The Consequences of Marketization for Health in China, 1991 to 2004: An Examination of Changes in Urban-Rural Differences

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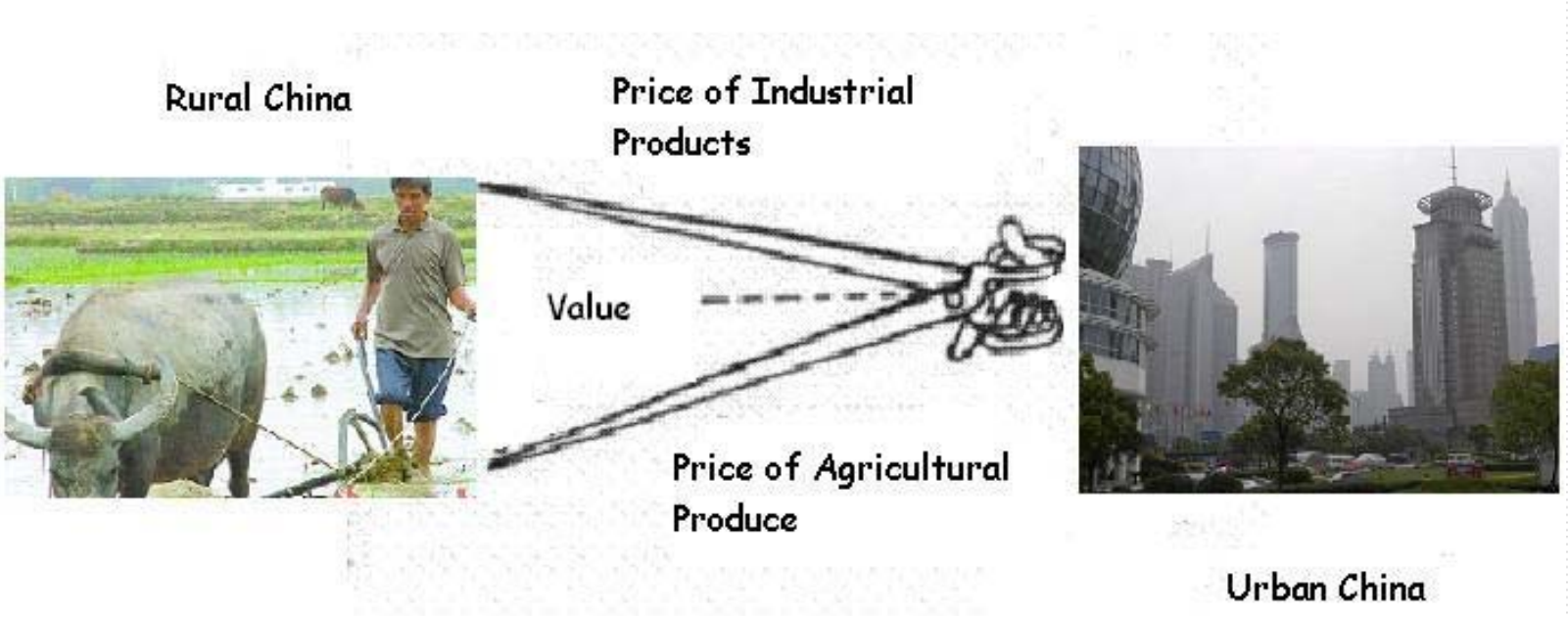
Organization of Presentation

- Urban-rural difference in socioeconomic development in China and its dynamics since the 1990s
- Disparities in mortality and access to health care between urban and rural areas
- Health inequality models used in research based on Western countries
- Trends in urban-rural morbidity gap and interpretations
- Changes in SES-health gradients over time
- A China case and global health

Urban-Rural Inequalities: Institutional background

- Urban-biased state policies



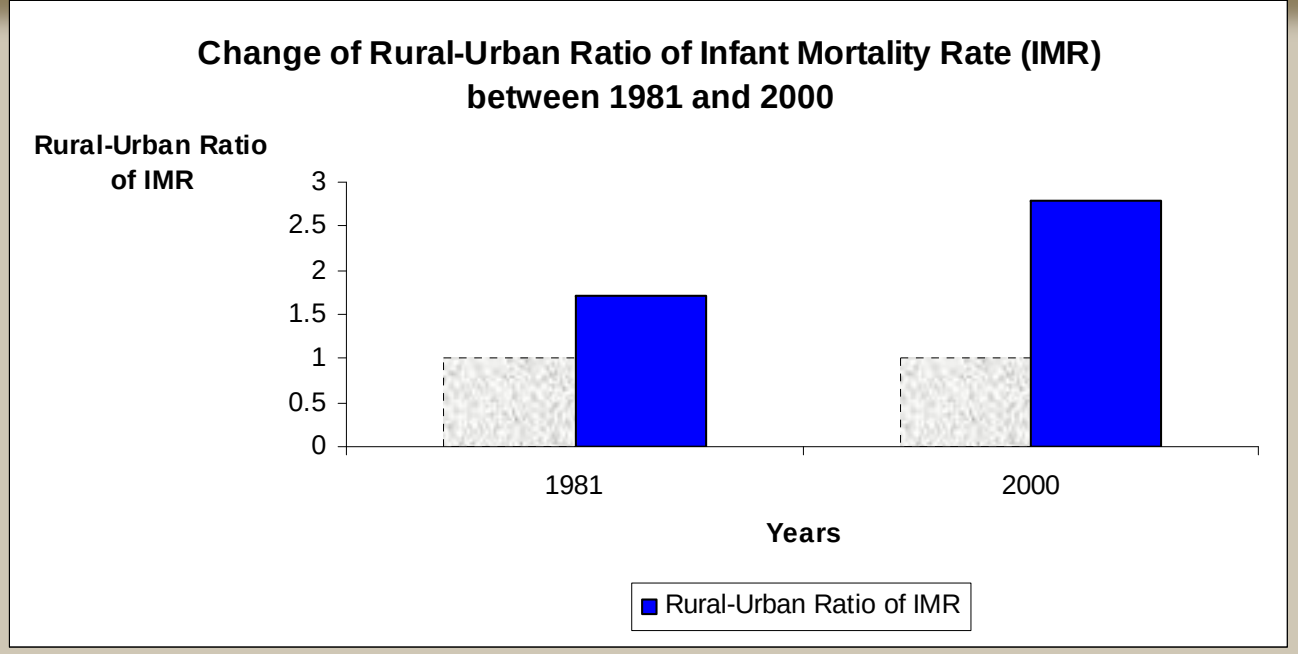
- Household registration system

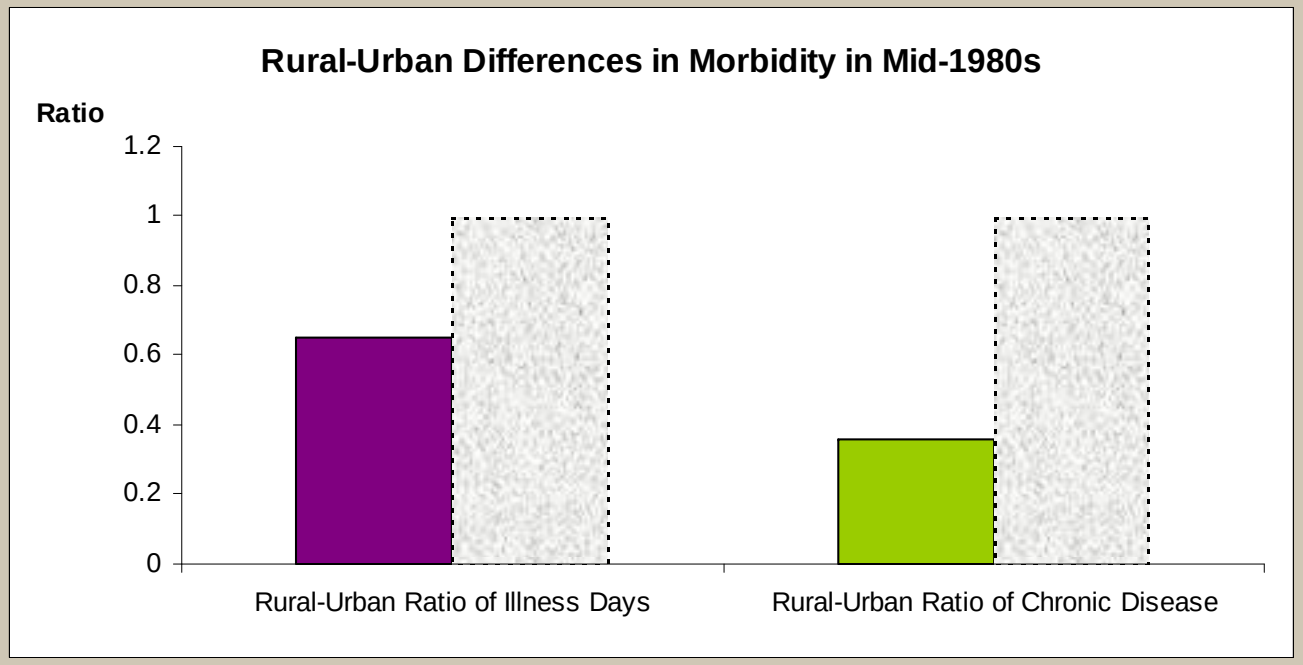
Urban-Rural Inequalities in Socioeconomic Development and Life Chances

- Urban residents have privileged life chances
- China exhibits an extraordinarily high degree of urban-rural socioeconomic inequality
  - Income differences between urban and rural areas have increased since 1990

Urban-Rural Differences in Health and Health Care

- Overall health
  - Has greatly improved between 1949 and 1980
  - Has leveled off since 1980
- Urban-rural health gap
  - Mortality
    - A gap in favor of urban residents
    - Has increased since 1980
  - Morbidity
    - A gap in favor of rural residents
    - Unknown trends
- Unequal access to health care





Data Source: Liu, Yuanli, William C. Hsiao, Karen Eggleston. 1999. “Equity in Health and Health Care: the Chinese Experience.” *Social Science & Medicine* 49: 1349-56.

Why does residential location matter?

- Urban and rural settings represent distinct physical and social environments, which are associated with both health-promoting factors and health risks
- Problems in existing approach
- Socioeconomic Status (SES) as a confounding factor

Socioeconomic Inequalities in Health

- Social conditions as fundamental causes of disease (Link and Phelan 1995)

- SES gradients in health
  - Income
    - Materialism
    - Neo-materialism
  - Education
    - Economic conditions
    - Psychological resources
    - Health-promoting behaviors
  - Occupation

Gaps in Current Literature

- Health implications of marketization
- SES-health gradient and its dynamics
- Urban-rural differences in morbidity since the 1990s

Research Questions

- Are urban residents HEALTHIER than rural residents?
- If there is an urban-rural gap in morbidity, when did this gap emerge and why?
- How are income, education, and occupation associated with health?
- Are these associations changing over time?

Data and Methods

- The China Health and Nutrition Survey (CHNS) 1991 and 2004
  - The Chinese Center of Disease Control and Prevention; the National Institute of Nutrition and Food Safety; University of North Carolina
  - Sample size: Survey 1991:8,293; Survey 2004: 8,853


China
Sample Provinces
Russia
Kazakhstan
Mongolia
Kyrgyzstan
Pakistan
Nepal
Bhutan
India
Bangladesh
Myanmar (Burma)
Laos
Vietnam
Thailand
Cambodia
Bay of Bengal
Heilongjiang
Nei Mongolia
Jilin
North Korea
Beijing
Liaoning
Xinjiang
Gansu
Hebei
Tianjin
South Korea
Ningxia
Shanxi
Shandong
Qinghai
Henan
Jiangsu
Yellow Sea
Xizang
Shaanxi
Hubei
Anhui
Sichuan
Zhejiang
East China Sea
Jiangxi
Guizhou
Hunan
Fujian
Guangxi
Guangdong
Taiwan
Yunnan
Hong Kong (U.K.)
Hainan
South China Sea
Philippines

Self-Reported Health (SRH)

- The most commonly used health measure except mortality
- A valid and reliable measure of general physical well-being
- Potential limitation: distinctive reporting frameworks
- SRH in the CHNS
  - SRH is highly correlated with other objective morbidity measures, such as symptom checklist
  - Used as continuous variable (1=poor; 2=fair; 3=good; and 4=excellent)

Table1. Summary Statistics (CHNS 1991: N= 8,293; CHNS 2004: N=8,853)

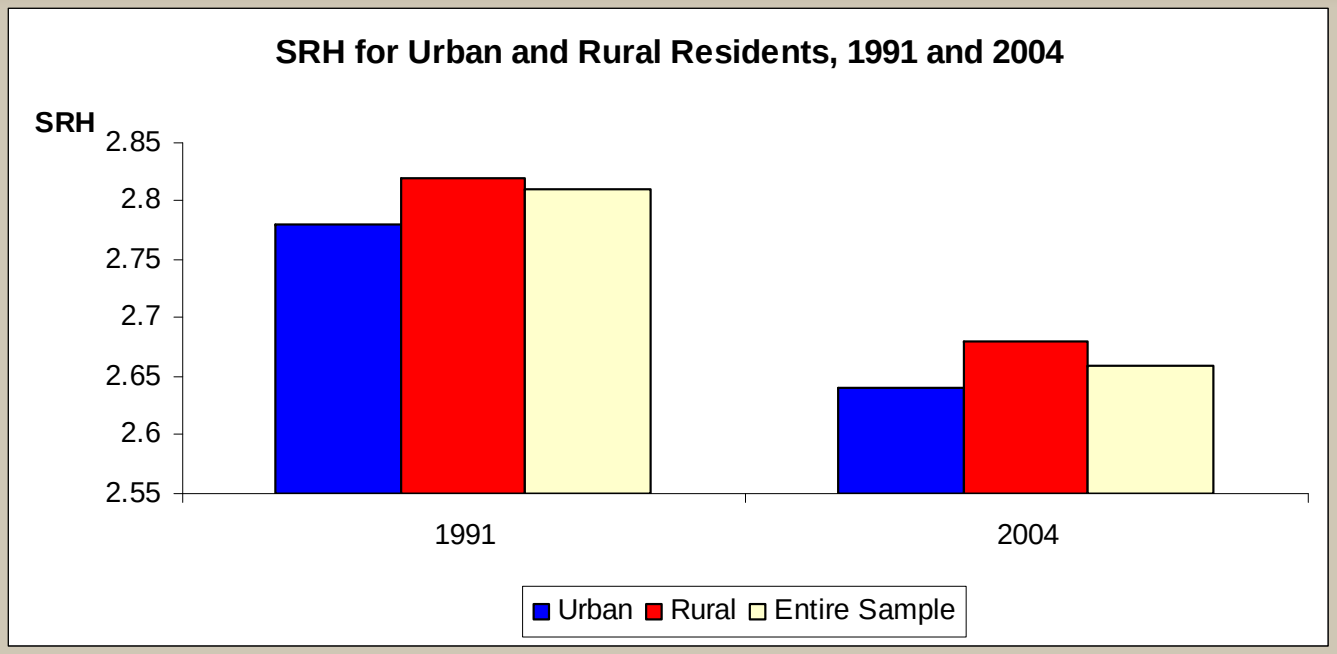
Variables	CHNS 1991	CHNS 2004
	Mean (S.D.)	Mean (S.D.)
Health Status		
Self-Reported Health (1 – 4)	2.81 (.70)	2.66 (.80)
Demographic Controls		
Female (Female=1)	.52	.53
Age	40.59 (15.68)	47.46 (15.47)
Married	.77	.82
Residential Location (Ref = Urban)		
Rural	.66	.64
Insured (Insured=1)	.32	.28
Socioeconomic Status		
Ln (income)	7.21 (.67)	7.43 (1.28)
Years of Schooling (0 - 18)	6 (4.24)	7.16 (4.31)
Work Status (Ref = Currently working, non-peasants)		
Peasants	.48	.34
House workers	.07	.16
Disabled	.002	.007
Retired	.08	.13
Unemployed	.04	.12
Cadre (Cadre=1)	.06	.03

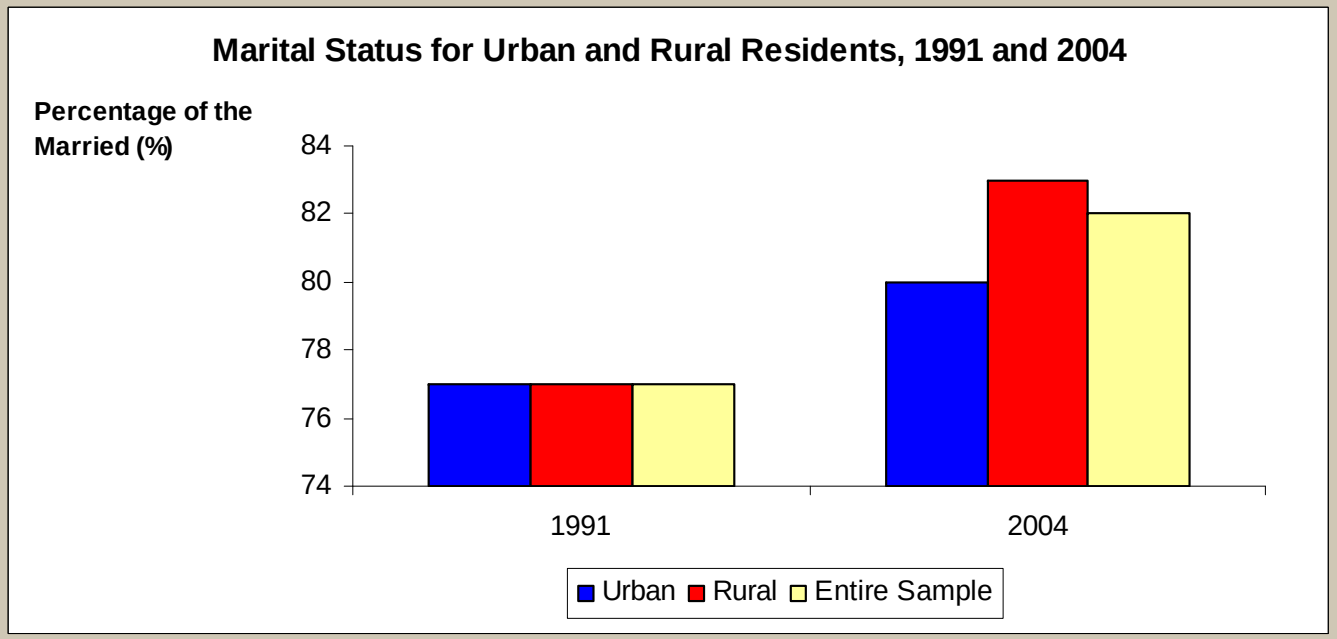
Table2. Means and Standard Deviations of Health Status and Covariates by Urbanicity and Survey Years (CHNS 1991: N= 8,293; CHNS 2004: N=8,853)

Variable	Pooled data		Test of urban rural difference for pooled data	Data crosses years		Test of difference over years
	Urban (n=5,974)	Rural (n=11,172)		Survey 1991 (n=8,293)	Survey 2004 (n=8,853)	
Health Status						
Self-Reported Health	2.71±.75	2.74±.76	**	2.81±.7	2.66±.8	**
SES Covariates						
Ln (income)	7.54±.95	7.21±1.06	**	7.21±.67	7.43±1.28	**
Years of Schooling	7.78±4.54	5.97±4.05	**	6.±4.24	7.16±4.31	**
Work Status						
Currently working, non-peasants	.45	.2	**	.33	.24	**
Peasants	.11	.57	**	.48	.34	**
House workers	.11	.12	**	.07	.16	**
Disabled	.005	.005	ns	.002	.007	**
Retired	.21	.04	**	.075	.13	**
Unemployed	.12	.07	**	.04	.12	**
Other Controls						
Female	.52	.52	ns	.52	.53	ns
Age	45.72±16.5	43.29±15.58	**	40.59±15.68	47.46±15.47	**
Married	.79	.81	**	.77	.82	**
Insured	.52	.18	**	.32	.28	**
Cadre	.07	.03	**	.06	.03	**

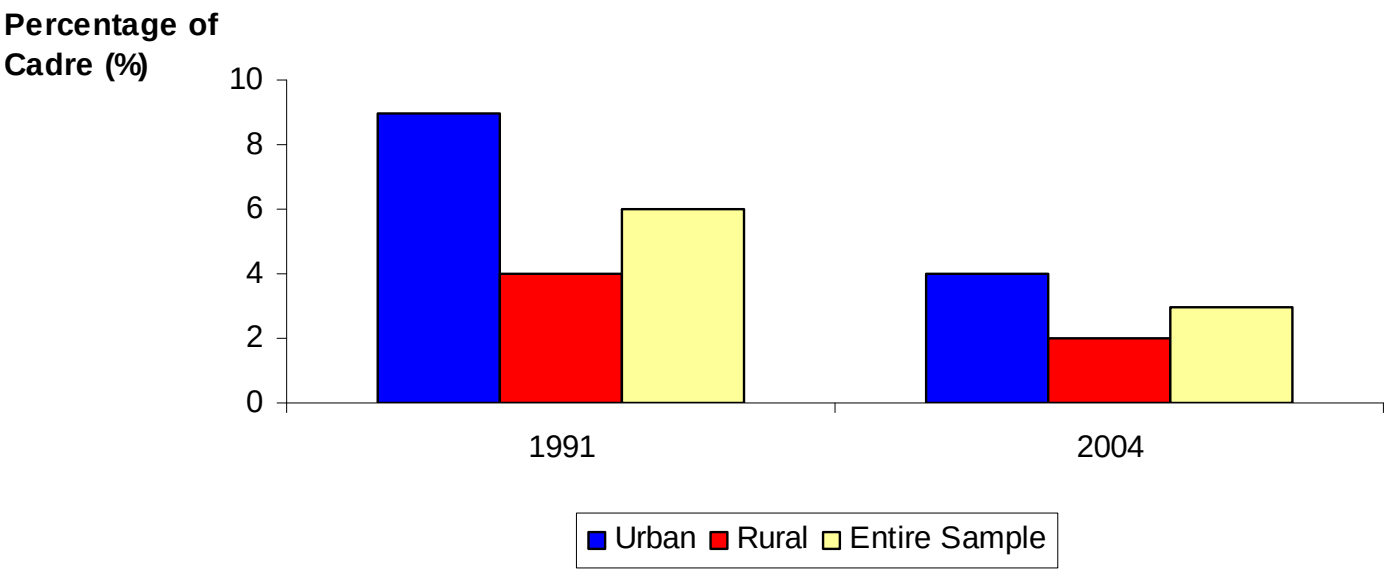
*p<0.05; **p<0.01

Proportions were presented for categorical variables. Significance tests were for chi-square on categorical variables and t-test on continuous variables.

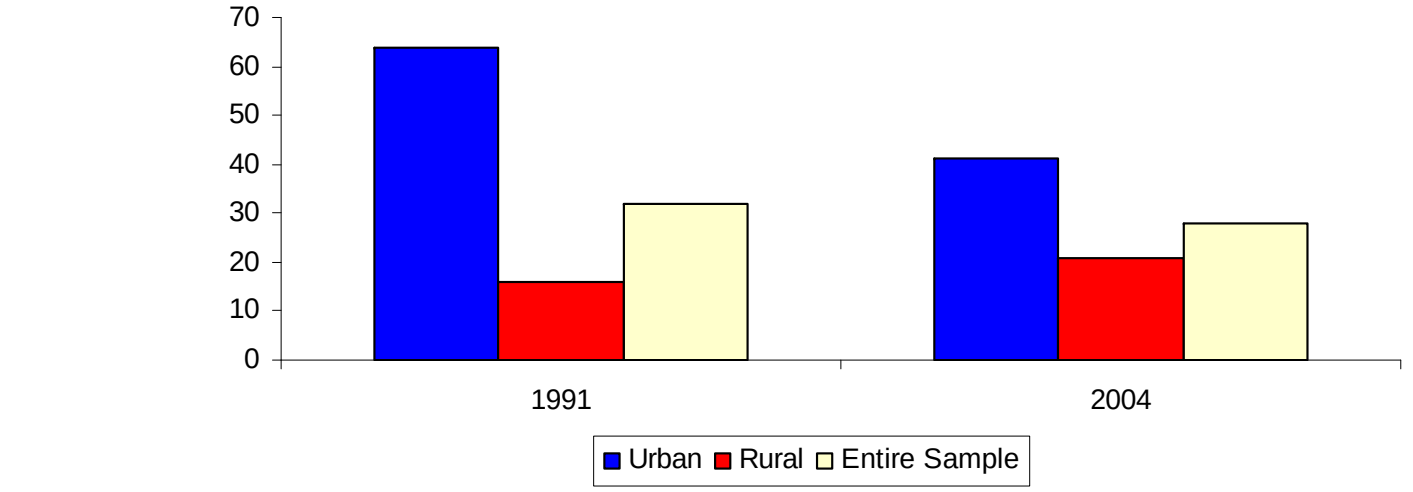

SRH for Urban and Rural Residents, 1991 and 2004
SRH
2.85
2.8
2.75
2.7
2.65
2.6
2.55
1991
2004
Urban
Rural
Entire Sample

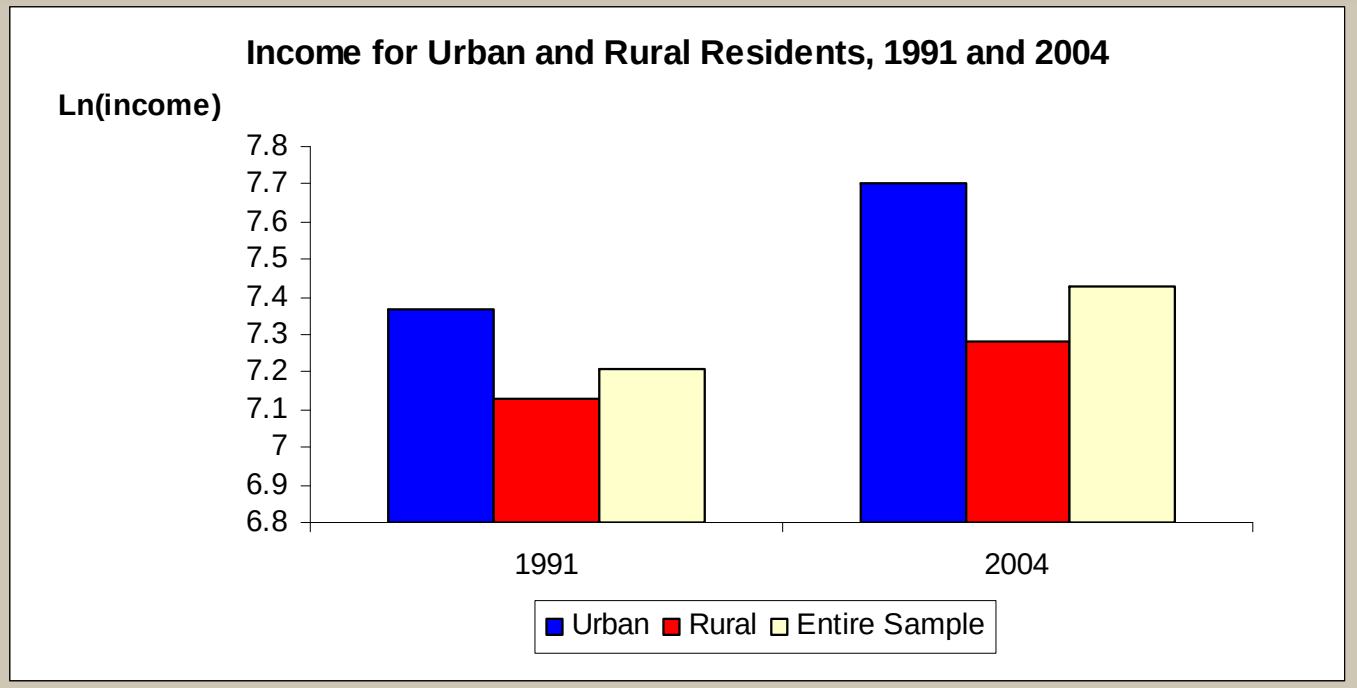

Marital Status for Urban and Rural Residents, 1991 and 2004
Percentage of the Married (%)
84
82
80
78
76
74
1991
2004
Urban
Rural
Entire Sample

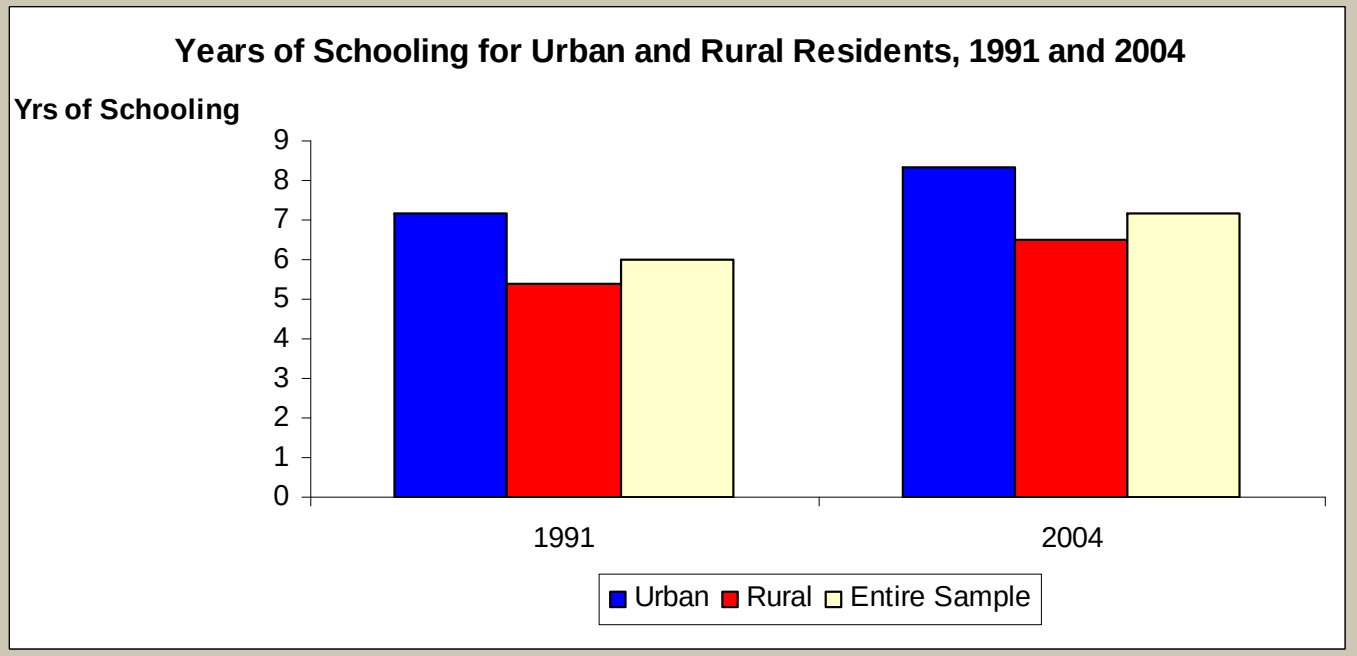
Political Capital for Urban and Rural Residents, 1991 and 2004



Health Insurance Coverage for Urban and Rural Residents, 1991 and 2004




Income for Urban and Rural Residents, 1991 and 2004
Ln(income)
7.8
7.7
7.6
7.5
7.4
7.3
7.2
7.1
7
6.9
6.8
1991
2004
Urban
Rural
Entire Sample


Years of Schooling for Urban and Rural Residents, 1991 and 2004
Yrs of Schooling
9
8
7
6
5
4
3
2
1
0
1991
2004
Urban
Rural
Entire Sample

Changes in Occupational Structure in Urban and Rural Areas: 1991 and 2004

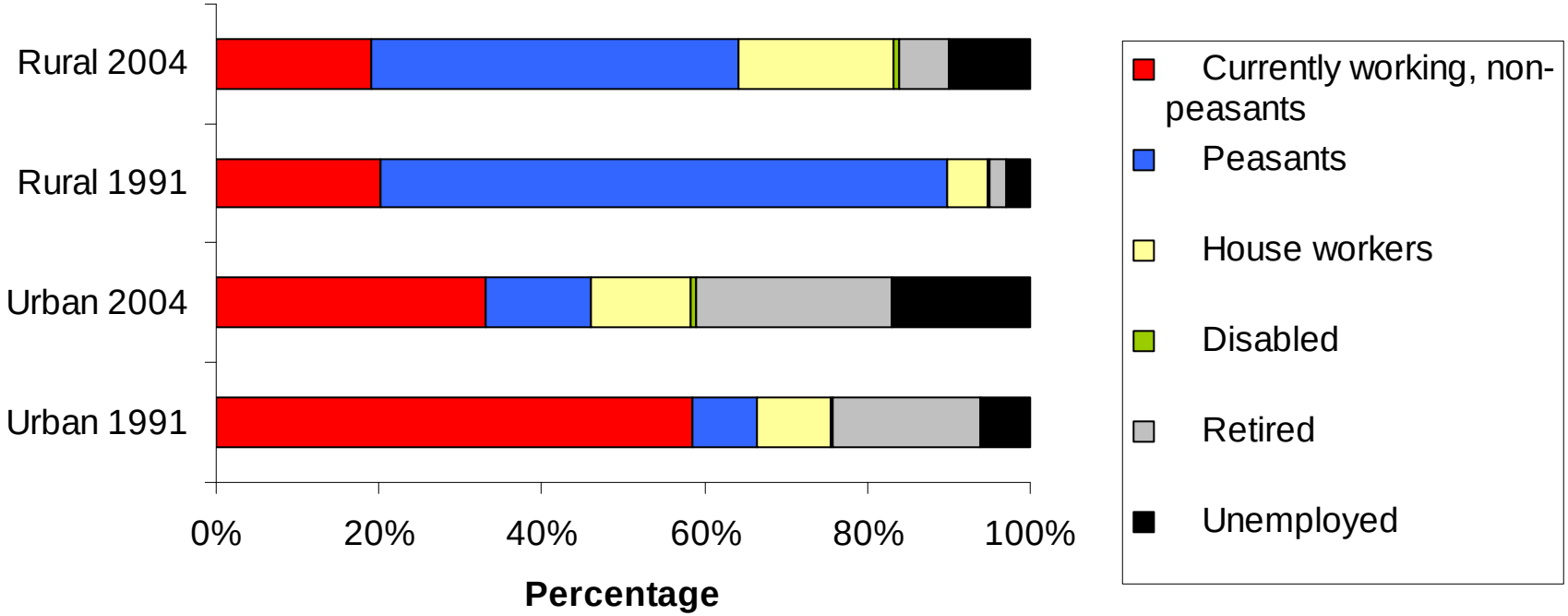


Table3. Fixed-Effects Estimates of Urban-Rural Gap in SRH (CHNS 1991: N=8, 293; CHNS 2004: N=8,853; the Pooled Data: N=17,146)

Variable	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7	Model 8
Rural	-.022	-.023	-.015	-.016	-.011	.007	.004	-.003
	(.016)	(.016)	(.018)	(.016)	(.016)	(.017)	(.018)	(.019)
Survey 2004	-.093**	-.093**	-.089**	-.087**	-.109**	-.116**	-.070**	-.115**
	(.019)	(.019)	(.019)	(.019)	(.019)	(.019)	(.019)	(.019)
Rural * Survey 2004	**.058***	**.057***	**.054***	**.055***	**.067****	**.054***	**.040**	**.064****
	(.023)	**(.023)**	**(.023)**	**(.023)**	**(.023)**	**(.023)**	**(.023)**	**(.023)**
Female	-.114**	-.113**	-.113**	-.109**	-.112**	-.090**	-.105**	-.092**
	(.011)	(.011)	(.011)	(.011)	(.011)	(.011)	(.011)	(.011)
Age	-.015**	-.015**	-.015**	-.015**	-.015**	-.014**	-.014**	-.013**
	(.0003)	(.0004)	(.0003)	(.0003)	(.0004)	(.000)	(.0004)	(.0005)
Married		.035*						.006
		(.014)						(.014)
Insured			.015					-.043**
			(.014)					(.015)
Cadre				.113**				.055
				(.028)				(.028)
Ln(income)					.049**			.041**
					(.005)			(.006)
Years of Schooling						.013**		.009**
						(.002)		(.002)
Peasants							-.071**	-.029
							(.015)	(.017)
House Workers							-.104**	-.059**
							(.021)	(.023)
Disabled							-1.137**	-1.073**
							(.078)	(.078)
Retire							-.089**	-.076**
							(.022)	(.023)
Unemployed							-.089**	-.044
							(.022)	(0.023)
Constant	3.509**	3.487**	3.500**	3.496**	3.139**	3.328**	3.501**	3.081**
Observations	17146	17146	17146	17146	17146	17146	17146	17146
R-squared	0.118	0.118	0.118	0.118	0.122	0.121	0.130	0.135

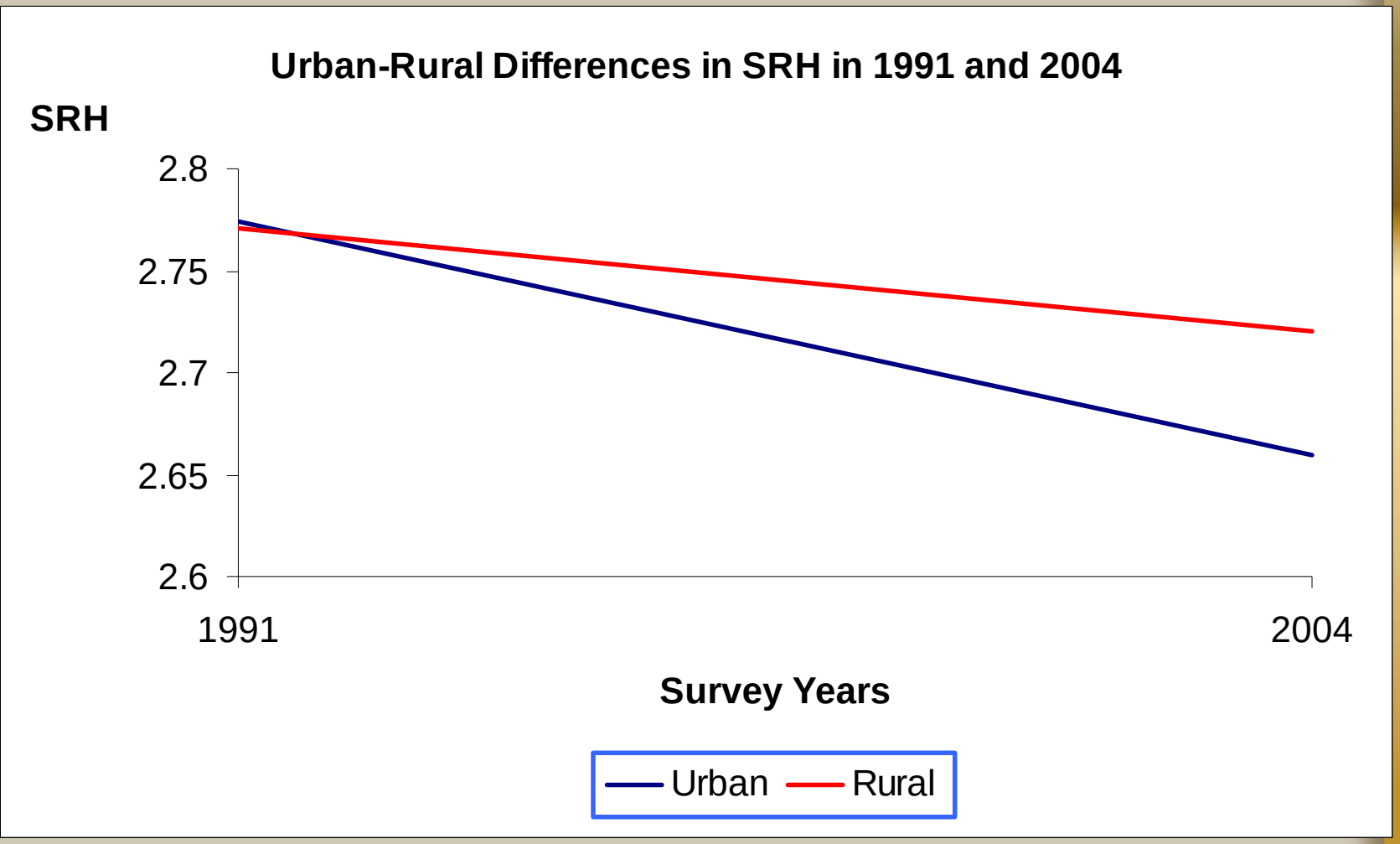
† p <.1; * p <.05; ** p <.01

Notes:

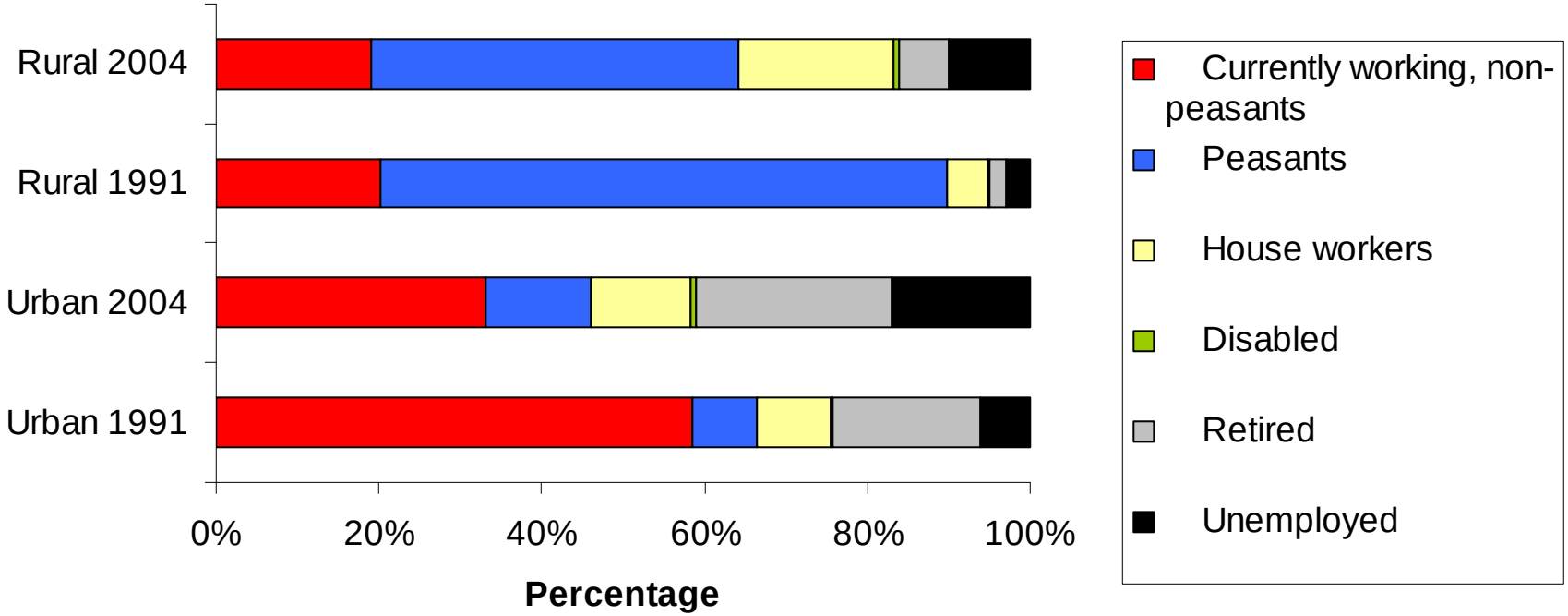
1. Standard errors are in parentheses. Reference categories are urban, survey 1991, male, not married, uninsured, non-cadres, and employed (non-peasants).
2. Fixed-effects estimation controls for the unobserved backgrounds shared by respondents from different provinces.

An Increasing Urban-Rural Gap in SRH, in Favor of Rural Residents

- During 1991 and 2004, a decline in health was found
- There is an urban-rural gap in SRH, but this gap only emerged in 2004


Urban-Rural Differences in SRH in 1991 and 2004
SRH
2.8
2.75
2.7
2.65
2.6
1991
2004
Survey Years
Urban
Rural

Changes in Occupational Structure in Urban and Rural Areas: 1991 and 2004



Unequal Changes in Occupational Structure Contribute to the Increasing Health Gap

- Compared with reference category (working, non-peasants), all other groups are at a higher health risk

- Interpreting the urban-rural gap
  - Occupational structures in both urban and rural areas have changed. Urban residents were more likely to be pushed into occupational categories related to poor health
  - Unobserved stress associated with a higher level of dynamic happened in urban settings
  - Health insurance, education, income and marriage
  - State policy contribute to distinctive marketization experiences in urban and rural areas

Table4. Fixed-Effects Interaction Models Regressing SRH on Urbanicity, Survey Year, and SES: (CHNS 1991: N=8, 293; CHNS 2004: N=8,853; the Pooled Data: N=17,146)

Variable	Model 1	Model 2	Model 3
Rural	.033*	.034*	.032*
	(.013)	(.013)	(.013)
Survey 2004	-.027	-.141**	-.055**
	(.097)	(.020)	(.021)
Ln(income)	.051**	.038**	.040**
	(.012)	(.006)	(.006)
Years of Schooling	.009**	.003	.009**
	(.002)	(.002)	(.002)
Peasants	-.033†	-.037*	-.021
	(.017)	(.017)	(.021)
House Workers	-.058**	-.057*	-.063†
	(.023)	(.023)	(.035)
Disabled	-1.078**	-1.07**	-1.170**
	(.078)	(.078)	(.161)
Retire	-.08**	-.087**	-.041†
	(.023)	(.023)	(.033)
Unemployed	-.048*	-.049*	-.064
	(.023)	(.023)	(.041)
Survey 2004* Ln(income)	-.014		
	(.013)		
Survey 2004 * Yrs of Schooling		.011**	
		(.003)	
Survey 2004* Peasants			-.030
			(.027)
Survey 2004* House Workers			-.001
			(.040)
Survey 2004* Disabled			.112
			(.184)
Survey 2004* Retired			-.071
			(.041)
Survey 2004* Unemployed			.014
			(.048)
Constant	2.986**	3.116**	3.055**
R-squared	.134	.135	0.134

† p <.1; * p <.05; ** p <.01

Note:

1. Standard errors are in parentheses. Reference categories are urban and survey 1991
2. Some controls are not presented in this table, including female, age, married, insured, cadre, and a group of dummy variables for occupation (peasants, house workers, disabled, retired, and unemployed).
3. Fixed-effects estimation controls for the unobserved backgrounds shared by respondents from different provinces.

Changes in the SES-Health Association between 1991 and 2004

- Income
  - A strong positive income-health association
  - No change found over time
- Education
  - An increasing educational return to health
- Occupation
  - Health advantages shared by working people (non-peasants) have remained the same over time

Understand the rural morbidity advantage

- Health status for rural residents has not improved
- Compare SRH, disability, and mortality measures

Summary

- Urban-rural differences in major SES indicators have changed substantially
- Marketization influenced health for all groups, and there is a decline in SRH between 1991 and 2004
- Marketization accounts for the increasing urban-rural health gap
  - change of occupation structure pushed urban residents to disadvantaged sectors
  - Marriage, income, and education
  - Urban residents are more likely to experience stress associated with social/political instability
- SES-health associations were found
  - The associations between income/occupation and health have remained the same
  - Marketization changed the education-Health association

General Principals and Particular Realities: A China Case and Beyond

- What a U.S. model and globalization speak for a China case
  - SES-health gradients
  - Technological Development and education based inequality
  - Openness and government's health policies

- Residuals a western model cannot explain
  - Political capital
  - Household registration system and internal migration
  - Globalization and local cultural and institutes