

The University of Nottingham Ningbo China

FHSS School of Economics

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Proposal

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Can Remittances Compensate for Parental
Absence?

– Evaluated by the Psychological Well-
being and Educational Outcome >

Student Name: Shirui Zhou

Student ID Number: 20126847

Supervisor: Simon Appleton

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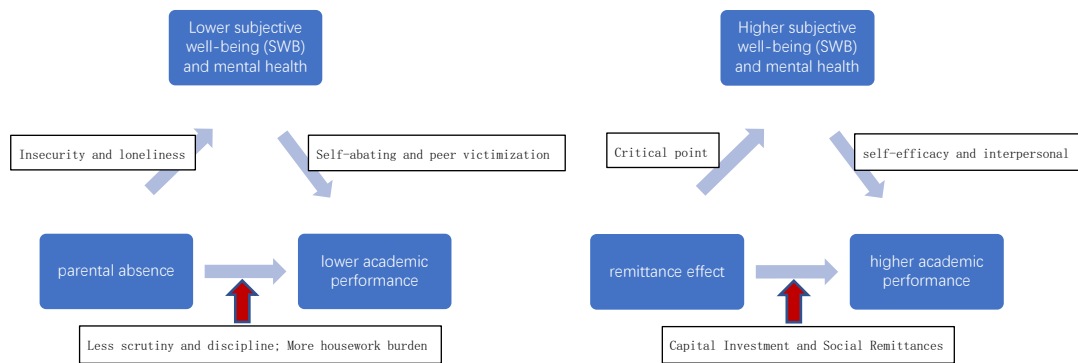
1. Introduction

While massive waves of job-seeking migrations driven by significant urban-rural discrepancy provide source of cheap labor, as reported by NBS (2015) that the individual migrant worker reached 246 million (17.6% of the total population), it may cause severe social problems due to the segregation between migrants and their left-behind families. According to Ren (2013), although a large proportion of migrants are young and married males with children, 90% of them would opt to leave their children in their hometown. (World bank, 2009 cited in Lee and Park, 2010). Reasons behind this tough choice relate to both institutional and financial barriers, as the former denies the migrant's access to public services through the "registration system", the latter prohibits the providing of a proper child-rearing environment due to budgets constraint.

Therefore, the rural area witnesses an expansion of left-behind child¹ (LBC)- nearly 61.6 million rural children (nearly 25% of all Chinese children) have been left behind by one or both parents since 2007 (Duan et al., 2013) Grandparents, as substitute guardians, are usually illiterate and have limited energy to effectively interact and support LBC (Chen, Yang and Ren, 2015, Gu et al., 2011; Zhong et al, 2012). Consequently, LBCs are often suffered from loneliness anxiety and depression and even severe mental health problem which may hinder the long-term development. Also due to the lacking surveillance on school coursework from parents and the increasing burden of housework, LBCs tend to have impaired educational outcome. However, on other hand, remittances sent by migrant parents have the potential to boost LBC's sense of security, especially for household with initial low socioeconomical status (SES). Regarding the academic attainment, the capital remitted from migration allow more investment flooding in LBC's education, and social capital accumulated by migrant parents enables the conveying of cutting-edge knowledge and information, as well as higher valuation on education.

The first contribution of this paper would associate with the exploring the threshold of relative size of remittance to initial SES which exactly compensates for the parental absence. Secondly, the mediating effect of psychological well-being on educational performance, which rarely investigated by other scholars would be heavily examined by this paper, as being demonstrated by below graph:

¹ LBC usually refers to the children in countryside who stay at home when both of their parents or one under China's context (Duan and Zhou, 2015)..



The rest of paper proceeds as follows. In section 2, this paper would review the related literature before discussing the limitation of current studies. In section 3, this paper would present the database and outline the justifications for variables. In section 4, this paper would derive model based on the theoretical framework after demonstrating the validity of adopted methodology. Section 5 would reveal the empirical results. Section 6 concludes and implicates practical significance and policy suggestion

2. Literature Review

2.1 Parent's Labor Migration on the LBC's mental health

2.1.1 "income effects" of remittances and **critical point theory**

Children amid a low socioeconomic status (SES) were reported to exposed to higher risk of adapting depressed symptoms (He et, al. 2011 cited in Cheng and Sun, 2015). Among various micro-variables (such as sex, age, schooling, income, and marriage, etc.) collected from different angles, income has shown its dominant role in happiness economics as a determinant factor (Easterlin, 2001). Although the critical point theory² (Hu and Shi, 2013) and studies (Jebb, 2018; Howell and Howell, 2008) shown that the marginal return of subjective well-being (SWB) on income is low after reaching certain level, the marginal utility of an additional unit of income does remain high before the threshold³ Therefore, for rural household with income far below the threshold, it's assume that the elevated SES resulted from the remittance's income-boosting effects may protect LBC from depression and anxiety and partially alleviate the pain of physical separation from their parents, as Ivlves, Nikolova and Graham

² Critical point theory developed by Hu and Shi (2013) has shown the income's limited impact on SWB after income rising to certain level.

³ The threshold is estimates to be \$95,000 for life evaluation and \$60,000 to \$75,000 for emotional well-being in Jebb's (2018) study.

(2017) reveal an increase of 0.11 point in life evaluations of remittance receipt comparing to an average score of 5.495. One reason behind relates to "signaling effect" (Akay et al, 2016), indicating the expansion of the means and capabilities achieve goals. Another channel associates with a harmonize of family relationship after loosening of monetary budgets (Biao, 2017).

2.1.2 the Physical Separation and Deterioration of Subject Well-being (SWB)

Studies have shown that LBC are twice as likely to feel lonely as their urban counterparts (Myerson, 2015), suffer from stress, anxiety and loss of control (DeMarry et al, 2005 cited in Lee and Park, 2010), and counter multi-facet mental health issues, such as depression and even suicide ideation (Valtolina and Colombo, 2012). Additionally, the lower SWB perceived by LBC tend to be transformed into long-term behavior disorder (Lee and Park, 2010).

Firstly, the physical separation limit parents to convey affection through physical signature, which may attribute to the failure of forming attachment and bonding (Valtolina and Colombo, 2012). Furthermore, Cheng and Sun (2015) demonstrate that a break-up or discontinuation of attachment bond may cause a sense of insecurity among LBC. Finally, as remittances may monetarize the relationship between migrant parents and LBC, causing further emotional detachment (To, 2018).

2.2 Parent's Labor Migration on the LBC's Education Outcome

2.2.1 Capital Investment and "Social Remittances"

Numerous studies (Edwards and Ureta, 2003; Yang, 2008; Liang, 2004; Lu and Treiman, 2011) have shown the importance of financial resources on LBC's academic performance and upward mobility. The first channel is associated with the relaxation of household liquidity constraints (Du et al., 2005), and the boosting of income enables more capital flooding into LBC's education investment (Lee and Park, 2010) which provide availability of study tools, and even qualification⁴ to enter the urban public school.

Despite the economic gains, Levitt (1998) defines "social remittances" as more effective parental support and higher quality of information.

⁴ According to Lijun, Dali and Ren, (2015), with few exceptions, migrant children may be admitted to local school if extra fees are paid.

Additionally, parents experiencing the change of world view, improvement of aspiration and gain of new life perspective are more likely to convey new idea to LBC, encouraging them to form of ambition and inspiration (Wen and Lin, 2012). Furthermore, migration may heightened the parents' consciousness to the value of education and pay greater attention to child's academic performance (Lee and Park, 2010).

2.2.2 Insufficient "Scrutiny" and Shifts in Labor Supply

Several studies have attribute LBC's impaired performance to parental absence (Myerson 2015; Lahaie et, al., 2009; Ye and Lu, 2011). Firstly, the role of surveillance from parents on academic performance is manifested by Bo and Yuan (2017). Also, LBC may have to allocate more time to housework after parents migrating (Bai et, al., 2016; Lee and Park, 2010; Shi et, al., 2016), especially for girls who are expected to burden chores in traditional structure (Myerson, 2015), referred as "feminization of agriculture" by Biao (2017)

2.3. "Mediating Effect" of SWB on Academic Performance

2.3.1 Externalized Interpersonal Relationship: Lower Relatedness and Peer Victimization

Few have explored the mediating effect of "psychological traits" on academic performance. Some pioneer studies (Wen and Lin, 2012) are embarked on the lower interpersonal and intrapersonal capabilities of LBC, which is detrimental to the academic performance. The mechanism behind can be interpreted as: the sense of insecurity perceived by LBC may be internalized and transformed into the aloof and lower level of relatedness toward peer students, deconstructing a favorable condition for interpersonal relationship to grow (Allen et al., 2007). In the absence of harmonious and supportive interaction with peers, LBC are more likely to have underdeveloped interpersonal ability and be victimized and bullied other students (Feld, 1981, Zhang et al., 2021). Furthermore, the satisfaction towards school as a decisive factor of child academic performance (Jia et al, 2009) are heavily intertwined with sufficient external attention, autonomy, and self-regulation building (Roeser, Eccles, & Sameroff, 2000)

2.3.2 Internalized Intrapersonal Traits: Self-efficacy and Internal Locus of Control

Apart from interpersonal relationship, LBCs also tend to have lower self-efficacy and the internal locus of control (Wen and Lin, 2012), while he former is evaluated by the self-evaluation of efficiency and capability to

reach desired goal, the latter refers to the child perception of alignment between current trajectories and expectation about future development (Connell, 1985), which are both essential to academic success.

Limitation of current studies are mainly identified as following. **Firstly**, most studies mainly rely on the cross-section data, which cannot control the unobservable characteristic of children and household and unable to infer causal relationship between explanatory variable and variation in outcome. **Secondly**, self-selection and endogeneity of migration decision is a major problem. For instance, if migrants tend to be healthier and more ambitious or in lower SES comparing to non-migrants, results obtained without proper redressing the potential selectivity bias would be spurious. **Lastly**, most papers ignore the mediating effect of psychological well-being on educational outcome.

3. Database and Variable

This paper draws upon panel data from the 2010-2018 China Family Panel Studies (CFPS), a nationally representative longitude survey of Chinese communities, families, and individuals. Implemented Probability-Proportional-to-Size Sampling (PPS) with implicit stratification, the sample of CFPS is drawn from 25 provinces and the sample size was 16,000 households (Xie et al, 2016). According to the report (Wu et al., 2018) CFPS 2016 survey successfully tracked 69% of baseline sample CFPS 2010 and 89% of household in 2014 sample. While the variables this paper selects for subjective well-being are self-reported Likert score, which may be suffered from subjectivity bias (over-pessimistic or over-optimistic), several studies (Hertzman et al, 2001; Power et al., 1991) has shown its validity as an overall indicator for mental health.

This paper would use the widely adopted CES-D proposed by Radloff (1991) as indicator for the depression level among LBC. Following the spirit of Ren (2013), this paper constructed the scale by summing the score for each response from 6 questions (See Appendix 1). To estimate the level of happiness, this paper would directly use the response from the self-perception level of happiness rating by the subjected from 1-10. Referencing to Ren (2013), the factor to evaluate the self-motivation to proxy a locus of control (See Appendix 2), and the scale to estimate self-confidence to proxy the self-efficacy (See Appendix 3). To estimating interpersonal relationship, this paper utilized a composed score extracting from the overall satisfaction towards school estimated by a rating from 1-5 and question indicating peer relationship (See Appendix 4).

Due to data availability, we would use the child grades in Chinese language/grammar and math last year as proxies for Child's academic performance. (See Appendix 5).

4. Methodology and Model

Followed the spirit of Sun and Wang (2016), this paper would adopt the combination of Differences in Differences (DID) and Propensity Score Matching (PSM) method. While the adaptation of DID-ATT would enable us to calculate the difference of dependent variable between ex-ante level and ex-post level, as Xu and Xie (2015) introducing, PSM would reduce the bias in estimation treatment effects with observational data sets. Though matching the child in treatment group with a similar child in control group, PSM would allow the constructions of counterfactuals, and largely remove the impact of confounding covariates.

The first step to implement PSM is to calculate the propensity scores using logistic regression. Replicating the experience of Sun and Wang (2016), this paper would include the below covariates:

$$m_ps < -glm(\text{parental_absence} \sim \text{gender} + \text{age} + \text{age} * 2 + \text{residential_type} \\ + \text{student_status} + \text{health_level} + \text{income_per_capita} \\ + \text{father_edu} + \text{mother_edu} + \text{father_age} + \text{mother_age})$$

After obtaining PScore, this paper would test the balance of the treated and the non-treated by examine the distribution of covariates and the variance of propensity scores. Test for standardized bias (SB) would be implemented as Rosenbaum and Rubin (1995) proposed.

$$SB_{match} = 100 \frac{|X_{1m} - X_{0m}|}{\sqrt{0.5(V_{1m}(X) + V_{0m}(X))}}$$

To estimate the casual effect, this paper would use nearest neighbor (NN) matching with replacement to compute ATT by select 5 comparison whose propensity score are nearest to the treated unit, following the formula demonstrated by Li (2013) as below:

$$ATT = \frac{1}{N^T} \sum_{i \in T} Y_i^T - \frac{1}{N^C} \sum_{i \in C} Y_i^C$$

Where the "control group" (Y_i^C) is defined as the child with neither parent migrant for work and both stay at home during the entire 2-year treatment period (e.g. 2010-2012, 2012-2014, 2014-2016, 2016-2018,,),

and the "treatment group" (Y_i^T) defined as child with intact family in baseline year and parental absence (e.g. mother absence, father absence or both absence) at the end of treatment period. Finally, the sensitivity test would be conducted to estimate the influence of unobserved covariates.

$$Y = B_0 + B_1 \text{Parental_absence} + b_2 \text{self_motivation} + b_3 \text{self_efiicacy} + b_4 \text{sch_satisf} + b_4 \text{peer_relation} + e$$

$$M = B_0 + B \text{Parental_absence}^5$$

$$B_{indirect} = (b_2)(B) + (b_3)(B) + (b_4)(B) + (b_4)(B)$$

To estimate the mediating effect, this paper would follow Sober (1982) to calculate the estimator of indirect effect by multiplying the partial regression effect for M predicating Y and the coefficient for X predicting M. This paper would expand the simple mediator model to investigator multiple mediators (MacKinnon et al., 2002). Also, to estimate the impact of initial SES level and size of remittance on the SWB and education outcome, this paper would replicate Sun and Wang (2016) to construct subgroup amid treatment group by different initial SES and remittance size (25%, 50%, 75%).

⁵ M and B are vectors including the dimensions: self-motivation, self-efficacy, school-satisfaction and peer-relationship. B_0 include the confounding covariates in estimating propensity score

Appendix:

Appendix 1

Depression

Feel depressed and cannot cheer up no matter what you were doing [N401]

Feel nervous [N402]

Feel upset and cannot remain calm [N403]

Feel hopeless about the future [N404]

Feel that everything is difficult [N405]

Think life is meaningless [N406]

The response category was scored from 1 ("never") to 4 ("Most of the Time"), which will be processed by linearly transformed into a range from 0-1, with 1 indicating the highest level of depression.

Appendix 2

Self-motivation

- I pursue my own goals rather than following others [N502]
- I decide my own life goals [N504]
- If I decide to do something, I will complete it no matter what [N505]

The response category were scored from 1 ("never") to 4 ("Most of the Time"), which will be processed by linearly transformed into a range from 0-1, with 1 indicating the highest level of self-motivation

Appendix 3

Self-confidence

- After all, I consider myself a loser [M103]
- I indeed often feel I am useless [M109]
- I often think I am good for nothing [M110]
- I don't think I can solve the difficulties I am now facing by myself [M111]
- Sometimes I think I am forced to do things due to my hard life [M112]

This scale was constructed from the five items with the highest rotated factor loadings on factor 1.

Appendix 4

Peer Victimization

- I usually quarrel with peers
- I get in trouble for fighting with peers

This scale was constructed from the five items with the highest rotated factor loadings on factor 1.

Appendix 5

Education outcome

- Child's grades in math last year: excellent (4), good (3), average (2), poor (1)
- Child's grades in Chinese last year: excellent (4), good (3), average (2), poor (1)

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