Effect of Parent's International Migration on the Educational Performances of Left-Behind Children in Morocco

Aicha El Alaoui
Full Professor, Multidisciplinary research laboratory in economics and
management (LARPEG), Faculty of Economics and Management, Sultan
Moulay Slimane University, Béni-Mellal, Morocco
Salah Ahbala
PhD, Multidisciplinary research laboratory in economics and management
(LARPEG), Faculty of Economics and Management, Sultan Moulay Slimane
University, Béni-Mellal, Morocco

Abstract

This study tries to examine the effects of parent's international migration on educational outcomes of left-behind children, focusing especially On the relative importance of family environment and school characteristics to educational achievements of left-behind children. For that, a sample from the survey study in Fkih Ben Salah as a small town in Morocco, located in the Béni Mellal-Khénifra region. This survey is administered in 2020 on 407 children from 16 primary school. The results of the prospensity score matching method showed that the internzationale migration of parents had a significant effect on the school performance of their left behind children ;furthermore ,the analysis using the Oaxaca - Blinder decomposition showed that 36.34% of the differences in the children's school performance in first semester for year of 2020 can be explained by student–teacher ratio, size class and socio-economic index of class are 12.82%,38.47% and 31.35% of the gap, respectively. The empirical findings reveal also that Left behind children are at risk of facing social

exclusion, especially in public schools.

## 1.	Introduction

During the last decades, international migration of families has become a mainstream component especially in rural and small town or villages in Morocco. As a main remark of this migration that the families are unable, for different reasons, to accompany their children, consequently they become Left-Behind Children (**LBC**). This situation has many effects on those children namely on their health and their educational performance. The most areas which suffer from this phenomenon are rural area, mountainous villages and small towns in Morocco as a context of this study. The reason behind this is especially social and economic exclusion.

And In Morocco the condition of LBC in Morocco is unknown.however ,based on the finding of the national survey on international migration conducted by HCP in 2018,the position of left behind children can be summarized as follows:

Firstly, there are 10 regions which have experienced international migration activity. Figure 1 shows these regions, and this activity is geographically concentrated in three regions which are home to more than half of the households with migrants: Casablanca - Settat(23.3%), Beni Mellal-Khnifra(14.9%), Rabat-Salé (12.4%) [1].

Secondly ,The report also highlighted the fact that 41.1% of migrants were accompanied by at least one child when they first emigrated. This percentage was higher for women than for men, who often left alone and were later joined by their wives and children.

Thirdly, the report noted that 7% of migrants were spouses of heads of households who remained in Morocco, and 1.5% were fathers of heads of households who remained in Morocco.

Finally With regard to financial transfers sent by migrants, it was specified that 17.5% of the beneficiaries of these transfers are spouses and 3.3% of the beneficiaries are children of these migrants [2].

Regarding studies conducted on this topic ,they have shown mixed results about the effect of parental migration on the academic achievement of their children(Antman, 2012; Bai et al., 2018; Giannelli & Mangiavacchi, 2010; Lahaie et al., 2009; Sawyer, 2016; Senaratna, 2012) . Some of them

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[1] See page 17 of the HCP publication entitled Results of the National International Migration Survey 2018-2019, July 2020.

[2] See page 17 of the HCP publication entitled Results of the National International Migration Survey 2018-2019, July 2020.

were closer to the positive effects on children's schooling(Antman, 2012; Bai et al., 2018),while others sowed negative or neutral effects (Arguillas & Williams, 2010; Dunusinghe, 2021; Giannelli & Mangiavacchi, 2010; Lahaie et al., 2009; Sawyer, 2016).

Our work aims to answer the following question: does the international mobility of parents have a positive or negative effect on the school performance of their children who remain in Morocco?and what part can the school play in improving academic performance of left behind children ?

The value of our research lies in the fact that it is being carried out in a field where there are many empirical studies that seek to study the macroeconomic and microeconomic effects In particular, with the work of those who seek to present the effects on the labour market (Karam & Decaluwe, 2007),on the development (OECD, 2017), or those who seek to study the effects on the foreign exchange market and growth (Marzovilla & Mele, 2015; Meyer & Shera, 2017; Tabit & Moussir, 2017), and few studies that seek to evaluate the impact of this migration on the children human capital who remain in Morocco (Bouoiyour & Miftah, 2016; Ibourk & Bensaïd, 2014).it would be very useful for us to add to the debate on the impact of migration on the quality of education for these categories of children.

The main objective of this study is to identify how can parent's international migration affect educational performance of their LBC. Also we focus specifically The relative importance of different children's contexts,including family and school characteristics. Furthermore, This work provides governments, schools and families with important insights into how to implement appropriate interventions to improve children's academic performances. especially for African countries which more suffer of parents' international migration and increasing number of LBC.

This paper is structured as follows. The first section indicates some studies related to our purpose such as the effect of parental migration on school performance of LBC. The second section presents the analyses of data used. The last section concludes.

2.   Background and literature review

Parents are forced to migrate due to the limited resources they provide in their areas of origin to search for a better standard of living. This may lead to ambiguity about the overall effects of migration between what is economic and social on children because of the parental separation**.**

The literature on this issue is in fact complex and sometimes contradictory, whether positive, negative or neutral.

For (Antman, 2012) the positive effect on daughter's education which explained by the fact that pushing the father's migration earlier in his daughter's life can lead to an increase in her level of education up to one year compared to the delay in migration until later.

(Stark and Bloom, 1985) interpreted the result of the positive impact by the improvement of socioeconomics of LBC when their parents send money transfers. The most important explanation of this positive effect is that migration decisions are taken mostly collectively between member of families in order to raise the level of well-being and escape from poverty and vulnerabilities.

In Morocco case, (Ibourk & Bensaïd, 2014) emphasised that the effect of remittances from parents' migrants on LBC has a significant contribution to support education fee and improve educational performances. (Bouoiyour & Miftah, 2016) found that remittances can increase investment in education, which improves all educational attainments indicators of children receiving remittances.

Contrary, some studies indicates a negative effect of international parental migration on left behind children,this results explained by the absence of one of the perents how affects the well-being of the children,leading to a lack of affection and parental attention (Taylor et al., 1996), The person who is in charge of the children may face other responsibilities that are greater than him as a result of the absence of the other party, which may limit his role towards the children who intrude on them. Likewise, the children themselves may not only bear the psychological burdens of separation, but mays go beyond that to domestic chores(Jones et al., 2004).

3.   Methods
3.1.   Survey and models:
3.1.1   Survey:
Participant:

This study used a paper questionnaire that was administrated to the student in primary school located in the city of Fkih Ben Salah. A sample of 407 children (205 LBC,202 NLBC) was selected. the following procedure for selection of sample was applied:

Firstly, the rural areas in fkih Ben Salah that are recognized by international migration were identified, and the schools in wich they are located were randomly selected, followed by a random selection of one class in each school. Children from households of parent's migrant were then selected, along with an equal number of their peers in the same class. The sample was made up of 55% boys and 45% girls. The average age of the children was 11,45 years (SD=1.135, Min=10, Max=15). we provided the

required instructions for completing the form and instructed them to complete it at home after parental consent.

Procedure:

In order to acquire permission to conduct a survey in their schools, the provincial directorate of the Ministry of National Education, primary education, and Sports of Fkih Ben Salah was contacted in the beginning of 2020. After obtaining the written consent, We made contact with the primary school directors to arrange for the questionnaires to be completed.the survey was carried out in January and February of the same year.

Data:

The Béni Mellal-Khénifra region is among the regions of Morocco, affected by international migration (HCP, 2018). This paper chooses Fkih Ben Salah as a small town in this region which presents the highest level of international migration, according on results of the national survey on international migration (HCP,2018), the Béni Mellal-Khénifra region ranks first nationally in terms of geographic concentration of households attached to migrants, with a percentage of 14.9%[3]. According to place of residence, the concentration is even higher, more in rural than in urban areas. and the Béni-Mellal-Khénifra region account for 41.7% of households of migrant origin.   the survey is collected during the year 2020, focusing on children who have parents' migrants abroad. The sample included   407 children where 205 are LBC and 202 are not.

Variable description

The dataset contains 3 parts: children characteristics, family characteristics, and school characteristics.in this studies we use variables (see table 1).

Outcomes variables express the average of eight (8) academic components or subjects: French language, Arabic language, scientific activity, Islamic, physical education, geography and history, art, and mathematic.

Control variables include children characteristics, family characteristics, and school characteristics. children characteristics include gender, depression, Environment satisfaction.the gender variable is defined as whether the child is a boy or a girl. The depression level is measured by 3 questions from children depression inventory(Aluja & Blanch, 2002), the Environment satisfaction is an index consist of three points from Huebner

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[3]   Results of the national survey on international migration,july 2020

Multidimensional student's life satisfaction scale (MSLSS)(Schnettler et al., 2017), The gender value is 1 if the child is female,0 otherwise.

Family characteristics include mother's education. Reading and writing ability is the measure of the mother's education. the family investment in their children's education is approximated by the variable parent's expectation,this variable is defined as the expectation of the parents of their child's earning of a university degree or above. School characteristics consist of the student–teacher ratio, and socio-economic index of class, class size, student–teacher ratio

Table 1. Variables description

	Variables description	**Description**	**N/mean**	**%/SD**
Children characteristics	Academic outcomes	The average obtained during the first session	6,98	1,15
	Gender	0: male 1: Female	224 183	55 45
	Depression index	3 items scored for 0 to 3 points taken from children depression inventory.	,2572	,22
	Status of parental migration	0: children from parent non migrant (NLBC). 1: children from parent migrant (LBC).	202 205	49.6 50.4
Family characteristics	Parental expectation	0: Other 1: Superior	25 382	6,1 93,9
	Mother's education.	0:no 1: literate mother	191 216	46,9 53,1
	Environment satisfaction	6 items scored 1 to 3 points taken from multidimensional student life satisfaction scale (MSLSS).	8,49	3,10
School characteristics	Class size	0: other. 1: less than 20 students.	359 48	88,2 11,8
	socio-economic index of class	0: other 1: poor	379 28	93,1 6,9
	student–teacher ratio	number of students in the school divided by the number of teachers in the school.	30,86	3,70

Source: Estimated by the author..

3.1.2. Models:

In this paper we employed :(i) Regression model, (ii) Prospensity Score Matching,and(iii) Oaxaca-Blinder Decomposition method.

Regression model

The baseline model adopted is a simple OLS model as written bellow.

$$y_i = \alpha + \theta_{LBC_i} + x'_i B + \varepsilon_i \qquad \qquad \textbf{(Eq.1)}$$

where LBC is the status of a child's left behind by their parents work outside of Morocco; X includes all the control variables.

Prospensity Score Matching

We describe this method as follows:

Let y_{LBC} and y_{NLBC} be the outcome of a LBC and NLBC, respectively. The average treatment effect on treatment can then be calculated as :

$$ATT = E(y^{LBC}|D = 1) - E(y^{NLBC}|D = 1)$$

(Eq.2)

where D =1 if being left behind child, and 0 otherwise.

we can estimate the ATT with conditional independence assumption as:

$$ATT = E[y^{LBc}|D = 1, P_r(D = 1|x)] - E[y^{NLBc}|D = 0, P_r(D = 1|x)]$$

(Eq.3)

where Pr(D=1|X) is the probability of being treated, which is conditional on X.

Oaxaca–Blinder decomposition

The OB decomposition can be explained as follows. First, we estimate the following equations for the academic performances of LBC and NLBC separately:

$$yij = x'_{ij}B_{ij+\varepsilon_{ij}}, j = LBC, NLBC$$

(Eq. 4)

where Xij, including all control variables, is the same as the final model in the previous OLS estimation. According to the usual assumption, E [εij|Xij] = 0, j = LBC, NLBC Thus, the mean difference between these two groups is:

$$GAP = \bar{y}_{LBC} - \bar{y}_{NLBC} = \bar{x}_{LBc}\hat{\beta}_{LBC} - \bar{x}_{NLBC}\hat{\beta}_{NLBC}$$

(Eq. 5)

This decomposition is the so-called three-fold decomposition, where β_{LBC} and β_{NlBC} are the estimated coefficients of left behind and non-left-behind children's samples, respectively. **Equation (5)** uses the coefficients for the NLBC sample as the reference coefficients. Because we are mainly interested in the contributions of family investments and school quality, Eq. (5) can also be written as follows.

$$GAP = (\bar{x}_{NLBCp} - \bar{x}_{LBCp})'\beta_{rp} + (\bar{x}_{NLBcf} - \bar{x}_{LBCf})'\beta_{rf} + (\bar{x}_{NLBcsch} - \bar{x}_{LBCsch})'\beta_{rsch+unexplained\ part} \quad \textbf{(Eq.6)}$$

Where p represents predetermined personal and family characteristics. The f represents family investments and Sch represents school characteristics.

4.   Results
4.1.   Descriptive statistic

According to the data collected, Figure 1 indicates the academic performances of LBC and NLBC, demonstrating differences between averages in children's educational outcomes, 0.43 points.
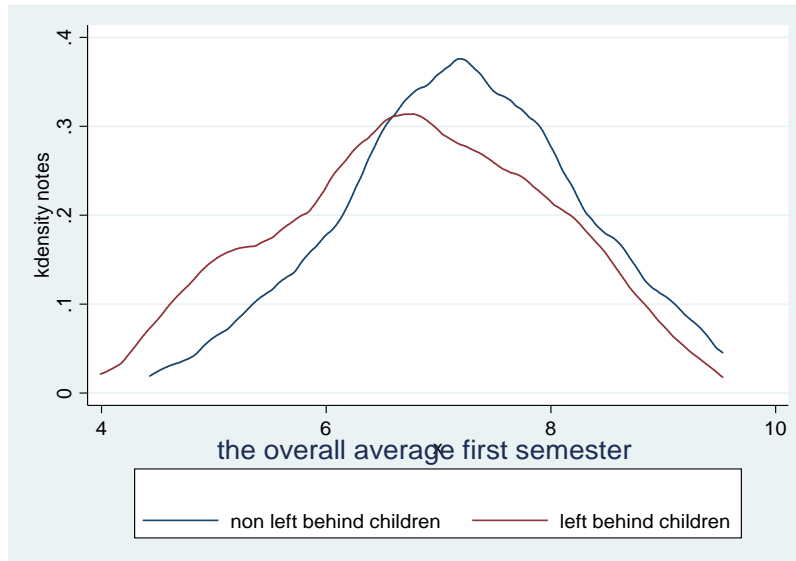

Figure 1. Distribution of children 's academic performance
Source: Field data

The results of the average comparison are shown in Table 2. We can see that, on average, NLBC and LBC are 6.99points. At the same time, the NLBC significantly outperforms their LBC by approximately 0. 43points. Generally , the differences are about 6.15%.

Table 2   presents the results of the t-test between the two groups, showing that both are significantly different in all aspects. In terms of characteristics that would bring gains to children's educational outcomes, NLBC has more advantages.

The first category of variables reports the children characteristics. Compared to LBC, NLBC tend to be female, and have more Environment satisfaction and the degree of depression less.

The second category of variables presents the summary statistics of family characteristics.it is obvious that the literacy of the mother's is significantly higher in the LBC. about 59% of LBC mothers, are literate, whereas only 47% of non-left behind children's mothers.in terms of family expectation the differences are also big. About 96% of NLBC parents expect their children to attend university but only 92% of LBC parents expect that.

The third category reports the summary statistics of school characteristics. We can see that the quality offered of NLBC is much higher

than that of the LBC. student–teacher ratio is higher in group of LBC 31,45 than group of NLBC 30, 26.the percentage of the class with poor socio-economic index is 2% in NLBC, whereas that of LBC is about 11%.

Table 2. Comparison of mean characteristics of the two groups

	Two groups	LBC	NLBC	t-statistic
Academic outcomes	6,9878 (,057)	6,7788 (.083)	7,2000 (.075)	3,748***
Gender= Female	,45 (,025)	,40 (.034)	,50 (.035)	1,831*
Parental expectation= superior	,94 (,012)	,92 (,019)	,96 (,014)	1,827*
Mother's education.=yes	,53 (,025)	,59 (,034)	,47 (,035)	-2,436**
Class size = less than 20	,12 (,016)	,04 (,014)	,20 (,028)	5,095***
socio-economic index of class=poor	,07 (,013)	,11 (,022)	,02 (,011)	-3,545***
Environment satisfaction	8,49 (,154)	8,17 (,224)	8,83 (,209)	2,154**
Depression index	,2572 (,01103)	,2832 (,014)	,2309 (,016)	-2,384**
student–teacher ratio	30,8635 (,18363)	31,4537 (,262)	30,2646 (,250)	-3.276***

Standard errors are shown in parentheses.
Significance codes: ***p<0.01, **p<0.05, and *p<0.1
Source: Field data.

4.2   OLS model

OlS estimation results are shown in table 3.when we add more control variables into the regression equation. Column's (1-3) shows estimates of children academic performance. Columns (1) contain only left behind characteristics. Step by step, we added personal predetermined, family, and school characteristics. Table 3 shows that the migration status is significantly and negatively associated with the children's school performance.

Table 3. Results of OLS estimation

	1	2	3
LBC	-.42117*** (.112)	-.3495185*** (.109)	-.2676761*** (.101)
Gender= Female		.4261588*** (.107)	.3230701*** (.094)
Depression index		-.7211026*** (.223)	-.7317311*** (.203)
Environnement satisfaction		.0480103*** (.017)	.015564 (.016)
Mother's education.=yes		.3021261*** (.108)	.2338976** (.095)

Parental expectation= Superior			.4736201* (.265)
socio-economic index of class = poor			1.519818*** (.164)
Class size = less than 20			1.018961*** (.119)
Student–teacher ratio			-.0455875*** (.013)
Constant	7.19995*** (.075)	6.589613*** (.198)	7.6470 *** (.523)
R-squared	0.0335	0.1452	0.3506
observations	**405**	**405**	**405**

Robust standard errors are shown in parentheses.
Significance codes: ***p<0.01, **p<0.05, and *p<0.1 Source: Field data.

According to the table 4,we can see that LBC cannot benefit more from mother's education. In other words, mother's education does not significantly affect left behind children. Furthermore the family expectation have no significant impact on left behind children.And also there is a significant benefits for NLBC , but not left behind children, from the characteristics of the school.

Table 4. OLS results of different sample

	NLBC	**LBC**	**Pooled**
LBC			-.2676*** (.101)
Class size = less than 20	1.0715*** (.142)	.6848*** (.241)	1.0189*** (.119)
socio-economic index of class = poor	1.7544*** (.222)	1.4250*** (.209)	1.5198*** (.164)
Gender= Female	.2190*** (.131)	.5055*** (.142)	.3230*** (.094)
Environment satisfaction	.0205 (.024)	.0028 (.023)	.0155 (.016)
student–teacher ratio	-.0268* (.014)	-.0731*** (.023)	-.0455 ***(.013)
Parental expectation= Superior	.5184* (.160)	.4327 (.381)	.4736* (.265)
mother's education=yes	.3086** (.122)	.2167 (.152)	.2338** (.095)
Depression index	-.9340*** (.278)	-.4324 (.314)	-.7317*** (.203)
constant	7.0396***	8.2630*** (.849)	7.6470 *** (.523)
R squared	0.3408	0.3433	0.3506
observation	**202**	**205**	**407**

Robust standard errors are shown in parentheses. Other variables are the same as those in previous tables. Significance codes: ***p<0.01, **p<0.05, and *p<0.1.
Source: Field data.

4.3   Results: propensity score matching method

From model 1 in table 5, we will take a result of the local linear regression matching . we can see that LBC perform significantly less in school performance. Specifically NLBC outperforms their LBC in terms of their scores by 0.321 standard deviation.

When we further control for the family level, the differences in children's score turned to 0.402. after we added school characteristics the difference turned to 0.374.

Table 5. Results of propensity score matching method

Models	Kernel	Stratification Matching	One to one	Local linear matching
Model-1	-0.376**	-0.392**	-0.311**	-.3210**
Model-2	-0.439***	-0.422***	-0.434***	-.4022***
Model-3	-0.254**	-0.298 **	-0.374**	-.2830**

Significance codes: ***p<0.01, **p<0.05, and *p<0.1. Source: Field data.

4.4   Results: Oaxaca–Blinder decomposition
4.4.1   Overall decomposition

Table 6. Oaxaca blinder decomposition results

	LBC coefficient (1)	NLBC coefficient (2)	Pooled coefficient (3)
Group1	7.19995	7.19995	7.19995
Group2	6.7787	6.77878	6.77878
observations	407	407	407
Gap ($y_{NLBC} - y_{LBC}$)	.4211***	.4211***	.42117***
explained	.1165 (.089)	.1340 (.093)	.1534** (.073)
unexplained	.3045*** (.110)	.2870** (.118)	.2676*** (.099)
Gender = Female	.0197 (.015)	.0455 (.028)	.0291 (.018)
mother's education= yes	-.0370 (.021)	-.0259 (.020)	-.0280* (.016)
Index of depression	.0488* (.025)	.0226 (.020)	.0382** (.019)
student–teacher ratio	.0319 (.023)	.0869** (.035)	.0542** (.023)
Class size	.1703*** (.042)	.1088* (.060)	.1620*** (.036)
and socio-economic index of class=poor	-.1534*** (.056)	-.1246*** (.040)	-.1328*** (.040)
Environnement satisfaction	.0136 (.016)	.0018 (.015)	.0102 (.011)
Parental expectation	.0224 (.018)	.0187 (.015)	.0205 (.015)

Standard errors are shown in parentheses. Significance codes: ***p<0.01, **p<0.05, and *p<0.1. Source: Field data.

Column (1)-(3) from **table 6** show the result of the decomposition of school performance of the left behind children, NLBC and pooled model over both groups as the reference coefficient, respectively. because the pooled model includes the parental migration indicators as control variable and contain information of both groups, we prefer the results of column (3) and we use it as this study's baseline discussion.

We can see that that the explained part amounts to 0.153 standard deviations accounting for 36.34% of the total difference. Student–teacher ratio size class and socio-economic index of class are essential contributors to the gain or loss of the parental migration.

The contributions of student–teacher ratio, size class and socio-economic index of class are 12.82%,38.47% and 31.35% of the gap, respectively. the family expectation is not an important and not a significant factor.

The OB decomposition results show that approximately 36.34% of the differences in scores can be explained by observed characteristics. The most important elements include student–teacher ratio size class and socio-economic index of class Are the most significant and magningful explanation for the differences.

4.4.2 Contributions of coefficient differences:

Table 7 presents the coefficient differences of three-fold decomposition. Results are reported using both groups as reference groups. We focus on the role of student–teacher ratio size class and class social. from table 7 we can see that almost all differences in the coefficients of size class and socio-economic index of class are insignificant, except for the student–teacher ratio per student. the differences are significantly positive. This means that NLBC benefit more than LBC from student–teacher ratio. This may indicate the potential social exclusion of left behind children, to stop them from student–teacher ratio in rural public schools.

Table 7. OB decomposition of coefficients (three-fold decomposition)

	threefold	Threefold(reverse)
Group1	7.1999	7.1999
Group2	6.7787	6.7787
observations	407	407
Gap ($y_{NLBC} - y_{LBC}$)	.4211***	.4211***
endowments	.1340	.1165
	(.093)	(.089)
coefficients	.3045***	.2870
	(.110)	(.118)
interaction	-.0175	.0175
	(.094)	(.094)
Gender= Female	-.1159	.0197
	(.079)	(.015)

mother's education.=yes	.0542 (.117)	.0432 (.093)
Index of depression	-.1420 (.130)	-.1158 (.106)
student–teacher ratio	1.4559* (.830)	1.4008* (.799)
Class size	.0150 (.016)	.0765 (.079)
and socio-economic index of class = poor	.0369 (.053)	.0081 (.012)
Environnement satisfaction	.1451 (.266)	.1568 (.288)
Parental expectation	.0786 (.386)	.0823 (.404)

Standard errors are shown in parentheses.
Significance codes: ***p<0.01, **p<0.05, and *p<0.1
Source: Field data.

5.   Discussion

The importance of parent migrants to other countries has increased recently In light of this, it is critical to determine whether and to what extent parent migration influences the educational outcomes of their children who left behind in present-day Morocco. Using data from our survey, this study examines the effect of migration on children's human capital accumulation. The Oaxaca–Blinder decomposition method is also applied to analyse the contributors to the loss from family migration. Considering that parent's migration changes the environment of children, We focus specifically on the role of family characteristics and school characteristics. These factors can also be manipulated by families and governments. We found that NLBC children significantly outperformed their LBC counterparts in terms of school's performances. The results of the OB decomposition method further show that ratio teacher/student play the most important roles in bridging the gaps.

The following is a detailed discussion:

First, as this paper demonstrates, migration has no positive effect on the educational outcomes of children left behind.Our results are consistent with some previous findings (Zi and al 2015; Khatia and al 2022; Shujuan Song and al 2018).

Second, we have discovered that LBC performance is significantly impacted by school quality. The OB decomposition method revelead that the two terms of school quality are all important elements of the gaps. Given the controversial report of Coleman (1968)(Hill, 2017), Our findings demonstrate the value of educational investments in children's growth. Finally, our results may suggest potential social exclusions being practiced in

public schools. In our coefficient decomposition, we can see that the difference between the coefficients of ratio teacher /student is positive and significant (see Table 5). This may imply that LBC children cannot enjoy the full range of school services. Removing all potential social exclusions makes sense in improving LBC outcomes.

This article had two limitations. The first is that we can only calculate the contribution of some observed investments of schools, however we cannot exclude others important investments schools such as expenditure per student and extracurricular activities.

Future research should consider the causal relationship between student-teacher ratio and children's outcomes.

Conclusion

The main findings of this work include three aspects: first, PSM estimates indicates that children's academic performances are significantly associated with parental migration. Second, results from OB decomposition show that the contributions of student–teacher ratio, size class and socio-economic index of class are 12.82%,38.47% and 31.35% of the gap. Finally, LBC can occur Social exclusion in public schools.. The results suggest that LBC can take less advantage, Mainly by getting fewer opportunities for better school quality.

There are two important policy implications for left behind children. First since International family migration cannot benefit left behind children's academic outcomes, immigrant parents should be helped to take their children's in the first journey. second, Governments and public schools should try to eliminate social exclusion that children left bhind may suffer in schools through ratio teacher-student.

Data Availibility: All the data are included in the content of the paper.

Conflict of Interest: The authors reported no conflict of interest.

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