

14.771: Labor Markets

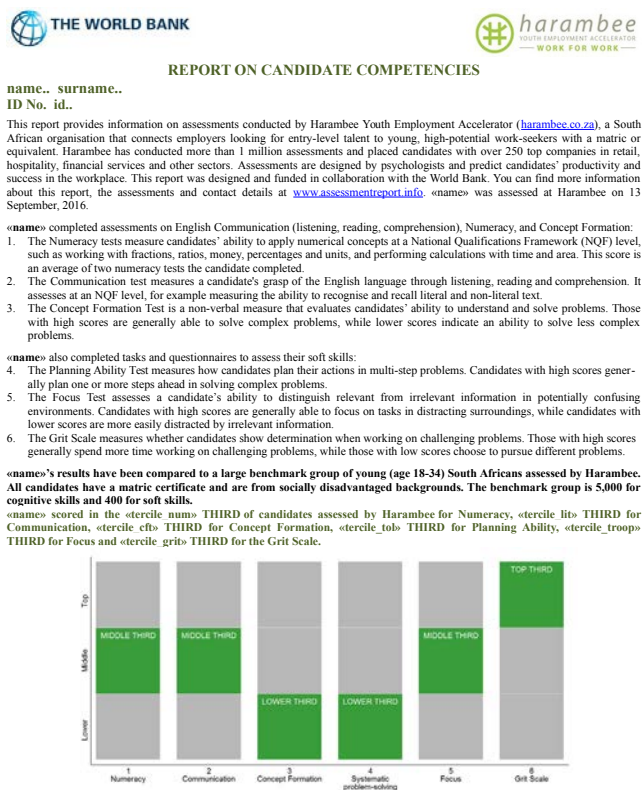
Ben Olken

Signaling

- Are matching frictions a big part of the challenge?
- Job search is a big topic in developed country labor. People are starting to examine this in developing country settings
- Carranza et al (2020) examine one issue: how to credibly signal skills:
 - Randomize some people to obtain skill assessments, and World Bank branded certificate assessing skills. What does this measure?
 - In a second arm, they also provide *private* information to workseekers. Why? To see if people are learning information about themselves (as opposed to signaling).
 - In a third arm, to test employer side, run an audit experiment, creating job applications with and without jobs. Why? Shows firms care.

The Certificate

Figure 1: Sample Public Certificate



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REPORT ON CANDIDATE COMPETENCIES -Personal Copy-

This report contains results from the assessments you took at Harambee in Phase 1 and Phase 2. These results can help you learn about some of your strengths and weaknesses and inform your job search.

You completed assessments on English Communication (listening, reading and comprehension) and Numeracy today in Phase 2. In Phase 1, you completed a Concept Formation assessment which asked you to identify patterns.

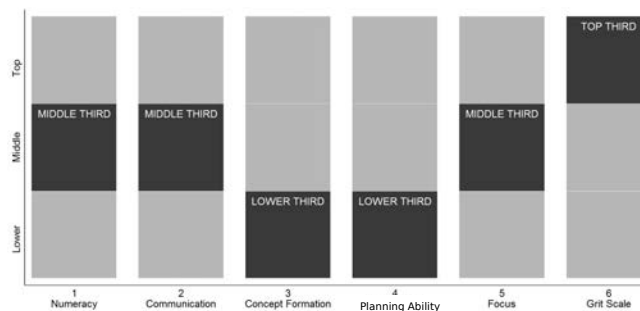
1. The Numeracy tests measure various maths abilities. Your score is the average of the two maths tests you did today at Harambee.
2. The Communication test measures English language ability through listening, reading and comprehension.
3. The Concept Formation test measures the ability to understand and solve problems. Candidates with high scores can generally solve complex problems, while lower scores show an ability to solve less complex problems.

You also did some games and questionnaires to measure your soft skills:

4. The Planning Ability Test measures how you plan your actions in multi-step problems. Candidates with high scores generally plan one or more steps ahead in solving complex problems.
5. The Focus Test looks at your ability to pick out which information is important in confusing environments. Candidates with high scores are able to focus on tasks in distracting situations.
6. The Grit Scale measures candidates' determination when working on difficult problems. Candidates with high scores spend more time working on the problems rather than choosing to pursue different problems.

Your results have been compared to a large group of young South African job seekers who have a matric certificate, are from socially disadvantaged backgrounds and have been assessed by Harambee.

You scored in the MIDDLE THIRD of candidates assessed by Harambee for Numeracy, MIDDLE THIRD for Communication, LOWER THIRD for Concept Formation, LOWER THIRD for Planning Ability, MIDDLE THIRD for Focus and TOP THIRD for the Grit Scale.



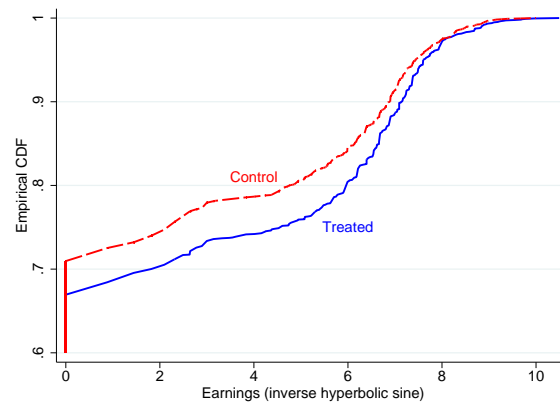
Results

Table 1: Treatment Effects on Labor Market Outcomes

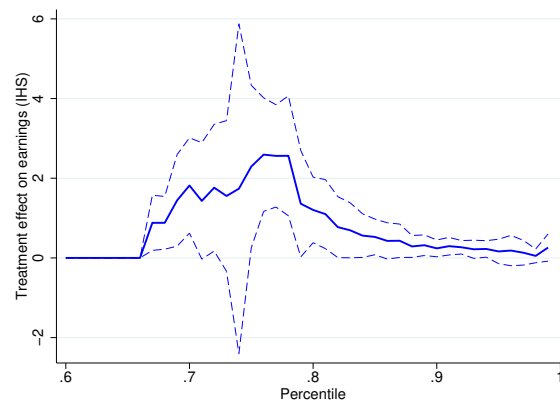
| | (1) | (2) | (3) | (4) | (5) |
|---------------------------|------------------|--------------------|-----------------------|--------------------------|------------------|
| | Employed | Hours ^c | Earnings ^c | Hourly wage ^c | Written contract |
| Treatment | 0.052 (0.012) | 0.201 (0.052) | 0.338 (0.074) | 0.197 (0.040) | 0.020 (0.010) |
| Mean outcome | 0.309 | 8.85 | 159.3 | 9.84 | 0.120 |
| Mean outcome for employed | | 28.85 | 518.3 | 32.28 | 0.392 |
| # observations | 6607 | 6598 | 6589 | 6574 | 6575 |
| # clusters | 84 | 84 | 84 | 84 | 84 |

Results - CDFs and QTEs

Figure 2: Quantile Treatment Effects on Earnings
Panel A: Empirical Distributions of Earnings in Control and Public Certification Groups



Panel B: Quantile Treatment Effects of Public Certification on Earnings



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Public vs. Private

Own assessments

Table 3: Public and Private Certification Effects on Beliefs, Search, and Labor Market Outcomes

| | (1) | (2) | (3) |
|-----------------------|--------------------------|-------------------------|--------------------|
| | Skill belief accurate | > median self-esteem | Targeted search |
| Public certification | 0.158 (0.008) | 0.001 (0.013) | 0.052 (0.010) |
| Private certification | 0.123 (0.008) | -0.002 (0.014) | 0.047 (0.010) |
| p: public = private | 0.000 | 0.806 | 0.698 |
| Mean outcome | 0.389 | 0.553 | 0.155 |
| # observations | 6607 | 6609 | 6609 |
| # clusters | 84 | 84 | 84 |

Public vs. Private

Job outcomes

| | (4) | (5) | (6) | (7) | (8) |
|-----------------------|-----------------------------|--|--|------------------------------------|-----------------------------------|
| | Used report ^b | Applications with report ^{b,c} | Interviews with report ^b | Offers with report ^b | Expected offers ^{a,c} |
| Public certification | 0.699 (0.013) | 1.682 (0.040) | 0.432 (0.023) | 0.112 (0.011) | 0.106 (0.019) |
| Private certification | 0.289 (0.012) | 0.572 (0.033) | 0.144 (0.017) | 0.036 (0.008) | 0.053 (0.023) |
| p: public = private | 0.000 | 0.000 | 0.000 | 0.000 | 0.025 |
| Mean outcome | 0.000 | 0.000 | 0.000 | 0.000 | 4.198 |
| # observations | 6609 | 6598 | 6597 | 6597 | 6531 |
| # clusters | 84 | 84 | 84 | 84 | 84 |
| | (9) | (10) | (11) | (12) | (13) |
| | Worked | Hours ^c | Earnings ^c | Hourly wage ^c | Written contract |
| Public certification | 0.052 (0.012) | 0.201 (0.052) | 0.338 (0.074) | 0.197 (0.040) | 0.020 (0.010) |
| Private certification | 0.011 (0.012) | 0.066 (0.048) | 0.162 (0.078) | 0.095 (0.046) | 0.017 (0.009) |
| p: public = private | 0.002 | 0.011 | 0.028 | 0.030 | 0.769 |
| Mean outcome | 0.309 | 8.848 | 159.291 | 9.840 | 0.120 |
| # observations | 6607 | 6598 | 6589 | 6574 | 6575 |
| # clusters | 84 | 84 | 84 | 84 | 84 |

Audit Experiment

Table 4: Treatment Effects of Additional Information in Audit Study

| | (1) | (2) | (3) | (4) |
|---|-------------------|-------------------|-------------------|-------------------|
| | Any response | | Interview request | |
| Certificate (1) | 0.015 (0.009) | 0.016 (0.009) | 0.009 (0.004) | 0.010 (0.006) |
| Certificate \times HighIntensity (2) | -0.027 (0.013) | -0.028 (0.014) | -0.014 (0.009) | -0.017 (0.010) |
| Mean outcome | 0.130 | 0.130 | 0.088 | 0.088 |
| # applications | 3992 | 3992 | 3992 | 3992 |
| # vacancies | 998 | 998 | 998 | 998 |
| # resumes | 717 | 717 | 717 | 717 |
| Vacancy fixed effects | | \times | | \times |
| Email address fixed effects | | \times | | \times |
| Resume covariates | | \times | | \times |

Other issues

- *Search and online platforms.* Wheeler et al (2021) study the impact of LinkedIn training on job search behavior in South Africa.... and find substantial impacts
- *Job training.* Alfonsi et al (2020) study the impact of vocational and firm-specific training in Uganda. Find both help initially, but general purpose training builds over time, whereas firm training fades.
- Much more to do!

Working conditions

- One issue highlighted by the previous study is that working conditions in many industrial jobs in the developing world are terrible.
- There is a long history of these issues in the US that led to workplace regulations, OSHA, etc
 - Upton Sinclair's 1906 "The Jungle" about working conditions in meatpacking plants (although ultimately the impact may have been more about food safety)
 - Triangle Shirtwaist Factory Fire of 1911. Locked doors and exits led to 146 deaths of garment workers in New York
- Many examples of similar issues today in the developing world
 - 2012 Dhaka garment factory fire killed 117 workers
 - 2013 Dhaka garment factory collapse killed 1,134 workers
- Despite popular attention ('sweatshops') there is relatively little research on these issues

Working conditions

Figure 2: Rana Plaza building collapse



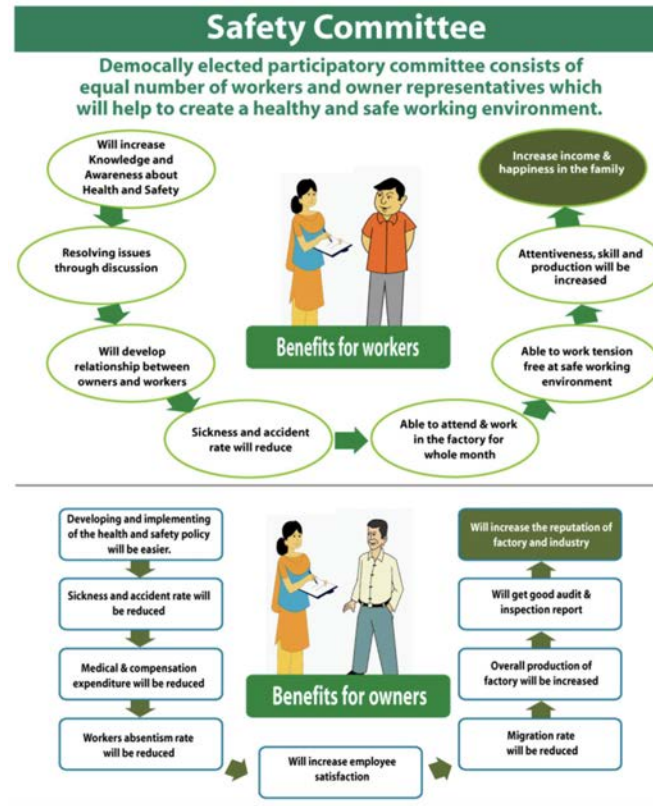
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Multinationals and working conditions

Boudreau 2020: Multinational enforcement of labor law: Experimental evidence from Bangladesh's apparel sector

- Multinationals often push or higher working conditions than domestic firms, due to home-market pressure
- Does this matter?
- Boudreau's experiment: In 41 out of 84 Bangladeshi factories, multinationals create 'worker-manager safety committee'. Views? Note: the rest got it 9 months later.

The intervention



- What does this do?

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Results

Safety

Table 5: Treatment effects: Physical indicators of factory safety

| | Control mean (1) | ITT Effect (2) |
|---|---------------------|--------------------|
| Factory safety spotcheck index | 0.000 | 0.217 [0.015]** |
| <i>Sewing</i> : Machines have guards <i>and</i> workers wear PPE [†] for their task | 0.500 | 0.076 [0.619] |
| <i>Cutting</i> : Machines have knife guards <i>and</i> workers wear PPE for their task | 0.792 | 0.071 [0.557] |
| <i>Dyeing and jobs handling chemicals</i> : Safety masks, goggles, gloves, aprons, and boots worn by workers handling chemicals | 0.545 | 0.102 [0.668] |
| All PPE appropriate size, functional, and well-maintained | 0.951 | 0.050 [0.492] |
| Aisles clearly marked and markings visible | 0.780 | 0.025 [1.000] |
| Aisles clear of sewing scrapes and debris | 0.951 | 0.048 [0.503] |
| Aisles clear of obstruction | 0.854 | 0.014 [1.000] |
| Machines in good working order & dangerous parts properly covered | 0.927 | 0.070 [0.247] |
| Work stations maintained in tidy condition (no loose materials close to electrical appliances) | 0.976 | 0.022 [1.000] |
| One or more easily accessible first aid kit in section | 0.976 | 0.022 [1.000] |
| Physical separation between storage & production areas | 0.976 | 0.022 [1.000] |
| Drinking water easily accessible for all workers | 1.000 | -0.025 [1.000] |
| Drinking water provided appears clean (visual check) | 1.000 | -0.025 [1.000] |
| Stratification variables | | Y |

Results

Job satisfaction

Table 6: Treatment effects: Workers' job satisfaction and mental well-being

| | Control mean | ITT Effect |
|---|--------------|---------------------------------|
| | (1) | (2) |
| <i>Panel A: Primary outcome</i> | | |
| Worker job satisfaction & mental well-being (well-being index) | -0.013 | -0.149 [0.061]* {0.113} |
| <i>Panel B: Sub-indexes and sub-variables</i> | | |
| Job satisfaction sub-index | -0.130 | -0.386 [0.017]** {0.075}* |
| Mental well-being sub-index | 0.011 | -0.059 [0.709] {0.792} |
| Turnover sub-variable | 0.115 | -0.010 [0.884] {0.792} |
| Absenteeism sub-variable | 0.088 | -0.084 [0.162] {0.321} |
| Observations | | 80 |
| Stratification variables | | Y |
| Control, base. dep. var. | | Y |

Results

Business competitiveness measures

Table 7: Treatment effects: Business competitiveness outcomes

| | (1) | (2) | (3) |
|-----------------------------|------------------------------|------------------------------|-----------------------------|
| Panel A | Log(Labor productivity) | | |
| Treatment effect | 0.115 [0.148] | 0.087 [0.189] | 0.036 [0.392] {0.418} |
| Factories | 75 | 75 | 74 |
| Observations | 375 | 368 | 370 |
| Stratification variables | Y | Y | Y |
| Control, baseline dep. var. | Y | Y | Y |
| Product type FE | Y | Y | Y |
| Trimmed sample | N | Y | N |
| Dropping outlier | N | N | Y |
| Panel B | Log(Gross wages) | Log(Employment) | |
| Treatment effect | -0.015 [0.612] {0.466} | -0.011 [0.635] {0.466} | |
| Factories | 72 | 80 | |
| Observations | 360 | 400 | |
| Stratification variables | Y | Y | |
| Control, baseline dep. var. | Y | Y | |

Discussion

- Findings
 - The committee increases reported compliance with laws.
 - No reported negative effects on labor productivity, wages, employment.
 - Employees are unhappy.
- Views?
- Would really want to look at *profits* ideally.
- Safety?
- Also, what is the intervention really?

More on multinationals

Hjort et al 2020: *Across-Country Wage Compression in Multinationals*

- Do multinationals respond to local labor markets, home labor markets, or a combination?
- Key findings
 - Workers pay domestic workers similarly to workers in home country doing the same job
 - Home wage shocks (e.g. minimum wages) are transmitted to workers in foreign countries
 - Zooming in on Brazil, show that firms reduce low-skill hiring in Brazil when faced with home-country positive wage shocks for low-skill workers, which lead them to raise wages in Brazil
- Combined, suggests multinationals may play an unusual role

TABLE 2: RELATIONSHIP BETWEEN HQ AND FOREIGN ESTABLISHMENT WAGES

| <i>Sample</i> | <i>Sample 3</i> | | | <i>Sample 2</i> | |
|---------------------------------|---|---------------------|---------------------|-------------------------|---------------------------------|
| | MNEs w/ estab.-HQ match | w/in occ×year | | MNEs w/ estab.-HQ match | w/in occ |
| <i>Unit of Observation</i> | estab×occ×yr | estab×skill-lev×yr | estab×yr | estab×occ | estab×occ×yr |
| <i>Data Structure</i> | Panel | Panel | Panel | Cross-sectional | Panel (Imputed Estab. Panel) |
| <i>Dep. Var.</i> | Log Wage at Foreign Establishment | | | | |
| | <i>Panel A: Local Benchmark Wage Control</i> | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| Log HQ Wage | 0.153** (0.048) | 0.121* (0.062) | 0.372*** (0.065) | 0.324*** (0.072) | 0.480*** (0.109) |
| Log Local Benchmark Wage | 0.137*** (0.040) | 0.212*** (0.034) | | 0.307*** (0.046) | 0.008* (0.004) |
| Employer×Occ FE | Y | | | | |
| Employer×Skill-level FE | | Y | | | |
| Employer FE | | | Y | Y | Y |
| Estab.-City×Year FE | Y | Y | Y | | Y |
| Occ FE | | | | Y | Y |
| Estab.-City FE | | | | Y | |
| Observations | 19,520 | 9,241 | 1,274 | 17,850 | 31,751 |
| | <i>Panel B: Estab.-city×Occupation×Year Fixed Effects</i> | | | | |
| | (1) | (2) | (3) | (4) | (5) |
| Log HQ Wage | 0.157*** (0.048) | 0.266*** (0.090) | 0.372*** (0.065) | 0.280*** (0.068) | 0.482*** (0.041) |
| Employer×Occ FE | Y | | | | |
| Employer×Skill-level FE | | Y | | | |
| Employer FE | | | Y | Y | Y |
| Estab.-City×Year FE | | | Y | | |
| Estab.-City×Occ×Year FE | Y | | | | Y |
| Estab.-City×Skill-level×Year FE | | Y | | | |
| Estab.-City×Occ FE | | | | Y | |
| Observations | 19,520 | 9,246 | 1,274 | 17,850 | 38,268 |

TABLE 5: MIN. WAGE IMPACT ON BINDING VS NON-BINDING OCCUPATIONS/FIRMS

| <i>Panel A: Binding Occupations (v. Others) w/in Establishment×Year</i> | | | | |
|---|-----------------------|-----------------------|---------------------|---------------------|
| | %Δ Estab. Wage (1) | %Δ Estab. Wage (2) | %Δ HQ Wage (3) | %Δ HQ Wage (4) |
| %Δ HQ Min Wage | | 0.016 (0.074) | | -0.006 (0.057) |
| %Δ HQ Min Wage × Occ. Binding | 0.088*** (0.029) | 0.082*** (0.032) | 0.209*** (0.096) | 0.263 (0.166) |
| Employer×Occ FE | Y | Y | Y | Y |
| Year FE | N | N | N | Y |
| Estab.-City×Year FE | N | Y | N | N |
| Employer×Estab.×Year FE | Y | N | Y | N |
| Observations | 7,803 | 7,803 | 2,447 | 2,327 |
| R-squared | 0.721 | 0.707 | 0.717 | 0.356 |
| <i>Panel B: Heterogeneity by Firm Bindingness on Low-Skill Occ'n.s w/in HQ-Country×Year</i> | | | | |
| | %Δ Estab. Wage (1) | %Δ Estab. Wage (2) | %Δ HQ Wage (3) | %Δ HQ Wage (4) |
| %Δ HQ Min Wage | | 0.055 (0.070) | | 0.149 (0.403) |
| %Δ HQ Min Wage × Firm Bindingness (sample median deviation of Kaitz) | 1.373*** (0.527) | 1.118** (0.529) | 4.705*** (0.048) | 4.172*** (1.421) |
| Employer×Occ FE | Y | Y | Y | Y |
| Year FE | N | N | N | Y |
| Estab.-City×Year FE | Y | Y | N | N |
| HQ-City×Year FE | Y | N | Y | N |
| Observations | 34,634 | 34,634 | 994 | 994 |
| R-squared | 0.472 | 0.447 | 0.825 | 0.825 |
| <i>Panel C: Heterogeneity by Firm Bindingness on Binding Occ'n.s (v. Others) w/in HQ-Country×Year</i> | | | | |
| | %Δ Estab. Wage (1) | %Δ Estab. Wage (2) | %Δ HQ Wage (3) | %Δ HQ Wage (4) |
| %Δ HQ Min Wage | | 0.014 (0.041) | | 0.023 (0.018) |
| %Δ HQ Min Wage×Occ. Binding | 0.086 (0.058) | 0.086 (0.060) | 0.126*** (0.043) | 0.147*** (0.047) |
| %Δ HQ Min Wage×Occ. Binding × Firm Bindingness (sample median deviation) | 1.243*** (0.404) | 1.190** (0.403) | 4.045** (1.929) | 4.306* (2.333) |
| %Δ HQ Min Wage×Occ. Non-binding × Firm Bindingness (sample median deviation) | 0.896** (0.375) | 0.813** (0.375) | 3.864** (1.924) | 3.681* (2.177) |
| Employer×Occ FE | Y | Y | Y | Y |
| Year FE | N | N | N | Y |
| Estab.-City×Year FE | Y | Y | N | N |
| HQ-City×Year FE | N | Y | N | Y |
| Observations | 6,505 | 6,505 | 3,384 | 3,384 |
| R-squared | 0.712 | 0.711 | 0.801 | 0.355 |

TABLE 8: IMPACT OF HQ MIN. WAGE CHANGE ON FOREIGN ESTABLISHMENT EMPLOYMENT

| <i>Panel A: Extensive Margin</i> | | | | |
|---|---|--|----------------------|---|
| <i>Data Source</i> | the Company | | RAIS (Brazil) | |
| <i>Unit of Observation</i> | estab×occ×year | | | |
| <i>Dep. Var.</i> | Occupation Leaves Foreign Establishment | | | |
| <i>Sample</i> | All Occ. | Low-Skill Occ. | All Occ. | All Occ. |
| | (1) | (2) | (3) | (4) |
| %Δ HQ Min Wage | 0.018* (0.009) | 0.026** (0.012) | -0.050 (0.056) | -0.056 (0.056) |
| %Δ HQ Min Wage × HQ-Country Low Ineq. Aversion | -0.022* (0.012) | -0.019 (0.015) | | |
| %Δ Min Wage at HQ × Low Skill Occ. | | | | 0.108 (0.079) |
| Employer×Occ FE | Y | Y | Y | Y |
| Estab.-City×Year FE | Y | Y | Y | Y |
| Mean Dep. Var. | 0.042 | 0.086 | 0.058 | Low-Skill: 0.068 Med/High-Skill: 0.006 |
| Observations | 169,841 | 105,545 | 35,059 | 35,059 |
| <i>Panel B: Intensive Margin</i> | | | | |
| <i>Data Source</i> | RAIS (Brazil) | | | |
| <i>Unit of Observation</i> | estab×worker×yr | | | |
| <i>Dep. Var.</i> | Worker Laid Off | | Worker Newly Hired | |
| | (1) | (2) | (3) | (4) |
| %Δ HQ Min Wage | 0.008 (0.011) | -0.011 (0.008) | -0.010*** (0.004) | -0.010*** (0.003) |
| %Δ HQ Min Wage × Low-Skill Occ. | | 0.027** (0.010) | | -0.004 (0.006) |
| Employer×Occ FE | Y | Y | Y | Y |
| Employer FE | N | N | N | N |
| Estab.-City×Year FE | Y | Y | Y | Y |
| Worker Controls | Y | Y | Y | Y |
| Mean Dep. Var. | 0.077 | Low-Skill: 0.082 Med/High-Skill: 0.0662 | 0.052 | Low-Skill: 0.118 Med/High-Skill: 0.072 |
| Observations | 1,320,842 | 1,320,842 | 1,320,842 | 1,320,842 |

Future directions

- Some future directions
 - Labor market regulations in developing countries create rigid labor markets. What are the implications? How to square the India and Brazil results? Minimum wages? Other policies?
 - Worker safety / sweatshops /
 - Unions?
 - Unemployment insurance / disability insurance / safety nets?

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