

Location, Search Costs and Youth Unemployment: Transport Subsidies in Urban Ethiopia

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IGC Cities

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The impact of reduced search costs on labour market outcomes

High unemployment is a major problem in African cities.

- The youth spend a long time in unemployment.
- Good jobs are being created in cities, and young people are going there to find them.

Cities are set to grow: 450 million new urban dwellers by 2040.

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Cities are set to grow: 450 million new urban dwellers by 2040.

- New residents on the periphery of large cities.
- Distance from jobs may prevent them from participating in urban economies.

This paper looks at how distance from jobs generates **frictions** and **inequality** in labour markets.

Do transport costs constrain young people from finding good jobs?

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- Search more (using a high-frequency panel).
- Find better jobs.

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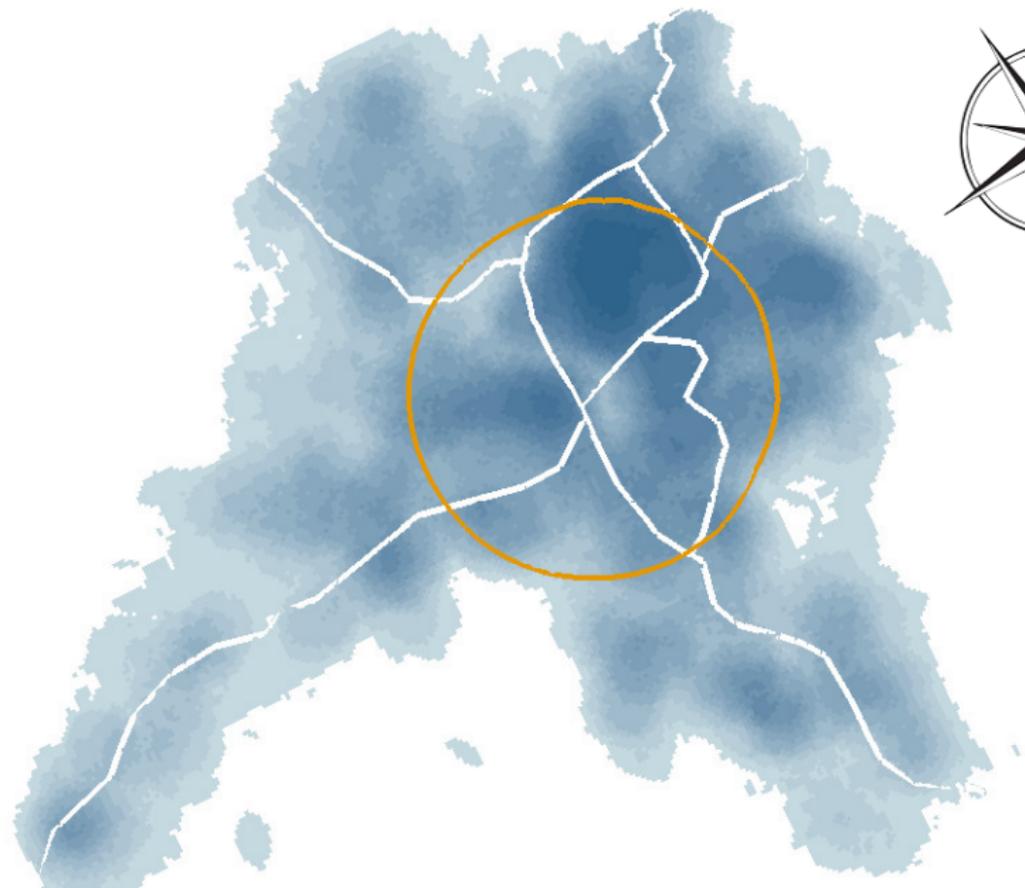
The subsidies *only* bring those on the periphery to the centre.

This is evidence that the results are driven by **place of living** and **cash constraints**.

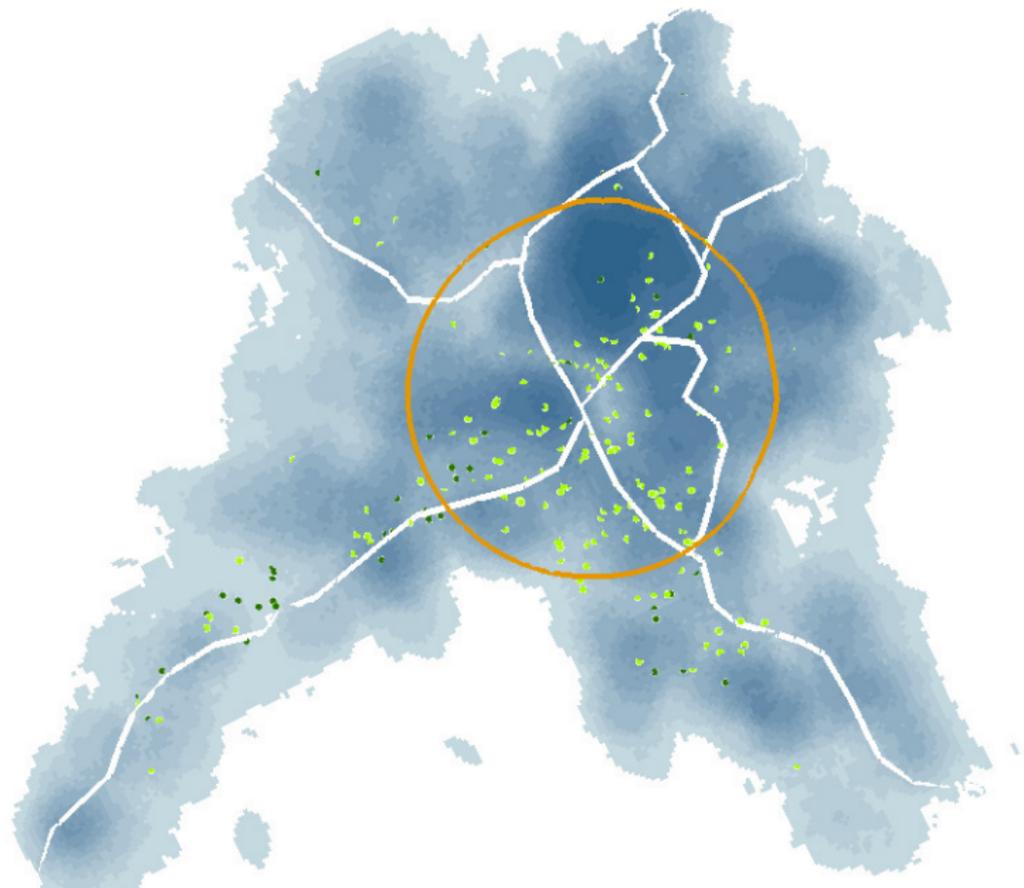
Roadmap

- 1 Motivation & Literature
- 2 Experiment
- 3 Setting & Theory
- 4 Job Impacts
- 5 Search Impacts
- 6 Conclusion

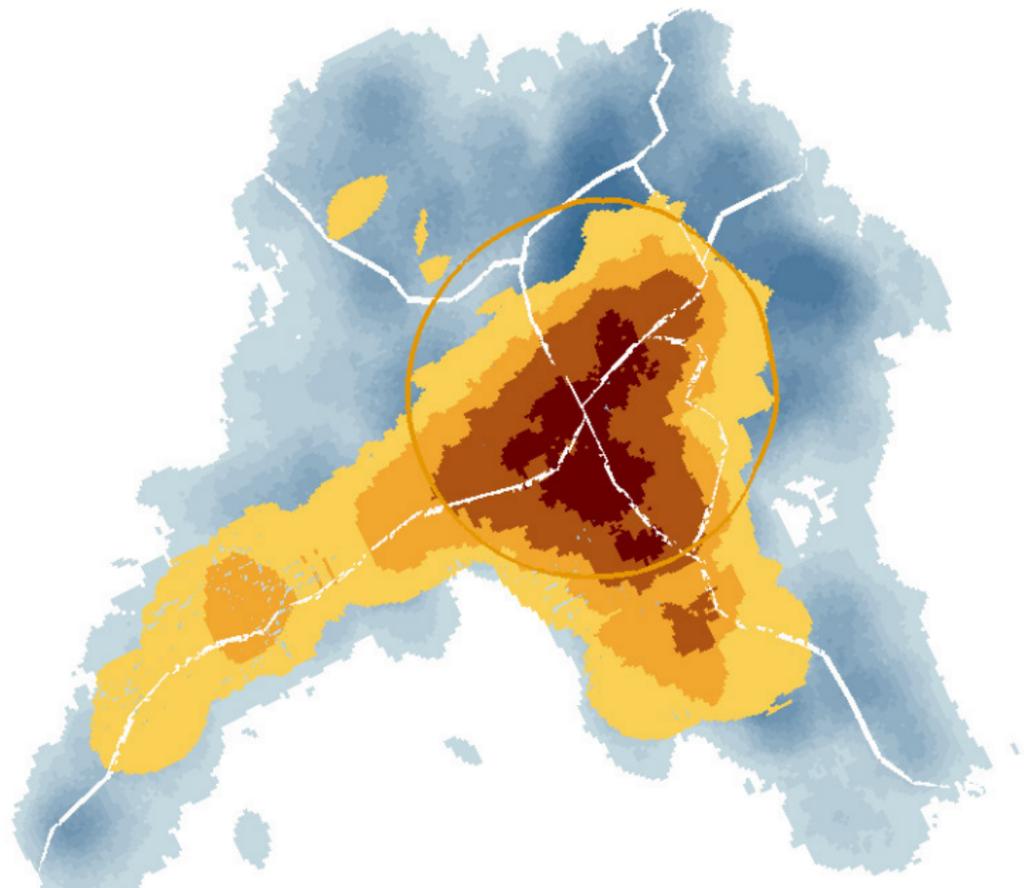
Addis Ababa: Population 4 million. Projection- 8 million by 2025



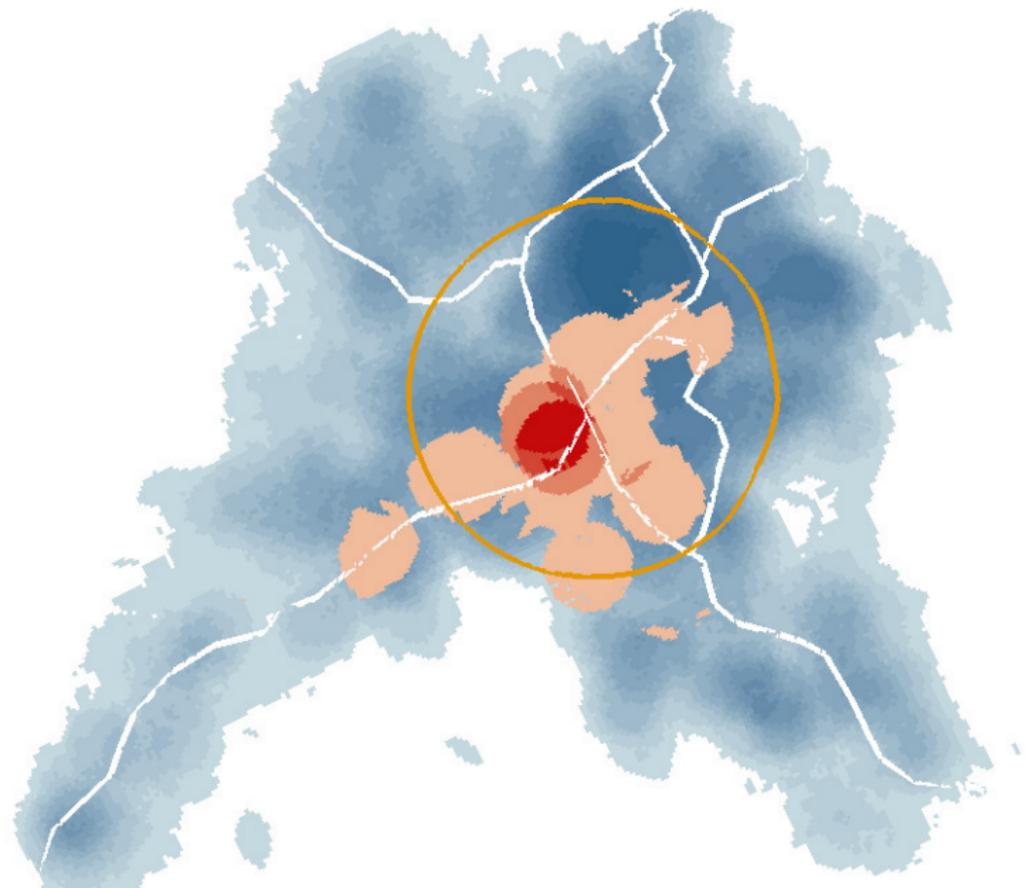
Firms are clustered in the centre



Jobs are in the center...



...Especially skilled and professional jobs



Information about jobs is *also* located in the center



Getting to the jobs is expensive



Literature & Contribution

- 1 Cash constraints & underinvestment
 - ▶ Job Search: *Chetty (2008)*, *Card et al (2007)*,
Migration: *Ardington et al (2009)*, *Bryan et al (2014)*
 - ▶ **Contribution:** Individuals who are cash constrained, and face high monetary search costs under-invest in search.

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2 Frictions & Thick Labour Markets

- ▶ *Marshall (1890)*, *Diamond (1982)*, *Pissarides (2000)*
- ▶ **Contribution:** Benefits of density could be **mitigated** if congestion & urban costs rise as cities sprawl.

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3 Inequality in access to employment opportunities

- ▶ *Raphael (1998)*, *Kling et al (2007)*, *Phillips (2012)*.
- ▶ **Contribution:** Evidence for spatial mismatch in a developing country context, due to barriers to searching for work.

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Transport subsidies cover the transport costs needed to search.

The subsidies were...

- 1 Non-fungible: only given on arrival in the centre of the city.
- 2 Given for 9-11 weeks.
- 3 Given twice per week.
- 4 \approx \$1 per day, which is just enough for 1 return trip, calibrated to neighborhood.

Median wages: daily labourer = \$3 a day, gov work = \$18 a week

Total transfer (full take up) is 25% of median baseline savings.

Experiment & Timeline

Stratified randomization after baseline and screening, individuals assigned to one of three groups:

- Pure Control: No Calls, no transport (**326**).
- Control: Calls but no transport (**296**).
- Treatment: Calls and transport (**255**).

	0	1	2	3	4	5	6	7	8	9	10	11	12	15	40
BASELINE	•														
TELEPHONE		•	•	•	•	•	•	•	•	•	•	•	•		•
TRANSPORT		•	•	•	•	•	•	•	•	•	•	•			
FOLLOW-UP														•	

Sample is strongly **balanced** across treatment and control
 Attrition is high, but not influenced by treatment (or in fact much else).

Two policy relevant sub-populations

Sample of young people living in the Addis Ababa (15 km radius), but at least 5 km from the city centre.

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- 1 “City” Sample: Door-to-door in slum areas. Low education, high discouragement. (**404 Respondents**)
- 2 “Board” Sample: Found near job boards. Active searchers, higher levels of education. (**473 Respondents**)

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Different in terms of:

- Initial conditions (savings, motivation).
- Jobs they can get, and to which they aspire.

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Surviving Unemployment

Unemployment rate is high at 24% for those under 30. But outcomes are **volatile**.

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- 65% of the unemployed have done some work in last 3 months.

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- 65% of the unemployed have done some work in last 3 months.

Preference for “good jobs” (**permanent**, wage paying jobs)

- Queuing: Take short bursts of temp or informal work while searching (*Lewis, 1954; Blattman & Dercon, 2014*)
- ‘Planned separations’ (Browning, 2007)

Search is costly in **monetary terms**: about \$1 a day for transport to the centre. Most people use (or have used) the job boards

Dynamic Optimization Model

Each period an infinitely lived agent with savings x :

- 1 First decides whether to search, pay the cost p .
- 2 Outcome of search: receives a permanent job with probability σ . This is an absorbing state.
- 3 If still unemployed, remaining uncertainty about income: might receive wage W from temporary work at the end of period, with probability θ .
- 4 Decides on consumption c to optimize expected future utility.

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Value of not searching:

$$F(x) = \max_{0 \leq c \leq x} u(c) + \beta(\theta U(x - c + W) + (1 - \theta)U(x - c))$$

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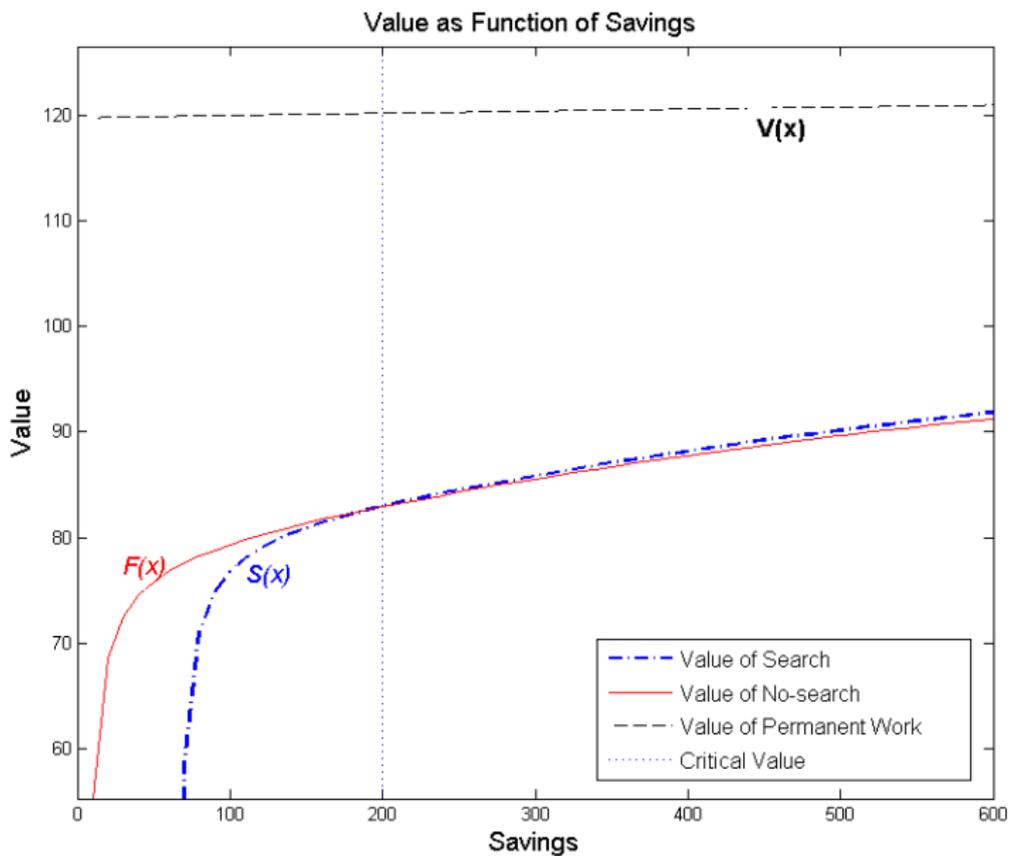
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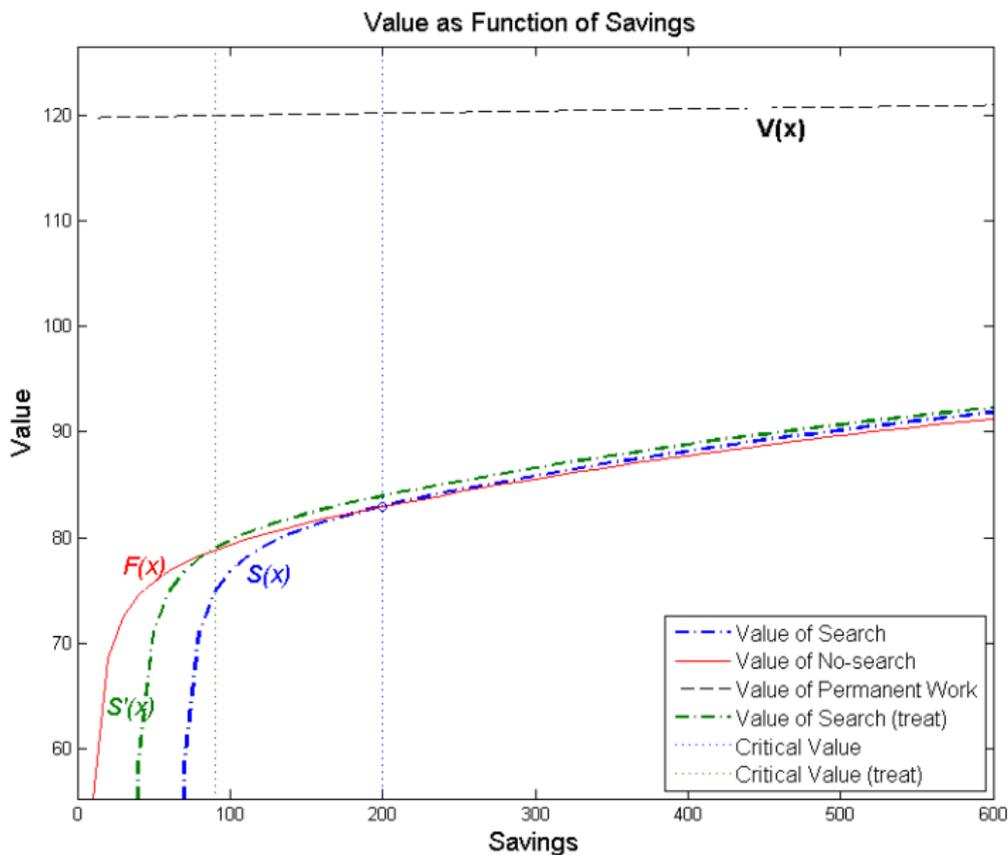
The value of unemployment is thus given by:

$$U(x) = \max \{ \sigma V(x - p) + (1 - \sigma)F(x - p), F(x) \}$$

Value Functions



Value Functions (Predicted Treatment Effect)



Simulated Treatment Effects

Predicted effects are large, even for very low levels of risk aversion.

- Static: Individuals induced to search (those with savings between the two critical values).
- Dynamic: treated individuals run down savings more slowly.

Simulated Treatment Effects

Predicted effects are large, even for very low levels of risk aversion.

- Static: Individuals induced to search (those with savings between the two critical values).
- Dynamic: treated individuals run down savings more slowly.

Prediction: Treated individuals search more during *and after* treatment.

Heterogeneity: Poorer individuals experience bigger impacts.

Temporary work: plays a role in facilitating job search and survival.

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Estimation of impacts on Endline job outcomes

Difference in Means:

$$y_i = \alpha + T_i\lambda + \epsilon_i \quad (\text{BAS})$$

$$y_i = \alpha + T_i\lambda + X_{i0}\beta + \epsilon_i \quad (\text{COV})$$

Includes randomization blocking dummies

Panel Estimators:

$$y_{it} = \alpha_t + T_{it}\lambda + \mu_i + \epsilon_{it} \quad (\text{FE})$$

$$y_{i16} - y_{i0} = \alpha + T_i\lambda + X_{i0}\beta + \epsilon_i \quad (\text{FD})$$

$$y_{i16} = \alpha + y_{i0}\rho + T_i\lambda + X_{i0}\beta + \epsilon_i \quad (\text{ANC})$$

Heterogenous Treatment Effects:

$$y_i = \alpha_1 B_i + \alpha_2 C_i + T_i B_i \lambda_1 + T_i C_i \lambda_2 + X_{i0} \beta + \epsilon_i$$

Impacts on having Permanent Work at Both Endlines

Estimator	CM	Basic	Controls	First Diff
		(1)	(3)	(5)
Week	16	16	16	16
<i>Panel A: Average Treatment Effects At Follow Up (Pooled Sample)</i>				
All	0.130	0.028 (0.027)	0.042 (0.026)	0.044* (0.026)
Obs		657	657	657
R ²		0.001	0.088	0.097
<i>Panel B: Treatment Effects At Follow Up by Sample</i>				
Board	0.190	0.068* (0.038)	0.078** (0.037)	0.078** (0.037)
City	0.065	-0.019 (0.032)	-0.004 (0.034)	0.001 (0.033)
Obs		657	657	657
R ²		0.186	0.091	0.100

These results are robust to the full set of specifications:

▶ All specifications

Impacts on having Permanent Work at Both Endlines

Estimator	CM		Basic		Controls		First Diff	
			(1)	(2)	(3)	(4)	(5)	(6)
Week	16	40	16	40	16	40	16	40
<i>Panel A: Average Treatment Effects At Follow Up (Pooled Sample)</i>								
All	0.130	0.210	0.028 (0.027)	0.018 (0.038)	0.042 (0.026)	0.018 (0.033)	0.044* (0.026)	0.017 (0.034)
Obs			657	605	657	605	657	605
R ²			0.001	0.000	0.088	0.133	0.097	0.143
<i>Panel B: Treatment Effects At Follow Up by Sample</i>								
Board	0.190	0.310	0.068* (0.038)	0.035 (0.052)	0.078** (0.037)	0.033 (0.051)	0.078** (0.037)	0.032 (0.051)
City	0.065	0.080	-0.019 (0.032)	0.007 (0.037)	-0.004 (0.034)	-0.001 (0.038)	0.001 (0.033)	-0.002 (0.042)
Obs			657	605	657	605	657	605
R ²			0.186	0.285	0.091	0.133	0.100	0.143

These results are robust to the full set of specifications:

[▶ All specifications](#)

Impacts on having Any Work at Both Endlines

Estimator	CM	Basic	Controls	First Diff
		(1)	(3)	(5)
Week	16	16	16	16
<i>Panel A: Average Treatment Effects At Follow Up (Pooled Sample)</i>				
All	0.530	0.058*	0.062*	0.081*
		(0.034)	(0.035)	(0.043)
Obs		657	657	657
R ²		0.003	0.066	0.062
<i>Panel B: Treatment Effects At Follow Up by Sample</i>				
Board	0.580	0.044	0.043	0.067
		(0.051)	(0.052)	(0.062)
City	0.46*	0.076	0.086*	0.099*
		(0.046)	(0.044)	(0.057)
Obs		657	657	657
R ²		0.553	0.066	0.062

Impacts on having Any Work at Both Endlines

Estimator	CM		Basic		Controls		First Diff	
	16	40	(1) 16	(2) 40	(3) 16	(4) 40	(5) 16	(6) 40
<i>Panel A: Average Treatment Effects At Follow Up (Pooled Sample)</i>								
All	0.530	0.550	0.058* (0.034)	0.063 (0.039)	0.062* (0.035)	0.066* (0.040)	0.081* (0.043)	0.063 (0.047)
Obs			657	605	657	605	657	605
R ²			0.003	0.003	0.066	0.074	0.062	0.105
<i>Panel B: Treatment Effects At Follow Up by Sample</i>								
Board	0.580	0.650	0.044 (0.051)	-0.013 (0.049)	0.043 (0.052)	-0.012 (0.051)	0.067 (0.062)	0.030 (0.057)
City	0.46*	0.41*	0.076 (0.046)	0.17*** (0.053)	0.086* (0.044)	0.17*** (0.057)	0.099* (0.057)	0.110 (0.079)
Obs			657	605	657	605	657	605
R ²			0.553	0.586	0.066	0.080	0.062	0.106

Impacts on Additional Measures of Job Quality at Endline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	work	casual	log In wage	hours	degree	in office	pay monthly	satisfied	formally

Panel A: Impacts on work outcomes at week 16

TE Pooled	0.062* (0.035)	-0.022 (0.024)	0.051 (0.088)	3.74** (1.71)	0.047** (0.018)	0.070* (0.037)	0.069* (0.037)	0.061** (0.028)	0.054* (0.029)	0.054* (0.029)
Observations	658	596	356	656	596	596	596	596	596	596
R-squared	0.067	0.077	0.115	0.079	0.228	0.059	0.107	0.058	0.114	0.114

Panel B: Heterogeneous impacts on work at week 16 by Sample

TE board	0.043 (0.051)	0.0026 (0.025)	0.091 (0.11)	2.53 (2.34)	0.075** (0.033)	0.020 (0.052)	0.032 (0.053)	0.015 (0.045)	0.064 (0.049)	0.064 (0.049)
TE city	0.087* (0.044)	-0.050 (0.042)	-0.0090 (0.15)	5.27** (2.34)	0.014 (0.011)	0.13** (0.050)	0.11** (0.049)	0.11*** (0.029)	0.042* (0.023)	0.042* (0.023)
Observations	658	596	356	656	596	596	596	596	596	596
R-squared	0.067	0.079	0.116	0.080	0.230	0.063	0.108	0.062	0.114	0.114

Impacts on Additional Measures of Job Quality at Endline

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
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Definitions

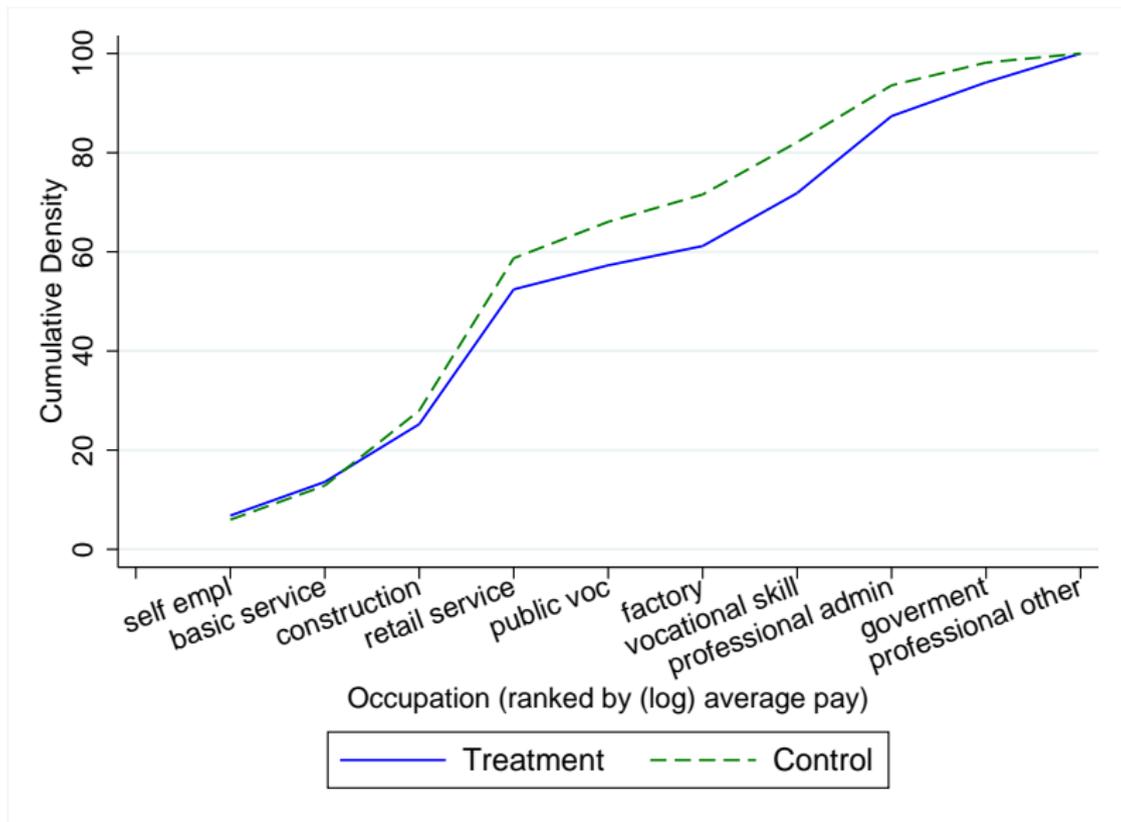
Degree: Job that requires a degree as the minimum requirement

Pay Monthly: Salary is paid on monthly basis

Formally: Job was found by make a formal job application (usually using information found at the job boards)

In City: Place of work at the job is within in the more central parts of Addis (not in the individuals local kebele)

Distribution of Occupations (ranked by wages) for those with work at endline



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Use high frequency data to look at the impacts of the subsidies on job search

Overview of findings:

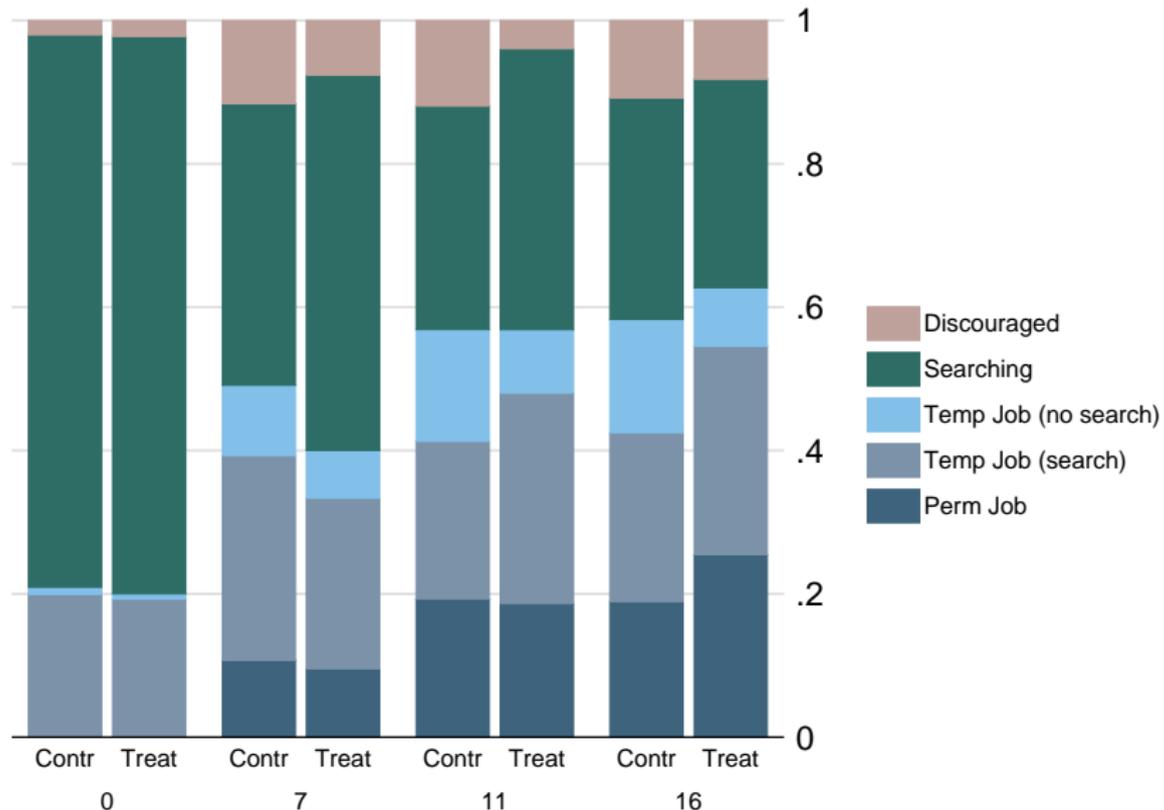
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- 2 Treatment prevents job seekers from giving up search (board sample)
 - ▶ High rate of discouragement over time
- 3 City sample induced to *start* searching

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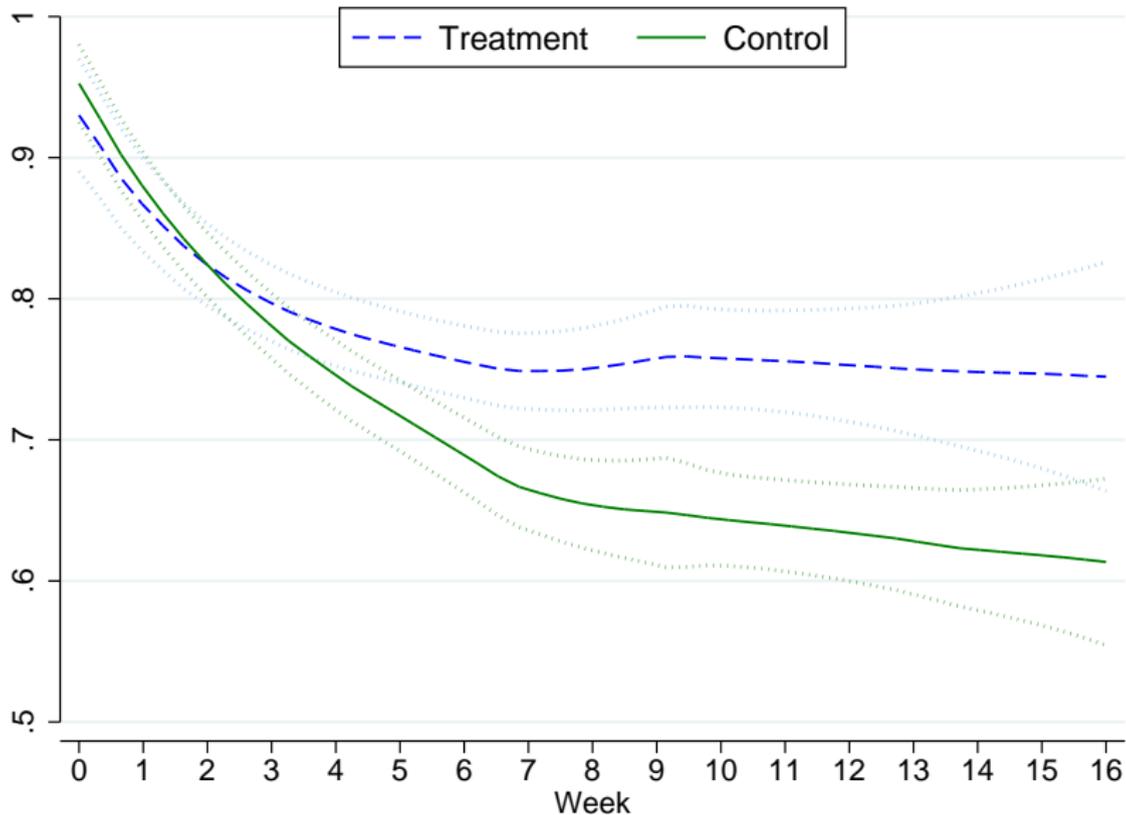
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- 3 City sample induced to *start* searching
- 4 Impacts at the extensive margin: more likely to be searching in a given week
- 5 While subsidies are in place, *Board* sample do less temporary work

Composition of Labour Outcomes by Treat and Control Over Time (Board)

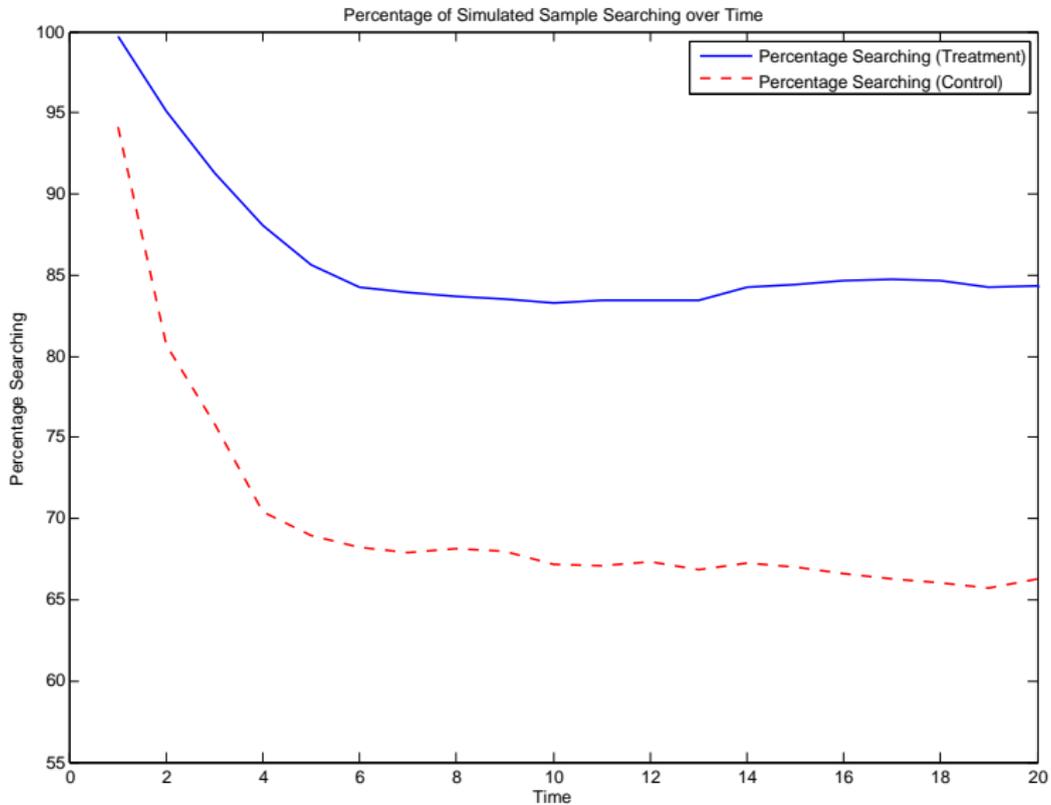


Percentage of Individuals Searching (local polynomial)

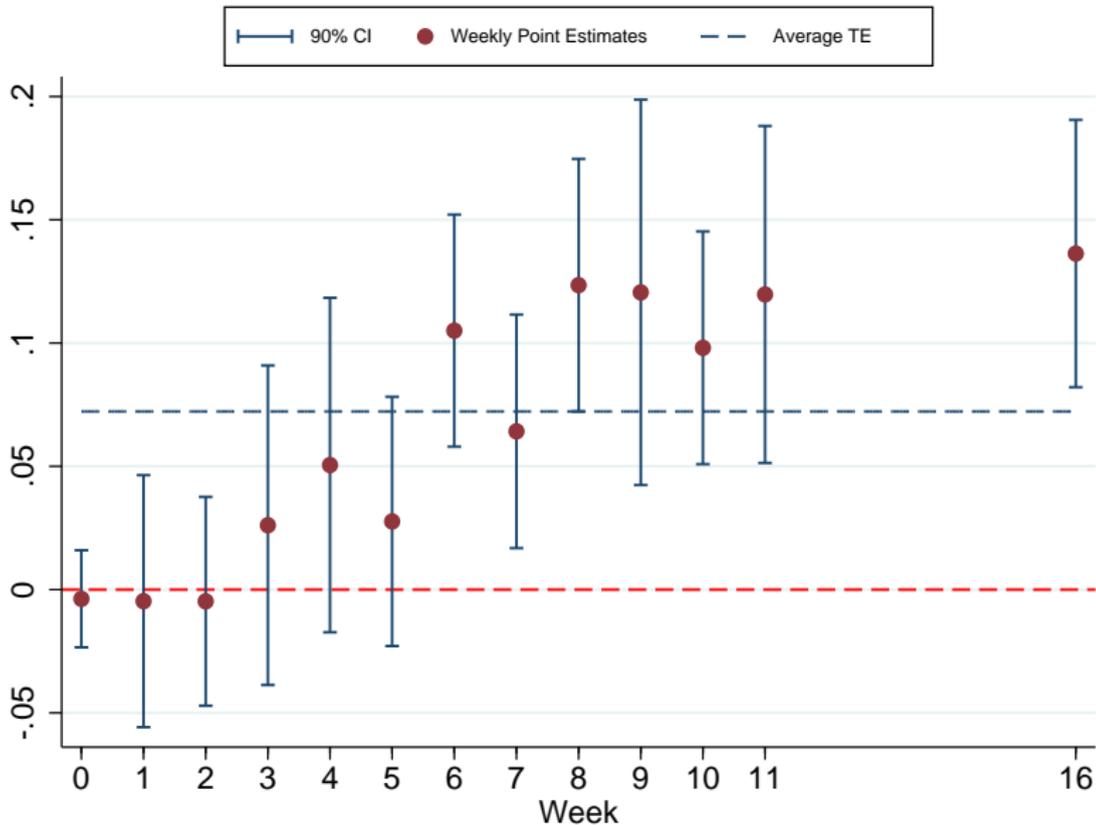
Board Sample



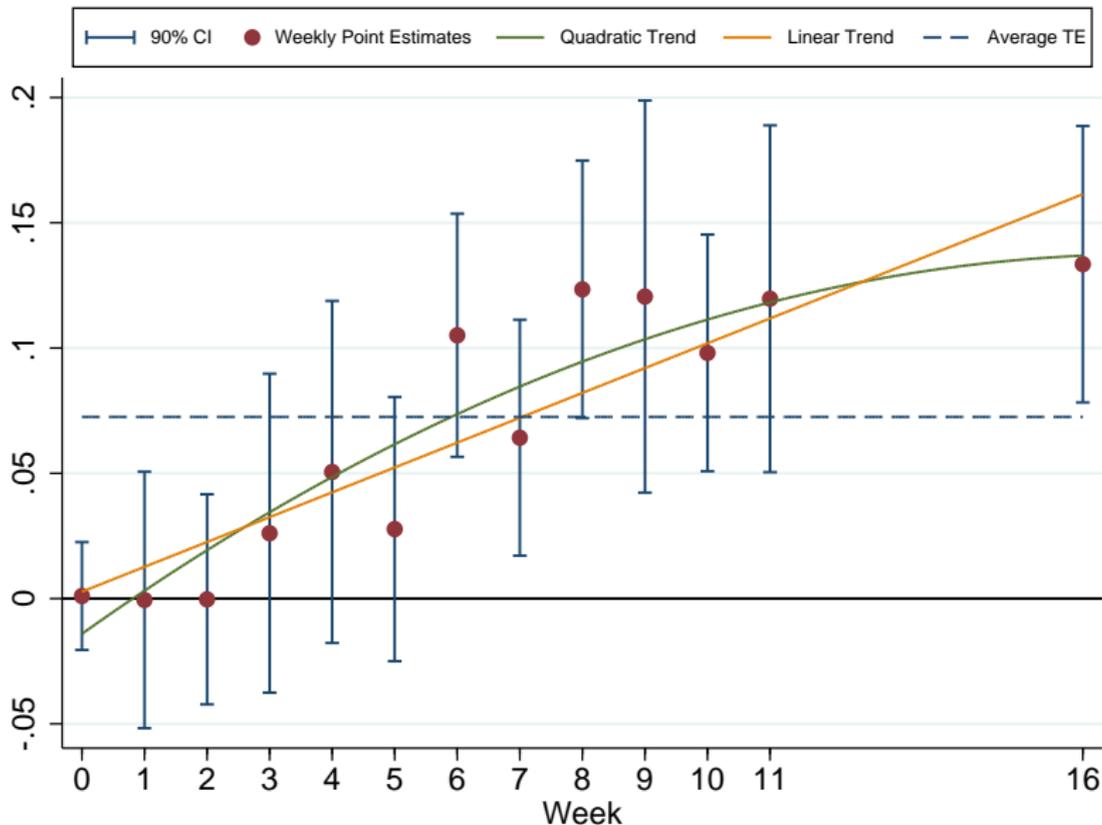
Plot of Simulated Search Data from Theoretical Model



Plot of Impact Trajectory of Searching for a Job (Board Sample)



Plot of Impact Trajectory of Searching for a Job (Board Sample)



Mechanisms & Persistence

Trajectory of impacts consistent with the model of **cash constraints** & monetary search costs.

Additional evidence:

- 1 Impacts largest (only) among the poorest/most cash constrained. Heterogeneity by: [▶ Wealth](#) [▶ Background](#)
- 2 Impact on search persist after subsidies have ended. [▶ Persistence](#)
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Impact on employment consistent with estimated rates of return to job search and cumulative effect on job search.

Conclusion: Urban policy

Evidence that reducing transport costs, all else equal, leads to better employment outcomes.

Role for policy to remove frictions to improve access to employment.

Addis Ababa is undergoing an urban transport overhaul

- Yet residents are often relocated from the centre.
- Transport costs need to be kept low.

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Urban planning

- Discourage sprawl. Make central land/housing more available.
- Encourage decentralization of jobs?

Conclusion: Labour policy

Cash constraints and large distances from jobs could be locking some individuals out of labour markets.

There may be a role for an urban safety net or welfare system.

- Evidence for cash constraints suggests that UI would help job seekers to find better matches.
- Government is thinking of introducing new programs to assist the unemployed youth.
- Evidence that workfare programs might not be optimal.

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- Evidence that workfare programs might not be optimal.

Labour market institutions

- Counselling, guidance, youth programs, job fairs.
- Use of IT for delivering information about jobs.

Extensions: On-going work

Randomized trials of:

- Job search training.
- Screening interventions.

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Impact of frictions on productivity & firm hiring.

- RCT of job fairs & Gale-Shapley matching.

Extensions: On-going work

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Impact of frictions on productivity & firm hiring.

- RCT of job fairs & Gale-Shapley matching.

Other channels through which place of living influences outcomes.

- Evaluation of government housing projects with random location assignment.

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Test of Balance

[Back to Sample Description](#)

Panel A: Entire Sample at Baseline

	Full Sample			Boards Sample			City Sample		
	treat	cont	p-val	treat	cont	p-val	treat	cont	p-val
Sample	.539	.54	.982	1	1		0	0	
Work	.256	.258	.934	.201	.201	.983	.319	.326	.892
Permanent Work	.0039	.0065	.643	0	0		.0084	.014	.642
Searching	.829	.829	.98	.971	.973	.912	.664	.66	.935
Visisted Boards	.624	.628	.902	.964	.958	.765	.227	.242	.744
Discouraged	.12	.129	.713	.0216	.018	.794	.235	.26	.609
Hours Worked	7.38	6.06	.197	6.89	5.15	.207	7.95	7.13	.588
Construction	.0891	.0905	.95	.0935	.0749	.497	.084	.109	.454
Female	.217	.223	.848	.129	.132	.948	.319	.33	.838
Diploma	.205	.183	.431	.302	.287	.749	.0924	.0596	.238
Degree	.236	.242	.853	.432	.44	.866	.0084	.0105	.845
Finish Gr 10	.783	.788	.858	.928	.955	.232	.613	.593	.703
Age	23.7	23.4	.162	23.9	23.6	.27	23.5	23.2	.371
Household Size	3.52	3.48	.8	2.76	2.89	.414	4.41	4.18	.321
Head of HH	.225	.223	.952	.302	.263	.392	.134	.175	.311
Amhara	.453	.496	.252	.446	.494	.343	.462	.498	.51
Oromo	.318	.3	.612	.388	.356	.509	.235	.235	.996
Orthodox	.705	.721	.652	.712	.698	.752	.697	.747	.303
Muslim	.101	.113	.595	.0432	.0719	.244	.168	.161	.869
Lives with Family	.256	.268	.706	.367	.383	.739	.126	.133	.844
Born out of Addis	.612	.612	.997	.813	.814	.971	.378	.375	.959
Recent Grad	.345	.401	.123	.468	.551	.0989	.202	.225	.613
Work Experience	.523	.499	.517	.417	.389	.571	.647	.628	.719
Weeks w/o Work	37.6	40.4	.409	37.3	34.4	.43	38	47.4	.1
HH Wealth index	-.0149	.0143	.695	-.112	-.0166	.382	.0985	.0506	.628
Own Room	.229	.223	.853	.23	.201	.472	.227	.249	.636
Kms from center	6.15	6.33	.467	6.4	6.86	.282	5.85	5.71	.481
Weeks unemployed	1.79	1.59	.0059	2.29	1.71	.115	1.59	1.69	.159

Impact of the Phone Call survey on outcomes at endline

	(1) searchnow	(2) searchboards	(3) discouraged	(4) work	(5) work perm
<i>Panel A: Average Impacts at Endline</i>					
TE trans	0.096** (0.048)	0.081 (0.055)	-0.059* (0.030)	0.053 (0.045)	0.034 (0.033)
TE call	-0.029 (0.049)	0.00085 (0.047)	0.011 (0.044)	0.011 (0.053)	-0.010 (0.035)
<i>Panel B: Average Impacts at Endline by Sample</i>					
TE trans boards	0.13* (0.072)	0.10 (0.093)	-0.050 (0.044)	0.060 (0.059)	0.10** (0.046)
TE trans city	0.050 (0.061)	0.053 (0.053)	-0.073* (0.042)	0.048 (0.067)	-0.045 (0.037)
TE call boards	-0.0037 (0.069)	0.0072 (0.075)	0.043 (0.044)	-0.028 (0.064)	-0.067 (0.055)
TE call city	-0.071 (0.072)	-0.012 (0.052)	-0.035 (0.087)	0.064 (0.087)	0.057* (0.029)
Obs	658	658	658	658	657

Attrition

Attrition *is* high- **but** huge amount between baseline and the 1st phone call (and then between 1st & 2nd call)- before changes in labour market outcomes, and subsidies

Little additional attrition in follow up survey in December 2013

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	Calls			Total
	Control	No Transport	Transport	
<i>Never found</i>	81 24.85%	22 7.43%	22 8.63%	125 14.25%
<i>Contacted by phone, not Endline</i>	0 0%	35 11.82%	31 12.16%	66 7.53%
<i>Refused at Endline</i>	9 2.76%	12 4.05%	7 2.75%	28 3.19%
<i>Found at Endline</i>	236 72.39%	227 76.69%	195 76.47%	658 75.03%
Total	326 100%	296 100%	255 100%	877 100%

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Attrition not predicted by treatment, or covariates, sample is still balanced across treatment and control after attrition