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Labor markets and the informal economy in developing countries

1. The specificities of developing countries' labor markets
2. Describing DC labor markets
3. The informal sector—friend or foe?
   - 3.1 Unemployment in South Africa, 1995 - 2003
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5. Should children work, and if so, when?
6. Natural disasters and Labor Markets: build back better
7. The million-dollar question: how to improve DC labor markets?

Introduction

The obsession with labor markets

- Most people, especially the poor, derive all of their income from the work they do.
  - Therefore, poverty, inequality, well-being and other universally important issues are all linked to the labor market.
- When formal safety nets are lacking, success in income-generating activities can be a matter of survival.
- Need to understand labor markets in developing countries. Are they structurally different?
  - If so, do we need different tools?
    - Labor force surveys
    - Labor indicators
    - Analytical tools (models)

Specificities of developing country labor markets

Specificities of DC labor markets

Why treat developing country labor markets differently?

- **Segmentation** (informal/formal, rural/urban, public/private) leading to queuing behavior and other phenomena.
- **Social protection schemes** largely absent and insurance is informal, based on family or community.
- **Other labor categories** : unpaid family workers and child labor.
- More **vulnerable to shocks** (Jayachandran, JPE 2006).

Of course, "developing country" is not a binary concept (*continuum* of both labor markets and development stages).

Specificities of DC labor markets

Modern labor markets: supply and demand meet and set an equilibrium wage, depending on skill/experience/industry etc.

- The Lewis Model (1954): In rural areas, wages are not set according to marginal productivity, whilst in urban areas they are.
  - In rural areas, wage = average productivity (production is shared equally).
- This urban/rural dichotomy is still sometimes a relevant way of thinking about LMs in some contexts.
  - Nilsson & Mesplé-Somps: Our survey from rural Kita in Mali shows that 90% of men aged 18 to 35 work in Agriculture, unpaid and without any formal recognition of their work.
  - Standard labor market policies will have no impact on their standard of living.

Specificities of DC labor markets

When we think about the labor market: there is an approximately equal number of jobs and workers. WDI data however shows workers in DCs have to rely on themselves:

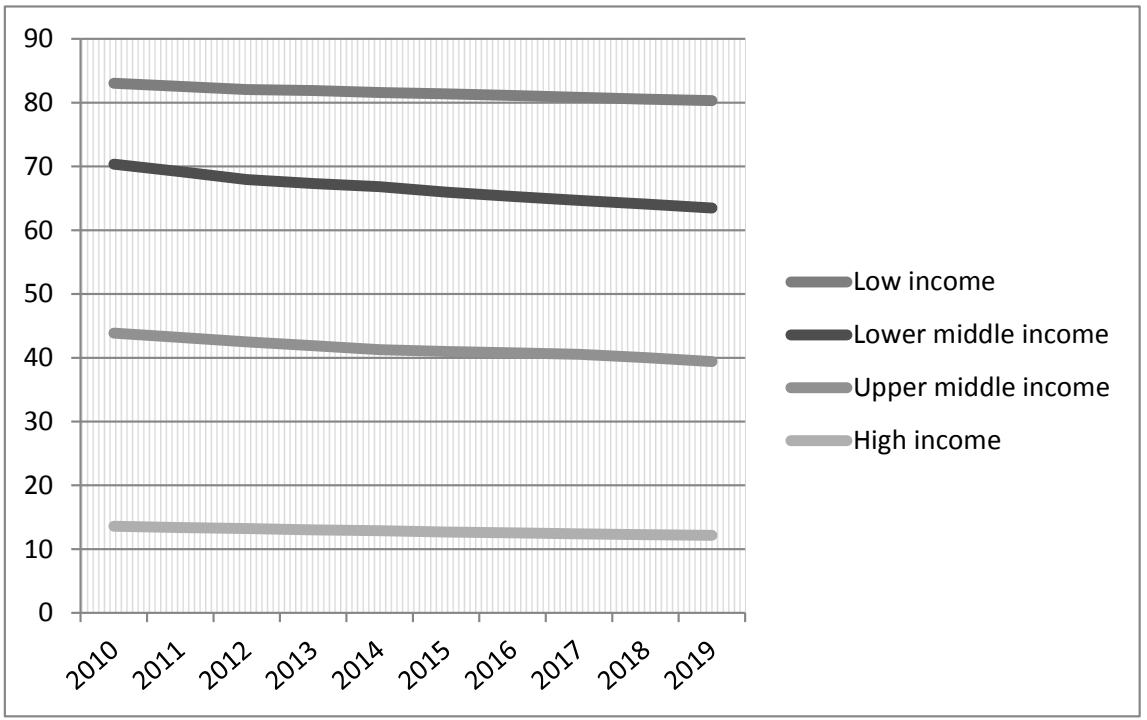


Figure: Self-employment, % of total employment

Specificities of DC labor markets

Segmentation: The idea that there simultaneously exists different labor markets in an economy (sometimes referred to as *dualism*).
Fields (2009) discusses this extensively:

- "This later literature on labor market dualism stressed that for dualism to exist, different wages must be paid in different sectors to comparable workers"
- These differences must not be compensating differentials (riskier jobs, costlier living arrangements, etc.)
    - If there are non-competing similar groups in the labor market, then there is segmentation.

Specificities of DC labor markets

Testing for segmentation: based on Funkhauser (1997)
Traditional tests:

$$W_{i,j} = X_i\beta_{1,j} + g_j(V_i, Z_i) + \epsilon_{i,j} \quad (1)$$

- X is a vector of observable characteristics, Z a vector of unobservables and V a vector of observables affecting wages independently of productivity.
- If $g_j(V_i, Z_i)$ is uncorrelated with X and $\beta_{1,j} \neq \beta_{1,k}$ then there is segmentation.
- The hypothesis of the early literature was that Z was uncorrelated with X, and finding different returns to education in different sectors was thus proof of segmentation.
  - Problem: Z is definitely correlated with X.

Specificities of DC labor markets

Testing for segmentation: based on Funkhauser (1997)

- Later studies assumed a correlation structure between Z and X, and yet found differences in returns.
- A major problem: different reward structures are not enough to prove segmentation (one would probably find different reward structures between all industries).
- Funkhauser (1997) proposes to examine the rigidities in the labor market that should lead to segmentation, and look at whether they are consistent with observed reward structures.
- In the end, segmentation merely means that one or several portions of the labor market are not setting wages competitively.

Specificities of DC labor markets

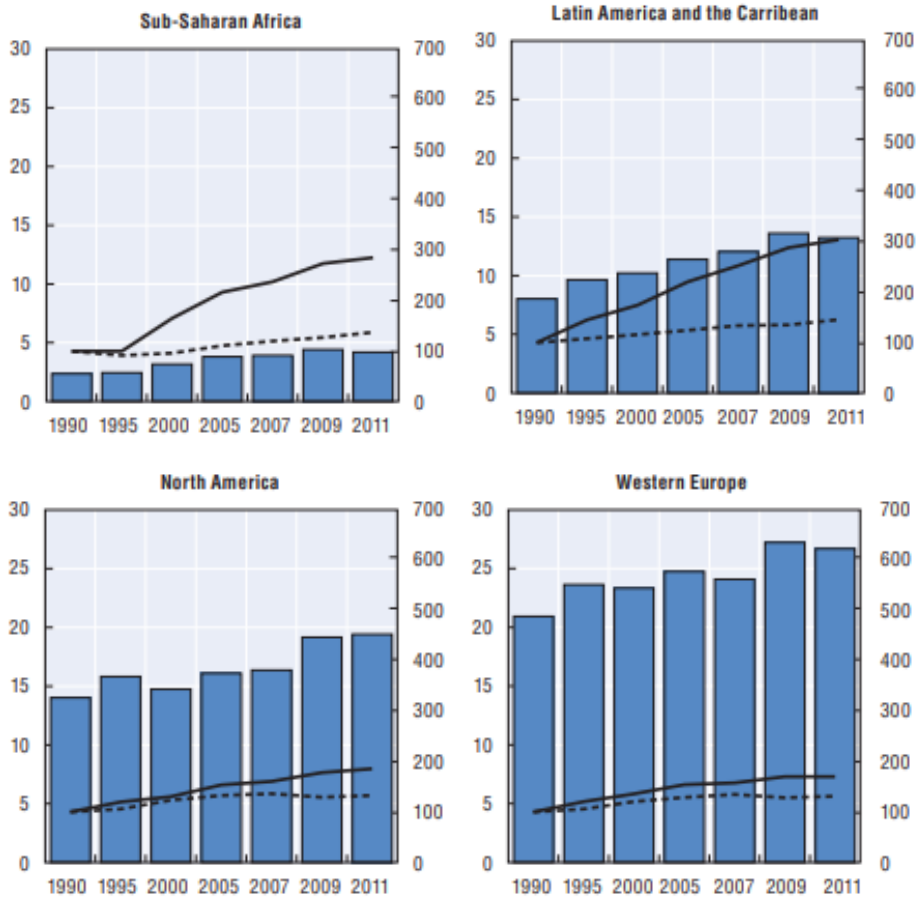
Social protection schemes

- Social protection systems can impact the structure of the labor market:
  - Guaranteed minimum income and unemployment benefits mean people *can* stay out of employment.
  - This may not be an option when social protection is lacking (any job goes).
  - When individuals lose their jobs, they revert to another activity.
    - The informal sector is sometimes seen as a residual sector incorporating all those who do not fit elsewhere.

Specificities of DC labor markets

Slow catch-up of social protection spending between regions.

17% of Africans receive one or more social benefits (47% globally) in 2020 (ILO).



Specificities of DC labor markets

Vulnerability to shocks (Jayachandran, 2006)

- Productivity risk is widespread in developing countries.
  - But underdevelopment itself exacerbates productivity risk!
- This is because workers supply labor more inelastically when they are close to subsistence, less able to migrate and more credit constrained.
  - When close to subsistence the marginal return to work always exceeds the marginal return to leisure.
  - When migration is an option, productivity shocks induce migration to less affected areas.
  - When individuals can borrow, they can smooth consumption over time
  - Overall, poorer populations withdraw less from the labor market faced with productivity shocks, and this lowers the wage more than in wealthier contexts.

Describing developing country labor markets

Describing DC labor markets

No single indicator sums up the labor market.
Unemployment: ill adapted to the realities of working life for most citizens of DCs.

ILO definition

1. Not having engaged in a productive activity for more than one hour in the reference week.
2. Having actively searched for a job in the last month.
3. Being available in two weeks (or having a job that starts in less than 3 months)

Describing DC labor markets

Gary Fields: What developing countries have is an *employment* problem, not an unemployment one.

- How then to characterize the labor market in DCs?
- Indicators on the nature of work.
  - Underemployment (visible and invisible)
  - Contractual arrangements (formal contract?)
  - Social benefits? (paid sick leave, paid holidays?)
  - Skill mismatches (overqualification, underqualification)
  - Percentage of working poor.
  - Job satisfaction?

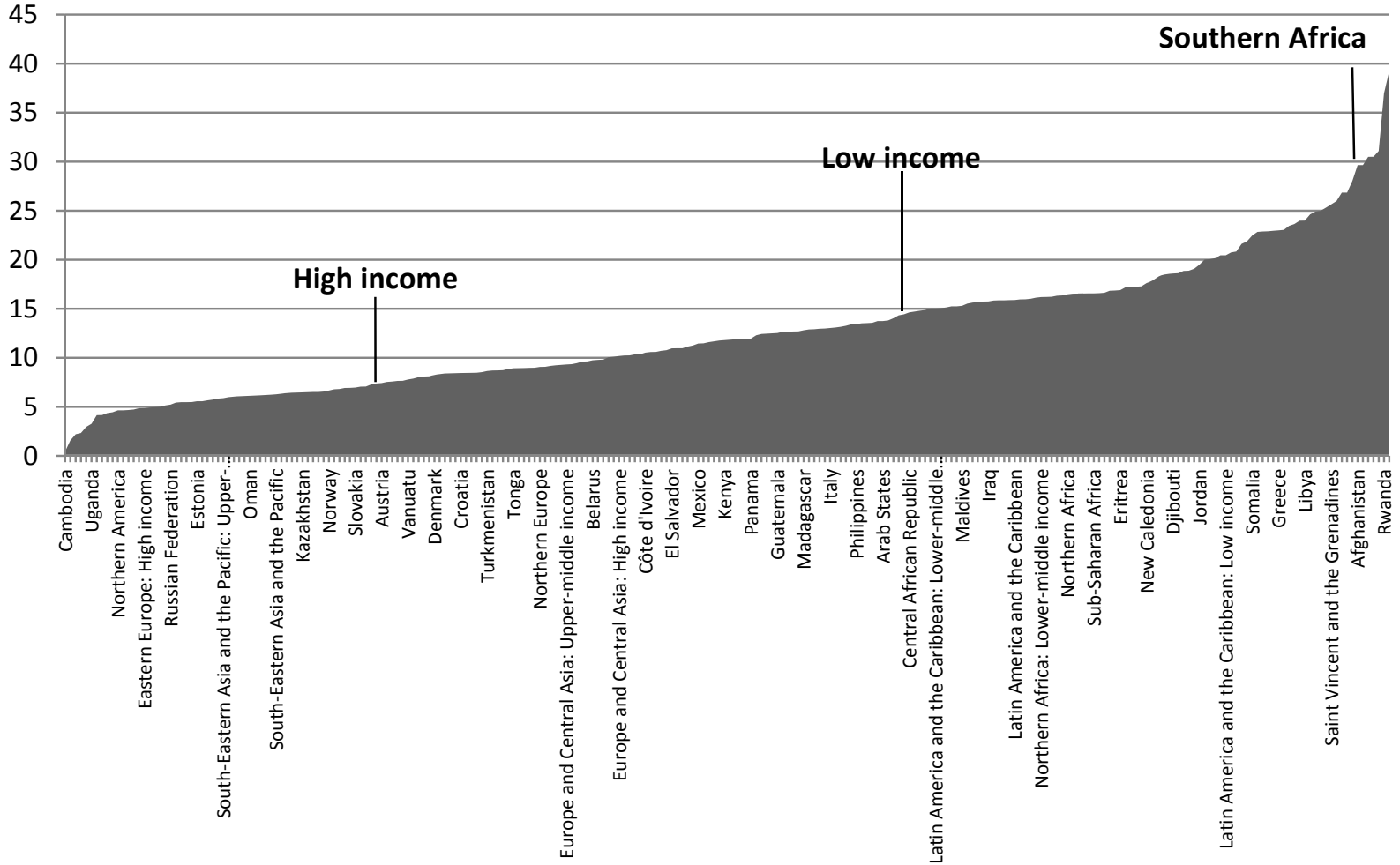
Describing DC labor markets

Working poor

- Defined as the share of workers living with less than 1.9$ PPP per day.
  - 0% in high-income countries.
  - 93.7% in Somalia, 70.7% in Madagscar.
  - 38.5% in the World Bank Low Income Country group.
  - *Why* is work not paying enough?
    - Insufficient productivity? (Of people? Of places?)
    - Lack of physical capital?
    - No job creation?

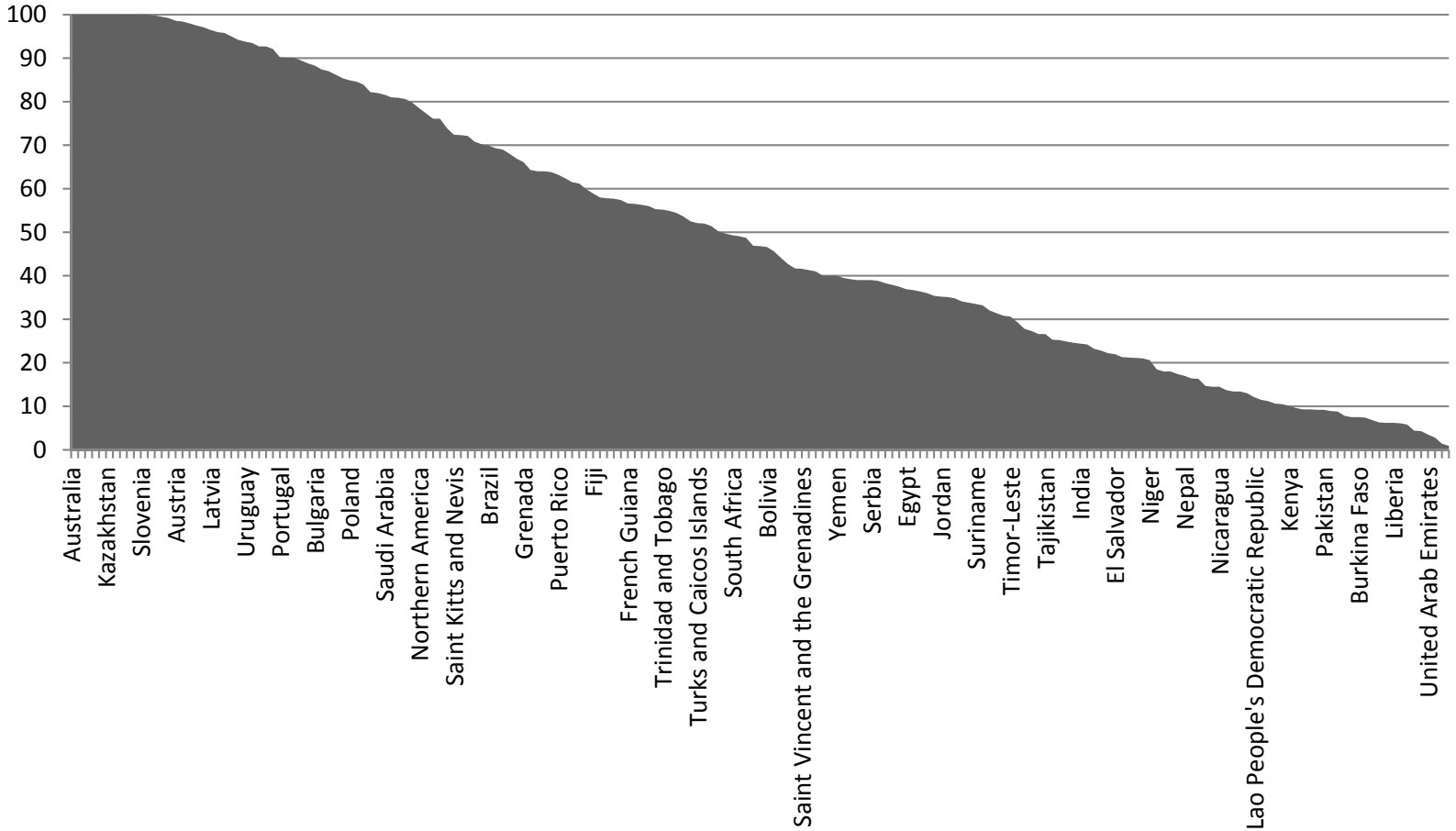
Describing DC labor markets

Time-related underemployment, % of employed persons (2019).



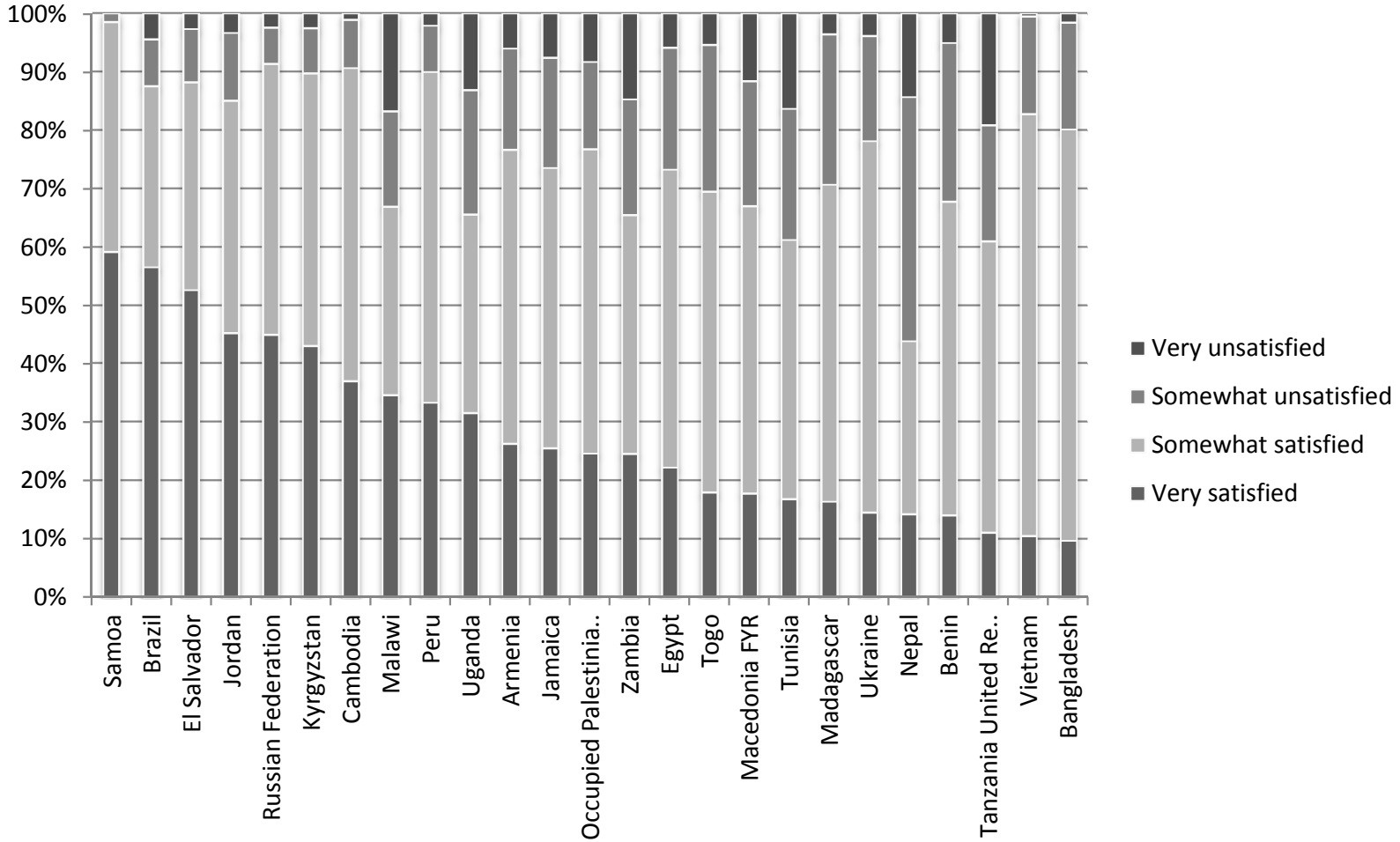
Describing DC labor markets

Share of population with access to at least one social benefit (2020).



Describing DC labor markets

Satisfaction rate, 24 countries (2013-2015).



Describing DC labor markets

- In the end, any labor market diagnosis needs a battery of indicators.
- Adapted to the country at hand..
- Pitfalls in cross-country comparisons such as the ones that were just shown.
  - Harmonizing surveys are necessary, but labor markets may be intrinsically different.
  - Survey biases and cultural differences... e.g. what does it mean in different cultural contexts to be satisfied with one's job?
  - *What's a good LM indicator to you?*

The informal sector—friend or foe?

The informal sector—friend or foe?

- A term with many synonyms... shadow economy, underground economy, unorganized sector, black market.
- The ILO conference of Labor statisticians defines it as: "all economic activities by workers and economic units that are-—in law or in practice-—not covered or insufficiently covered by formal arrangements".
  - This does not include *illicit* activities.
- The term was coined by Keith Hart in a 1971 study of rural migrants in Ghana.
- Informal sector $\neq$ informal employment.
  - Instead, the **informal economy** = the **informal sector** + **informal employment**.

The informal sector—friend or foe?

- Initially, a belief that the informal sector was increasing in size.
- Most estimations however place it on a downward trend since 1990.
  - But measurement problems plague these estimations.
  - Recent estimations suggest that the informal economy accounts for about one third of GDP and more than 70% of employment in emerging market and developing economies (Ohnsorge & Yu, 2021).

The informal sector—friend or foe?

Measuring the informal sector

Direct methods:
Using survey data to elicit the share of enterprises which are formal.
Advantage: accuracy.
Inconveniences: irregular, and focused either on labor or on firms. (exception: 1-2-3 surveys)

Indirect methods:
Estimating the size of the sector by relying on variations in one or more correlated and measurable variables (electricity consumption, cash-demand, MIMIC...).
Advantage: coverage. **Inconveniences**: uncertainty and sensitivity to model specification.

The informal sector—friend or foe?

Measuring the informal sector: *indirect methods*

- **Currency-demand**: based on the idea that the informal sector uses cash only, and that its size is related to tax burden and government regulations. By comparing the cash ratio at various levels of taxation (controlling for other determinants of cash demand), the size of the informal sector can be imputed.
  - Not all transactions are paid in cash.
  - Taxation is not the only motive for activity in the informal sector, particularly in DCs.

The informal sector—friend or foe?

Measuring the informal sector: *indirect methods*

- **Electricity consumption**: based on the idea that the electricity/GDP elasticity is close to one. If there is a discrepancy in growth rates between the official GDP and electricity, this should be due to a differential growth rate in unofficial GDP.
  - No reason that the electricity/GDP elasticity stays close to 1 in all contexts and over time.
  - Not all informal activities require energy, and energy may come from other sources.
  - Production and use of electricity becomes more efficient over time.

The informal sector—friend or foe?

Measuring the informal sector: *indirect methods*

- **Multiple indicators, multiple causes (MIMIC)**: a structural equation model treating the informal sector as a latent variable, estimated by causal variables (tax burden, tax morale, etc) and effects/indicators (electricity demand, cash demand).
  - It has been widely acknowledged that such models are sensitive to model specification, and particular to the units in which variables are expressed (Breusch, 2005; Medina & Schneider 2018).
  - Since the informal sector is by construction linked to causes (taxation and legislation) and effects (cash-demand, etc) no study linking these variables and the informal sector can yield meaningful results.

The informal sector—friend or foe?

Measuring the informal sector: *direct methods*

- **Surveys**: Need to incorporate questions on the formality of activity.
  - Enterprise surveys: does the company keep accounts, is it registered with the government, do employees have contracts ?
  - Household surveys
    - Own-account workers: do they keep accounts? are they registered?
    - Wage earners: do they have a formal contract? a pay slip? paid sick leave?
- There isn't a unique way of capturing informal employment and the informal sector in surveys.
  - Adds to the difficulty of producing comparable statistics in time and across instruments.

The informal sector—friend or foe?

Production units by type	Jobs by status in employment								
	Own-account workers		Employers		Contributing family workers	Employees		Members of producers' cooperatives	
	Informal	Formal	Informal	Formal	Informal	Informal	Formal	Informal	Formal
Formal sector enterprises					1	2			
Informal sector enterprises[a]	3		4		5	6	7	8	
Households[b]	9					10			

(a) As defined by the Fifteenth International Conference of Labour Statisticians (excluding households employing paid domestic workers).

(b) Households producing goods exclusively for their own final use and households employing paid domestic workers.

Note: Cells shaded in dark grey refer to jobs, which, by definition, do not exist in the type of production unit in question. Cells shaded in light grey refer to formal jobs. Un-shaded cells represent the various types of informal jobs.

Informal employment: Cells 1to 6 and 8 to 10.

Employment in the informal sector: Cells 3 to 8.

Informal employment outside the informal sector: Cells 1,2, 9 and 10.

The informal sector—friend or foe?

Why does the informal sector exist?

- **At least four distinct theories**
- 1. The dualist view
  - The view of Hart (1971), who saw the sector as comprising marginal activities—distinct from the formal sector—providing a safety net for the poorest.
  - Can be summarized as the idea that in any case, a marginal activity is better than no activity.
    - Hart: migrants, who could not find wage work, showed an "autonomous capacity for generating income".
  - Informal operators are excluded because of imbalances between population growth rates and industrial employment growth rates, and or a skills mismatch.

The informal sector—friend or foe?

Why does the informal sector exist?

- 2. The structuralist view
  - Informal enterprises are subordinated economic units reducing input and labour costs (and thus increasing competitiveness of larger capitalist firms).
  - Capitalism—the attempt of firms to reduce labor costs and increase competitiveness—drives informality.
    - Influenced by marxist ideas.
    - Focus on petty commodity production, and believes that the social and technical relations (i.e. subcontracting) between segments of the labor market are the best lense through which one should study the informal sector.

The informal sector—friend or foe?

Why does the informal sector exist?

- 3. The legalist view
  - Cumbersome legislation and government inefficiences lead people to operate informally.
  - If only the State provided better services, informal employment would go down.
    - "The structure of governance and economic activity in most Third World countries squeezes out the entrepreneurial element of economic activity" -De Soto (1989)
    - 289 days to start a small business in Peru, compared to 4 hours in New York.

The informal sector—friend or foe?

Why does the informal sector exist?

- 4. The voluntarist school
  - Also believes that informal operators avoid regulation, but do not blame regulation itself.
  - Informal operators do a cost-benefit analysis and rationally choose to operate informally if the costs outweigh the benefits.
    - Informal operators create unfair competition for formal enterprises and the State should generally seek to formalize.

The informal sector—friend or foe?

Why does the informal sector exist?

- Two broad perspectives on the informal economy:
  - It is a residual sector, where individuals find employment when the formal sector can't provide.
    - Better than nothing—the alternative to informal employment is unemployment or inactivity.
  - Informal economy consists of necessary and productive activities that would and should prevail under formalization.
    - Informal operators choose to be informal, and efforts should be made to formalize them.
  - There is truth to both arguments.
    - The informal sector is often seen as being *two-tiered*.

Unemployment in South Africa, 1995 - 2003

Kingdon & Knight, 2007

Unemployment in South Africa, 1995 - 2003

- S.A. emerges from *apartheid*. A series of restrictions on labor cease to apply.
- Multiple household surveys throughout the period available, meaning a study of the labor force composition and its evolution is possible.
- During this period, **coexistence** of high unemployment and high informal employment.
    - A rare phenomenon—we usually see one or the other.

Unemployment in South Africa, 1995 - 2003

Table 1: *Summary of Labour Market Outcomes, 1995–2003*

	1995 OHS	2003 LFS	Change 000	Change % p.a.
Labour force, narrow (000)	11,628	16,192	4,564	4.2
Labour force, broad (000)	13,667	19,954	6,287	4.8
Wage employment (000)	8,231	9,509	1,278	1.8
Self employment (000)	1,421	2,111	690	5.1
Unemployment, narrow (000)	1,976	4,570	2,584	11.0
Unemployment, broad (000)	4,015	8,332	4,317	9.6
Unemployment rate, narrow (%)	17	28	11	—
Unemployment rate, broad (%)	29	42	13	—
Real earnings in wage employment, 2000 prices	3,191	2,805	−386	−1.6
Real earnings in self employment, 2000 prices	6,866	2,610	−4,256	−11.4

Unemployment in South Africa, 1995 - 2003

- Huge expansion of the workforce.
- The formal sector unable to absorb all excess labor $\Rightarrow$ increase in unemployment.
    - Some individuals seized opportunities in the informal sector (self-employment). But most didn't!
- In terms of earnings, the burden of adjustment clearly fell on the informal sector, while the formal sector kept real earnings.
- The formal sector seems protected—coherent with a segmented labor market.

Unemployment in South Africa, 1995 - 2003

- *Why is there segmentation?*
- The formal sector is not competitive. In particular, there are barriers to entry.
  - Wage unions and collective bargaining could prevent wages from falling.
  - Employers could be paying efficiency wages.
- Kingdon & Knight argue that an insider/outsider theory is relevant.
  - The formal sector and the unemployed form two groups with opposite interests.

Unemployment in South Africa, 1995 - 2003

- Unions only exists in the formal sector
  - The union wage gap increased in the formal sector over the period.
  - Wage curves linking wages with unemployment were unresponsive for union wages, but a reality for non-union wages.
- Unions are part of real wage resistance and create a delicate policy trade-off between employment and wages.

Unemployment in South Africa, 1995 - 2003

The informal sector

- If the informal sector is a residual sector :
  - It should expand rapidly when there is divergence in growth between the labor force and formal sector jobs.
  - It should contain underemployment and poor individuals.
- While the sector did expand, it far from absorbed all excess labor.
  - There were more unemployed than informal workers in SA.
  - Elsewhere $\Rightarrow$ On average, 5 times more informal workers than unemployed in SSA, 7 times in Latin America and 11 times in Asia.

Unemployment in South Africa, 1995 - 2003

The informal sector—South African specificities

- For the informal sector to be a residual, it needs **free entry**. Is this the case ?
  - One survey showed that the start-up capital of informal workers was 2.5 times monthly earnings.
  - Another survey showed that 30% of informal entrepreneurs had been victims of crime in the *previous year*.
- Is the small informal sector a legacy of the apartheid regime?
  - Local zoning laws and regulations particularly against black South Africans rid the country of areas where informal sector could have prospered.
  - Some laws and regulations prevailed until the late 1990s.
  - Lack of experience creating a confidence problem?
- Finally, labor in the informal sector may be run by networks exerting control over who is allowed to exercise and where (barriers to entry).

Unemployment in South Africa, 1995 - 2003

Unemployment

- What if unemployment was a rational choice? (*luxury hypothesis*)
  - In a separate article, the authors show that the unemployed are worse off than the informally employed.
  - $\Rightarrow$ barriers to entry is a more plausible explanation.
- Are reservation wages explaining unemployment?
  - The evidence points in different directions.
  - A study from Cape Town suggests the unemployed do not have unrealistically high expectations.
  - But Levinsohn et al. (2009) suggest the opposite.
  - A third study has found South Africans have reasonable reservation wages for employment in large firms, but not in small ones.

Unemployment in South Africa, 1995 - 2003

Where are all the unemployed?

- *Thabo Mbeki*: "this is such a large number of people that nobody could possibly have missed the millions that would be in the streets and village paths "actively looking for work" in all likely places of employment. It, therefore, seems quite unlikely that the StatsSA figure is correct"
- If anything, the figure is more likely to be underestimated.

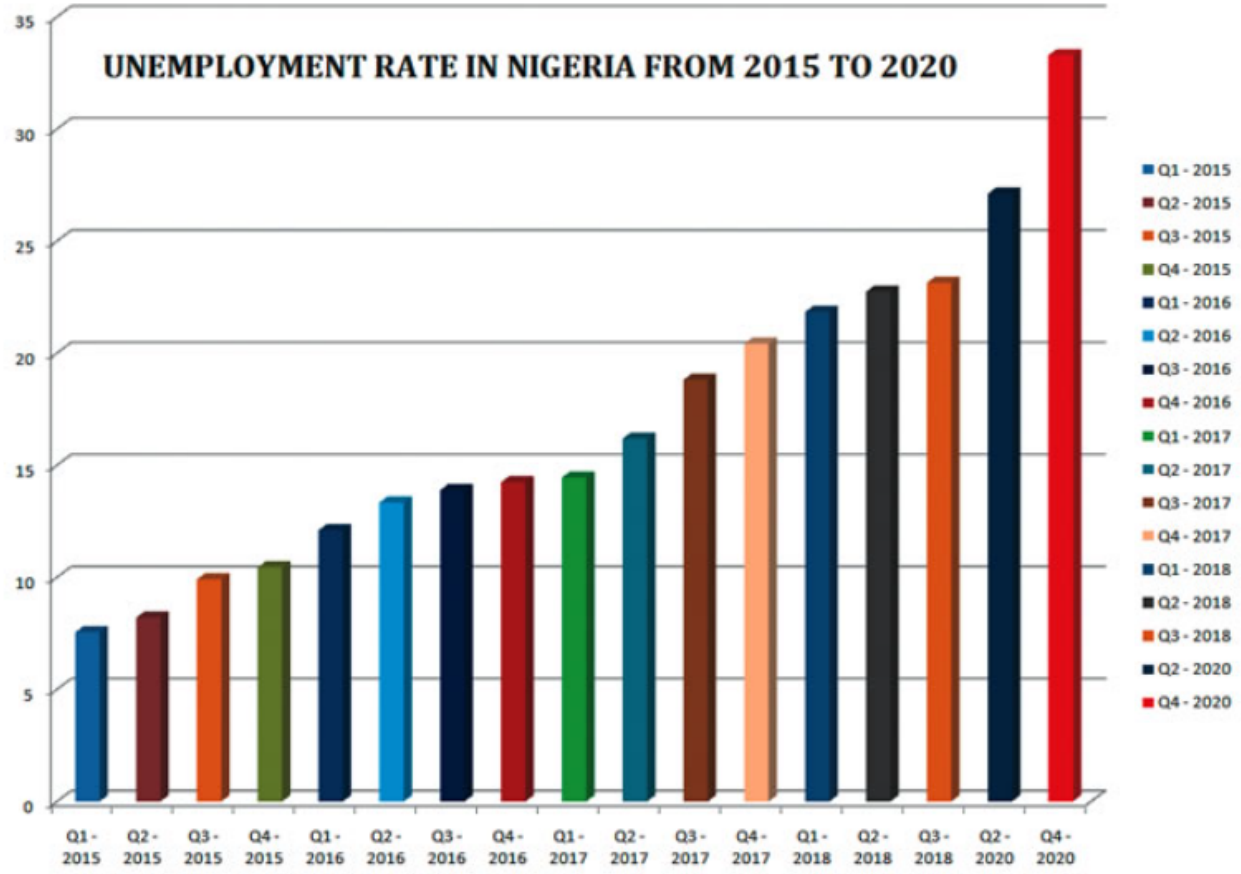
Unemployment in South Africa, 1995 - 2003

Policies used to tackle unemployment

- *Public works*
  - Jobs at below minimum wage for the poorest households.
  - A study showed that although income increased for participants, it was not sufficient to raise them above the poverty level and did not lead to sustained employment.
- *Skills training*
  - Firms in South Africa claim that they encounter difficulties hiring.
  - But behavior inconsistent with such difficulties (low vacancies, little use of the government's Grant-levy system).
- Unemployment today: 33% (among the highest in the world)

Unemployment in South Africa, 1995 - 2003

Another anomaly in the making..?



Policy responses to the informal economy

Do nothing

- An intervention may not hold up to a cost-benefit analysis.
- The informal sector is a "test bed" for new business ventures.
- Interventions may push people out of jobs on which they depend for their survival.
- **But**, workers, the government and customers likely prefer intervention.

Policy responses to the informal economy

Deregulate

- If cumbersome legislation is the cause of informality, then deregulation is the key.
  - Djankov (2002): Influential study of firm entry costs in 85 economies. Finds a positive link between the number of procedures and the size of both the informal economy and informal employment.
- Other evidence suggests regulation is not linked to the size of the informal economy.
  - But no attempt at causal inference in these studies.
  - Making it easier to register a business has been a popular reform in recent years (368 reforms in 149 countries between 2003 and 2012 [Bruhn & McKenzie (2014)])
  - Modest effects in the literature.

Policy responses to the informal economy

Promoting formalization

- Bringing informal operators within the sphere of formality.
  - Taxing and registering.
  - But also providing support services and social benefits to the informal operators.
- Many approaches available.

Policy responses to the informal economy

Approach	Method	Measures (examples)
"Hard": compliance through deterrence	Improved detection	Data matching and sharing "Joined-up" strategy Joint operations
	Increased penalties	Increased penalties for evasion
	Increase perception of risk	Advertising the penalties for informal working Advertising the effectiveness of detection procedures
"Hard": compliance through incentives to formalize	Prevention	Simplification of compliance Direct and indirect tax incentives Smooth transition to self-employment Introducing new categories of work Micro-enterprise development
	Remedial	Demand-side incentives (e.g. service vouchers; targeted direct taxes; targeted indirect taxes) Supply-side incentives (e.g. society-wide amnesties; voluntary disclosure; formalization services)
"Soft": Fostering commitment	Fostering culture of commitment	Promoting benefits of formal work Education Tax fairness Procedural justice Redistributive justice
"Soft": Development	Policy integration	Growth strategies for quality employment Regulatory environment Representation/collective bargaining Equality/non-discrimination Entrepreneurship support Social protection Local development strategies

Policy responses to the informal economy

Some empirical evidence of the effects of formalization

- De Mel et al. (2012): An RCT on Sri Lankan informal firms.
  - Informing about and paying the costs of registration has no impact on registration.
  - Paying one half to one month of median profits did improve registration.
  - Registered firms saw higher profits, but this was driven by a few fast-growing firms.

Henrique de Andrade et al. (2016): An RCT in Brazil.

- Again, no impact of information or paying costs on registration.
- A small but significant impact of inspections.
- The LATE for inspections increased registration by 25%.
- Formalizing only when forced to do so suggest few private benefits to formalization.

Policy responses to the informal economy

Some empirical evidence of the effects of formalization

- Rand & Torm (2012): Evidence from Vietnam
  - Double-difference estimator
  - Find that formalization is associated with increased profits and investment
  - Firms also have better access to credit, and employ less casual labor
- Demenet et al. (2016): Also on Vietnam
  - Find that formalization increases value added by 22%.
  - Firms have better equipment and increase scale of operations.
  - Symmetrically, previously registered firms who do not re-register experience the opposite.

Women in DC labor markets

Women in DC labor markets

The roots of labor market gender differences

- It is well known that across societies and time, women's role in production has been different from that of men.
- Although in general, participation rates are converging and more attention than ever is being paid to women's outcomes, there are still divergences.
  - Where do they come from?
  - Ester Boserup (1970) suggested that they are an inheritance of the form of agriculture practiced during the pre-industrial period.
  - Alesina, Giuliano and Nunn (2013) test this hypothesis.

Women in DC labor markets

Alesina, Giuliano, Nunn (QJE, 2013)

- Context: large differences in how societies view the place of women.
  - World Values Survey: "when jobs are scarce, men should have more right to a job than women"
  - Agree rates from 3.6% in Iceland to 99.6% in Egypt.

Shifting hoe cultivation vs. plough cultivation

Women in DC labor markets

Shifting hoe cultivation:

- Using a hoe does not require particular upper body strength.
- Women were more involved in agriculture in societies using hoes.

Plough cultivation:

- Required upper body strength.
- Less female involvement in plough-based agriculture.

Women in DC labor markets

First question

- Although anthropological evidence suggest so, the authors first need to confirm that plough use actually correlated negatively with female work in agriculture.
  - They use data from the *Ethnographic atlas* covering 1265 ethnicities.
  - Information on both female labor participation and the use of ploughs.
  - Earliest available information was used.
- Is there a relationship between the date of adoption of the plough and gender values?
  - They can only partially answer this, since they only have information on plough adoption if it occurred after the ethnic group had contact with Europeans.

Women in DC labor markets

Table 1: Historical plough use and female participation in agriculture and other activities.

	Panel A. Dependent variables: Female participation in the following (agriculture-related) tasks:						
	Participation in agriculture		Land clearance	Soil preparation	Planting	Crop tending	Harvesting
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Historical plough use	-0.861***	-1.133***	-0.414**	-1.164***	-1.244***	-1.033***	-0.770**
	(0.217)	(0.272)	(0.200)	(0.355)	(0.341)	(0.367)	(0.308)
Ethnographic controls	yes	yes	yes	yes	yes	yes	yes
Observations	660	124	129	124	131	122	131
R-squared	0.14	0.22	0.15	0.13	0.13	0.19	0.19
	Panel B. Dependent variables: Female participation in the following (additional) tasks:						
	Caring for small animals	Caring for large animals	Milking	Cooking	Fuel gathering	Water fetching	Burden carrying
	(8)	(9)	(10)	(11)	(12)	(13)	(14)
Historical plough use	0.296	0.173	0.318	-0.006	-0.813*	-0.166	-1.138***
	(0.574)	(0.285)	(0.736)	(0.128)	(0.420)	(0.246)	(0.374)
Ethnographic controls	yes	yes	yes	yes	yes	yes	yes
Observations	88	95	48	173	159	154	135
R-squared	0.04	0.05	0.09	0.04	0.05	0.05	0.16

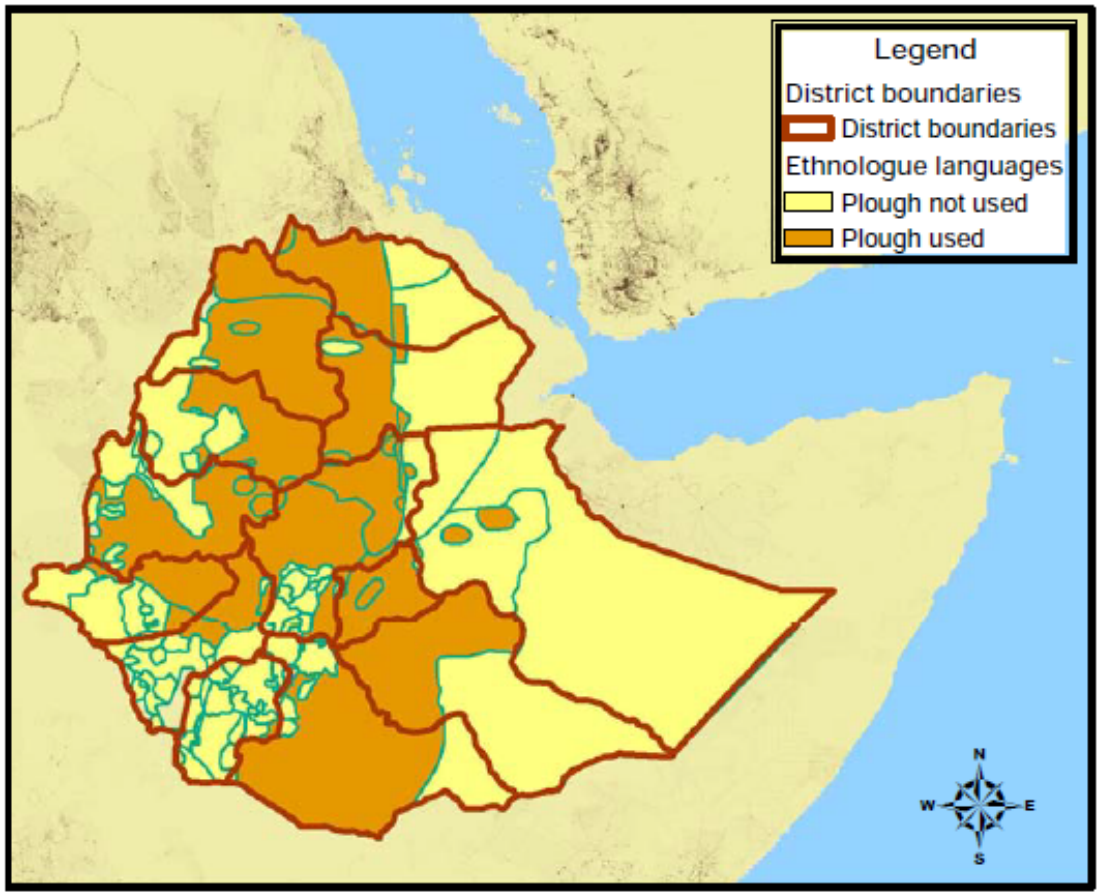
Notes: The unit of observation is ethnic group. In column 1 ethnic groups are from the *Ethnographic Atlas* and in columns 2-14 they are from the *Standard Cross Cultural Sample*. Each dependent variable measures female participation in a particular activity (e.g., agriculture). The variables take on integer values between 1 and 5 and are increasing in female participation. Coefficients are reported with robust standard errors in brackets. In column 1, we report Conley standard errors adjusted for spatial correlation (assuming a window that is sixty degrees latitude and sixty degrees longitude). ***, ** and * indicate significance at the 1, 5 and 10% levels.

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

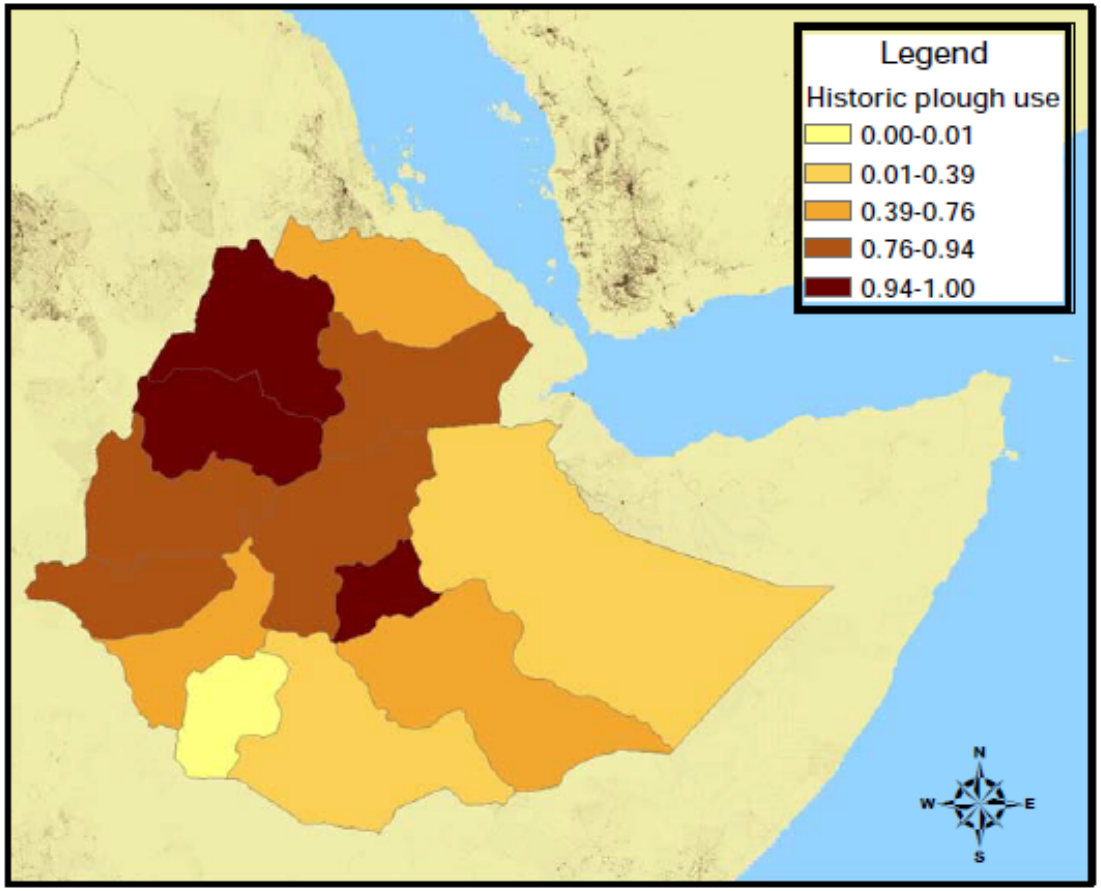
- Linking the past to the present:
  - Data on plough use at the ethnicity level.
  - And data on modern labor market outcomes, at district level.
  - $\Rightarrow$ Need to estimate the geographic distribution of ethnicities today.
- Language: they match 7612 languages (and the information on where they are spoken) to the 1267 ethnic groups for which they have information on plough use.
  - They now know for each language group whether or not they used the plough.
  - Using modern district boundaries, they can approximate the fraction of today's population with ancestors using the plough.

Women in DC labor markets



Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets



Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

	Dependent variable:							
	Female labor force participation		Share of firms with some female ownership		Females in politics		Average effect size (AES)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Historical plough use	-16.506***	-15.417***	-11.052**	-11.540**	-5.606***	-4.245*	-0.849***	-0.796***
	(3.547)	(3.561)	(4.287)	(5.152)	(2.128)	(2.218)	(0.140)	(0.137)
Historical controls:								
Agricultural suitability	yes	yes	yes	yes	yes	yes	yes	yes
Domesticated animals	yes	yes	yes	yes	yes	yes	yes	yes
Tropics	yes	yes	yes	yes	yes	yes	yes	yes
Political hierarchies	yes	yes	yes	yes	yes	yes	yes	yes
Economic complexity	yes	yes	yes	yes	yes	yes	yes	yes
Contemporary controls:								
ln income, ln income^2	yes	yes	yes	yes	yes	yes	yes	yes
Communism indicator	yes	yes	yes	yes	yes	yes	yes	yes
Polity	no	no	no	no	yes	yes	no	no
Continent fixed effects	no	yes	no	yes	no	yes	no	yes
Observations	159	159	105	105	125	125	135[a]	135[a]
R-squared	0.41	0.43	0.15	0.21	0.28	0.32		

Notes: OLS estimates are reported with robust standard errors in brackets. The unit of observation is a country. ***, ** and * indicate significance at the 1, 5 and 10% levels. [a]This is the average number of observations in the regressions for the three outcomes.

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

- So, there seems to be a correlation between plough use and female historical LM participation, and persistence in this participation.
    - But these are correlations. What about alternative determinants?
- Engels (1902): intensification of Agriculture $\Rightarrow$ private property $\Rightarrow$ monopolized by men, replacing matriliny and reducing women's participation in society.
- Large extended families: more hierarchical and less egalitarian structures (Boserup, 1970) $\Rightarrow$ subordinate status of women.

Women in DC labor markets

- Religion: might also be a determinant of gender roles?
- Oil? $\Rightarrow$ negatively influences light manufacturing, particularly suited to female employment, through a Dutch disease effect.
- War? Long histories of war may have forced women into the LM.
- European migration? If plough use is correlated with European migration and Europeans exported different gender roles.

Women in DC labor markets

	Dependent variable: FLFP					
	(1)	(2)	(3)	(4)	(5)	(6)
Historical plough use	-14.734***	-16.814***	-17.073***	-14.570***	-15.417***	-12.041***
	(4.856)	(3.769)	(3.568)	(3.568)	(3.692)	(3.967)
Practices intensive agriculture	yes					
Absence of private property		yes				
Patrilocal society, matrilocal society			yes			
Nuclear family, extended family				yes		
Proportion of subsistence from: hunting, herding					yes	
Prop of pop belonging to five major religions						yes
Baseline historical and contemporary controls	yes	yes	yes	yes	yes	yes
Observations	159	156	159	159	159	157
R-squared	0.41	0.41	0.42	0.46	0.43	0.57
	(7)	(8)	(9)	(10)	(11)	(12)
Historical plough use	-16.435***	-15.767***	-18.474***	-16.467***	-16.519***	-15.375***
	(3.536)	(3.538)	(4.112)	(3.564)	(3.592)	(3.844)
Oil production per capita	yes					
Trade/GDP		yes				
Agric., manuf. and services share of GDP			yes			
Years of civil conflicts (1816-2007)				yes		
Years of interstate conflicts (1816-2007)					yes	
Fraction of European descent						yes
Baseline historical and contemporary controls	yes	yes	yes	yes	yes	yes
Observations	157	159	157	157	157	151
R-squared	0.43	0.42	0.42	0.41	0.41	0.42

Notes: OLS estimates are reported with robust standard errors in brackets. The unit of observation is a country. Each regression includes the full set of control variables (historical and contemporary). ***, ** and * indicate significance at the 1, 5 and 10% levels.

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

Individual attitudes and perceptions

	Dependent variables:			
	FLFP	When jobs are scarse	Men better political leaders	Average effect size (AES)
	(1)	(2)	(3)	(4)
Historical plough use	-0.214***	0.245***	0.397***	0.451***
	(0.034)	(0.029)	(0.075)	(0.063)
Individual controls	yes	yes	yes	yes
Contemporary country controls	yes	yes	yes	yes
Historical district controls	yes	yes	yes	yes
Continent fixed effects	yes	yes	yes	yes
Observations	38,832	71,656	59,288	65,472
R-squared	0.19	0.21	0.18	

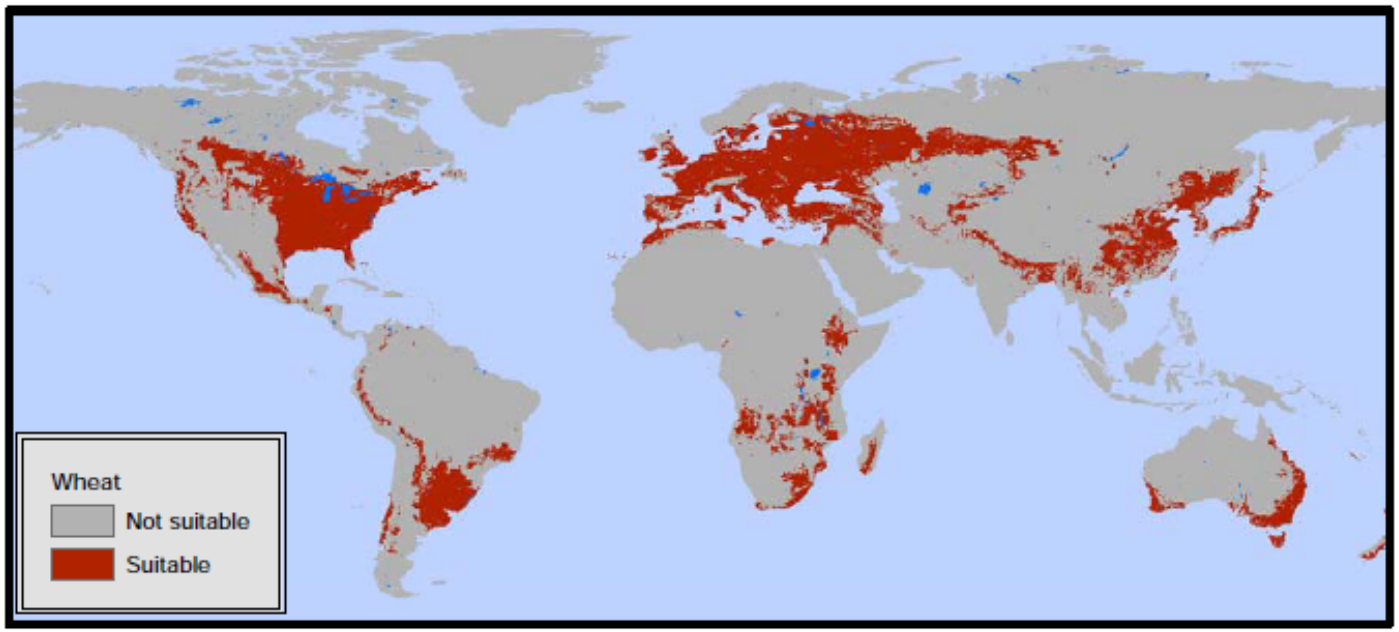
Notes: The table reports OLS estimates, with standard errors clustered at the country level. Individual controls are age, age squared, education, gender (for gender attitudes only), marital status, and income. Contemporary country controls include ln income, ln income squared and a communism indicator variable. Historical district controls include agricultural suitability, domesticated animals, tropical areas, political hierarchies, and economic complexity. The AES reported in column 4 is for the two subjective belief measures from columns 2 and 3. ***, ** and * indicate significance at the 1, 5 and 10% levels.

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

- Convinced? What about endogeneity?
  - What if less gender-equal societies were more likely to invent/adopt the plough?
  - What if economically developed regions were more likely to adopt the plough in the past, and are more likely to be rich and prone to gender equality today?
  - In both cases, the OLS estimates would be biased away from zero.
- Using IV.
  - Crops?
    - Some crops are suitable for plough use, others not.
    - But this decision is endogenous in itself $\Rightarrow$ not a good instrument.
  - Geological conditions?
    - Independent from the economic organization of society $\Rightarrow$ good instrument.

Women in DC labor markets



(a) Wheat suitability

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

	Panel A. Second stage. Dependent variable:							
	Femal labor force participation		Share of firms with some female ownership		Females in politics		Average effect size (AES)	
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Historical plough use (2SLS)	-25.853**	-26.423**	-19.939*	-26.274*	-16.820*	-23.089*	-1.451***	-1.946***
	(10.051)	(12.465)	(11.932)	(14.439)	(9.243)	(12.331)	(0.467)	(0.635)
Historical plough use (LIML)	-27.099	-28.25	-28.761	-43.12	-16.826	-23.16		
p-value	0.01	0.03	0.03	0.02	0.05	0.03		
CLR intervals	[-54.88, -7.02]	[-66.24, -3.47]	[-71.65, -2.70]	[-142.60, -6.77]	[-47.06, 0.29]	[-75.07, -2.55]		
Historical controls	yes	yes	yes	yes	yes	yes	yes	yes
Contemporary controls	yes	yes	yes	yes	yes	yes	yes	yes
Continent FEs	no	yes	no	yes	no	yes	no	yes
Observations	157	157	104	104	124	124	133	133
R-squared	0.39	0.43	0.01	0.13	0.17	0.05		
	Panel B. First stage. Dep var: Historical plough use							
Plough-positive environment	0.412***	0.377***	0.656***	0.561***	0.401***	0.340***		
	(0.119)	(0.101)	(0.150)	(0.143)	(0.140)	(0.117)		
Plough-negative environment	-0.120	-0.079	-0.017	0.001	-0.032	-0.026		
	(0.091)	(0.075)	(0.101)	(0.075)	(0.103)	(0.087)		
Equality of coefficients (p-value)	0.00	0.00	0.00	0.00	0.00	0.01		
F-stat (excluded instruments)	10.76	7.90	11.68	7.71	5.63	4.54		
Hausman test (p-value)	0.15	0.19	0.44	0.29	0.18	0.09		

Notes: IV estimates are reported with robust standard errors in brackets. The unit of observation is a country. Historical controls include agricultural suitability, domesticated animals, tropics, political hierarchies and economic complexity. Contemporary controls include ln income, ln income squared, a communism indicator, and polity (in columns 5 and 6 only). The number of observations for the AES estimates is the average number observations in the regressions for each outcome. ***, ** and * indicate significance at the 1, 5 and 10% levels.

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

- In the end, convincing evidence that plough use shaped female labor participation in a persistent way.
- Did it modify institutions, or beliefs?
  - The authors show an impact on modern beliefs, but these may in turn have been created by the very institutions and markets that the original plough use brought.
- A test on immigrants to the U.S.
  - For each immigrant, they identify the plough use of their parents' ancestry.
    - This way, current institutions and markets have no play in shaping beliefs.

Women in DC labor markets

	Dependent variable: Labor force participation indicator								
	All women			Married women					
	Women's ancestry			Women's ancestry			Husband's ancestry		
	Father's country	Mother's country	Parents same country	Father's country	Mother's country	Parents same country	Father's country	Mother's country	Parents same country
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
Historical plough use	-0.042***	-0.047***	-0.065***	-0.015	-0.043*	-0.044*	-0.027	-0.049**	-0.047**
	(0.011)	(0.012)	(0.013)	(0.021)	(0.022)	(0.024)	(0.018)	(0.024)	(0.022)
Individual controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Husband controls	n/a	n/a	n/a	yes	yes	yes	yes	yes	yes
Historical country controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
Contemporary country controls	yes	yes	yes	yes	yes	yes	yes	yes	yes
State fixed effects	yes	yes	yes	yes	yes	yes	yes	yes	yes
Observations	48,910	47,219	27,550	8,864	8,261	5,832	9,505	8,886	7,211
R-squared	0.37	0.38	0.40	0.37	0.37	0.39	0.37	0.37	0.38

Notes: OLS estimates are reported with standard errors clustered at the country level. An observation is a US second generation immigrant woman. Individual controls include age, age squared, education, marital status and income. Husband controls include husband's age, age squared, education and income. Historical country controls include the origin country's historical agricultural suitability, domestication of animals, tropics, political hierarchies and economic complexity. Contemporary country controls include ln income, ln income squared, and a communism indicator variable. All regressions also control for state, year and metropolitan area fixed effects. ***, ** and * indicate significance at the 1, 5 and 10% levels.

Source: Alesina, Guiliano & Nunn (2013)

Women in DC labor markets

Alesina, Giuliano, Nunn (AER, 2011)

- In a sibling paper, the authors study the link between plough use and fertility preferences.
- The argument is similar: use of the plough implied lowered demand for both female and child labor.
    - Weeding, a task particularly suited for women and children, is not necessary in plough-based agriculture.
- Again, they find robust evidence on lower fertility rates in societies who historically used the plough.
    - These results also extend to U.S. immigrants, similar to the QJE paper.

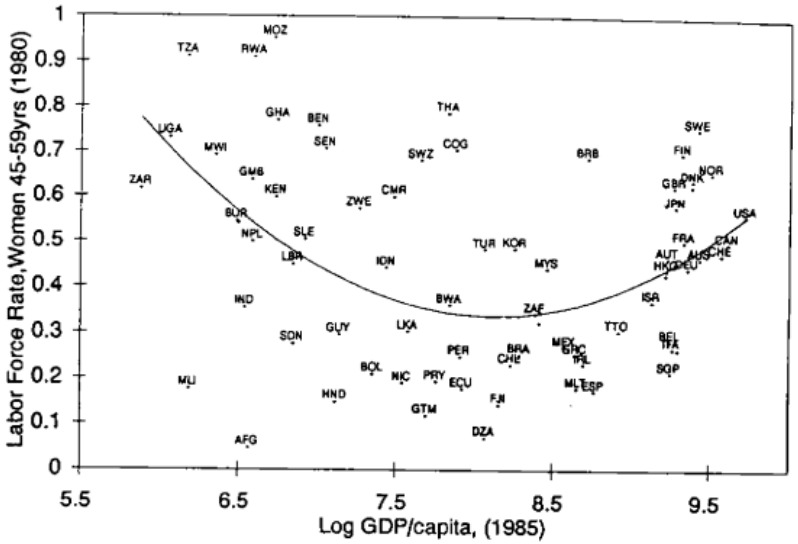
Women in DC labor markets

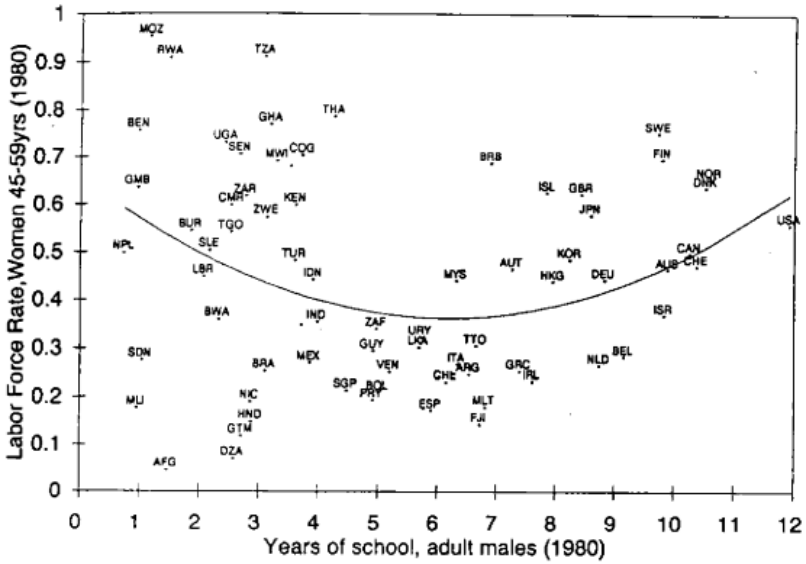
Development or culture ?

- The Alesina et al. papers are an interesting addition to the development versus culture debate.
    - Is gender equality (including labor market participation) an outcome of development, or a cultural trait?
- Jayachandran (2015) summarizes the main contributions to the discussion.

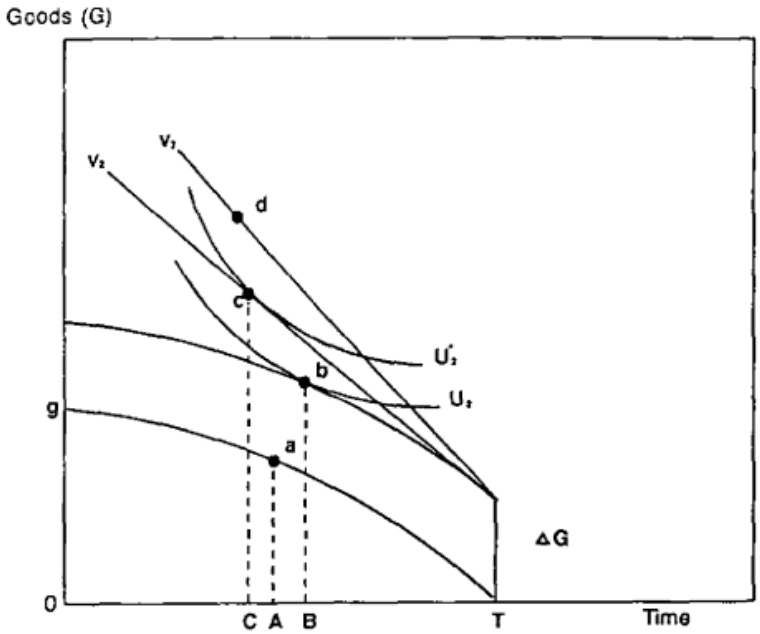
Women in DC labor markets

Claudia Goldin (1995) : the U-shape hypothesis



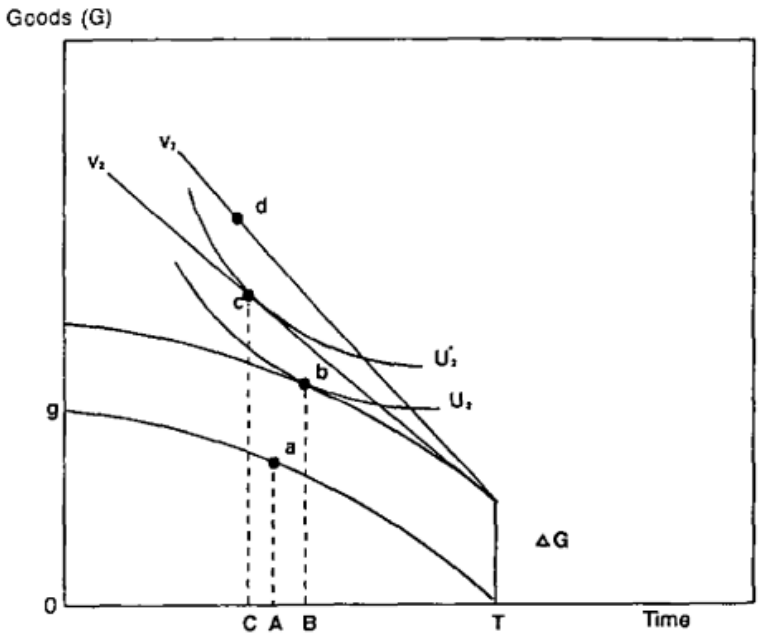


Women in DC labor markets



- gaT is the PPF.
- In period 1, a woman chooses point **a**, working AT in home production and 0A in childcare.
- As productivity increases, the PPF shifts up. An *income effect* leads the woman to choose point B, corresponding to a decrease in labor and an increase in child care.

Women in DC labor markets



- Now, if a labor market emerges, proposing a wage equal to the slope of V_2, the woman might choose point **c**, increasing labor and decreasing child care.
- However, there may be stigma associated with female labor (especially unqualified work outside the home).
- She may thus choose to stay at point **b**.
- Only when a *white collar*-job appears, with a pay given by the slope of V_3, may she shift into wage labor.

Women in DC labor markets

Galor & Weil (1996)

- Argue that some work is physical, while other work is mental.
- By nature, men have a comparative advantage in physical labor, while women have a comparative advantage in mental labor.
    - The capital stock raises the return to mental labor, but not to physical labor.
- With development, the capital stock increases and the returns to mental labor too, closing the gender gap.
    - Furthermore, in the long run, increasing female wages lead to lowered fertility, which in following generations increases the capital-labor ratio, further spurring growth and closing the gender gap.

Women in DC labor markets

The arrival of good jobs and female labor market participation

- Jensen (2012): Busines Process Outsourcing has become an important feature of the Indian labor market.
  - Call-centers, accounting consultants, IT, etc.
- Providing information of such opportunities (through an RCT) increased female labor market participation, girls' school enrolment and their future career aspirations.
- Jayachandran (2015): Economic liberalization in the 1990s in India has increased the amount of white collar jobs and attracted women into the workforce.

Women in DC labor markets

Improving productivity in domestic chores

- Greenwood et al. (2015): model female labor market participation in the US.
  - Find that although wage gaps have been narrowing, this far from suffices in explaining rising labor market participation.
  - Without changes to productivity at home, women would still have been tied up in incompressible home activities.
- Electricity and running water $\Rightarrow$ engines of liberation.
  - Dinkelman (2011): shows that electrification in South Africa led to increased FLFP.
  - Likely mechanisms are time-saving cooking practices and increases in productive time (due to electrical light).

Women in DC labor markets

Fertility shocks and FLFP

- Miller (2010): Access to contraception in Colombia in the 1960s and 1970s delayed the age of the first child, and led to increases in education and employment.
- Goldin & Katz (2002): the contraceptive pill was introduced in the US in 1960. By 1965, 40% of women were on the pill. This reduced the cost of delaying marriage for a career.
- Jayachandran & Lleras-Muney (2009): Childbirth is a risky activity. Improvements in maternal health care in Sri Lanka led to increased life expectancy for women, leading to increased education and employment.

Women in DC labor markets

But what about culture: Patrilocality and old-age norms

- Patrilocality: married couples live with or near the husband's parents.
- Under this system, it may be rational for parents to invest more in boys, since they will stay close to you through life.
- Chakraborty & Kim (2010): India is more patrilocal in the North than in the South. Consistent with a "return to investment" assumption, they find a higher male to female sex ratio in the north than in the south.
- Ebenstein & Leung (2010) find support that son preference in China is linked to the fact that sons provide old-age support.
- $\Rightarrow$ poverty exacerbates the gender gap. Unconstrained, most people would prefer investing in all their children.

Women in DC labor markets

But what about culture: Female safety and "purity"

- Importance of chastity in many cultures.
- Effect on schooling:
  - Parents may refuse girls to travel to school in order to avoid sexual violence.
  - Or marry them of early to ensure chastity is not violated.
- Jayachandran (2015) explains how in both Hindu and Muslim traditions, female seclusion is a tenet.
  - Avoid work outside the home is one way of minimizing contact with other men.

Women in DC labor markets

Sex ratios and investment differences (Jayachandran, 2015)

- A skewed sex ratio need not mean inequality in outcomes.
- Indeed, China and India are outliers in terms of sex ratio, but not in terms of human capital.
  - 1,34 boys for every girl in the 1992 Demographic Health Survey for India.
- Interestingly, however, son preference may *cause* overall lower investments in women.
  - When the desire for sons is higher, women grow up in larger families with less resources per child.
  - Since women are more likely to wish to become pregnant again after having a daughter, they stop breastfeeding earlier (detrimental to health).

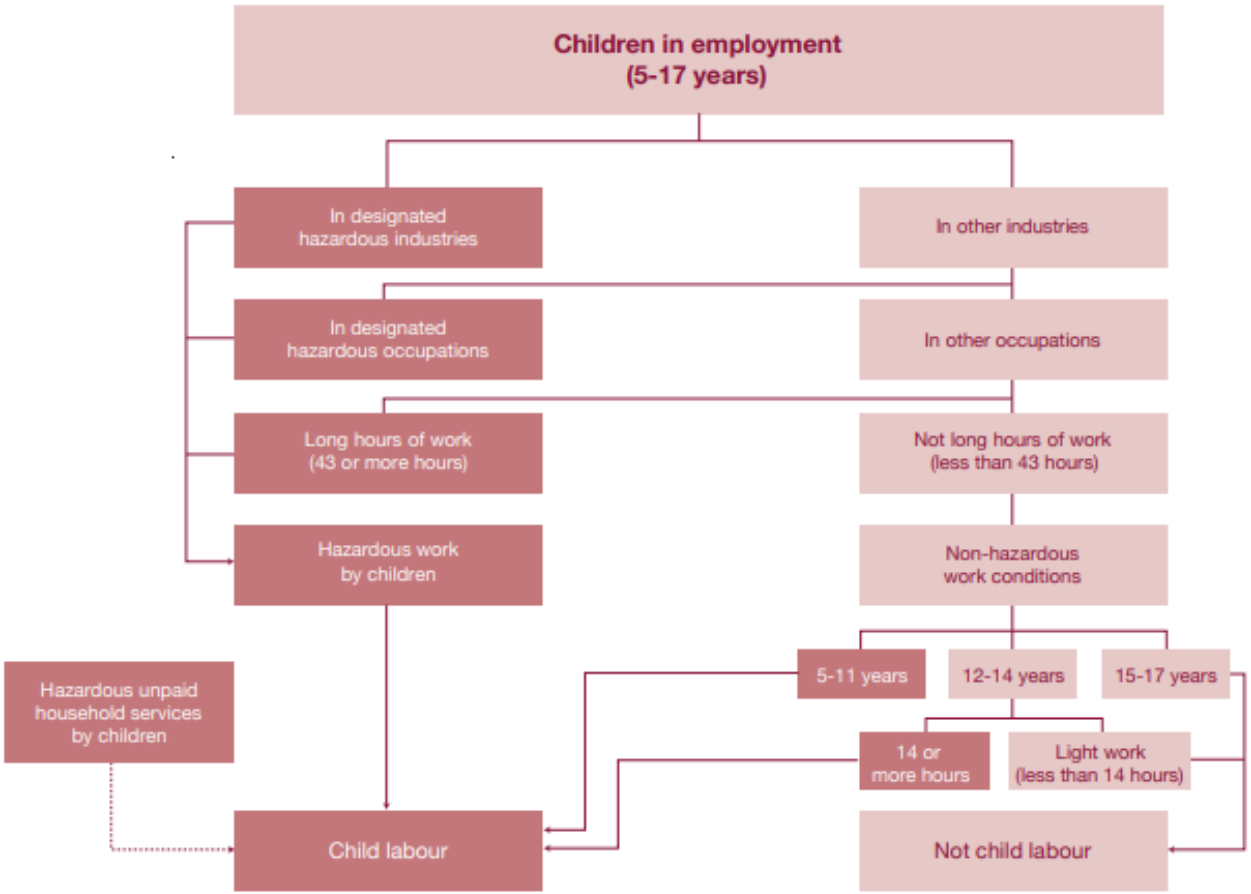
Should children work, and if so, when?

Should children work, and if so, when?

- A vast literature on child labor in the 1990s and early 2000s.
- Strong negative trend in the absolute number of child workers since 2000, but stagnation from 2016, and rise during Covid-19.
    - CL currently concerns some 160 million children (ILO, 2021).
- ILO definition: a complex one, where the general idea is to distinguish children who are working *too much* or in bad conditions from those who are working under acceptable conditions.
- Child employment needs not be a bad thing in itself $\Rightarrow$ Edmonds & Pavcnik (2005).

Should children work, and if so, when?

Fig A1. **Measurement framework for the global estimation of child labour**



Source: ILO (2020)

Should children work, and if so, when?

Edmonds & Pavcnik (2005)

- Do not adopt the ILO definition, but consider all forms of child employment at ages 5 - 14.
- Data from the UNICEF's *End of Decade* assessment (36 low-income countries).
  - 25% of children do some kind of market work.
  - 83% of those work in the household.
  - 33% work outside the household (some do both).
  - Participation rates are higher in rural areas.
  - Agriculture is the most common sector of work.

Should children work, and if so, when?

Is child work detrimental to schooling?

Table 2

Total Hours Worked in Last Week, Conditional on Activity, for 124 Million Children 5–14 from 36 Countries in 2000

	All children	*Age*		*Gender*		*Location*	
	5–14	*5–9*	*10–14*	*Male*	*Female*	*Urban*	*Rural*
Market work (MAR)	26.1	21.1	28.5	25.3	27.1	21.7	28.3
Paid	30.9	21.0	33.5	30.0	32.2	27.3	33.6
Unpaid	26.9	20.9	30.6	26.3	27.4	20.6	29.6
Family	27.2	22.6	29.2	26.3	28.3	22.3	29.2
Domestic work (DOM)	15.8	11.6	18.6	15.4	16.1	12.4	18.5
Any work (MAR + DOM)	16.1	11.9	18.9	15.9	16.2	12.8	18.6
Schooling status							
Not attend school	11.6	6.3	23.7	10.3	12.9	8.0	13.4
Attends school	10.7	6.4	14.1	10.3	11.1	8.2	13.3

Notes: Each cell contains total hours worked (in both market and domestic work) in the last week for individuals that report participating in the indicated (row) activity. Children may participate in multiple activities. See Table 1 for row descriptions. *Attends school* indicates that the child attended school during the last year.

Source: Authors' calculations from UNICEF Multiple Indicator Cluster Survey End of Decade Assessment microdata. See Table 1 for description.

Source: Edmonds & Pavcnik (2005)

Should children work, and if so, when?

What do non-attending children do?

Table 3

Work and Schooling Status for 124 Million Children 5–14 from 36 Countries in 2000

	All Children	*Age*		*Gender*		*Location*	
	5–14	*5–9*	*10–14*	*Male*	*Female*	*Urban*	*Rural*
Attend school	69.5	58.9	80.8	70.7	68.3	75.1	63.9
Attendance rates conditional on							
Any work	73.9	64.1	80.6	75.7	72.3	80.1	68.3
Not work	60.0	52.9	82.2	61.6	57.8	64.9	52.8
Conditional on nonattendance							
Domestic only	32.0	30.8	34.9	27.1	36.6	31.8	32.0
Market only	4.5	2.8	8.3	6.3	2.7	4.9	4.3
Both market and domestic	22.0	13.1	42.2	20.3	23.5	12.8	26.6
Not work	41.5	53.3	14.6	46.2	37.1	50.6	37.1

Notes: The first row contains school attendance rates by column group. All rows listed under "Attendance Rates Conditional on:" restrict the population to children whose labor status is in the indicated category (works in any type of work, does not work). The rows listed under "conditional on non attendance" restrict the sample to children that do not attend school. These non-attenders are then divided into four categories: works only in domestic work, works only in market work, works in domestic and market work, and does not work. Thus all four rows under the "conditional on non-attendance" row sum to 100 (with some rounding error).

Source: Authors' calculations from UNICEF Multiple Indicator Cluster Survey End of Decade Assessment microdata. See Table 1 for description.

Source: Edmonds & Pavcnik (2005)

Should children work, and if so, when?

Why do children work?

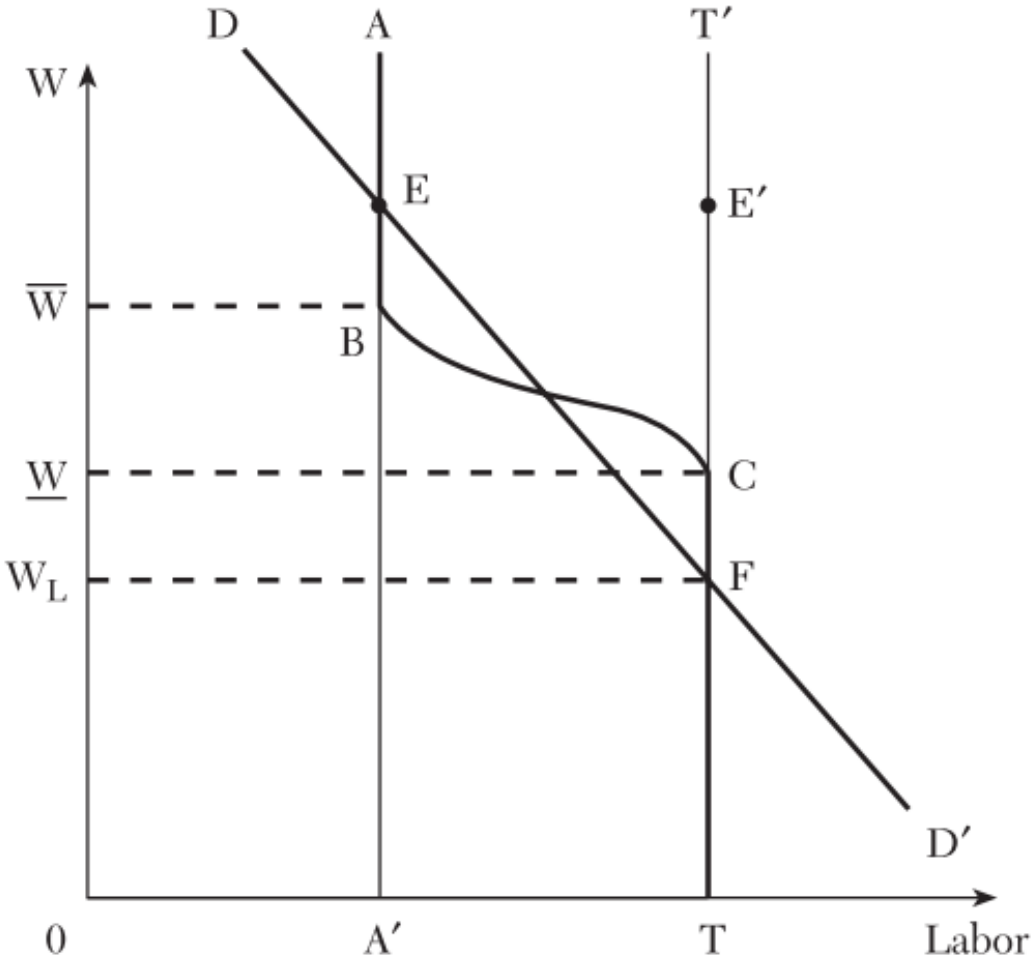
- A well-established finding: children of the poorest households work.
  - Axiom: parents, when able to refrain from it, do not let their children work (Basu & Van, 1998, Basu et al., 2010).
- But challenged in some contexts:
  - Bhalotra and Heady (2003): households with larger plots have their children work more.
  - Basu et al. (2010): Inverted U-relationship between land size and child labor.
- An important question for policy since banning child labor may hurt the most vulnerable households disproportionately.

Should children work, and if so, when?

Basu & Van (1998): How a one-time ban may solve the problem

- **Luxury axiom**: a household would not send its children to work if it could avoid it.
- **Substitution axiom**: Adult labor is a substitute for child labor (adults can do anything that children can do)
- Children are less *productive* than adult workers.
- They are however paid lower wages, such that it is profitable to employ them.
- Multiple equilibria can exist in such an economy, and banning child labor can make the economy move from one to another.

Should children work, and if so, when?



Source: Basu (1999)

Should children work, and if so, when?

Policies to tackle child labor

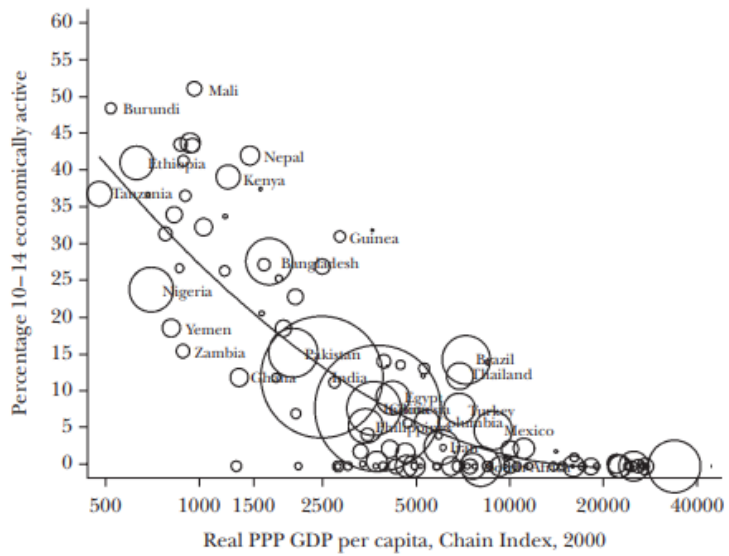
- Banning: some historical evidence from developed countries.
  - Suggesting minimum age laws did little to reduce child labor in the US (Moehling, 1999).
  - Almost no evidence on what happens to children displaced from formal work.
    - Anecdotal evidence from Bangladesh of garment workers forced into prostitution or stone crushing.
- Trade pressure:
  - Conflicting outcomes:
    - Children are diverted into other work (the comparative advantage shifts).
    - Child wages decline (can lead to increased or decreased child labor).
    - Adult wages rise (and household need less employ children).
    - May weaken domestic support for banning child labor (Doepke & Zilibotti 2010).

Should children work, and if so, when?

Policies to tackle child labor

- Beyound doubt however, cross-country and panel studies have shown that increased standards of living reduce child labor.
- Long-term development strategies are therefore the best policies.
  - From a micro perspective, interventions lowering the cost of education are likely to be effective.

Figure 1
The Relationship between Economic Status and Economic Activity, 2000



Source: Economic activity for 2000 from LABORSTA at ⟨http://laborsta.ilo.org⟩, GDP per capita from Penn World Tables 6.1, and population aged 10–14 weights from UNStat.

Natural disasters and LMs: build back better

Kirchberger (JDE, 2017)

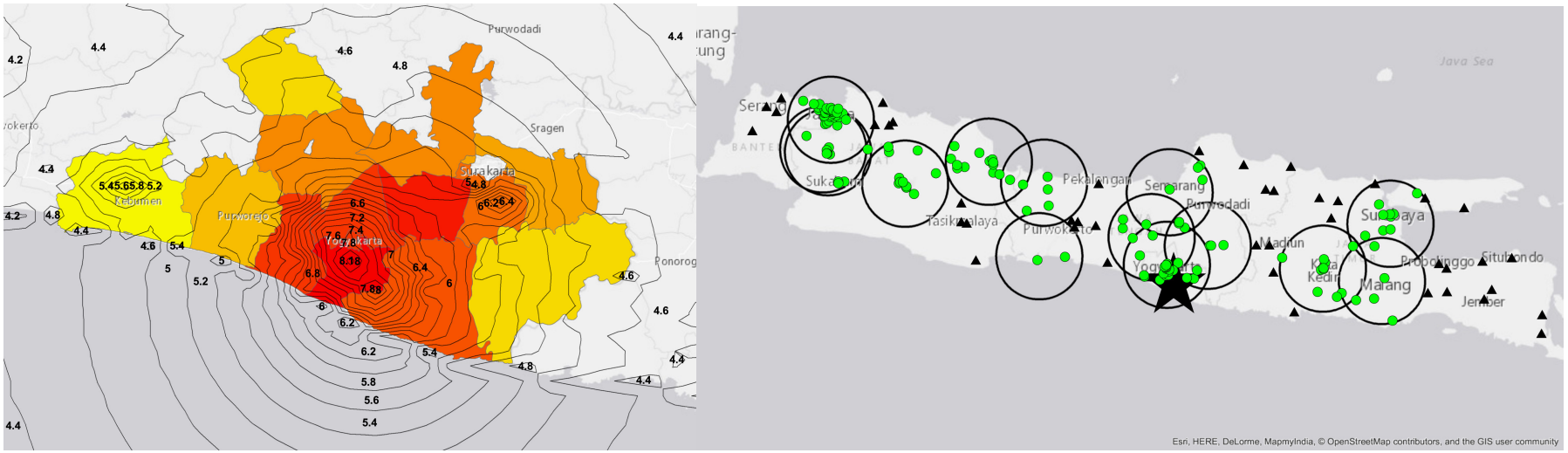
- How do labor markets react to large shocks, like natural disasters?
  - Surprisingly little evidence...
- 2006 earthquake in Yogyakarta, Indonesia.
  - 5700 deaths and tens of thousands injured.
  - 280 000 houses destroyed.
  - Spatial evidence of destruction (Mercalli scale).

Natural disasters and LMs: build back better

- Methodology: comparing individuals living in or close to (<5km) large cities on the island of Java.
- Data: IFLS (2000 and 2007-8 waves).
- Set up as an RCT, with treated and untreated individuals (affected or not by the earthquake).
    - Treated individuals are those residing in district with some reported earthquake damage.
    - The groups are not perfectly balanced. They are however very similar in terms of allocations across sectors and employment categories, as well as wages at baseline.

Natural disasters and LMs: build back better

Kirchberger (JDE, 2017)



Source: Kirchberger (2017)

Natural disasters and LMs: build back better

- How did the earthquake affect supply and demand for labor?
- How did the destruction of physical capital affect the labor market?
- Did the disaster affect sectors and categories of employment differentially?
    - Surprisingly, the labor market does not seem to be worse off in Yogyakarta two years after the earthquake than in other urban areas of Java.
    - Wages for baseline farmers rose 27% more per percentage point increase in house destruction.
    - Other outcomes are mostly unaffected.

Natural disasters and LMs: build back better

Mechanisms

- Why and how did wages increase for farmers?
  - Price increases in Agriculture?
    - Net buyer communities : prices should increase since transport costs increase due to infrastructure destruction.
    - Net seller communities : prices may increase/decrease. Transport costs increase (downward pressure on local production), but supply may fall due to the earthquake (upward pressure on prices).
  - A 1 p.p. increase in destruction led to a 1% increase in the price growth rate between the two periods.
  - The increase was stronger for districts located far away from cities and ports.

Natural disasters and LMs: build back better

Mechanisms

- Why and how did wages increase for farmers?
  - Downward shift in agricultural labor supply?
    - There could be job opportunities opening up in other sectors associated with reconstruction.
    - If farmers converted disproportionately, this would contribute to explaining increased returns to agriculture.
  - For every 1 p.p. increase in housing destruction, there is 0.57% slower growth in agricultural employment, and 1.1% higher growth in construction.
  - There is also 0.53% slower growth in commercial services.

Natural disasters and LMs: build back better

Are these results surprising?

- Perhaps not so much.
  - A natural disaster is expected to shock the local labor supply negatively (people leave, die or are injured).
  - What about labor demand?
    - Decreases if a lot of private capital is destroyed (closing shops, etc.).
    - But also possible substitution from physical to human capital (increased labor demand).
  - If we assume a reduced labor supply and increased labor demand, earnings should increase and the impact on employment would be undetermined.

Natural disasters and LMs: build back better

Evidence from the US: Belasen & Polachek (2009)

- Hurricanes in Florida: what affect on the labor markets of affected counties and neighboring counties?
- They find that counties hit by a Hurricane see the earnings of the average worker increase by 4% in the immediate quarter following the disaster.
    - Furthermore, these impacts are proportional to the power of the Hurricane.

Gignoux & Menendez (2016)

- Look at medium and long-term welfare costs/benefits of earthquakes in Indonesia.
- Short-term losses, medium-term catch-up and long-term benefits.
    - Infrastructure (private and public) is rebuilt (and sometimes improved) in the long run.

Improving DC labor markets

Evidence on employment programs in DCs

- Ultimately, we care about well-being.
  - So is a functioning labor market only a means to achieve well-being?
  - What about the resource curse?
    - Diversified economies?
    - Diversified skills?
  - A number of public interventions have been carried out, and evaluated.
    - TVET
    - Cash transfers
    - Public job programs
    - Etc..

Improving DC labor markets

Evidence on TVET interventions: Tripney et al. (2013)

- Effect of TVET on youth employment (15-24 y.o.) and employability, in low and middle-income countries.
- A meta-analysis of 26 studies
  - 3 RCTs.
  - 23 quasi-experimental studies.
- Finds a positive effect on paid employment and formal employment.
  - But a lot of heterogeneity (some studies report negative effects).
- Difficult to get much out of a meta-analysis (the forest is covering the trees).

Improving DC labor markets

Blattman & Ralston (2015)

- Study labor market and entrepreneurship programs
  - Recall, most workers in DCs are self-employed.
- Argue that job creation is not the most relevant target for DCs.
  - Rather, individuals have 'portfolios of work' rather than a job, drawing income from multiple sources.
  - Their review suggests that large-scale cost-effective interventions *can* improve portfolios of work.

Improving DC labor markets

Blattman & Ralston (2015)

- Supply side interventions:
  - Physical capital injections:
    - Rely on the assumption that firms/individuals could be more efficient if they had more capital (e.g. they could reach optimal size).
  - Human capital programs (skills training)
    - Rely on the assumption that skills shortages lead to suboptimal business investments.
    - 9 bn USD financed by the World Bank between 2002 and 2012.
  - What does the evidence say?
    - **Human Capital**: Few training programs increase long-run earnings, and even less are cost-effective.
    - **Physical capital**: More and more evidence of long-lasting cost-effective returns.

Improving DC labor markets

Scaling up—general equilibrium effects

- The problem with micro-interventions is that general equilibrium effects are rarely investigated.
  - What if sales crowd out those from existing businesses? If hires make other people jobless?
  - Need to evaluate effects in the general (local) population, and in neighboring population.
  - A reason to be skeptic. BUT, some evaluations have shown positive results.

    $\Rightarrow$ Blattman et Ralston (2015) mention two programs, providing villages in Northern Uganda with cash grants and skills training respectively.
    - The huge capital injection in the local economy had no effect on prices.
    - No internal spillover effects among the thousands of young people trained in a handful of trades.

Improving DC labor markets

Demand-side interventions: Workfare programs

- A popular tool to deal with unemployment and poverty.
  - The premise: guaranteed work for the government for a fixed period of time, at a modest wage. Beneficiaries are often targeted.
  - Blattman Ralston (2015): Little evidence on such programs.
    - NREG: One of the largest in the world, but not properly designed for evaluation. Results from various studies are not coherent.
    - Bertrand et al. (2021): evaluate a workfare program in Côte d'Ivoire. Immediately after the program, positive imapcts on savings and wage work. Fifteen months after, no employment effects and a limited impact on earnings.
    - The program does not hold up to a cost-benefit analysis.

Improving DC labor markets

Demand-side interventions: Wage subsidies

- Mixed evidence from wage subsidies.
  - No employment effects after the subsidy period in Jordan, Mexico and Sri Lanka.
  - But, a higher rate of retention for workers in Mexico when subsidies are given during recession.

Summing up

- In the end, interventions do not seem to be a panacea for improving labor markets.
  - Few long-lasting impacts.
  - But, multiple constraints may require multiple interventions.
  - And, scope for macroeconomic and industrial policy (cf. article by Pritchett on RCTs).