) | Regression Table

Bundling (2): Road Traffic Bundles Market Access and Pollution

	(1) log(Profit/Worker)	(2) log(Rev/Worker)	(3) log(Salary)	(4) log(Rent)
Med. Road Size/Cell	0.0815**	0.0672**	0.0260*	0.106***
	(0.0327)	(0.0317)	(0.0152)	(0.0287)
Man. Score	0.132***	0.191***	0.0844***	0.0745**
	(0.0278)	(0.0276)	(0.0191)	(0.0296)
log(Size Premises)				0.0499**
				(0.0212)
N	967	977	2272	654
R2	0.483	0.418	0.392	0.475
Sector and Sub-county FE	Yes	Yes	Yes	Yes
Level of Observation	Firm	Firm	Employee	Firm
SE clustering	Grid Cell	Grid Cell	Grid Cell	Grid Cell
Employee Controls			Yes	

No Sorting on Manscore

- Road traffic provides access to customers: walk-in customers prevalent, limited marketing

Access to Demand

Bundling (2): Road Traffic Bundles Market Access and Pollution

	(1) log(Profit/Worker)	(2) log(Rev/Worker)	(3) log(Salary)	(4) log(Rent)
Med. Road Size/Cell	0.0815**	0.0672**	0.0260*	0.106***
	(0.0327)	(0.0317)	(0.0152)	(0.0287)
Man. Score	0.132***	0.191***	0.0844***	0.0745**
	(0.0278)	(0.0276)	(0.0191)	(0.0296)
log(Size Premises)				0.0499**
				(0.0212)
N	967	977	2272	654
R2	0.483	0.418	0.392	0.475
Sector and Sub-county FE	Yes	Yes	Yes	Yes
Level of Observation	Firm	Firm	Employee	Firm
SE clustering	Grid Cell	Grid Cell	Grid Cell	Grid Cell
Employee Controls			Yes	

No Sorting on Manscore

- Road traffic provides access to customers: walk-in customers prevalent, limited marketing

Access to Demand

No Avoidance: Firms Cluster in Busy and Polluted Locations

	(1) log(Firm Density)	(2) log(Firm Density)
Median Road Size	0.121***	
	(0.0451)	
Avg log(Pollution) Residual/cell		0.243*
		(0.136)
Avg Man. Score/cell	0.0137	0.0111
	(0.0659)	(0.0676)
N	420	420
R2	.4877	.4825
Fixed Effects	Subcounty	Subcounty
Level of Observation	Grid Cell	Grid Cell
SE clustering	SHAC	SHAC

Full Table

- Access to customers is the main reason for location choice (by far). Location Choice
- High-quality managers do not avoid polluted areas ⇒ No differential avoidance.

No Avoidance: Firms Cluster in Busy and Polluted Locations

	(1) log(Firm Density)	(2) log(Firm Density)
Median Road Size	0.121***	
	(0.0451)	
Avg log(Pollution) Residual/cell		0.243*
		(0.136)
Avg Man. Score/cell	0.0137	0.0111
	(0.0659)	(0.0676)
N	420	420
R2	.4877	.4825
Fixed Effects	Subcounty	Subcounty
Level of Observation	Grid Cell	Grid Cell
SE clustering	SHAC	SHAC

Full Table

- Access to customers is the main reason for location choice (by far). Location Choice
- High-quality managers do not avoid polluted areas ⇒ No differential avoidance.

No Avoidance: Firms Cluster in Busy and Polluted Locations

	(1) log(Firm Density)	(2) log(Firm Density)
Median Road Size	0.121***	
	(0.0451)	
Avg log(Pollution) Residual/cell		0.243*
		(0.136)
Avg Man. Score/cell	0.0137	0.0111
	(0.0659)	(0.0676)
N	420	420
R2	.4877	.4825
Fixed Effects	Subcounty	Subcounty
Level of Observation	Grid Cell	Grid Cell
SE clustering	SHAC	SHAC

Full Table

- Access to customers is the main reason for location choice (by far). Location Choice
- High-quality managers do not avoid polluted areas ⇒ No differential avoidance.

Adaptation: Higher Ability Managers Better Adapt to Pollution

	(1) Poll Equipment	(2) Flex Commute	(3) Own Protect	(4) Concerned Poll Health	(5) Ideal Job Low Poll
Median Road Size/cell	0.00207	0.0139	0.0133	-0.00569	0.0281**
	(0.00603)	(0.0134)	(0.0145)	(0.0368)	(0.0127)
Man. Score	0.0194***	0.0499***	0.0450**	0.211***	0.0603***
	(0.00687)	(0.0142)	(0.0184)	(0.0462)	(0.0146)
N	1000	2002	2045	2044	2045
R2	0.105	0.194	0.210	0.204	0.161
Subcounty & Sector FE	Yes	Yes	Yes	Yes	Yes
Level of Observation	Firm	Employee	Employee	Employee	Employee
SE clustering	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell
Employee Controls		Yes	Yes	Yes	Yes
Mean(dependent var)	.047	.132	.523	3.735	.298
Answer scale	Dummy	Dummy	Dummy	0-5	Dummy

1. Managers: high-quality managers better protect their workers from pollution.
2. Workers: workers employed by better managers take more protective measures and are more aware

Limited Sorting by Worker Type

Adaptation: Higher Ability Managers Better Adapt to Pollution

	(1) Poll Equipment	(2) Flex Commute	(3) Own Protect	(4) Concerned Poll Health	(5) Ideal Job Low Poll
Median Road Size/cell	0.00207	0.0139	0.0133	-0.00569	0.0281**
	(0.00603)	(0.0134)	(0.0145)	(0.0368)	(0.0127)
Man. Score	0.0194***	0.0499***	0.0450**	0.211***	0.0603***
	(0.00687)	(0.0142)	(0.0184)	(0.0462)	(0.0146)
N	1000	2002	2045	2044	2045
R2	0.105	0.194	0.210	0.204	0.161
Subcounty & Sector FE	Yes	Yes	Yes	Yes	Yes
Level of Observation	Firm	Employee	Employee	Employee	Employee
SE clustering	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell
Employee Controls		Yes	Yes	Yes	Yes
Mean(dependent var)	.047	.132	.523	3.735	.298
Answer scale	Dummy	Dummy	Dummy	0-5	Dummy

1. Managers: high-quality managers better protect their workers from pollution.
2. Workers: workers employed by better managers take more protective measures and are more aware

Limited Sorting by Worker Type

Conclusion

- **Focus**: how within city manager choices affect workers' exposure to pollution
  - High pollution: Uganda's avg PM2.5 concentration: 50μg/m^3
  - Local heterogeneity: Kampala avg. employee's 75μg/m^3 vs 10thpercentile city 26μg/m^3
- **Results:**
  1. Bundling
  2. No avoidance
  3. Differential adaptation by managerial ability
- **Implications**
  - Welfare inequalities of (increasing) pollution exposure in LICs
  - Policy interventions for unbundling: i) separation of production and retail; ii) industrial parks
  - Value of training: adaptation in place ; perceived pollution [McKenzie and Woodruff '14]

Thanks!

Appendix - Our Data: Firm Characteristics

	All Sectors
Number of firms	1027
Carpentry (%)	49.3
Metal fabrication (%)	37
Grain milling (%)	13.7
Panel A: Firm characteristics	
Number of employees	4.9
Monthly revenues (USD)	1481
Monthly profits (USD)	243.6
Firm age (years)	10.1
Panel B: Owner characteristics	
Owner is male (%)	96.1
Owner age (years)	40.3
Owner years of education	10
Owner hours usually worked per day for the firm	9.2
Panel C: Employee characteristics	
Employee is male (%)	98
Employee age (years)	28.5
Employee years of education	9.3
Employee tenure (years)	3.5
Employee hours usually worked per day for the firm	9.9
Employee monthly wage (USD)	71

Main

Appendix - Our Data: Managerial Ability Index Construction

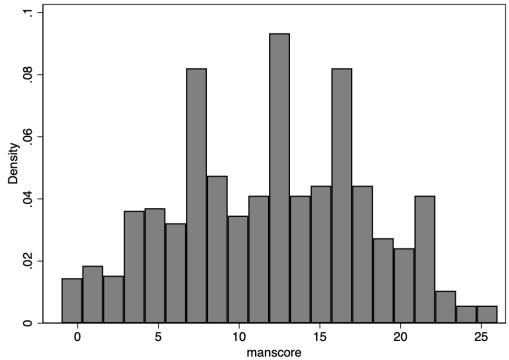
Standardized composite index of managerial ability of
[McKenzie and Woodruff '17, de Mer et al. '19]

- Marketing score
  - e.g. the owner/manager is aware of competitors products and prices; spends on marketing; assesses demand by talking to customers
- Stock score
  - e.g. the firm doesn't run out of goods, inputs or materials ; characteristics of suppliers
- Recording score
  - e.g. accounting
- Financial score
  - e.g. the owner/manager reviews the firm's financial performance
- Forecasting score
  - e.g. the firm has a sales target, a budget, an annual balance sheet

Main

Appendix - Our Data: Managerial Ability Index Distribution

Figure: Managerial Ability Index Distribution



Main

Appendix - Our Data: Roads

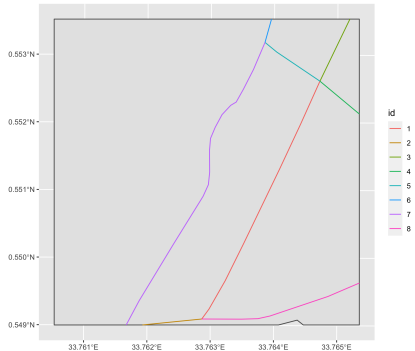


Figure: Illustration of Road Definition - One Grid Cell

Main

Appendix - Data Construction: Pollution Measure

- Predicting hourly and daily variation using stationary monitors

$$\ln PM2.5_{k,h,d} = a + b \times hour_h + c \times date_d + \epsilon_{k,h,d}$$

- Recovering spatial variation from mobile monitors

$$\hat{\epsilon}_{k,h,d} = \ln PM2.5_{m,h,d} - (\hat{a} + \hat{b} \times hour_h + \hat{c} \times date_d)$$

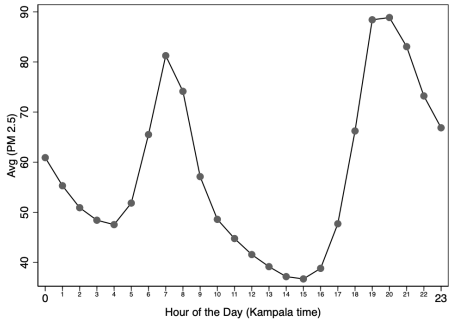
Main

Appendix - Bundling: Larger Roads are More Polluted

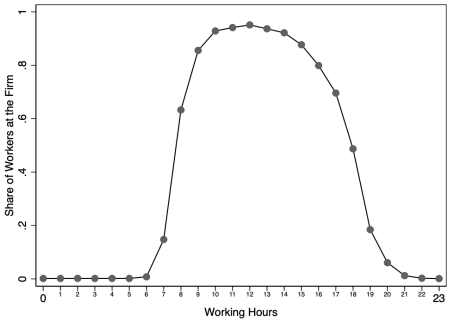
	(1)	(2)	(3)	(4)
	Avg log(Pollution) Resid.	Avg log(Pollution) Resid.	log(Pollution) Resid.	log(Pollution) Resid.
Median Road Size	0.0774***	0.0708***		
	(0.0118)	(0.0161)		
Closest Road Size			0.0988***	0.0597*
			(0.0156)	(0.0334)
N	972	972	52965	52965
R2	.3516	.1636	.1591	.0334
Fixed Effects	Subcounty		Subcounty	
Level of Observation	Grid Cell	Grid Cell	Poll. measure	Poll. measure
SE clustering	SHAC	SHAC	Grid Cell	Grid Cell

Main

Appendix - Bundling: Pollution Originates From Road Traffic



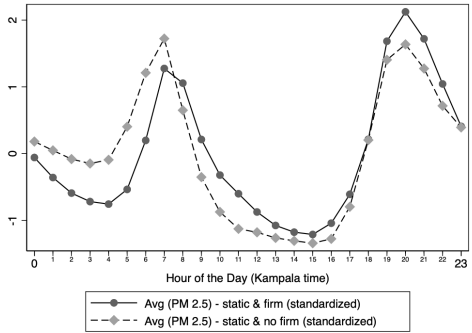
(a) Cyclicality of Pollution Levels Throughout the Day



(b) Times of the Day When Production Takes Place

Appendix - Bundling: Pollution Originates From Road Traffic

Figure: Cyclicality of Pollution Does Not Depend on Firm Density



Appendix - Bundling: No Sorting on Manscore

	(1) log(Rev/Worker)	(2) log(Rev)	(3) log(Profit/Worker)	(4) log(Profit)	(5) log(Salary)	(6) log(Salary)	(7) log(Rent)	(8) Man. Score
Med. Road Size/Cell	0.0672**	0.136***	0.0815**	0.148***	0.0308*	0.0260*	0.106***	0.0542
	(0.0317)	(0.0316)	(0.0327)	(0.0325)	(0.0158)	(0.0152)	(0.0287)	(0.0375)
Man. Score	0.191***	0.292***	0.132***	0.237***	0.0881***	0.0844***	0.0745**	
	(0.0276)	(0.0296)	(0.0278)	(0.0310)	(0.0191)	(0.0191)	(0.0296)	
log(Size Premises)							0.0499**	
							(0.0212)	
N	977	976	967	967	2272	2272	654	950
R2	0.418	0.450	0.483	0.537	0.316	0.392	0.475	0.187
Sector FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Sub-county FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Level of Observation	Firm	Firm	Firm	Firm	Employee	Employee	Firm	Firm
SE clustering	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell
Employee Controls					No	Yes		

Empirical Strategy Results

Appendix - Avoidance: Firms Struggle to Access Demand

Figure: Lack of Demand is the Main Reported Constraint to Firm Growth

	Share (%)
Panel A: Access to demand and customers	
(a) Marketing strategies	
Owner spends money on marketing	6.6
Owner talks directly to customers	59.6
Owner does nothing	21.5
(b) Sales characteristics	
Orders by phone	17.2
Orders from walk-in consumers	79.5
Sales to final customers	92.8
Shipping to final customers	16
Panel B: Reasons for location choice	
Closeness to customers / market	52.5
Affordable rent / land price	40
Closeness to a good transportation network	32.4
Low exposure to air pollution	9.6
Low exposure to water pollution	2.2
Low exposure to solid waste pollution	1.5
Panel C: Production location	
Firm produces only outside	39.7
Firm produces mostly outside	24.4
Firm produces sometimes outside	20.1
Firm produces only inside	15.7

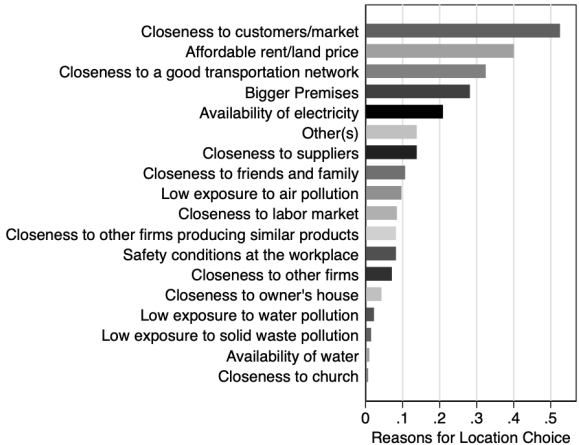
Main

Appendix - No Avoidance

	(1) Any Firm	(2) Any Firm	(3) log(Firm Density)	(4) log(Firm Density)	(5) log(Firm Density)	(6) log(Firm Density)	(7) log(Firm Density)
Median Road Size	0.0391**		0.131***		0.121***		
	(0.0170)		(0.0449)		(0.0451)		
Avg log(Pollution) Residual		0.202***		0.269*		0.243*	
		(0.0536)		(0.143)		(0.136)	
Avg Man. Score					0.0137	0.0111	
					(0.0659)	(0.0676)	
log(Pollution) Residual							0.164***
							(0.0454)
N	972	972	420	420	420	420	57569
R2	.2981	.3048	.4422	.4365	.4877	.4825	.4683
Fixed Effects	Subcounty	Subcounty	Subcounty	Subcounty	Subcounty	Subcounty	Subcounty
Level of Observation	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Grid Cell	Poll. Measure
SE clustering	SHAC	SHAC	SHAC	SHAC	SHAC	SHAC	Grid Cell

Main

Appendix - No avoidance: Location Choice



Main

Appendix - Adaptation: Limited Role of Worker Sorting

	(1) Poll Awareness At The Firm	(2) Poll Awareness At Home	(3) Age Employee	(4) Years Schooling Employee	(5) Managers Careful	(6) Managers Careful
Mean Road Size/Cell	0.0460	0.00526	0.167	-0.114	0.0126	0.0138
	(0.0326)	(0.0114)	(0.206)	(0.0820)	(0.0121)	(0.0119)
Man. Score	0.273***	0.0113	0.127	0.209***	0.0514***	0.0599***
	(0.0330)	(0.0156)	(0.229)	(0.0791)	(0.0155)	(0.0153)
Log Salary	0.0644	-0.0204			0.0462**	0.0484***
	(0.0401)	(0.0206)			(0.0183)	(0.0183)
Poll Awareness At The Firm					0.0309**	
					(0.0126)	
Poll Awareness At Home						0.0161
						(0.0326)
N	2045	2045	2615	2633	1959	1959
R2	0.182	0.123	0.165	0.151	0.153	0.149
Subcounty & Sectors FE	Yes	Yes	Yes	Yes	Yes	Yes
Employee Controls	Yes	Yes	No	No	Yes	Yes
Mean(dependent var)	0	.175	27.59	9.13	.21	.21
Answer scale					Dummy	Dummy

Main