

The Impact of Industrial Parks on Local Labour Markets: Evidence from Ethiopia

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Outline

- Motivation & Contribution
- Related research
- Background: Ethiopia's IP program
- Data
 - Mapping Ethiopian IPs using satellite imagery
 - Combining IP exposure and outcome data from the National Labour Force Survey (NLFS)
- Empirical strategy & Results
- Conclusion

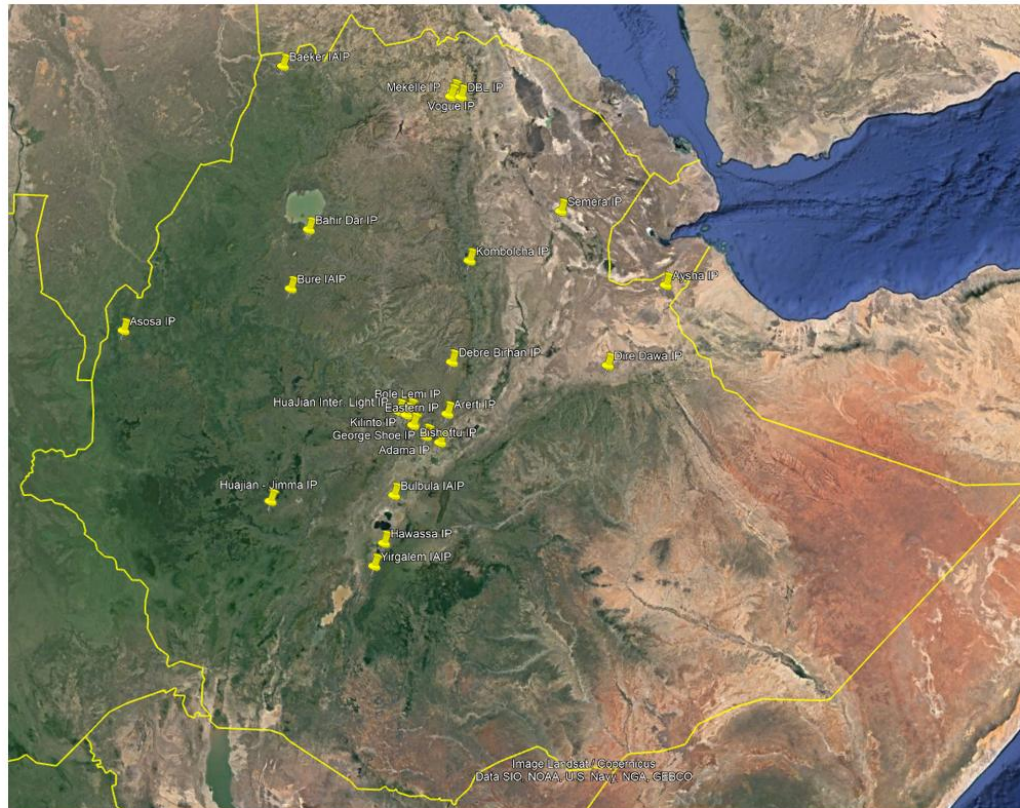
- Industrialization and structural transformation at the core of Ethiopia's growth and development agenda
- Industrial parks (IPs) are the cornerstone to achieve these objectives
 - A total of 26 IPs have been established or are planned, with an increasing pace since 2013
- IPs have attracted massive FDI inflows, especially in textiles and apparel (T&A) manufacturing
- Working conditions in IPs have been thoroughly examined ([Blattman and Dercon, 2018](#); [Chu and Fafchamps, 2022](#); [Oya and Schaefer, 2021](#)), but labour market effects beyond factory work have not

Our Contribution

1. First study to examine the case of Ethiopia, one of the fastest globalizing African economies
2. Individual-level labour market analyses (LFS): (i) Structural change, (ii) employment quality, (iii) heterogeneities
3. Application of novel continuous measure of actual IP activity/exposure based on historical Google Earth satellite imagery

1. Labour market impact of IPs (SEZs) in developing countries, especially Asia
 - Decline in agricultural employment locations close to IPs documented for Cambodia ([Brussevich, 2023](#)), China ([Zhao and Qu, 2023](#)), India ([Gallé et al., 2024](#); [Hyun and Ravi, 2018](#)), and Vietnam ([Tafese et al., 2025](#))
 - Shifts into manufacturing documented for India and Vietnam and into services for India and Cambodia
2. The economic impact of investment and trade liberalization in Ethiopia
 - Positive employment spillovers in local manufacturing firms from greenfield FDI ([Abebe et al., 2022](#)), but contraction in competing local firms in the same sector ([Crescenzi and Limodio, 2021](#))
 - Shifts in employment from agriculture mainly to services in districts more exposed to trade liberalization in late 1990s and early 2000s ([Giovannetti et al., 2022](#)); only minor shifts to manufacturing
3. Working conditions of factory work in Ethiopia
 - High turnover and industrial conflict between (foreign) employers and workers in IPs ([Oya and Schaefer, 2021](#); [Chu and Fafchamps, 2022](#))
 - Experimental evidence of short-term adverse effects of industrial work on health outcomes ([Blattman & Dercon 2018](#); [Abebe 2020](#)), although no significant effects in long-term ([Blattman et al., 2022](#), [Abebe 2024](#))
 - Generally, no better pay in industrial jobs in IPs than control group ([Blattman & Dercon, 2018](#) and [Chu and Fafchamps, 2022](#), [Abebe, 2024](#))

Background: Rapid Rise of IPs in the 2010s...

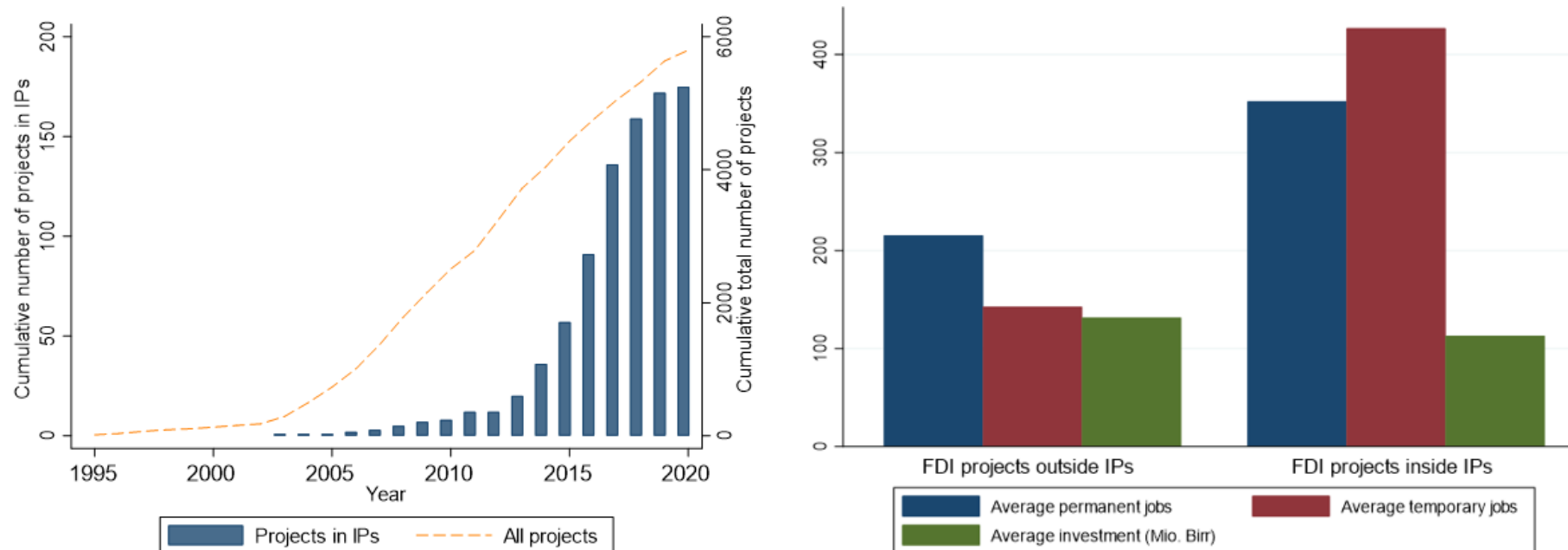


Industrial park name	Region	Year of opening	Ownership
Adama IP	Oromiya	2018	Public
Arerti IP	Amhara	2019	Private
Asosa IP	Benishangul-Gumuz	To be opened	Public
Aysha IP	Somali	To be opened	Public
Baeker IAIP	Tigray	To be opened	Public
Bahir Dar IP	Amhara	2020	Public
Bishoftu IP	Oromiya	To be opened	Public
Bole Lemi 1,2 IP	Addis Ababa	2014	Public
BulBula IAIP	Oromiya	2021	Public
Bure IAIP	Amhara	2021	Public
DBL IP	Tigray	2021	Private
Debre Birhan IP	Amhara	2019	Public
Dire Dawa IP	Dire Dawa	2018	Public
Eastern Industry Zone	Oromiya	2007	Private
George Shoe/Modjo IP	Oromiya	2017	Private
Hawassa IP	SNNP	2016	Public
HuaJian Light Industrial City	Addis Ababa	2018	Private
Ethio ICT Park	Addis Ababa	2019	Public
Jimma IP	Oromiya	2019	Public
Kilinto IP	Addis Ababa	2019	Public
Kombolcha IP	Amhara	2017	Public
Mekelle IP	Tigray	2017	Public
Semera IP	Afar	To be opened	Public
Vogue IP	Tigray	2018	Private
Woda IP	Addis Ababa	To be opened	Private
Yirgalem IAIP	SNNP	2021	Public

Source: The geographical map of Ethiopia is from Google Earth Pro (left). The list of IPs and their key characteristics is compiled from various public sources (right).

- 26 IPs (19 public and 7 private) established or planned since 2007, one in each region but concentrated around Addis
- Centrally coordinated IP program, provision of fiscal and non-fiscal incentives

...and of job-intensive FDI projects in IPs



Source: Author's own compilation, based on project-level foreign investment data from the EIC.

Notes: Both operational and (pre-) implementation projects are included. The left panel includes all foreign investment projects. The right panel includes only projects from period 2013-19 for which project-level data on investment and job creation are available.

- Increase in the number of licensed foreign investment projects in IPs from 8 in 2010 to 178 in 2021 (left)
- IP projects create significantly more jobs (right) – both permanent (354 vs. 216) and temporary (427 vs. 143)

- **IP exposure** constructed from historic satellite imagery ([Tafese et al. 2025](#))
 - Google Earth imagery available since mid/late-2000s, so covers expansion of all IPs
 - Geolocate IPs and trace their expansion using historic imagery
 - Key assumption: we can proxy (changes in) IP activity by built-up IP area ([Bilicka and Seidel, 2022](#)) → in fact, very high correlation of 0.93 between IP built-up area and greenfield FDI investment within IPs
- **Outcomes** from the nationally representative Ethiopian LFS from the Ethiopian Statistical Service
 - Three NLFS waves from 2005, 2013, and 2021
 - Detailed information on the type and quality of employment (last 7 days), including work status (wage, own-account, unpaid family work); employer org. (household business, private enterprise, public sector); sector (4-digit ISIC codes); earnings for the subset of wage workers
 - Geolocation of individuals at fourth administrative ward level (kebeles=villages/towns): 385,330 individuals from 1,913 wards

Eastern Industry Zone



12/2009



10/2013



10/2021

Hawassa Industrial Park



12/2014



01/2016



10/2021

Source: Google Earth Pro.

Notes: The figure shows the expansion of the Eastern Industry Zone and Hawassa Industrial Park over time via satellite imagery.

Expansion of IPs Built-up Area

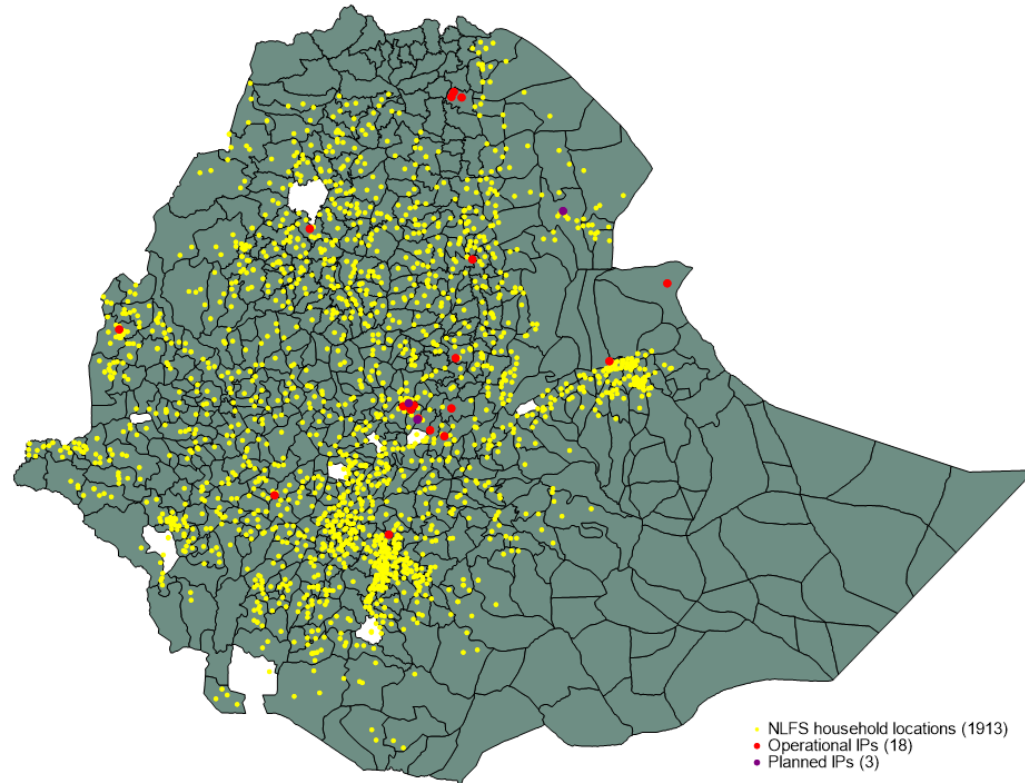
Industrial park name	Built-up area			Rank in 2021
	2005	2013	2021	
Adama IP	0	0	94	3
Arerti IP	0	0	13	13
Asosa IP	0	0	0.2	18
Aysha IP	0	0	0.5	17
Bahir Dar IP	0	0	13	12
Bishoftu IP	0	0	0	19
Bole Lemi IP	0	4	61	5
DBL IP	0	0	7	16
Debre Birhan IP	0	0	19	9
Dire Dawa IP	0	0	69	4
Eastern Industry Zone	0	45	263	1
George Shoe/Modjo IP	0	0	31	8
Hawassa IP	0	0	113	2
HuaJian Light Industrial City	0	0	14	11
Jimma IP	0	0	9	15
Kilinto IP	0	0	17	10
Kombolcha IP	0	0	58	6
Mekelle IP	0	0	34	7
Semera IP	0	0	0	19
Vogue IP	0	0	12	14
Woda IP	0	0	0	19

Source: Author's own compilation based on satellite imagery from Google Earth Pro.

Notes: Total built-up area is measured in hectares and includes all physical structures such as factories and sheds that fall within the boundaries of an IP.

- No IPs in 2005, first two – EIZ and Bole Lemi IP – (partially) established by 2013
- Remaining operational IPs all established between 2013 and 2021
- Average IP size (built-up area) in 2021 is 32 ha, with significant variation across IPs
- Total built-up area of all IPs grew from 0 ha in 2005 to 4000 ha in 2021

Location of NLFS households and IPs in Ethiopia



Note: Author's own compilation based on (i) district-level administrative boundaries from the Africa GeoPortal platform, (ii) the geo-coordinates of NLFS households at the ward-level from three waves of the NLFS, and (iii) the geo-coordinates of IPs from Google Earth Pro.

Pre-Treatment Location Characteristics

	0-10km	10-20km	20-30km	>30km	N
Geography and demographics					
Share of individuals in sample	0,21	0,15	0,09	0,70	254558
Share of individuals in urban ward	0,97	0,38	0,56	0,39	254558
Mean age	28,6	25,4	25,9	25,4	254558
Literacy share	0,84	0,52	0,57	0,49	254518
Employment shares					
<i>Type of work</i>					
Wage work	0,61	0,16	0,24	0,13	151761
Own-account work	0,30	0,41	0,37	0,39	151761
Unpaid family work	0,06	0,41	0,38	0,47	151761
<i>Employer organization</i>					
Household business	0,44	0,84	0,78	0,87	151761
Private enterprise	0,29	0,07	0,10	0,04	151761
Public sector	0,22	0,06	0,09	0,07	151761
<i>Sector</i>					
Agriculture	0,07	0,59	0,49	0,64	151784
Manufacturing	0,16	0,06	0,07	0,06	151784
Services	0,67	0,30	0,40	0,28	151784
Construction	0,10	0,05	0,05	0,03	151784

Source: Author's own compilation based on the 2005 and 2013 NLFS waves.
 Notes: The distance between IPs and individuals is calculated based on the geo-coordinates of IPs and individuals' home wards.

- Multiple household locations within most districts, especially around IPs (Tigray and Somali region excluded from NLFS)

- Locations closer to IPs (i) are more densely populated, urban, older and more educated, and (ii) have more wage work in private enterprises and manufacturing

TWFE specification:

$$y_{iwdt} = \beta_0 + \sum_{b=1}^3 \beta_b IP_exposure_{wt[b_w=b]} + \beta_4 IX_{iwdt} + \beta_5 IY_{wd} + \gamma_t + \gamma_d + \gamma_{dt} + \varepsilon_{idt}$$

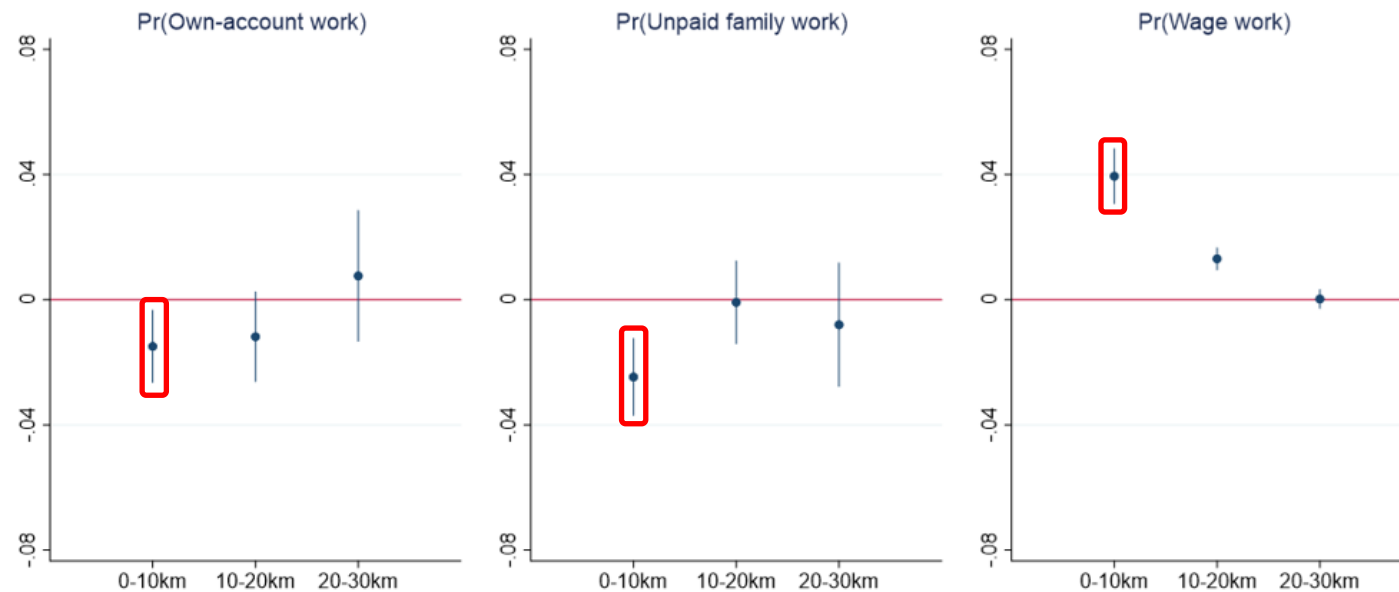
- $\sum_{b=1}^3 IP_exposure_{wt[b_w=b]}$: IP exposure within 0-10km, 10-20km, and 20-30km bins
- Main outcomes: Type and sector of employment, wages
- Controls: Individual-year and ward-year controls, year, district, and district-year fixed effects

Identification and robustness:

- Placebo regressions: interactions terms between year dummies and eventual IP exposure [Results](#)
- Alternative outcomes, treatment, and samples [Results](#)
- Migration [Results](#)

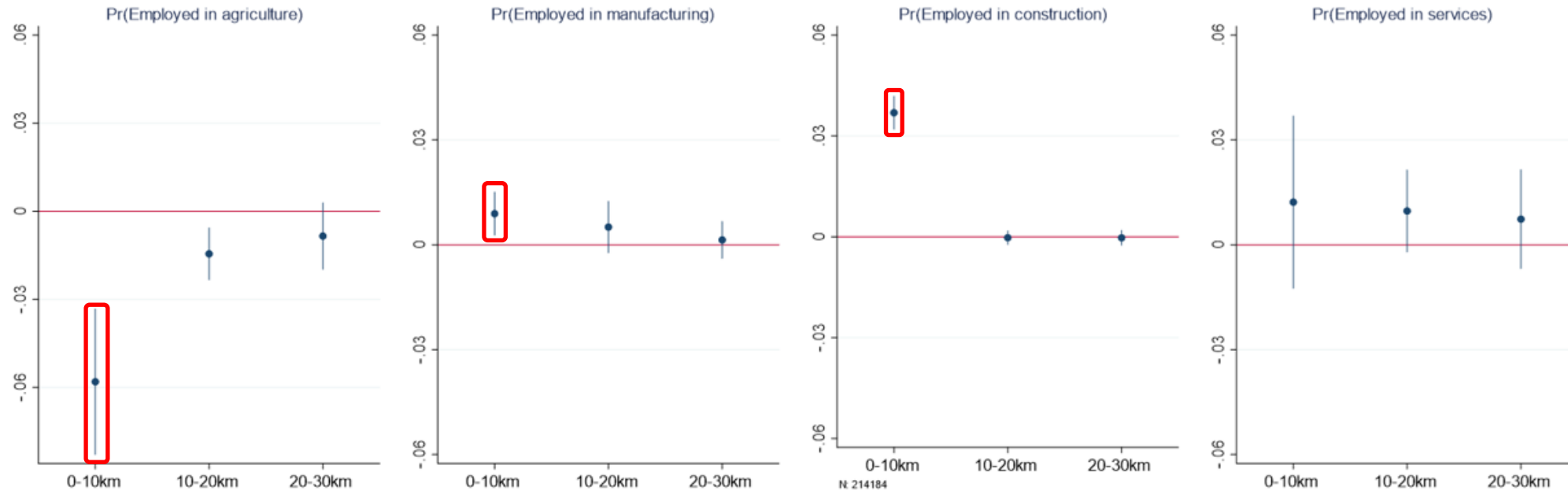
Result I: Shifts from own-account and family work to wage work

Coeff. interpret.: Percentage point change associated with a 10 hectare increase in built-up IP area



- 1.5 p.p. (or 5%) and 2.5 p.p. (or 42%) decrease in own-account and unpaid family work within 10km of IPs
- 3.9 p.p. (or 6%) increase in wage work within 10km of IPs

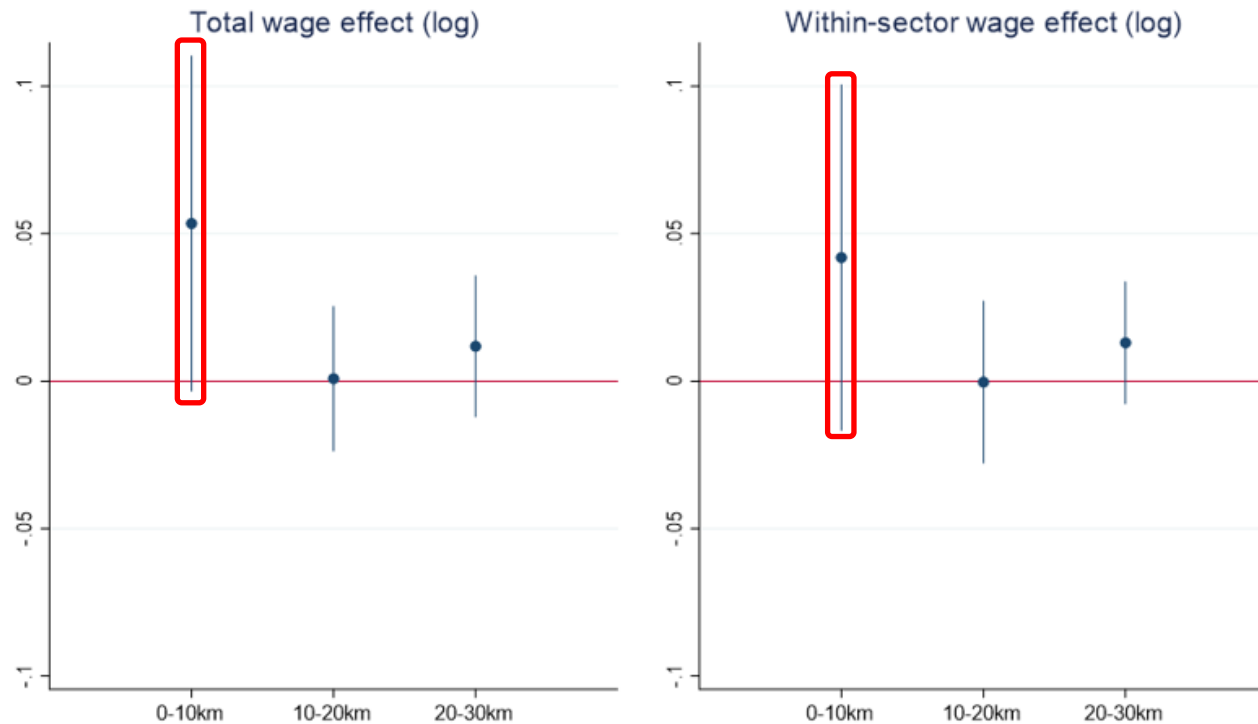
Result II: Shift from agriculture to construction (partially manuf.)



- Large 5.8 p.p. (or 85%) decrease in agriculture within 10km of IPs
- Moderate 0.9 p.p. (or 6%) increase in manufacturing (mainly textiles) and large 3.7 p.p. (or 32%) increase in construction within 10km of IPs

Result III: Weak evidence of wage growth

Coeff. interpret.: Percent change associated with a 10 hectare increase in built-up IP area

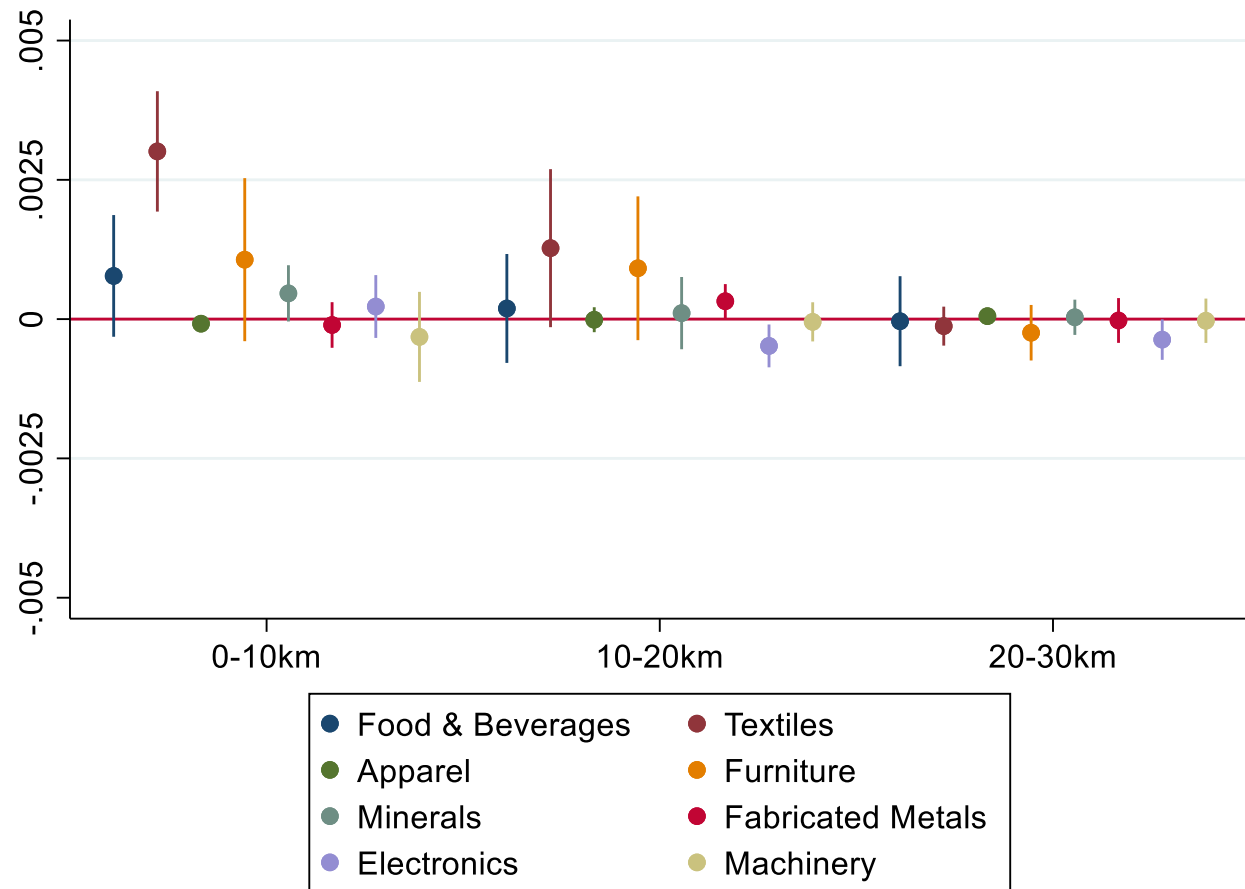


- Recall: earnings data only available for the subset of wage workers, but not for the self-employed
- 5.3 p.p. increase in wages within 10km of IPs, statistically significant only at the 10 per cent level (left)
- Adding 4-digit sector fixed effects reduces coefficient, making wage growth insignificant
- Taken together, only weak evidence of overall wage growth around expanding IPs

- Ethiopia has accelerated its integration into the global economy over the last decade – primarily through export-oriented IPs
- First causal evidence on local labour market impacts of Ethiopia’s IP strategy
- IPs reshape employment, but manufacturing (and wage) effects remain modest (insignificant), consistent with prior evidence on trade liberalisation ([Giovannetti et al., 2022](#))
- Large shifts from agriculture into construction, raising new research questions on household-level impacts
 - Next step: incorporate five waves of Ethiopian Socioeconomic Survey (2011–2022) to examine impact on household (business) income and access to public goods (e.g. roads, electricity)
- Too early for a definitive verdict on Ethiopia’s IP programme, but achieving deeper and more widespread benefits from GVC integration will likely require diversification beyond T&A into other manufacturing subsectors

Thank you very much for
your attention!

Effect on manufacturing driven by textiles



	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Pr(Employed)	Pr(Own-account work)	Pr(Unpaid family work)	Pr(Wage work)	Pr(Employed in agriculture)	Pr(Employed in manufacturing)	Pr(Employed in construction)	Pr(Employed in services)	Pr(Log wage)
IP exposure 0-10km X year2005	0.010* (0.006)	0.002 (0.006)	-0.000 (0.006)	-0.001 (0.003)	-0.000 (0.009)	0.007*** (0.003)	-0.001 (0.003)	-0.006 (0.008)	-0.199*** (0.059)
IP exposure 10-20km X year2005	0.025*** (0.007)	-0.006 (0.006)	0.008 (0.006)	-0.002 (0.004)	0.008 (0.008)	0.005** (0.002)	0.002 (0.003)	-0.015* (0.008)	-0.111* (0.058)
IP exposure 20-30km X year2005	-0.001 (0.005)	-0.003 (0.004)	0.004 (0.006)	-0.002 (0.002)	-0.002 (0.005)	0.002** (0.001)	-0.002 (0.002)	0.002 (0.003)	-0.091 (0.071)
IP exposure 0-10km X year2013	0.005 (0.011)	-0.004 (0.009)	0.006 (0.007)	-0.000 (0.006)	0.012 (0.013)	0.006 (0.005)	0.001 (0.004)	-0.019 (0.013)	-0.067 (0.064)
IP exposure 10-20km X year2013	0.026*** (0.007)	0.003 (0.007)	0.000 (0.007)	-0.004 (0.005)	-0.007 (0.008)	0.005* (0.003)	0.003 (0.004)	-0.002 (0.010)	-0.015 (0.058)
IP exposure 20-30km X year2013	-0.008 (0.006)	0.001 (0.003)	-0.004 (0.006)	0.001 (0.004)	-0.010 (0.008)	0.006*** (0.002)	0.000 (0.002)	0.004 (0.007)	-0.045*** (0.014)
IP exposure 0-10km X year2021	-0.011* (0.006)	-0.015* (0.008)	-0.024*** (0.009)	0.039*** (0.005)	-0.054*** (0.016)	0.013*** (0.003)	0.037*** (0.003)	0.004 (0.015)	-0.062 (0.045)
IP exposure 10-20km X year2021	0.010** (0.005)	-0.012 (0.009)	0.000 (0.009)	0.011*** (0.003)	-0.015** (0.007)	0.008** (0.004)	0.001 (0.003)	0.006 (0.009)	-0.023 (0.021)
IP exposure 20-30km X year2021	-0.002 (0.005)	0.007 (0.011)	-0.008 (0.011)	0.001 (0.002)	-0.012 (0.009)	0.003 (0.002)	-0.001 (0.002)	0.009 (0.009)	-0.008 (0.010)
Observations	384,879	214,161	214,161	214,161	214,184	214,184	214,184	214,184	52,522
R-squared	0.230	0.280	0.470	0.450	0.600	0.089	0.085	0.420	0.660
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The reported results are based on estimating the district-level specification (4.1). Column 1 includes all surveyed individuals, columns 2-8 include only individuals in employment, and column 9 includes only wage workers. Standard errors are reported in parentheses, clustered at district level. ***p < 0.01, **p < 0.05, *p < 0.1.

	(1) Pr(Own- account work)	(2) Pr(Unpaid family work)	(3) Pr(Wage work)	(4) Pr(Employed in agriculture)	(5) Pr(Employed in manufacturing)	(6) Pr(Employed in construction)	(7) Pr(Employed in services)
IP exposure 0-10km	-0.013** (0.006)	-0.020*** (0.008)	0.034*** (0.007)	-0.022 (0.017)	0.007** (0.003)	0.029*** (0.003)	-0.008 (0.017)
IP exposure 10-20km	-0.015** (0.007)	-0.001 (0.006)	0.016*** (0.003)	-0.010* (0.006)	0.008** (0.004)	0.001 (0.001)	0.001 (0.007)
IP exposure 20-30km	0.007 (0.010)	-0.009 (0.009)	0.002 (0.002)	-0.011* (0.005)	0.004 (0.003)	0.000 (0.001)	0.007 (0.007)
Observations	209,065	209,065	209,065	169,632	169,632	211,580	169,632
R-squared	0.270	0.460	0.450	0.600	0.073	0.082	0.440
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The reported results are based on estimating the district-level specification (4.1). The outcome variables refer to the type and sector of employment of individuals in the last 12 months. Only individuals in employment are considered. Standard errors are reported in parentheses, clustered at district level. ***p < 0.01, **p < 0.05, *p < 0.1.

Cumulative IP investment

	(1) Pr(Own- account work)	(2) Pr(Unpaid family work)	(3) Pr(Wage work)	(4) Pr(Employed in agriculture)	(5) Pr(Employed in manufacturing)	(6) Pr(Employed in construction)	(7) Pr(Employed in services)
IP investment 0-10km	-0.047*** (0.006)	0.013 (0.017)	0.034*** (0.013)	-0.042** (0.020)	0.007 (0.011)	0.028** (0.012)	0.006 (0.013)
IP investment 10-20km	-0.012 (0.018)	-0.008 (0.016)	0.021*** (0.007)	-0.020* (0.011)	0.003 (0.004)	0.004 (0.008)	0.013 (0.012)
IP investment 20-30km	0.017 (0.022)	-0.018 (0.021)	0.002 (0.006)	-0.011 (0.011)	-0.001 (0.003)	0.001 (0.004)	0.011 (0.012)
Observations	214,161	214,161	214,161	214,184	214,184	214,184	214,184
R-squared	0.280	0.470	0.450	0.600	0.089	0.084	0.420
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Cumulative IP job creation

	(1) Pr(Own- account work)	(2) Pr(Unpaid family work)	(3) Pr(Wage work)	(4) Pr(Employed in agriculture)	(5) Pr(Employed in manufacturing)	(6) Pr(Employed in construction)	(7) Pr(Employed in services)
IP job creation 0-10km	-0.028*** (0.009)	-0.001 (0.017)	0.029*** (0.008)	-0.038*** (0.014)	0.004 (0.005)	0.026*** (0.008)	0.008 (0.009)
IP job creation 10-20km	-0.012 (0.008)	-0.003 (0.007)	0.015*** (0.004)	-0.014** (0.006)	0.001 (0.002)	0.002 (0.004)	0.011** (0.005)
IP job creation 20-30km	0.012 (0.013)	-0.013 (0.012)	0.001 (0.004)	-0.009 (0.007)	-0.001 (0.002)	0.000 (0.002)	0.009 (0.007)
Observations	214,161	214,161	214,161	214,184	214,184	214,184	214,184
R-squared	0.280	0.470	0.450	0.600	0.089	0.084	0.420
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Notes: The reported results are based on estimating the district-level specification (4.1). The treatment variables capture the total IP investment within the three distance bins to which an individual is exposed during the period 2013–2019. We apply the hyperbolic sine transformation to the treatment variables to account for their highly skewed distributions and the large number of zero values. Only individuals in employment are considered. Standard errors are reported in parentheses, clustered at district level. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Notes: The reported results are based on estimating the district-level specification (4.1). The treatment variables capture the total IP job creation within the three distance bins to which an individual is exposed during the period 2013–2019. We apply the hyperbolic sine transformation to the treatment variables to account for their highly skewed distributions and the large number of zero values. Only individuals in employment are considered. Standard

Treatment group only

	(1) Pr(Own-account work)	(2) Pr(Unpaid family work)	(3) Pr(Wage work)	(4) Pr(Employed in agriculture)	(5) Pr(Employed in manufacturing)	(6) Pr(Employed in construction)	(7) Pr(Employed in services)
IP exposure 0-10km	-0.023** (0.011)	-0.032** (0.014)	0.053*** (0.010)	-0.074*** (0.014)	0.021*** (0.005)	0.040*** (0.007)	0.012 (0.009)
IP exposure 10-20km	-0.021*** (0.006)	0.004 (0.014)	0.016 (0.012)	-0.017 (0.015)	0.016*** (0.005)	-0.000 (0.007)	0.001 (0.006)
IP exposure 20-30km	-0.003 (0.002)	-0.006 (0.009)	0.008 (0.007)	-0.012 (0.010)	0.011*** (0.003)	0.000 (0.005)	0.001 (0.003)
Observations	53,514	53,514	53,514	53,516	53,516	53,516	53,516
R-squared	0.160	0.430	0.320	0.620	0.063	0.055	0.270
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

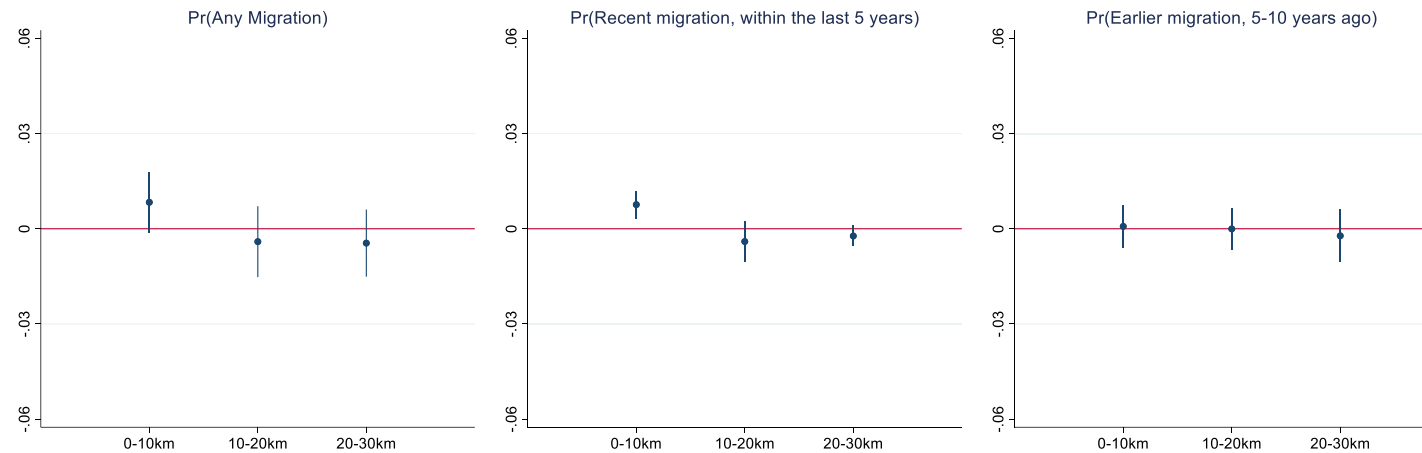
Notes: The reported results are based on estimating the district-level specification (4.1). The sample is restricted to individuals who are ultimately exposed to an IP in 2021, i.e. the treatment group. In addition, only individuals in employment are considered. Standard errors are reported in parentheses, clustered at district level. ***p < 0.01, **p < 0.05, *p < 0.1.

Excluding Addis Ababa

	(1) Pr(Own-account work)	(2) Pr(Unpaid family work)	(3) Pr(Wage work)	(4) Pr(Employed in agriculture)	(5) Pr(Employed in manufacturing)	(6) Pr(Employed in construction)	(7) Pr(Employed in services)
IP exposure 0-10km	-0.015** (0.006)	-0.026*** (0.006)	0.040*** (0.004)	-0.057*** (0.012)	0.009*** (0.003)	0.037*** (0.003)	0.011 (0.012)
IP exposure 10-20km	-0.012 (0.007)	-0.001 (0.007)	0.013*** (0.002)	-0.014*** (0.004)	0.005 (0.004)	-0.000 (0.001)	0.009 (0.006)
IP exposure 20-30km	0.008 (0.011)	-0.008 (0.010)	0.000 (0.001)	-0.009 (0.006)	0.001 (0.003)	-0.000 (0.001)	0.007 (0.007)
Observations	198.670	198.670	198.670	198.693	198.693	198.693	198.693
R-squared	0.290	0.460	0.440	0.580	0.088	0.086	0.430
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses

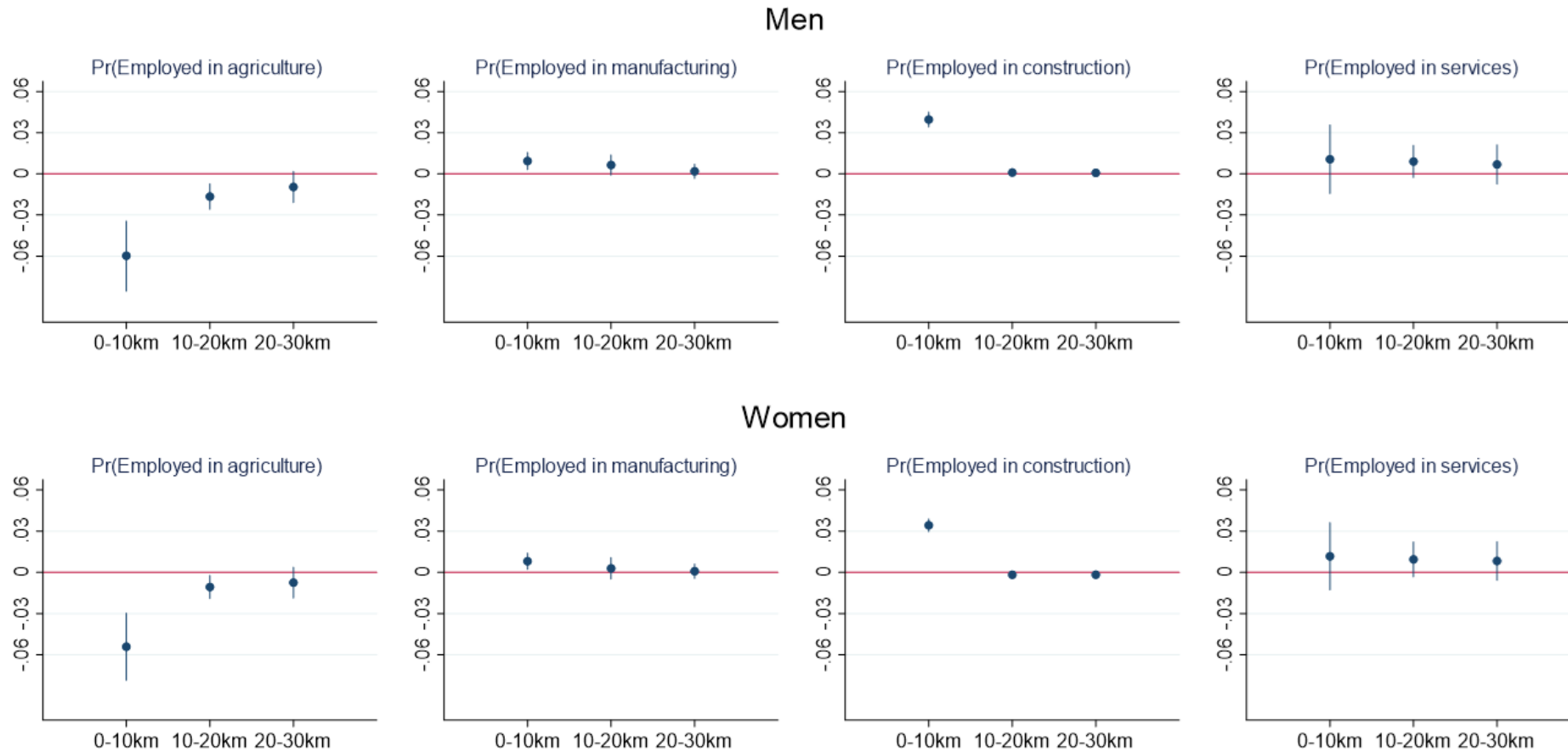
* p<0.1, ** p<0.05, *** p<0.01



	(1)	(2)	(3)	(4)	(5)	(6)	(7)
	Pr(Own-account work)	Pr(Unpaid family work)	Pr(Wage work)	Pr(Employed in agriculture)	Pr(Employed in manufacturing)	Pr(Employed in construction)	Pr(Employed in services)
IP exposure 0-10km	-0.009 (0.007)	-0.026*** (0.007)	0.035*** (0.005)	-0.056*** (0.012)	0.006*** (0.001)	0.035*** (0.002)	0.015 (0.012)
IP exposure 10-20km	-0.009 (0.009)	-0.003 (0.008)	0.012*** (0.002)	-0.018*** (0.005)	0.001 (0.002)	-0.000 (0.001)	0.017*** (0.005)
IP exposure 20-30km	0.010 (0.013)	-0.010 (0.013)	0.000 (0.002)	-0.011* (0.006)	-0.001 (0.001)	-0.001 (0.001)	0.013** (0.006)
Observations	176.461	176.461	176.461	176.483	176.483	176.483	176.483
R-squared	0,290	0,490	0,460	0,590	0,100	0,089	0,420
Year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
District-year dummies	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Ward controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Individual controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Standard errors in parentheses
 * p<0.1, ** p<0.05, *** p<0.01

No significant heterogeneities across gender



Note: Each plot shows the regression results of estimating specification (1) with interaction terms between the three treatment variables and a male dummy, using as the dependent variable dummy indicators for the sector of employment of individuals. Only individuals in employment are considered. The sectoral classifications follow ISIC Revision 4 codes. The blue dots indicate the coefficient estimates of β_1 to β_3 , representing the effect of a 10 ha increase in built-up area in the corresponding 10 km distance bin, and the blue vertical lines indicate 95 per cent confidence intervals. N=214,184 for all four plots.