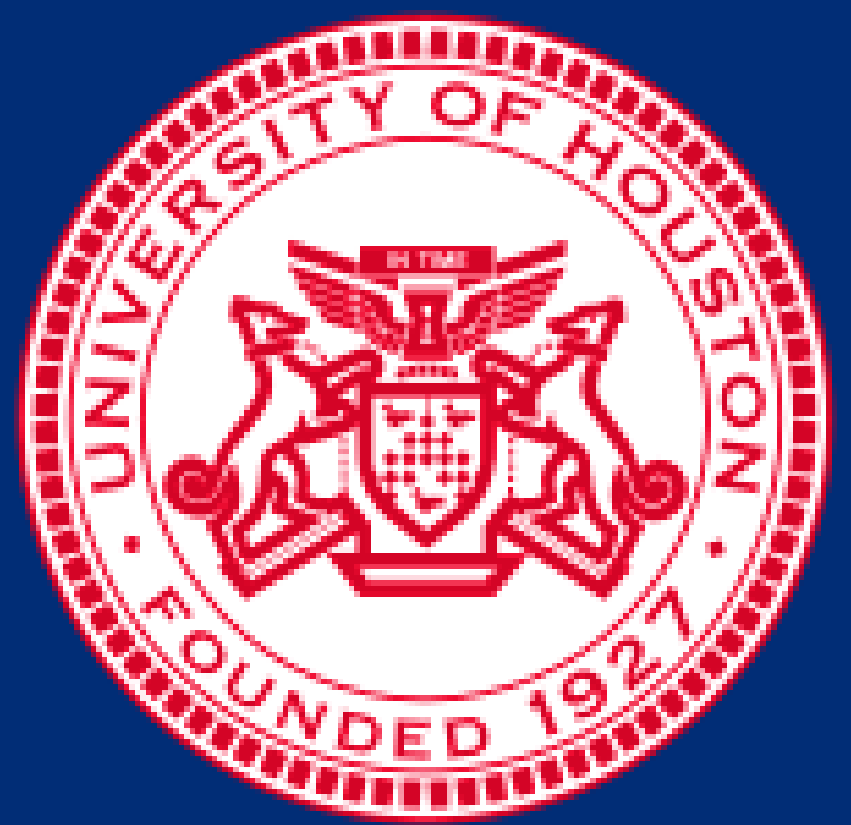


# Fewer, Better Pathways for All? Rural School Consolidation in China's Minority Regions

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## Abstract

- Primary school consolidation—the closure of small community schools or their mergers into larger, better-resourced schools—is emerging as a significant policy response to changing demographics in middle income countries with large rural populations. In China, large-scale consolidation took place in the early 21st century. Because officially-recognized minority populations disproportionately reside in rural and remote areas, minority students were among those at elevated risk of experiencing school consolidation. We analyze heterogeneous effects of consolidation on educational attainment and reported national language ability in China by exploiting variations in closure timing across villages and cohorts captured in a 2011 survey of provinces and autonomous regions with substantial minority populations. We consider heterogeneous treatment effects across groups defined at the intersections of minority status, gender, and community ethnic composition and socioeconomic status.
- Compared to villages with schools, villages whose schools had closed reported that the schools students now attended were better resourced, less likely to offer minority language of instruction, more likely to have Han teachers, farther away, and more likely to require boarding. Much more than Han youth, ethnic minority youth were negatively affected by closure, in terms of its impact on both educational attainment and reported written Mandarin facility. However, for both outcomes, significant penalties accruing to minority youth occurred only in the poorest villages. Penalties were generally heavier for girls, but in the most ethnically segregated minority villages, boys from minority families were highly vulnerable to closure effects on educational attainment and written Mandarin facility. Results show that intersections of minority status, gender, and community characteristics can delineate significant heterogeneities in policy impacts.

## Data and method

- We analyze the rural household and village questionnaires from the China Household Ethnic Survey (CHES 2011), which covers households and villages from 728 villages in 81 counties of 7 provinces with substantial minority populations in China.
- We analyze heterogeneous effects of consolidation on educational outcomes (attainment, reported national language ability) across groups defined at the intersections of minority status, gender, and community characteristics (poverty status, ethnic composition). We apply a difference-in-difference approach:

$$E_{pvia} = \alpha + \beta_v + \gamma_{pa} + \delta_a \cdot M_i + \sum_{z=1}^Z (\theta_z^H \cdot (1 - M_i) + \theta_z^M \cdot M_i) \cdot \mathbf{1}\{l_z \leq t_i \leq u_z\} \cdot C_v + X_i \cdot \gamma + \varepsilon_i$$

- Without school closure, educational attainment  $E$  of child  $i$  from village  $v$  in province  $p$  at age  $a$  in 2011 could be decomposed into: a constant  $\alpha$ , a village fixed effect  $\beta_v$ , a province-specific age fixed effect  $\gamma_a$ , a minority status-specific age fixed effect  $\delta_a$ , and idiosyncratic terms (observed characteristics  $X_i$  and unobserved error term  $\varepsilon_i$ ).
- With school closure, the policy's effect is assumed to be additive and captured by  $\theta_z^H$  for Han individuals and  $\theta_z^M$  for minority individuals; the effect is constant within age group  $z$  defined by age-at-closure  $t_i$  (with lower and upper bounds for each group  $l_z$  and  $u_z$ ). Here,  $C_v$  is a binary variable indicating if individual  $i$  is from a village  $v$  with school consolidation (i.e., a treatment village).

## Sample analysis and full results summary

	Outcome: grades completed by year 2011					
	Village Han fraction inclusion threshold					
	All villages	Han < 90%	Han < 70%	Han < 50%	Han < 10%	Han ≥ 90%
<i>Baseline group: Child was 14-21 years old at village primary school closure year</i>						
Child is minority interaction:						
Closure × age at closure 6-9	-0.50** (0.23)	-0.54** (0.24)	-0.45* (0.25)	-0.44* (0.26)	-0.46 (0.31)	
Closure × age at closure 10-13	-0.60*** (0.19)	-0.66*** (0.19)	-0.56*** (0.19)	-0.58*** (0.20)	-0.56** (0.24)	
Closure × age at closure 22-29	0.076 (0.19)	0.025 (0.19)	0.12 (0.20)	0.10 (0.21)	0.012 (0.28)	
Child is Han interaction:						
Closure × age at closure 6-9	0.0058 (0.26)	-0.45 (0.39)	-0.065 (0.41)	-0.60 (0.55)		0.40 (0.32)
Closure × age at closure 10-13	-0.28 (0.20)	-0.25 (0.32)	0.010 (0.41)	-0.52 (0.38)	-0.20 (0.26)	
Closure × age at closure 22-29	-0.19 (0.25)	-0.087 (0.31)	0.00036 (0.38)	-0.077 (0.40)		-0.15 (0.39)
Observations	11637	9197	8371	7653	5686	2451

Statistical significance: \* 0.10 \*\* 0.05 \*\*\* 0.01. Robust standard error clustered at village level. Each column represents a separate regression. All regressions include village fixed effects, province-specific age FEs, Han-specific age FEs, and control for household size. Columns 2 to 5 sequentially drop villages with more than 90, 70, 50, and 10 percent Han population. Samples for columns 5 and 6 include only minority and Han individuals, respectively.

### Table interpretation:

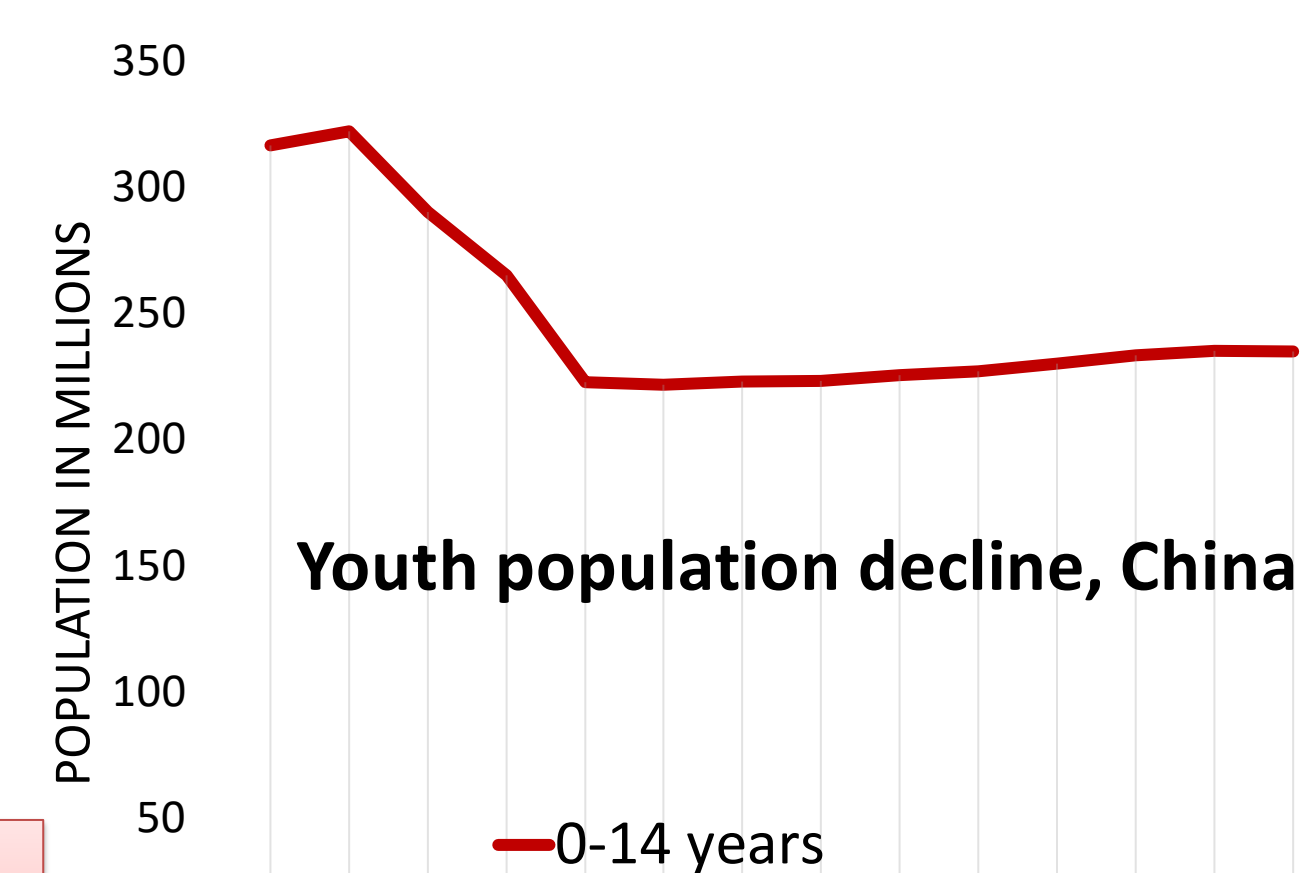
- By 2011, minority youth ages 10 to 13 at time of closure in a closure village experienced around a 0.6-year decrement in years of schooling. For those 6 to 9 years old at closure, the decrement is around a half-year. Results are similar by community ethnic composition.
- Full results summary** (details available via link to the full paper):
  - There is clear evidence of an average negative effect of closure on two of the three outcomes studied, educational attainment and reported written Mandarin ability, for minority youth, compared to Han youth.
  - Additional analyses indicated that average decrements experienced by minority youth masked significant heterogeneities at the intersections of youth statuses.
  - For example,
    - For both educational attainment and written language facility, penalties accruing to minority youth occurred only in poorer villages and not to minority youth in wealthier villages.
    - Penalties were generally heavier for minority girls. However, in the most ethnically segregated minority villages, boys from minority families were highly vulnerable to closure effects on educational attainment and written Mandarin facility.

## Background

Sparse school-age populations are an emerging challenge in rural, as well as urban, settings in many countries, and consolidation is a common policy response.

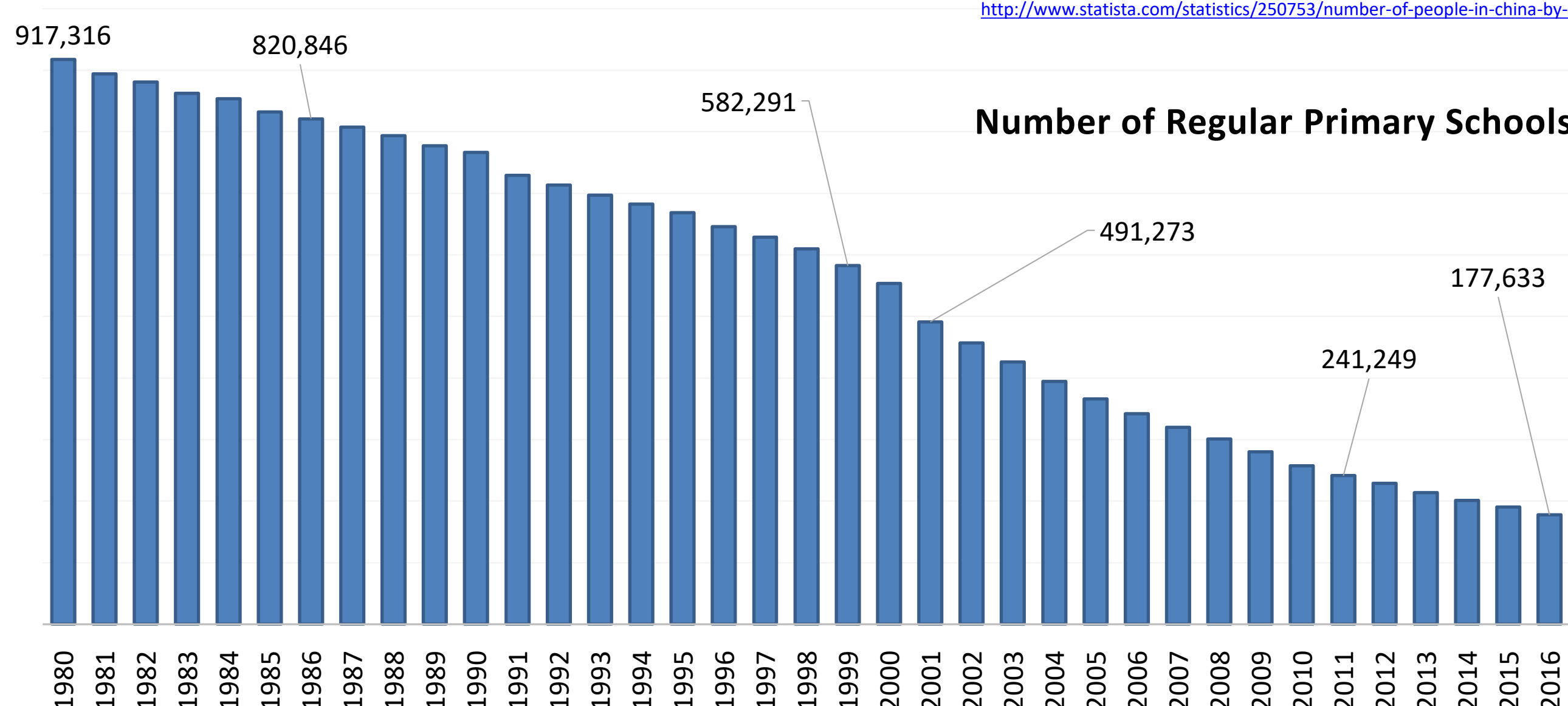
Marginalized populations might be particularly vulnerable to institutional loss.

China experienced a school-aged population drop and consolidated rural schools on a massive scale in the early 21st Century.



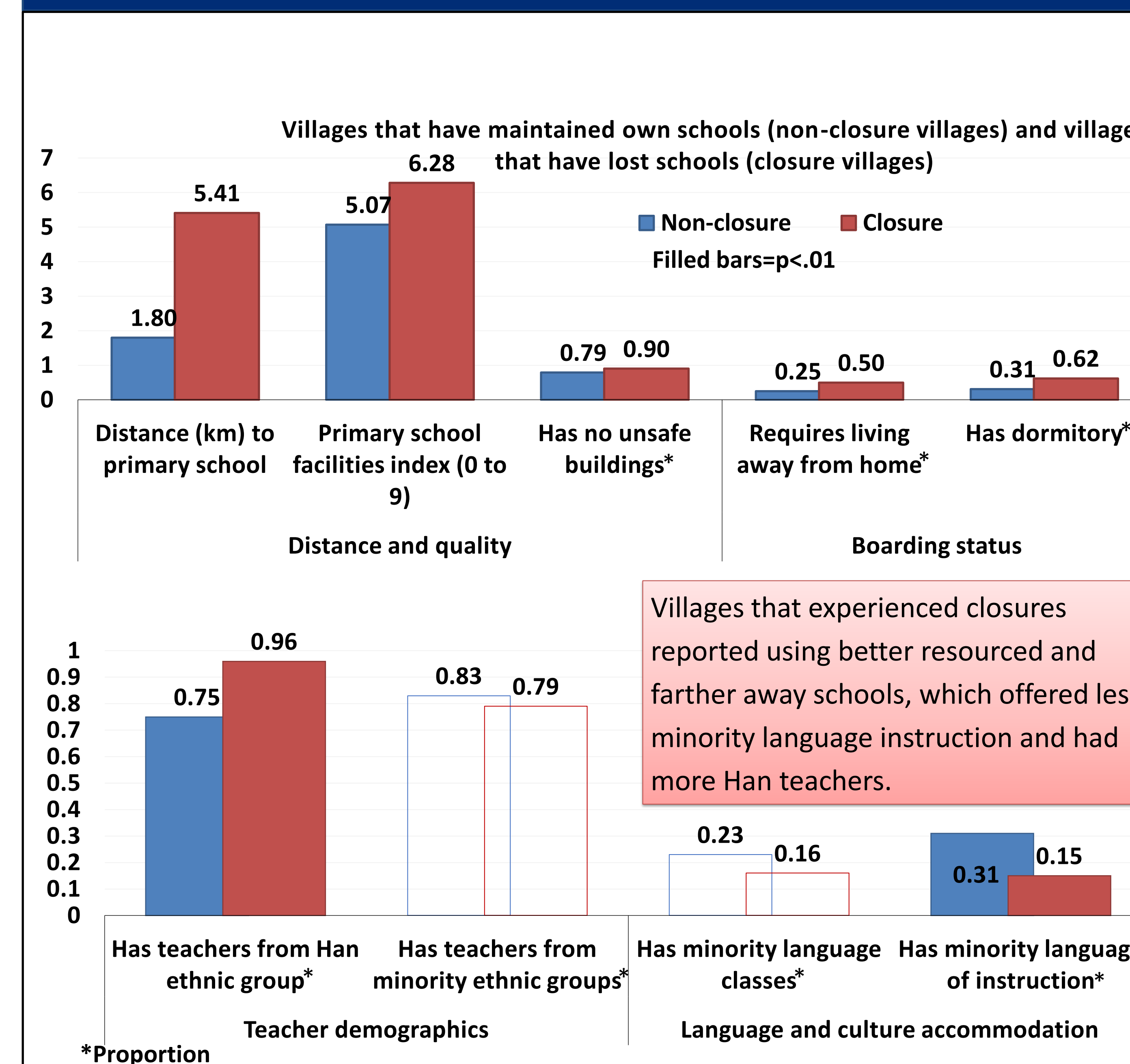
Textor, C. 2020. "China: Population by Age Group 2019." Data Portal, Statista. 2020. <http://www.statista.com/statistics/250753/number-of-people-in-china-by-age-group/>.

Number of Regular Primary Schools



Source: "Number of Schools by Level and Type." 2018. National Data. National Bureau of Statistics of China. 2018. <http://data.stats.gov.cn/english/ks.htm?c=01>.

## Descriptive findings



## Implications

- While the nature and specific impacts of school consolidation policies likely vary across countries, rationales across the world are strikingly similar, as are the concerns about potential implications for children in socially and economically marginalized communities.
- Findings illustrate the importance of considering heterogeneous policy impacts along intersecting dimensions of stratification.



Hannum, Emily and Wang, Fan, Fewer, Better Pathways for All? Intersectional Impacts of Rural School Consolidation in China's Minority Regions (September 23, 2021). Forthcoming, *World Development*. Available at <http://dx.doi.org/10.2139/ssrn.3875020>