Children's Social Welfare in China, 1989–1997: Access to Health Insurance and Education*

Jennifer Adams and Emily Hannum

ABSTRACT Fundamental changes in China's finance system for social services have decentralized responsibilities for provision to lower levels of government and increased costs to individuals. The more localized, market-oriented approaches to social service provision, together with rising economic inequalities, raise questions about access to social services among China's children. With a multivariate analysis of three waves of the China Health and Nutrition Survey (1989, 1993 and 1997), this article investigates two dimensions of children's social welfare: health care, operationalized as access to health insurance, and education, operationalized as enrolment in and progress through school. Three main results emerge. First, analyses do not suggest an across-the-board decline in access to these child welfare services during the period under consideration. Overall, insurance rates, enrolment rates and grade-for-age attainment improved. Secondly, while results underscore the considerable disadvantages in insurance and education experienced by poorer children in each wave of the survey, there is no evidence that household socio-economic disparities systematically widened. Finally, findings suggest that community resources conditioned the provision of social services, and that dimensions of community level of development and capacity to finance public welfare increasingly mattered for some social services.

Fundamental changes in China's finance system for social services have decentralized responsibilities for provision to lower levels of government and increased costs to individuals. The more localized, market-oriented approach to social service provision, together with new economic inequalities, has raised concerns about whether barriers to health care and education for the poor have increased. Medical care costs and school fees have escalated, while many public services and safety nets have collapsed. In a thoughtful assessment of Chinese social welfare reform in the 1980s, Davis warned of greater inequalities in the quality and quantity of schooling between urban and rural residents, and between villages of different income levels.[1] In her appraisal of public health services, she forecast that both urban and rural residents who could not afford to pay for care would suffer because state institutions that provided medical

1. Deborah Davis, "Social welfare reform: policies and outcomes," *The China Quarterly*, No. 119 (1989), pp. 577–597.

insurance had disappeared. A decade later, in 1999, Croll's reappraisal of the far-reaching and complex consequences of social welfare reform emphasized two important trends: the increasing dependence on ability to pay for access to social welfare services, and the rising significance of community-level resources in the provision of social welfare.[2]

For China's children, these trends raise troubling possibilities. In the 1990s, access to preventive health care services for some children may have been inhibited as costs for those services rose in the wake of decentralization. Children in poor families, who lacked the ability to pay for services, and in poor communities, which lacked the ability to generate funds to subsidize care, may have been particularly hard-hit. Similarly, rising fees in education meant that the poorest families, and families in the poorest communities, faced new, potentially prohibitive economic barriers to obtaining compulsory education for their children. Yet, just as market reforms facilitated changes in social welfare services, they also set the stage for dramatic drops in poverty among the Chinese population.[3] Thus, the rising private share of public welfare costs coincided with economic growth that actually increased many families' capacity to invest in their children's welfare. The implications for children's social welfare of rising costs, coupled with new prosperity, have not been empirically investigated.

This article traces children's changing access to social welfare services from 1989 to 1997. For the purpose of these analyses, children's welfare services are narrowly defined with one indicator of health care access, that is, access to health insurance,[4] and two indicators of educational access, namely enrolment in school and progress through school. Using these indicators, two questions are addressed. First, what was the level of access to welfare services in the late 1980s and 1990s, and did the overall level change? Secondly, to what degree did access hinge on family or community resources, and did these relationships change?

We set the stage for the analysis with a portrait of health and education reforms in China. We next provide a brief description of our data, the 1989, 1993 and 1997 waves of the China Health and Nutrition Survey, and methodological approach. We then present our analyses of children's insurance coverage and educational access. These analyses depict access levels and inequalities for each year, using descriptive figures and multilevel analyses of the links between welfare outcomes and household and community economic resources. We also test for changes in access and inequality over time, using a generalized estimating equation approach. The article concludes with a synthesis of findings and a discussion of

2. Elisabeth Croll, "Social welfare reform: trends and tensions," *The China Quarterly*, No. 159 (1999), pp. 684–699.
3. Albert Park, Sangui Wang and Guobao Wu. "Regional poverty targeting in China," *Journal of Public Economics*, No. 86 (2002), pp. 123–153.
4. Insurance is a narrow indicator that does not provide information about service utilization or quality. Nevertheless, access differences associated with insurance are one significant element of health stratification in China. Furthermore, identifying the determinants of insurance coverage is increasingly important as health care costs continue to rise.

their implications for understanding the condition of children's social welfare in China.

Children and Welfare Reform in China

Many of the challenges in providing public health and education services for children are linked to larger initiatives to reform the government's fiscal system.[5] Market competition has eroded the profitability of state-owned enterprises, and the government has struggled to establish an effective taxation system to replace the lost revenues previously provided by those enterprises.[6] To provide stronger incentives for local government leaders to generate more revenue and to shed their own expenditure responsibilities, the government at all administrative levels has decentralized expenditure responsibilities as well as claims on revenue.[7] This change has reduced resource transfers from richer to poorer regions, increasing inequities in public spending,[8] and ultimately shifting the burden of social welfare costs to families and communities.

Importantly, these policy shifts have coincided with dramatic increases in regional inequality. Inter-provincial income inequality increased markedly from the late 1980s to at least the mid-1990s, and the urban–rural gap in income and living standards remained large, by some estimates wider than anywhere in the developing world.[9] With this broader context in mind, we discuss important changes in the health and education sectors that have emerged in reform-era China.

Health. On the eve of market reforms, public health institutions were financed by the government, and public health services were provided to users at little or no cost.[10] By 1975, insurance coverage provided by the government, state enterprises and the rural co-operative medical system had reached close to 90 per cent of the population.[11] This coverage included almost all of the urban population and 85 per cent of the rural

5. Christine Wong, *China National Development and Sub-National Finance: A Review of Provincial Expenditures* (Washington, DC: World Bank [World Bank Poverty Reduction and Economic Management Unit, East Asia and Pacific Region, Report No. 22951-CHA, 9 April 2002]).

6. Emily Hannum and Albert Park, "Educating China's rural children in the 21st century," *Harvard China Review*, Vol. 3, No. 2 (2002), pp. 8–14.

7. Albert Park, Scott Rozelle, Christine Wong and Changqing Ren, "Distributional consequences of reforming local public finance in China," *The China Quarterly*, No. 147 (1996), pp. 751–778.

8. A. Piazza and E.H. Liang, "Reducing absolute poverty in China: current status and issues," *Journal of International Affairs* (New York), No. 52 (1998), pp. 253–264.

9. Colin A. Carter, "The urban–rural income gap in China: implications for global food market," *American Journal of Agricultural Economics*, No. 79 (1997), pp. 1410–18; Azizur Rahman Khan and Carl Riskin, "Income inequality in China: composition, distribution and growth of household income, 1988 to 1995," *The China Quarterly*, No. 154 (1998), pp. 221–253.

10. Xingzhu Liu and Anne Mills, "Financing reforms of public health services in China: lessons for other nations," *Social Science and Medicine*, Vol. 54, No. 11 (2002), pp. 1691–98.

11. William Hsiao, Dean T. Jamison, William P. McGreevey and Winnie Yip, *Financing Health Care: Issues and Option for China* (Washington DC: World Bank [World Bank Report No. 17091 (1997/09/30)]).

population. It provided access to both cost-effective preventive and curative health care services.[12]

With market reforms, fiscal decentralization and the diminishing role of rural collectives resulted in an increasing private share in health expenditures.[13] The co-operative medical system (*hezuo yiliao*), no longer supported by collective farming income, disintegrated, leaving the majority of rural residents without medical insurance. In urban areas, the breakdown of the state-owned enterprise system left many uninsured.[14] At the same time, the state reduced public funds channelled to health care and encouraged public health institutions to see themselves as economic bodies and to operate on a fee-for-service basis.[15] Rural health stations that once provided free medical care were transformed into fee-for-service health clinics. In this way, the financing gap that resulted from the reform was filled mainly by private out-of-pocket spending.[16]

In the 1990s, some evidence suggests that an increased reliance on individual resources resulted in growing inequities in access to health. Preventive health care services declined as costs for those services rose, and immunization rates dropped as fees increased.[17] Throughout the 1990s, levels of insurance coverage were low. One study suggests that the overall insurance rate dropped from 26 per cent in 1989 to 23 per cent in 1997.[18] Moreover, research indicates that the uninsured are less likely to seek medical care,[19] experience shorter hospital stays and receive less medication and treatment compared with those who have insurance.[20] Similarly, research links insurance status to both the probability of seeking medical attention and selection of a medical provider. The insured are more likely to seek care when ill, and they are more likely to seek higher quality health services.[21] The implications of these changes

12. *Ibid*.

13. H. Yu, S.H. Cao and H. Lucas, "Equity in the utilization of medical service: a survey of poor in China," IDS Bulletin 28, No. 1 (1997), pp. 16–23.

14. Marilyn Beach, "China's rural health care gradually worsens," *The Lancet*, No. 358 (1997), pp. 567–68; J. Gao, S. Tang, R. Tolhurst and K. Rao, "Changing access to health services in urban China: implications for equity," *Health Policy and Planning*, Vol. 16, No. 3 (2001), pp. 302–312.

15. Liu and Mills, "Financing reform of public health services in China," pp. 1691–98; Beach, "China's rural health," p. 567.

16. Hsiao *et al.*, *Financing Health Care*.

17. X.Y. Gu, G. Bloom, S.L. Tang and H. Lucas, "Financing health services in poor rural China: a strategy for health sector reform," Institute of Development Studies Working Paper 17, Shanghai Medical University – Institute of Development Studies Collaborative Research Program, 1995.

18. John S. Akin, William H. Dow and Peter M. Lance, "Did the distribution of health insurance in China continue to grow less equitable in the nineties? Results from a longitudinal survey," *Social Science and Medicine* (forthcoming).

19. Gordon G. Liu, Xiaodong Wu, Chaoyang Peng and Alex Z. Fu, "Urbanization and health care in rural China," *Contemporary Economic Policy*, Vol. 21, No.1 (2003), pp. 11–24.

20. Michael Phillips, Shao-hua Lu and Rui-wen Wang, "Economic reforms and the acute inpatient care of patients with schizophrenia: the Chinese experience," *The American Journal of Psychiatry*, Vol. 154, No. 9 (1997), pp. 1228–34.

21. W. Yip, H. Wang and Y.L. Liu, "Determinants of patient choice of medical provider: a case study in rural China," *Health Policy and Planning*, Vol. 13, No. 3 (1998), pp. 311–322.

for China's children are unclear. To our knowledge, studies of access to insurance among children do not exist.[22]

Education. Many of the reform-era changes in the health sector have parallels in the education sector. The transition to a market-oriented economy was clearly reflected in educational reforms aimed at efficiently producing an appropriately skilled labour force.[23] Policy reforms revolved around perceptions that educational quality was a serious problem at all levels, vocational and technical training were insufficient, and central administration of education was too rigid.[24] A complex hierarchy of programmes varying in length, quality, curriculum and financial base supplanted the egalitarian educational system of the 1970s. A major component of market-era educational reforms was the decentralization of the administration and finance of primary, secondary and tertiary education.

Decentralization (*fen quan*) had a profound, exacerbating impact on variation in public educational expenditures.[25] Through the 1980s and 1990s, provincial and county economic indicators were closely linked to educational investments, per-pupil spending and school availability.[26] Even within provinces and counties, case studies have established large differences in educational expenditures.[27] Currently, the central government runs and finances certain institutions of higher education; more typically, provincial, county, township and village governments respectively take responsibility for schools at the tertiary, upper secondary, lower secondary and primary levels.[28]

For many poor rural areas, the lack of local government revenues or subsidies from upper levels of government significantly hinders school functioning.[29] In general, the government budget finances only teachers' wages. Other costs must be covered from local resources, either through specially raised earmarked funds collected from households, collective

22. One recent study that examines the distribution of health insurance in China during the 1990s controlled for age cohort, but did not focus on access for children or the family or community characteristics associated with children's access. Akin *et al.*, "Did the distribution of health insurance …?"

23. Education laws continue to exhibit this orientation. The Education Law of 1995 and the Education Plan for the 21st century of 1999 confirmed the priority placed on education as a strategic area for social and economic development.

24. Keith Lewin, Angela Little, Hui Xu and Jiwei Zheng, *Educational Innovation in China: Tracing the Impact of the 1985 Reforms* (Essex, England: Long Group Limited, 1994).

25. Mun Tsang, "Financial reform of basic education in China," *Economics of Education Review*, Vol. 15, No. 4 (1996), pp. 423–444.

26. Mun Tsang, "Costs of education in China: issues of resource mobilization, equality, equity, and efficiency," *Education Economics*, Vol. 2, No. 3 (1994), pp. 287–312; Loraine West and Christine Wong, "Fiscal decentralization and growing regional disparities in rural China: some evidence in the provision of social services," *Oxford Review of Economic Policy*, Vol. 11, No. 4 (1995), pp. 70–85.

27. Albert Park, Wen Li, and Sangui Wang, "School equity in rural China," paper presented at the Education Reform in China Conference, Center for Chinese Education, Teachers College, Columbia University (New York, February 2003).

28. Mun Tsang, "Education and national development in China since 1949: oscillating policies and enduring dilemmas," manuscript posted to http://www.tc.columbia.edu/centers/coce/publications.htm, 2000.

29. *Ibid.*; Park *et al.*, "School equity in rural China."

contributions (*shehui jizi*), school-generated revenues or fees charged directly to students.[30] For example, in rural Gansu, one of China's poorest provinces, about 70 per cent of daily costs such as classroom supplies, heating and other similar obligations are financed from student fees, and 20 per cent are financed from school-generated revenue, mostly in richer villages.[31]

Available research from the early 1990s suggests that community resources significantly affected children's educational opportunities. One analysis of 1990 census data indicates that county per capita income was positively correlated with the probability of rural youth's enrolment in primary school, middle school and high school, net of family characteristics.[32] Consistent with these results, analysis of data from a national survey conducted in 1992 indicated that village income significantly predicted rural seven to 14 year-old children's enrolment status, net of household socio-economic status.[33] Using survey data from the early to mid-1990s, another study of 12 to 15 year-olds in eight provinces indicated that community poverty was a significant constraint not only on enrolment but also on progress through school.[34]

Summary. In short, in both the health and education sectors, finance changes in the reform period have raised the salience of both individuals' ability to pay and communities' ability to generate resources. While these changes emerged in the context of unprecedented prosperity in China, they also coincided with rising regional and household income inequalities. The renewed reliance of both the health and education sectors on local and individual support, taken together with increased economic inequality, raises important questions about trends in access to health and education services in the 1990s, and about whether children in poor families and poor communities were increasingly disadvantaged. We investigate these questions below.

Data and Methodological Approach

This article employs data from the China Health and Nutrition Survey (CHNS), a multi-purpose panel study of households that contains detailed measures of household and community socio-economic status, health, education and other social indicators. The first wave was collected in

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30. *Ibid.*

31. Hannum and Park, "Educating China's rural children," pp. 8–14.

32. Rachel Connelly and Zhenzhen Zheng, "Determinants of primary and middle school enrolment of 10–18 year-olds in China," *Economics of Education Review*, Vol. 22, No.4 (2003), pp. 379–390.

33. Emily Hannum, "Poverty and basic education in rural China: communities, households, and girls' and boys' enrolment," *Comparative Education Review*, Vol. 47, No. 2 (2004), pp. 141–159.

34. Jennifer Adams, "Educational opportunity and school finance reform in China: is the right to education increasingly dependent on family income and community wealth?" paper presented at the Annual Meetings of the Comparative and International Education Society, Washington, DC, March 2001.

1989 by the Chinese Academy of Preventative Medicine and the Institute of Nutrition and Food Hygiene, in collaboration with the Carolina Population Center at the University of North Carolina. Subsequent waves were collected in 1991, 1993, 1997 and 2000. The survey used a multi-stage, random cluster process to draw a sample from eight geographically diverse provinces that vary by level of economic development, public resources and welfare indicators.[35] Counties in each of these provinces were stratified by income, and four counties were randomly selected from each province. In addition, the provincial capital and a lower income city were selected. During each wave of the survey, household heads from approximately 3,600 households were interviewed about the attributes and activities of all household members.

The analyses employ data from the 1989, 1993 and 1997 waves of the survey.[36] To improve the comparability of the sample across years, we limit the analyses presented here to cases drawn from the seven provinces present in all waves of the survey: Jiangsu, Shandong, Henan, Hubei, Hunan, Guangxi and Guizhou. We used two subsamples of children drawn from the larger sample. In the insurance analysis, we used data for children aged 16 and under in each wave of the survey. In the analyses of educational outcomes, we used data for children aged 6–16 years old in each wave of the survey. We linked children to family and community characteristics. We consider three outcomes: insurance, enrolment and progress through school. In each wave of the survey, the household respondents were asked whether each member of the household had medical insurance or not.[37] The respondents were also asked questions regarding the education status of each member of the household, which we used to construct indicators of enrolment and progress through school.[38]

Table 1 shows descriptive statistics for individual and community level characteristics used in analyses to predict child welfare outcomes. The durable goods index is used as an indicator of household wealth and economic status.[39] Because within the age range of our sample, children

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35. The provinces surveyed in the 1989, 1991 and 1993 are Liaoning, Jiangsu, Shandong, Henan, Hubei, Hunan, Guangxi and Guizhou. In 1997 and 2000, Heilongjiang replaced Liaoning.

36. To date, the 2000 wave is not publicly available. We chose to omit the 1991 wave for ease of interpretation, in order to have equal time intervals between waves.

37. Medical insurance was defined to include public insurance, labour insurance, work unit insurance, dependent medical insurance, co-operative medical insurance, maternal-child health insurance and planned immunization insurance.

38. We created an enrolment variable based on the answer to "Are you currently in school?" To measure progress through school, we used the response to "How many years of formal education have you completed in a regular school?" and the child's age to construct a second variable, expected grade, which measures grade attainment for age.

39. We created a durable goods index to measure family wealth. In each wave of the survey, household respondents were asked, "Does your household or do any household members own the following electrical appliances or other goods?" To reflect economic changes over time in China, several new items were included in the list of choices in the 1993 and 1997 waves. Regardless of small differences in the lists of items across the different waves, we summed the ownership of all items in each household, and divided the household into quartiles based on the total of items owned.

Table 1: **Descriptive Statistics of Community and Individual Character-istics Influencing Child Welfare in Seven Chinese Provinces, 1989, 1993 and 1997 (standard deviation)***

		Year	
Individual data	*1989*	*1993*	*1997*
Community variables			
Log community per capita income	6.206 (1.536)	6.366 (1.075)	7.438 (0.617)
Village enterprise funds for education**	n/a	0.229 (0.420)	0.253 (0.422)
Village enterprise funds for health**	n/a	0.112 (0.315)	0.113 (0.316)
Urban	0.266 (0.442)	0.229 (0.420)	0.254 (0.435)
Individual variables			
Family durable goods index ∧	3.040 (2.103)	3.730 (2.507)	4.626 (2.788)
Gender	0.529 (0.499)	0.529 (0.500)	0.533 (0.499)
Age	7.820 (5.062)	8.654 (4.547)	9.604 (4.303)
Number of children	Education 2,190 Health 3,646	Education 2,328 Health 3,445	Education 2,299 Health 2,913
Community data			
Log community per capita income	6.052 (1.867)	6.368 (1.130)	7.491 (0.670)
Village enterprise funds for education**	n/a	0.210 (0.414)	0.204 (0.403)
Village enterprise funds for health**	n/a	0.108 (0.300)	0.114 (0.335)
Urban	0.342 (0.481)	0.334 (0.474)	0.332 (0.430)
Number of communities	139	165	168

Notes:
   *With the exception of the variable, village enterprise funds for education, these statistics describe the sub-sample of 0–16 year-olds used to model the probability of being insured. We used a smaller sub-sample of 6–16 year-olds to predict the probability of being enrolled in school and being in the expected grade.
   **These data were not collected in 1989.
   ∧ In the 1989 wave, the family durable goods index was composed of 10 items. To reflect economic changes over time in China, three new items were added to the list in the 1993 wave, resulting in an index of 13 items for that year. One additional item was added in the 1997 wave, resulting in an index of 14 items for 1997.

Sources:
   CHNS, 1989, 1993, 1997.

are increasingly likely to be in school at young ages then less likely to be in school at older ages,[40] we include linear and quadratic age effects. Finally, we incorporate a control for gender, which is coded 0 for female and 1 for male, because research has indicated gender differences in enrolment.[41]

We included three measures to capture differences in communities: community income, the amount of funds generated by local village and township enterprises for health or education, and urban/rural residence. We used the log of community per capita income to examine the effect of community financial resources.[42] In addition, because previous research speculates that the capacity to raise extra-budgetary revenue (*yusuanwai*) locally is an increasingly important determinant of public welfare,[43] we included a variable measuring the amount of funds generated by local enterprises to public welfare in the analysis. We use the funds contributed to health in the insurance analysis and the funds contributed to education in the analyses of enrolment and progress through school. The financial contributions of village enterprises to public welfare services were not collected in the 1989 wave. Therefore, throughout our analyses, we first present a series of models without the village enterprise funding measure, in order to compare across the three waves. We then present models for the 1993 and the 1997 waves with the inclusion of the village enterprise funds variables.[44] Finally, we include urban/rural residence, which we coded 0 for rural and 1 for urban. This variable is included because research indicates that reforms may have influenced the educational experience of urban and rural children in

40. Adams, "Educational opportunity and school finance reform in China."

41. Emily Hannum and Yu Xie, "Trends in educational gender inequality in China: 1949–1985," *Research in Social Stratification and Mobility*, No. 13 (1994), pp. 73–98; Montgomery Broaded and Chongshun Liu, "Family background, gender, and educational attainment in urban China," *The China Quarterly*, No. 145 (1996), pp. 53–86.

42. One weakness of the data is that community income is missing for approximately one-third of the cases in each year. Accordingly, we used several variables from the community survey to impute community per capita income. We analysed the results in several ways. First, the R^2 statistics from the 1989, 1993 and 1997 regressions were .883, .858 and .913 respectively, indicating that the variables included in the regression explain more than 85% of the variation in community income. Given the relatively high R^2 statistic, we decided that using the imputed values would result in estimates that were less biased than either excluding the cases with missing data or using the mean value of community income to replace the missing values. Next, we re-estimated our final models to examine whether the cases where we imputed community income were systemically different from the other cases. These estimates were not significantly different from the models presented in this article.

43. West and Wong, "Fiscal decentralization and growing regional disparity in rural China," pp. 70–85; Mun Tsang, "Financial reform of basic education in China," pp. 423–444.

44. In China, village and township enterprises are generally considered a rural phenomenon. However, in the CHNS survey, urban communities were also asked about whether "village, township, country or neighbourhood" enterprises contributed funds to public welfare services, such as health and education. In this way, the term village enterprise is used broadly in these analyses, referring to community-based enterprises as well as conventional, rural village and township enterprises.

different ways.[45] Similarly, the impact of health reforms may vary by urban and rural residence.

The analysis proceeds in two parts. First, we provide a portrait of access and inequality in the three waves of the survey, using a multi-level analysis of the links between family and community resources and children's welfare outcomes in each survey year.[46] This approach allows us to separate and identify specific family and community factors that can be statistically linked to child welfare outcomes. However, we are not able to make direct statements about changes over time in levels of access or determinants of access based on these models. Accordingly, in the second portion of the analyses, we use a generalized estimating equation approach to fit models that test changes over time in both levels and inequalities in children's social welfare.[47]

Analysis

Description of welfare outcomes by year. Figure 1 presents the percentage of children insured, enrolled and in the expected grade in each survey year. Perhaps surprisingly, Figure 1 does not suggest a downward shift in the provision of child welfare. For example, 79.5 per cent of 6 to 16 year-old children were enrolled in school in the 1989 sample, compared to 82.4 per cent in the 1993 sample and 90.7 in the 1997 sample. In 1989, 86.6 per cent of children were in the appropriate grade-for-age, while the figure was 88.0 per cent in 1993 and 92.2 per cent in 1997. Although there is little fluctuation in insurance rates among the under-17 cohorts in each wave of the survey, a slightly greater percentage of children are insured in 1997 compared with 1989 and 1993. In fact, overall access to social services appears to improve for children during this period. While these descriptive patterns provide a broad picture of levels of access, the results are susceptible to sampling error. Furthermore, these trends do not account for differences in household and community characteristics. The following section uses multivariate analyses to isolate the determinants of access to services in each year.

Multivariate analysis of welfare outcomes by year. We begin by investigating the effects of family and community resources on the welfare outcomes of children in each year. Tables 2 to 4 present

45. Davis, "Chinese social welfare," pp. 577–597; World Bank, *China Strategies for Reducing Poverty in the 1990s* (Washington, DC: World Bank, 1992); Hannum, "Political change and the urban-rural gap," pp. 193–211.

46. We employ a multi-level logit specification: $\text{Logit}_{ij} = \gamma_{00} + \gamma_{01}X_j + \gamma_{02}X_j + \gamma_{03}X_j + \gamma_{10}X_{ij} + \gamma_{20}X_{ij} + \gamma_{30}X_{ij} + u_j$ where the $\gamma 00$ continues to be the average intercept across the population of communities and $\gamma 01, \gamma 02, \gamma 03$ … are the mean differences in the outcome between the communities associated with each community level variable. $\gamma 10, \gamma 20, \gamma 30$ … are the slope coefficients associated with each student level variable. u is a random effect, representing the common unobserved characteristics that distinguish community *j*.

47. We employ a logit specification: $\text{Log}(E[Y_{ij}]/(1 - E[Y_{ij}])) = x'_{ij}\beta$, where, for the outcome Y_{ij}, $i = 1, 2, 3, \ldots N$ and $j = 1, 2, 3$ represent the *j*th outcome for individual *i*, x'_{ij} is a *p* by 1 vector of predictors for the *i*th subject at the *j*th outcome, and β consists of the *p* regression parameters of interest.

Figure 1: **Trends in Children's Welfare**
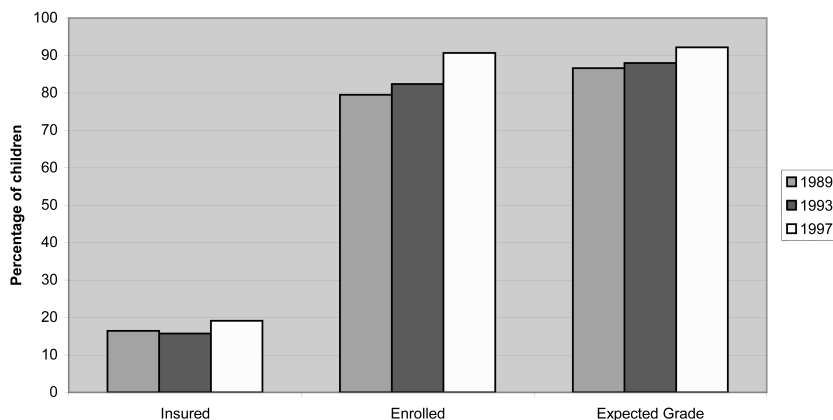
Data source:
  CHNS, 1989, 1993, 1997

the results of these analyses for insurance, enrolment and expected grade, respectively, using a parallel structure. Each of these tables presents multi-level logit models of welfare outcomes in 1989, 1993 and 1997.[48] They first present the statistically preferred models excluding consideration of the funding from village and township enterprise measures that were unavailable for 1989 (models 1–3), and next display the best fitting models with the inclusion of these variables (models 4–5).

Insurance. Table 2 presents the insurance status results. The results of the first three models suggest that children's access to insurance is conditioned by family and community resources. For example, the fitted odds of a child in the bottom household resource quartile being uninsured were 2 times those of a child in the top quartile for the 1989 wave, nearly 3 times for the 1993 wave, and almost 2 times for the 1997 wave.[49] Similarly, children who live in wealthier communities are significantly more likely to be insured in each year.

In addition, these results also suggest that certain attributes of communities may be shifting as determinants of child welfare. First, the coefficient for the log of community per capita income in the 1997 wave reveals the sizeable and significant effect that community financial

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48. In order to make the models comparable over time, we do not always select the presented models based on goodness of fit. For example, the best fitting model using the 1989 data included an interaction between gender and urban residence status that was not significant in the 1993 or 1997 waves. Because the interaction was not especially useful in addressing our research questions, we have excluded it from Table 4. Similarly, the best fitting model for the 1997 data included an interaction between urban residence status and village per capita income that was not significant in 1989 or 1993.

49. The fitted odds that a child is insured is the ratio of the probability of being insured to the probability of not being insured. Odds(INSURANCE = 1) = P(INSURANCE = 1)/1 − P(INSURANCE = 1). Odd ratios were calculated by dividing the fitted odds of having insurance for children in the top quartile by the fitted odds of having insurance for the children in the bottom quartile.

Table 2: **Multi-Level Logit Models of Insurance, Children aged 0–16**

	Model 1 1989	Model 2 1993	Model 3 1997	Model 4 1993	Model 5 1997
Family durable goods index					
Second quartile	− 0.003	0.997**	− 0.190	0.402	− 0.223
	(0.204)	(0.283)	(0.214)	(0.288)	(0.229)
Third quartile	0.399 ~	1.172**	0.588*	0.432	0.594*
	(0.209)	(0.303)	(0.228)	(0.311)	(0.228)
Top quartile (wealthiest)	0.736**	1.766**	0.539*	1.192**	0.582*
	(0.227)	(0.333)	(0.250)	(0.334)	(0.248)
Gender	0.315*	− 0.206	0.043	− 0.184	0.056
	(0.129)	(0.135)	(0.135)	(0.135)	(0.139)
Age					
age in years	0.041	− 0.132*	0.072	− 0.153**	0.099
	(0.048)	(0.056)	(0.063)	(0.058)	(0.066)
age-squared	− 0.010**	− 0.004	− 0.006 ~	− 0.002	− 0.008*
	(0.003)	(0.003)	(0.003)	(0.004)	(0.004)
Log community per capita income	0.594**	0.577**	1.084**	0.223 ~	1.298**
	(0.057)	(0.119)	(0.193)	(0.117)	(0.300)
Urban	1.829**	0.355	− 0.210	0.917**	− 0.201
	(0.191)	(0.284)	(0.245)	(0.287)	(0.337)
Village enterprise funds donated to health				0.208**	1.429**
				(0.453)	(0.359)
Constant	− 7.446**	− 5.821**	− 11.028**	− 4.430**	− 12.789**
	(0.540)	(0.827)	(1.497)	(0.776)	(2.161)
− 2 Log likelihood	1891.56	1812.11	1813.81	1820.00	1801.68
Observations	3646	3445	2913	3445	2913
Number of communities	139	165	168	165	168

Notes:
  ~ p < .10, *p < .05, **p < .01.
Sources:
  CHNS, 1989, 1993, 1997.

resources have on insurance status in 1997. More striking, when we add the variable that indicates whether a community contributes funds generated by local enterprises to health care in models 4 and 5, there is a positive relationship between whether a community donated these funds to health care and the probability of being insured, controlling for other individual and community characteristics.[50] The coefficient for the

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50. We also add urban-rural residence status, which became a significant predictor for the 1993 wave.

variable associated with funds donated by village and township enter-prises is also large and significant in the 1997 wave, illuminating the influence of a community's ability to allocate local funds in the late 1990s. For example, in 1997, when a community did not donate funds from local enterprises to health care, the probability of a poor child[51] (bottom quartile) who lived in a rural community with average resources (median community per capita income) being insured was only 4.8 per cent. For an otherwise comparable child who lived in a community that contributed funds to health care, the probability of being insured was 17.3 per cent. These results support the hypothesis that the investment of local funds was importantly linked to health insurance access in the 1990s.

An additional notable finding is that the log of community per capita income remains significant even when we include funds contributed from local enterprises in the model. This finding suggests that community wealth and funds donated from village and township enterprises each have their own unique influence on the probability of being enrolled in school. Community per capita income continues to be important even in communities that donate funds from local enterprises to schools. Similarly, the contribution of funds generated by village and township enterprises is important in both low and high income communities.

Enrolment. The enrolment results presented in the first three models in Table 3 provide two important findings. First, when we control for gender, age and community income, children with greater family re-sources are significantly more likely to be enrolled in school, in each year of the survey. For both the 1989 and 1993 waves, the fitted odds of a child in the top family resources quartile being enrolled in school were approximately 4.5 times the fitted odds of a child in the bottom quartile. For the 1997 survey, the fitted odds of a child in the top quartile being enrolled in school were 2.5 times the fitted odds of a child in the bottom quartile.

Secondly, the results indicate that while community income was not a significant determinant of enrolment for the 1989 wave, it was significant in the 1993 and 1997 waves, net of other variables in the model. In these waves, children who lived in the wealthiest communities were always more likely to be enrolled in school, holding other factors constant. For example, in 1993, the fitted odds of being enrolled in school for a child who lived in a high-income community (90th percentile) was 1.3 times the fitted odds for a child who lived in a poor community (10th percentile). In 1997, the fitted odds of being enrolled in school for a child living in a high-income community were 2.2 times the fitted odds of a child in a low-income community.

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51. In this example, the child is male and 12 years old. The predicted probability of a positive outcome is $\exp(xb)/1 + \exp(xb)$ … where x is the independent vector of variables, augmented by 1, and b is the corresponding estimated parameter vector.

Table 3: **Multi-level Logit Models of Enrolment, Children aged 6–16**

	Model 1 *1989*	*Model 2* *1993*	*Model 3* *1997*	*Model 4* *1993*	*Model 5* *1997*
Family durable goods index					
Second quartile	0.305 ~	0.442*	0.287	0.441*	0.260
	(0.172)	(0.177)	(0.213)	(0.177)	(0.213)
Third quartile	0.695**	0.659**	0.855**	0.656**	0.841**
	(0.199)	(0.200)	(0.287)	(0.200)	(0.287)
Top quartile (wealthiest)	1.498**	1.466**	0.897**	1.465**	0.905**
	(0.275)	(0.243)	(0.290)	(0.243)	(0.289)
Gender	0.423**	0.313*	0.199	0.313*	0.192
	(0.133)	(0.129)	(0.167)	(0.129)	(0.167)
Age					
age in years	3.204**	2.477**	2.371**	2.477**	2.369**
	(0.182)	(0.164)	(0.231)	(0.165)	(0.231)
age-squared	− 0.151**	− 0.117**	− 0.113**	− 0.117**	− 0.113**
	(0.008)	(0.007)	(0.010)	(0.007)	(0.010)
Log community per capita income	0.053	0.153*	0.510*	0.147 ~	0.455*
	(0.058)	(0.078)	(0.200)	(0.080)	(0.200)
Village enterprise funds donated to education				0.072	0.482 ~
				(0.221)	(0.296)
Constant	− 14.430	− 11.551**	− 12.59**	− 11.533**	− 12.269**
	(0.981)	(0.976)	(1.929)	(0.978)	(1.920)
Log likelihood	1622.13	1734.66	1143.39	1734.55	1140.72
Observations	2190	2328	2299	2328	2299
Number of communities	139	165	168	165	168

Notes:
  ~ $p < .10$, *$p < .05$, **$p < .01$.
Sources:
  CHNS 1989, 1993, 1997.

In models 4 and 5, we consider whether a community donated funds generated by local enterprises to education. In contrast to the findings presented in the examination of insurance, the results in model 4 do not reveal a significant relationship between whether or not a community donates funds generated by village and township enterprises to education and enrolment in the 1993 wave. However, the results displayed in model 5 reveal a marginally significant effect (< 0.10) of contributing community funds in the 1997 wave. These results suggest that the contribution of community funds to local education may be increasingly important in 1997.

Expected grade. Two key findings are displayed in Table 4, which presents the results of the expected grade-for-age results. First, similar to the findings for insurance and enrolment, resource constraints are the household level hinder children's progress through school. In the 1989 sample, the fitted odds of a wealthy child being the expected grade were 3 times the fitted odds of a poor child being the in the expected grade. For example, the probability of a rural male who lived in a community with average community resources was only 75.5 per cent when the child was poor (bottom quartile), but was 90.6 per cent when the child was from the

Table 4: **Multi-level Logit Models of Being in the Expected Grade, Children aged 6–16**

	Model 1 1989	Model 2 1993	Model 3 1997	Model 4 1993	Model 5 1997
Family durable goods index					
Second quartile	0.278	0.623**	0.410	0.622**	0.411
	(0.214)	(0.212)	(0.257)	(0.212)	(0.257)
Third quartile	0.700**	1.099**	1.153**	1.094**	1.154**
	(0.258)	(0.259)	(0.374)	(0.259)	(0.374)
Top quartile (wealthiest)	1.144**	1.764**	1.318**	1.769**	1.317**
	(0.369)	(0.342)	(0.425)	(0.342)	(0.425)
Gender	− 0.043	− 0.125	− 0.368 ~	− 0.122	− 0.367~
	(0.166)	(0.163)	(0.202)	(0.162)	(0.202)
Age					
age in years	− 2.001***	− 1.677**	− 2.196**	− 1.666**	− 2.196**
	(0.409)	(0.327)	(0.501)	(0.328)	(0.501)
age-squared	0.064***	0.057**	0.075**	0.057**	0.075**
	(0.016)	(0.014)	(0.020)	(0.014)	(0.019)
Log of community per capita income	− 0.035	− 0.062	0.624*	0.037	0.631*
	(0.082)	(0.119)	(0.258)	(0.124)	(0.264)
Urban	0.871**	0.918**	0.239	0.917**	0.237
	(0.302)	(0.316)	(0.416)	(0.316)	(0.416)
Village enterprise funds donated to education				0.232	− 0.042
				(0.272)	(0.344)
Constant	16.166**	12.398**	13.164**	12.502**	13.129**
	(2.560)	(2.095)	(3.532)	(2.102)	(3.543)
Log likelihood	1077.59	1145.97	820.931	1145.24	820.915
Observations	1741	1918	1765	1918	1765
Number of community id	139	164	152	164	152

Notes:
  ~ $p < .10$, *$p < .05$, **$p < .01$.
Sources:
  CHNS 1989, 1993, 1997.

wealthiest families (top quartile). Models 2 and 3, which use the 1993 and 1997 samples, illustrate similar relationships between household resources and expected grade status in these years. In 1993, the fitted odds of a wealthy child being the expected grade were nearly 6 times the fitted odds of a poor child being the expected grade, holding all other variables constant. In 1997, the fitted odds of a wealthy child being in the expected grade were almost 4 times the fitted odds of a poor child. These findings indicate that the effect of family resources on access to schooling persists between 1989 and 1997.

Perhaps most surprising among the results in Table 4, community resources appear to have little influence on grade-for-age attainment. In models 4 and 5, we find that after controlling for household poverty, age, gender and community characteristics, whether or not a community donates funds generated by local enterprises to education does not influence grade-for-age attainment. Similarly, the log of community per capita income is not a significant predictor in the 1989 or 1993 waves, controlling for household resources, gender, age and urban/rural residence. However, the coefficient on this variable in model 3 indicates that the income level in a community influences the probability of a child being in the expected grade in the 1997 wave. Children who lived in high income communities were consistently more likely to be in the expected grade in 1997.

Multivariate analysis of changes in welfare outcomes. The preceding sections focused on patterns of access and inequality in each year. Results indicate that access to child welfare services, operationalized as health insurance, enrolment and progress through school, are shaped, in part, by resources in the family and community. The results suggest that the effect of household economic resources on child welfare persists throughout the period. Moreover, the analyses hint that community economic resources may be increasingly important determinants of health and educational access. However, we are only able to speculate about changes over time without testing for the generalizability of our assumptions. Has the overall level of access to children's welfare services changed? Have disparities between children from poor and wealthy families increased in post-reform China? Do community economic resources matter more? Here, building on the models developed to predict welfare outcomes specifically for each year, we investigate these questions by estimating cross-wave models to provide statistical tests of changes in both access and the determinants of access across the three data points.

Table 5 displays the results of cross-wave analyses predicting insurance, enrolment and progress through school as a function of family and community characteristics. We display three models for each outcome. First, to provide a statistical test of the descriptive findings in Figure 1, we present a year-only model, which tests whether the overall access level to welfare services changed during this period. Next, we show a main effects model, which presents the effect of family and community predictors after controlling for the other variables listed in the

Table 5: **Population-averaged Panel Data Models of Child Welfare Outcomes**

	Insurance ∧			Enroll ∧ ∧			Expected Grade ∧ ∧ ∧		
	Year model	Main effect model	Interaction model	Year model	Main effect model	Interaction model	Year model	Main effect model	Interaction model
Year									
1993	− 0.032	− 0.131**	− 1.876**	0.201**	0.041*	− 0.505	0.032	0.020	− 0.814
	(0.058)	(0.064)	(0.535)	(0.077)	(0.110)	(0.451)	(0.093)	(0.102)	(0.635)
1997	0.167**	− 0.071	− 1.628*	0.941**	0.756**	− 1.750~	0.432**	0.647**	− 2.161*
	(0.060)	(0.076)	(0.672)	(0.090)	(0.115)	(1.007)	(1.03)	(0.123)	(1.082)
Family durable goods index									
Second quartile		0.190*	− 0.187		0.268**	0.284~		0.504**	0.333~
		(0.086)	(0.131)		(0.093)	(0.144)		(0.107)	(0.176)
Third quartile		0.542**	0.337**		0.632**	0.613**		1.000**	0.743**
		(0.090)	(0.128)		(0.109)	(0.164)		(0.134)	(0.210)
Top quartile (wealthiest)		1.119**	1.140**		1.267**	1.278**		1.560**	1.108**
		(0.093)	(0.138)		(0.136)	(0.223)		(0.178)	(0.297)
Log community per capita Income		0.257**	0.194**		0.079*	0.036		0.040	− 0.032
		(0.033)	(0.039)		(0.031)	(0.039)		(0.042)	(0.057)
Interactions									
Year*durable goods index									
1993*second quartile			0.952**			0.080			0.302
			(0.238)			(0.213)			(0.250)
1993*third quartile			0.778**			0.029			0.343
			(0.233)			(0.238)			(0.295)
1993*top quartile			0.661**			0.206			0.741
			(0.235)			(0.305)			(0.392)
1997*second quartile			0.575**			− 0.145			0.187
			(0.190)			(0.235)			(0.261)
1997*third quartile			0.181			0.122			0.444
			(0.194)			(0.302)			(0.353)
1997*top quartile			− 0.391*			− 0.318			0.383
			(0.193)			(0.336)			(0.424)
1993*log community per capita income			0.157*			0.086			0.094
			(0.080)			(0.069)			(0.100)
1997*log community per capita income			0.205*			0.370**			0.373*
			(0.092)			(0.140)			(0.152)
Constant	− 1.635**	− 3.797**	− 2.873**	1.348**	− 11.540**	− 11.222**	1.927**	12.854**	13.501**
	(0.044)	(0.228)	(0.275)	(0.053)	(0.530)	(0.554)	(0.071)	(1.206)	(1.242)
Observations	9996	9996	9996	6816	6816	6816	5744	5744	5744
Number of groups	5524	5524	5524	4407	4407	4407	3928	3928	3928

Notes:
~ p < .10, *p < .05, **p < .01
∧ Controls for gender and urban included, but not displayed
∧ ∧ Controls for gender and age included, but not displayed
∧ ∧ ∧ Controls for urban, gender and age included, but not displayed
Sources:
CHNS, 1989, 1993, 1997.

main effects models. Finally, we present an interaction model, which includes interactions between each of the years and the family and community resource variables, to test for changes in the effects of these factors on child welfare.

An examination of the year-only models for each of the outcomes highlights a striking finding: health and educational indicators of child welfare improved over time. Children are more likely to be insured, enrolled in school and in the appropriate grade for age in 1997 when compared with 1989. In the main effects models, we include measures of family wealth, community wealth and other demographic controls. Several important findings emerge. First, when we control for demographic features, family wealth and several community characteristics, the education outcomes continue to indicate improvement between 1989 and 1997. However, when we hold family and community wealth constant, access to insurance declines between 1989 and 1993, but the probability of being insured in 1997 is not significantly different from 1989. This suggests that while access to insurance is rising overall, the increase may be attributed to improvements in family and community circumstances. Furthermore, the results in Table 5 indicate that children from poor families are significantly disadvantaged in health and education in each wave of the survey, while children who live in financially-constrained communities are disadvantaged in health and enrolment.

We now turn to the interaction models to examine whether the relationships between family and community resources and each indicator of child welfare have changed over time. The coefficients on the interaction terms for year-by-durable goods indicate that the relationship between family wealth and the probability of being insured is stronger in the 1993 wave than in the 1989 wave.[52] Similarly, the interaction terms for year-by-community per capita income suggest that community wealth is more important for insurance in both 1993 and 1997 than in 1989. In education, the interaction terms suggest that the strength of family resources as determinants of educational outcomes has not changed during this period. However, the effect of community per capita income on enrolment and expected grade is significantly larger in the 1997 wave, suggesting that community wealth may play an increasingly important role in education in the later 1990s.

The models presented in Table 6 include a variable indicating whether a community donated funds from the local village and township enterprises to health or education. Like the models presented in Table 5, we include three models for each child welfare outcome. We are most interested in the main effect and interaction models. The main effects models suggest that the contribution of local funds generated by village and township enterprises to public welfare is a significant determinant of

52. An examination of the year by durable goods index interaction for the 1997 wave reveals that children in the wealthiest families (top quartile) are less likely to have insurance than children from the poorest families. One explanation for this finding is that wealthy families, entrepreneurs etc. are opting out of insurance and choosing to pay for their own medical care.

Table 6: **Population-averaged Panel Data Models of Child Welfare Outcomes**

	Insurance ∧			Enrol ∧ ∧			Expected Grade ∧ ∧ ∧		
	Year model	Main effect model	Interaction model	Year model	Main effect model	Interaction model	Year model	Main effect model	Interaction model
Year									
1997	0.207**	−0.114	1.328	0.769**	0.653**	−0.909	0.265**	0.527**	−1.582
	(0.059)	(0.087)	(0.829)	(0.092)	(0.115)	(1.028)	(0.094)	(0.131)	(1.134)
Family Durable Goods Index									
Second quartile		0.408**	0.715**		0.263*	0.369*		0.580**	0.617**
		(0.118)	(0.206)		(0.118)	(0.154)		(0.135)	(0.182)
Third quartile		0.650**	1.094**		0.617**	0.618**		1.104**	1.042**
		(0.123)	(0.206)		(0.138)	(0.170)		(0.175)	(0.220)
Top quartile		1.233**	1.927**		1.269**	1.459**		1.751**	1.837**
		(0.122)	(0.207)		(0.159)	(0.209)		(0.225)	(0.301)
Log community per capita Income		0.379**	0.438**		0.138**	0.114*		0.109	0.042
		(0.060)	(0.083)		(0.051)	(0.058)		(0.069)	(0.089)
Village enterprise funds donated to health or education		0.722**	0.183		0.204~	0.039		0.088	0.186
		(0.093)	(0.137)		(0.120)	(0.150)		(0.140)	(0.189)
Interactions									
Year*durable goods index									
1997*second quartile			−0.411			−0.285			−0.067
			(0.244)			(0.241)			(0.257)
1997*third quartile			−0.652**			0.078			0.151
			(0.248)			(0.305)			(0.348)
1997*top quartile			−1.131**			−0.545~			−0.262
			(0.242)			(0.325)			(0.422)
1997*Log community per capita income			−0.119			0.227			0.316~
			(0.119)			(0.146)			(0.166)
1997*VTE fund donated to village health or education			1.012**			0.444~			−0.217
			(0.186)			(0.255)			(0.276)
Constant	−1.670**	−4.328**	5.092	1.534**	−10.502**	−10.372**	2.096**	11.463**	11.954**
	(0.046)	(0.404)	(0.566)	(0.054)	(0.703)	(0.719)	(0.072)	(1.424)	(1.470)
Observations	6353	6353	6353	4626	4626	4626	4003	4003	4003
Number of groups	4284	4284	4284	3420	3420	3420	3071	3071	3071

Notes:
~ $p < .10$, * $p < .05$, ** $p < .01$
∧ Control for urban, gender and age included, but not displayed
∧ ∧ Controls for gender and age included, but not displayed
Sources:
CHNS, 1993, 1997.

insurance and a marginally significant determinant of enrolment outcomes ($p < .10$), controlling for demographic features, family wealth and other community characteristics. Furthermore, a significant interaction in the insurance model suggests that the contribution of local funds to local

health was more important in the 1997 wave. Likewise, the marginally significant interaction in the enrolment model hints that the contribution of these funds to local schools may also be increasingly relevant. These findings suggest that the importance of local financing increased in the later 1990s.

Discussion and Conclusions

More than two decades have passed since the Chinese government began their ambitious plan to bring China into the market. By a number of measures, market reforms have been successful. China has a developed a rapidly growing economy and living standards have improved for most Chinese citizens. At the same time, changes in the finance of social services, characterized by a rising dependence on the ability to pay for services, have affected children's opportunities to attend school and to seek health care when sick. While scholars have raised important questions about social welfare access and inequality in this period, no research has sought to understand the experiences of children in the wake of market reforms. This article begins to fill the gap, by shifting attention to children. The results present a complex picture of social welfare access for children and its changes in the 1990s.

Our analysis of children's access to health and education services yields three notable results. First, contrary to prevailing beliefs, our results refute the notion of an across-the-board decline in the provision of child welfare services. Descriptive figures actually suggest improvements in welfare indicators. During this period, levels of school enrolment and grade-for-age attainment were relatively high, ranging from roughly 80 to 90 per cent. Moreover, the probability of being enrolled in school and being in the appropriate grade-for-age increased between 1989 and 1997, even when we controlled for family wealth, community per capita income, urban-rural residence, age and gender. However, our results regarding access to insurance reveal that while overall access to insurance has increased during this period, these gains do not persist when we controlled for individual and community characteristics. Children were less likely to be insured in 1993 compared with 1989 when we accounted for family and community resources. Children's access to insurance in 1997 was not significantly different from 1989, suggesting that gains in access to insurance were made between 1993 and 1997. Nevertheless, children's access to insurance remains strikingly low; less than 20 per cent of children were insured in 1997.

Secondly, analyses highlight the significant disadvantages in insurance and education experienced by children from poor families in each wave of the survey. Throughout the period, poor children had substantially lower chances of having health insurance, being enrolled and being in an age-appropriate grade than their wealthier counterparts. In 1997, only 10 per cent of poor children were insured, compared with nearly 30 per cent of children from wealthy families. The enrolment gap and expected grade-for-age gap between poor and wealthy children were 8.3 and 13.3

percentage points, respectively. While these disparities endure throughout the period, the gaps in access to schooling between rich and poor households did not systematically widen. Results are more equivocal for insurance. Multivariate results did indicate that household socio-economic status was more important for insurance in 1993 than in 1989, but they also showed that effect of household socio-economic status was not significantly different in 1997 from 1989. These findings may reflect the behaviour of China's wealthier families, who are opting out of insurance schemes and instead choosing to pay for their own medical services.

Finally, we see clear evidence that communities play a fundamental role in the provision of social services. Even more striking, the importance of community financing has increased during this period for some welfare services. Resource constraints at the community level were barriers to health insurance in each of the survey years and to education in 1993 and 1997. Children who lived in wealthier villages were always more likely to be insured, enrolled in school and in the expected grade when compared with their counterparts in resource-poor communities. Furthermore, children who lived in communities that devoted funds from local enterprises to public health were more likely to be insured. In the cross-wave analysis, the effect of community per capita income on insurance status was stronger in both 1993 and 1997 compared with 1989. Similarly, whether communities devoted funds from village and township enterprises to health mattered more for insurance in 1997 than in 1993. In the cross-wave analysis of enrolment and expected grade, community per capita income also mattered more in 1997 than in 1989. Marginally significant results suggest that children in communities that were able to devote funding from local enterprises to education were more likely to be enrolled in school, and that the advantage may have increased by 1997.

These results resonate with Croll's concerns about the increasing relevance of community ability to generate resources in determining access to social services. The central government's ceding of responsibility for the provision of social services left local communities with no choice but to take on new responsibilities for providing basic health and educational services. In fact, a welfare crisis may have been averted largely because of the financial contributions of communities. Yet, while many local communities have managed to fill the gap left by the retreat of the central government, their future success is largely dependent on the capacity of local economies and the profitability of village enterprises. As these unpredictable community resources become increasingly relied on, concern for the children who live in communities that cannot afford to defray the costs of health care and education is warranted.

In addition, although our study cannot empirically address the issue of quality of welfare services, decentralization and privatization of costs imply that the quality of schooling and health care may be increasingly diverging for rich and poor households and communities, even as access to the system has expanded. Our field visits to several schools and health care facilities suggest that both the steady marketization of education and health, combined with a new reliance on non-government and com-

munity resources, has resulted in wide variation in the quality of these services. For the most part, uninsured children participate in a fee-for-service health care system in which patients seek the best quality of care that they can afford, and sometimes forego preventative health care. United Nations data, which suggest that immunization rates declined for children in the 1990s,[53] supports this conclusion. Similarly, in education, the provision of schooling is primarily financed by local communities and student fees, resulting in a wide range of both school and teacher quality. In this manner, one of the consequences of decentralization is wide variation in the quality of important public goods as children's welfare services increasingly rely on individual fees and community contributions.

Finally, it is important to emphasize that the most dire predictions about growing barriers to children's health care and education did not come true in the 1990s. On balance, access to children's welfare services improved for all children. However, this accomplishment must be tempered by the social costs of decentralization era reforms: the persistence of old disparities and the emergence of new forms of inequality. Throughout the 1990s, children from poor families continue to experience barriers as they seek health care and schooling. Even more striking, children are not only disadvantaged by family poverty; in addition, their schooling and health care experiences are conditioned by community poverty. As a result, social policy in China will be challenged in the next decade to reconceptualize health and educational institutions in a way that guarantees access for all children, regardless of where they reside, and also that ensures quality. In the short term, additional research using direct measures of services experienced by poor and non-poor children within the health and education sectors is needed, to clarify broader trends in children's social welfare in China.

53. United Nations Millennium Indicators, 2002. China Country Profile, http://millenniumindicators.un.org/unsd/mi/mi_results.asp?crID = 156.