

# WHAT'S THE LATEST EVIDENCE ON PUBLIC WORKS IN LOW AND MIDDLE-INCOME COUNTRIES?

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# Outline

1. Objectives
2. Conceptual Framework: design and implementation
3. Valuing direct benefits: contemporaneous and post
4. Valuing indirect effects
5. Gender
6. Benchmarking with cash: tradeoffs
7. Conclusions

# 1. Objectives

Labor intensive public works represent a widely used SP instrument, in low and middle income settings [Subbarao et al 2015], with huge variation in objectives and design features

1. One-off consumption and income smoothing in response to large aggregate agroclimatic or macroeconomic shocks [Ravallion 1999]
  - Ex. Trabajar/Jefes in Argentina [Galasso, Ravallion 2004],

One-off short term seasonal consumption/income smoothing (often rationed)

- Ex. Malawi MASAF PWP [Beegle, Galasso, Goldberg 2017]

# 1. Objectives

1. One-off consumption and income smoothing in response to large aggregate agroclimatic or macroeconomic shocks
  - Trabajar/Jefes in Argentina
2. Employment guarantee. Right-to-Work Policy: wage/income floor, India (NREGA), Ethiopia (PNSP)
  - Smooth intra-seasonal income variation [Murgai, Ravallion, Van de Walle 2016, Imbert 2018]
  - Countercyclical social protection tool (expand/contract coverage good/bad years [Ravallion, Datt, Chaudhuri 1993])

# 1. Objectives

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  2. Employment guarantee. Right-to-Work Policy: wage/income floor,
    - India (NREGA), Ethiopia (PNSP)
  3. Crisis response in post-conflict and fragile settings
    - Post-recovery: income/employment generation to jump-start local economy (demand side), increase local cohesion and trust
    - Employ high risk groups (ex-combatants, idle youth) to reduce crime and violence [Blattman, Ralston 2015]
- [Eric Mvukiyehe](#) DI Blog and Policy Research Talk; [Arthur Alik-Lagrange](#) SP seminar

## 2. Framework: design vs implementation

- Contemporaneous net income gains:

$$[w_{PWP} - \tilde{w}] \times Ndays_{PWP}$$

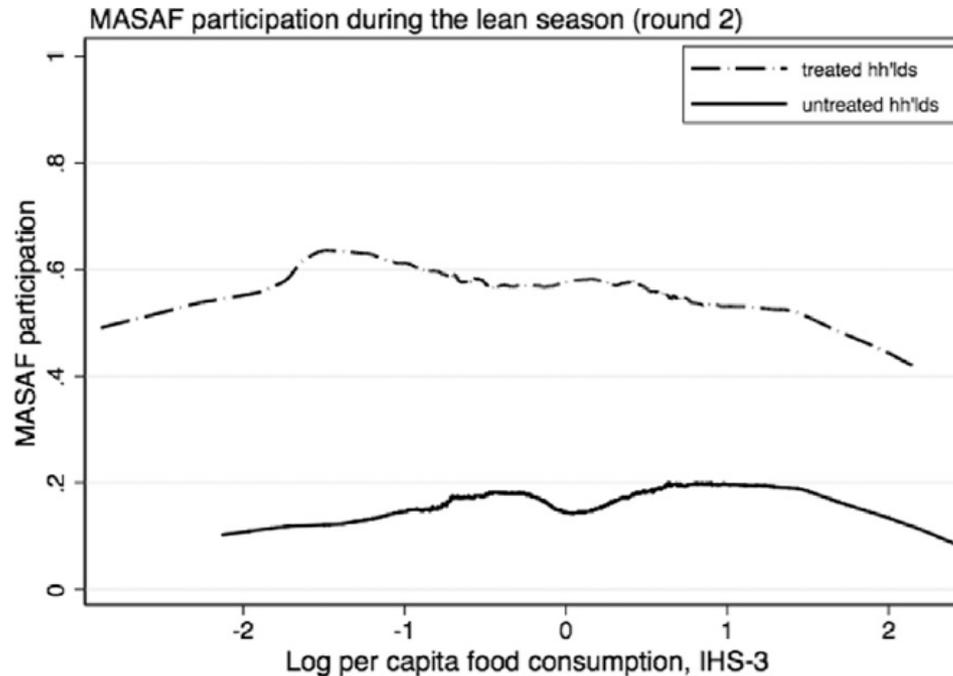
- $w_{PWP} <$  casual labor market wage, minimum wage?
- Incentive arguments: given unobserved income generating ability, only poor willing to work at the offered wage self-select into the program
  - In practice, assumed involuntary underemployment among the poor
  - gender differences in  $\tilde{w}$  (more later)
  - Maximum impact with low  $\tilde{w}$  (lean season or economic crisis)
  - Likely flatter distribution  $f(\tilde{w})$  limits the screening performance of the work counterpart

## 2. Framework: design vs implementation

- Short term income support:
  - Huge heterogeneity in key design features across settings
    - *Ndays* 50 days (Sierra Leone, Djibouti), 2 cycles 12 days (Malawi), 100 days (NREGA), 6 months (PNSP), 7 months (Cote d'Ivoire)
    - Annual gross transfer varies  $w_{PWP} * Ndays$  (ranging from USD \$62 and \$190)
    - Need to benchmark relative magnitude transfer
  - $\uparrow w_{PWP}$  increases coverage non poor,  $\downarrow$  potential net gains
  - net wage transfer can be increased by wage  $\uparrow w_{PWP}$  or duration  $\uparrow Ndays_{PWP}$

## 2. Framework: design vs implementation

- Wage rate as a deterrent?
  - Wage elasticity labor supply in low income settings could be low (0.15 during the low agricultural season in Malawi) [Goldberg 2016]
  - Limited self-targeted in a highly rationed program [Beegle, Galasso, Goldberg 2017]

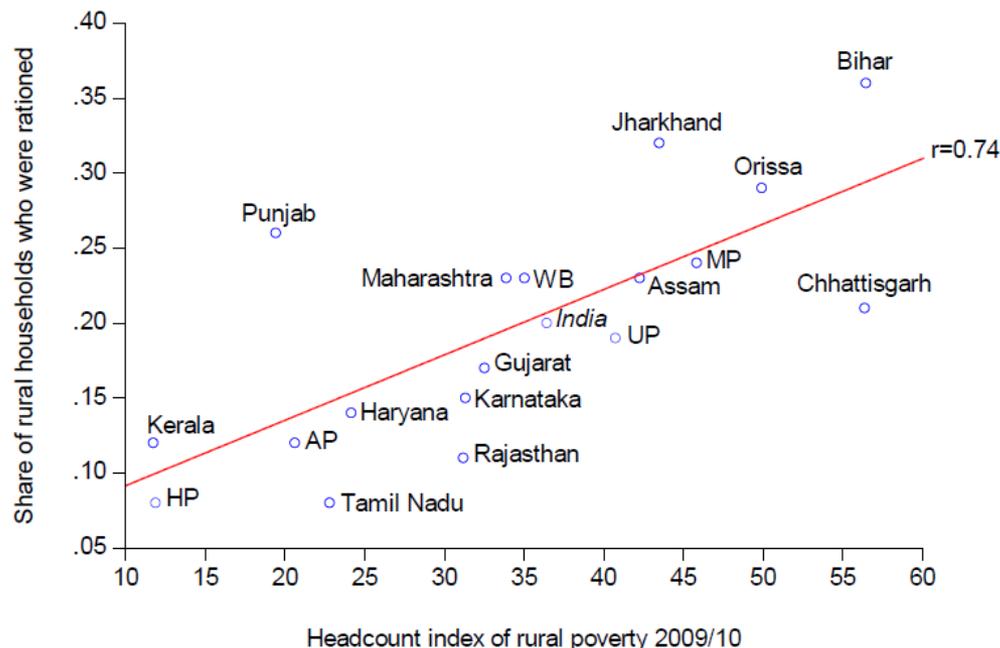


# Framework: design vs implementation

- Capacity constraints:

- 44% of those wanting NREGA do not get it. Rationing is higher in poorer states for NREGA, where it is needed more [Dutta et al 2012]
- Rationing correlated with low implementation ability [Narayanan et al 2018]

Figure 1: Incidence of rationing in India's Employment Guarantee Scheme plotted against the poverty rate across states.



## 2. Framework: design vs implementation

- Information frictions? Knowledge and awareness about entitlement to work lower among illiterate
  - Edutainment campaign in Bihar raises knowledge but did not have impact on seeking and obtaining employment [Ravallion, Van de Walle, Dutta, Murgai 2015] lower information diffusion for the illiterate and lower caste [Alik-Lagrange and Ravallion 2019]
- Disutility from work: additional welfare losses from casual labor and subjective well being
  - Accounting for the welfare losses from work requirement > program is better off at reaching the poor...but has lower impact on poverty rates [Alik-Lagrange, and Ravallion. 2018]
  - This needs to be weighed against mental health benefits from having opportunity to work or additional income [Bertrand et al 2017]

### 3. Valuing direct benefits: contemporaneous

- Estimates foregone income/crowding out private labor supply?
  - Highly dependent on labor market conditions and offered wage rate (ex. Argentina ~ 1/2 to 1/3 during crisis, Djibouti ~ 1/4 , no crowding Malawi, NREGA ~40-45%, Cote d'Ivoire 60%)
- Impact on consumption and food security
  - No impact on consumption or food security in Malawi [Beegle, Galasso, Goldberg 2017]
  - PNSP 5 years exposure ↓ length hungry season by 1.3 months [Berhane et al 2014]
  - NREGA: +9.6% food expenditures [Ravi and Engler 2015] +7% consumption [Deininger and Liu 2013]
  - Colombia: 5% consumption/10% food expenditures [Alik-Lagrange et al 2019]
  - Djibouti 10% consumption, 12% food expenditures [Devoto, Galasso, Brodmann 2019]

### 3. Valuing direct benefits: contemporaneous

- Reducing costly risk-coping strategies (distress asset sales, depletion)
  - Cumulative exposure PNSP (5 yrs) ↑livestock holdings by 0.38 TLU [Berhane et al 2014]
- Education/health:
  - NREGA ↓ enrolment 2pp and math scores 0.02SD for adolescents 13-16 [Shah, Millett Steinberg 2015]
  - NREGA ↓ antenatal visits and health care. ↑ newborn mortality [Chari et al 2019]
- Agricultural productivity:
  - Ex-ante insurance: NREGA allowed farmers to shift to riskier/more profitable crops [Gehrke 2017, Gehrke, Hartwig 2018]
  - No effect of interlinking PWP with fertilizer subsidy in Malawi [Beegle, Galasso, Goldberg 2017]
  - No effect of PNSP alone unless bundled with productive input package

### 3. Valuing direct benefits: post-program

- Short term income/consumption effects dissipate after the program:
  - Colombia [Alik-Lagrange et al 2019], Djibouti [Devoto, Galasso, Brodmann 2019], Cote d'Ivoire [Bertrand et al 2017]
- Unless bundled with other services
  - Training and productive inputs in Ethiopia (PNSP + OFSP/HABP)
  - Training for self entrepreneurship in Cote Ivoire [male youth]
- Or unless ↑ opportunities for other employment [MICS]:
  - Some suggestive evidence that PWP enhances contacts in Argentina [Ravallion, Galasso, Lazo, Phillip 2005]
  - Sustained gains in rural areas/small municipalities in Colombia, facilitating transition into non-ag work through contacts/experience [Alik-Lagrange et al 2019]

## 4. Valuing indirect benefits

- General equilibrium through wage floor. Right to work holds when anybody who would like to work at the offered wage can get it [Ravallion 2019]
  - Competitive labor markets, with market clearing wages
  - Capacity to rollout programs to respond to demand
- 1. NREGA increases rural wages by 5% during the agricultural off-season, in 7 *star* states with good implementation [Imbert, Papp 2015]
- 2. Improving NREGA implementation through biometric smartcards in AP (good implementation state) increases wages by 6% and labor market earnings at the bottom by 13% [Muralidharan, K., P. Niehaus, S. Sukhtankar. 2018]

## 4. Valuing indirect benefits

- General equilibrium through ↓ migration.
  - Rural to urban spillovers NREGA [Imbert, Papp 2018]
  - wages rose faster in cities which rely on migrants from star states, migration from star states ↓ by 22%, but that rising urban wages attracted 6% more migrants from other states, so that in net urban wages increased by only 1.4%.
  - Benefits from sending communities ↓ monetary and non-monetary costs of migration

# 4. Valuing indirect benefits

- Inherent trade-off wage vs non-wage share total budget, labor earnings (direct) vs quality and durability of the assets created (indirect) [Ravallion 1999]
- Valuation of productive and non-economic benefits:
  - PNSP, with hazard risk mapping and early warning systems (EWSs), contributing to climate change mitigation [impact on CO2 emission [Woolf et al 2018]
  - Subjective valuation of local amenities, neighborhood quality: [ongoing urban PNSP [Mejia-Mantilla, Franklin]. Have to benchmark to impact on local infrastructure investment in urban settings [McIntosh et al 2018]
  - Effect on social cohesion, trust? (Cote Ivoire)

# 5. Gender

- Common wage offer  $w_{PWP}$  vs differential opportunity cost  $\tilde{w}_F < \tilde{w}_M$ 
  - Net income gains from participation larger [Galasso, Ravallion 2004, Ravallion, Galasso, Lazo, Phillip 2005]
  - Accounting for women's work burden, flexibility in timing
- Overcoming constraints to FLFP for unskilled women:
  - Deposited NREGA salary into female-owned bank accounts, shifted intra-household bargaining power, increased own LS (both NREGA and in private sector), especially for women who had not worked before [Field et al 2019]
  - Offer PW to women in Djibouti: almost universal take-up in a context with absent employment opportunity in the casual labor market [Devoto, Galasso, Brodmann 2019]

# 5. Gender

- Align PWP with critical periods for HC accumulation (ex. first 1,000 days)
  - reduce physical labor and exertion by pregnant women, shift to lighter tasks or delay work outside the pregnancy/delivery
  - What is the rationale for choosing PWP given the policy objectives?  
Cash transfers, long term productive effects, with longer duration
- Jumpstarting female LFP:
  - bundling training (*artisanat*) and seed funding for entrepreneurship relative to road maintenance?
  - Bundling with financial inclusion (bank accounts and training on how to use them)

# 6. Benchmarking with cash transfers

- Targeting vs self-selection vs universal programs
  - Limitations of self-selection/screening, many programs impose rationing and combine self-selection with traditional PMT/community based targeting.
- Exercises of benchmarking PWP guarantee, weighing net income gains, vs universal cash transfer
  - Work requirement limits poverty alleviation effort of NREGA [[Murgai, Ravallion, van de Walle 2016](#), [Imbert 2018](#)]
  - Accounting for disutility of work would further tilt evidence towards uniform cash [[Alik-Lagrange, Ravallion 2018](#)]
  - Analysis does not account for GE effects and valuation of assets created
- For short term income smoothing, is UBI the right counterfactual?
  - Flexible short term cash transfers to tackle intra-year income fluctuations/crisis response possible with new technology (mobile payments)

# 7. Conclusions

- Impact and effectiveness of PWP are crucially dependent on:
  - Design features (wage rates, duration)
  - Capacity and budget constraints limit the guarantee and insurance function
  - Counterfactual context (ability to work, existence casual labor market functioning)
- Need to clear ex-ante justification for the work requirement given the policy objectives:
  - Burden of proof is on PWP
  - Ex. short term consumption smoothing and income floor could be achieved with other policy instruments
- Smart portfolio of projects within PWP:
  - Most promising knowledge agenda focused on assessing indirect benefits in urban areas, climate change mitigation in rural areas.
  - Sequencing and bundling programs: short term support + tailored services
- Reassess gender focus with a clearer set of objectives

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