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The Changing Transitions to Adulthood in Developing Countries

Selected Studies

Cynthia B. Lloyd, Jere R. Behrman, Nelly P. Stromquist, and Barney Cohen, *Editors*

Panel on Transitions to Adulthood in Developing Countries

Committee on Population

Division of Behavioral and Social Sciences and Education

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In 2001 the National Research Council (NRC) and the Institute of Medicine convened a multidisciplinary panel of experts to assess how the transition to adulthood is changing in the developing world and what the implications of those changes might be for the design and improvement of programs and policies affecting young people. In December 2004 the panel released its report, G*rowing Up Global: The Changing Transitions to Adulthood in Developing Countries*, with the panel's findings, analysis, and conclusions. This companion volume contains the detailed background papers that the panel commissioned to help its work.

The papers in this volume have been reviewed in draft form by individuals chosen for their diverse perspectives and technical expertise, in accordance with procedures approved by the Report Review Committee of the NRC. The purpose of this independent review is to provide candid and critical comments that will assist the institution in making its published volume as sound as possible and to ensure that the volume meets institutional standards for objectivity, evidence, and responsiveness to charge. The review comments remain confidential to protect the integrity of the process.

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8

Adolescent Transitions to Adulthood in Reform-Era China

Emily Hannum and Jihong Liu

This chapter traces evidence about adolescents' pathways into adulthood in China over the past two decades of market reforms, focusing on the realms of education, work, family, and health. We draw together information from policy documents, reports, secondary research, and aggregate and individual-level data from a variety of sources. Evidence shows that on average, the market reform period has benefited many aspects of adolescent and young adult life. Education has increased and adolescent labor has decreased in the reform period. The average age at marriage is high, and rose in the 1990s, enough that marriage is unlikely to compete directly with educational opportunities except at the highest levels of education. Low fertility rates suggest that women's childrearing responsibilities may compete less with other opportunities in China than in many less developed countries.

The benefits of improved standards of living have been shared across social groups, but social and economic inequalities continue to mark the youth life course. While wealthier urban youth are beginning to experience problems with overnutrition, some rural youth still face nutritional deprivation. Suicide rates are dramatically higher among rural youth and young adults, especially young rural women. Wealthier adolescents and those in urban areas are more likely to be in school than their poor rural counterparts, and thus enjoy significant advantages in a labor market that increasingly rewards credentials. The mark of rural poverty is clear in the elevated likelihood of rural youth participating in the labor force, in the high percentage of working youth employed in agriculture, and in the large-scale youth and young adult migration into urban settings. Finally, social changes

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in the reform period raise important concerns about behavioral health issues, especially sexual health and smoking.

THE CHANGING CONTEXT OF ADOLESCENCE IN CHINA

The transition to markets in China in the late 1970s marked the beginning of a political focus on promoting economic modernization and growth. In rural areas, the transition meant decollectivization of agriculture and implementation of the household responsibility system, in which farmland and resources were contracted to individual households whose earnings were linked to output.[1] In urban settings, the privatization of state-owned enterprises and the emergence of a labor market were important elements of growth-promoting reforms. Reforms brought unprecedented growth and poverty reduction, but also rising economic inequality and a deteriorating social safety net.[2] Reforms in the education and health sectors decentralized administration and finance, increasing the diversity of services and the costs to individuals. Layoffs and unemployment heightened the economic insecurity of urban residents in the wake of labor reforms. Rural residents faced rising costs for education and health in the context of new pressures for self-sufficiency in agriculture.

These changes have dramatically modified the context of adolescence over the past two decades. For many of China's youth, the market reform period has improved living standards and increased life choices in education, work, and family formation. However, adolescents and young adults face new risks as a result of diversified choices, and disadvantaged groups continue to experience problems characteristic of youth in developing countries, such as difficulty obtaining access to basic nutrition, health, and education. The experiences of China's youth are significant in the global context, as 18 percent of the world's 15- to 24-year-old youth reside in China, as do 21 percent of the total youth population in developing countries (see Table 8-1).

This chapter outlines major reform-era patterns and trends in adolescents' pathways into adulthood, focusing on the realms of education, work, family, and health. The chapter is structured as follows: after briefly intro-

[1]Experiments with such contracting began in 1978, and by 1983 nearly all of China's farmers had adopted the responsibility system (Lin, 1988; Powell, 1992).

[2]For example, World Bank estimates indicate that the number of people living in poverty declined from 398.3 million in 1985 to 269.3 million in 1995; the head-count index for the same period fell from 37.9 to 22.2 percent (World Bank, 1997). At the same time, recent household income surveys indicate that interprovincial income inequality increased markedly between 1988 and 1995; the urban-rural gap in income and living standards remains large, by some estimates wider than anywhere in the developing world (Carter, 1997; Khan and Riskin, 1998).

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TABLE 8-1 Population of 15- to 24-Year-Olds, 2002

	Total	World Total	Percentage of: Less Developed Country Total
World	1,112,549,895	—	—
More developed countries	164,122,595	15	—
Less developed countries	948,427,300	85	—
China	202,484,007	18	21

NOTE: Census Bureau definitions of "More Developed" and "Less Developed" are employed here.
SOURCE: U.S. Bureau of the Census (2002).

ducing data sources, we discuss educational policies and the changing educational opportunities available to adolescents. Next, we discuss youth employment and the changing economic backdrop in which employment occurs. We then provide an overview of family formation changes, considering marriage and childbearing. Finally, we consider persisting and new health issues facing adolescents. We close the chapter by synthesizing patterns and trends in each of these domains, placing them in the context of broader social changes in reform-era China.

DATA SOURCES

We draw on a variety of sources of information. To document policies, we employ reports and policy documents issued by Chinese government offices and a variety of secondary sources, including English- and Chinese-language analyses of economic and social policy problems in the reform era. To trace patterns and changes empirically, we draw on several sources of aggregate data, including census data from the National Statistical Bureau of China, demographic data from the U.S. Census Bureau International Data Base, education data from the United Nations Educational, Scientific, and Cultural Organization (UNESCO) Institute for Statistics, and education, marriage, and health data from the United Nations Millennium Indicators and the United Nations Common Database. To investigate attitudes about sexuality, we employ tabulated survey data from the 1997 National Reproductive Health Survey (Jiang, 2000). Finally, where possible, we complement aggregate data with our own tabulations of individual-level data on education, employment, and marriage from adolescent and young adult cohorts in the 1989 and 1997 waves of the China Health and Nutrition Survey (CHNS), a multipurpose panel survey conducted by the Chinese Academy of Preventive Medicine and the Institute of Nutrition

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and Food Hygiene, in collaboration with the Carolina Population Center at the University of North Carolina.[3]

EDUCATION

For adolescents, some of the most fundamental shifts in the reform period have occurred in the realm of education. On the eve of market transition in the late 1970s, China's education system was oriented around the political goal of eliminating class differences in society. With the transition to markets in the late 1970s and early 1980s, the focus shifted to economic modernization, and this new orientation was clearly reflected in educational reforms aimed at efficiently producing an appropriately skilled labor force.[4] A complex hierarchy of programs varying in length, quality, curriculum, and financial base supplanted the egalitarian structure of the Cultural Revolution education system. Classrooms moved away from a focus on egalitarianism and class struggle, instead emphasizing quality, competition, individual talents, and the mastery of concepts and skills important in the development of science and technology (Broaded, 1983; Kwong, 1985; Lin, 1993). Vocational education was reinstated, with the intention of making education provide labor market skills and skills relevant to rural living circumstances (Tsang, 2000; UNESCO, 1998). Higher education, shut down completely for 6 years at the start of the Cultural Revolution, was reinvigorated due to recognition of its critical role in supplying the high-level personnel and scientific expertise needed for national development (Tsang, 2000).

Most recently, attention has turned to molding the education system to better stimulate critical thinking and creativity perceived to be necessary for the new economy. Learner-centered teaching approaches and the so-called "quality education" *(suzhi jiaoyu)* reforms are intended to develop the abilities of the

[3]The CHNS used a multistage, random cluster process to draw a sample from eight geographically diverse provinces, which differ by level of economic development, public resources, and health indicators. The provinces covered were Liaoning, Jiangsu, Shandong, Henan, Hubei, Hunan, Guangxi, and Guizhou in 1989. Liaoning was replaced by Heilongjiang in 1997. Counties in each of these eight provinces were stratified by income level and randomly selected based on a weighted sampling scheme. In addition, the provincial capital and a lower income city were selected. Villages and townships within the counties and urban and suburban neighborhoods within the cities were selected randomly. Overall, the sample consisted of 32 urban neighborhoods, 30 suburban neighborhoods, 32 towns, and 96 villages. For more details, see http://www.cpc.unc.edu/projects/china/. In this study, we excluded Liaoning (in 1989) and Heilongjiang (in 1997) from the analysis.

[4]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 (UNESCO, 1998; Ministry of Education, 1999).

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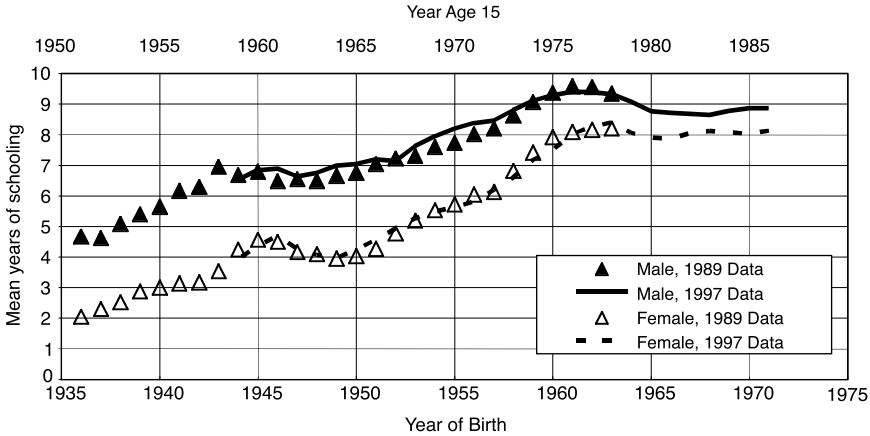

FIGURE 8-1 Mean years of schooling by birth year, 25- to 54-year-olds, China Health and Nutrition Survey, 1989 and 1997.

whole child, and to stimulate critical learning (Tsang, 2000). Additional reforms designed to develop locally relevant curriculum are also under way.

Educational opportunities have increased dramatically in the years since the establishment of the People's Republic in 1949. Using data from the 1989 and 1997 China Health and Nutrition Surveys, Figure 8-1 shows mean years of education by birth year for men and women ages 25 to 54 in both years.[5] The year that each cohort would have reached age 15 is also labeled on the graph. The figure shows dramatic increases in mean years of schooling for men and women reaching age 15 through the latter years of the Cultural Revolution in the mid- to late 1970s. For example, mean years of schooling for women rose from about 2 years for women age 15 in 1951 to more than 8 years for those age 15 in 1978. Cohorts coming of age in the early years of market transition experienced slight dropoffs in years of schooling. This downturn is not fully understood, but often attributed to some combination of push factors—shutdowns of low-quality rural junior high schools as part of the upgrading that occurred in the early reform years and rising educational costs—and pull factors—the new economic opportunities that followed agricultural decollectivization in the reform period (see Hannum, 1999a and 1999b, for discussion).

Following the downturn in the early 1980s, the reform period has seen an expansion of educational access. Table 8-2 shows aggregate educational

[5]Data points shown in Figures 8-1, 8-2, 8-4a, and 8-4b are based on 3-year moving averages.

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indicators that extend further into the reform period. Panel A shows gross enrollment ratios, or total enrollment in a level of education, regardless of age, expressed as a percentage of children in the officially-designated age range corresponding to that level of education in a given school year. At the primary level, gross enrollment ratios are over 100 throughout the reform period for girls and boys. At the secondary level, enrollment ratios were around 54 for boys and 37 for girls in 1980, around the time of the start of reforms. Consistent with Figure 8-1, ratios dropped through the mid-1980s. However, by the mid-1980s, the downturn ended. By 1997, enrollment ratios were 74 percent for boys and 66 percent for girls. Tertiary enrollment ratios have expanded since 1980, from 2.5 percent for boys and 0.8 percent for girls in 1980, to 7.3 percent for boys and 3.9 percent for girls in 1996.

Although gross enrollment ratios are useful for temporal and gender comparisons, they do not have clear implications regarding levels of education, because of the lack of consistence of numerators and denominators.[6] Other measures not plagued by this problem similarly show rising access to education for adolescents after the mid-1980s. From 1988 to 1995, primary to secondary transition ratios rose from 62 percent to 88 percent, with girls only about 3 to 4 percentage points behind boys (see Table 8-2, Panel B). In 1987, only 3 percent of male youth ages 15 to 24 were illiterate, compared to nearly 1 in 10 female youth. By 2001, only 0.8 percent of male youth and 3.3 percent of female youth remained illiterate (see Table 8-2, Panel C).

Data from the China Health and Nutrition Survey also indicate improvements in the 1990s in adolescents' access to schooling. Focusing on CHNS adolescents, among those who were 12 to 18 years old in 1989, 61.0 percent of males and 55.9 percent of females were enrolled in school (see Table 8-3). By 1997, the figures were 74.6 percent for males and 74.2 percent for females. Average years of school completed were also greater in the 1997 sample cohorts than in the 1989 sample cohorts (see Table 8-4). In 1989, mean years completed were 7.0 for boys and 6.8 for girls. By 1997, corresponding figures were 8.0 and 8.0.

While the long-term trend has been expansion of access, certain concerns have arisen about social disparities in access, especially to a

[6]Gross enrollment ratios often overestimate enrollment rates due to enrollments of children outside of official age ranges. They are also affected by repetition rates. They are commonly employed, however, because they are much more widely available than other, preferable measures such as net enrollment ratios. Net enrollment ratios, which have age-eligible children in both the numerators and denominators, are available for China only at the primary level, for the years 1988 to 1996. These ratios are above 90 percent throughout the period. A gender gap that favored boys by about 6 percentage points in 1988 diminished to zero by 1995 (see UNESCO, 2002).

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TABLE 8-2 Selected National Education Indicators, 1980-2001

	A. Gross Enrollment Ratios[a]						B. Transition Ratios[a]		
	Primary		Secondary		Tertiary		Primary-Secondary		
Year	*Male*	*Fem.*	*Male*	*Fem.*	*Male*	*Fem.*	*Tot.*	*Male*	*Fem.*
1980	121.0	103.7	53.9	37.4	2.5	0.8	—	—	—
1981	122.5	102.4	46.7	31.7	2.7	0.9	—	—	—
1982	124.2	102.5	42.7	29.3	—	—	—	—	—
1983	125.6	103.9	41.9	29.1	2.7	1.0	—	—	—
1984	130.8	108.5	43.6	30.9	3.2	1.3	—	—	—
1985	132.0	113.9	46.3	32.6	3.9	1.7	—	—	—
1986	134.0	117.5	48.8	35.9	4.1	1.9	—	—	—
1987	134.0	118.9	51.3	37.9	4.0	2.0	—	—	—
1988	133.3	119.8	52.0	38.8	3.9	2.0	62.3	—	—
1989	132.2	120.7	52.8	39.0	3.9	2.0	67.8	—	—
1990	129.6	120.3	55.3	41.7	3.9	2.0	70.2	—	—
1991	125.7	118.5	58.1	45.2	3.8	2.0	75.3	—	—
1992	121.9	115.8	61.1	48.5	4.0	2.1	74.2	—	—
1993	119.1	114.5	61.6	51.7	5.0	2.6	78.8	80.4	76.9
1994	118.3	115.2	65.2	56.4	—	—	87.6	89.0	86.0
1995	118.3	116.6	69.5	61.8	—	—	87.9	89.4	86.3
1996	120.0	119.6	72.5	65.1	7.3	3.9	—	—	—
1997	122.5	123.0	73.7	66.2	—	—	—	—	—
1998	—	—	—	—	—	—	—	—	—
1999	—	—	—	—	—	—	—	—	—
2000	—	—	—	—	—	—	—	—	—
2001	—	—	—	—	—	—	—	—	—

[a]UNESCO, Institute of Statistics (2002).
[b]United Nations Millennium Indicators (2002).
[c]UNESCO, Institute of Statistics (2002).

high-quality education. These concerns are in large part attributable to changes in education finance in the reform period. Major components of reform era education policy were the decentralization of the administration and finance of primary, secondary, and tertiary education and the privatization of costs (Lofstedt, 1990; Tsang, 2000). 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 (Tsang, 2000, p. 13). This finance structure has increased the regional disparities in funding

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C. Literacy Rates[b]			D. Program Type[c]					
Ages 15-24		Secondary: % in:	Tertiary: % in:					
Male	*Fem.*	*Gen. Educ.*	*Educ.*	*Humanities*	*Soc. Sci.*	*Nat. Sci.*	*Med. Sci.*	*Other*
—	—	97.0	29.3	5.7	3.7	48.2	12.3	0.8
—	—	96.9	24.9	6.0	4.5	51.2	12.4	0.9
—	—	96.3	24.6	5.8	6.1	48.5	14.2	0.8
—	—	93.8	25.4	6.2	7.4	48.6	11.6	0.8
—	—	92.5	25.1	7.0	8.8	48.0	10.3	0.8
—	—	91.1	23.8	8.2	10.6	46.7	9.3	1.4
—	—	90.4	24.4	7.7	11.2	46.8	9.2	0.7
97.0	90.2	89.9	24.7	6.7	11.2	47.3	9.4	0.7
97.2	90.8	88.8	24.6	6.4	12.0	46.9	9.4	0.7
97.3	91.3	87.9	24.6	6.1	12.4	46.5	9.7	0.7
97.4	91.9	87.5	24.3	5.8	12.6	46.8	9.9	0.7
97.6	92.4	87.2	24.5	5.6	12.5	46.8	10.0	0.6
97.8	92.9	86.6	24.2	5.7	13.1	46.6	9.8	0.6
98.0	93.4	85.3	22.8	7.5	25.1	36.9	7.1	0.6
98.2	94.0	84.5	16.4	6.4	9.4	53.2	8.9	5.6
98.4	94.5	84.2	—	—	—	—	—	—
98.5	94.9	84.1	—	—	—	—	—	—
98.7	95.3	83.7	—	—	—	—	—	—
98.8	95.7	—	—	—	—	—	—	—
99.0	96.1	—	—	—	—	—	—	—
99.1	96.5	—	—	—	—	—	—	—
99.2	96.7	—	—	—	—	—	—	—

for schools, and has increased family educational expenditures needed even for compulsory education.[7]

Government concerns about these problems are evident in equity-oriented policies instigated throughout the reform period. For example, although implementation was tied to regional economic development levels, the Law on Compulsory Education of 1986 designated 9 years of education—6 years of primary

[7]In poor areas, the lack of government resources has strained the ability of local communities to finance high-quality public education. In general, the government budget finances only teachers' wages. Other costs must be covered from local resources, including specially raised earmarked funds collected from households, collective contributions, school-generated revenues, or fees charged directly to students (Hannum and Park, 2002).

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TABLE 8-3 Enrollment Rates,[a] Youth Ages 12-18

	1989				1997			
Characteristic	N	Male	Female	*P-Value*	N	Male	Female	*P-Value*
Total	1,991	61.0	55.9	0.02	1,494	74.6	74.2	NS
Age								
12-13	522	93.1	92.7	NS	413	96.2	96.0	NS
14-15	582	77.4	68.9	0.02	442	85.9	83.5	NS
16-17	581	38.3	31.3	NS	407	64.7	58.9	NS
18	306	17.2	16.1	NS	232	33.9	42.9	NS
P-value		0.00	0.00			0.00	0.00	
Urban-rural residence								
Urban	465	68.5	62.6	NS	406	84.1	82.8	NS
Rural	1,525	58.7	53.9	NS	1,088	71.0	71.1	NS
P-value		0.01	0.02			0.00	0.00	NS
Household head's education								
None	374	51.1	43.6	NS	134	63.4	59.6	NS
Primary	940	58.5	55.2	NS	511	70.6	68.2	NS
Junior high	509	67.9	61.1	NS	544	75.8	78.4	NS
Senior high+	160	74.7	75.4	NS	285	88.7	83.3	NS
P-value		0.00	0.00			0.00	0.00	
Number of consumer items owned[b]								
Missing	54	83.3	58.3	0.04	40	88.0	80.0	NS
Lowest quartile	409	54.4	49.7	NS	338	69.1	60.5	NS
2nd quartile	665	56.7	50.2	NS	480	70.6	69.4	NS
3rd quartile	588	64.8	60.6	NS	281	74.8	81.5	NS
Highest quartile	275	70.3	67.2	NS	355	83.3	87.2	NS
P-value		0.00	0.00			0.01	0.00	

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School-age children in household[c]								
One	361	44.4	48.7	NS	468	71.4	74.5	NS
Two	795	65.0	54.9	0.004	654	76.0	74.2	NS
Three or more	835	65.5	59.3	NS	372	77.1	73.9	NS
P-value		0.00	NS			NS	NS	
Province								
Jiangsu	205	62.8	61.3	NS	145	75.0	81.5	NS
Shandong	218	63.1	51.3	NS	185	81.4	68.2	0.04
Henan	321	58.7	45.6	0.02	202	67.6	77.3	NS
Hubei	249	67.7	52.8	0.02	231	71.8	72.9	NS
Hunan	249	62.9	66.7	NS	232	77.9	75.2	NS
Guangxi	310	55.9	55.0	NS	264	75.7	74.2	NS
Guizhou	438	59.8	59.8	NS	235	73.2	72.2	NS
P-value		NS	0.01			NS	NS	
Relationship to household head								
Own child	1,858	60.9	55.7	0.02	1,382	73.7	73.8	NS
Other[d]	133	62.9	59.2	NS	106	86.4	80.9	NS
P-value		NS	NS			0.03	NS	

[a]Calculations were based on the question, "Are you currently in school?"
[b]Both the 1989 and 1997 surveys 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 added in the 1997 survey. Regardless of small differences in the lists of consumer items in the two waves, we summed up the ownership of all items for each household, then grouped all households into quartiles.
[c]This refers to the number of children who are under 18 years old at survey date in each household.
[d]Others include grandchildren, siblings, other relatives, and other nonrelatives (one "spouse" was included in 1989).
NOTE: NS: P-values are not significant at 0.05 level. P-values are results from chi-squared tests of independence. P-values listed to the right of enrollment rates result from tests of gender by enrollment (within categories of the listed characteristic, if applicable). P-values listed below enrollment rates are within-gender chi-square tests of enrollment by the listed characteristic.
SOURCE: China Health and Nutrition Survey.

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TABLE 8-4 Average Years of School Completed,[a] Youth Ages 12-18

	1989					1997				
	Male		Female			Male		Female		
Characteristic	Mean	SD	Mean	SD	*P-Value*	Mean	SD	Mean	SD	*P-Value*
Total	7.0	2.2	6.8	2.6	0.01	8.0	2.2	8.0	2.2	NS
Age										
12-13	5.4	1.6	5.6	1.7	NS	6.2	1.4	6.3	1.4	NS
14-15	7.1	1.7	6.6	2.5	0.01	8.1	1.4	7.9	1.7	NS
16-17	7.9	2.2	7.6	2.5	NS	9.1	1.9	9.0	1.9	NS
18	7.9	2.5	7.4	3.2	NS	9.3	2.7	9.4	2.4	NS
P-value		0.00		0.00			0.00		0.00	
Urban-rural residence										
Urban	7.9	2.1	8.2	2.1	NS	8.4	2.3	8.7	2.2	NS
Rural	6.7	2.1	6.3	2.5	0.00	7.9	2.2	7.8	2.1	NS
P-value		0.00		0.00			0.00		0.00	
Household head's education										
None	6.5	2.4	6.2	2.9	NS	7.6	2.7	7.2	2.5	NS
Primary	6.8	2.1	6.6	2.4	NS	8.0	2.1	7.8	2.2	NS
Junior high	7.3	2.0	6.9	2.5	NS	8.0	2.2	8.2	2.0	NS
Senior high+	8.3	2.1	8.2	2.3	NS	8.3	2.1	8.5	2.1	NS
P-value		0.00		0.00			NS		0.00	
Number of consumer items owned										
Missing	6.8	2.3	6.4	2.2	NS	7.2	2.2	8.7	3.3	NS
Lowest quartile	6.2	2.2	5.2	2.7	0.00	7.4	2.3	6.9	2.1	NS
2nd quartile	6.8	2.0	6.3	2.5	0.00	7.9	2.1	7.8	2.0	NS
3rd quartile	7.5	2.0	7.5	2.2	NS	8.3	2.0	8.5	2.0	NS
Highest quartile	8.2	2.1	8.3	2.0	NS	8.7	2.3	8.9	1.9	NS
P-value		0.00		0.00			0.00		0.00	

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School-age children in household										
One	7.8	2.3	7.5	2.7	NS	8.9	2.1	8.7	2.1	NS
Two	7.1	2.1	7.1	2.4	NS	7.8	2.1	8.1	2.1	0.03
Three or more	6.6	2.1	6.2	2.6	0.02	7.1	2.0	7.3	2.1	NS
P-value		0.00		0.00			0.00		0.00	
Province										
Jiangsu	7.8	2.3	7.3	2.8	NS	8.5	2.9	8.1	2.2	NS
Shandong	7.0	2.2	6.4	2.9	NS	8.6	1.9	8.1	2.3	NS
Henan	7.1	1.9	6.8	2.5	NS	8.1	1.8	8.3	2.1	NS
Hubei	7.2	1.9	6.9	2.3	NS	8.4	2.1	8.3	2.1	NS
Hunan	7.2	1.9	7.3	1.8	NS	8.6	2.1	8.6	2.2	NS
Guangxi	7.1	2.3	6.9	2.4	NS	7.4	1.9	7.6	1.9	NS
Guizhou	6.4	2.4	6.1	2.7	NS	7.1	2.3	7.4	2.2	NS
P-value		0.00		0.00			0.00		0.00	
Relationship to household head										
Own child	7.0	2.2	6.7	2.6	NS	8.0	2.2	8.2	2.2	NS
Other	7.2	1.9	7.2	2.3	NS	8.2	2.2	7.6	2.0	NS
P-value		NS		NS			NS		NS	

[a]Calculations were based on the question, "How many years of formal education have you completed in a regular school?" We used a system of 6 years for primary school, 3 years for lower middle school, and 3 years for upper middle school to obtain the total number of years of education for each person. Technical school was treated as being at the same level as upper middle school and all college/university education was assumed to start after graduation from upper middle school.

NOTE: SD = Standard deviation. NS = Not statistically significant at 0.05 level. P-values are results from t-tests or ANOVA tests, in the case of characteristics with more than two categories. P-values listed to the right of years of schooling measures are results from t-tests of gender differences (within categories of the listed characteristic, if applicable). P-values listed below years of schooling measures are within-gender tests of difference (t-tests or ANOVA tests) by the listed characteristic.

SOURCE: China Health and Nutrition Survey.

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and 6 years of lower secondary—as compulsory for all children (Ministry of Education, 1986). The 1999 Action Plan for Revitalizing Education in the 21st Century confirmed a commitment to implementing compulsory education across the country (Ministry of Education, 1999). A more recent campaign to pour development money into the western interior part of the country, where poverty is concentrated, took education as an important element (State Council, 2000).

What does evidence suggest about the effectiveness of reform-era policies designed to help education reach disadvantaged members of society? On the one hand, the rising enrollments and increasing rates of primary-secondary transition presented in Table 8-2 suggest, with the exception of the early 1980s, an overall trend of increasing inclusiveness. However, certain caveats to this conclusion exist. Earlier research indicates that significant gaps in access to schooling persisted through the early 1990s across lines of socioeconomic status, gender, and urban-rural residence status (Hannum, 1999a, 2002a, 2002b, 2003).

More recent data from the China Health and Nutrition Survey suggest that some of these disparities persisted through the 1990s, while others narrowed. For example, while enrollment rates have risen for both urban and rural residents, the premium on urban residence persists. Urban-rural differences in enrollment were statistically significant in both years: in 1989, 53.9 percent of rural girls were enrolled, compared to 62.6 percent of urban girls. In 1997, figures were 71.1 and 82.8 (see Table 8-3). For boys, the rural enrollment rate in 1989 was 58.7 percent, compared to 68.5 percent for urban boys; in 1997, rural and urban enrollment rates were 71.0 and 84.1 percent. Bivariate tests also showed significant urban-rural differences in average years of schooling in both years (see Table 8-4). Multivariate analyses controlling for demographic and family background factors and province of residence confirm the premium on urban residence for enrollment in both years (see Table 8-5). Multivariate analyses indicated no change in the enrollment advantage associated with urban residence, but offered evidence of a diminished years-of-schooling advantage for urban residents, once other socioeconomic background characteristics were taken into account.

Socioeconomic differences in enrollment are striking. Tables 8-3 and 8-4 illustrate socioeconomic gaps with a possession index and with parent's level of education.[8] For boys, the possession index measure shows differ-

[8]Income or wealth measures would be preferable as more standard measures of socioeconomic status. Comparable income measures calculated by CHNS staff were produced for waves of the survey prior to 1997. However, documentation on those calculations is not available, and no income measures have been made available to the public for 1997. We checked enrollment rates and years of schooling for boys and girls by income quartile for 1989 and 1993, and compared results to our possession index quartile results. Socioeconomic gaps in enrollment and years of schooling were similar for both socioeconomic status measures, though the possession index measure appears somewhat more sensitive than the income measure in terms of differentiating school enrollment and years of schooling.

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TABLE 8-5 Logistic Regressions of Enrollment and Linear Regressions of Years of Education, China Health and Nutrition Survey, 1989 and 1997 Samples

	Enrollment			Years of Education		
	1989	1997	Combined	1989	1997	Combined
Age, in years	−1.452	−0.871	−1.381	3.136	3.546	3.394
	(2.24)[a]	(1.11)	(2.69)[b]	(7.90)[b]	(9.43)[b]	(12.21)[b]
Age squared	0.020	0.004	0.019	−0.090	−0.098	−0.096
	(0.96)	(0.16)	(1.14)	(6.72)[b]	(7.67)[b]	(10.22)[b]
Year indicator (ref.: 1989)			0.460			1.203
1997			(1.35)			(4.35)[b]
Female (ref.: male)	−0.299	−0.056	−0.295	−0.262	0.065	−0.263
	(2.51)[a]	(0.36)	(2.55)[a]	(2.78)[b]	(0.78)	(2.77)[b]
Year female			0.213			0.318
			(1.08)			(2.50)[a]
Urban (ref.: rural)	0.458	0.507	0.388	0.795	0.186	0.731
	(2.48)[a]	(2.60)[b]	(2.25)[a]	(6.15)[b]	(1.77)	(5.77)[b]
Year urban			0.179			−0.533
			(0.70)			(3.28)[b]
Household head's education (ref.: none)						
Primary	0.329	0.649	0.366	0.437	0.499	0.499
	(1.88)	(2.24)[a]	(2.14)[a]	(2.75)[b]	(2.22)[a]	(3.11)[b]
Junior high	0.628	0.782	0.647	0.722	0.793	0.810
	(2.95)[b]	(2.58)[b]	(3.11)[b]	(4.12)[b]	(3.46)[b]	(4.60)[b]
Senior high+	1.132	1.178	1.137	1.089	0.828	1.159
	(4.04)[b]	(3.50)[b]	(4.13)[b]	(5.23)[b]	(3.51)[b]	(5.56)[b]

continued

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TABLE 8-5 Continued

	Enrollment			Years of Education		
	1989	1997	Combined	1989	1997	Combined
Interaction terms between year and household head's education						
Year primary			0.168			–0.120
			(0.52)			(0.47)
Year junior high			–0.001			–0.194
			(0.00)			(0.73)
Year senior high			–0.102			–0.499
Number of consumer items owned (ref.: lowest quartile)			(0.24)			(1.70)
Second quartile	0.104	0.462	0.122	0.551	0.554	0.532
	(0.53)	(2.21)[a]	(0.65)	(3.47)[b]	(3.57)[b]	(3.32)[b]
Third quartile	0.517	0.810	0.529	1.210	0.915	1.200
	(2.41)[a]	(3.25)[b]	(2.57)[a]	(7.15)[b]	(5.70)[b]	(7.10)[b]
Highest quartile	0.785	1.183	0.755	1.685	1.125	1.633
	(2.88)[b]	(4.30)[b]	(2.87)[b]	(8.48)[b]	(6.56)[b]	(8.33)[b]
Interaction terms between year and number of consumer items owned						
Year second			0.316			0.042
			(1.17)			(0.20)
Year third			0.277			–0.254
			(0.90)			(1.16)
Year highest			0.471			–0.430
			(1.33)			(1.77)
School–age children in household (ref.: one)						
Two	0.172	–0.094	0.029	–0.001	–0.361	–0.189
	(1.01)	(0.52)	(0.24)	(0.01)	(3.17)[b]	(2.10)[a]

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Three or more	0.276	–0.065	0.116	–0.405	–0.641	–0.540
	(1.47)	(0.27)	(0.80)	(2.54)[a]	(4.24)[b]	(4.79)[b]
Relationship to household head (ref.: other)						
Own child	0.095	–0.479	–0.094	0.093	–0.400	–0.088
	(0.36)	(1.24)	(0.44)	(0.53)	(2.21)[a]	(0.66)
Province (ref.: Jiangsu)						
Shandong	–0.407	–0.367	–0.359	–0.707	0.242	–0.280
	(1.50)	(1.07)	(1.72)	(2.98)[b]	(1.10)	(1.59)
Henan	–0.378	–0.588	–0.446	–0.284	0.273	–0.079
	(1.66)	(1.84)	(2.44)[a]	(1.43)	(1.28)	(0.51)
Hubei	–0.221	–0.463	–0.304	–0.143	0.397	0.097
	(0.88)	(1.47)	(1.57)	(0.72)	(1.90)	(0.63)
Hunan	0.015	–0.521	–0.197	–0.008	0.307	0.108
	(0.06)	(1.70)	(1.04)	(0.04)	(1.47)	(0.72)
Guangxi	–0.362	–0.818	–0.533	–0.161	–0.254	–0.245
	(1.46)	(2.54)[a]	(2.75)[b]	(0.75)	(1.32)	(1.58)
Guizhou	–0.049	–0.093	–0.062	–0.547	–0.199	–0.405
	(0.21)	(0.28)	(0.32)	(2.65)[b]	(0.85)	(2.41)[a]
Constant	17.125	13.282	16.688	–20.540	–23.487	–22.895
	(3.44)[b]	(2.18)[a]	(4.19)[b]	(7.06)[b]	(8.45)[b]	(11.14)[b]
Observations	1,929	1,428	3,357	1,924	1,488	3,412
R–square				0.32	0.45	0.40

[a] $p < 0.05$.
[b] $p < 0.01$.
NOTE: Z-statistics in parentheses.

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ences in enrollment rates between those in the bottom and top quartiles of about 16 percentage points in 1989 and 14 points in 1997. For girls, the difference was about 18 percent in 1989 and about 27 percentage points in 1997. Similarly striking were enrollment gaps between children of parents with a high school or better educational attainment and children of parents with less than a primary school educational attainment. For boys, these gaps were 24 percent in 1989 and 25 percent in 1997; for girls, corresponding figures were 32 percent and 24 percent. The gap between wealthiest and poorest youth in mean years of schooling is also highly significant in both waves of the survey, with a gap between lowest and highest quartiles of 1.3 years for boys and a full 2 years for girls in 1997. Differences in mean years of schooling by parental education were significant for both genders in 1989 and for girls in 1997.

Multivariate analyses indicate that both socioeconomic status measures significantly predict enrollment and years of school completed in both survey years, net of other child and family background factors and provincial controls (see Tables 8-4 and 8-5). A lack of significant interactions between the possession index and time, or the parental education variables and time, suggests that there was not a marked weakening of the relationship between socioeconomic status and enrollment or years of schooling between 1989 and 1997.[9]

Finally, an overall male advantage in enrollment and years of schooling, significant for youth cohorts in 1989, was insignificant among youth cohorts in 1997 (see Tables 8-3 and 8-4). Multivariate analyses confirm these results (see Table 8-5). Specifically, for enrollment and years of schooling, models using 1989 data alone showed gender differences, while the model using 1997 data alone failed to show significant gender effects. The combined model testing interactions between gender and time indicated a significant narrowing of the gender gap for years of schooling; in the enrollment models, the coefficient marking the interaction of gender and time was in the same direction, but failed to achieve significance.

In interpreting these results, it is important to recognize that past studies using nationally representative samples have suggested that gender inequalities in access to schooling are tied to region and poverty in China, and thus the CHNS data cannot be regarded as fully representative of the scope of gender disparities in China as a whole. Lack of coverage of the impoverished and culturally distinct northwest may influence the portrait of gender

[9]To be precise, for the years of schooling models, marginally significant ($p < .1$) negative coefficients for year interactions are observed for dummy variables representing the wealthiest and best educated parents. These results are suggestive of some weakening of the socioeconomic advantage of the wealthiest youth in terms of years of schooling. However, as the within-year models indicate, parental education and the possession index remain highly significant predictors of years of schooling in both years.

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disparities. However, the declining gender gap is consistent with the national data presented in Table 8-2 and with other national data showing rising female participation in primary, secondary, and tertiary education, and a long-term decline in the gender gap, especially after the mid-1980s (Hannum, 1999b, 2002b).

It is important to note that although access is improving as more youth enter secondary school, they face an increasingly diverse mix of experiences within the school system. One reason is rising quality differences associated with the new diversity in finance discussed above. However, diversification has emerged in other ways. For example, at the secondary level, vocationalization is evident in the declining proportion of secondary students in general education, from 97 percent of secondary students in 1980 to 84 percent of secondary students in 1997 (see Table 8-2, Panel D). The current rounds of curriculum reforms, aimed at making curriculum more locally relevant and stimulating discussion and critical thinking in the classroom, are likely to further diversify the experiences of children in the classroom, albeit in ways that are difficult to empirically evaluate (Cheng, 2003).

For those youth who make it to the tertiary level, some aspects of opportunity have remained stable, at least through the mid-1990s.[10] In terms of the broad fields of study, students are most likely to enroll in natural sciences (53.2 percent of tertiary students in 1994), followed by education (16.4 percent of tertiary students in 1994); the predominance of these two fields has not changed over the course of the reform period (see Table 8-2, Panel D). Social sciences, which were reinstated only in the reform period, have attracted increasing numbers of students in recent years.

However, opportunity structures in higher education are changing in ways that parallel the discussion above for secondary schooling. On the one hand, overall access to higher education is expanding (see Table 8-2, Panel A). This expansion can be attributed in part to government policies expanding public university slots, and in part to the proliferation of private tertiary-level institutions (Cheng, 2003; Lin, 2003). Yet, although overall access is rising, it is likely that the social composition of those who can avail themselves of higher education is changing. Increasing private costs associated with higher education, in both the public and growing private sectors, give an increasing edge at the margins to those who can pay. Furthermore, the diversification of higher education finance also implies increasing diversity of educational quality among tertiary-level students. This issue is present even within the public sector, where recent policy initiatives have targeted a

[10]Unfortunately, the Ministry of Education categories for reporting tertiary fields were redesigned after 1994, and thus comparisons with subsequent years are not possible.

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select few leading universities in China for dramatic increases in funding,[11] with an eye to creating world-class universities (Cheng, 2003).

Overall, adolescents and youth in China have seen a general increase in educational opportunity since the mid-1980s. Evidence suggests that all social groups are benefiting from educational expansions, though important social differences in access persist. At the same time, new qualitative differences in the school system mean that experiences in school, and their implications for labor market opportunities, are increasingly diverging.[12]

ECONOMY AND LABOR

Linked to educational changes are changes in youth labor force participation. Little information is available about the nature of youth labor force participation prior to market transition. However, it is clear that many economic policies associated with market transition have direct implications for the choices that adolescents make about economic activities. First, market reforms themselves dramatically changed the economic context in which youth function. In rural areas, widespread adoption of the household responsibility system in the early 1980s improved the wealth of the agricultural population. Similarly, privatization of state-owned enterprises, the rise of township and village enterprises, and the emergence of private enterprise have contributed to a reduction in poverty.

Yet, the new economic opportunities that contributed to poverty reduction were also thought to compete with education, as youth and their families faced higher direct and opportunity costs for schooling in the 1980s. In the 1990s, several regulations were passed that specified regulations on minors and the special protections to be afforded them in the workforce (Regulations on Ending the Use of Child Labor, 1991; Communiqué, 1994; Rules and Regulations Related to the Protection of Children, n.d.).[13] Most notably, child labor was mentioned in China's

[11]These initiatives include the Millennium Project and Project 211. See Cheng (2003) for descriptions of these projects.

[12]One important caveat to this discussion is that a dimension of inequality that is not well addressed by the CHNS or by aggregate data is that of minority access to schooling. Ethnic differences in education in China are closely tied to location of residence, and substantial disadvantages for particular minority groups persisted through the early 1990s (Hannum, 2002a). Although aggregate data show a promising trend of increases in the minority percentage in total enrollment at all levels of schooling through the 1990s (Hannum, 1999b), this trend represents a very imprecise indicator of changes in access, and says nothing about access for particular ethnic groups. Ethnic differences in the CHNS sample are likely to understate the scope of ethnic differences in the country as a whole. Most of China's minorities live in the impoverished western part of the country, represented in this sample by two southwestern provinces and none in the northwest.

[13]Unfortunately, we found little documentation of youth and child labor problems or policies that predated the information cited in this section.

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National Labor Law, which went into effect in 1995 (SCENPC, 1995, Article 15). The law prohibits employers from hiring workers under 16 years of age and specifies sanctions such as fines and revocation of business licenses for those businesses that hire minors. Laborers between the ages 16 and 18 are barred from engaging in certain forms of physical work, including labor in mines. Ironically, with the abolishment of the job placement system for college graduates in the early 1990s, the gradual emergence of a labor market, the large-scale layoffs that have accompanied market reforms, and the underemployment of the rural workforce, policies that have emerged to protect against the employment of underage youth have coincided with rising government concerns about providing enough employment for working-age adolescents and young adults.

Changes in youth and young adult employment in the 1990s are the mirror image of changes in education. Focusing on respondents ages 16 to 25, employment rates for CHNS cohorts dropped from about 81 percent for males and females in 1989 to about 69 percent for males and 72 percent for females in 1997 (see Table 8-6). Gender differences in the overall rate of employment were not significant in either year. In 1989, employment rates were higher among rural youth and among poorer households. In 1997, significant urban-rural differences were present for males, but not females. Socioeconomic disparities remained stark. For example, in 1989, about 16 percentage points separated the employment rates of girls in the lowest and highest possession index quartiles. By 1997, the gap was nearly 22 percentage points.[14]

The broad categories of work in which youth and young adults were involved did not change dramatically over time, at least through the early reform years (see Table 8-7). Many of the educational improvements appear to have contributed to credential upgrading within broad occupational categories, rather than to major shifts in the youth and young adult labor force across broad occupational categories. For example, census data from 1982 indicate that the majority of youth who were working in the early years of reform were doing so in agricultural occupations. Nearly 82 percent of 15- to 19-year-old workers, 66 percent of 20- to 24-year-old workers, and 68 percent of 25- to 29-year-old workers were in agricultural jobs. In 1990, percentages were similar. Labor was the second most common type of work. In 1982, 14 percent of 15- to 19-year-old workers were laborers, compared to 23 percent of 20- to 24-year-olds and 20 percent of

[14]We only describe employment patterns and do not attempt a multivariate analysis of employment. Given the older age group needed for this analysis, some percentage of individuals are likely to have separated from natal homes, and thus causal interpretations of family background characteristics are complicated. We were particularly concerned about causal (rather than descriptive) interpretations given dual directions of causation between employment status and family background characteristics for older youth and young adults.

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TABLE 8-6 Employment Rates,[a] Ages 16 to 25

	1989				1997			
Employment Rates	*N*	Male	Female	*P-Value*	*N*	Male	Female	*P-Value*
Total	2,840	80.6	80.9	NS	2,104	68.9	71.8	NS
Age, in years								
16	290	43.5	55.2	0.05	195	20.4	24.1	NS
17	287	63.6	61.1	NS	195	31.3	55.6	0.00
18	305	75.2	76.3	NS	246	59.7	52.7	NS
19	293	79.6	80.9	NS	173	70.1	66.3	NS
20	296	90.4	86.4	NS	195	72.3	79.2	NS
21	303	87.5	86.2	NS	226	79.2	85.4	NS
22	255	94.1	87.5	NS	215	80.0	83.3	NS
23	251	93.5	87.5	NS	237	89.6	86.6	NS
24	266	94.4	93.6	NS	197	86.8	89.0	NS
25	294	92.4	93.9	NS	225	91.5	89.1	NS
P-value		0.00	0.00			0.00	0.00	
Urban-rural residence								
Urban	804	71.1	69.5	NS	574	59.9	67.7	NS
Rural	2,036	84.2	85.6	NS	1,530	72.0	73.4	NS
P-value		0.00	0.00			0.00	NS	
Number of consumer items owned								
Missing	62	67.9	70.6	NS	64	63.6	61.3	NS
Lowest quartile	504	88.9	90.9	NS	489	77.5	82.5	NS
2nd quartile	893	80.3	86.4	0.01	618	72.3	72.4	NS
3rd quartile	879	79.4	75.1	NS	442	67.3	74.8	NS
Highest quartile	502	75.4	74.8	NS	491	56.5	60.9	NS
P-value		0.00	0.00			0.00	0.00	

[a]In the 1989 wave, the question, "are you presently working?" was asked of all members in the household. We used an additional question, "What is your primary occupation?", to eliminate adolescents who answered "yes" to the occupation question but stated their primary occupation as student.

NOTE: NS = not statistically significant at 0.05 level. P-values are results from chi-squared tests of independence. P-values listed to the right of employment rates result from tests of gender by employment (within categories of the listed characteristic, if applicable). P-values listed below employment rates are within-gender chi-square tests of employment by the listed characteristic.

SOURCE: China Health and Nutrition Survey.

25- to 29-year-olds; percentages were similar in 1990. However, proportionally, sales workers increased between the censuses, from 2 percent to nearly 4 percent of 25- to 29-year-olds.

Of course, there may be significant shifts in the structure of labor within these broad categories. Furthermore, we note that the stability shown here has emerged together with several important labor changes. First, the criteria for obtaining and keeping jobs and for being rewarded within the

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workplace are different for youth entering the labor force now, compared to earlier cohorts. Studies of career mobility and income determination trends suggest that human capital, as a marker of abilities, is becoming increasingly important for these aspects of the occupational attainment process (e.g., Zhang and Zhao, 2003; Zhao and Zhou, 2003; Maurer-Fazio, 2003; De Brauw and Rozelle, 2003; see Bian, 2002, for a review). Scholars attribute these changes to the emergence of labor markets and to new incentives in the workplace for productivity.

A second important change lies in the welfare implications of securing a job. Work units traditionally have provided a broad variety of social welfare services. However, this pattern is rapidly dissipating. For example, work units have been a primary provider of urban residents' housing, but waves of reforms starting from the late 1980s have raised rents, detached housing from work units, and commodified and privatized housing (Bian, 2002, p. 101; Wu, 2002).[15] Furthermore, emerging private-sector jobs may offer high incomes, but do not typically offer the other benefits historically associated with state-sector jobs. Finally, jobs in either sector are much more unstable under market reforms, placing incumbents at higher risk of losing whatever benefits are associated with those jobs. Compared to their earlier counterparts, youth entering the workplace now enjoy higher incomes, on average, but they face fewer benefits and reduced job security.

Finally, an important trend that is not easily traceable in available statistics on youth labor in China is the rise in population movement, and especially the "floating population" or unregistered, temporary labor migrants. Enabled by a convergence of different reform-era policies,[16] the floating population is largely a new phenomenon in China. Floaters largely consist of rural laborers moving from central and western regions to east coast regions for work in township and village enterprises and unskilled urban jobs (Goodkind and West, 2002). Estimates of the size of China's floating population vary widely, but recent official estimates indicate that the population has increased steadily from the early 1980s and is projected to increase to 160 million, or more than 10 percent of China's entire

[15]Bian (2002, p.101) cites the 1998 State Council Housing Reform Directive as requiring that all new housing units be sold and purchased at market prices.

[16]A convergence of reform-era policy shifts has created the circumstances under which the floating migration has grown. These include the following: (1) the loosening of migration restrictions; (2) tremendous requirements for manpower in the cities in low-level construction and manufacturing jobs, and more recently, in household service and related jobs, associated with urban market reforms; (3) the eradication of food coupon systems and the emergence of private housing and labor markets in cities; and (4) the creation of a huge surplus labor force without means of sustenance in rural areas created by decollectivization of agriculture (see, e.g., Poston and Duan, 1999, or Liang, 2001).

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TABLE 8-7 Occupational Distribution of Economically Active Youth by Gender and Census Year

	Age Group	Scientists: Technical, Professional, and Related Workers	Administrative and Managerial Workers	Clerical and Related Workers
1982				
Total	15-19	1.42	0.01	0.39
	20-24	5.06	0.11	1.20
	25-29	6.03	0.44	1.35
Male	15-19	1.35	0.01	0.56
	20-24	4.92	0.15	1.57
	25-29	6.21	0.64	1.69
Female	15-19	1.48	0.01	0.23
	20-24	5.21	0.06	0.79
	25-29	5.80	0.20	0.96
1990				
Total	15-19	1.12	0.01	0.61
	20-24	4.51	0.15	1.31
	25-29	7.23	0.71	1.94
Male	15-19	0.81	0.02	0.97
	20-24	4.12	0.22	1.75
	25-29	7.10	1.16	2.58
Female	15-19	1.41	0.01	0.28
	20-24	4.92	0.07	0.83
	25-29	7.38	0.20	1.21

NOTE: Data on armed service personnel were unavailable for 1990, so this category was removed from calculations for both years.
SOURCE: Calculated from China census data posted to the U.S. Census Bureau International Database (2002).

population, by 2010 (Liang, 2001; Goodkind and West, 2002, p. 2242). The floating population is young, tends to be more male than female, and tends to be either single or married but without accompanying spouses (Poston and Duan, 1999; Goodkind and West, 2002; Roberts, 2002; Wang, 2002). In some ways analogous to undocumented workers in the United States, floaters in China enjoy few labor rights and limited access to social services (Goodkind and West, 2002; Wu, 2002). Youth among this population are vulnerable to exploitation and labor abuses, but the scope of such problems is unclear.

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Sales Workers	Agriculture, Animal Husbandry, Forestry, Fishing and Hunting	Production and Related, Transport Equipment, and Laborers	Service Workers	Unknown
1.21	81.64	13.89	1.28	0.16
2.26	66.17	22.93	2.12	0.16
2.00	68.01	20.15	1.94	0.08
1.05	79.81	15.74	1.30	0.18
1.89	63.27	26.19	1.84	0.17
1.83	63.60	24.29	1.66	0.08
1.36	83.36	12.16	1.26	0.15
2.68	69.37	19.33	2.42	0.14
2.21	73.24	15.24	2.27	0.08
1.39	81.69	13.49	1.61	0.08
2.62	70.51	18.78	2.03	0.10
3.91	64.71	19.23	2.22	0.05
1.26	80.93	14.56	1.37	0.09
2.42	67.44	22.17	1.76	0.12
3.74	60.20	23.34	1.84	0.04
1.52	82.42	12.47	1.83	0.06
2.84	73.83	15.12	2.32	0.08
4.10	69.82	14.56	2.65	0.06

In summary, as can be anticipated from rising rates of educational attainment described in the previous section, youth are joining the workforce at increasingly late ages. Those who do enter the workforce, especially those who enter in their teens, are overwhelmingly likely to be working in rural, agricultural jobs. This finding reflects the concentration of the population in rural areas, and the persisting educational disadvantage of rural youth. Rising numbers of these rural youth are moving in search of employment in cities, and are at risk of exploitation in the work-

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place. More broadly, the jobs that youth obtain offer greater economic remuneration than in the past, but fewer benefits and less security, and access to good jobs is increasingly conditioned by education.

FAMILY, MARRIAGE, AND CHILDBEARING

Beyond education and the transition into the workforce, family formation is an activity crucial to the transition to adulthood. From the inception of the People's Republic of China, the marriage and childbearing choices of adolescents and young adults have been constrained by explicit laws. The Marriage Law of 1950 specified that the minimum legal age for marriage was 20 for males and 18 for females; these ages were revised upward by the new Marriage Law (1980), to 22 for males and 20 for females (Zeng, 2002). The 1950 and 1980 Marriage Laws advocated legal marriage based on the free choice of marriage partners, monogamy, and equal rights for both sexes and outlawed arranged marriage (Arnold and Liu, 1986). Under the influence of such decrees and other social and economic changes, a major shift away from arranged marriage has occurred in China over the past four decades (see Xu and Whyte, 1990, for evidence in Chengdu; see Riley, 1994, for evidence in six provinces of China). Family planning policies have also had important implications for the family formation. China initiated its first official national family planning policy, the *wan-xi-shao* (later-longer-fewer) policy, in 1970 (Tien, 1980). The later-longer-fewer policy advocated later marriage and childbearing, longer birth intervals, and fewer births. Although no unified standard existed, the lower limits on age at marriage were set as high as the mid-20s for females and late 20s for males in parts of China (Zeng, 2002). The later-longer-fewer policy also slowed the pace of childbearing by promoting a two-child norm and recommending at least 3 years of spacing between births. Signaling a dramatic change in the lives of reproductive-aged women, the policy coincided with a drop in total fertility rates from 5.8 in 1970 to 2.2 in 1980 (Zhang, 2000).

Around the time of market reforms, in 1979, the Chinese government issued the more restrictive one-child policy. Banister (1987) summarized the new policy as promoting late marriage, late childbearing, and few and healthy children, and encouraging one child per family. However, it met strong resistance and many violations took place. In 1984, the policy was revised to allow exemptions for having a second child for rural couples under certain circumstances.[17] In the late 1980s, policy loosened further

[17]For example, in some areas, rural couples were permitted to have a second child with a birth interval of 4 years, if their first child was a daughter. Some ethnic minority couples were permitted to have three children, but in no cases were fourth births to be allowed. The other exceptions include: (1) the first child is disabled; (2) the couple are both only children; and (3) the couple both have other special occupations (Short and Zhai, 1998).

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and took son preference into greater account (Zeng, 1989). In most rural areas, daughter-only families were allowed a second child (Croll, 2000, p. 22).[18]

In the early 1990s, the Chinese government introduced the family planning responsibility system[19] to strengthen political and financial support from leaders at all levels (Xie, 2000). Overall, instead of enforcing a single state-derived, one-child policy, local governments were allowed to adapt national policy to take local socioeconomic circumstances, culture, and ethnic composition into consideration. Croll (2000, p. 22) observes that by the late 1990s "rigorous application" of the one-child rule occurred almost exclusively among urban residents, and then only very stringently in a select group of municipalities and high-population density provinces. According to Croll (2000, p. 22), in many provinces, general regulations now allow a second child for couples whose first child is a daughter, and some allow two children in most rural areas, regardless of the gender of the first child.

Furthermore, since the mid-1990s, new strategies for implementation have emerged, with particular relevance to adolescents. These strategies put more emphasis on quality of care, on informed contraceptive choices, on integrating family planning programs with economic activities, and on the improvement of women's status. It is important to note that because family planning services had long been organized to serve married women, unmarried adolescents were not always able to access services (Gu, Xie, and Hardee, 1998). The new service-oriented approaches have started to target reproductive health issues for adolescents. Examples of youth-oriented initiatives include offering new sex education programs in schools and communities,[20] increasing the retail sales of condoms, and addressing problems of unwanted pregnancies among adolescents, especially college students, in urban areas.

What are the trends in family formation in the reform period? Evidence indicates that rates of marriage are high in China, but the age at marriage is also high, with few adolescents among the married. Table 8-8 shows estimates of the singulate mean age at marriage (SMAM) and marital status for cohorts ages 15 to 19 years, 20 to 24 years, and 25 to 29 years for select years. The SMAM is a proxy for the mean age at marriage calculated from

[18]Rural fertility increased during this period (Zeng, 1989).

[19]The responsibility system requires that the head of the Communist Party and governments at all levels should take full responsibility for implementing the local population plans and give priority to the family planning program. Failure to meet the population targets may lead to some penalties for the leaders, such as withholding bonus, demotion, or dismissal.

[20]See, for example, no author (2002) for a description of one program in Changsha.

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TABLE 8-8 Singulate Mean Age at Marriage and Percentage Married Among 15- to 29-Year-Olds, Select Years

	1982		1987	
	M	F	M	F
N				
15-19 years	63,705,558	61,462,900	65,186,200	62,885,400
20-24 years	37,800,462	36,403,280	60,813,900	60,700,100
25-29 years	47,676,631	44,750,195	38,036,500	36,328,000
Percentage that are:				
Single				
15-19 years	99.1	95.6	98.6	95.8
20-24 years	72.0	46.5	61.0	39.9
25-29 years	23.6	5.3	17.3	4.1
Married				
15-19 years	0.9	4.3	1.4	4.2
20-24 years	27.8	53.3	38.7	59.8
25-29 years	75.7	94.3	81.9	95.4
Divorced				
15-19 years	0.0	0.0	0.0	0.0
20-24 years	0.2	0.2	0.2	0.2
25-29 years	0.5	0.2	0.5	0.3
Widowed				
15-19 years	0.0	0.0	0.0	0.0
20-24 years	0.0	0.1	0.1	0.1
25-29 years	0.2	0.2	0.2	0.2
SMAM[a]	24.9	22.4	23.9	22.0

[a]Singulate mean age at marriage (SMAM) is the average number of years lived in the single state by those who marry prior to 50 years. For 1982, data for ages 50 to 54 were not available. Reported SMAM substitutes 1987 data for percentage married at ages 50 to 54. The United Nations Common Database (code 1030) offers ready-made estimates of SMAM

current status data, and represents the average number of years lived in the single state by those who marry prior to age 50.

Rates of singlehood were stable and nearly universal among teenagers, ranging between 98.2 and 99.5 percent among males and between 95.3 and 98.4 percent for females for the years for which data are available. However, between 1982 and 1987, the singulate mean age at marriage dropped from 24.9 to 23.9 for men and from 22.4 to 22.0 for women. In the 1990s, the age rose again to 24.5 for men and 22.8 for women. Similarly, marital status data for youth and young adult cohorts reveal that rates of singlehood among 20- to 30-year-old cohorts of men and women dropped in the 1980s, then rose thereafter (see Coale, Feng, Riley, and Lin, 1991 and

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1990		1996		1997	
M	F	M	F	M	F
61,650,589	58,507,832	46,193,000	43,330,000	47,912,000	43,829,000
64,233,023	61,528,151	51,449,000	52,289,000	47,711,000	48,643,000
53,512,983	50,754,542	63,325,000	64,106,000	64,203,000	64,597,000
98.2	95.3	99.5	98.4	99.0	98.3
62.5	41.4	71.3	49.6	72.4	50.8
16.7	4.3	20.3	6.8	20.9	7.4
1.8	4.6	0.5	1.6	0.9	1.7
37.3	58.3	28.4	50.1	27.2	48.8
82.4	95.1	78.5	92.4	77.9	91.8
0.0	0.0	0.0	0.0	0.0	0.0
0.2	0.2	0.0	0.1	0.3	0.3
0.6	0.5	0.3	0.2	0.9	0.6
		0.0	0.0		
0.0	0.0	0.0	0.0	0.0	0.0
0.1	0.1	0.2	0.3	0.1	0.1
0.2	0.2	0.9	0.6	0.3	0.2
23.8	22.1	24.5	22.8	24.5	22.8

for the census years 1982 and 1990 from WESTAT. For 1982, estimates were 25.1 for men and 22.4 for women. For 1990, estimates were 23.8 for men and 22.1 for women.
SOURCE: United Nations (2002).

Zeng, 2002, for confirmatory evidence on the drop in age at marriage in the early 1980s, and Zeng, 2002, for rising trends in the 1990s). In Figure 8-2, the percentage married among 15- to 29-year-old cohorts in the CHNS confirm a substantial delaying tendency between 1989 and 1997.

The drop in age at marriage in the 1980s is commonly attributed to the 1980 Marriage Law, which in theory lifted the national legal age at marriage, but in fact loosened the age restrictions that had been in practice in some regions during the 1970s as part of the *wan-xi-shao* family planning policy (Zeng, 2002, p. 94). Zeng (2002, p. 95) credits rapid economic development with contributing to the more recent recovery in age at first marriage: With the emergence of the labor market and new employment

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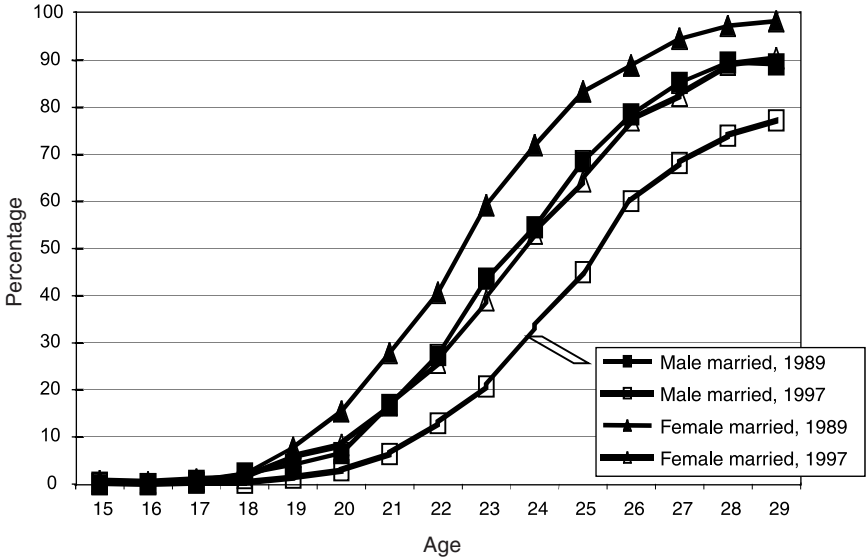

FIGURE 8-2 Marriage rates, 15- to 29-year-olds, China Health and Nutrition Survey, 1989 and 1997.

opportunities in cities, many young people delayed marriage. A strong population program that advocated late marriage may also have contributed to this delay. Finally, increased market access to contraceptives has allowed young people to engage in sexual activity with less worry about unwanted pregnancy, further delaying incentives for marriage.[21]

Given low marriage rates at young ages, and low rates of out-of-wedlock childbearing in China, it is not surprising that adolescent fertility rates are also low. Figure 8-3 shows total fertility rates and age-specific fertility rates for cohorts of young adults ages 15 to 19, 20 to 24, and 25 to 29. The total fertility rate is very low in China, having dropped from 2.2 in 1990 to about 1.8 by 1992 and 1.7 by 2000, where it remained stable through 2003. Age-specific fertility rates dropped for each of the three youth and young adult cohorts,[22] suggesting a shift toward later childbearing.

[21]The percentage of young people facing divorce remains very low, although overall divorce rates appear to be rising very quickly in China (Zeng and Wu, 2000).

[22]Rates among 15- to 19-year-olds dropped from 21 in 1990 to 11 in 2003; rates for 20- to 24-year-olds dropped from 197 to 164; and rates for 25- to 29-year-olds dropped from 150 to 107.

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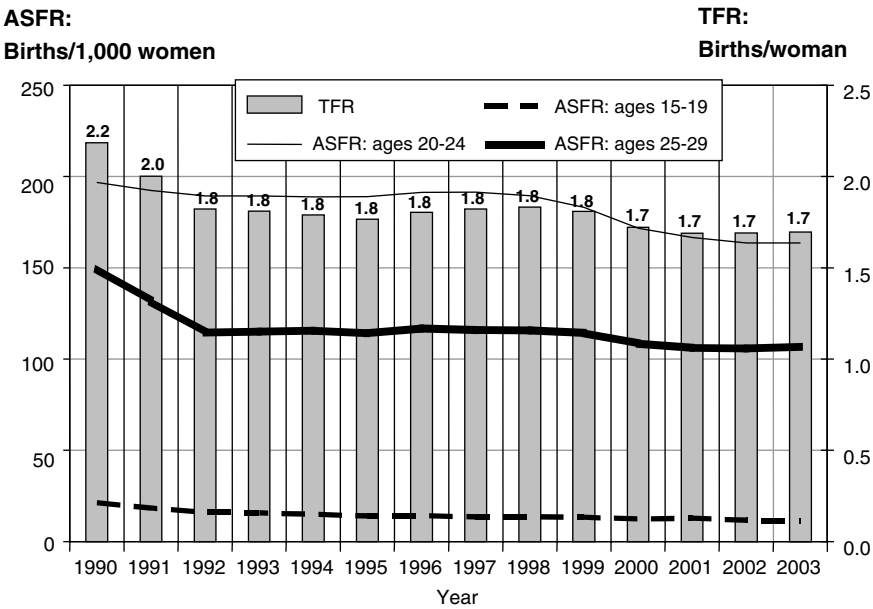

FIGURE 8-3 Total fertility rates and youth age-specific fertility rates.
NOTE: ASFR = age-specific fertility rate; TFR = total fertility rate.
SOURCE: Calculated from U.S. Bureau of the Census (2002), Table 028. International Database. Available: http://www.census.gov/ipc/www/idbnew.html.

HEALTH

In China, many of the reform-era changes in the education sector have parallels in the health-sector reforms. On the eve of market reforms, health care access was widespread, if not high quality. Public health institutions were financed by the government, and public health services were provided to users at no cost (Liu and Mills, 2002). Hsiao and colleagues (1997) state that by 1975, insurance coverage provided by the government and state enterprises and the rural cooperative medical system had reached nearly to 90 percent of the population. This coverage included nearly all of the urban population and 85 percent of the rural population. It provided access to cost-effective preventive and curative health care services (Hsiao et al., 1997, pp. 1-2).

As we discussed in the context of education, beginning in 1978, the Chinese government introduced radical economic policy shifts that moved China away from a centrally planned economy and toward a competitive market system (Hsiao et al., 1997). In the health-sector, fiscal decentralization and the diminishing role of rural collectives resulted in an increasing private share in health expenditures and growing inequities in access to

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health services (Bloom and Gu, 1997; Yu, Cao, and Lucas, 1997). Beginning in the early 1980s, public health institutions were no longer seen as pure welfare entities, but rather as economic bodies, and charges were introduced as an important source of income (Liu and Mills, 2002). Government spending on health increased during the early reform years, but private health spending increased even faster, transforming the financial base of health care (Hsiao et al., 1997).

The most dramatic change in health financing in the early reform years was the decline of the rural cooperative medical system; the financing gap that resulted was filled mainly by private out-of-pocket spending (Hsiao et al., 1997). Even within urban areas, however, some evidence suggests increases in out-of-pocket payments and a decline in the population covered by government insurance (Gao et al., 2001). Overall, out-of-pocket payments rose from 20 percent of the health-sector's revenue in 1978, to 26 percent in 1986, to 42 percent in 1993 (Hsiao et al., 1997). In the 1990s, some evidence suggests that preventive health care services declined as costs for those services rose. For example, immunization rates appear to have dropped as fees for immunizations have increased (Gu et al., 1995; Hsiao et al., 1997; UNMI, 2002). Evidence suggests that access to health insurance among children and youth was extremely limited through the 1990s. For example, just 16 to 17 percent of children under age 16 in the 1989, 1993, or 1997 waves of the CHNS had access to health insurance (Adams and Hannum, 2005).

Against a backdrop of rising disparities in availability of high-quality services, China faces the challenge of new health problems common to developed countries and persistent problems more characteristic of those facing developing countries. One general problem facing children and youth in China is nutrition, as a dual pattern of overnutrition and nutritional deprivation is emerging (Hesketh, Ding, and Tomkins, 2002). Child malnutrition declined in rural areas in the late 1980s and early 1990s, but dramatic regional variations exist and physical stunting remains common in some poor rural areas (Chen, 2002; Park and Zhang, 2000). Using longitudinal data from the China Health and Nutrition Survey in 1991 and 1993, Wang, Popkin, and Zhai (1998) found that among children ages 10 to 18, the prevalence of stunting declined from 23 percent in 1991 to 19 percent in 1993, but that undernutrition was still a problem among 13 percent of adolescents.

Wang et al. (1998) note that overweight status is emerging as a problem associated with high-income and urban adolescents, though the overall prevalence is low, at 4 percent.[23] Other studies focusing on urban popula-

[23]Wang et al. (1998) defined undernutrition as an age- and gender-specific body mass index (BMI) less than the 5th percentile of the National Center for Health Statistics/World Health Organization (NCHS/WHO) reference; they defined overweight status as a BMI at or above the 85th percentile of the NCHS/WHO reference.

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tions have similarly begun to track an emerging problem of obesity among urban youth (Hesketh, Ding, and Tomkins, 2002). Wang and colleagues' (1998) review of smaller studies suggests that the prevalence of overweight status may have reached 6 to 9 percent in several coastal provinces and in north China by the early 1990s. Although problems of overnutrition have yet to reach the proportions seen in the United States,[24] they illustrate new health issues emerging as a direct result of the wealth brought by market reforms.

Another adolescent health issue that the market reform era may have exacerbated is smoking. Although smoking is a major health problem in China across age groups, the majority of smokers begin as adolescents (Cheng, 1999). A national prevalence survey conducted in 1996 showed that the steepest rise in smoking occurs between the ages of 15 and 20, and that the majority of teen smokers and nonsmokers were unaware of the health risks of smoking (Cheng, 1999, pp. 608-611). Two studies conducted in Beijing, in 1991 and 1997, found that the prevalence of teenage smoking ranged from 15 percent to 25 percent (Li, Fang, and Stanton, 1996, 1999). Hesketh, Ding, and Tomkins' (2001) survey of 6,674 13- to 18-year-old students in Zhejiang province indicated that 25.7 percent of boys and 5.4 percent of girls has ever smoked. Among ever-smokers, 41.9 percent had smoked before age 10, and 7.9 percent before age 5.[25]

Furthermore, the problem appears to be growing. Analysis of a national survey of smoking prevalence conducted in 1996 suggested that the age of smoking initiation fell by approximately 3 years for both men and women between 1984 and 1996 (Yang et al., 1999). Beyond long-term health implications, smoking among Chinese adolescents is associated with poor school performance and problem behaviors such as truancy from school, running away from home, destructiveness, and fighting (Li et al., 1996, 1999). A tobacco advertising ban was enacted in 1995, and through the 1990s, smoking bans were passed in some cities and some school-based campaigns emerged. However, the scope of implementation of these strategies remains unclear (Cheng, 1999; Unger et al., 2001).

A third health concern that is looming large for adolescents in the reform period is reproductive health. Recent delays in the age at marriage

[24]In the United States, 26.5 percent of adolescents were overweight, defined using a cutoff point of the 85th percentile based on the smoothed version of the National Health and Nutrition Examination Survey (NHANES I). The number was estimated using a sample of 13,783 adolescents from the National Longitudinal Study of Adolescent Health (Popkin and Udry, 1998).

[25]Unger et al. (2001, p. 162) report that studies in various parts of mainland China have reported adolescent smoking prevalence rates of 28 to 43 percent for boys and 1 to 11 percent for girls, with results dependent on the age of respondents and the specific measures of smoking employed.

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and an increasingly early age of menarche[26] leave young adults with a long period of sexual maturity before marriage. Concerns have been raised about premarital sex, lack of knowledge of and access to contraceptives (Gao, Tu, and Yuan, 1997; Zhang, 1997), a rise in abortions due to unwanted pregnancies (Luo et al., 1995; Wu et al., 1992), and increasing vulnerability to HIV and other sexually transmitted diseases among adolescents (Xiao, 1996; Qi and Tang, 2000).

Empirical estimates of trends in premarital sex are difficult to come by, due to the still-sensitive nature of the topic. Wang and Yang (1996) indirectly examined the incidence of premarital sex using data from the 1988 China's Two-Per-Thousand Fertility and Birth Control Survey. The authors defined premarital conceptions as intervals of 8 months or less between the date of first marriage and first birth. They found that premarital conceptions rose from 1.5 percent in the 1950s, to 3.0 percent in the late 1970s, to 5.0 percent in the mid-1980s. The percentages of premarital conception were twice as high for urban residents as rural residents (5 percent versus 2.5 percent). There was no significant difference by ethnicity, but women with secondary schooling or more had higher percentages of premarital conceptions (4.4 percent) than women who were illiterate or semiliterate (1.4 percent). Professional couples were more likely, and farming couples less likely, to have a premarital conception. These findings suggest that the incidence of premarital sex has increased over time, and increases with higher social status. However, these figures are likely to underrepresent actual premarital sexual activities due to the rising availability of contraceptives and the use of abortions to prevent unwanted births.

National studies of abortion are unavailable, but smaller scale studies suggest that nontrivial numbers of young, single women do experience abortion. For example, one study of five districts in Shanghai indicated that the abortion rate among single women in 1988 was 56 abortions per 1,000 15- to 19-year-olds, 159 per 1,000 20- to 24-year-olds, and 94 per 1,000 25- to 29-year-olds (Wu et al., 1992). The figure for 15- to 19-year-olds represented a dramatic increase from 5 per 1,000 in 1982. In the same period of time, abortion rates increased nearly fourfold for single women ages 20 to 24 and 30 to 34, and more than doubled among women ages 25 to 29. Furthermore, the proportion of abortions obtained by single women increased from 14 percent in 1982 to 28 percent in 1986, then decreased slightly to 25 percent in 1988 (Wu et al., 1992, p. 51). A study of abortions conducted between August and November 1999 in four hospitals in Beijing indicated that 40 percent of the procedures were for unmarried women (no

[26]Wu, Gao, and Zhang (2000) reported that due to improved health conditions and nutrition, age at menarche in China dropped from 16.5 years for women born in 1947-1949 to 13.9 years for women born in 1980-1982.

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author, 2001). A survey of 457 unmarried women undergoing first-trimester abortions in six Sichuan counties between July 1990 and June 1991 found that 28.2 percent of them were under 20 years old and 64.8 percent were 20 to 24 years of age. The vast majority (92.6 percent) were not using any form of contraception when the pregnancy occurred, and 35 percent reported at least one previous abortion (Luo et al., 1995).

The use of abortion by young women is itself a significant health issue, but it also suggests that methods other than indirect estimation from first birth intervals are needed to determine the sexual activity of adolescents. The National Reproductive Health Survey, conducted in 1997, inquired indirectly among reproductive-aged women about premarital sex, asking, "To your knowledge, among the people you know, are there any people having sex before their marriage? If yes, how widespread is this behavior?" (see Table 8-9). Overall, about 30.9 percent of respondents stated that premarital sex was nonexistent among those around them, 35.1 percent said there were occasional or some cases, and 14.5 percent said it was relatively widespread.[27] Interestingly, the youngest cohorts—15 to 19 and 20 to 24—were less likely to perceive widespread premarital sex than their older counterparts. Perceptions of widespread premarital sex were greatest among women in the middle of the reproductive-age range. Less educated women respondents perceived less widespread premarital sex than more educated women, and rural women were less likely to perceive widespread premarital sex than urban women.

The current prevalence of premarital sex is linked in the popular press to more permissive social attitudes. However, evidence about trends in attitudes is hard to come by. The 1997 National Reproductive Health Survey suggests that the vast majority of people continue to express attitudes unfavorable to premarital sex (see Table 8-10). The survey asked a relatively conservative question: "Nowadays some people think, as long as two people plan to get married, they can have sex before marriage. Do you agree with this view?" Overall, 80.3 percent of people disagreed with this statement; only 12.6 percent agreed. For young age cohorts, ages 15 to 19, rates of agreement were even lower, at 6.2 percent. The rate of agreement rises with the 20- and 30-year-old cohorts, then drops among the oldest cohorts. The highest agreement rates emerged among urban women ages 20 to 34, where 17 to 20 percent of women agreed. The least educated women tended to have somewhat lower agreement rates.

[27]In the survey, 19.2 percent gave a response of "don't know" and 0.2 percent refused to answer the question.

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TABLE 8-9 Distribution of Responses to the Questions: "To your knowledge, among the people you know, are there any people having sex before marriage? If yes, how widespread is this behavior?"

	N	No	Occasional Cases	Some Cases	Relatively Widespread	Don't Know	Refuse to Answer
Total	15,213	30.87	23.42	11.73	14.50	19.25	0.24
By age	All women						
N	15,213						
15-19	1,620	37.90	19.94	8.83	4.38	28.40	0.56
20-24	1,944	30.71	27.73	13.43	12.29	15.53	0.31
25-29	2,881	27.91	25.27	13.16	17.49	16.00	0.17
30-34	2,776	29.90	21.90	12.21	17.44	18.37	0.18
35-39	1,840	29.40	22.55	11.74	15.43	20.76	0.11
40-44	2,223	30.95	23.48	10.93	15.38	19.03	0.22
45-49	1,929	32.24	22.19	10.52	14.62	20.22	0.21
	Rural women						
N	11,668						
15-19	1,284	40.50	19.00	8.18	4.28	27.49	0.55
20-24	1,498	34.78	27.70	11.82	9.81	15.55	0.33
25-29	2,253	33.07	25.83	10.52	13.76	16.69	0.13
30-34	2,184	34.80	21.89	10.44	14.10	18.64	0.14
35-39	1,316	35.18	22.11	9.73	12.54	20.36	0.08
40-44	1,652	37.23	22.82	9.26	11.92	18.58	0.18
45-49	1,481	37.00	22.15	9.12	11.34	20.12	0.27
	Urban women						
N	3,545						
15-19	336	27.98	23.51	11.31	4.76	31.85	0.60
20-24	446	17.04	27.80	18.83	20.63	15.47	0.22
25-29	628	9.39	23.25	22.61	30.89	13.54	0.32
30-34	592	11.82	21.96	18.75	29.73	17.40	0.34
35-39	524	14.89	23.66	16.79	22.71	21.76	0.19

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40-44	571	12.78	25.39	15.76	25.39	20.32	0.35
45-49	448	16.52	22.32	15.18	25.45	20.54	0.00
By education	All women						
N	15,213						
Illiterate and semiliterate	3,249	39.52	20.62	8.59	8.65	22.19	0.43
Primary schooling	4,546	36.67	22.64	10.49	12.41	17.64	0.15
Junior middle schooling	4,892	27.27	24.61	12.53	16.54	18.85	0.20
Senior middle schooling	1,434	17.64	24.62	14.09	23.64	19.80	0.21
Secondary technical schooling	539	18.00	28.20	16.88	19.29	17.63	0.00
College and over	553	11.03	28.03	22.06	19.71	18.81	0.36
	Rural women						
N	11,668						
Illiterate and semiliterate	3,121	40.31	20.60	8.39	8.20	22.08	0.42
Primary schooling	4,207	38.10	22.75	9.77	11.58	17.66	0.14
Junior middle schooling	3,624	31.29	25.06	11.31	13.58	18.57	0.19
Senior middle schooling	556	25.00	28.06	10.43	16.91	19.60	0.00
Secondary technical schooling	139	25.18	28.06	15.11	13.67	17.99	0.00
College and over	21	14.29	57.14	4.76	9.52	14.29	0.00
	Urban women						
N	3,545						
Illiterate and semiliterate	128	20.31	21.09	13.28	19.53	25.00	0.78
Primary schooling	339	18.88	21.24	19.47	22.71	17.40	0.29
Junior middle schooling	1,268	15.77	23.34	16.01	25.00	19.64	0.24
Senior middle schooling	878	12.98	22.44	16.40	27.90	19.93	0.34
Secondary technical schooling	400	15.50	28.25	17.50	21.25	17.50	0.00
College and over	532	10.90	26.88	22.74	20.11	18.98	0.38

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TABLE 8-10 Distribution of Responses to the Questions: "Nowadays some people think, as long as two people plan to get married, they can have sex before marriage. Do you agree with this view?"

	N	Agree	Disagree	Don't Know	Refuse to Answer
Total	15,213	12.61	80.30	6.43	0.66
By age	All women				
N	15,213				
15-19	1,620	6.17	82.35	9.69	1.79
20-24	1,944	13.07	79.32	6.89	0.72
25-29	2,881	15.41	76.92	7.08	0.59
30-34	2,776	16.17	78.06	5.44	0.32
35-39	1,840	12.39	81.25	5.87	0.49
40-44	2,223	11.11	83.67	4.59	0.63
45-49	1,929	10.16	83.05	6.32	0.47
	Rural women				
N	11,668				
15-19	1,284	6.15	81.78	10.20	1.87
20-24	1,498	11.88	80.91	6.34	0.87
25-29	2,253	14.25	79.23	5.99	0.53
30-34	2,184	15.34	79.40	4.99	0.27
35-39	1,316	12.31	81.31	6.16	0.23
40-44	1,652	10.96	84.56	4.12	0.36
45-49	1,481	10.20	82.31	6.89	0.61
	Urban women				
N	3,545				
15-19	336	6.25	84.52	7.74	1.49
20-24	446	17.04	73.99	8.74	0.22
25-29	628	19.59	68.63	10.99	0.80
30-34	592	19.26	73.14	7.09	0.51
35-39	524	12.60	81.11	5.15	1.15
40-44	571	11.56	81.09	5.95	1.40
45-49	448	10.04	85.49	4.46	0.00

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By education	All women				
N	15,213				
Illiterate and semiliterate	3,249	10.80	80.39	7.94	0.86
Primary schooling	4,546	12.65	80.55	6.25	0.55
Junior middle schooling	4,892	13.41	80.78	5.19	0.61
Senior middle schooling	1,434	12.97	79.85	6.35	0.84
Secondary technical schooling	539	12.06	79.59	7.98	0.37
College and over	553	15.37	75.23	8.68	0.72
	Rural women				
N	11,668				
Illiterate and semiliterate	3,121	10.99	80.26	7.88	0.87
Primary schooling	4,207	12.79	80.48	6.16	0.57
Junior middle schooling	3,624	12.06	82.53	4.86	0.55
Senior middle schooling	556	12.77	82.01	5.04	0.18
Secondary technical schooling	139	11.51	79.86	7.91	0.72
College and over	21	9.52	85.71	4.76	0.00
	Urban women				
N	3,545				
Illiterate and semiliterate	128	6.25	83.59	9.38	0.78
Primary schooling	339	10.91	81.42	7.37	0.29
Junior middle schooling	1,268	17.27	75.79	6.15	0.79
Senior middle schooling	878	13.10	78.47	7.18	1.25
Secondary technical schooling	400	12.25	79.50	8.00	0.25
College and over	532	15.60	74.81	8.83	0.75

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These patterns provide some hints of likely trajectories of change, though they do not speak directly to change. The fact that agreement rates tend to be higher in urban areas and among the somewhat better educated suggests that the segments of society that have greatest exposure to the forces of development are also those with more permissive attitudes, and those perceiving more sexual activity outside of the context of marriage.

Indications of rising premarital sexual activity, in the context of increases in the age at marriage (except in the early 1980s), suggest the possibility that what is changing may not be youth sexual behaviors per se, but the link between these behaviors and marriage. Yet, adolescent and young adult nonmarital sexual activity carries numerous public health concerns not implied by sexual activity within the context of marriage. Importantly, public health concerns about the prevalence of premarital sex in China are made urgent by the rapid increase in HIV prevalence. Overall estimates of the impact of HIV in China are regularly shifted upward, with recent estimates suggesting that more than a million people carry HIV (United Nations Theme Group on HIV/AIDS in China, 2002). Trend data for youth are not available. However, among youth ages 15 to 24, United Nations estimates for 2001 suggest that the prevalence is between 0.11 percent and 0.2 percent for males and between 0.06 percent and 0.11 percent for females (United Nations Millennium Indicators, 2002). In a recent speech, the Minister of the State Population and Family Planning Commission suggested that more than 60 percent of China's HIV cases were among people ages 15 to 29 (Zhang, 2003).[28]

Knowledge of AIDS remains limited. A Centers for Disease Control and Prevention report on a survey of 7,000 randomly selected individuals ages 15 to 49 in seven counties showed that nearly 17 percent had never heard of AIDS, and more than half did not know the cause of the disease (CDC, 2002). Among those who had heard about AIDS, about 90 percent knew that it could be transmitted person to person, but 85 percent were unaware it could be passed from mother to child. Eighty-one percent did not know it could be acquired by sharing needles, and 52 percent were unaware that it could be transmitted by unsafe blood transfusions. More than 75 percent were unaware that proper use of condoms could prevent infection (Brown, 2002).

Adolescent sexual behavior is a concern that the public health system is struggling to address, despite China's extensive family planning system and its recent shifts toward a reproductive health services orientation (Gu, 2000; Simmons et al., 2000). To address concerns about adolescents, in recent years, numerous reproductive health programs have been implemented that target reproductive health services for youth and adolescents.[29] Adolescent

[28]However, the speech acknowledged that statistics were "incomplete."

[29]These include programs such as the China Family Planning Association's recent project on adolescents' sexual health (China Family Planning Association, 2001).

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reproductive health issues are recognized as being an important element in the mid- to long-term plan for AIDS control in China (Zhang, 2003). The challenges are exacerbated by ever-increasing numbers of unattached youth and young adults migrating to cities for work; these youth often remain excluded from urban welfare services, such as reproductive health services.

A fourth public health problem facing adolescents and young adults that has gained considerable public attention in recent years is suicide. Table 8-11 shows two recently published estimates of adolescent and young-adult suicide rates.[30] Panel A shows national urban and rural estimates of suicide rates and the percentage of all deaths from suicide for women and men, for ages 15 to 34 and for all ages. These estimates show that, overall, suicide rates among rural residents were much higher than those of urban residents—about three times as high. Women's rates were higher than men's, but the disadvantage faced by women was concentrated in rural areas. Furthermore, among rural populations, the excess suicide among women is larger among the young population than among the whole population. For rural women ages 15 to 34, fully 31 percent of all deaths were attributable to suicide. The rate of suicide for rural women in this age group, at 37.8 per 100,000, was 1.7 times the rate of rural men, 3.5 times the rate of urban women, and 4 times the rate of urban men. The 2001 *World Health Report* lists suicide as the leading cause of death in 1998 among rural women ages 15 to 34 in China (World Health Organization, 2001, Figure 2.5). Data from 1988, 1990, and 1992 (Panel B) suggest that the peak of rural young women's suicide rates occurs in the 20- to 24-year-old age range.

The most common technique is pesticide ingestion, which accounts for 34.3 to 66.6 percent of all suicides (Ji et al., 2001, pp. 3, 4; Phillips, Li, and Zhang, 2002). Ji and colleagues (2001) observe that this technique is extremely effective because rural health care systems are not equipped to handle pesticide poisoning. The ready availability of pesticides, and the inability of health systems to counteract their effects, may play a role in the excess suicide mortality for young women.[31] Contradictory evidence exists about the degree to which depression is a significant risk factor for suicide.

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[30]Phillips, Li, and Zhang's (2002) estimates (Panel A) are based on mortality data for 1995-1999 provided by the Chinese Ministry of Health, adjusted according to estimates of unreported deaths, and projected to the corresponding population (pp. 835-836). The authors describe the estimates as "conservative." Ji's (1999) estimates (Panel B) were calculated from unpublished Chinese Ministry of Public Health data. These data were collected from each county of China, and therefore represent a national sample. Further details were unavailable (p. 1). There are a number of estimates using data from other sources showing variation in the overall level of suicide prevalence. However, patterns of high rural-urban ratios of suicide and high female-male ratios among rural populations emerge across different studies (see, e.g., Ji, Kleinman, and Becker, 2001; Yip, Callanan, and Yuen, 2000).

[31]Ji and colleagues (2001) point out that as many as 80 percent of female suicide attempts among Western women are unsuccessful attempts.

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TABLE 8-11 Select Published Estimates of Suicide Rates in China for the 1980s and 1990s

Panel A: Mean Annual Rates of Suicide (1/100,000) and Percentage of All Deaths Due to Suicide, 1995-1999

Age	15-34		All Ages	
Population Group	Suicide Rate	% of all Deaths Due to Suicide	Suicide Rate	% of all Deaths Due to Suicide
Rural	30.3	20.4	27.1	4.0
Urban	10.2	10.3	8.3	1.5
Women	32.1	29.0	25.9	4.4
Men	20.0	12.1	20.7	2.9
Rural women	37.8	31.0	30.5	4.9
Rural men	22.8	13.1	23.9	3.3
Urban women	10.8	15.8	8.3	1.7
Urban men	9.5	7.4	8.3	1.3

Panel B: Rural Suicide Rates in 1988, 1990, and 1992 (1/100,000)

Age	15-19	20-24	25-29	30-34
Population Group				
Women				
1988	31.7	67.1	34.6	28.3
1990	23.3	47.6	37.3	25.9
1992	18.2	46.3	38.6	27.9
Men				
1988	14.1	38.2	23.6	22.8
1990	10.4	22.5	20.3	17.1
1992	9.8	28.4	23.0	19.8

SOURCES: Panel A: Section reproduced from Phillips, Li, and Zhang (2002a, Table 1). Panel B: Section reproduced from Ji (1999, Table 2).

Ji and colleagues' (2001) review suggests that serious depression is not a primary precipitant of suicide, while Phillips and colleagues' (2002b) national case-control study indicates that a high depression symptom score did significantly raise the risk of suicide. However, scholars agree that social stressors significantly raise the risk of suicide (Ji et al., 2001; Phillips et al., 2002b). Research on call-ins to mental health hotlines suggests that significant stressors, especially for women, include marital problems, pressures of extramarital or premarital affairs, family pressures, and education and employment pressures (Ji, 1999; Ji et al., 2001).

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Trend data remain sketchy, but certain evidence suggests a decline in suicide rates. Ji's estimates for rural residents in the late 1980s and early 1990s (Tabel 8-11, Panel B) suggest that suicide rates are declining across time, as 1992 figures were somewhat lower for most age cohorts than 1988 figures. Consistent with this result, a World Health Organization report (2001, Figure 2.4) indicates that age-standardized suicide rates in China dropped by 17.2 percent in the most recent three years for which data were available. However, Phillips, Li, and Zhang (2002a) indicate that an earlier study using comparable Ministry of Health mortality data from 1987 suggests that both the level and the age pattern of suicide were stable, compared with their own results for 1995 to 1999.

Regardless of the trend, the scope of suicide in recent years has brought recognition of suicide as a major public health problem. The Ministry of Health, in collaboration with the World Health Organization, held a workshop on suicide prevention in March 2000 that took the first steps toward developing a national suicide prevention program (Phillips, Li, and Zhang, 2002a).

Some of the health problems described here—overnutrition, sexual health, and to some degree, smoking—are problems enabled by the rising wealth in China. Other problems, including persisting undernutrition faced by children and youth in poor rural areas and the high suicide rates of young people in these areas, especially women, reflect older issues such as poverty and the social pressures facing young women.

SUMMARY

The evidence presented here indicates that changes were taking place in the 1990s. Most significantly, youth were delaying transitions into adulthood across major domains of the life course. Figures 8-4a and 8-4b illustrate this point, combining rates of nonenrollment, employment, and marriage by age for females (8-4a) and males (8-4b) ages 11 to 29 in the 1989 and 1997 CHNS samples. These figures illustrate that cohorts coming of age in the latter year transitioned more slowly out of education, into work, and into marriage. Consistent with this story, fertility data also suggest a shift to later childbearing. These shifts can be characterized as favorable, from the perspectives of improving the educational composition of the population, reducing child labor, and promoting slower population growth.

However, improved standards of living and norms of social openness associated with market reforms have raised the significance of behavioral health issues, such as smoking and premarital sexual activity. Furthermore, while available evidence suggests that many favorable changes have been shared across social groups, some noteworthy social and economic inequalities continued to mark adolescents' lives. For example, youth in ur-

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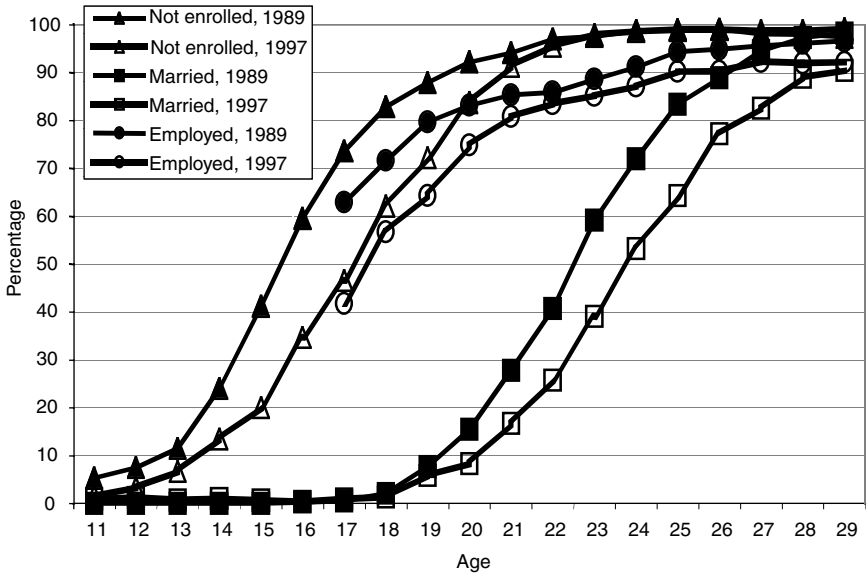

FIGURE 8-4a Nonenrollment, employment, and marriage, Chinese Health and Nutrition Survey, females, 1989 and 1997.

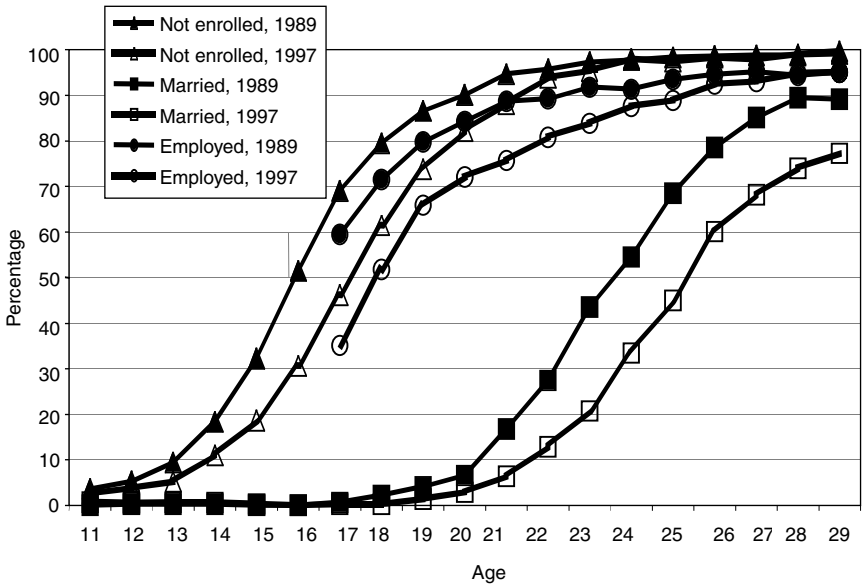

FIGURE 8-4b Nonenrollment, employment, and marriage, Chinese Health and Nutrition Survey, males, 1989 and 1997.

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ban areas remained more likely to be in school, and thus to enjoy the benefits of education in a labor market that increasingly rewards credentials. The mirror image of this phenomenon is reflected in the elevated likelihood of rural youth to be in the labor force, in the high percentage of working youth employed in agricultural pursuits, and in the rise in youth migration into urban settings. Similar signs of disparity mark education and employment status along socioeconomic lines.

Urban-rural and socioeconomic splits are also glaringly evident in the health problems facing China's adolescents, with youth in some poor rural areas continuing to face basic health problems such as lack of adequate nutrition, while wealthier urban youth are beginning to face health problems associated with youth culture in more affluent settings. The lines of inequality are nowhere more painfully clear than in suicide rates, which are three times higher in the rural youth population, probably reflecting a combination of the poverty-related stressors that poor rural adolescents must cope with on a daily basis and their easy access to potent poisons. For reasons that remain murky, the toll is highest for young rural women.

DISCUSSION AND CONCLUSIONS

China's socialist past was characterized by an unusually high degree of policy involvement, using means that were sometimes harsh, to achieve state goals regarding education, job placement, marriage, fertility, and women's roles. China's more recent experience of rapid economic development has built on some of the hard-won achievements of these earlier policies to yield many patterns of adolescent transition that are favorable. Youth stay in school longer, and start work later, as time passes. The average age at marriage is high enough that marriage is unlikely to compete directly with educational opportunities, except at the highest levels of education. Low fertility rates, especially at young ages, suggest that women's childrearing responsibilities compete less with other opportunities than in many less developed countries. Strikingly, in the 1990s, many of these favorable patterns were markedly enhanced.

Yet, the institutional legacies of socialism are not always suited to addressing the current problems of adolescents. For example, the traditional system of family planning, oriented toward strict regulation of marital fertility, is working to offer a more service-oriented approach, and to address issues of nonmarital sexual activity among increasingly mobile youth.

Nor are the implications of market reforms exclusively favorable. Wealth and the opening of society have led to new concerns about adolescent welfare. Improved standards of living and norms of social openness associated with market reforms have raised the significance of overnutri-

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tion, sexual health, and to some degree, smoking as adolescent and young adult health problems. Among the new problems facing youth, AIDS has the potential to become a staggering social problem if not successfully addressed in a timely manner. In the area of work, adolescents enjoy much greater chances of achieving high incomes than in the past, but they also face a harshly competitive environment in which the rewards associated with work are more narrowly economic and the tenure of any job obtained is less secure. Further complicating the picture is evidence that, while opportunities have improved across social groups, socioeconomically disadvantaged youth face disproportionate barriers to successful transitions into adulthood.[32]

In short, successes in improving the lives of many adolescents have brought new challenges, as China's youth policy makers now serve populations that face increasingly divergent problems. Decision makers in education, labor, family planning, and health now need to adapt services to the needs of urban adolescents and impoverished young rural-urban migrants, while dealing effectively with the older problems facing the rural poor. Their degree of success in this endeavor will bear crucial ramifications for the future welfare of China's youth and adult populations.

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[32]We note that our indicators may not fully represent the scope of disparities present in important dimensions of education and health care quality. The system of education is absorbing increasing proportions of children and youth, but it is also becoming increasingly stratified in quality as a direct result of economic and education policy shifts in the reform period. Similarly, the public health system is struggling to address persisting and new health problems of adolescents in a context where access to care is much more dependent on ability to pay than in the past.

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