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Paternal Circular Migration and Development of Socio-Emotional Skills of Children Left Behind

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Paternal Circular Migration and Development of Socio-Emotional Skills of Children Left Behind[*]

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Abstract

This study investigates the short-run effect of paternal absence due to circular migration on the socio-emotional skills of their children left behind. To address the endogeneity of the migration decision, and building on previous studies, this study focuses on children whose fathers have all engaged in circular migration. Furthermore, using quasi-exogenous variation in the timing of return migration induced by bilateral migration laws between Ukraine and Poland, I circumvent the bias related to the return migration decision. The findings of this study suggest that current paternal absence due to circular migration negatively affects the socio-emotional skills of children left behind. Overall, this result suggests that circular migration is not necessarily a "triple-win" solution that benefits all involved parties.

Keywords: circular migration, children left behind, perseverance skills, formation of socio-emotional skills

JEL codes: F22, O15, J24

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1 Introduction

Circular migration is a widespread phenomenon. In Ukraine, approximately fifteen percent of the working-age population are partially working abroad, leaving their families and children behind (Libanova, 2019). A similar pattern is observed in other Post-Soviet and Latin American countries (Di Bartolomeo et al., 2012). Circular (seasonal) migration has long been considered a "triple-win" solution that benefits destination and origin countries and increases the income of circular migrant workers (Agunias and Newland, 2007; Zimmermann, 2014). However, temporary paternal migration may negatively influence the human capital formation of children left behind due to decreased parental time inputs (Mao, Zang, and Zhang, 2020). Therefore, the sign of the effect of temporary parental migration depends on whether the negative effect of parental absence due to migration offsets the positive effect of an increase in household income due to migration (McKenzie and Rapoport, 2006; Davis and Brazil, 2016).

Previous studies find that the circular migration of parents increases educational expenditures and the school enrolment of their children (Theoharides, 2018; Clemens and Tiongson, 2017; Gibson and McKenzie, 2014). However, exposure to parental absence due to circular migration may also affect the socio-emotional skills of children left behind (Jiang and Yang, 2019). Since socio-emotional skills have a significant effect on a child's success and human capital formation (Kautz et al., 2014; Heckman and Mosso, 2014), studies that exclusively rely on achievement tests or school enrolment as a measure of a child's human capital development are likely to underestimate the overall effect of parental migration. This possibility highlights the importance of investigating outcomes other than traditional test scores and educational expenditures.

This paper focuses on one such socio-emotional skill – perseverance to setbacks – and adds to the existing literature by exploring the short-run effect of current paternal absence due to circular migration on the perseverance skills of their children left behind. Perseverance to

setbacks is a socio-emotional skill that may be broadly defined as the ability to overcome setbacks and consistently exert high effort on challenging tasks. It predicts various economic and schooling outcomes such as job retention, academic performance, and high school and college graduation (Duckworth and Quinn, 2009; Galla et al., 2014; Credé et al., 2017; Alan et al., 2019). Understanding the short-run effect of current parental absence is essential because skill formation is a dynamic process, and even small but repetitive shocks may have crucial long-term consequences for child development (Evans, 2004; Cunha and Heckman, 2007).

Empirical estimation of the causal effect of fathers' circular migration is complicated because both the out-migration and return-migration decisions of fathers are likely to be endogenous with respect to their children's socio-emotional skills. Antman (2011) addresses the endogeneity of out-migration decisions by comparing the households in which the heads are still working abroad with those whose heads have recently returned. As discussed in detail in Antman (2011), focusing on households with recent migration experience can eliminate the bias associated with the endogeneity of circular migration decisions.

The identification strategy used in this paper is similar to that used by Antman (2011). However, to address the issue of the endogeneity of return migration, it also takes advantage of the quasi-experimental variation in the duration of circular migration induced by bilateral migration laws between Ukraine and Poland. Specifically, we focus on the circular migrant workers from the Ternopil region in western Ukraine, whose primary destination is Poland. Short-term migrant workers from Ukraine cannot stay in Poland longer than nine months in a calendar year. This restriction in the duration of circular migration creates quasi-exogenous variation in the timing of return migration, reducing the bias associated with the endogeneity of the return migration decision.

Overall, the findings of this study support the hypothesis that current paternal absence due to circular migration negatively affects the perseverance skills of children left behind.

Specifically, our estimation results reveal that children whose fathers are still working abroad are approximately seven percentage points less likely to choose challenging high-reward tasks after receiving negative performance feedback compared to children whose fathers have recently returned home. This effect is sizable since the probability of choosing a challenging high-reward task after failure is approximately forty percent for students in the control group. These findings are not explained by differences in cognitive skills and are robust to the inclusion of school and classroom fixed effects and different model specifications. Therefore, differential sorting of children from circular migrant households across schools and classrooms do not drive our results.

In addition to the literature on the effects of international migration on the wellbeing of children left behind, this paper is also connected to the literature on the effects of parental financial and time inputs on child development. Some studies in this literature find that financial inputs positively affect child development, particularly for children from low-income households (Løken, Mogstad, and Wiswall, 2012; Dahl and Lochner, 2012). Other studies provide evidence that financial investment in children is less productive than parental time inputs for the cognitive and socio-emotional development of children, particularly during early childhood (Bono et al., 2016; Del Boca et al., 2014; Agostinelli and Sorrenti, 2018). While many studies exclusively focus on the trade-off between maternal labor supply (maternal time inputs) and income (Agostinelli and Sorrenti, 2018; Løken, Lommerud, and Reiso, 2018), I extend the analyses to the trade-off between paternal time and income inputs in the context of circular migration. The fact that many children in developing countries have circular migrant fathers highlights the importance of this analysis.

To summarise, the findings of this study have two main implications. First, temporary parental migration affects both the cognitive and socio-emotional skills of children. Since socio-emotional skills significantly affect a child's success and human capital formation,

studies that exclusively rely on achievement tests or school enrolment as a measure of a child's human capital development are likely to underestimate the overall effect of parental migration. Second, this study provides empirical evidence suggesting that circular migration is not necessarily a "triple-win" solution that benefits all involved parties, as exposure to temporary paternal absence negatively affects the socio-emotional skills of children left behind.

The remainder of this paper is organized as follows. Section 2 describes the institutional setting and data used for the empirical analysis. Section 3 discusses empirical specification and identification assumptions. Section 4 presents the estimation results and robustness checks and Section 5 concludes.

2 Institutional setting and Data

2.1 Circular Migration in Ukraine

Circular migration is one of the key sources of income for a considerable part of the Ukrainian population, particularly in the western regions of the country. According to a recent study conducted by Libanova (2019), the number of Ukrainian short-term labor migrants simultaneously working abroad is approximately 3 million individuals (or around 8 percent of the total population). Many of these circular workers are married men who have families and young children left behind. For the majority of circular migrant workers from Ukraine, the average duration of one trip does not exceed three months. However, they usually take several trips a year (see Libanova, 2019, page 315). Due to geographic proximity and high wage differentials, Poland is the primary destination for circular labor migrants from western Ukraine.

As of 2018, the duration of circular (seasonal) labour migration between Ukraine and Poland is regulated by bilateral migration laws between Ukraine and Poland, which restrict the length of circular labour migration to nine months in a calendar year[3]. This restriction in the

[3]Source: https://psz.praca.gov.pl/-/6223586-w-sprawie-podklas-dzialalnosci-wedlug-polskiej-klasyfikacji-dzialalnosci-pkd-w-ktorych-wydawane-sa-zezwolenia-na-prace-sezonowa-cudzoziemca

duration of circular migration creates quasi-experimental variation in the timing of return migration[4], which enables us to address the concerns associated with the endogeneity of return migration. Therefore, Ukraine is a worthy example to consider the effect of circular migration of fathers on the socio-emotional development of their children left behind.

2.2 Data

We obtained unique data for this analysis by conducting a unique parent-child linked survey and experiment in cooperation with Ternopil National Economic University (TNEU) in Fall 2019 in the Ternopil region of Ukraine. In total, 2,917 primary school children (3rd and 4th grade) from 20 public schools participated in the survey. The survey was conducted with the permission of the school principals. All children were told that they might refuse to participate in the survey if they do not want to. The child survey was conducted in the classrooms under the supervision of teachers and survey administrators. It contains information on the child's age, gender, number of siblings, household composition and migration history of fathers/mothers during the survey year. Parents were instructed to complete the survey at home and send it to the school in sealed envelopes prepared by the survey administrators. The parental survey contains information on mothers' and fathers' self-reported levels of education and the migration history of the head of the household. However, the parental survey response rate was very low, particularly for questions related to migration. Thus, we use only the child survey information in the main analysis and use data from the parental survey for robustness checks.

In addition to the survey, we conduct a dynamic incentivized real-effort experiment, similar to that designed by Alan et al. (2019), to elicit children's choice between a challenging high-reward and an easy low-reward task in response to the setback. This dynamic response to

[4] In 2018, 133,029 individuals from Ukraine received a short-term work permit in Poland, which represents approximately one-third of all work permits issued to migrant workers from Ukraine in Poland (source: https://psz.praca.gov.pl/-/8180228-zezwolenia-na-prace-sezonowa-cudzoziemca).

a setback is the core aspect of perseverance[5] and is the main outcome variable of interest. The incentivized real effort task used in this study consists of 4 rounds. During each of the rounds, children are presented with a grid of numbers from 1 to 99 and are instructed to find at least three pairs of numbers that add up to 100 in 1.5 minutes[6]. There are two different types of grid: (1) the "Hard grid" contains 15 pairs of numbers where only 4 of them add up to 100, and (2) the "Easy grid" contains only six pairs of numbers, 4 of which add up to 100. Though the "Hard grid" is more difficult compared to the "Easy grid", it yields to higher reward in the case of success[7]. Starting from the second round, children are asked to choose between "Hard" and "Easy" grids before each round starts. All children are assigned to a "Hard" grid in the first round. At the end of the experiment, one of the rounds is selected at random, and children are rewarded based on their performance in that round.

Table 1 presents descriptive statistics of the main variables of our sample. The sample is gender-balanced – half of the surveyed children are boys. Approximately 24 percent of children succeed in the Hard task in round one, and 45 percent of the students chose the Hard task after failing in round one. Around 28 percent of children chose the Hard task in all rounds. Overall, children's responses to negative performance feedback in our data are very similar to those reported in Alan et al. (2019). The average household includes around 2.4 adult members, and 24 percent of children are from single-child households. One of three children in our sample reported that their father was a circular migrant in the survey year, and 58 percent of fathers who have been circular migrants have already returned home by the time of the survey. Since less than 2 percent of children reported that their mother was working abroad, we concentrate only on paternal circular migration. We also exclude children from single-mother

[5] See Alan et al. (2019) for further discussion.
[6] The incentivized real effort task used in this study is a simplified version of that designed by Alan et al. (2019) to measure the grit of primary school children in Turkey.
[7] Failure yields zero rewards in both types of the grid.

households from our analysis to control for the confounding effects of a father's death or divorce.

Table 1: Summary Statistics

Variables	Obs.	Mean	Std.Dev.	Min.	Max.
	(1)	(2)	(3)	(4)	(5)
Circular migrant father in 2019	2917	0.3215	0.4671	0	1
Mother was working abroad in 2019	2917	0.0150	0.1219	0	1
Father was at home during the survey	2917	0.8618	0.3451	0	1
Single mother households	2917	0.0171	0.1298	0	1
Child is a boy	2917	0.5073	0.5003	0	1
Child's age	2917	8.7946	0.6948	8	10
Single child household	2917	0.2458	0.4306	0	1
Number of adults in the household	2917	2.4137	0.7387	1	4
Success in the 1st round	2917	0.2458	0.4306	0	1
Choosing Hard task in the 2nd round after failing in the 1st round	2200	0.4554	0.4981	0	1
Choosing Hard task in all rounds	2917	0.2852	0.4515	0	1

Notes: This table shows the summary statistics of the main variables of our sample. Information about child's date of birth, gender, number of siblings, household composition, migration status of fathers/mothers during the survey year is from the child survey conducted in cooperation with Ternopil National Economic University (TNEU) in Fall 2019 in the Ternopil region, Ukraine. In total, 2,917 primary school children (3rd and 4th grade) from 20 public schools participated in the survey. The number of adults in the household includes all adults, except for adult siblings, who live in the same house with a child. The child's perseverance skills, defined as a dummy variable equal to one if a child chooses the Hard task after failing in round one, is from an incentivized real effort task conducted in the surveyed schools during October and November 2019.

3 Empirical Strategy

A fundamental problem in identifying the effects of the father's current absence due to circular migration is that the circular migration decision of fathers is endogenous with respect to children's socio-emotional skills. Though we never observe children's missing

counterfactual outcomes, our empirical approach exploits the idea that by restricting the sample to children whose fathers have all had recent circular migration experience, we can eliminate the bias associated with the endogeneity of circular migration. It is important to note that because we compare children whose fathers were at home during the time of the survey with those whose fathers were still working abroad, this strategy identifies only the effect of current paternal absence due to circular migration.

In the simplest setting, the effect of the current absence of fathers due to circular migration on the perseverance skills of their children can be identified from the following linear regression model:

$$Perseverance_{ijs} = \alpha_0 + \alpha_1 CurrentMigr_i + X_i\theta + \mu_j + \vartheta_{ijs} \quad (1)$$

where $Perseverance_i$ is the perseverance skill score of children *i* in school *s and* classroom *j*. $CurrentMigr_i$ is an indicator variable for whether the household head was present at home when the survey was conducted. X_i is a vector of covariates and includes the number of adults living in the household, children's age, gender and number of siblings. The empirical model also comprises classroom fixed effects μ_j, to account for unobserved time-invariant differences in classrooms, which are likely to be corelated with both circular migration decisions and the perseverance skills of children. The main coefficient of interest is α_1, which shows the effect of the current absence of fathers due to circular migration on the perseverance skills of their children, net of the effect of self-selection into circular migration, which should be the same for children whose fathers are also circular migrants but have returned home during the time of the survey.

Alternatively, as discussed in detail in Antman (2011) and Antman (2015), we can modify Equation (1) to include also children whose fathers have no recent circular migration experience. Formally, we can estimate the effect of the current absence of fathers due to circular

migration on the perseverance skills of their children by estimating the following linear regression model:

$$Perseverance_{ijs} = \beta_0 + \beta_1 CircMigr_i + \beta_2 CurrentMigr_i + X_i\theta + \mu_j + \varepsilon_{ijs} \quad (2)$$

where $CircMigr_i$ is an indicator variable equal to one if the household head has had any circular migration experience during the survey year, regardless of whether they are currently at home or are still working abroad. The coefficient β_2 is equivalent to α_1 and shows the effect of the current absence of fathers due to circular migration on the perseverance skills of their children over the effect of recent circular migration of fathers. An advantage of estimating Equation (2) over Equation (1) is that it additionally provides correlational evidence about the overall effects of circular migration. Specifically, we can interpret the parameter β_1 as the upper bound (in absolute terms) of the effect of circular migration of fathers since the bias associated with the self-selection into circular migration is likely to be negative[8].

The type of identification strategy discussed above acknowledges that children whose fathers are circular migrants may differ in unobservable ways from children whose fathers are not circular migrants. However, comparing children whose fathers have all had recent circular migration experience eliminates this problem. An additional challenge is that fathers' decision when to migrate may also be endogenous with respect to their children's perseverance skills. For example, circular migrant fathers who were still working abroad at the time of the survey (treatment group) may sort into different occupations than those who have already returned by the time of the survey (control group). If the unobserved parental attributes that affect the sorting into different occupations are also correlated with the perseverance skill of their children, then the OLS estimate of β_2 from Equation (2) will be biased. However, in the

[8] Since most of the male circular migrants from Ukraine work in sectors that do not require higher education, we expect that there is a negative selection into circular migration.

robustness section, I conduct a number of robustness checks and show that our main estimation results are not likely to be driven by the possible endogenous sorting into different occupations.

Another potential challenge is that the return migration decision of fathers may also be endogenous with respect to their children's perseverance skills. However, this is not likely to be an issue in this particular case because bilateral migration laws between Ukraine and Poland tightly regulate the duration of circular migration. Specifically, short-term migrant workers from Ukraine cannot stay in Poland longer than nine months in a calendar year. This restriction in the duration of circular migration creates quasi-exogenous variation in the timing of return migration and reduces the potential bias associated with the endogeneity of the return migration decision.

4 Results and Robustness Checks

4.1 Results

This section provides empirical results from estimating Equation 1 and conducts robustness checks. Table 2 provides OLS estimates of the impact of the absence of fathers due to circular migration on two dimensions of children's perseverance skills – challenge seeking and the choice between a challenging high-reward and an easy low-reward task in response to the setback.

Column 1 presents the results from estimating Equation 2 using OLS when perseverance to setbacks, defined as an indicator variable equal to one if the child chooses a challenging high reward task in round two after failing in round one, is used as a dependent variable. The coefficients on the father's current location and recent circular migration experience are both statistically significant at 5 percent and have expected signs. Specifically, this finding suggests that compared to children whose fathers are still working abroad, children whose fathers have recently returned home by the time of the experiment are approximately seven percentage points more likely to choose challenging high-reward tasks after receiving negative performance feedback. This is a sizable effect since the probability of choosing a

challenging high-reward task after failure is approximately forty percent for students in the control group.

I find similar results when challenge-seeking, defined as an indicator variable equal to one if a child chooses a challenging high reward task in all rounds, is used as a dependent variable. Specifically, the results from Column 2 suggest that children whose fathers are still working abroad are approximately five percentage points less likely to choose challenging high reward tasks in all rounds compared to their classmates whose fathers have recently returned home. These results are not sensitive to different model specifications. Specifically, the results do not change when I restrict the sample to children whose fathers have all had recent circular migration experience (Table 2, Columns 3 and 4). Additionally, I find similar results when using data from the parental survey and control for the education of mothers (Table A2, Columns 1 and 2). Overall, these findings strongly support the hypothesis that current paternal absence due to circular migration negatively affects the perseverance skills of children left behind.

Table 2: The Effect of Circular Migration on the Perseverance Skills of Children

Variables	Choosing hard task in round 2 after failing in round 1	Choosing hard task in all rounds	Choosing hard task in round 2 after failing in round 1	Choosing hard task in all rounds
	(1)	(2)	(3)	(4)
Father migrated in 2019	-0.0821***	-0.0966***	-	-
	(0.0112)	(0.0186)		
Father currently abroad	**-0.0752*** **	**-0.0540** **	**-0.0789*** **	**-0.0505* **
	(0.0171)	**(0.0242)**	**(0.0152)**	**(0.0266)**
Control mean	0.4048	0.2003	0.4048	0.2003
Controls	Yes	Yes	Yes	Yes
Classroom FE	Yes	Yes	Yes	Yes
R-squared	0.0887	0.3607	0.1549	0.3993
Observations	2133	2823	710	896

Notes: This table presents the results from estimating Equations 1 and 2 using OLS regression. The analyses are based only on the data from the child survey. Columns 1 and 2 present the results from estimating Equations 2. Columns 3 and 4 present the results from estimating Equations 1 using only the sample of children whose fathers have all had recent circular migration experience. In Columns 1 and 3, perseverance to setbacks, defined as an indicator variable equal to one if a child chooses a challenging high reward task in round two after failing

in round one, is used as a dependent variable. In Columns 1 and 3 estimates are obtained for children who failed in round one. In Columns 2 and 4, challenge-seeking, defined as an indicator variable equal to one if a child chooses a challenging high reward task in all rounds, is used as a dependent variable. Controls include the child's gender, grade, number of siblings, and number of adults currently living in the same house. In Columns 2 and 4, I additionally include an indicator variable for whether a child succeeds in the first round as a control variable. Control means refer to the unconditional mean perseverance skills of children whose fathers have returned home by the time of the survey. The estimates include classroom fixed effects. Standard errors are clustered at the school level and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

4.2 Robustness Checks

As discussed in Section 3, it is possible that fathers' decision when to migrate may also be endogenous with respect to their children's perseverance skills. For example, it is possible that circular migrant fathers who were absent at the time of the survey sort into different occupations in the destination country than those who have already returned by the time of the survey. If the unobserved parental attributes that affect the sorting into different occupations also correlate with the perseverance skill of their children, then the results presented in Table 2 are likely to be affected by omitted variable bias. To test whether this is an issue in this particular setting, I conduct a number of robustness checks.

First, I conduct a balance test to check whether households in the control and treatment groups differ in terms of their pre-treatment characteristics, such as education of fathers/mothers, household composition, child's gender, and age. I find that the samples are balanced on education of fathers/mothers, child's gender, and age, but not balanced on the number of children in the household (Table A1). However, I failed to reject the null hypothesis that all these variables are jointly balanced. This provides suggestive evidence that even if fathers in the control and treatment groups sort into different occupations, it does not seem to be related to factors that may also predict the perseverance skills of their children. Nevertheless, in the final specification, I condition on child's age, gender, and number of children in the household to control for any effect of the difference in the number of children in the household.

Second, I use the across-school variation in the dates the survey was conducted to test whether the effect of current paternal absence differs for children surveyed at the beginning of

October compared to those surveyed later. The sequence in which schools participated in the survey depended on logistical convenience and is not likely to be related to factors that may affect fathers' occupational decisions in the case of circular migration. The idea is that if the return migration date is correlated with the migrant's occupation choice and affects the perseverance skills of children, then the estimated effect of paternal absence due to circular migration should be different in those two samples. Estimation results provided in Table 3, Columns 1 and 2 show that the date when the particular school was surveyed does not affect the perseverance skills of children, suggesting that the endogeneity of return migration is not likely to be an issue here.

Third, I test whether children whose fathers are still working abroad are more likely to fail in the first round of the experiment. The idea behind this test is that if children whose fathers have already returned home by the time of the survey differ in terms of their observed or unobserved characteristics from children whose fathers are still working abroad, then this difference is likely to be reflected in their performance in the first round. Furthermore, current paternal absence due to circular migration should not directly affect cognitive skills since they are less malleable than socio-emotional skills. Because all children are assigned to the Hard task in round one, I can directly test this hypothesis.

Estimation results provided in Table 3, Column 3 show that children from both treatment and control groups are equally likely to fail in round one. This suggests that the differences in perseverance skills observed between treated and control children are not driven by their task-specific skills and further eliminates the concerns related to the endogeneity of the timing of the return migration decision of fathers. The results presented in Table 2 are also robust to different model specifications. In particular, I find similar results when I use Logit models to estimate Equation 2 (Table A2, Columns 3 and 4).

Table 3: Robustness checks

Variables	Choosing hard task in round 2 after failing in round 1	Choosing hard task in all rounds	Success in round 1
	(1)	(2)	(3)
Father migrated in 2019	-0.0821***	-0.0966***	-0.0534***
	(0.0112)	(0.0185)	(0.0177)
Father currently abroad	-0.0810***	-0.0559**	**0.0128**
	(0.0183)	(0.0268)	**(0.0303)**
Treated Early	**0.0399**	**0.0118**	-
	(0.0345)	**(0.0364)**	
Controls	Yes	Yes	Yes
Classroom FE	Yes	Yes	Yes
R-squared	0.0888	0.3607	0.0919
Observations	2133	2823	2823

Notes: This table presents the results from the robustness check analyses discussed in section 3. Reported results are obtained via OLS regression. Variable "Treated Early" is defined as an interaction between an indicator variable equal to one if a school was surveyed at the beginning of October and the main treatment variable - a dummy variable equal to one if a father is still working abroad. In Columns 1 and 2 the outcome variables are perseverance to setbacks, defined as an indicator variable equal to one if the child chooses a challenging high reward task in round two after failing in round one and challenge-seeking, defined as an indicator variable equal to one if a child chooses a challenging high reward task in all rounds, respectively. In Column 1, estimates are obtained for children who failed in round one. In Column 3, the outcome variable is an indicator variable equal to one if a child succeeds in the Hard task in round one. In all specifications, controls include the child's gender, grade, number of siblings, and number of adults currently living in the same house. In Column 2, I additionally include an indicator variable for whether a child succeeds in the first round as a control variable. The estimates include classroom fixed effects. Standard errors are clustered at the school level and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

5 Conclusion

Using plausibly exogenous variation in the timing of return migration induced by bilateral migration laws between Ukraine and Poland, this study estimates the effect of fathers' current absence due to circular migration on the perseverance skills of children left behind. Specifically, I find that children whose fathers are still working abroad are approximately seven percentage points less likely to choose challenging high-reward tasks after receiving negative performance feedback than children whose fathers have recently returned home by the time of the experiment. The findings of this study support the hypothesis that current paternal absence due to circular migration negatively affects the perseverance skills of children left behind.

These findings are not explained by differences in cognitive skills and are robust to including school and classroom fixed effects.

This study contributes to the literature on the effects of international circular migration on the wellbeing of children left behind by, first, providing evidence that the effect of temporary parental migration extends beyond cognitive skills and school enrolment and negatively affects the socio-emotional skills of children left behind. Since socio-emotional skills significantly affect a child's success and human capital formation, studies that exclusively rely on achievement tests or school enrolment as a measure of a child's human capital development are likely to underestimate the overall effect of parental migration. Second, this study provides empirical evidence suggesting that circular migration is not necessarily a "triple-win" solution that benefits all involved parties, as exposure to temporary paternal absence negatively affects the socio-emotional skills of children left behind.

This paper is also connected to the literature on the effects of parental financial and time inputs on child development. While most studies in this literature exclusively focus on the trade-off between maternal time inputs and income (Agostinelli and Sorrenti, 2018; Løken et al., 2018), I extend the analyses to the trade-off between paternal time and income inputs in the context of circular migration. The fact that many children in developing countries have circular migrant fathers highlights the importance of this analysis.

References

Agostinelli, F., & Sorrenti, G. (2018). Money vs. time: family income, maternal labor supply, and child development. *University of Zurich, Department of Economics, Working Paper*, (273).

Agunias, D. R., & Newland, K. (2007). *Circular migration and development: Trends, policy routes, and ways forward*. MPI.

Alan, S., Boneva, T., & Ertac, S. (2019). Ever failed, try again, succeed better: Results from a randomized educational intervention on grit. *The Quarterly Journal of Economics*, *134*(3), 1121-1162.

Antman, F. M. (2011). International migration and gender discrimination among children left behind. *American Economic Review*, *101*(3), 645-49.

Antman, F. M. (2015). Gender discrimination in the allocation of migrant household resources. *Journal of population economics*, *28*(3), 565-592.

Bono, E. D., Francesconi, M., Kelly, Y., & Sacker, A. (2016). Early maternal time investment and early child outcomes. *The Economic Journal*, *126*(596), F96-F135.

Clemens, M. A., & Tiongson, E. R. (2017). Split decisions: household finance when a policy discontinuity allocates overseas work. *Review of Economics and Statistics*, *99*(3), 531-543.

Credé, M., Tynan, M. C., & Harms, P. D. (2017). Much ado about grit: A meta-analytic synthesis of the grit literature. *Journal of Personality and social Psychology*, *113*(3), 492.

Cunha, F., & Heckman, J. (2007). The technology of skill formation. *American Economic Review*, *97*(2), 31-47.

Dahl, G. B., & Lochner, L. (2012). The impact of family income on child achievement: Evidence from the earned income tax credit. *American Economic Review*, *102*(5), 1927-56.

Davis, J., & Brazil, N. (2016). Disentangling fathers' absences from household remittances in international migration: The case of educational attainment in Guatemala. *International journal of educational development*, *50*, 1-11.

Del Boca, D., Flinn, C., & Wiswall, M. (2014). Household choices and child development. *Review of Economic Studies*, *81*(1), 137-185.

Di Bartolomeo, A., Makaryan, S., Mananashvili, S., & Weinar, A. (2012). Circular migration in Eastern Partnership countries: an overview.

Duckworth, A. L., & Quinn, P. D. (2009). Development and validation of the Short Grit Scale (GRIT–S). *Journal of personality assessment*, *91*(2), 166-174.

Evans, G. W. (2004). The environment of childhood poverty. *American psychologist*, *59*(2), 77.

Galla, B. M., Plummer, B. D., White, R. E., Meketon, D., D'Mello, S. K., & Duckworth, A. L. (2014). The Academic Diligence Task (ADT): Assessing individual differences in effort on tedious but important schoolwork. *Contemporary educational psychology*, *39*(4), 314-325.

Gibson, J., & McKenzie, D. (2014). Development through seasonal worker programs: the case of New Zealand's RSE program. In *International handbook on migration and economic development*. Edward Elgar Publishing.

Heckman, J. J., & Mosso, S. (2014). The economics of human development and social mobility. *Annu. Rev. Econ.*, *6*(1), 689-733.

Jiang, H., & Yang, X. (2019). *Parental Migration, Investment in Children, and Children's Non-cognitive Development: Evidence from Rural China* (No. 395). GLO Discussion Paper.

Libanova, E. (2019). Labour migration from Ukraine: Key features, drivers and impact. *Economics and Sociology*, *12*(1), 313-328.

Løken, K. V., Lommerud, K. E., & Reiso, K. H. (2018). Single mothers and their children: Evaluating a work-encouraging welfare reform. *Journal of Public Economics*, *167*, 1-20.

Løken, K. V., Mogstad, M., & Wiswall, M. (2012). What linear estimators miss: The effects of family income on child outcomes. *American Economic Journal: Applied Economics*, *4*(2), 1-35.

Mao, M., Zang, L., & Zhang, H. (2020). The Effects of Parental Absence on Children Development: Evidence from Left-Behind Children in China. *International Journal of Environmental Research and Public Health*, *17*(18), 6770.

McKenzie, D., & Rapoport, H. (2006). *Can migration reduce educational attainment? Evidence from Mexico*. The World Bank.

Theoharides, C. (2018). Manila to Malaysia, Quezon to Qatar International Migration and Its Effects on Origin-Country Human Capital. *Journal of Human Resources*, *53*(4), 1022-1049.

Zimmermann, K. F. (2014). Circular migration. *IZA World of Labor*.

Appendix

Table A1: Balance Test

	Control group (1)	Treatment group (2)	P-value (3)
Panel A: Balance test results from Child survey			
Child's age	8.7839	8.8054	0.6217
Child is a boy	0.5065	0.5361	0.3692
Number of adults in the household	2.4748	2.5112	0.4592
Single child household	0.2737	0.3416	0.0251**
Sample size	537	401	
Joint orthogonality test p-value			0.1804
Panel B: Balance test results from parental survey			
Father's education	0.4186	0.4071	0.7790
Mother's education	0.6012	0.5934	0.8521
Sample size	331	246	
Joint orthogonality test p-value			0.9211

Notes: Panel A provides results from the balance test based on Child survey data. Panel B provides results from the balance test based on parental survey data. Column 1 presents the means of selected variables for households in which the father has already returned home (control group). Column 2 presents the means of selected variables for households in which the father was still working abroad (treatment group). Column 3 provides test p-value for the difference in means between the control and treatment groups. *, **, *** indicate significance at the 10, 5, and 1 percent levels, respectively.

Table A2: The Effect of Circular Migration on the Perseverance Skills of Children

Variables	Choosing hard task in round 2 after failing in round 1	Choosing hard task in all rounds	Logit Choosing hard task in round 2 after failing in round 1	Logit Choosing hard task in all rounds
	(1)	(2)	(3)	(4)
Father migrated in 2019	-0.0907***	-0.0710***	-0.3591***	-0.7836***
	(0.0243)	(0.0184)	(0.0493)	(0.1432)
Father currently abroad	-0.0934**	-0.0876**	-0.3405***	-0.5183***
	(0.0365)	(0.0304)	(0.0733)	(0.2398)
Control mean	0.3867	0.1925	-	-
Controls	Yes	Yes	Yes	Yes
Classroom FE	Yes	Yes	Yes	Yes
R-squared	0.1614	0.3104	-	-
Observations	1322	1742	2133	2823

Notes: This table presents the results from the robustness check analyses discussed in Section 4. Reported results in Columns 1 and 2 are obtained via OLS regression. Reported results in Columns 3 and 4 are average marginal effects from a logit regression. In Columns 1 and 3, perseverance to setbacks, defined as an indicator variable equal to one if a child chooses a challenging high reward task in round two after failing in round one, is used as a dependent variable. Estimates are obtained for children who failed in round one. In Columns 2 and 4, challenge-seeking, defined as an indicator variable equal to one if a child chooses a challenging high reward task in all rounds, is used as a dependent variable. Columns 1 and 2 present the results from estimating Equations 2 using only the sample of children whose parents responded to the survey. In Columns 1 and 2 controls include the child's gender, grade, number of siblings, mother's education, and number of adults currently living in the same house. In Columns 3 and 4 controls include the child's gender, grade, number of siblings, and number of adults currently living in the same house. In Columns 2 and 4, I additionally include an indicator variable for whether a child succeeds in the first round as a control variable. Control means refer to the unconditional mean perseverance skills of children whose fathers have returned home by the time of the survey. The estimates include classroom fixed effects. Standard errors are clustered at the school level and reported in parentheses. *** p<0.01, ** p<0.05, * p<0.1.

Abstrakt

Tato studie zkoumá krátkodobé dopady nepřítomnosti rodičů v důsledku sezónní migrace na socioekonomické dovednosti dětí. Kvůli vyloučení možných jiných faktorů, které souvisí s rozhodnutím migrovat a mohou zároveň ovlivnit dovednosti dětí, se zaměřuji pouze na děti, jejichž otcové se podíleli na sezónní migraci. Jedná se o obvyklý postup v existujících studiích. Využívám quasi-exogenní variace v načasování zpětné migrace vyvolané bilaterálními dohodami mezi Ukrajinou a Polskem k vyhnutí se možnému zkreslení plynoucího z rozhodovacího procesu o migraci zpět domů. Výsledky studie naznačují, že současná nepřítomnost rodičů v důsledku sezónní migrace negativně ovlivňuje socioekonomické dovednosti dětí, které nemigrují s rodiči a zůstávají doma. Takový výsledek naznačuje, že sezónní migrace není nezbytně „trojnásobná výhra“, ze které těží všechny strany.

Klíčová slova: sezónní migrace, děti ponechány bez rodičů, schopnost vytrvat, formování socioekonomických dovedností.

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