# Mothers at Peace: Post-Conflict, Fertility, and UN Peacekeeping

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Background

Data

Conclusions

# Background

# Conflict and Fertility

- Armed conflicts crucially shapes individuals' long-term decisions, including reproductive behavior
- The legacy of conflict on reproductive behaviour has significant long-term implications in post-conflict settings:
  - Pop. growth and environmental threats, health risks, educational attainments and economic growth
- Women in conflict-affected areas should have higher fertility rates (Islam et al., 2016; Kraehnert et al., 2019)
  - low contraception use, low education, replace children lost to the conflict
- Yet, the opposite is plausible (Agadjanian and Prata, 2002; De Walque, 2006)
  - postpone childbearing; prioritize child "quality" over "quantity"
- We know little once the conflict is settled and peace is being kept

# Post-Conflict and UN Peacekeeping

- UN has launched 70+ peacekeeping missions worldwide since 1960
- Today 70,000 blue helmets deployed in 12 missions around the world
- Peacekeeping reduces violence in ongoing wars and the probability of conflict recurrence (Hultman, Kathman and Shannon, 2013)
- It improves households' well-being by revitalizing economic exchanges and labor market participation and instilling confidence and trust (Bove, Di Salvatore and Elia, 2022)
- It reduces maternal mortality rates and increases maternal health and women's access to services and education (Gizelis and Cao, 2021)

# Research Question: Fertility in Post-conflict Liberia

**Does the provision of a secure environment through the deployment of UN peacekeepers affect fertility?**

- Hosted one of the largest UN peace operation
- Has one of the highest fertility rate (4 kids per woman)
- Use individual survey data (DHS07;13;19) and geo-coded PK data in Liberia
- Reconstruct the birth histories and trace all children women have ever given birth
- DV: likelihood to have a child and # of children

# The UN Mission in Liberia (UNMIL)

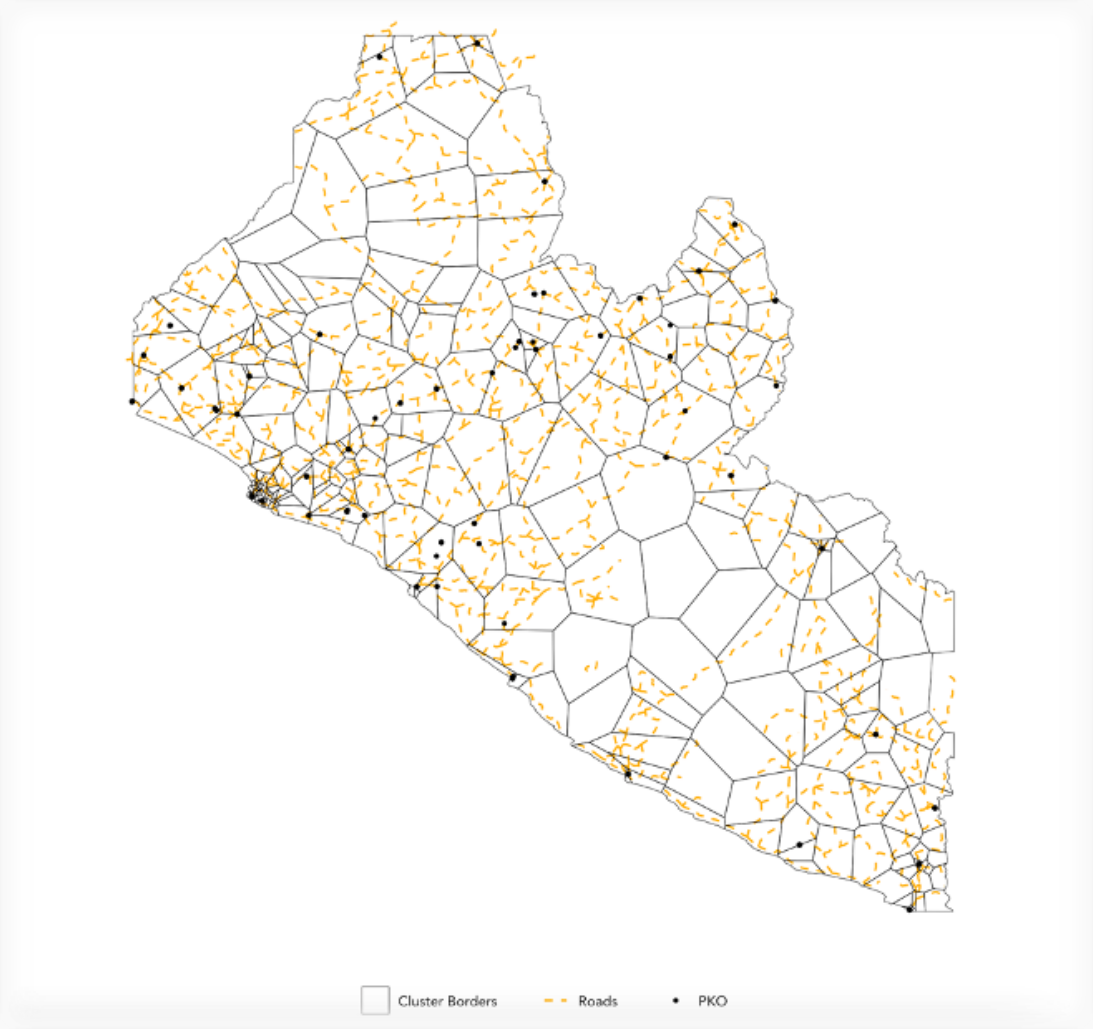
- UN peacekeepers first deployed in 2003, after two devastating civil wars from 1989 to 2003 and 250,000 people killed (Economist, 2022).
- The UN force consisted of 14,700 personnel in 2004 and reached the maximum strength in 2005 with 16,000+
- After 15 years of continuous deployment, the last 500 peacekeepers left the country in 2018
- Multidimensional mission aimed at supporting the peace process and humanitarian activities, and assisting in national security reforms
- Also partnered with local organizations on development projects to improve the lives of the local populations, providing public goods including medical services

# Data

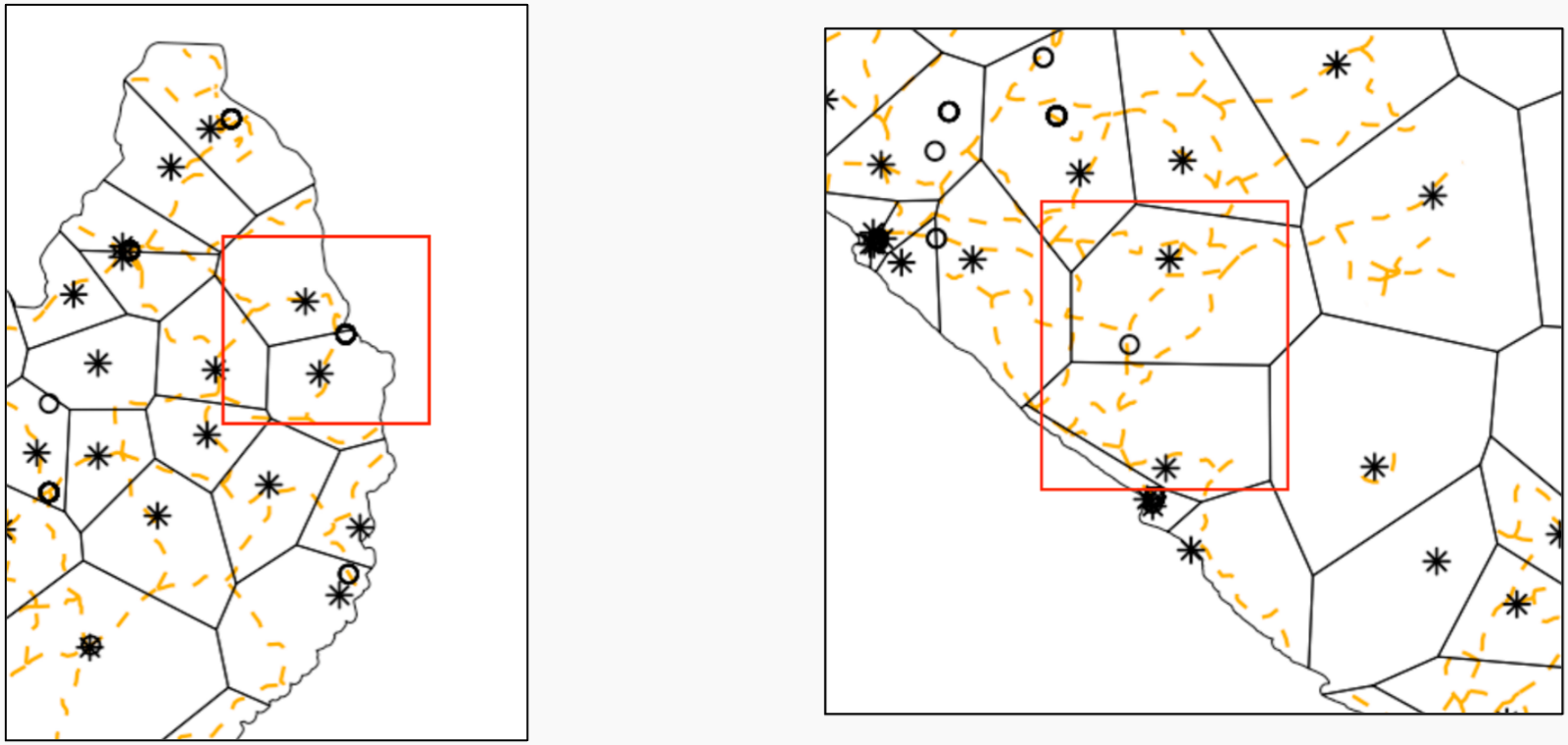
# Data source

- We use three rounds of the Liberian DHS (2007, 2013 and 2019), which provide respondents' geolocation (DHS cluster=village)
- We reconstruct the full birth histories and trace all children women have ever given birth in the years before and after the UN arrival
- These data are then matched with geocoded information on UNMIL monthly subnational deployment based on the GeoPKO dataset (Cil, Fjelde, Hultman, & Nilsson, 2020)
- GeoPKO provides the locations of deployment, from which we calculate the road distance to each DHS cluster
- As UNMIL mission moved across the country, we track its movement to correctly identify before- and after-deployment births

# Road Network and PK Location



# Distance from PK Base



Respondents' location (∗) and distance from PK base (∘)

# Results i

Where UN troops are deployed:

- Women's likelihood of having a child drops by 5 pp (6% of the mean)
- The total number of children per woman declines by 25% (13% of the mean)
- The effect varies across age groups, parity level and marital status

# Results ii

- **Mechanisms**: Effects explained by improved parental investment on children (family planning) and less by opportunity cost of raising children.

## 1. Quality-quantity tradeoff

- ⇑ # antenatal visits
- ⇑ iron intake
- ⇑ birthweight
- ⇑ baby postnatal checks
- ⇓ under 5 mortality
- ⇓ deliver at home

## 2. Opportunity cost

- No effect on employment
- No effect on women's decisions on earnings
- No effect on decisions on large purchase
- ⇑ contraception use

# Conclusions

# Final Remarks

- We provide first evidence of the local impact of UN peacekeeping on fertility, looking at the case of the UN intervention in Liberia
- We find that UN has a significant and socially meaningful impact on either margin of fertility
- This effect seems to be explained by improved maternal health and childbirth outcomes as well as greater contraceptive use, consistent with the quality-over-quantity hypothesis
- Results suggest that the presence of peacekeepers, besides improving local security, can support better and more-informed family planning and improve health condition of mothers and children.

# Empirical Strategy

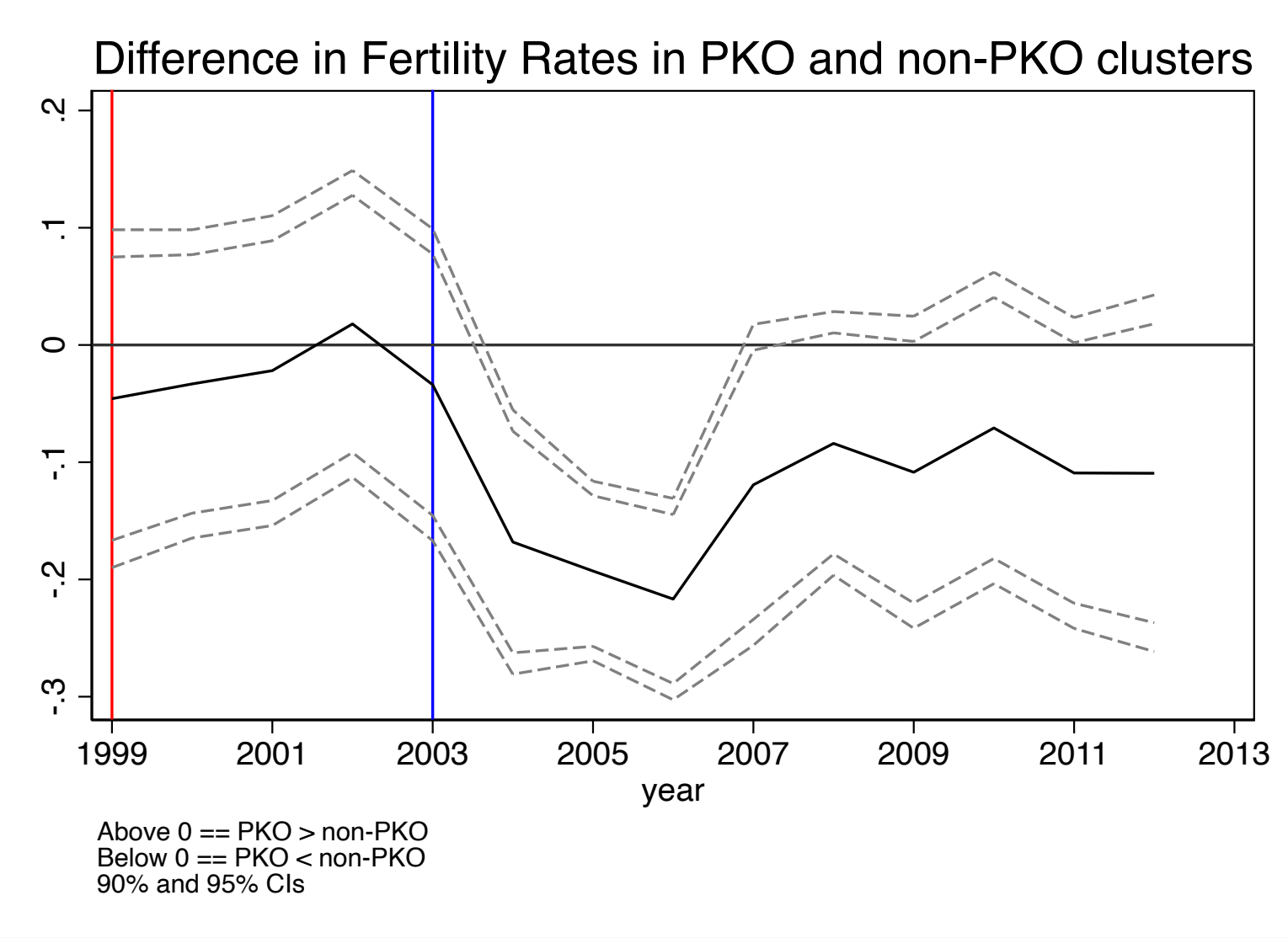
# Model

- We estimate the following specification:

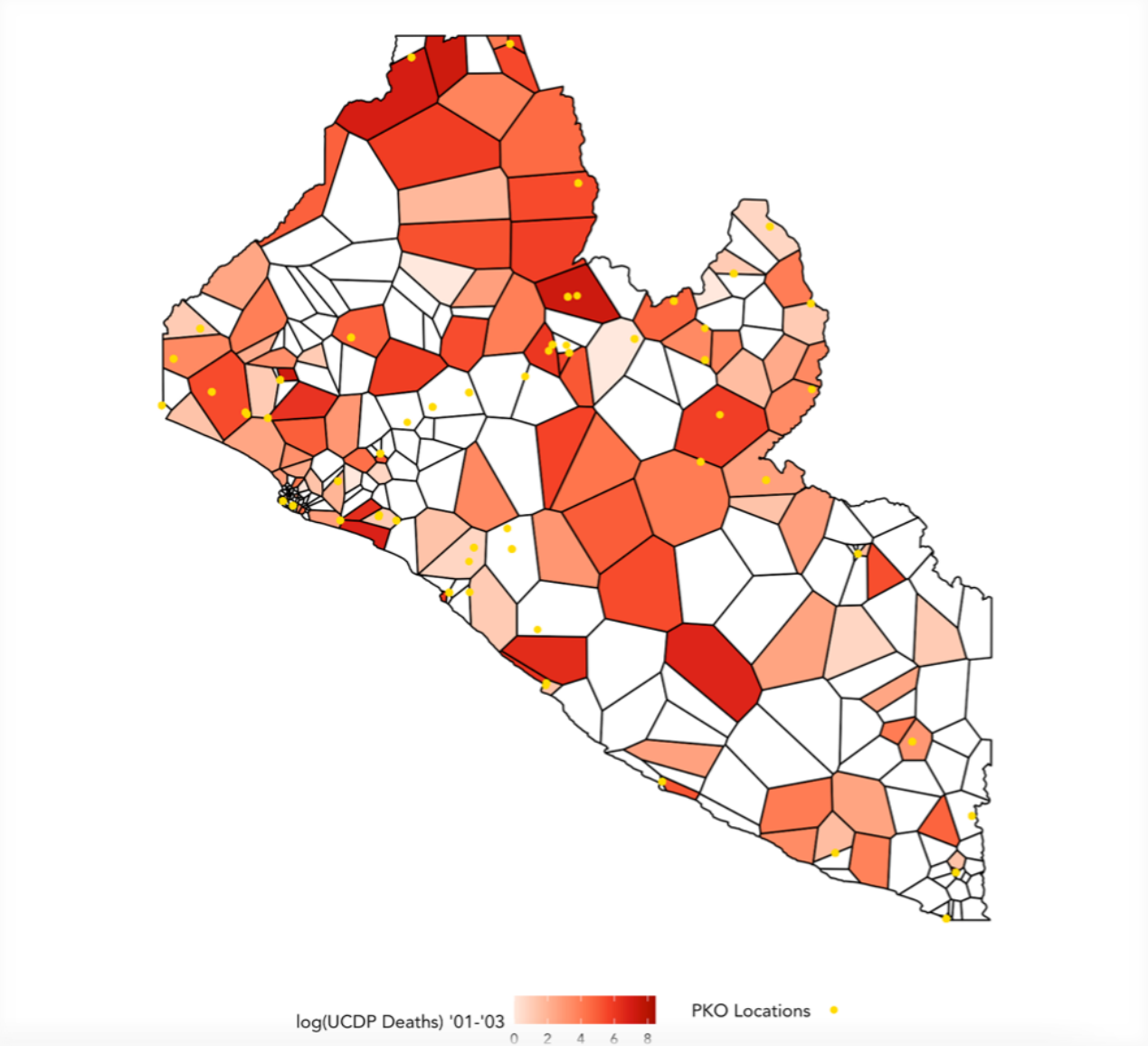
$$Y_{icjt} = \alpha + \beta PKO_i + \delta X_{it} + \gamma Z_c + \mu_j + \eta_t + \epsilon_{icjt} \quad (1)$$

- $Y_{icjt}$ is a dummy $= 1$ if a woman $i$ residing in cluster $c$ located in district $j$ and interviewed in wave $t$ reports any birth since PK deployment in her cluster (or is the # of children)
- $PKO_i$ measures peacekeepers presence within a 10km road distance from $i$'s cluster
- $X_{it}$ is a set of individual characteristics, e.g., age, education, marital status, no. of children pre-PKO, etc.
- $Z_c$ cluster-level factors, e.g., malaria prev, pop size, rainfall, proximity to water/borders, land aridity, econ activity, irrigation, livestock, avg time to reach a major settlement.
- $\mu_j$ and $\eta_t$ are district and wave fixed effects

# Fertility Trends Before and After UN Intervention



# Pre-Deployment Violence (2001-2003) and PKO Location



# Results

# Main Results - DV: Any Child Post PKO

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| PKO 10km | -0.100*** | -0.081*** | -0.076*** | -0.079*** | -0.048*** |
| | (0.013) | (0.016) | (0.016) | (0.018) | (0.016) |
| Age | | 0.021*** | 0.020*** | 0.020*** | 0.001 |
| | | (0.003) | (0.003) | (0.003) | (0.003) |
| Age (sq) | | -0.000*** | -0.000*** | -0.000*** | -0.000*** |
| | | (0.000) | (0.000) | (0.000) | (0.000) |
| Married pre PKO | | -0.037*** | -0.033*** | -0.029*** | 0.071*** |
| | | (0.008) | (0.007) | (0.007) | (0.007) |
| Primary Educ. | | 0.023*** | 0.019** | 0.019*** | 0.020*** |
| | | (0.008) | (0.008) | (0.007) | (0.007) |
| Secondary Educ. | | -0.048*** | -0.040*** | -0.039*** | -0.045*** |
| | | (0.011) | (0.010) | (0.010) | (0.009) |
| Children pre PKO | | -0.044*** | -0.044*** | -0.043*** | -0.006* |
| | | (0.003) | (0.003) | (0.003) | (0.003) |
| Children dead pre PKO | | 0.004 | 0.007 | 0.008 | -0.006 |
| | | (0.006) | (0.006) | (0.006) | (0.005) |
| Wealth index | | -0.002 | -0.000 | 0.000 | -0.001 |
| | | (0.002) | (0.003) | (0.002) | (0.002) |
| Urban | | -0.024 | 0.017 | 0.020 | -0.023 |
| | | (0.015) | (0.016) | (0.016) | (0.015) |
| Under-5 mort. pre PKO | | 0.074*** | 0.072*** | 0.070*** | 0.050*** |
| | | (0.009) | (0.009) | (0.008) | (0.008) |
| Observations | 17226 | 17226 | 17226 | 17226 | 17226 |
| Cluster-level controls | NO | NO | YES | YES | YES |
| District FE | NO | NO | NO | YES | YES |
| Wave FE | NO | NO | NO | NO | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU

# PKO Dynamics - DV: Any Child Post PKO

| | (1) | (2) |
|---|---|---|
| PKO 0/1 | -0.165*** | |
| | (0.017) | |
| PKO 10km | | -0.064*** |
| | | (0.020) |
| PKO 10-20km | | -0.017 |
| | | (0.016) |
| PKO 20-30km | | -0.017 |
| | | (0.014) |
| PKO 30-40km | | -0.010 |
| | | (0.015) |
| Observations | 17226 | 17226 |
| Individual-level controls | YES | YES |
| Cluster-level controls | YES | YES |
| District FE | YES | YES |
| Wave FE | YES | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU

# Robustness Checks - DV: Any Child Post PKO

| | (1) District-Wave FE | (2) Trimmed 5% Troops | (3) Excluded Migrants | (4) Urban Clusters | (5) Prior Conflict (UCDP) | (6) Exposure (DHS) |
|---|---|---|---|---|---|---|
| PKO 10km | -0.043*** | -0.045*** | -0.052*** | -0.049** | -0.049*** | -0.043* |
| | (0.014) | (0.016) | (0.017) | (0.025) | (0.016) | (0.022) |
| Observations | 17226 | 16308 | 14959 | 6566 | 17226 | 5245 |
| Cluster-level controls | YES | YES | YES | YES | YES | YES |
| District FE | YES | YES | YES | YES | YES | YES |
| Wave FE | YES | YES | YES | YES | YES | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU.

# Additional Results - DV: Number of Children Post PKO

| | (1) | (2) | (3) | (4) | (5) |
|---|---|---|---|---|---|
| PKO 10km | -0.725*** | -0.396*** | -0.378*** | -0.390*** | -0.247*** |
| | (0.061) | (0.057) | (0.059) | (0.071) | (0.050) |
| Observations | 17226 | 17226 | 17226 | 17226 | 17226 |
| Cluster-level controls | NO | NO | YES | YES | YES |
| District FE | NO | NO | NO | YES | YES |
| Wave FE | NO | NO | NO | NO | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU

# Heterogeneity

| | (1) Age | (2) Parity | (3) Marital status | (4) Sec. Educ. | (5) Urban Resid. |
|---|---|---|---|---|---|
| PKO 10km | -0.166*** | -0.088** | -0.121*** | -0.147*** | -0.138*** |
| | (0.034) | (0.033) | (0.033) | (0.033) | (0.040) |
| PKO 10km × Aged 20-29 | -0.016 | | | | |
| | (0.022) | | | | |
| PKO 10km × Aged 30-45 | -0.090*** | | | | |
| | (0.035) | | | | |
| PKO 10km × Parity 1 | | -0.081** | | | |
| | | (0.032) | | | |
| PKO 10km × Parity 2+ | | -0.132*** | | | |
| | | (0.030) | | | |
| PKO 10km × Married pre PKO | | | -0.056** | | |
| | | | (0.022) | | |
| PKO 10km × Secondary Education | | | | -0.037 | |
| | | | | (0.029) | |
| PKO 10km × Urban | | | | | -0.041 |
| | | | | | (0.048) |
| Observations | 17226 | 17226 | 17226 | 17226 | 17226 |
| Cluster-level controls | YES | YES | YES | YES | YES |
| District FE | YES | YES | YES | YES | YES |
| Wave FE | YES | YES | YES | YES | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU

# Mechanisms I

| | (1) # Ante-natal visits | (2) Iron intake | (3) Delivery at home | (4) Birth weight | (5) Post-natal baby checks | (6) Under-5 mortality |
|---|---|---|---|---|---|---|
| PKO 10km | 0.353** | 0.024** | -0.041* | 0.217*** | 0.059** | -0.028** |
| | (0.154) | (0.012) | (0.023) | (0.077) | (0.024) | (0.011) |
| Observations | 10501 | 11419 | 11128 | 2752 | 9538 | 17226 |
| Cluster-level controls | YES | YES | YES | YES | YES | YES |
| District FE | YES | YES | YES | YES | YES | YES |
| Wave FE | YES | YES | YES | YES | YES | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU

# Mechanisms II

| | (1) Contraception use | (2) Currently employed | (3) Decision on earnings | (4) Decision on large purchase |
|---|---|---|---|---|
| PKO 10km | 0.036** | -0.029 | 0.010 | -0.009 |
| | (0.012) | (0.020) | (0.009) | (0.015) |
| Observations | 14225 | 17150 | 17168 | 17189 |
| Cluster-level controls | YES | YES | YES | YES |
| District FE | YES | YES | YES | YES |
| Wave FE | YES | YES | YES | YES |

$*p < 0.10, **p < 0.05, ***p < 0.01$. Std. errors clustered by PSU