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DATA MUST SPEAK

The role of teachers in closing learning gaps for ethnic minority students in Viet Nam

Key findings

Ethnic minority students in Viet Nam face multiple, overlapping disadvantages – poverty, remoteness, home language and more limited access to early learning – and the schools they attend are concentrated in the poorest and most remote parts of the country. These barriers cannot be fully separated from one another with the administrative data available, and this brief does not attempt to isolate the effect of ethnicity itself. What it does is look more closely at one lever that policy can act on directly: how teacher characteristics and deployment relate to learning outcomes for ethnic minority and Kinh students, drawing on comparisons within the same school over time that hold location, poverty and community context constant.

Learning gaps are large and persistent. Ethnic minority students are substantially less likely than Kinh students to achieve "good completion" in foundational subjects, with gaps of around 25 percentage points in both mathematics and Vietnamese, highlighting persistent equity challenges in the education system.

Learning gaps widen in schools with higher concentrations of ethnic minority students. As the share of ethnic minority students in a school increases, their achievement declines sharply, while Kinh students' results remain stable. These trends suggest barriers specific for ethnic minority students rather than challenges with overall school quality.

Inequitable teacher profiles and deployment patterns are associated with wider learning gaps. At the school level, ethnic minority students tend to be in schools where teachers have, on average, lower qualifications and professional rankings. Schools serving predominantly Kinh students tend to have stronger teacher profiles, compounding the disadvantage faced by ethnic minority learners.

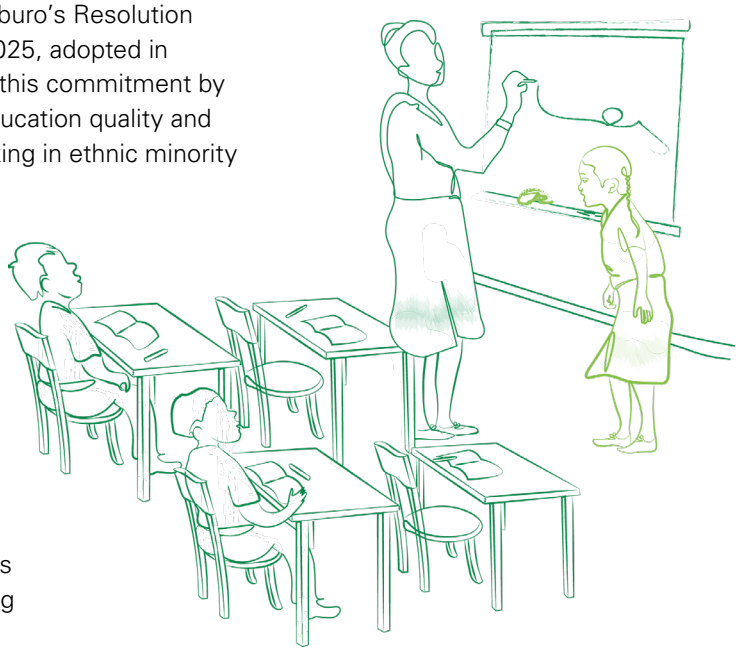
Improving teacher quality is critical to advancing equitable outcomes. Ethnic minority students benefit much more when taught by qualified and well-rated teachers, regardless of the teacher's ethnicity, suggesting that improving teacher quality and deployment is a vital policy priority for improving equitable learning.

Introduction

Viet Nam has made remarkable progress in education over the past two decades, but significant learning gaps persist between ethnic minority and Kinh students. National assessments show strong overall system performance. In the Southeast Asia Primary Learning Metrics (SEA-PLM 2019), Viet Nam was the strongest performer in the region. Around 80 per cent of students reach minimum standards in Vietnamese at grade 5, and between 60 and 70 per cent in mathematics. Yet ethnic minority students are 25–30 percentage points less likely than their Kinh peers to achieve the highest performance bands in both subjects.

These disparities emerge early and persist through schooling, reflecting the compounding effects of poverty, remoteness, language environment and uneven access to qualified teachers. Research shows that differences in family resources – parental education, household income and language environment – explain much of the disparity.[1] Teacher beliefs and practices, such as lower expectations of what ethnic minority students can achieve, together with Kinh-centric curricula, create "hidden inequalities" in learning for students even when access appears equal.[2] Language, culture, and parent coordination are the most influential factors shaping teaching capacity in ethnic minority primary schools.[3] This evidence points to teachers as a potentially critical lever for reducing inequities in learning.

With 53 recognized ethnic minority groups making up approximately 14 per cent of the population, ensuring equitable learning outcomes is both a development priority and a commitment under the Education Development Strategic Plan (EDSP) 2021–2030, which explicitly prioritizes the expansion of boarding schools and targeted support for ethnic minority students in remote and disadvantaged areas. The Politburo's Resolution 71-NQ/TW (2025) and the Law on Teachers (No. 73/2025, adopted in June 2025 and effective from January 2026) reinforce this commitment by positioning teachers as a central lever for improving education quality and equity, including targeting incentives for teachers working in ethnic minority areas.

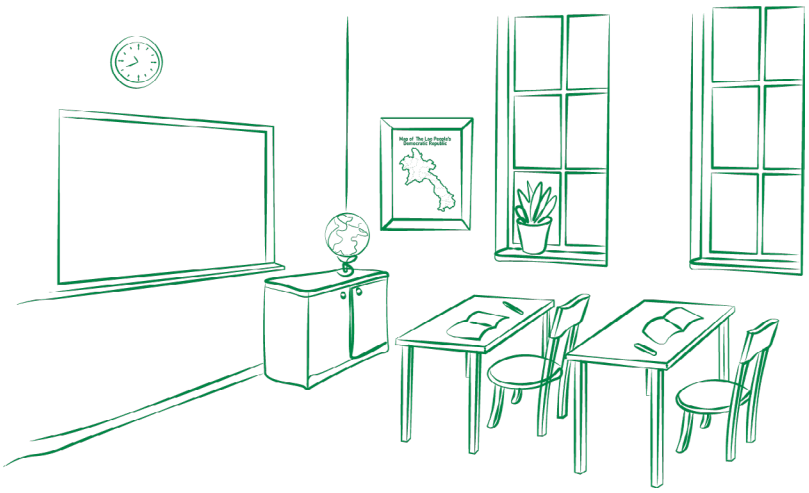


This brief is part of the Data Must Speak (DMS) research, a collaboration between UNICEF Office of Strategy and Evidence - Innocenti; the Vietnam Institute of Educational Sciences (VNIES) of the Ministry of Education and Training (MoET), and UNICEF Viet Nam. DMS aims to strengthen the use of administrative data for education policymaking through co-creation and "learning by doing" approaches, supporting national technical teams to generate actionable evidence on what drives learning outcomes and inequities.

1 Glewwe, Paul, Qihui Chen, and Bhagyashree Katare, 'What Determines Learning Among Kinh and Ethnic Minority Students in Vietnam? An analysis of the 2012 Young Lives data', Young Lives Working Paper 136, Oxford Department of International Development, Oxford, September 2012, <www.younglives.org.uk/publications/what-determines-learning-among-kinh-and-ethnic-minority-students-vietnam>. Arouri, Mohamed, Adel Ben-Youssef, and Cuong Viet Nguyen, 'Ethnic and Racial Disparities in Children's Education: Comparative evidence from Ethiopia, India, Peru and Viet Nam', *Children and Youth Services Review*, vol. 61, pp. 180–191, <www.sciencedirect.com/science/article/abs/pii/S0190740918310454>.

2 DeJaeghere, Joan, et al., 'Learning Inequities in Vietnam: teachers' beliefs about and classroom practices for ethnic minorities', *Compare: A Journal of Comparative and International Education,* vol. 53, no. 3, 12 May 2021, pp. 399-416, <www.tandfonline.com/doi/abs/10.1080/03057925.2021.1924621>

3 Nguyen, Thi Thu Hang, and Chuyen T. H. Nguyen, 'Determinants of Integrated Teaching Capacity Among Teachers in Ethnic Minority Primary Schools in Northern Vietnam', *International Journal of Evaluation and Research in Education*, vol. 14, no. 6, December 2025, pp. 4295-4306, <https://ijere.iaescore.com/index.php/IJERE/article/view/30087>



This analysis leverages existing national administrative data to address an evidence gap identified by VNIES, exploring how teacher characteristics and deployment relate to learning outcomes for Kinh and ethnic minority students. Unlike earlier studies based on sample surveys, it draws on administrative records covering more than 6,000 schools, close to half of national primary enrolment, over three years, making it possible to link changes in the teacher workforce to learning outcomes at scale and to document teacher deployment patterns that surveys cannot capture.

The analysis focuses deliberately on the teacher and deployment dimension of learning gaps, the policy lever on which MoET sought evidence. Many other factors shape learning outcomes for ethnic minority students, including the language spoken at home, socioeconomic background, parental support, access to preschool, boarding arrangements and school resources. These are not recorded in the administrative data and are therefore discussed as limitations rather than analysed directly (see **Annex A**). In addition, the data record ethnicity only as either Kinh or ethnic minority; the experiences of Viet Nam's 53 ethnic minority groups differ substantially, and results refer to the aggregated group.

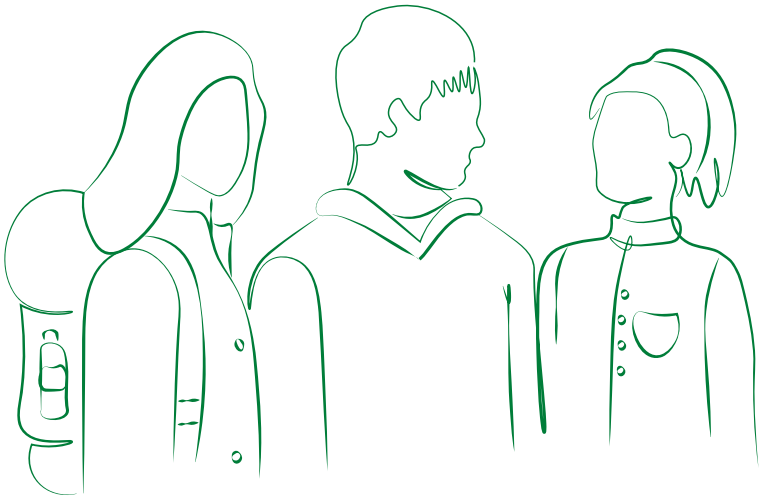
Methodology

National administrative data used for this analysis was provided by MoET from more than 6,000 primary schools across 19 of Viet Nam's 63 provinces[4] over three academic years (2020/21, 2021/22 and 2022/23). Provinces were sampled in all six economic zones of Viet Nam[5] and include 47 per cent of primary school students in the country. While the sample is representative at the national level, some statistics at the economic zone level might differ from official statistics, as data for all provinces were not provided and therefore not all provinces are included in this analysis (see **Annex A**).

[4] This reflects the provincial structure in place during the period analysed, prior to the administrative reorganization that merged Viet Nam's provinces into 34.

[5] Viet Nam's six economic zones are administrative-statistical regions grouping provinces by geography and development level: the Red River Delta, Northern Midlands and Mountains, North Central and Central Coastal, Central Highlands, South-East, and Mekong River Delta. They are used by Viet Nam's General Statistics Office for regional planning and reporting.

Student performance is measured by grade at the school level as the share of students achieving "good completion" in the subjects of mathematics and Vietnamese.[6] Teachers use a standardized assessment framework to assess student performance annually, with "good completion" being the highest of the three categories teachers can assign (good completion, completion, failed).[7] Performance data are aggregated at the school and grade levels and disaggregated by student ethnicity, rather than measured for individual students. Therefore, findings reflect group-level patterns within schools, and should be interpreted accordingly. Teacher characteristics used in the analysis include ethnicity, gender, university degree attainment, professional ranking and annual professional standards of assessments.[8] Teacher age and years of experience were not available in the dataset; professional ranking, which incorporates years of service, partially captures experience (see **Annex A**).



Econometric models with school fixed effects are used to estimate associations between student performance and teacher characteristics, while controlling for time-invariant school factors and key student and school covariates. The data are structured as a school-level panel over the three academic years, and the fixed effects exploit within-school variation over time. Estimates are weighted by the number of students in each school-grade group, and standard errors are clustered at the school level. For the analysis on teachers and students of the same ethnicities, the models test whether the interaction between student ethnicity and the proportion of ethnic minority teachers in a school predicts performance, while holding constant teacher qualifications and school context.

Full details on the data and models, robustness checks, and limitation of the analysis can be found in **Annex A.**

6 Repetition rates and students being assessed as "failed" (both around 0.8 per cent of students) were also included in the analysis. The results are similar to the learning indicators provided.

7 Three performance categories are available: good completion, completion and failed.

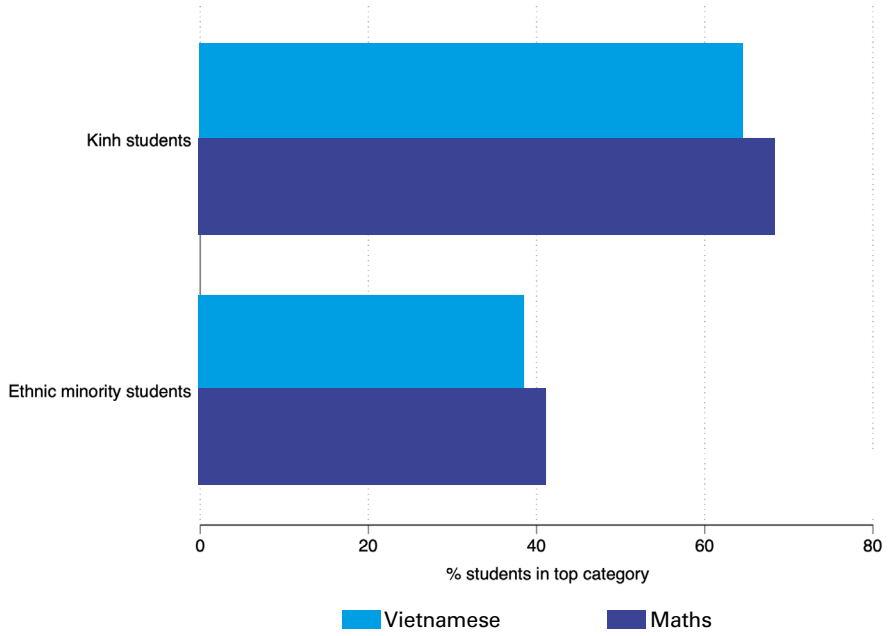
8 Teachers are assessed on 15 individual standards and given a general assessment, which is an average across these standards. The general assessment is presented in this analysis.

Research Findings

1. Persistent learning gaps for ethnic minority students

Ethnic minority students lag far behind their Kinh peers in foundational subjects. Nationally, only 41 per cent of ethnic minority students achieve a "good completion" in mathematics, compared to 68 per cent of Kinh students. In Vietnamese, the gap is similarly large, with just 39 per cent of ethnic minority students reaching the top performance category, compared to 64 per cent of their Kinh peers (**Figure 1**).[9]

Figure 1: Share of Kinh and ethnic minority students in the top category in Vietnamese and mathematics (2022/23)



Economic zones with higher proportions of ethnic minority students tend to have lower performance. Figures 2 and 3 illustrate geographical differences in student performance in Vietnamese and mathematics by showing how performance changes as the share of ethnic minority students in the economic zone increases. In both subjects, economic zones with a higher proportion of ethnic minority students enrolled in primary schools tend to have lower performance, especially for ethnic minority students.

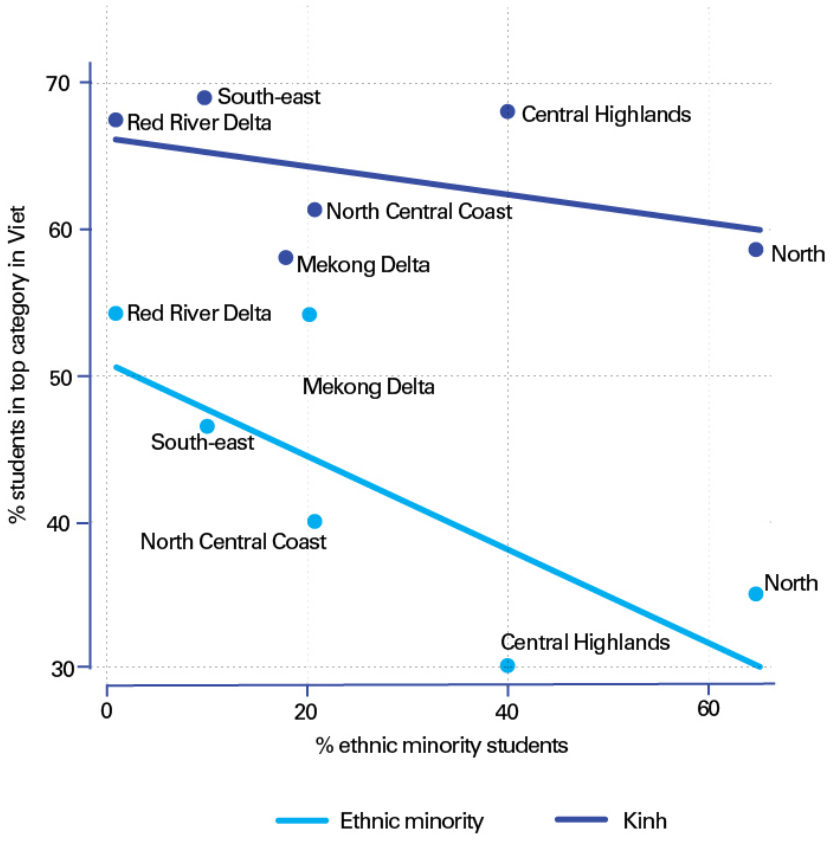
In the North and Central Highlands economic zones, where ethnic minority students represent 40–60 per cent of primary school enrolment, only around 30–35 per cent of ethnic minority students achieve "good completion". By contrast, in economic zones such as the Red River Delta and South-east, where ethnic minority students account for a small share of enrolment, around 45–50 per cent of ethnic minority students achieve the top performance category.

[9] Differences in education outcomes between ethnic groups are statistically significant at the 5 per cent confidence level.

It is important to note that the concentration of ethnic minority students is closely correlated with broader structural disadvantages. Economic zones with larger ethnic minority populations tend also to be more remote, poorer, and less served in terms of infrastructure, school resources and teacher allocation. With the available data, it is not possible to fully separate student-level disadvantages, such as home language or socioeconomic background, from differences in teaching support within schools; both are likely to contribute to the observed gaps. While the school fixed effects in the econometric models used in this analysis control for time-invariant school-level factors such as location and community characteristics, the descriptive patterns presented above should be interpreted with consideration for this limitation. The observed associations between ethnic minority concentration and lower performance likely reflect the compounding effects of poverty, remoteness and language barriers, and not strictly ethnicity (**Annex A** presents further detail on these limitations).

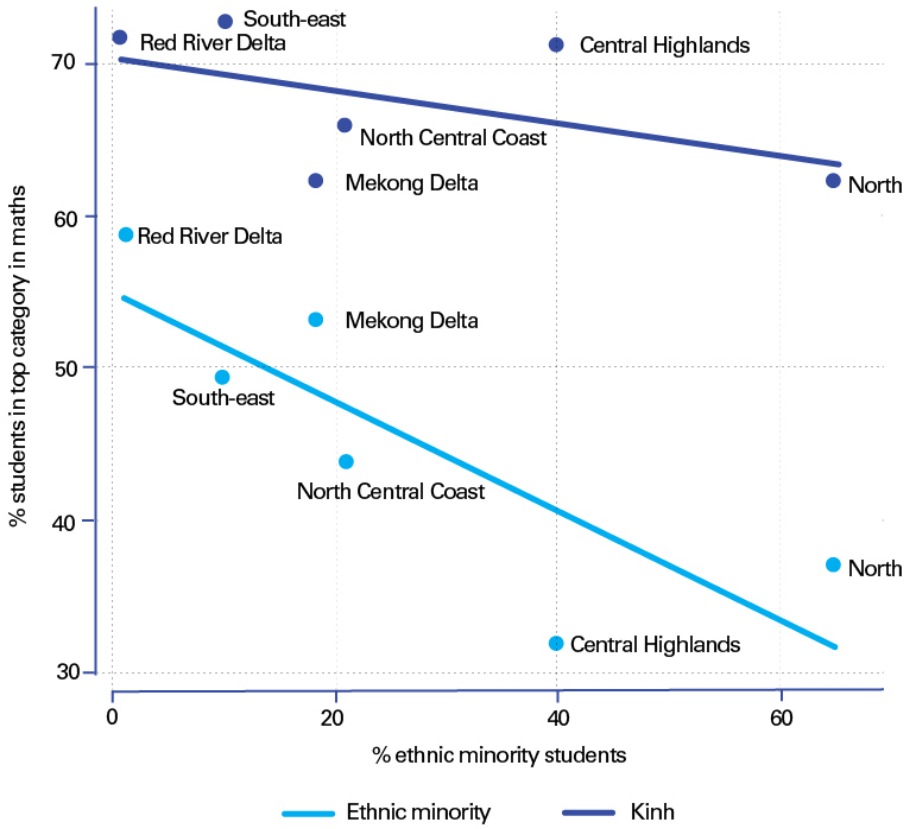
In every economic zone, Kinh students are more likely than ethnic minority students to be in the top performance category, but performance gaps are widest in regions with the largest ethnic minority populations. These patterns suggest that the North, Central Highlands and North Central Coast should be priority areas for targeted support to improve learning for ethnic minority students.

Figure 2: Relationship between share of ethnic minority students and performance in Vietnamese, by economic zone (2022/23)



Note: Each point represents one of the six economic zones in Viet Nam, plotted by the share of ethnic minority students enrolled in primary schools in the zone on the horizontal axis and the share of students achieving "good completion" on the vertical axis. The trend lines shown are simple linear fits based on six economic zone averages, and should be interpreted with caution, as they may be sensitive to individual data points.

Figure 3: Relationship between share of ethnic minority students and performance in mathematics, by economic zone (2022/23)



Note: Each point represents one of the six economic zones in Viet Nam, plotted by the share of ethnic minority students enrolled in primary schools in the zone on the horizontal axis and the share of students achieving "good completion" on the vertical axis. The trend lines shown are simple linear fits based on six economic zone averages and should be interpreted with caution, as they may be sensitive to individual data points.

Disparities in learning outcomes are not even across schools. Learning gaps between ethnic minorities and their Kinh peers appear to widen in schools with higher concentrations of ethnic minority students. The concentration of ethnic minority students varies enormously from one school to another: around 60 per cent of schools enrol fewer than 10 per cent ethnic minority students, and one in seven enrol none at all, while some 17 per cent of schools are more than 90 per cent ethnic minority. These highly concentrated schools account for just over half of all ethnic minority primary students, and more than four in five ethnic minority students attend a school in which they are in the majority.

Ethnic minority students' performance falls steadily as the share of ethnic minority students enrolled in the school increases. For example, in schools with lower shares of ethnic minority students, around 60 per cent of students achieve "good completion" in Vietnamese and mathematics; however, in schools where nearly all students are ethnic minorities, that figure drops to below 40 per cent (see **Figures 4** and **5**).

However, Kinh students' performance does not decline as the share of ethnic minority students in the school increases. This suggests that school quality does not necessarily decline when the share of ethnic minority students is higher, as Kinh students in these schools maintain strong results. Instead, the widening performance gap points to factors specifically affecting ethnic minority learners in highly segregated schools. This is not inconsistent with the differences in teacher profiles documented in section 2: average school quality can hold up for Kinh students even where the teaching profile is weaker because, as section 4 shows, ethnic minority students are considerably more sensitive to teacher quality than their Kinh peers.

Factors outside the school, such as the language spoken at home and family circumstances, are also likely to contribute to the gaps observed in these schools.

Figure 4: Share of Kinh and ethnic minority students in the top category in Vietnamese, according to the share of ethnic minority students in the school (2022/23)

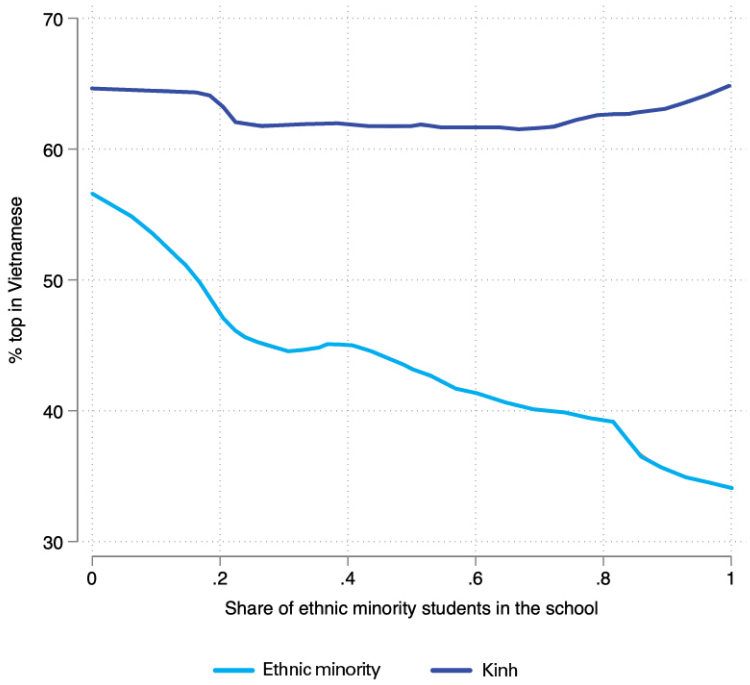
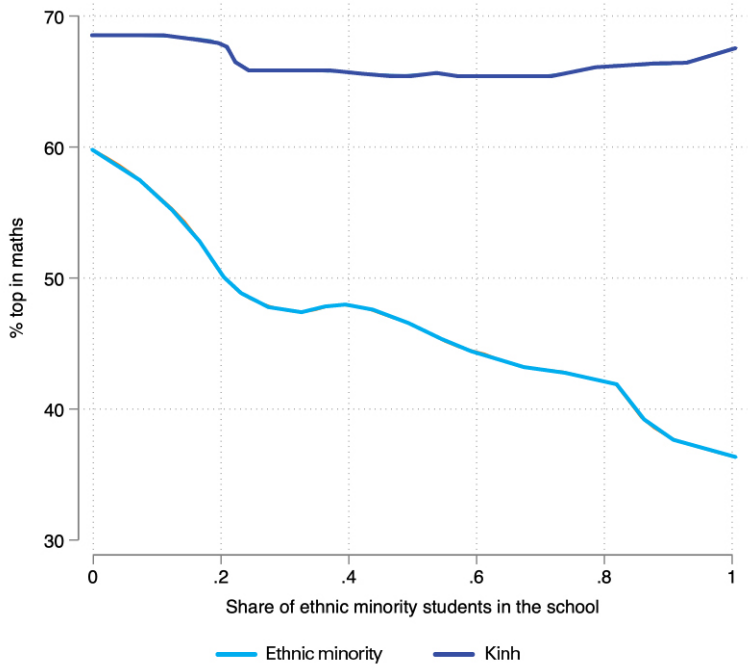


Figure 5: Share of Kinh and ethnic minority students in the top category in mathematics, according to the share of ethnic minority students in the school (2022/23)



The following sections examine how some of these patterns relate to teacher quality and deployment.

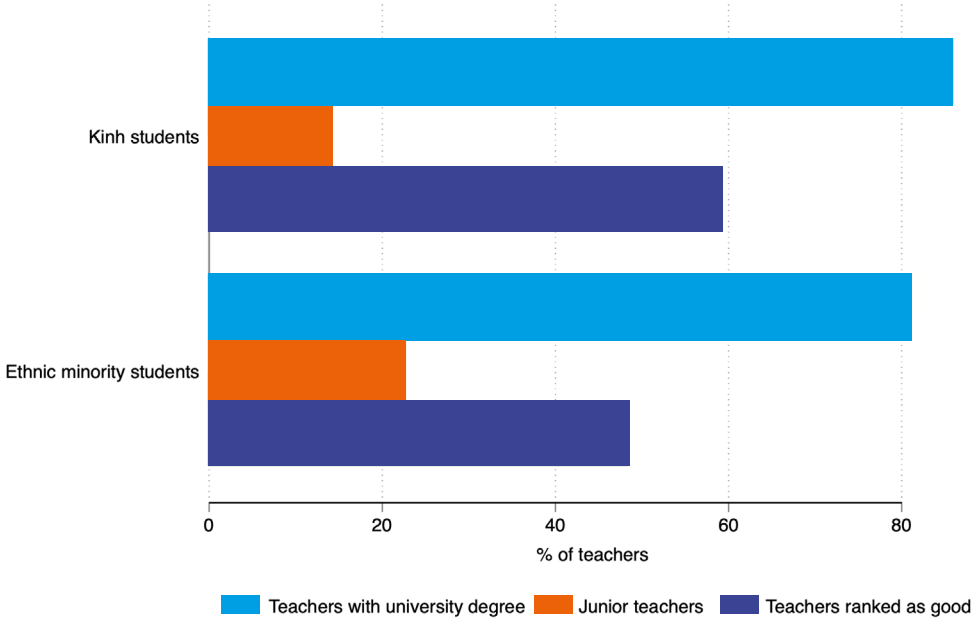
2. Differences in teaching profiles are associated with learning gaps among students

On average, ethnic minority students attend schools where teachers tend to be less qualified and less experienced than teachers in schools attended by Kinh students. The average ethnic minority student attends a school where 81.6 per cent of teachers hold a bachelor's degree or higher, compared to 87.6 per cent of teachers of Kinh students; and where 22.4 per cent of teachers in the school are ranked in the junior category (the lowest based on qualifications, professional standards and years of service),[10] compared to 13.1 per cent for Kinh students (see **Figure 6**).[11]

Performance ratings also tend to be lower for teachers of ethnic minority students. The average ethnic minority student attends a school where 48.3 per cent of teachers are rated "good" against Viet Nam's 15 professional standards, compared to 60.3 per cent for the average Kinh student. This shows that ethnic minority students are persistently taught by a workforce with lower formal qualifications and weaker assessed performance than their Kinh peers.

These differences in teacher quality are most pronounced in economic zones and in schools with higher shares of ethnic minority students, helping to explain why achievement for ethnic minority students declines as their concentration in schools and economic zones increases.

Figure 6: Percentage of teachers with specific characteristics, by the ethnicity of the students they teach (2022/23)



[10] There are four rankings for teachers in Viet Nam: IV (junior), III, II, I (senior). Rankings are determined based on required qualifications, referring to the level of formal teacher training attained (e.g., intermediate, college, university degree or higher), as well as professional standards and years of service. Prior to 2021, rank IV teachers were typically required to hold an Intermediate degree (two years of post-secondary education) and rank III teachers were required to have at least a college diploma (three years of post-secondary education), with progressively higher qualification requirements applying similarly to higher ranks**.** Since 2021, revised regulations on teacher professional titles have abolished rank IV, requiring teachers to meet higher qualification standards and encouraging in-service teachers to undertake additional training or further academic study to upgrade their professional ranking. For this analysis, administrative data from school year 2021/22 onwards were used; the continued presence of some rank IV teachers in the data likely reflects a transition period during the roll-out of the new regulations, with remaining rank IV teachers in the process of upgrading their qualifications.

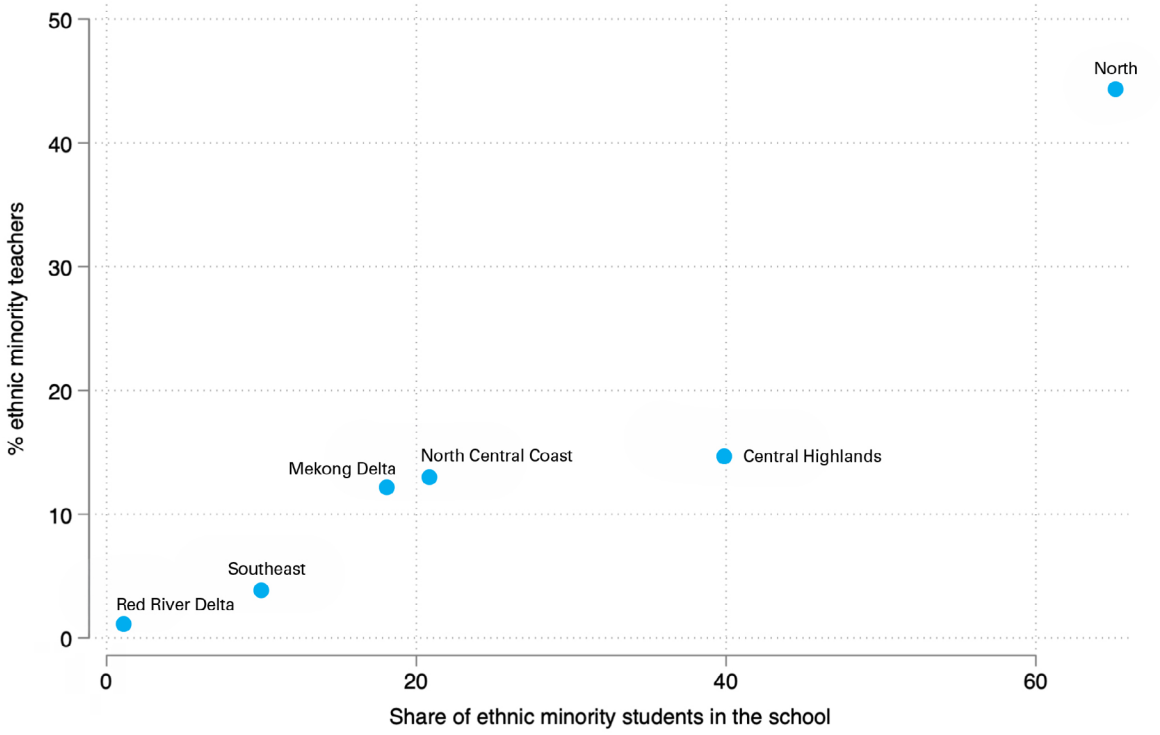
[11] These comparisons refer to average teacher characteristics in the schools attended by each student group, not to the specific teachers assigned to individual students.

3. Inequitable teacher allocation compounds disadvantages for ethnic minorities

Ethnic minority students are more than 40 percentage points more likely to be taught by a teacher from an ethnic minority background than Kinh students – 46 per cent versus 4.4 per cent (see **Table 1**). This pattern reflects long-standing deployment policies that post ethnic minority teachers to schools serving ethnic minority communities (see **Figure 7**).

Ethnic minority teachers are less likely to hold a bachelor's degree or higher (82.8 per cent versus 85.7 per cent), more likely to be ranked as junior (23.6 per cent versus 15.9 per cent), and less likely to be rated "good" against professional standards (52.6 per cent versus 58.5 per cent) (see **Table 1**).[12]

Figure 7: Share of ethnic minority students and ethnic minority teachers by economic zone (2022/23)



Even when ethnic minorities are taught by Kinh teachers, they tend to have weaker performance. Kinh teachers assigned to schools with a larger share of ethnic minority students are on average weaker than Kinh teachers serving Kinh students: they are less likely to hold a bachelor's degree or higher (82.8 per cent versus 87.4 per cent), more likely to be ranked as junior (19.2 per cent versus 13.8 per cent), and less likely to be rated "good" (51.9 per cent versus 62.5 per cent). Similar patterns are observed among ethnic minority teachers, among whom those that teach in schools with more Kinh students tend to have higher qualifications and performance ratings[13] than those that teach in schools with more ethnic minority students.

[12] All differences are statistically significant at the 5 per cent confidence level.

[13] Performance ratings are school-based annual assessments against the 15 national professional standards and may vary in stringency across schools; the econometric analysis relies on within-school changes over time, which limits the influence of differences in rating practices across schools (see **Annex A**).

Table 1: Share of students who have teachers with certain characteristics, by student ethnicity

	Kinh students	Ethnic minority students	All students
Teacher is from an ethnic minority background	4.4%	46%	13%
Ethnic minority teacher with bachelor's degree or higher	85.9%	77.9%	82.8%
Ethnic minority teacher ranked IV	20.7%	28.2%	23.6%
Ethnic minority teacher with overall good standards	58.5%	43.2%	52.6%
Kinh teacher with bachelor's degree or higher	87.4%	82.8%	85.7%
Kinh teacher ranked IV	13.8%	19.2%	15.9%
Kinh teacher with overall good standards	62.5%	51.9%	58.5%

Ethnic minority students face a double disadvantage. They are more likely to be taught by ethnic minority teachers who are, on average, less qualified than Kinh teachers; within the Kinh and ethnic minority teaching workforce, they are more likely to be assigned the least experienced and lowest-ranked teachers.

These trends suggest that teacher allocation in Viet Nam tends to assign more qualified, experienced and higher-rated teachers to schools serving Kinh students. While policies have been in place to encourage teachers to work in disadvantaged, mountainous and ethnic minority areas, challenges in attracting and retaining high-quality teachers persist. The new Teachers Law, effective from January 2026, introduces additional incentives for teachers working in these areas, including housing support, enhanced hardship allowances and travel subsidies. In parallel, targeted professional development and in-service support, especially for ethnic minority teachers, will remain critical to strengthening the quality of the existing teacher workforce in these areas.

4. Improving teacher quality remains the critical lever for advancing equity

Ethnic matching of teachers and students may not be able to harness the potential advantage of shared language and culture when it is not accompanied by strong qualifications, support and working conditions. Analysis from the data does not appear to suggest that ethnic minority students in schools with a higher share of ethnic minority teachers achieve better academic performance. For both Vietnamese and mathematics, performance for ethnic minority students declines as the share of ethnic minority teachers in a school increases.[14] This finding likely reflects the fact that schools with more ethnic minority teachers face broader structural challenges in teacher preparation and support, rather than an effect of ethnic matching itself. Rather than calling into question policies that promote the development and recruitment of ethnic minority teachers, these results point to the need to strengthen the preparation, support and working conditions such teachers receive.

[14] For Vietnamese, the association is negative and statistically significant; for mathematics, it is negative but not significant. These patterns hold after controlling for all time-invariant school characteristics, including location, poverty, remoteness and school resources, through school fixed effects.

Improving teacher quality is critical to support ethnic minority students' learning, especially among the teachers – Kinh and ethnic minority alike – who serve ethnic minority students. Ethnic minority students are 5.4 percentage points less likely to be ranked in the top category in mathematics when taught by a junior teacher; 6.2 percentage points more likely to be ranked in the top category when their teacher holds a bachelor's degree or higher; and 3.2 percentage points more likely to be ranked in the top category when their teacher is rated as "good" by professional standards. These trends are similar for performance in Vietnamese.

The association between teacher quality and student performance appears stronger for ethnic minority students than for their Kinh peers. Ethnic minority students are more likely to achieve "good completion" in both mathematics and Vietnamese when their school's teachers hold a bachelor's degree or higher and meet professional standards (see **Annex A, Table A1**). For Kinh students, these associations are weaker and mostly not statistically significant. Given that schools serving ethnic minority communities tend to have less favourable teacher profiles, strengthening teacher qualifications, professional standards and in-service support in these schools could be an important step towards narrowing persistent learning gaps.



Policy recommendations

The recommendations below are presented in priority order.

Prioritize improving teacher quality in schools serving high concentrations of ethnic minority students, with a focus on upgrading qualifications, professional standards and in-service support, especially for ethnic minority teachers. The association between teacher quality and student performance appears stronger for ethnic minority students than for their Kinh peers. Ethnic minority students are more likely to achieve "good completion" in both mathematics and Vietnamese when their school's teachers hold a bachelor's degree or higher and meet professional standards. Given that schools serving ethnic minority communities tend to have weaker teacher profiles, strengthening teacher qualifications, professional standards and in-service support in these schools could be an important step towards narrowing persistent learning gaps.

Strengthen teacher deployment and retention policies to ensure that qualified, experienced and well-rated teachers are equitably allocated to ethnic minority and remote schools, alongside effective implementation of incentives under the new Teachers Law, effective from January 2026. Analysis indicates that ethnic minority students face a double disadvantage: they are more likely to attend schools with higher shares of junior, lower-ranked and lower-performing teachers, regardless of whether teachers are Kinh or from ethnic minority backgrounds. More qualified and experienced teachers tend to be disproportionately allocated to schools serving predominantly Kinh students, reinforcing existing inequities. Strengthening recruitment, preparation and deployment policies, alongside effective implementation of incentives introduced under the new Teachers Law, will be essential to ensure that schools in ethnic minority and remote areas are staffed with teachers who are equipped to support learning and close equity gaps. More research will be needed to understand the effectiveness of these measures and incentives offered in improving recruitment and retention of quality teachers.

Expand targeted teacher training and professional development pathways for teachers working in ethnic minority areas, with emphasis on language-responsive and inclusive pedagogies. The widening learning gaps observed in schools with high concentrations of ethnic minority students point to challenges that extend beyond general school quality and relate to the specific learning needs of ethnic minority learners. Expanding targeted teacher training and professional development pathways can help build a workforce that is better prepared to teach in linguistically and culturally diverse contexts. Training programmes could be strengthened to emphasize language-responsive and inclusive instructional practices, including mother tongue-based bilingual education approaches, that enable teachers to support learning in multilingual classrooms. Multilingual pedagogy and culturally responsive teaching should be integrated into both pre-service and in-service teacher training.

Integrate teacher diversity and inclusion metrics into existing data and monitoring systems. The analysis from the DMS research demonstrates the value of existing administrative data in identifying inequities in teacher quality and deployment that disproportionately affect ethnic minority students. Integrating indicators related to teacher qualifications, professional rankings and performance standards, disaggregated by the ethnicity of students, into routine monitoring systems could enable policymakers to more systematically monitor whether ethnic minority students are being served by adequately prepared teachers. Strengthening the use of these data can support more targeted planning, enable early identification of emerging inequities, and reinforce accountability for improving learning outcomes for all students, including ethnic minorities.

Annex A

This technical annex provides additional details on the data, methodology and regression results underlying the findings presented in this brief, and outlines limitations of the analysis that should be considered.

1. Data and sample used for analysis

Data source and coverage. The analysis uses school-level administrative data collected through Viet Nam's EMIS. Data was provided by MoET for primary schools in 19 of Viet Nam's 63 provinces, covering three recent academic years (2020/21, 2021/22 and 2022/23). The 19 provinces were selected to ensure representation across all six economic zones, with provinces sampled proportionally to student population within each zone. The sample includes 6,025 schools in the most recent year, approximately 175,000 teachers and 4.2 million students, representing 47 per cent of primary school enrolment nationally. While the sample is designed to be representative at the national level, it includes only a subset of provinces within each economic zone (approximately one third on average), and the sampling was proportional to student population rather than designed for zone-level inference. Statistics presented at the economic zone level in the policy brief should therefore be considered indicative of broad patterns rather than precisely representative of official zone-level figures.

Unit of analysis. Student outcome data are aggregated at the school-grade-year level, disaggregated by student sex and ethnicity (Kinh versus ethnic minority). Each observation represents the outcomes for a group of students (e.g., ethnic minority boys in grade 3 at a given school in a given year). Teacher characteristic variables are measured at the school level as the share of all teachers in the school meeting a given criterion (e.g., the share of teachers holding a bachelor's degree). Teacher variables are not grade-specific, as the administrative data do not link individual teachers to specific grades. Viet Nam officially recognizes 53 ethnic minority groups; however, the administrative dataset records student and teacher ethnicity in two categories only (Kinh or ethnic minority), so the results refer to ethnic minority students and teachers as an aggregated group.

Outcome variables. Student performance is measured as the share of students achieving each of three performance categories: good completion, completion and failed, as assessed annually by teachers using a standardized framework. The main outcome presented in the policy brief is the share of students achieving "good completion", the highest performance band. The two additional outcomes, the share of students not completing a subject and the share not eligible for promotion to the next grade, are rare (about 1 per cent of the student population), and were not used as main outcome as they represent extreme cases. However, robustness checks show that results are consistent across all outcome measures.

Teacher variables. Teacher characteristics include: ethnicity (share of ethnic minority teachers), sex (share of female teachers), university degree attainment (share holding a bachelor's degree or higher), professional ranking (share ranked IV, the most junior rank), and the general assessment from the annual professional standards evaluation (share rated "good"). All teacher variables are expressed as school-level shares.

Data limitations. Several limitations should be noted. The urban/rural/mountainous classification of schools was not provided, limiting sub-analysis by location type. Teacher age and years of experience were not available. Teacher characteristics are measured at the school level and cannot be linked to specific grades or classrooms. The professional ranking variable records only rank IV (junior), with the remaining teachers unclassified in the data, likely reflecting teachers ranked III or above. The general professional standards assessment has complete data for 66.5 per cent of schools, with partial data for 24.3 per cent and no data for 9.2 per cent. Finally, ethnicity is recorded as a binary variable (Kinh versus ethnic minority), aggregating 53 distinct ethnic groups whose educational experiences may differ substantially.

2. Econometric methodology

The analysis employs school fixed effects panel regressions using data from three academic years. The general specification is:

$$Y_{ij_t} = \alpha_i + \beta T_{i_t} + \gamma X_{ij_t} + \delta_t + \varepsilon_{ij_t}$$

where Y_{ij_t} is the outcome for student group *j* (defined by sex and ethnicity) in school *i* in year *t*; α_i is a school fixed effect; T_{i_t} is a vector of school-level teacher characteristics; X_{ij_t} includes student group and school controls (student sex composition, average class size by grade, share of multigrade classes by grade); and δ_t are year fixed effects. Grade fixed effects are also included. Standard errors are clustered at the school level, allowing for correlation of errors across years, grades and student groups within the same school, as well as for heteroskedasticity. All regressions are weighted by the number of students represented in each school-grade-group observation, combined with the province sampling weight, so that larger student groups receive proportionally more influence on the estimates.

School fixed effects control for all time-invariant school characteristics – such as location, infrastructure, school management, community wealth and composition – that might confound the relationship between teacher characteristics and student outcomes. The identification therefore comes from within-school variation over time: changes in teacher composition within the same school across the three years.

Two sets of models are estimated, corresponding to the main findings presented in the brief:

Model 1: Teacher quality and student performance. This model estimates the association between teacher characteristics (professional ranking, qualifications and professional standards assessment) and student outcomes, controlling for student composition, school characteristics and school fixed effects. This corresponds to findings on learning gaps and the role of teacher quality presented in the brief (**Table A1**).

Model 2: Ethnic teacher-student interaction. Student achievement is disaggregated by ethnicity, and the share of ethnic minority teachers is interacted with an indicator for ethnic minority students. A base specification tests whether the interaction between student ethnicity and teacher ethnicity predicts performance, controlling for teacher quality (**Table 2**). An extended specification adds interactions between student ethnicity and all teacher characteristics to estimate whether the association between teacher quality and student outcomes differs for ethnic minority versus Kinh students (**Table 3**). These models correspond to the findings on teacher allocation, the ethnic matching question and the differential importance of teacher quality presented in the brief.

3. Regression results

All models include school fixed effects, grade fixed effects and year fixed effects. Standard errors are clustered at the school level, and regressions are weighted by student group enrolment throughout. Grade and year coefficients are included in all regressions, but omitted from the tables below for brevity.

Table A1: Association between teacher characteristics and student performance (national level, school fixed effects)

Variable	Good completion Mathematics	Not completed Mathematics	Good completion Vietnamese	Not completed Vietnamese	Not eligible for promotion
Teacher ranked IV (junior)	-1.405	-0.041	-1.660**	-0.175	-0.110
Student sex (female=1)	9.699***	-0.532***	18.41***	-0.756***	-0.653***
Female teacher	-2.192	-0.074	-1.827	-0.289	-0.383
Share of ethnic minority students	-7.452***	0.934***	-7.431***	1.322***	2.188***
Share of ethnic minority teachers	0.972	0.139	4.494	0.072	0.399
Teacher with bachelor's degree or higher	0.627	-0.012	-0.036	-0.224*	-0.255
Teacher rated "good" (professional standards)	1.101***	-0.121***	1.002***	-0.165***	-0.066
Average class size by grade	-0.087***	-0.003	-0.098***	0.003	0.000
Share of multigrade classes by grade	-2.164*	-0.203	-2.410**	-0.358	-0.504
Observations	161,571	161,571	161,593	161,593	161,822
R-squared	0.757	0.371	0.787	0.413	0.407

*All models include grade and year fixed effects (coefficients omitted). Standard errors clustered at the school level; regressions weighted by student group enrolment. *** p<0.01, ** p<0.05, * p<0.1. All teacher variables are school-level shares. Student sex is a grade-level variable indicating the observation refers to female students.*

Table A2: Ethnic teacher-student interaction – base specification (national level, school fixed effects)

Variable	Good completion Mathematics	Not completed Mathematics	Good completion Vietnamese	Not completed Vietnamese	Not eligible for promotion
Ethnic minority student	-17.56***	1.073***	-16.26***	1.311***	1.334***
Share of ethnic minority teachers	2.617	0.516	6.928**	0.472	0.930
Ethnic student × ethnic teacher	-2.600	-0.591***	-3.950**	-0.627***	-0.756***
Share of girls	2.215*	-1.655***	6.113***	-2.086***	-1.576***
Female teacher	-2.259	-0.058	-1.834	-0.257	-0.373
Teacher ranked IV (junior)	-1.431	-0.041	-1.658**	-0.181	-0.116
Teacher with bachelor's degree or higher	0.615	-0.002	-0.034	-0.222*	-0.263
Teacher rated "good" (professional standards)	1.092***	-0.129***	0.985***	-0.167***	-0.069

Average class size by grade	-0.081***	-0.006**	-0.089***	0.000	-0.002
Share of multigrade classes by grade	-2.079*	-0.239	-2.217**	-0.400	-0.554*
Observations	132,532	132,532	132,539	132,539	132,749
R-squared	0.760	0.386	0.772	0.430	0.420

*All models include grade and year fixed effects (coefficients omitted). Standard errors clustered at the school level; regressions weighted by student group enrolment. *** p<0.01, ** p<0.05, * p<0.1. All teacher variables are school-level shares.*

The interaction term (ethnic student × ethnic teacher) is negative and significant for Vietnamese and for the failure and repetition outcomes, indicating that the performance gap between ethnic minority and Kinh students tends to widen in schools with a higher share of ethnic minority teachers. This does not imply that ethnic minority teachers are less effective; as documented in the brief, ethnic minority teachers in schools serving ethnic minority students tend to have systematically weaker profiles (qualifications, ranking and professional standards) than those serving Kinh students.

Table A3: Ethnic teacher-student interaction – extended specification with all quality interactions (national level, school fixed effects)

Variable	Good completion Mathematics	Not completed Mathematics	Good completion Vietnamese	Not completed Vietnamese	Not eligible for promotion
Ethnic minority student	-24.03***	5.087***	-21.22***	5.644***	6.239***
Share of ethnic minority teachers	-0.516	1.037**	3.707	1.070**	1.599***
Ethnic student × ethnic teacher	-0.245	-1.107***	-1.484	-1.233***	-1.424***
Share of girls	2.977**	-0.532***	7.909***	-0.923***	-0.259
Ethnic student × share of girls	-2.843	-4.032***	-6.571***	-4.176***	-4.733***
Female teacher	-1.490	-0.037	-1.592	-0.152	-0.242
Ethnic student × female teacher	-5.083***	0.141	-3.179*	-0.110	-0.182
Teacher ranked IV (junior)	1.610	-0.244**	1.252	-0.407***	-0.355**
Ethnic student × teacher ranked IV	-7.045***	0.352	-6.634***	0.393	0.394
Teacher with bachelor's degree or higher	-1.983**	0.266***	-2.716***	0.082	0.083
Ethnic student × teacher qualified	8.252***	-0.914***	8.622***	-1.032***	-1.193***
Teacher rated "good" (professional standards)	0.570	-0.134***	0.630	-0.179***	-0.094
Ethnic student × teacher good standards	2.611***	0.006	1.821**	0.041	0.100
Average class size by grade	-0.122***	0.007***	-0.119***	0.012***	0.011***

Ethnic student × class size	0.148***	-0.046***	0.112***	-0.045***	-0.050***
Share of multigrade classes by grade	14.56***	-1.125***	13.22***	-1.282***	-1.093**
Ethnic student × multigrade	-17.89***	0.425	-16.94***	0.431	-0.050
Observations	132,532	132,532	132,539	132,539	132,749
R-squared	0.761	0.390	0.773	0.433	0.423

*All models include grade and year fixed effects (coefficients omitted). Standard errors clustered at the school level; regressions weighted by student group enrolment. *** p<0.01, ** p<0.05, * p<0.1. All teacher variables are school-level shares.*

The extended model interacts student ethnicity with all teacher quality indicators. Key results: **Teacher ranked IV × ethnic student:** the coefficient is –7.0 for mathematics, meaning ethnic minority students lose an additional 7 percentage points in the probability of "good completion" when taught in a school with a higher share of junior teachers, on top of the already negative main effect. **Teacher qualified × ethnic student:** the coefficient is +8.3 for mathematics, indicating that a higher share of teachers with a bachelor's degree benefits ethnic minority students far more than Kinh students; **Teacher good standards × ethnic student:** +2.6 for mathematics, showing that higher professional standards ratings are also disproportionately beneficial for ethnic minority students. These differential effects are the basis for the policy brief's finding that improving teacher quality is especially critical for ethnic minority learners.

4. Limitations

Correlational, not causal. The school fixed effects design controls for unobserved time-invariant school characteristics, but cannot rule out time-varying confounders. Results should be interpreted as associations, not causal effects. In particular, changes in teacher composition within schools could co-occur with other changes (e.g., new school leadership, curriculum reforms) that also affect student outcomes.

Consistency across outcomes. The main patterns – teacher quality coefficients, ethnic student penalties, interaction effects – are consistent across the five outcome measures: good completion in mathematics, good completion in Vietnamese, not completing mathematics, not completing Vietnamese, and not eligible for promotion. This consistency strengthens confidence in the findings.

Teacher variables at school level. Because teacher characteristics are measured as school-level shares rather than linked to specific grades or classrooms, the estimates capture the association between the overall teacher workforce composition of a school and student outcomes. This is a common feature of analyses based on administrative data, but it means the estimates may understate the true effect of individual teacher quality if there is within-school variation in teacher assignment across grades.

Teacher assessment data quality. The teacher professional standards assessment is a school-based evaluation that may be subject to grade inflation or inconsistency across schools. The school fixed effects mitigate this concern by identifying effects from within-school variation over time, but cross-school comparisons of assessment levels should be interpreted with caution.

Economic zone-level statistics. The 19 provinces were sampled proportionally to student population to achieve national-level representativeness, not to produce representative estimates for each economic zone. Each zone contains only a subset of its provinces (approximately one third on average). Zone-level descriptive statistics presented in the policy brief (Figures 2, 3 and 7) are therefore indicative of broad geographical patterns but may differ from official zone-level figures. For this reason, the econometric analysis is conducted at the national level only.

About the Data Must Speak research on positive deviant schools

The Data Must Speak (DMS) research in Viet Nam is a collaboration between the Viet Nam Institute of Educational Sciences (VNIES) of the Ministry of Education and Training (MoET), UNICEF Viet Nam and the UNICEF Office of Strategy and Evidence – Innocenti. It aims to strengthen the use of administrative data for education policymaking through co-creation and learning by doing, supporting national technical teams to generate actionable evidence on what drives learning outcomes and inequities. This brief draws on MoET's EMIS data for more than 6,000 primary schools in 19 provinces over three school years (2020/21–2022/23).

This global research is being implemented in 15 countries in Africa, Asia and Latin America. It is co-funded by the Jacobs Foundation, the Knowledge and Innovation Exchange (KIX) programme of the Global Partnership for Education/International Development Research Centre, the Hewlett Foundation, the Norwegian Agency for Development Cooperation (NORAD), the Schools2030 programme (led by the Aga Khan Foundation) and UNICEF internal resources.

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