

Trends in social mobility in postrevolution China

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In this paper, we study long-term trends in social mobility in the People's Republic of China since its inception in 1949, with two operationalizations: 1) intergenerational occupational mobility and 2) intergenerational educational mobility. We draw on an accumulation of administrative and survey data and provide comparable estimates of these measures for birth cohorts born after 1945. To help interpret the results, we compare trends in China to those in the United States for the same birth cohorts. We find an increase in intergenerational occupational mobility in China due to its rapid industrialization in recent decades. Net of industrialization, however, intergenerational occupational mobility has been declining for recent cohorts. Intergenerational educational mobility in China shows a similar declining trend. In addition, mobility patterns have differed greatly by gender, with women in earlier cohorts and from a rural origin particularly disadvantaged. We attribute the general decline in social mobility to market forces that have taken hold since China's economic reform that began in 1978. In contrast, social mobility by both measures has been relatively stable in the United States. However, while social mobility in China has trended downward, it is still higher than that in the United States, except for women's educational mobility.

social mobility | trends | occupation | education | China

ntergenerational social mobility, or simply social mobility, refers to the extent to which the refers to the extent to which the social status of individuals (social destination) resembles that of their parents (social origin). Social mobility is a pressing issue of great concern to both academics and policy makers in an era of rising inequality around the globe. It takes on particular importance for contemporary China because the Chinese Communist Party, the ruling party since the founding of the People's Republic of China (PRC) in 1949, has explicitly promoted social mobility as part of its core communist ideology (1). In 2019, Xi Jinping's government launched a propaganda campaign promoting the benefits of high social mobility, chief among which are economic efficiency in the allocation of talent and political stability (2); this was followed by new government directives to increase social mobility (3).

What have been the historical trends in social mobility in China since the founding of the PRC in 1949? In this paper, we provide systematic evidence to answer this question, focusing on intergenerational occupational and educational mobility for cohorts born after 1945. To aid interpretation, we compare trends in China to those in the United States using the same metrics and for the same birth cohorts. It has now been well documented that income inequality in China rose rapidly during the 1990s and 2000s, to a level much higher than that of the United States (4). The "Great Gatsby Curve" hypothesis, based on cross-sectional data, suggests a negative association between income inequality and social mobility (5, 6), leading us to expect social mobility to have declined in China to a level lower than the United States.

However, longitudinal evidence reveals that social inequality and social mobility are two different dimensions of social stratification that do not always exhibit concomitant patterns, as hypothesized in the "Great Gatsby Curve." In the United States, income inequality has exploded since the 1980s, but

intergenerational mobility has remained largely stable. For example, between 1980 and 2014, the pretax income of the bottom 50% of American adults grew by only 1%, in contrast to that of the top 10%, which grew by 121% (7). During the same period, social mobility, measured using the parent-offspring association in relative occupation and income ranks, has been largely unchanged (8, 9). In this study, we provide a systematic analysis of trends in social mobility for both men and women in China and the United States, utilizing a multitude of data sources from administrative records and social surveys with rankbased measures of occupation and education that are comparable across birth cohorts, generations, genders, and the two countries. These rank-based measures of occupation and education reflect the respondents' and their parents' relative social standing among peers, unaffected by large social changes in either occupational structure or educational distribution over a long span of time.

Existing work on trends in intergenerational occupational mobility in the United States has mostly focused on men (9), because a large portion of American women did not participate in the labor force prior to the 1960s. However, the situation has been very different in China, as "women's employment has been nearly universal throughout the history of the PRC" (10). For this reason, we examine long-term trends in intergenerational occupational and educational mobility for both genders.

Results

Intergenerational Occupational Mobility. In Fig. 1, we present correlation coefficients for the association in occupational percentile ranks between fathers and offspring for all workers by gender and

Significance

Accompanying a sharp rise in economic inequality in China since its economic reform, two countercurrents characterize the trends in China's intergenerational social mobility. On the one hand, industrialization in postreform China has promoted occupational mobility. On the other hand, both occupational mobility net of industrialization and educational mobility in China have trended downward, reaching levels similar to those in the United States in the most recent cohort. In earlier cohorts, whereas social mobility for Chinese men was unusually high, social mobility was particularly limited for Chinese women from rural hukou origin.

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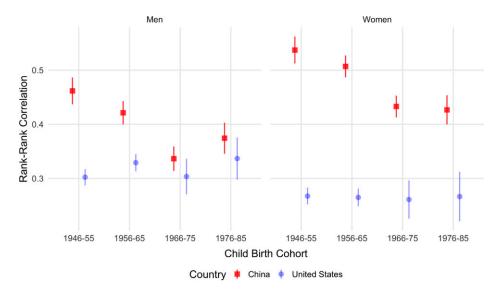


Fig. 1. Trends in intergenerational occupational mobility for all workers, China and United States compared. For data sources, see SI Appendix, sections S1–S4.

birth cohort. For simplicity, we call the quantity "rank-rank correlation": A higher rank-rank correlation means a higher resemblance between father's and child's status-thus a lower level of intergenerational social mobility. Fig. 1 reveals a cohort trend in China that is distinct from that in the United States. Confirming earlier research using either income-based (8) or occupation-based ranks (9), we find a relatively stable rank-rank correlation in the United States. Our estimates, around 0.3, closely resemble those in an earlier study by Hout (11) using occupational socioeconomic index (Fig. 1). Consistent with Hout's study, our results show father-son correlations to be higher (above 0.3) than father-daughter correlations (below 0.3). In contrast, the rank-rank correlation started at a much higher level in China for the cohort born in 1946–1955, at 0.46 for men and above 0.54 for women, and has trended downward for both genders, indicating a steady improvement in social mobility. The numerical results are given in *SI Appendix*, Table S1.

It has been established that occupational inheritance is particularly strong for agricultural workers, because only children of agricultural workers are likely to become agricultural workers themselves (12). Thus, the low intergenerational occupational mobility, or high origin-destination correlation, observed for earlier cohorts in China can be attributed to low levels of industrialization prior to China's economic reform that began in 1978. That is, China's labor force was overwhelmingly agricultural before the economic reform and underwent a major shift away from agriculture during China's postreform industrialization (13). In contrast, the United States has been fully industrialized throughout the period examined, with less than 3% of the labor force working as farmers or farm laborers (12). Because land in China is owned by the state or by collectives, the distinction between farmers and farm laborers is ambiguous. For simplicity, we henceforth use the term "farmers" to refer to agricultural workers in general, including farmers, farm laborers, stock raisers, animal breeders, florists, and others employed in the agricultural/horticultural sectors.

To understand China's trends in occupational mobility net of industrialization, we reanalyzed the data after excluding workers from a farm origin, that is, workers whose fathers were farmers. We present the new results in Fig. 2, with numerical results given in *SI Appendix*, Table S1. The results for the United States are unaffected by the change. The trend for China, however, is reversed. Among children of nonfarmers, the rank–rank correlation in China has trended upward from around 0 for the first cohort, born in 1946–1955, to about 0.2

for men and 0.1 for women in the most recent cohort, born in 1976–1985. By the American standard, shown in the same figure, these are exceptionally low correlations, indicating very weak (but growing over time) associations between father's and child's occupational status in China. The very low origindestination correlations for the earlier cohorts, in part, reflect the rupture in the order of social stratification due to the Communist Revolution that culminated in the founding of the PRC in 1949 (1, 14). Although the overall trend is one of convergence with the United States, intergenerational occupational mobility for children of nonfarmers is still higher in China than in the United States, even for the most recent birth cohorts. These results confirm the findings of an earlier study (13).

Whereas the rank-rank correlation has been consistently higher for men than for women in the United States, the gender gap is inverted for all Chinese workers, with the rank-rank correlation much higher for women than for men, as shown in Fig. 1. In Fig. 2, where we restricted the analysis to workers from a nonfarm origin, the gender difference for China disappears. This change indicates that Chinese women from a farm origin have experienced significantly lower social mobility relative to men. Given the demographic history that fertility was relatively high and sex-selective abortion was largely absent for most Chinese cohorts covered in this study (15), we know that most rural families had children of both genders, with the gender composition unrelated to parental socioeconomic status. In this context, the existence of a very large gender gap in favor of men's mobility in Fig. 1 and its absence in Fig. 2 reveal strong son preference among farming families in promoting social mobility. There was an economic rationale for this gender inequality. In the traditional Chinese patriarchal family system, sons are permanent members of their natal family and retain lifetime financial relationships with their parents. Daughters become contributors to their husband's family upon marriage. Thus, it was in parents' self-interest to invest in sons rather than daughters (10).

At first glance, the main explanation for a preference for the social mobility of sons among Chinese farming families seems to be China's patriarchal family tradition. However, this explanation overlooks the fact that the Chinese family institution has been challenged and repudiated repeatedly by several major social movements in the modern history of China, most notably, the May Fourth Movement in 1919, the Communist Revolution that resulted in the founding of the PRC in 1949, the 1966–1976 Cultural Revolution, and the economic reform that

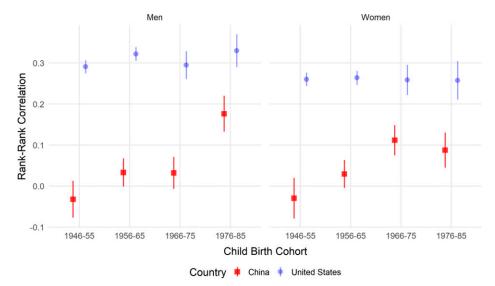


Fig. 2. Trends in intergenerational occupational mobility excluding workers from farm origin, China and United States compared. For data sources, see SI Appendix, sections S1–S4.

began in 1978 (10). As a result of these large-scale social transformations, the family in contemporary China has fundamentally changed, now resembling that in developed East Asian countries such as Japan and South Korea, and, to a large extent, even the United States and Western European countries (16).

We believe that a crucial reason for the continuation of son preference in terms of social mobility among post-1949 Chinese farming families is hukou, a government-controlled institution of social stratification that is unique to China (17). While literally translated as household registration, hukou is the system through which the government regulates where Chinese people live. Soon after the founding of the PRC in 1949, the hukou system separated the Chinese people as if they belonged to two castes, rural and urban, with the latter having social privileges not enjoyed by the former, such as food provision, public housing, comprehensive medical care, better schooling, job assignments, and old-age pension. For rural Chinese, upward mobility has often meant the conversion from rural hukou to urban hukou (17), say through higher education or military service. Earlier research has shown that the implementation of a state pension system for old-age support has removed the incentives for son preference in urban China (18).

We test our conjecture that *hukou* accounts for China's large gender gap in social mobility, shown in Fig. 1, with a more detailed analysis. In Fig. 3, we present trends in occupational status by father's occupation (measured in three broad categories: farmer, manual worker, and nonmanual worker), child's gender, and child's hukou origin (i.e., hukou status in childhood). Detailed numerical results are given in SI Appendix, Table S2. We observe that rural hukou origin and farm origin are both associated with lower occupational status compared to other groups. For example, for the birth cohort 1946-1955, men of rural hukou origin whose fathers were farmers attained an average occupational percentile score of 56, compared to 88 for men of urban hukou origin whose fathers were nonmanual workers. A striking pattern, however, pertains to the changing gender gap by hukou origin: For all birth cohorts, except the most recent one, 1976-1985, there was clearly a gender gap in favor of men in terms of occupational status for persons of rural hukou origin, across all three categories of father's occupation. In contrast, we do not find a discernable disadvantage for women in terms of occupational status for those of urban hukou origin, regardless of father's occupation. In fact, for the most recent two cohorts, that is, those born after 1965, women

of urban *hukou* origin whose fathers were either manual or nonmanual workers attained a higher occupational status on average than their male counterparts, *ceteris paribus*.

To illustrate the particular disadvantage of women of rural hukou origin, we further examine specific occupational destinations by gender, hukou origin, and cohort. The detailed results are given in SI Appendix, Table S3. Again, we find clear disadvantages for women of rural hukou origin relative to men, but not for women of urban hukou origin. For the first cohort, for example, women of rural origin are much more likely to be farmers than their male peers (0.77 versus 0.66), and much less likely to become high-status white-collar workers (managers, professional workers, and large proprietors) (0.03 versus 0.09). Over successive cohorts, as the percentage of the farming population declined and the percentage of high-status white-collar jobs increased, the gender disparity narrowed. These results not only confirm our earlier finding that rural Chinese in earlier cohorts had limited social mobility overall but also reveal particular disadvantages experienced by women of rural origin in earlier cohorts. With time, the institutional effect of hukou on gender inequality has been eroded.

Differing from the US case, Chinese women, historically, have had a high rate of labor force participation (10). It thus seems plausible that a conventional measure of social origin in the study of intergenerational mobility in the United States father's occupation—may overlook the role of mothers or the joint roles of both parents for China. To test this conjecture, we carried out parallel analyses of mother-child dyads, reported in the lower panel of SI Appendix, Table S1. This exercise shows that the results reported earlier pertaining to trends in China and the United States remain unchanged. The mother-child analyses reveal a stronger association between mother's occupation and child's occupation than that between father's occupation and child's occupation in China's nonfarm origin population, especially for earlier cohorts. By contrast, a similar analysis shows a weaker mother-child association than father-child association in the United States. This result suggests that the mother's status is of greater significance than the father's status for determining children's status in China, relative to the United States.

Intergenerational Educational Mobility. In sociological research on social mobility, occupation has been the standard choice as a measure of social status, for two main reasons. First,

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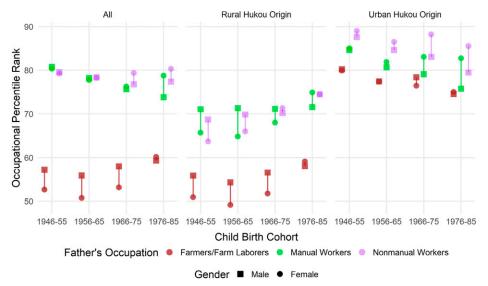


Fig. 3. Trends in occupational percentile rank by gender and father's occupation among all individuals, individuals of rural hukou origin, and individuals of urban hukou origin. For data sources, see SI Appendix, sections S1–S4.

occupation is highly correlated with other measures of socioeconomic status, such as income, wealth, and education. Second, occupation is an individual's achieved status that is typically publicly known and constitutes the primary basis for social prestige, and it is often collected in surveys and administrative registers. However, occupation does not necessarily stay the same over the life course, as assumed by our methodology using the rank-rank correlation. Using occupation as a measure of social status also requires us to ignore potential individuallevel heterogeneity within a large occupation. For example, farming accounted for more than half of the labor force in prereform China, but not all farmers had the same social status. In addition, occupation is not defined for persons who are unemployed or out of the labor force at the time of data collection. For these reasons, we supplement the above analyses of occupational mobility with parallel analyses of educational mobility.

We present our main findings on educational mobility in Fig. 4, with numerical results given in *SI Appendix*, Table S4. Overall, the rank–rank correlation in education is higher than that in occupation. For example, for US men, the educational

correlation has been around 0.4, in contrast to an occupational correlation of around 0.3. Comparing Fig. 4 to Fig. 2, we observe a striking similarity in trends, especially for men, between intergenerational educational mobility and intergenerational occupational mobility in the nonfarm origin population. The rank-rank correlation in men's educational status in China started at a much lower level (0.24) for the first birth cohort, 1946-1955, than that in the United States, and approached the level of the United States (0.42) in the most recent birth cohort, 1976-1985, at 0.40. While the change across cohorts is less pronounced, women's intergenerational educational mobility in China also appears to converge with that of their counterparts in the United States. Specifically, the country-level difference in the father-daughter rank-rank correlation started small in the first cohort, at 0.36 in China versus 0.42 in the United States; became equal in the third birth cohort, 1966-1975, at 0.43; and reversed for the last cohort, at 0.45 in China and 0.40 in the United States.

Results based on the rank-rank correlation between mother's and child's education (lower panel of *SI Appendix*, Table

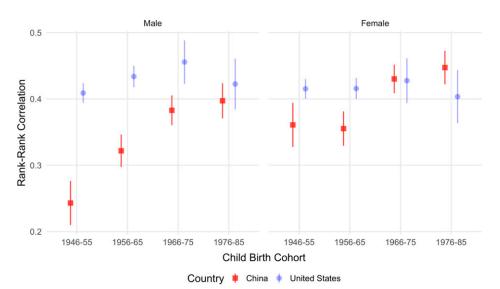


Fig. 4. Trends in intergenerational educational mobility, China and United States compared. For data sources, see SI Appendix, sections S1–S4.

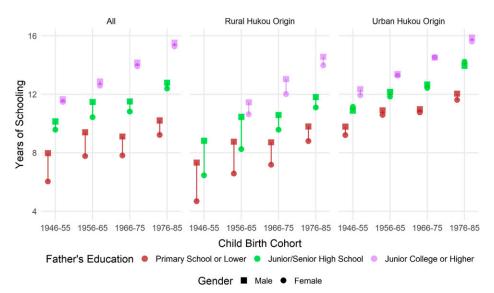


Fig. 5. Trends in average years of schooling by gender and father's education among all individuals, individuals of rural hukou origin, and individuals of urban hukou origin. For data sources, see SI Appendix, sections S1–S4. Note that, due to insufficient data, the average years of schooling are not computed for individuals in the earliest birth cohort who had a rural hukou origin and a father of junior college or higher education.

S4) are similar to those reported above between father's and child's education. This is true for both China and the United States. In conclusion, we observe lower correlations for men than for women in China, using education-based ranks, echoing the results for occupation-based ranks for all workers shown in Fig. 1.

Similar to the earlier analysis of occupational mobility, we suggest *hukou* as an explanation for women's lower educational mobility when compared to men. We performed a detailed analysis of the Chinese data, with results presented in Fig. 5 and numerical results given in *SI Appendix*, Table S5. In Fig. 5, we measure child's education by average years of schooling, broken down by father's education (measured in terms of three main levels: primary school or lower, junior/senior middle school, and junior college or higher), in addition to child's birth cohort, gender, and *hukou* origin. Of course, the most visible trend in Fig. 5 is an overall increase in the years of schooling, due to a rapid expansion in education provision in China over the course of this period.

For both urban and rural hukou origin groups, we observe a strong gradient by father's education; that is, on average, children of more-educated fathers attain more years of education. There has been a persistent rural-urban gap in education. For example, for the first cohort, men of rural origin whose fathers had a junior or senior high school education attained, on average, 8.8 y of schooling, compared to 10.9 y among men of urban origin with similarly educated fathers. Across all the cohorts and for all the levels of father's education, we do not see a noticeable gender gap for persons of urban origin. A substantial gender disparity, however, existed for all cohorts and for all three levels of father's education for rural origin individuals. Specifically, the gender disparity among Chinese of rural origin was strikingly large for the cohort born in 1946-1955 but narrowed gradually over successive cohorts. Again, similar to the results for occupational mobility, we found the strong (but declining) role of hukou in limiting women's educational mobility in China.

Conclusion

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A vast literature has arrived at inconclusive results concerning trends in intergenerational mobility in industrialized societies in the West (e.g., refs. 8, 9, 12, 19, and 20). Given China's rapid rise in income inequality in the postreform era (4), there have been concerns that intergenerational mobility has trended downward (13, 21). The topic of social mobility is also highly political in today's China, as the Chinese Communist Party bases its ruling legitimacy on the promise of delivering social openness, fairness, and mobility (1, 2). It is clear that one major theme in Xi Jinping's leadership is "common prosperity," which means reduction of inequality. Between January and August 2021, Xi made 13 public speeches in which the theme of common prosperity was emphasized (22). The latest concrete measure taken by the government is the prohibition of after-school tutoring in academic subjects to precollege students (23). Is the track record in China's recent past so bad that it justifies the government's ongoing strong intervention to promote social mobility?

Drawing on an accumulation of massive administrative and survey data and using comparable measures, we have carefully examined the long-term trends of intergenerational mobility in China for birth cohorts born after 1945, that is, those who grew up after the founding of the PRC in 1949. To help interpret the results, we compare trends in China to those in the United States for the same birth cohorts. We develop two relative, comparable measures of social mobility: rank–rank correlations measuring intergenerational occupational mobility and intergenerational educational mobility.

Our research yields mixed results. Due to rapid industrialization, intergenerational occupational mobility in China has greatly improved over time. Net of industrialization, however, intergenerational occupational mobility has been declining for recent cohorts. If we use the education-based measure, we observe a similar decline in intergenerational educational mobility in China. While these findings lend support to the Chinese government's concern that relative social mobility has declined in China, we should note that social mobility among children of nonfarm origin was exceptionally high for the earliest Chinese cohorts in our study. This is most apparent when we compare the trends in China to those in the United States, which have been relatively stable. One potential explanation for the observed differences between China and the United States in social mobility is that the two countries are currently at different stages of industrialization, with China being recently industrialized while the United States has been highly industrialized for over a century (12, 13).

We also found large gender differences in social mobility trends for Chinese of rural *hukou* origin. In earlier cohorts, while social mobility was high for urban residents of both genders and rural men, mobility was relatively limited for rural women. Girls born in rural China were severely disadvantaged relative to their male counterparts, having much lower likelihoods of obtaining schooling, leaving farming, and entering high-status white-collar jobs. Over time, forces of industrialization, education expansion, and fertility reduction have eroded the strong limiting factor of rural *hukou* on women's social mobility, substantially narrowing, or, in some aspects, eliminating, the gender disparity among persons of rural *hukou* origin. While gender inequality has not fully disappeared, China no longer stands out as an outlier as it was before in limiting women's social advancement.

Materials and Methods

Data. To study trends in social mobility in China, we analyze data from two major sources: 1) the 1982, 1990, 2000, and 2010 China Censuses, and the One-Percent Population Survey of China in 2005 (henceforth the 2005 China Mini-Census) (*SI Appendix*, section \$1); 2) two series of large-scale social surveys from the project of Life Histories and Social Change in Contemporary China in 1996 (LHSCCC 1996) and the Chinese General Social Survey in 2005, 2006, 2008, 2010, 2011, 2012, 2013, 2015, 2017, 2018 (CGSS 2005–2018). The LHSCCC 1996 and CGSS 2005–2018 data contain detailed information about respondents' own education and occupation and those of their parents when the respondents were children (*SI Appendix*, section \$2). We pool the survey data to track changes over birth cohorts.

Data for the United States also derive from two major sources: 1) cross-sectional US Population Census data from 1900 to 2000 and American Community Survey (ACS) data from 2001 to 2015 (*SI Appendix*, section S3); 2) eight large-scale US social surveys including the General Social Survey 1972–2018, National Longitudinal Survey–Young Men 1966–1981; National Longitudinal Survey–Young Women 1968–1993; National Longitudinal Survey of Youth 79 1979–2012; National Survey of Families and Households 1987, 1993, and 2002; Occupational Changes in a Generation II (in 1973); Panel Study of Income Dynamics (SRC sample) 1968–2017; and Survey of Income and Program Participation 1986, 1987, and 1988 (*SI Appendix*, section S4). We pool the survey data that contain detailed information about each respondent's and his/her father's occupation and education, to form the main analytical sample.

Given inconsistency in occupational classification across surveys, we harmonize occupational variables from different data sources into a two-digit occupational classification. For China, we use the occupation classification system of the 2000 China Census, which contains 71 unique occupational categories (SI Appendix, section S5). For the United States, we harmonize occupational variables from different data sources into standard 1950 Census Bureau occupation codes (SI Appendix, section S6). New occupations that did not emerge until recently, such as computer programmer, computer systems analyst, and software engineer, were coded into a broader category: "Professional, technical, and related workers (not elsewhere classified)." The standard 1950 occupational classification scheme consists of 283 occupational categories, but some of these occupations are not consistently recorded across census years. We thus map the 1950 occupations into Weeden and Grusky's microclass occupational scheme that is widely used in comparative studies on intergenerational mobility (9). The revised scheme includes 70 unique occupational categories, a number similar to that of the occupational variable used for the Chinese data.

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Measuring Occupational Status. We measure occupational status for both social origin and destination relatively, rather than absolutely, so that our measurement is not confounded by large social changes in occupational structure over time or large structural differences in occupational structure between China and the United States. With a harmonized occupational classification for each country, we convert occupation into a relative status measure based on an education-based occupational ranking, relying on two assumptions. First, different occupations can be rank ordered in terms of socioeconomic status. Second, an individual's occupational status is largely stable over the life course such that the estimates of intergenerational occupational mobility do not depend on the age at which occupation is measured. Although contestable, these assumptions are good approximations to social reality and have been widely used in prior research (9).

For each country, we pool all available census data (including the 2005 China Mini-Census for China and the ACS samples for the United States) and generate occupational percentiles in four steps. First, we partition the data into 10-y birth cohorts. Within each of these 10-y cohorts, we rank individuals according to their level of education and calculate the average percentile rank for each occupational group, which can be viewed as an occupational status score. Next, we rank all occupations within each cohort based on these status scores, accounting for relative occupational sizes. The resulting occupational percentile rank (0 to 100) represents a person's relative socioeconomic status within a birth cohort. A higher percentile rank indicates a higher socioeconomic status. To assess intergenerational mobility of occupational status, we calculate occupational percentile ranks for all parents and children in the survey data, according to their respective birth cohorts. See *SI Appendix*, section 57 for more methodological details.

Measuring Educational Status. To study intergenerational educational mobility, we similarly derive relative measures of education for both social origin and destination so as to achieve measurement comparability over cohorts, between parents and children, between genders, and between China and the United States. Normalization within gender is necessary given women's rapid progress in educational achievement in China (24). We convert observed educational attainment to percentile ranks within cohort and gender for each country. The number of educational categories is fewer than that of occupations. We construct seven levels of educational attainment for China and 11 for the United States. Since these levels of education are already ranked, there is no need to derive a rank order.

We calculate educational percentile ranks in three steps. First, we pool available administrative data (Census/ACS for the United States and Census for China) for each country and partition the data into 10-y birth cohorts described above. Second, within each country and census wave, we rank men and women separately by their highest grade completed to form cumulative education distributions. We use the midpoint to adjust for percentile ranks of individuals with the same level of educational attainment. The resulting percentile rank represents the relative status of an individual by his or her educational attainment within the same-gender, 10-y birth cohort. To examine educational mobility, we assign these percentile ranks to individuals and their parents in the corresponding analytical samples, according to their country, birth cohort, gender, and educational attainment. See SI Appendix, section S8 for more methodological details.

Data Availability. All study data are included in the article and/or SI Appendix.

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