

MIGRATION IMPACT ON HEALTH AND LABOUR OF CHILDREN LEFT BEHIND: THE CASE OF KYRGYZSTAN

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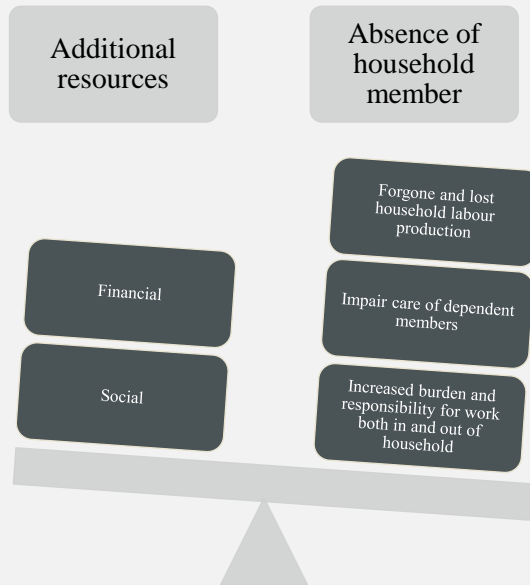
1

STRUCTURE:

- Background and Motivation
- Empirical literature
- Empirical model
- Data
- Variables of interest
- Baseline outcomes
- Results
- Summary of results
- Limitations & recommendations
- References

2

EFFECT OF MIGRATION ON LEFT BEHIND FAMILY DEPENDS ON BALANCE OF TWO MECHANISMS



3

MOTIVATION

Research question: “What effect does migration of household member have on health outcomes and labour of children left behind”

Why Kyrgyzstan?

- 823,6 thousand citizens abroad (SSM, 2020)
- Nearly every 6th household had at least one migrant abroad (LIK, 2013)

Why children left behind?

- Child poverty – 32.1% (UNICEF, 2015)
- 27% of children aged 5-17 participate in labour (MICS, 2019)

Contribution: Migration → Child labour (Kyrgyzstan)

4



EMPIRICAL LITERATURE

MIGRATION-HEALTH (ANTHROPOMETRIC OUTCOMES OF HEALTH)

- Left behind children are worse off than children accompanied migrant parents (Gibson et al. 2011)
- Initially migration plays positive role, then it turns to be negative for children's health (Nobles 2007; Mansuri 2006)
- Younger children from migrant households more likely to be thin than children from non-migrant households (Kroeger & Anderson, 2012; 2014)
- "Social remittances" (Levitt 1998)
- Health improvements through the migration (most relevant to mother migrant) Hildebrandt & McKenzie (2005)

5

MIGRATION-CHILD LABOUR

- Migration tend to reduce child labour and promote school education (Edwards & Ureta, 2003; Lopez et al., 2007)
- Migration increase domestic child labour (Adams 1998; Yang 2004)
- Remittances are not significant for rural children than for urban ones (Bertoli 2007)
- Absence of household member increase child labour and decrease study hours (Kukwaw 2013; Joseph & Plaza 2010; Abdul-Mumuni et al. 2018)

6

EMPIRICAL MODEL

Difference in Difference:

$$Y = \beta_0 + \beta_1 \text{Time} + \beta_2 \text{Migration} + \beta_3 \text{Time} * \text{Migration} + \beta_4 X + \varepsilon$$

Y is outcome: (1)Height and (2)Weight for age z-scores; (3)Child labour

- **Time** (0-pre migration period (baseline); 1- after migration observed (endline))
- **Migration** (0-no migration in both periods (control group); 1-no migration in baseline and migration in endline (treatment group))

- **X** (control variables):

Child characteristics: Age and Sex (male/female)

Household characteristics: Number of household members; Number of children under age 18; Number of children under age 5; Location of household (city/rural); Log of household income;

Household head characteristics: Sex (male/female); Level of Education(Basic/Secondary General/University)

*Only in child labour regression + Livestock ownership (yes/no); Land ownership (yes/no)

Health outcomes – OLS, Child labour-Tobit.

Clustered Standard Errors

7

DATA

Multitopic panel-study “Life in Kyrgyzstan” 2010-2013,2016 (DIW Berlin, CASE-Kyrgyzstan, AUCA)

- Micro, meso and macro levels
- 3000 households & 8000 individuals
- 2010-baseline; 2011-endline

| Year | Number of children | Girls | Boys | Rural | Urban | Treatment group | Control group |
|------|--------------------|-------|------|-------|-------|-----------------|---------------|
| 2010 | 2735 | 1337 | 1398 | 1941 | 794 | 202 | 2533 |
| 2011 | 2643 | 1281 | 1362 | 1884 | 759 | 235 | 2408 |

8

VARIABLES OF INTEREST CHILD LABOUR

- **Child labour:** Missed weeks in school in last academic year due to agricultural work and work to support family
Definition by ILO
- Child labour estimated for the children aged between 6-17 (additionally in separated age groups: 6-12/12-17)

| <i>The main reason for child to miss the school</i> | <i>Frequency (in numbers)</i> | <i>Percent (in %)</i> | <i>Cumulative (in %)</i> |
|---|-----------------------------------|---------------------------|------------------------------|
| <i>Costs too much</i> | 4 | 0.55 | 0.55 |
| <i>School is too far</i> | 4 | 0.55 | 1.10 |
| <i>Illness</i> | 489 | 67.45 | 68.55 |
| <i>Does not like study</i> | 9 | 1.24 | 69.79 |
| <i>Works to support family</i> | 74 | 10.21 | 80.00 |
| <i>Political unrest</i> | 1 | 0.14 | 80.14 |
| <i>Agricultural works</i> | 107 | 14.76 | 94.90 |
| <i>Other</i> | 37 | 5.10 | 100.00 |
| <i>Total</i> | 725 | 100.00 | |

- **Migrant household:** Household that has currently and in past 11 months migrant abroad for more than a month (for job purposes)

9

VARIABLES OF INTEREST HEALTH OUTCOMES

Height for age z-score

Weight for age z-score

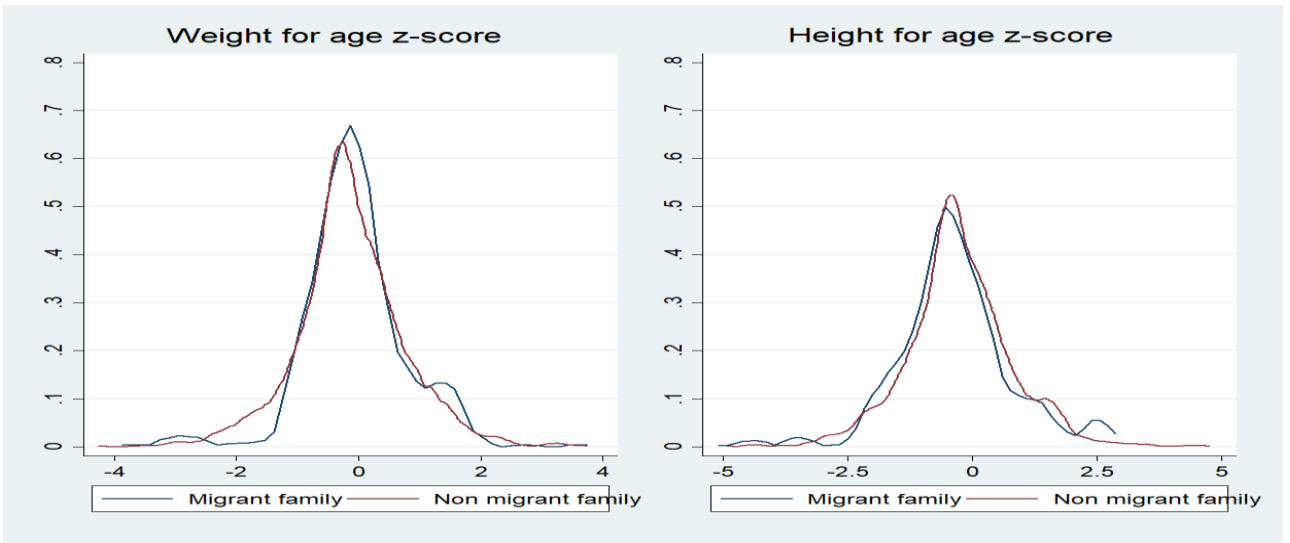
$$z_{it}^* = \frac{y_i - M_t}{StDev(t)}$$

- **Z-** Height/Weight for age z-score
- **Yi-** child height or weight
- **Mt-** is the median of height/weight in the sample size
- **StDev(t)-** standard deviation of height or weight within each age-gender group in dataset

WHO Child Growth Standards

* Health outcomes estimated only for children aged 6-12 in this work

10



BASELINE OUTCOMES FOR HEALTH OUTCOMES (2010)

11

THE MAIN RESULTS BASED UPON DIFFERENCE IN DIFFERENCE EQUATION

12

Table 9 Difference in difference estimations of child labour

| Dep Var.: Child Work VARIABLES | Child ages | | | | | | | | |
|-----------------------------------|--------------------------------------|---------------------|---------------------|----------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 6-17 | | | 6-12 | | | 12-17 | | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) | (9) |
| Time | -2.196*** (0.368) | 2.099*** (0.352) | 2.205*** (0.359) | -1.945*** (0.332) | 1.794*** (0.342) | 1.927*** (0.339) | 2.395*** (0.451) | 2.337*** (0.400) | 2.403*** (0.407) |
| Migration | -0.512 (0.740) | -0.512 (0.730) | -0.582 (0.709) | -1.535 (1.205) | -1.600 (1.204) | -1.707 (1.157) | -0.152 (0.688) | -0.150 (0.682) | -0.200 (0.675) |
| Time*Migration | 2.173** (0.959) | 2.241** (0.951) | 2.264** (0.901) | 3.373** (1.430) | 3.546** (1.435) | 3.631*** (1.366) | 1.938** (0.874) | 1.980** (0.865) | 2.010** (0.832) |
| | Child characteristics: | | | | | | | | |
| Sex (female) | -0.399** (0.226) | -0.398** (0.227) | -0.362 (0.226) | -0.617 (0.388) | -0.637 (0.388) | -0.626 (0.390) | -0.310 (0.237) | -0.308 (0.238) | -0.252 (0.236) |
| Age | 0.286*** (0.046) | 0.287*** (0.046) | 0.287*** (0.045) | 0.615*** (0.173) | 0.625*** (0.171) | 0.629*** (0.170) | -0.014 (0.060) | -0.017 (0.059) | -0.018 (0.059) |
| Sex (female) | -0.034 (0.440) | -0.051 (0.440) | 0.012 (0.455) | 0.189 (0.555) | 0.141 (0.548) | 0.220 (0.552) | -0.205 (0.464) | -0.216 (0.464) | -0.135 (0.453) |
| | Household head characteristics: | | | | | | | | |
| | Level of education (base=University) | | | | | | | | |
| Basic | 2.118** (0.876) | 2.036** (0.859) | 1.972** (0.856) | 3.009** (1.270) | 2.848** (1.233) | 2.649** (1.282) | 0.964 (1.061) | 0.920 (1.052) | 0.956 (1.042) |
| Secondary General | 1.429** (0.588) | 1.298** (0.648) | 1.261** (0.647) | 1.317 (0.870) | 1.064 (0.918) | 1.014 (0.923) | 1.383** (0.576) | 1.315** (0.613) | 1.295** (0.611) |
| | Household characteristics: | | | | | | | | |
| Household size | 0.202* (0.113) | 0.267** (0.130) | 0.254** (0.128) | 0.164 (0.166) | 0.280 (0.176) | 0.262 (0.178) | 0.252** (0.125) | 0.288** (0.142) | 0.275** (0.140) |
| Number of members under age 18 | -0.068 (0.140) | -0.102 (0.142) | -0.135 (0.142) | 0.022 (0.253) | -0.039 (0.249) | -0.085 (0.253) | -0.193 (0.138) | -0.214 (0.143) | -0.234* (0.141) |
| Number of members under age 5 | -0.085 (0.209) | -0.102 (0.210) | -0.089 (0.208) | -0.194 (0.287) | -0.243 (0.287) | -0.218 (0.293) | 0.045 (0.276) | 0.044 (0.276) | 0.056 (0.279) |
| Location (rural) | 2.890*** (0.644) | 2.791*** (0.644) | 2.454*** (0.717) | 1.994*** (0.742) | 1.818** (0.736) | 1.467* (0.860) | 3.389*** (0.718) | 3.333*** (0.733) | 3.048*** (0.733) |
| Log of income | -0.358 (0.529) | -0.358 (0.529) | -0.376 (0.521) | -0.649 (0.321) | -0.613 (0.408) | -0.613 (0.414) | -0.226 (0.316) | -0.226 (0.316) | -0.226 (0.311) |
| Livestock (yes) | | 1.159*** (0.397) | 1.159*** (0.397) | | 1.345** (0.561) | 1.345** (0.561) | | 0.865** (0.355) | 0.865** (0.355) |
| Land (yes) | | 0.771 (0.631) | 0.771 (0.631) | | 0.790 (0.794) | 0.790 (0.794) | | 0.665 (0.609) | 0.665 (0.609) |
| Constant | 11.729*** (1.756) | -8.302** (3.279) | 8.737*** (3.279) | 14.853*** (3.337) | -9.164** (4.629) | -9.797** (4.521) | 7.161*** (1.324) | -5.119* (2.937) | -5.424* (3.003) |
| Observations | 5,342 | 5,342 | 5,342 | 2,946 | 2,946 | 2,946 | 2,830 | 2,830 | 2,830 |

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

13

Table 11 Difference in difference estimations of child labour outcomes in rural areas

| Dep Var.: Child labour VARIABLES | Age | | | | | |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 6-17 | | 6-12 | | 12-17 | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Time | 2.585*** (0.393) | 2.613*** (0.395) | 2.600*** (0.602) | 2.525*** (0.604) | 2.656*** (0.441) | 2.638*** (0.431) |
| Migration | -0.051 (0.787) | -0.595 (0.727) | -0.615 (1.141) | -1.773 (1.215) | -0.014 (0.742) | -0.189 (0.700) |
| Time*Migration | 2.332** (1.023) | 2.515*** (0.886) | 3.529** (1.593) | 3.939*** (1.418) | 2.095** (0.961) | 2.071** (0.808) |

Table 12 Difference in difference estimations of child labour in urban areas

| Dep Var.: Child labour VARIABLES | Age | | | | | |
|-------------------------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| | 6-17 | | 6-12 | | 12-17 | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Time | 2.549*** (0.379) | 2.356*** (0.545) | 2.010*** (0.418) | 2.494*** (0.614) | 1.994*** (0.562) | 1.978*** (0.694) |
| Migration | -0.048 (0.940) | -0.631 (0.845) | -0.617 (1.156) | -1.150 (1.148) | -0.013 (1.102) | -0.179 (0.818) |
| Time*Migration | 2.744** (0.940) | 2.760*** (0.845) | 3.330** (1.156) | 3.484*** (1.148) | 3.086*** (1.102) | 2.533** (0.818) |

Table 14 Difference in difference estimation of child labour for girls

| Dep Var.: Child labour VARIABLES | Age | | | | | |
|-------------------------------------|---------------------|----------------------|----------------------|----------------------|----------------------|----------------------|
| | 6-17 | | 6-12 | | 12-17 | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Time | 2.727*** (0.422) | -2.740*** (0.439) | -3.212*** (0.735) | -3.235*** (0.718) | -2.788*** (0.493) | -2.799*** (0.512) |
| Migration | 0.161 (0.931) | -0.467 (0.872) | -1.275 (1.740) | -2.272 (1.637) | 0.213 (0.981) | 0.106 (0.885) |
| Time*Migration | 2.873** (1.240) | 2.934*** (1.073) | 5.467** (2.264) | 5.708*** (1.913) | 2.579** (1.209) | 2.323** (1.035) |

Table 15 Difference in difference estimation of child labour for boys

| Dep Var.: Child labour VARIABLES | Age | | | | | |
|-------------------------------------|---------------------|----------------------|---------------------|-------------------|----------------------|----------------------|
| | 6-17 | | 6-12 | | 12-17 | |
| | (1) | (2) | (3) | (4) | (5) | (6) |
| Time | 2.036*** (0.430) | -1.811*** (0.414) | -1.482** (0.631) | -0.981 (0.623) | -2.252*** (0.448) | -2.118*** (0.415) |
| Migration | -0.038 (0.750) | -0.675 (0.656) | -0.089 (1.282) | -1.217 (1.005) | -0.010 (0.704) | -0.483 (0.600) |
| Time*Migration | 1.941* (1.170) | 1.746* (0.951) | 1.818 (1.688) | 1.643 (1.266) | 2.026* (1.093) | 1.766** (0.868) |

Table 10 Difference in difference estimations of health outcomes of children by location

| Dep Var.: VARIABLES | Urban | | | | Rural | | | |
|------------------------|------------------------|-------------------|------------------------|-------------------|------------------------|---------------------|------------------------|---------------------|
| | Height for age z-score | | Weight for age z-score | | Height for age z-score | | Weight for age z-score | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Time | 0.171** (0.081) | 0.135 (0.088) | 0.144** (0.056) | 0.099 (0.064) | 0.317*** (0.071) | 0.295*** (0.075) | 0.285*** (0.054) | 0.257*** (0.055) |
| Migration | 0.116 (0.153) | 0.066 (0.159) | -0.125 (0.179) | -0.062 (0.180) | -0.197 (0.196) | -0.252 (0.226) | 0.230 (0.151) | 0.156 (0.149) |
| Time*Migration | -0.156 (0.189) | -0.101 (0.223) | -0.171 (0.115) | -0.101 (0.192) | 0.007 (0.209) | 0.023 (0.214) | -0.093 (0.127) | -0.057 (0.123) |

Table 13 Difference in difference estimation of health outcomes by gender

| Dep Var.: VARIABLES | Girls | | | | Boys | | | |
|------------------------|------------------------|---------------------|------------------------|---------------------|------------------------|---------------------|------------------------|---------------------|
| | Height for age z-score | | Weight for age z-score | | Height for age z-score | | Weight for age z-score | |
| | (1) | (2) | (3) | (4) | (5) | (6) | (7) | (8) |
| Time | 0.302*** (0.078) | 0.288*** (0.085) | 0.203*** (0.051) | 0.179*** (0.055) | 0.249*** (0.053) | 0.206*** (0.056) | 0.281*** (0.053) | 0.243*** (0.051) |
| Migration | -0.177 (0.241) | -0.198 (0.261) | -0.005 (0.198) | -0.014 (0.177) | -0.058 (0.182) | -0.034 (0.195) | 0.251* (0.145) | 0.261* (0.139) |
| Time*Migration | -0.126 (0.263) | -0.108 (0.267) | -0.000 (0.146) | 0.025 (0.150) | 0.020 (0.200) | 0.010 (0.194) | -0.142 (0.139) | -0.128 (0.138) |

Table 8 Difference in difference estimations of health outcomes of children aged (6-12)

| VARIABLES | Dep Var.: Height for age z-score | | Dep Var.: Weight for age z-score | |
|----------------|----------------------------------|---------------------|----------------------------------|---------------------|
| | (1) | (2) | (3) | (4) |
| Time | 0.270*** (0.057) | 0.245*** (0.046) | 0.235*** (0.043) | 0.210*** (0.037) |
| Migration | -0.109 (0.172) | -0.104 (0.120) | 0.132 (0.120) | 0.137 (0.098) |
| Time*Migration | -0.037 (0.169) | -0.046 (0.163) | -0.047 (0.102) | -0.056 (0.133) |

Child characteristics:
Sex (female) -0.066
(0.066) -0.066
(0.043) -0.179***
(0.046) -0.179***
(0.035) -0.062***
(0.009) -0.062***
(0.009)

Household head characteristics:
Sex (female) 0.065
(0.084) 0.068
(0.056) -0.024
(0.068) -0.021
(0.045)

Level of education (base=University)
Basic -0.255
(0.169) -0.231*
(0.125) -0.298**
(0.147) -0.274***
(0.101)

Secondary General -0.193
(0.134) -0.169*
(0.091) -0.061
(0.107) -0.037
(0.074)

Household characteristics:
Household size 0.026
(0.029) 0.006
(0.021) 0.008
(0.027) -0.012
(0.017)

Number of members under age 18 -0.016
(0.042) -0.005
(0.027) 0.007
(0.035) 0.019
(0.022)

Number of members under age 5 0.017
(0.044) 0.025
(0.032) -0.044
(0.035) -0.035
(0.026)

Location (rural) -0.106
(0.085) -0.080
(0.052) -0.061
(0.072) -0.034
(0.043)

Log of income -0.155***
(0.032) -0.155***
(0.032) 0.105***
(0.026) 0.105***
(0.026)

Constant -0.152
(0.169) -1.068**
(0.308) 0.310**
(0.149) -0.607**
(0.251)

Observations 2,740
R-squared 0.029 2,740
0.033 2,740
0.052 2,740

Robust standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

14

SUMMARY OF RESULTS

- Migration associates with increase in child labour = decrease in school attendance
- As a result of migration girls deprived more than boys in school attendance
- Younger children (6-12 y.o) are affected more from migration than older ones
- Children from urban households have higher effect of migration than rural ones
- Migration has no effect on health outcomes of children

15

LIMITATIONS

- Lack of data about height and weight for children above 12 y.o

RECOMMENDATIONS

- Categorize outcomes variables
- Include more variables, that can explain health outcomes
- Examine the effect of migration in mid and long-term perspectives as well
- Implement matching procedure

- Programs that aimed household with migrants can encourage them to invest in children
- Government and international policymakers must consider the whole household in the migration process and develop comprehensive policy approaches

16

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17

THANK YOU

18