Subsistence Wage Employment: Labor Market Dynamics in Urban Ghana

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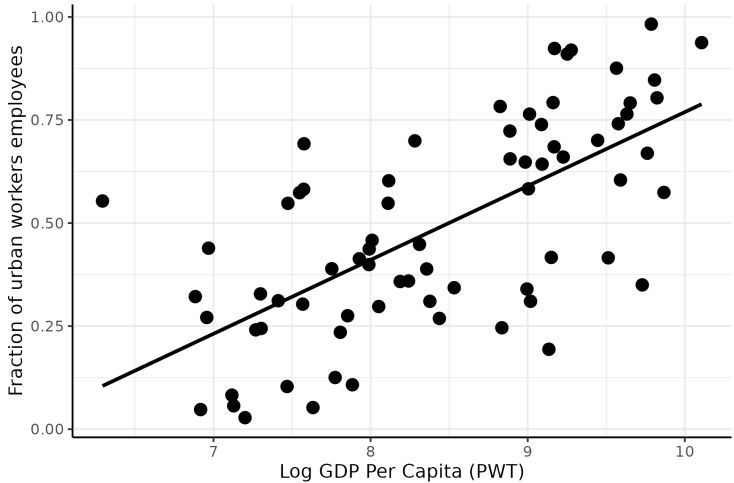
October 29, 2024

Rates of wage work are low in developing countries



(Bandiera, Elsayed, Smurra and Zipfel, 2022)

Conventional view: Entry

- Lewis (1954): Economies are "islands of capitalist sectors" in a "vast sea of subsistence workers"
- Not enough jobs. Workers queue and wait to enter desirable wage sector (Harris and Todaro, 1970; Breza, Kaur and Shamdasani, 2021)

New view: Exit

- Donovan, Lu and Schoellman (2020) collect labor market panel data from around the world. Show
  - Entry rates into wage sector are high
  - Exit rates out of wage sector are *higher*

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  - Entry rates into wage sector are high
  - Exit rates out of wage sector are *higher*
- **Why are exit rates out of wage work so high in poor countries?**

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- Build case for quantitatively important mechanism driving high exit rates

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  - Quitters see income increase in Ghana, not in USA
  - Quits in Ghana are correlated with temporary lapses in non-wage income

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  - Quitters see income increase in Ghana, not in USA
  - Quits in Ghana are correlated with temporary lapses in non-wage income
- New theory
  - Quits driven by income risk *outside* the wage sector
  - Call this "Subsistence Wage Employment"
  - Accounts for 17% difference exit rates between USA and Ghana

Contribution

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- High labor churn in poor countries (Donovan, Lu and Schoellman, 2020)
  - New context of Ghana, Sub-Saharan Africa
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- Labor market flows from firm's perspective (Shiferaw and Söderbom, 2021; Kerr, 2018)
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  - First Job Opening and Labor Turnover Survey (JOLTS)-style data from a developing country. Separation, Quit, Layoff, Hiring, Vacancy rates
- Theory of endogenous quits (Bagga, Mann, Şahin and Violante, 2023; Poschke, 2022; Attanasio, Sánchez-Marcos and Low, 2005; Blanco, Drenik, Moser and Zaratiegui, 2024)
  - New mechanism: Risk in the non-wage sector
  - Cross-country comparison

Data

Original job-seeker survey in Accra, Ghana

- Two rounds 8 months apart
  - Baseline: Incomes, Employment, Search strategy, Social network, Beliefs
  - Endline: Employment outcomes, experience between surveys

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- Two rounds 8 months apart
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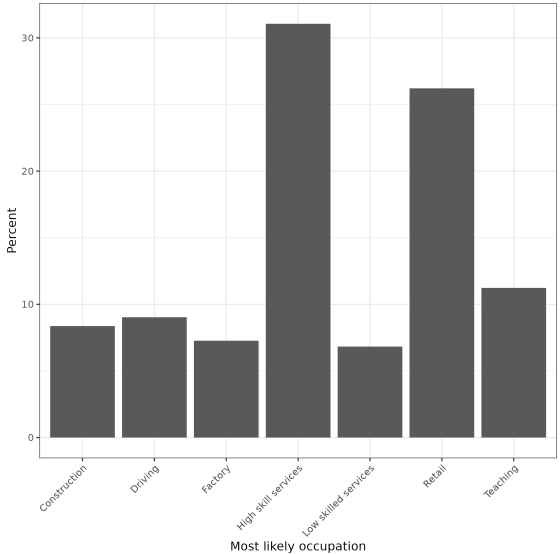
  - Endline: Employment outcomes, experience between surveys
- 465 job-seekers
  - Recruited through internet advertising campaign
  - Male, 29 years old, some university, 5 years work experience, wants office job
  - Includes on-the-job searchers
  - 20% self-employed, 45% working for someone else, 35% Unemployed

Summary Statistics

Expected occupation of job-seekers

Job ladder | Outcomes



Original survey of firms

- One round
  - Job Openings, Labor Turnover (JOLTS)
  - Distinguish between quits and layoffs
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- One round
  - Job Openings, Labor Turnover (JOLTS)
  - Distinguish between quits and layoffs
  - Vacancies, barriers to hiring
- 110 firms
  - Targeted firms employing desirable positions: secretary, administrative roles
  - Domestic, formal, medium sized firms. 18 workers in establishment
  - 15% of open positions require college degree

Summary statistics

Comparing with USA

- Job-seekers
  - 2014-2018 Current Population Survey (CPS): Entry and exit in and out of wage work
  - 2014-2018 Survey of Income and Program Participation (SIPP): Wage and non-wage monthly income (unemployment insurance, self-employment, social transfers etc.)
  - Drop anyone who exits labor force
  - Keep anyone unemployed in period
  - Re-weight USA data to match age, gender, years of education, marital status (Hainmueller, 2017):

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  - Re-weight USA data to match age, gender, years of education, marital status (Hainmueller, 2017):
- Firms: 2010-2019 Job Openings and Labor Turnover Survey (JOLTS)
  - Aggregate rates "as if" Ghanaian firms behaved like USA firms

Differences between USA and Ghana

Fact 1: Entry vs Exit

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- Sample: Job-seekers without wage work at month 0

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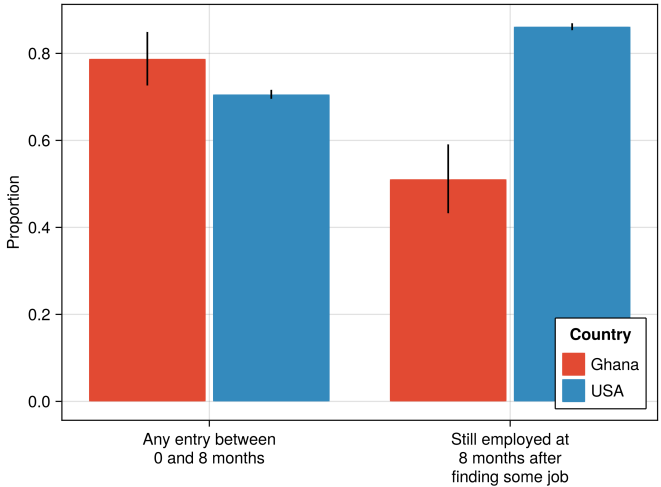
- I show: Exit dominates entry, consistent with (Donovan, Lu and Schoellman, 2020)

Fact 1: Ghanaian workers can find wage work. Jobs don't last



Data construction Flow-rates Back

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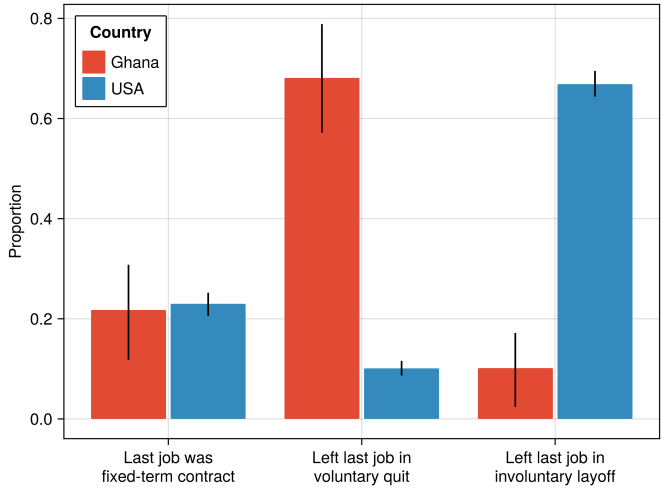
- I show: Quits dominate layoffs (New finding)

Fact 2: Why don't jobs last? Quits in Ghana, Layoffs in USA



Data construction | No Ghana self-employed | Flow-rates | Back | Exit by occupation

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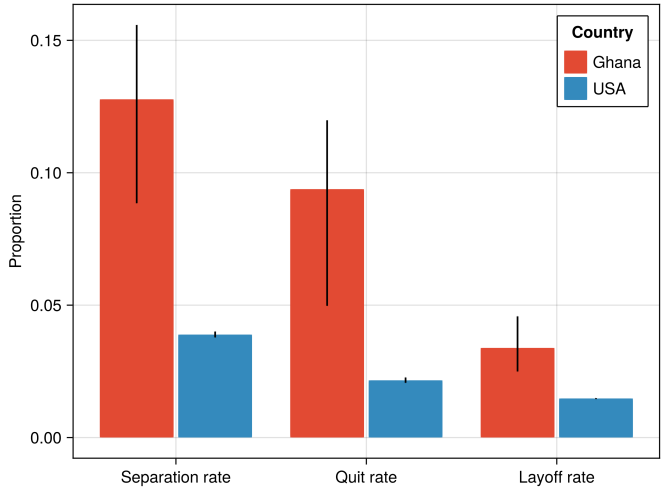
- I show: Quits dominate layoffs in firms as well

Fact 2.5: Ghana firms report high exit, through quits



Data construction | Hiring and vacancies

Fact 3: Difference between quits and layoffs

- Quits are higher in Ghana. Why should you care?
- Standard DMP Model
  - Firm and worker split surplus
  - When surplus is 0, mutually agree to part ways
  - Quits and layoffs meaningless labels

Fact 3: Difference between quits and layoffs

- Quits are higher in Ghana. Why should you care?
- Standard DMP Model
  - Firm and worker split surplus
  - When surplus is 0, mutually agree to part ways
  - Quits and layoffs meaningless labels
- Need to show meaningful distinction between quits and layoffs

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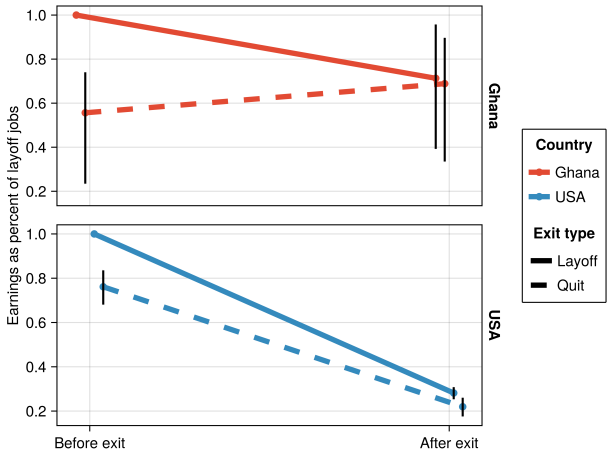
- Outcomes:
  - Wage at job before exit
  - Non-wage income after exit
- I show:
  - Ghana: Small income gains after quit. Small income losses after layoff
  - In USA: Large income losses after quit. Large income losses after layoff

Fact 3: Quitters in Ghana see income gains after quits



Back

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  - Not very desirable (New result, consistent with work on Ethiopian factories)

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  - Desirable relative to wage employment
- My survey: Wage work is
  - Easy to find (Consistent with Donovan, Lu and Schoellman (2020))
  - Not very desirable (New result, consistent with work on Ethiopian factories)
- Remaining questions
  - Why so many quits?
  - If increased income after a quit, why take job at all?
  - Why are dynamics of quits and layoffs so different between USA and Ghana?

The Causes of Quits in Ghana

Leading Theory: Information Frictions

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- Firms and workers can't observe match quality until starting work
  - When observe true (low) quality, separate (Jovanovic, 1979)

Leading Theory: Information Frictions

- Firms and workers can't observe match quality until starting work
  - When observe true (low) quality, separate (Jovanovic, 1979)
- New research: Information frictions drive exit in poor countries
  - Structural models (Donovan, Lu and Schoellman, 2020; Poschke, 2022)
  - Experiments (Carranza, Garlick, Orkin and Rankin, 2020; Abel, Burger and Piraino, 2020; Abebe, Caria, Fafchamps, Falco, Franklin and Quinn, 2020; Bassi and Nansamba, 2020; Banerjee and Sequeira, 2021)

Information frictions: Informal theory

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  - Workers can't observe non-wage characteristics of jobs
  - Quit when learn true bad conditions

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- I show: Story has not likely

Two approaches ruling out information frictions

- Approach 1: Measure general level of information job-seekers have about labor market
  - Have they worked in similar jobs before?
  - Are the people helping them find work *themselves* knowledgeable?
  - Make index. Compare high- and low-information groups

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  - Have they worked in similar jobs before?
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  - Make index. Compare high- and low-information groups
- Approach 2: Measure beliefs about non-wage aspects of jobs directly
  - What do you think the physical comfort level will be in your future job?
  - Compare expectations at baseline to true values at 8-month endline

High information job-seekers are not more likely to exit

Outcome at eight months	Overall Mean	Mean by group		Regression
		Low information	High information	
	(1)	(2)	(3)	(4)
Any employment entry since baseline				
Any exit conditional on entry				
Quit conditional on exit				

- Covariates in Column (4): Age, Gender, Married, Baseline income, Assets index, Dependents, Education, Work experience

Data construction

High information job-seekers are not more likely to exit

Outcome at eight months	Overall Mean	Mean by group		Regression
		Low information	High information	
	(1)	(2)	(3)	(4)
Any employment entry since baseline	0.79	0.82	0.76	-0.059
				[0.060]
Any exit conditional on entry	0.49	0.51	0.47	-0.051
				[0.088]
Quit conditional on exit	0.68	0.74	0.61	-0.091
				[0.123]

- Covariates in Column (4): Age, Gender, Married, Baseline income, Assets index, Dependents, Education, Work experience

Data construction

Beliefs about physical comfort at future job uncorrelated with exit

	(1) Exit	(2) Exit	(3) Exit	(4) Exit
Optimism about physical amenities	0.0268			
	(0.0253)			
In-accuracy about physical amenities		-0.0168		
		(0.0316)		
Above median optimism about physical amenities			-0.0743	
			(0.103)	
Above median in-accuracy about physical amenities				0.0836
				(0.0955)
Observations	131	131	131	131

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < .01$

Commutes | Physical comfort, quits | Commutes, quits

Leading theory: Self-employment

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  - Quitters' self-employment more profitable
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- I show: Self employment only moderately related to quits

Self-employment plays a moderate role in quits

Outcome at eight months	Overall Mean	Mean by group		Regression
		Layoff	Quit	
	(1)	(2)	(3)	(4)
Self-employed at endline				
Searching for a job				
Searching if self-employed				
Searching if not self-employed				
Total income at endline				
Total income if self-employed				
Total income if not self-employed				
Difference in income: Current minus last job				
Difference if self-employed				
Difference if not self-employed				

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Self-employed at endline	0.43	0.36	0.47	0.120
				[0.134]
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Self-employed at endline	0.43	0.36	0.47	0.120
				[0.134]
Searching for a job	0.81	0.73	0.85	0.220
				[0.095]**
Searching if self-employed	0.70	0.38	0.82	0.305
				[0.173]*
Searching if not self-employed	0.90	0.93	0.88	0.100
				[0.112]
Total income at endline				
Total income if self-employed				
Total income if not self-employed				
Difference in income: Current minus last job				
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Total income at endline	1,227.39	1,256.82	1,213.62	200.736
				[248.076]
Total income if self-employed	1,760.00	1,887.50	1,713.64	558.084
				[497.341]
Total income if not self-employed	817.69	896.43	773.60	-36.742
				[217.333]
Difference in income: Current minus last job				
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Total income if not self-employed	817.69	896.43	773.60	-36.742
				[217.333]
Difference in income: Current minus last job	-2.61	-505.91	232.98	713.864
				[287.976]**
Difference if self-employed	520.67	333.75	588.64	145.622
				[494.804]
Difference if not self-employed	-405.13	-985.71	-80.00	581.709
				[365.228]

Building New Theory: Wage Work as Insurance against Risk in Non-wage Sector

Intuition

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- Job-seekers face uncertain income flows
  - Some days, income from friends, family, self-employment
  - Some days, forced to rely on savings

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- Job-seekers face uncertain income flows
  - Some days, income from friends, family, self-employment
  - Some days, forced to rely on savings
- When no income, take undesirable wage job to pay for daily needs
- When income flow returns, quit job
- To observe: More quits among people without income flows at baseline

Heterogeneity: Presence of income flows at baseline

- At baseline ask "How are you paying for daily needs?". Three options
  - Self-employment
  - Transfers from family and friends
  - Nothing. Rely on savings

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- At baseline ask "How are you paying for daily needs?". Three options
  - Self-employment
  - Transfers from family and friends
  - Nothing. Rely on savings
- Relative to first two groups, savings group
  - More likely to exit conditional on finding work
  - More likely to quit conditional on finding work

Income flows, not assets, distinguish groups

Income flows, not assets, distinguish groups

Baseline characteristic	Overall Mean	Mean by group		Regression
		Income flows	Savings	
	(1)	(2)	(3)	(4)
Age	29.73	29.37	31.23	1.861
				[1.211]
Male	0.77	0.76	0.83	0.072
				[0.079]
University of more education	0.50	0.47	0.60	0.128
				[0.094]
Years of work experience	6.15	5.95	6.97	1.025
				[0.845]
Any dependents	0.55	0.53	0.66	0.129
				[0.094]
Assets index at baseline	4.12	4.14	4.06	-0.082
				[0.313]
Total income from all sources past month	714.36	777.36	455.14	-322.218
				[136.791]**

Job-seekers without income flows are more likely to quit

Outcome at eight months	Overall Mean	Mean by group		Regression
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Any exit conditional on entry				
Any quit conditional on finding work				
Any layoff conditional on entry				
Employed at endline				

Savings vs. Self-employment Savings vs. Social Transfers

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Any quit conditional on finding work				
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Employed at endline	0.40	0.44	0.23	-0.230
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Savings vs. Self-employment Savings vs. Social Transfers

Further evidence: Lapses of income are temporary

- Absence of flow income at baseline is correlated with quits

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  - Change in presence / absence of flow income correlated with quits

Presence of income changes, mediates quits

Outcome at eight months	Overall Mean	Mean by group		Regression
		Income flows	Savings	
	(1)	(2)	(3)	(4)
Relies on savings at endline if not in a wage job	0.17	0.12	0.30	0.142
				[0.082]*
Quit				
Layoff				
Never-entered				

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Outcome at eight months	Overall Mean	Mean by group: Income flows	Mean by group: Savings	Regression
	(1)	(2)	(3)	(4)
Relies on savings at endline if not in a wage job	0.17	0.12	0.30	0.142
				[0.082]*
Quit	0.15	0.13	0.19	-0.012
				[0.117]
Layoff	0.27	0.12	0.67	0.507
				[0.190]**
Never-entered	0.13	0.12	0.20	0.070
				[0.154]

Motivation for model

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  - Quitters see income gains from quitting. Why accept job at all?
  - Job-seekers in *worse* financial straights are more likely to quit. Why?

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- Purpose of model:
  - Formalize intuition
  - Quantify mechanism's importance in exit differences between Ghana and USA

A DMP Model with Non-wage Income Risk

Agents and Preferences

- Time is continuous
- Two agents: Unit mass workers, firms
- Two sectors: Wage and non-wage
  - Non-wage sector: Represents self-employment, social transfers, unemployment insurance
  - Firms and workers match and produce in wage sector
- Linear preferences, discount rate ρ

Matching and Production

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  - Don't get ψ_t unless exit wage sector
  - Poisson process. Re-draw from F_ψ at rate φ

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  - u workers in non-wage sector, v vacancies
  - Job-finding rate q^w
  - Worker-finding rate q^f

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  - u workers in non-wage sector, v vacancies
  - Job-finding rate q^w
  - Worker-finding rate q^f
- Upon match, jointly draw productivity z from F_z
  - Output linear in z
  - Exogenous wages fixed throughout match. $w = \delta z$
  - Non-wage amenity ν experience by workers

Worker exits

- Goal: Quantify importance of changes in non-wage income ψ_t in driving exits.

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  - Move to (z, ψ_h)
  - Quit to take advantage of higher non-wage income

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  - In state (z, ψ_l)
  - Move to (z, ψ_h)
  - Quit to take advantage of higher non-wage income
- Firms always prefer match to no-match. No endogenous force on firm's side.

Worker value function

- Non-wage sector

$$\rho U(\psi) = \psi \qquad \text{(Income flows)}$$
$$+ q^w \int_z \left(\max\{W(\psi, z), U(\psi)\} - U(\psi)\right) f_z(z)\, dz \qquad \text{(Accept / reject)}$$
$$+ \varphi \int_\psi \left(U(\psi') - U(\psi)\right) f_\psi(\psi')\, d\psi' \qquad \text{(Income risk)}$$

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&+ \varphi \int_\psi \left(U(\psi') - U(\psi)\right) f_\psi(\psi')\, d\psi' && \text{(Income risk)}
\end{aligned}$$

- Wage sector

$$\begin{aligned}
\rho W(\psi,z) = \delta z + \nu & && \text{(Income flows)} \\
&+ \left(\lambda^f + \lambda^w\right)\left(U(\psi) - W(\psi,z)\right) && \text{(Exogenous exits)} \\
&+ \varphi \int_{\psi'} \left(\max\left\{W(\psi',z), U(\psi')\right\} - W(\psi,z)\right) f_\psi(\psi')\, d\psi' && \text{(Quit / stay)}
\end{aligned}$$

Firm value function

- Vacancy

$$\rho V = -c \qquad \text{(Posting cost)}$$

$$+ q^f \int_z \int_\psi J(\psi, z) \times \mathbb{I}(W(\psi, z) > U(\psi)) u(\psi) f_z(z) \; d\psi \; dz \qquad \text{(Match)}$$

- $u(\psi)$: mass of workers in non-wage sector with current non-wage income ψ

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- $u(\psi)$: mass of workers in non-wage sector with current non-wage income ψ
- With worker

$$\rho J(\psi, z) = (1 - \delta)z \qquad \text{(Income flows)}$$
$$- (\lambda^f + \lambda^w) J(\psi, z) \qquad \text{(Exogenous exit)}$$
$$+ \varphi \int_{\psi'} J(\psi', z) \times \mathbb{I}\left(W(\psi', z) > U(\psi') - J(\psi', z)\right) f_\psi(\psi')\ d\psi' \qquad \text{(Endogenous quits)}$$

Equilibrium

- Free entry holds, $V = 0$
- Workers optimally choose which jobs to accept, reject, quit, stay
- Flows in and out of wage sector are net 0

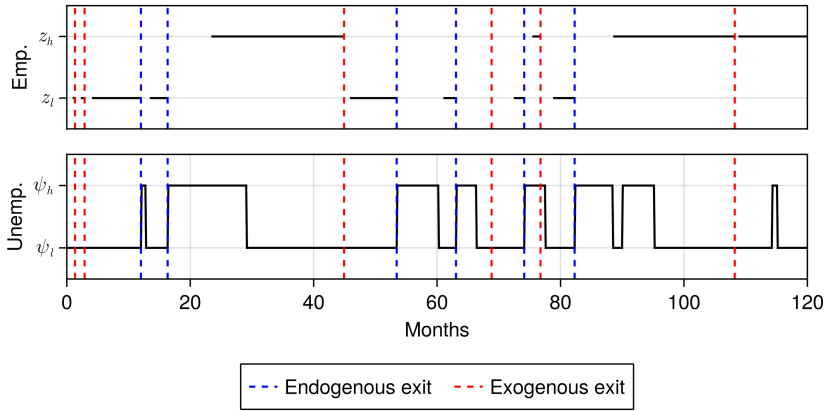
Model intuition

Model intuition

- Two non-wage income states: ψ_l, ψ_h
- Two jobs: z_l, z_h
- Always prefers working at good job z_h
- Only sometimes likes bad job z_l

$$U(\psi_l) < W(\psi_l, z_l) < U(\psi_h) < W(\psi_h, z_h)$$

Tracking a worker across 10 years



Change shock frequency

Identifying endogenous quits from data

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- More endogenous quits
  - Smaller income loss from quits
  - Bigger difference between quits and layoffs

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Model	Outcome		
	Endog. quits / exits	Average earnings gain after a quit	Average earnings gain after a layoff
	(1)	(2)	(3)
Baseline	30	-0.41	-0.63
High φ	45	-0.37	-0.61
φ is 0	0.0	-0.89	-0.89

Quantifying the Share of Exits due to Changing Non-wage Income

Calibration

- 9 parameters to 9 moments
- Calibrate to Ghana and USA
- Entry and exit
  - % Found *any job* between 0 and 8 months Earlier slide
  - % Employed at 8 months Earlier slide
- Quits vs layoffs
  - % Conditional on exit, quit vs. layoff Earlier slide
  - Average earnings gain after a quit Earlier slide
- Distribution of income
  - Variance of residualized log wage income
  - Variance of residualized log non-wage income
  - Correlation of income across time
- Firms
  - Vacancies as a share of total employment Slide

Parameter choices

Parameter	Description	Value	
		Ghana (1)	USA (2)
	Panel A: Pre-assigned parameters		
ρ	Discount rate	0.0042	0.0042
γ	Matching curvature	0.70	0.70
μ_ψ	Mean of unemployment income	0.0	0.0
δ	Worker share of production	0.50	0.50
	Panel B: Calibrated parameters		
λ^f	Layoff rate	0.12	0.050
λ^q	Quit rate	0.11	0.0041
σ_ψ	Std. dev. of unemployment process	0.61	1.3
φ	Arrival of outside option shocks	0.14	0.0097
μ_z	Mean of productivity	0.037	-0.078
σ_z	Std. dev. of productivity	0.71	1.4
ν	Amenity value of unemployment	0.70	16
χ	Matching efficiency	1.7	5.3
c	Cost of posting vacancy	45	230

Model fit

Moment	Ghana		USA	
	Data (1)	Model (2)	Data (3)	Model (4)
Any wage employment since Baseline	0.79	0.69	0.71	0.77
Exit conditional on finding work	0.49	0.48	0.13	0.14
Fraction exits from quits	0.68	0.59	0.10	0.092
Correlation of unemployment earnings	0.31	0.30	0.62	0.91
Std. dev. of unemployment earnings	0.50	0.63	1.5	1.5
Std. dev. of employment earnings	0.50	0.51	0.60	0.57
Average earnings gain after a quit	0.13	0.14	-0.54	-0.51
Average earnings gain after a layoff	-0.29	-0.19	-0.72	-0.77
Vacancies as a share of employment	0.025	0.024	0.035	0.035

Counterfactual – shutting down changes in non-wage income

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- Reduce the rate of arrival of non-wage income shocks φ
  - Interpretation: Differences in income persist

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- Reduce variance of productivity shocks F_z (keep mean the same)
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Counterfactual – shutting down changes in non-wage income

- Reduce the rate of arrival of non-wage income shocks φ
  - Interpretation: Differences in income persist
- Reduce variance of productivity shocks F_z (keep mean the same)
  - Interpretation: No differences in income
- Apply same reduction to USA and Ghana
- Reduces gap in exit flows 17%

Shutting down changes in non-wage income reduces gap in exit rates 18%

Outcome	Value: USA (1)	Value: Ghana (2)	Difference (3)	% Explained (4)
Baseline				
Quit rate	0.5	15.1	14.6	-
Exit rate	5.4	26.7	21.2	-
Reduce φ 50 percent				
Quit rate	0.4	13.4	12.9	-
Exit rate	5.4	25.0	19.5	7.9
φ is zero				
Quit rate	0.4	11.4	11.0	-
Exit rate	5.4	23.0	17.6	17.1
Reduce variance of F_ψ 50 percent				
Quit rate	0.5	14.0	13.5	-
Exit rate	5.4	25.6	20.1	5.1
Constant ψ				
Quit rate	0.4	11.4	11.0	-
Exit rate	5.4	22.9	17.6	17.1

Steady state employment

Differences between USA and Ghana

- What differences in structural parameters drive differences between USA and Ghana?

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- Non-wage income
  - Frequency of shocks to non-wage income. Replace φ_{Ghana} with φ_{USA}
  - Distribution of non-wage income *after* shock. Replace $F_{\psi,\text{Ghana}}$ with $F_{\psi,\text{USA}}$

Differences between USA and Ghana

- What differences in structural parameters drive differences between USA and Ghana?
- Non-wage income
  - Frequency of shocks to non-wage income. Replace φ_{Ghana} with φ_{USA}
  - Distribution of non-wage income *after* shock. Replace $F_{\psi,\text{Ghana}}$ with $F_{\psi,\text{USA}}$
- Value of a job
  - People will quit less when jobs are valuable
  - Productivity of jobs. Replace $F_{z,\text{Ghana}}$ with $F_{z,\text{USA}}$
  - Non-wage amenity value of jobs. Replace ν_{Ghana} with ν_{USA}

Shock frequency, productivity, non-wage amenities drive differences between USA and Ghana

Outcome	Value		Difference	% Explained
	USA (1)	Ghana (2)	(3)	(4)
Baseline				
Quit rate	0.5	15.1	14.6	-
Exit rate	5.4	26.7	21.2	-
Ghana, φ_{USA}				
Quit rate	-	11.7	11.2	-
Exit rate	-	23.2	17.8	16.1
Ghana, $F_{\psi,\text{USA}}$				
Quit rate	-	16.9	16.5	-
Exit rate	-	28.5	23.1	-8.7
Ghana, ψ_{USA}, $F_{\psi,\text{USA}}$				
Quit rate	-	11.8	11.3	-
Exit rate	-	23.4	17.9	15.5
Ghana $F_{z,\text{USA}}$				
Quit rate	-	12.7	12.2	-
Exit rate	-	24.2	18.8	11.4
Ghana ν_{USA}				
Quit rate	-	11.4	10.9	-
Exit rate	-	22.9	17.5	17.5

Conclusion

- Workers frequently quit jobs in Ghana
- Evidence suggests non-wage income risk drives quits
- Income risk seems to drive 17% of difference in exit rates between USA and Ghana
- I call this "Subsistence Wage Employment"

Characteristics of Job-Seeker Sample

Variable	Job-seeker Survey		2015 Labor Force Survey	
	Mean (1)	Median (2)	Mean (3)	Median (4)
Male	0.83	-	0.51	-
Age	29.2	28	36.9	35
Years of work experience	6.0	5	-	-
Any work experience	1.00	-	-	-
Currently working	0.66	-	0.81	-
Currently working for someone else	0.45	-	0.13	-
Currently exclusively in self employment	0.19	-	0.68	-
Any work in past year	0.95	-		-
High school or less education	0.40	-	0.89	-
University of more education	0.47	-	0.07	-
Vocational training in past year	0.21	-	-	-
Years living in Accra	18.14	20	-	-
Any dependents	0.61	-	-	-
Is married	0.20	-	0.62	-
Months so far searching for job	28.0	24	12.3	9
Average monthly income (2022 USD)	108.3	87	-	-
Average wage income (2022 USD)	112.2	87	-	-

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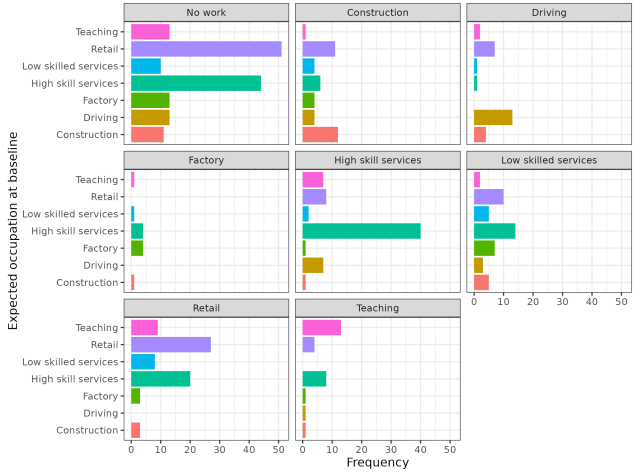
Evidence of job ladder



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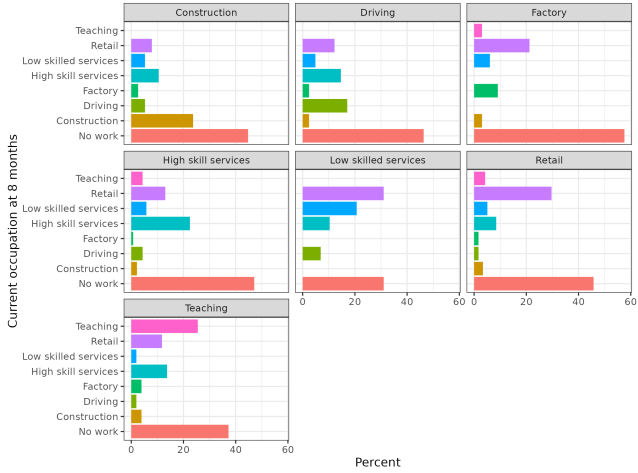
8-month outcomes of job-seekers



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Characteristics of Firms Sample

Variable	Mean (1)	Median (2)
Wholly domestic	0.83	-
Wholly foreign	0.05	-
Joint enterprise	0.12	-
Employees in firm	50.51	12
Number of employees overseen	18.29	10
Last position was a services position	0.40	-
Last position required some college or more	0.15	-

Back

Methodology for estimate flows

- Outcomes
  - Month 0: Job-seekers without wage work in USA and Ghana
  - Month 8: What proportion are working in a wage job?
  - Between 0 and 8 months: What proportion took up *some* wage job at *some* point?
- Methods
  - Ghana survey: Observable
  - CPS: Match Ghana methodology as close as possible
    - Job-seekers means unemployed workers *only* at month 0
    - Measure 12-month outcomes
    - Estimate flow rates between wage work and not-wage sector
    - Predict 8-month outcomes
- Bootstrapping for confidence intervals

Back

Derived flow-rates: Exit rate 5.2 times higher in Ghana

Outcome	Mean		Difference	Ratio
	Ghana	USA		
	(1)	(2)	(3)	(4)
Monthly entry rate	0.19	0.15	0.041	1.3
	[0.15, 0.23]	[0.15, 0.16]	[0.0093, 0.083]	[1.1, 1.5]
Monthly exit rate	0.28	0.048	0.23	5.7
	[0.18, 0.35]	[0.045, 0.052]	[0.16, 0.33]	[4.2, 7.8]
Stationary rate of wage work	0.41	0.76	-0.35	0.54
	[0.34, 0.49]	[0.75, 0.77]	[-0.42, -0.27]	[0.44, 0.64]

Back

Methodology for Quits vs Layoffs

- Start with job-seekers at month 0
- Find all workers who took up *some* employment between 0 and 8 months
- Conditional on not in wage work at 8 months, why did you leave your last job?
- Only observe cause of exit among unemployed in CPS, not self-employed

Back

Occupation and Exit

Baseline characteristic	Proportion exit conditional on entry			Proportion quit conditional on exit		
	No	Yes	Partial effect	No	Yes	Partial effect
	(1)	(2)	(3)	(4)	(5)	(6)
High-skill services	0.529	0.368	-0.113	0.685	0.643	0.023
			[0.102]			[0.158]
Low-skill services	0.504	0.308	-0.205	0.688	0.500	-0.178
			[0.150]			[0.254]
Manual labor	0.412	0.684	0.272	0.714	0.615	-0.190
			[0.100]			[0.134]***
Retail	0.470	0.525	0.037	0.638	0.762	0.156
			[0.106]			[0.137]
Teaching	0.504	0.273	-0.243	0.662	1.000	0.346
			[0.160]			[0.291]
Earnings greater than median	0.558	0.406	-0.146	0.791	0.500	-0.286
			[0.091]			[0.136]**

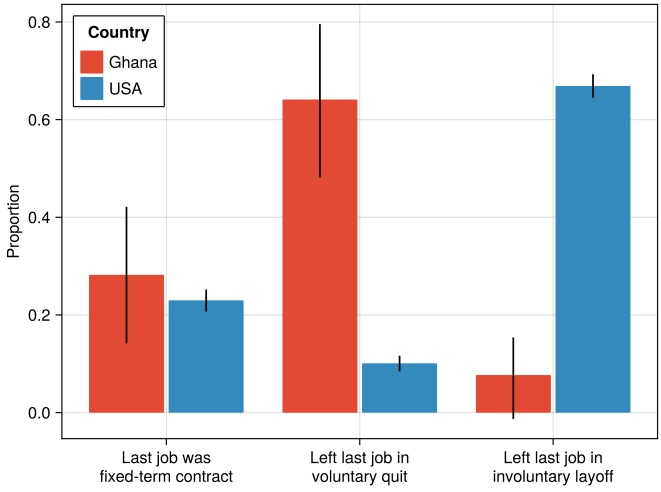
Back

Methodology for firms

- Need to compare
  - Firm-level data in Ghana
  - Aggregate flows by establishment size in USA
- Procedure
  - Match by establishment size
  - Construct "Total employees", "Total hires" etc. for full Ghana firm sample
  - Construct "Total hires", "Total separations" *as if* firms obeyed hiring and separation rates observed in USA
  - Compare aggregate flows

Back

Fact 2: Excluding self-employed in Ghana



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Quits vs. Layoffs: Layoff rate 2.3 times USA, Quit rate 38 times USA

Outcome	Mean		Difference	Ratio
	Ghana	USA		
	(1)	(2)	(3)	(4)
Monthly entry rate	0.19	0.15	0.041	1.3
	[0.15, 0.23]	[0.15, 0.16]	[0.0099, 0.082]	[1.1, 1.5]
Monthly layoff rate	0.088	0.043	0.045	2.0
	[0.040, 0.13]	[0.041, 0.046]	[0.0063, 0.092]	[1.1, 3.1]
Monthly quit rate	0.19	0.0049	0.18	39
	[0.11, 0.24]	[0.0040, 0.0057]	[0.13, 0.26]	[27, 58]

Back

Details on information index

Variable	Mean (1)	Median (2)	N (3)
Social connections help me get a job at the place they work	0.33		389
Greater than median number of social connections helping them find work	0.35		389
Social connections helping me find jobs are well-connected	0.40		389
Any experience at job I think I am most likely to get	0.88		389
Social connections tell me about job openings	0.83		389
Social connections tell me the wages jobs pay	0.25		389
Social connections help me travel to look for work	0.13	0.00	389
Social connections tell me which jobs I would be best at	0.17	0.00	389
Social connections refer me to people they know	0.44		389

Back

Beliefs about commute cost of future job uncorrelated with exit

	(1) Exit	(2) Exit	(3) Exit	(4) Exit
Expected commute cost minus group average	-0.0213			
	(0.0490)			
Abs. value expected commute cost minus group average		0.0366		
		(0.0790)		
Expected commute cost minus group average above median			0.0312	
			(0.0922)	
Abs. value expected commute cost minus group average above median				0.0678
				(0.0897)
Observations	131	131	131	131

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < .01$

Back

Self-employment vs Savings

Outcome at eight months	Overall Mean	Mean by group		Regression
		Flows from self-employment	Savings	
	(1)	(2)	(3)	(4)
Any employment entry since baseline	0.81	0.79	0.86	0.138
				[0.091]
Any exit conditional on entry	0.52	0.41	0.73	0.266
				[0.121]**
Any quit conditional on finding work	0.34	0.24	0.53	0.308
				[0.116]***
Any layoff conditional on entry	0.18	0.17	0.20	-0.042
				[0.102]
Employed at endline	0.39	0.47	0.23	-0.174
				[0.110]
Relies on savings at endline if not in a wage job	0.20	0.13	0.30	0.142
				[0.103]

Back

Social Transfers vs Savings

Outcome at eight months	Overall Mean (1)	Mean by group: Flows from social transfers (2)	Mean by group: Savings (3)	Regression (4)
Any employment entry since baseline	0.78	0.75	0.86	0.022
				[0.087]
Any exit conditional on entry	0.54	0.43	0.73	0.300
				[0.126]**
Any quit conditional on finding work	0.40	0.32	0.53	0.243
				[0.126]*
Any layoff conditional on entry	0.14	0.11	0.20	0.057
				[0.090]
Employed at endline	0.36	0.42	0.23	-0.228
				[0.107]**
Relies on savings at endline if not in a wage job	0.19	0.12	0.30	0.053
				[0.104]

Back

Beliefs about physical comfort at future job uncorrelated with quits

	(1) Quit	(2) Quit	(3) Quit	(4) Quit
cond_expect_diff	-0.0118			
	(0.0236)			
In-accuracy about physical amenities		-0.00674		
		(0.0293)		
cond_expect_diff_g_med			0.119	
			(0.0952)	
Above median in-accuracy about physical amenities				0.0219
				(0.0889)
Observations	131	131	131	131

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < .01$

Back

Beliefs about commute cost at future job uncorrelated with quits

	(1) Quit	(2) Quit	(3) Quit	(4) Quit
Expected commute cost minus group average	-0.0350			
	(0.0454)			
Abs. value expected commute cost minus group average		-0.0293		
		(0.0734)		
Expected commute cost minus group average above median			-0.0728	
			(0.0854)	
Abs. value expected commute cost minus group average above median				0.0323
				(0.0834)
Observations	131	131	131	131

Standard errors in parentheses

* $p < 0.10$, ** $p < 0.05$, *** $p < .01$

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Increase φ, more endogenous quits

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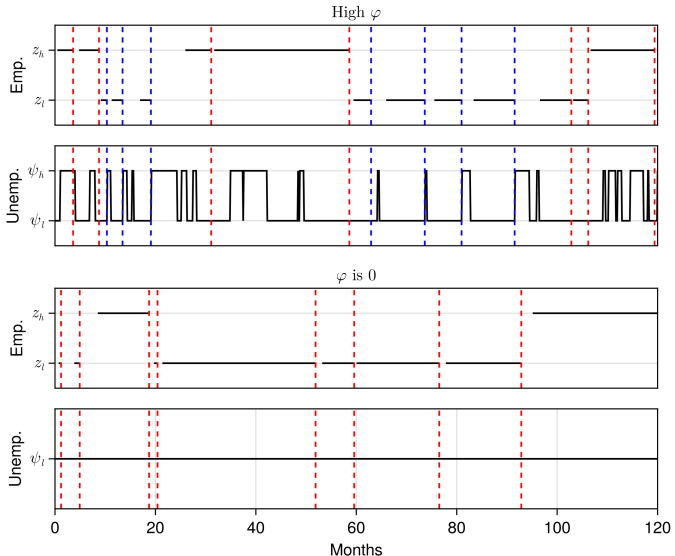

Steady state employment rates

- In USA sample, long-run employment rate 78%. Ghana, 38%
- Project focuses on exit
- Entry margin also affected by non-wage income
- Effect of non-wage income risk ambiguous
  - Higher entry: "I am facing a bad shock. I need to take a job"
  - Lower entry: "I might get a good shock. I don't need to take this job"

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Quantifying effect on steady state employment

- How does gap in steady-state employment rates change when alter non-wage income flows? Findings
  - Reducing risk leads to *lower* entry. Gap in steady state employment constant
  - Increasing value of jobs leads to *increased* entry. Gap in steady state employment decreases
- Conclusion: Exit, steady state employment both stem from low productivity of wage sector

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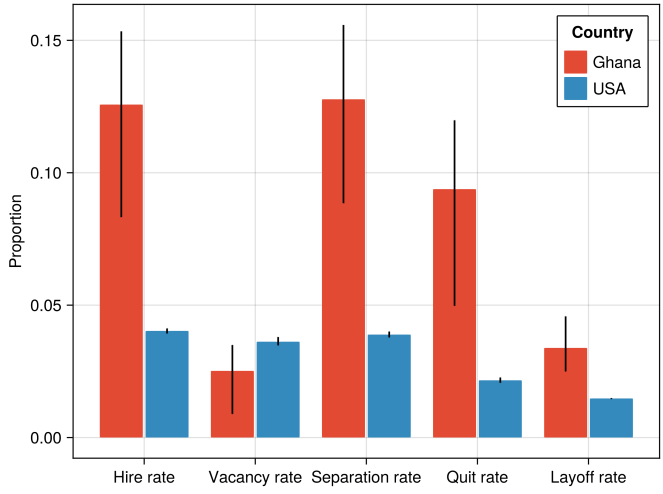
Only making employment more desirable increases exit rates and increases employment rates

Outcome	Value		Difference	% Explained
	USA (1)	Ghana (2)	(3)	(4)
Baseline				
Entry rate	20.2	16.8	-3.4	-
Exit rate	5.4	26.7	21.2	-
Percentage in wage employment	78.8	38.6	-40.2	-
Ghana, φ_{USA}				
Entry rate	-	14.5	-5.7	-
Exit rate	-	23.2	17.8	16.1
Percentage in wage employment	-	38.5	-40.3	-0.3
Ghana, $F_{\psi,\text{USA}}$				
Entry rate	-	14.7	-5.5	-
Exit rate	-	28.7	23.3	-9.6
Percentage in wage employment	-	33.9	-44.8	-11.6
Ghana, ψ_{USA}, $F_{\psi,\text{USA}}$				
Entry rate	-	12.7	-7.5	-
Exit rate	-	23.4	17.9	15.5
Percentage in wage employment	-	35.3	-43.5	-8.3
Ghana $F_{z,\text{USA}}$				
Entry rate	-	9.8	-10.4	-
Exit rate	-	24.4	18.9	10.7
Percentage in wage employment	-	28.7	-50.1	-24.6
Ghana ν_{USA}				
Entry rate	-	48.4	28.2	-
Exit rate	-	22.9	17.5	17.5
Percentage in wage employment	-	67.8	-10.9	72.8

Firms hiring and vacancy rates



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