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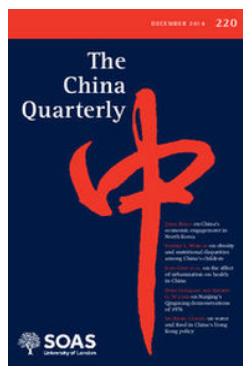
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# Response to the Commentary

## “Reassessing Disparity in Access to Higher Education in Contemporary China”<sup>\*</sup>

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Scott Rozelle<sup>††</sup> and Prashant Loyalka<sup>‡‡</sup>

We thank Anning Hu for carefully reading and commenting on our report “College is a rich, Han, urban, male club: research notes from a census survey of four tier one colleges in China.” We also thank the editor of *The China Quarterly* for giving us the chance to respond to the commentary. The topic of assessing disparities in college access in China (and other developing countries undergoing major transitions in their higher education systems) is an important one. We hope that our *China Quarterly* article, Hu’s commentary and our response will stimulate more research and dialogue on this topic in China and elsewhere.

As Hu notes, one of the key aspects of our report is the relative disparity index (RDI). The RDI is defined as the share of students of a particular disadvantaged subgroup (poor, minority, rural or female) in college (the numerator of the RDI) divided by the share of that disadvantaged subgroup in an appropriate reference population (the denominator of the RDI). When the value of the RDI is less than

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(greater than) 1 for a disadvantaged (advantaged) subgroup, that subgroup is underrepresented (overrepresented) in college.

Although Hu acknowledges the general merits of using the RDI for assessing disparity in college access, the crux of Hu's commentary is that the actual RDI measure we constructed in our report has two limitations. The first limitation is that the numerator of our RDI measure only represents the share of disadvantaged (freshman) college students in a small subset of tier one (elite) colleges in China and not the share of disadvantaged (freshman) college students in all colleges across China. In other words, because our sample of college freshmen (and disadvantaged freshmen) in four tier one colleges is restricted, the analysis is likely not representative of college freshmen (and disadvantaged freshmen) across China. Because of this, the numerator of our RDI measure may be biased and may lead to biased estimates of disparity in college access for China as a whole.

The second limitation suggested by Hu is that the denominator of our RDI measure uses an inappropriate reference population. The reference population that we use in our report is the entire cohort of individuals aged 14 to 22 in the general population (that is, in China's population as a whole). Hu instead suggests that the appropriate reference population for measuring disparities in access to college should instead be the "exposure population" for college – namely high school graduates. In making this assertion, Hu cite Mare's work on educational transition theory which is focused on identifying barriers in the enrolment process from one stage of schooling to the next (in this case from high school to college).<sup>1</sup>

In regards to the first limitation raised by Hu, we acknowledge that our report relies on a dataset with limited representativeness. Although the dataset was limited, we decided to use it in our report for three reasons. First, it came from one of the first detailed, large-scale surveys on students in colleges in China. We were not only able to survey students about their gender, ethnicity, and rural versus urban residential status, but also were also able to ascertain whether they were poor or not (using a poverty index that was constructed using information on each student's assets in the home). The data thus gave us a rare opportunity to examine disparities in access to colleges for different disadvantaged subgroups in China. Second, we deliberately chose a census of students (freshmen) as a starting point to examine disparities in college access. The census included a large number of individual students (20,253), providing ample statistical power with which to measure disparities for different disadvantaged subgroups. Third, we believe that looking at disparities in access to *elite* colleges was more important than looking at access to *any* college because China had undergone college expansion since the late 1990s. According to the experience of other countries undergoing college expansion, decreases in disparities in access to *any* college are sometimes accompanied by increases in disparities in access to *elite* colleges.<sup>2</sup>

1 Mare 1981.

2 Shavit et al. 2007.

Hence, despite the admittedly limited representativeness of our sample colleges, we believe that these reasons (including the lack of comparable data elsewhere) were sufficient to warrant writing a report about disparities in college access in China.

Moreover, while we appreciate Hu's attempts to use a more representative dataset with which to estimate the numerator of the RDI, we believe that his attempt (that is, the use of his data) also faces a set of limitations. For example, the claim in the commentary that the small sample size still provides enough statistical power to estimate the share of disadvantaged students in colleges should be treated with caution. First, Hu provides little information on whether the survey design (clustering, sample weights, stratification) was taken into account when estimating the share of disadvantaged students in colleges. Failing to account for the survey design could lead to biased point estimates and artificially small standard errors. Second, even if Hu did account for survey design, the standard errors (and thus the associated confidence intervals) for the estimates of the share of disadvantaged students in college would likely be large. Imprecise point estimates of the share of disadvantaged students in college (the numerator of the RDI) would, in turn, make it difficult to interpret whether disparities exist in college access in China.

Beyond these analytical issues, there are more fundamental issues potentially associated with using the CGSS sample to measure the numerator of the RDI. First, Hu provides little information about the sampling procedures used in the CGSS. Among other things, we are unclear about whether the CGSS only sampled households or also sampled students residing at college. If the CGSS failed to sample students residing at college (students who may disproportionately be from advantaged backgrounds), this would upwardly bias estimates of the share of disadvantaged students in college. Second, the CGSS sample is from 22 (and not 31) provinces in greater China. If the sampled provinces did not include those with relatively large populations of disadvantaged students (e.g. minorities), then the estimates of the share of disadvantaged students in college (in fact, the estimates of both the numerator and the denominator of the RDI) would further be biased. Third, Hu's commentary shows disparities in access to *any* college and not to elite colleges. As stated previously, we believe that it may be more meaningful to examine gaps in elite college access, especially after college expansion.

In regards to the second limitation outlined by Hu (that we use an inappropriate reference population for the denominator of the RDI), we believe the contention is more a matter of interpretation rather than substance. The chief concern of our report was to emphasize the difficulty that disadvantaged students face in accessing college, in general, not just during the transition from high school to college. In other words, we are interested in understanding the difficulties of accessing college that are being faced by disadvantaged students *at all stages of their lives* (both before and after entering the school system; and both before and after entering high

school<sup>3</sup>). Disadvantaged students in China have low levels of cognitive development before they get to primary school<sup>4</sup> and low levels of achievement in primary school.<sup>5</sup> Due to their low levels of achievement, it has been shown that up to a quarter of students in poor, rural areas drop out of junior high school before they reach the high school entrance exam.<sup>6</sup> Because many disadvantaged students leave the pathway to college before they reach academic high school, we believe the appropriate reference population to measure disparities in college access, in general, is the cohort of same-age individuals in the general population.

To emphasize the point more strongly, once disadvantaged students reach academic high school, the pathway to access college (although not necessarily elite colleges) is downhill. According to official statistics, less than 10 per cent of students that reach academic high school drop out of academic high school.<sup>7</sup> Furthermore, students that graduate from academic high school have an 87 per cent chance of accessing college.<sup>8</sup> In fact, regardless of their economic circumstances, both disadvantaged and advantaged students that reach academic high school have strong chances of attending college.<sup>9</sup> To us, therefore, the more interesting question is not whether a small self-selected group of disadvantaged students in academic high school can access college but whether disadvantaged students as a whole can access college. Hu may have a different goal of wanting to examine the difficulties that disadvantaged students make when transitioning from high school to college. We believe this is a worthy goal, but this is not the goal of our original report.

In summary, we believe Hu raises important considerations about our report but falls short in making his point. First, Hu may have misunderstood that our goal was to examine the barriers that disadvantaged students face in accessing college, not just during the transition from high school to college, but at all stages of their lives. Second, while we agree that our census of students in four tier one colleges was limited in representativeness, the alternative measure they suggest (using the CGSS dataset) may also be inappropriate for determining disparities in college access.

Fortunately, we can refer to more definitive evidence that China does indeed experience substantial disparities in college access. A recent working paper by Li et al.<sup>10</sup> uses detailed data on all students (across China) who took the college entrance exam in 2003. The sample size was 6 million students. We used these data in combination with population data from the 2000 Census to show that

3 Wang et al. 2011.

4 Luo et al. 2012.

5 Lai et al. 2009.

6 Yi et al. 2012.

7 National Bureau of Statistics 2010–2013.

8 National Bureau of Statistics 2013.

9 Liu et al. 2011.

10 Li et al. forthcoming.

disparities in college access were high for both rural (versus urban) students and (to a lesser extent) for students from poor (versus non-poor) counties. Specifically, poor, rural youth were seven and 11 times less likely to access any college and elite Project 211 colleges than urban youth. Much larger gaps existed for disadvantaged subgroups (e.g., female, minority) of poor, rural youth in accessing the top elite colleges in China. In other words, in a time period several years after college expansion, China still faced serious disparities in college access. We hypothesize that this is still the case in more recent years and look forward to seeing more up-to-date research on this topic in the future.

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