

Educating China's Rural Children in the 21st Century

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Introduction

Two decades of reform have transformed the social and economic context of schooling in China. The economic returns to education have increased and higher incomes have made greater investments in education possible. However, greater decentralization has widened urban-rural and inter-regional disparities in schooling access and quality. As China's economic system has become increasingly market-oriented, the demands upon the educational system itself have changed, both quantitatively and qualitatively. These changes pose great challenges. China's response to these challenges has significant implications for the future welfare of China's children and for the country's development prospects in a world of increasing technological advancement and globalization.

The challenges are particularly great for China's rural educational system. The system has made enormous strides since 1949, when the government faced the challenge of educating a population that was 80 percent illiterate and in which less than 40 percent, some estimate less than 20 percent, of school-aged children were enrolled in school. The socialist record in increasing the numbers of rural schools and raising enrollment and literacy rates was truly remarkable and stands as one of the great accomplishments of Chinese communism. By 1980, adult literacy had reached 69 percent, and nearly all children received a primary education.

With economic reforms, China saw dramatic reductions in poverty, which increased available private resources for educational investment. However, China witnessed an initial dramatic drop in school enrollments in the early 1980s as many rural schools deemed to be of inferior quality were closed and the opportunity costs of schooling increased when labor could earn income that went directly to the family following decollectivization. Since then, enrollment rates have recovered and surpassed their initial level. Yet, as described above, new challenges have emerged.

In the popular movie *Not One Less*, the famous Chinese director Zhang Yimou dramatizes the financial plight of schools and families in poor, rural areas. A young and inexperienced substitute teacher works in a dilapidated one-room rural schoolhouse. Using chalk that must be rationed carefully if it is to last through the year, she writes lessons on the board each day for the children to copy into their notebooks. Heeding the words of the absent teacher, the substitute's main goal is to prevent children from dropping out of school. The story centers around her journey to bring back a boy who has left school to earn money in the city to help pay the medical expenses of his sick mother.

In this article, our goal is to describe the system of rural education in China and critically assess current policy challenges. We divide the discussion into three issue areas, each which resonate with the rural setting described in *Not One Less*--lack of funds, high dropout rates among the poor, and teachers with little training and support. First, we examine the financing of public education in rural areas, which lies at the heart of growing disparities in the quality of education as well as many specific concerns about rural education in China. Second, we discuss the challenge of completing the promise of providing a public education of adequate quality to all, especially for the poor, for young girls, and for minorities. Third, we discuss priorities for raising the quality of rural education.

At various points in this article, we refer to findings from the Gansu Study of Children and Families (hereafter, the Gansu project), a major field research project we directed in the year 2000 to investigate the key issues affecting rural educational outcomes in China, especially those in poor areas. The project was undertaken by an interdisciplinary team of U.S. and Chinese researchers and featured in-depth interviews and testing of 2000 9-12 year-old children in rural areas of Gansu, an interior province in Northwest China. We also interviewed each child's mother, father, teacher, school principal, and village leader. These interviews produced a rich set of perspectives on the community, family and school contexts in which children learn. We plan to follow these children as they grow up in order to study how childhood experiences, education, and health affect future life outcomes.

Financing Public Education

Many of the challenges of providing universal, high quality public education to rural children are related to difficult policy choices associated with reform of the government's fiscal system. Market competition has eroded the profitability of China's state-owned enterprises (SOEs), and the government has struggled to establish an effective taxation system to replace the lost revenues previously provided by SOEs. China's rapid growth has created a large demand for new public infrastructure at the same time that millions of current and retired SOE and government workers, including teachers, continue to require publicly provided wages and benefits. To provide stronger incentives for local government leaders to generate revenue and to shed expenditure responsibilities, upper levels of government have passed the buck downward, decentralizing government expenditure responsibilities as well as claims on government revenue.

This system of "eating from separate pots" (*feng zou chi fang*) has reduced the amount of resource transfers from richer to poorer regions, increasing inequities in public spending. The highest provincial primary educational expenditures per student, in Shanghai, are now ten times greater than the lowest, and this ratio has roughly doubled in the past decade. With spending data from schools in Gansu, we found that spending levels of schools in rich and poor villages within the same county did not differ significantly, but the effect of income differences on spending and other indicators of school quality was quite pronounced across counties within the province. Using national data, we found that inter-provincial inequality in school spending associated with income per capita differences was even greater.

In poor areas, the lack of government resources has put great strain on the ability of local communities to finance high quality public education. First, many teachers do not receive wage payments on time. For example, our Gansu survey found that 90 percent of teachers were owed wages, typically about three months worth. Late wage payments hurts morale and leads teachers to spend time trying to earn incomes from other sources.

Second, with an immediate focus on meeting wage obligations, county governments in poor regions often cannot afford investments in new buildings, desks, equipment or other supplies. In general, the government budget finances only teachers wages while other costs must be paid for from local resources, either through specially raised earmarked funds, collective contributions, alternative revenue sources, or fees charged directly of students. As is well known since the tragic explosion in a primary school in Jiangxi which was allegedly producing fireworks, in some cases schools engage directly in commercial activities to earn funds to support their operations, and sometimes children spend time contributing to such activities. In some villages, collectively owned enterprises or rich local businessmen may make large contributions to cover such costs. However, reliance on non-government resources is likely to exacerbate, not ameliorate, spending disparities. The poorest areas are least likely to have the capacity to raise local funds, and so most likely to pass on costs directly to students or simply not spend money. This is true even for school-generated revenues, because poor areas simply lack viable commercial activities. Our Gansu research has found that inequality in primary school spending on "daily" expenditures such as supplies, heating, etc. is much greater than for wage expenditures. These realities of school financing help explain growing disparities in public educational expenditures. The recent rapid increase in elite private schools, especially in cities, makes inequality in school quality even greater.

Schooling for All?

China has made great strides toward expanding access to primary and secondary level schooling in rural areas. Official statistics now report nearly universal enrollment among primary-aged children. John Knight and Lina Song, researchers at Oxford University, calculated enrollment rates of 91 percent for rural children aged seven to twelve and 87 percent for those aged thirteen to fifteen using data from a large sample survey of rural households in 19 provinces in 1995. These rates of enrollment are lower than official enrollment ratios. Yet, compared to other developing countries, especially in South Asia and Africa, these rates are very high and represent significant accomplishments. Nonetheless, there remains considerable room for improvement. In China's poor areas and among many minority groups, enrollment rates remain much lower, especially for girls. Nationally, the percentage of poor counties with lower secondary schooling enrollment above 85 percent is only 40 percent, compared to 70 percent in all counties.

Educating the Poor

In poor areas, children tend to start school later and drop out earlier. The lower educational attainment of children in poor families has multiple interpretations. The most obvious is that poor families lack the financial ability to pay required school fees. The poor have little cash income and savings, often lack access to formal credit, and have limited social networks from which they can borrow money. In Gansu, the average family educational expenditures for children in primary school was 270 yuan per year, or about \$34, accounting for four percent of total household expenditures. Lower secondary school fees are more than twice as high as primary school fees. When one considers that many families have more than one child in school and that in poor areas a large share of income is self-consumed grain production, it is easy to see why many families may have difficulty mobilizing enough cash to pay school fees. This problem becomes pronounced when children reach middle school, and it is at this stage when dropping out becomes common. Using data from surveys in poor counties in six provinces in 1997, Phil Brown and Albert Park found that children whose families are both poor and credit constrained are three times more likely to drop out of primary school than children whose families are not. Self-reports of the reasons children leave school also suggest the role of costs: using national, rural survey data collected in 1992, Emily Hannum found that economic difficulties or leaving school to work were reported for more than one-third of boys who were not in school, and almost half of girls.

Related to these problems of cost is the fact that poor families often live in poor villages where funds to support schools are scarce. Considerable evidence suggests important connections between village economic circumstances, school provision, and the enrollment and persistence of children in schools. For example, Hannum's analysis of a 1992 national survey of rural villages and households showed significant differences in educational provision beyond the primary level between wealthier and poorer villages, and between more and less remote villages. These differences could be linked to the enrollment probabilities of children even after accounting for family economic circumstances.

Another explanation for lower enrollments in poor areas is that the returns to schooling are lower for the poor, making education a less attractive investment. Poor school quality reduces the likelihood of passing high school or college entrance examinations, which makes it more likely that children will end up being farmers like their parents and so reduces the expected payoffs from continued schooling. Further, while there is evidence that more educated laborers are more likely to out-migrate and take non-agricultural jobs outside of the village, the effect of education on the wages of such migrants and on agricultural productivity is not well-established. Thus, it seems likely that the same amount of schooling has lower labor market returns in poorer areas.

Yet another connection between low enrollment and poverty is the typically low education levels of parents in poor areas. In China and elsewhere, parental education is significantly related to schooling attainment for reasons independent of income and wealth. Various explanations have been proposed for this finding. Educated parents may be able to provide more effective support for education, for example by being able to offer more homework assistance or a home environment more conducive to learning. More educated parents may also perceive better labor market outcomes of education, due to their own superior social networks or due to demonstrated aptitudes on the part of their children. Analysis using the Gansu data finds that both mother's and father's education level are highly positively related to children's test scores, with at least some of this connection resulting from greater time spent by educated parents with their children. Several studies have also found evidence that the greater the bargaining power of the wife relative to the husband, the more likely that children will stay in school longer, suggesting that women value education of children more than men.

Poverty also affects the ability of children to learn when they do attend school. Poor families may not be able to afford health care, nutritious food, adequate clothing, or school supplies, or to provide a home environment conducive to learning. A World Bank country study published in 2001 cites endemic diseases, stunting, micronutrient deficiencies and chronic worm infections as severe problems for children in poor rural areas. In Gansu, for example, most children suffer from Vitamin A deficiency, and many consume low levels of iron and zinc, nutrients known to affect cognitive functioning. About thirty percent of children have vision problems, but few children wear glasses. Children in more socio-economically disadvantaged environments tend to have a lower level of engagement with schooling, measured in terms of their own reported educational aspirations, academic confidence, industriousness, and degree of alienation. Brown and Park

found evidence that children in families with less wealth had significantly lower exam scores. Our study in Gansu shows that a rich home environment for learning—one characterized by frequent parent-child interactions and the presence of learning materials—is part of the mechanism linking poverty to educational disadvantage. A more optimistic result is that these resources can help rural children to engage with learning, regardless of economic circumstances.

Educating Girls

In China, economic constraints related to poverty and rising direct and opportunity costs of schooling may disproportionately affect rural girls, because of cultural traditions and norms that place them in a vulnerable position in the family. Traditionally, sons are expected to co-reside with parents after marriage, and thus to provide long-term security for parents, while daughters are expected to marry out of the family. Lack of access to the earnings of adult daughters provides a financial incentive to avoid both the direct costs and opportunity costs associated with educating daughters, and instead to allow them to contribute to the household economy until departure to married life.

While researchers' explanations for girls' vulnerable position are fairly consistent, few studies have directly asked questions about attitudes thought to place girls at risk. The Gansu study found that the majority of mothers voice egalitarian attitudes toward male and female abilities. However, most also report that families should rely on sons for old-age support and that they expect to receive financial support from their own sons. Mothers who expect support from daughters have higher aspirations for girls than mothers who expect support from sons. Further, half of mothers expect education to have a larger earnings effect for sons than daughters, and proponents of this perspective have significantly lower aspirations for girls.

Consistent with findings in other developing countries, Hannum's analyses of national rural survey data suggests that through the late 1980s and early 1990s, enrollment of rural girls in China was more sensitive to household poverty than boys', and that girls were more likely to drop out due to economic constraints or opportunity costs. Brown and Park found evidence of a selection story in which girls performing poorly in school are more likely to drop out in primary school, while nearly all boys advance to at least middle school. Nonetheless, nationally, gender disparities in basic education have exhibited a long-term narrowing trend despite a temporary stalling in the late 1970s and early 1980s. The collective evidence about gender disparities suggests that for much of rural China, norms that might be barriers to basic education for girls appear to yield to economic improvements. These results suggest that addressing poverty issues will go a long way toward addressing gender inequality, at least with respect to access to basic education.

Educating Minority Children

China's minorities are a diverse group. The fifty-five officially recognized minority groups live mainly in the poorer western regions of the country and account for nine percent of the population, a percentage that would increase to 28.5 percent by 2048 at current population growth rates. National evidence indicates that the educational composition of China's minority population is improving steadily. However, Hannum's analyses of census and survey data from the 1980s and early 1990s suggests that at some levels and in some regions, improvements were not as rapid as for the Han Chinese population. Although children from some ethnic groups enjoy levels of educational attainment that compare favorably with those of the majority Han Chinese, most have much lower levels of attainment. One of the reasons is that ethnic minorities tend to have lower socio-economic status. Compared to Han Chinese, they are more likely to live in rural areas, and to live in poorer interior regions. This means that children from many minority ethnic groups face problems associated with poverty such as poor quality schooling, few available family resources to pay school fees, and farther walking distances to schools. Impoverishment is also linked to gender disparities among minority groups: ethnic groups displaying the greatest gender disparity in school enrollment are those characterized by high rates of poverty, and minority girls are more likely than any other group to report economic causes for school leaving.

However, for ethnic minorities, cultural issues also play a role in explaining lower educational attainment and gender gaps. Cultural factors interact with the structure and content of schooling and with past and present economic conditions. Consistent with theories of minority schooling in the US, ethnographic work in China suggests that a significant element in the educational disadvantage experienced by some minority groups is rooted in perceptions that the school system is dismissive of or incompatible with aspects of their own

culture, or that members of their own community are unable to obtain tangible economic benefits from their educational achievements. Mette Hansen shows in her 1999 book *Lessons in Being Chinese: Minority Education and Ethnic Identity in Southwest China* that such factors can explain educational disparities between the Dai, Naxi, Hani, and Jinuo in Yunnan. In their chapter in the 1999 book *China's National Minority Education*, Stephen Harrell and Mgebba Lunze find these factors important for educational decisions among the Yi in Sichuan, and also note that gender may moderate the degree of conflict between cultural heritage and formal schooling. In recent fieldwork in low-enrollment communities in Tibet, Gerard Postiglione has found that very few Tibetan parents associate more education for their children with higher earning potential.

Schools cannot control the lessons students learn from the sometimes harsh experiences of their communities about the utility of education. On the other hand, local educators and policy makers can influence the extent to which curriculum, classroom environments, and school organization support the language, social norms, culture, and history of minority communities. Postiglione's work in Tibet and elsewhere illuminates the importance for minority student engagement and performance of messages about the value of minority culture—negative and positive—transmitted through curriculum, school personnel, and class organization.

Strategies have emerged to address this concern, including expanded minority teacher training programs, the provision of textbooks in minority languages, native language teaching through secondary school for some minorities, boarding schools in areas serving remote communities, special classes for girls for schools serving Muslim communities, and special schooling arrangements for children of herders. There are preparatory courses and preferential policies for higher education for minorities. For minority areas, one positive aspect of decentralization has been increased decision-making authority for principals and local administrations and community groups, despite less favorable economic implications.

However, even educators dedicated to making education culturally appropriate to ethnic minorities face difficulties. Given general problems of teacher shortages in poor rural settings, it is difficult to find teachers with language skills and other qualifications. In addition, there is some controversy over the degree to which bilingual education serves the long-term interests of minority students, who eventually need to master the national language for social and economic advancement. Further, Professor Wang Jiayi, Director of the Center for Minority Teacher Training at Northwest Normal University has pointed out the difficulty of implementing bilingual education in technical subjects for which elements of terminology are not available in certain minority languages. This specific problem highlights a more general point: minority children in remote rural settings often face a vast distance between the experiences of daily life and the contents of school learning. This distance can be difficult to bridge if there is ambivalence on the part of educational leaders about the value of minority culture, or among children and families about whether schools support or undermine minority communities' chances for cultural survival.

Improving Rural Schools

Rising educational attainments across rural China attest to the success of earlier policy campaigns that focused on getting children into school. With rising enrollments, the quality of schools becomes a critical issue. The Chinese government has increasingly directed its focus for educational policy to educational quality. The 1995 Education Law stipulated that all citizens have an equal opportunity for a quality education. In 1999, following the Third National Working Conference on Education, the State Council issued Decisions on Deepening the Educational Reform and Improving Quality-oriented Education and later approved The Action Plan to Revitalize Education towards the 21st Century prepared by the Ministry of Education. These documents strongly emphasized the importance of increasing the quality of schooling experiences, and emphasized the need to promote educational quality in poor and minority regions.

Infrastructure and School Finance

Improvements in quality require resources. As described earlier, many of the financing challenges faced by schools are related to a broader set of problems that beset China's public finance system, and which are beyond the scope of this article. We simply reiterate that the result of this problem is ever-widening inequality in per-student school expenditures and in many direct indicators of educational quality. One strategy the government has employed to address the finance problem has been to earmark funds through

the official budgetary system. The Ministry of Education recently announced plans to invest more than 30 billion yuan in the expansion of access and improvement of facilities for basic education during 2001-2005. To address inequities, the government has targeted a definite amount of budgetary funds to poor and minority regions. Educational funds for underdeveloped areas increased steadily from a total of 17 million yuan per year from 1976 to 1980 to a high of 607 million yuan for the period 1990 to 1995. While significant, these funds are far from sufficient to resolve the finance problem.

Another response has been to support the mobilization of other sources of finance to build new schools in poor areas or to provide scholarships to poor students. China has partnered rich provinces with poor provinces, encouraging government departments in rich areas to assist less-developed regions. For example, education departments in the more-developed areas donate money and teaching materials, and share teaching staff through rotations with the interior. The China Youth Development Foundation, a quasi-public NGO, through its Project Hope, has coordinated the gathering of millions of yuan in charitable contributions from domestic and international sources to build schools and pay school fees for children in officially designated poor counties. International NGOs (e.g., Save the Children), domestic NGOs (e.g., Phelex Foundation), and international organizations (e.g., World Bank, UNICEF, DIFID) have contributed large amounts of resources for improving the quality of schools in poor areas.

What to Teach?

In the educational reform agenda, one aspect of the new concept of school quality has been recognition of the need to modernize instructional methods and content, to move beyond exam performance as a quality criteria to focus more on the learning of individuals. As in other Asian countries, Chinese educators are raising concerns that Chinese students have too much homework, that students are asked to memorize too much rather than learn to solve problems, and that too much emphasis is placed on exam outcomes.

To make the curriculum less tedious and more relevant to skills perceived to be essential for the global knowledge economy, plans are underway to begin using a newly designed curriculum nationally beginning in the fall of 2002 after a pilot in 36 experimental areas beginning in the fall of 2001. The new curriculum has emerged from international comparisons of curriculum and domestic surveys. Another curricular reform is to allow local regions to design curriculum more appropriate for local environments, a move away from the rigid, nationally standard curriculum of the past. It remains unclear, however, whether implementation of curriculum reform plans will be effective since they depend on the initiatives of local educators.

Teacher Training

An essential component of improving educational quality is developing a highly trained workforce of teachers. Our discussion of this issue draws heavily from recent work of Lynn Paine of Michigan State University. China's teacher qualification standards require that primary school teachers should finish secondary school-level teacher training and secondary school teachers should complete three years of college-level training. By 1998, 95 percent of elementary and 83 percent of lower secondary teachers met these standards, with the rates much lower in poor and minority areas.

In rural areas, China's famous teacher farmers (*minban laoshi*) have served an important role in expanding education. Minban teachers often had received little formal teacher training. China has been trying to "regularize" these teachers with in-service training certification programs. For example, in Gansu, all minban teachers have been converted either to full-time teachers or to substitute or part-time teachers. Currently, the ratio of minban teachers to full-time teachers is less than one to five. Many teachers have improved their credentials through correspondence courses, but it is unclear how the quality of such training compares to pre-service training.

Another challenge facing the national teacher training task is demographic. In China, the number of primary school students is falling while the number of secondary school students is increasing rapidly, due to both higher enrollment rates and larger population cohorts. This situation creates an even greater need to produce more college-trained teachers. Most Chinese teachers are relatively young, with sixty percent of elementary teachers and seventy percent of secondary teachers less than 40 years of age. The imbalanced age structure makes professional development even more challenging, because there are fewer experienced teachers to guide the younger teachers.

Adding to the problem, rural teachers are poorly paid and often face a heavy workload. In our surveys in Gansu, we found that average full-time teacher wages were only 590 yuan, or about \$75, per month. Furthermore, nearly half of all teachers reported spending some time each week working in agriculture. Many younger teachers are unwilling to work in very remote areas far from decent-sized townships and they use whatever connections they have to try to get appointments in better locations. In many poor communities, some qualified teachers have left to work as teachers or in other occupations in cities or in more developed provinces. In the Gansu data, more than one fourth of the 10 percent of teachers who stop teaching each year in a school for reasons other than retirement are individuals who have left the area to teach elsewhere.

Principals and School Governance

An equally important human resource challenge in rural schools that draws much less attention is the role of principals. Principals face many challenges, especially those whose schools are in remote areas and have minimal resources. Such principals operate in relative isolation from peer or institutional networks and professional development opportunities. They lack supports to develop school management skills.

As we have learned from school reforms in the U.S., how schools are managed and the extent to which they involve stakeholders, including teachers, parents, and community leaders, can have an important effect on the success of the school. However, there is little or no systematic training on such dimensions of leadership, so that performance is mixed. For example, in our Gansu schools, 15 percent of primary school principals reported having no parent associations that meet regularly. In settings where economic resources are minimal, the governance skills of principals are critical. Identifying strategies for providing more support to isolated rural principals is an essential challenge for rural education.

Information Technology

Technological developments raise the possibility of new strategies for addressing priority areas for rural schools related to both curriculum and labor force issues. Some very exciting initiatives are emerging with the advent of wireless technology. The Chinese government is moving aggressively to capitalize on the potential of information technology for poverty alleviation and educational development in the impoverished interior. The importance of distance education was recognized in a circular of the State Council issued in October, 2000 outlining policies associated with the broad-based initiative to develop China's interior (the "Develop the West" campaign). The Ministry of Education has recently committed to invest US \$43 million in developing distance education to improve educational opportunities in economically disadvantaged western regions. These ambitious endeavors build on a long-established and impressive tradition of distance education through radio and television. Plans include connecting primary and middle schools in cities and towns across the country to a distance learning network in the next five years.

Experiments targeted specifically toward rural and remote communities and schools are also underway. The October, 2000 State Council circular advocated a project called "Connecting Every Village" that would make radio and television broadcasting available to rural communities. Ningxia University recently opened a distance learning center with the mandate of educational development and poverty alleviation. Similarly, Northwest Normal University in Gansu is involved in a variety of pilot projects that use distance learning to serve teachers in remote and minority schools.

One specific example is an initiative headed by Professor Wang Jiayi and the authors of this article that is piloting a virtual community of principals and teachers in remote and minority schools. The virtual community will offer access to professional and social connections in the outside world, a network of peers in other rural schools, a network of expert mentors at Northwest Normal University, and planning and curricular materials. The network will be established in 2002-2003, and its consequences for school governance and functioning and for the lives of affected principals, teachers and students will be investigated through fieldwork, surveys, and on-line data capture. Like other ongoing information technology experiments in interior China, this project seeks to tap the potential for information technology to partially offset the problem of isolation, one of the most intractable root causes of disadvantage among the poorest rural schools.

Rural Education in the 21st Century

As we have outlined, the challenges to providing a quality education to rural children are numerous. Many children in rural China continue to live in extremely austere circumstances, and many of the disadvantages associated with this reality are simply beyond the scope of the school system to address. Within the school system, the economic and human resources required to meet the basic learning needs of these children are great. The gap between resource-poor schools in the interior and schools serving the wealthy cities of the east is vast and growing; this trend offers dramatically divergent implications for the long-term economic prospects of China's children.

Looking ahead to the 21st century, there is some room for optimism. The long-term trajectory in enrollments is unquestionably positive. The "Develop the West" campaign carries promise, especially given the priority role assigned to education and human resource development in this endeavor. New technologies offer intriguing but uncharted possibilities for economic and educational development. Yet, ultimately, the question of whether new strategies will be enough to change the life-trajectories of rural children remains an open question, subject to the outcome of larger poverty alleviation efforts and the development of the rural school system itself.