

China:
Mortality, Morbidity, and Causes of Death

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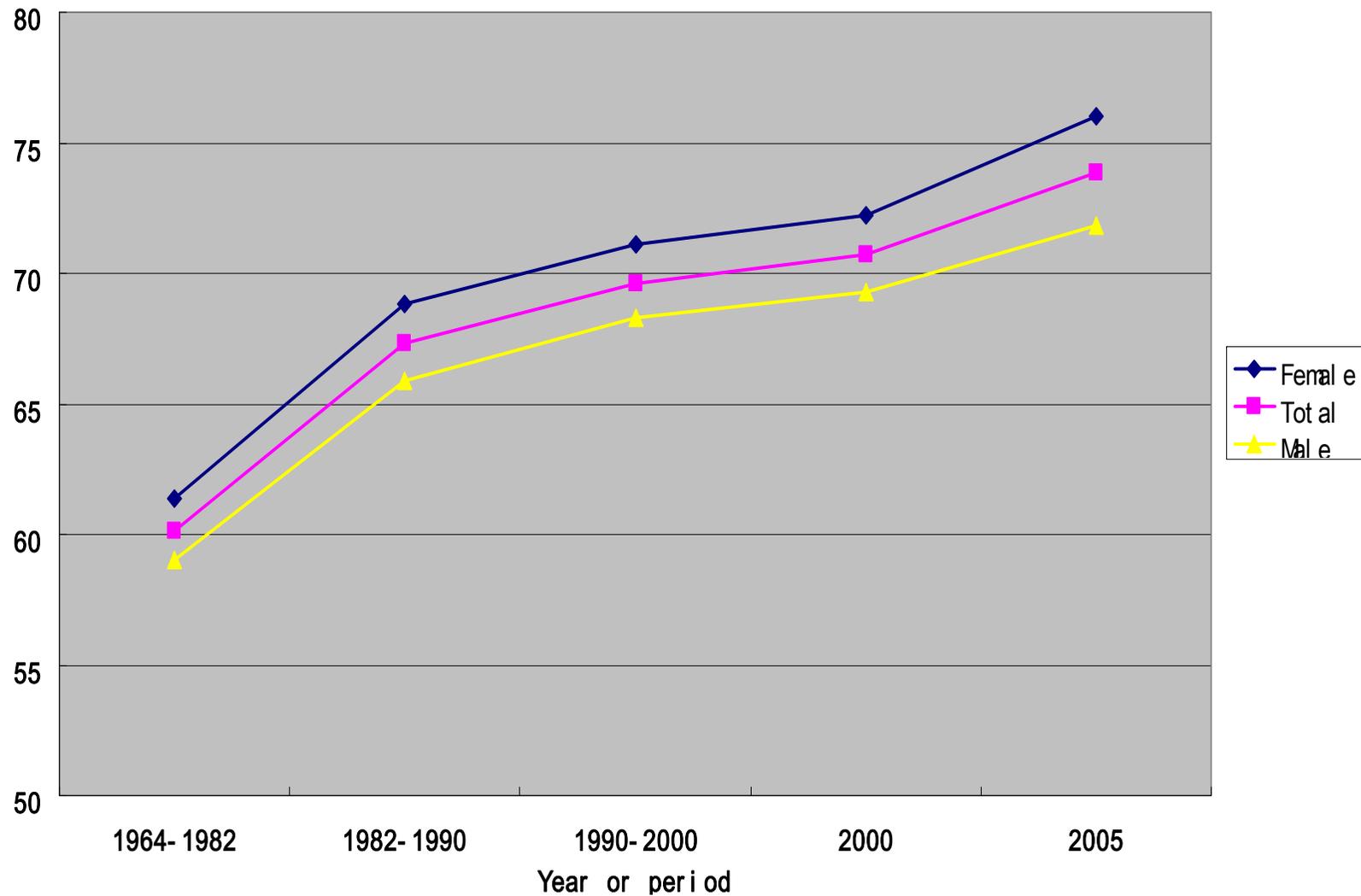
Overview

- China's broad mortality decline up to now
- Age-sex specific mortality trends
- Urban & rural mortality trends, differentials
- Causes of death
- Morbidity trends in the recent decade
- Likely causes of changes in reported illness
- Conclusions

Maoist Period

- The three decades to 1978 featured strong government emphasis on providing preventive and curative medical care and controlling infectious disease.
- Many other social, sanitation, infrastructure, education, and other policies also contributed to better health and survival.
- By the mid-1970s, life expectancy in China had doubled from the pre-Communist era to about 60 years.
- It is also important to note that mortality decline has continued unabated during the most recent 3 decades as well.

China: Expectation of life at birth in years



Sources: Judith Banister & Kenneth Hill, "Mortality in China 1964-2000," *Population Studies*, 58, no. 1, 2004, pp. 55-75; Banister, "Health, Mortality, and Longevity in China Today," IUSSP Morocco, 2009.

Highlights of recent age-specific mortality levels by sex:

2000-2005 census, survey data:

- Female infant death rate higher than male
- Boys and girls, same rate at ages 1-4
- Ages 5 & over, normal pattern of much higher male age-specific mortality rates than female

China 2000-2005 Age-specific Mortality Trends as Reported (Annual deaths per 1,000 population in that age-sex group)

Age group	Males			Females		
	2000 death rate	2005 death rate	Absolute change	2000 death rate	2005 death rate	Absolute change
0	22.56	11.50	-11.06	32.10	14.41	-17.69
1 to 4	1.48	0.82	-0.65	1.49	0.83	-0.66
5 to 14	0.57	0.51	-0.06	0.38	0.28	-0.10
15 to 39	1.44	1.53	0.09	0.85	0.71	-0.14
40 to 49	3.69	3.60	-0.09	2.14	1.70	-0.44
50 to 59	8.37	7.13	-1.24	5.24	4.07	-1.16
60 to 64	17.92	14.29	-3.62	11.43	8.95	-2.48
65+	57.16	47.20	-9.96	45.90	38.64	-7.26

Sources: China 2000 Census and 2005 1% Population Survey.

Notes: Based on reported death rates, not adjusted for underreporting of deaths. Trends may be valid, but true death rates are higher.

Important Mortality Trends 2000-2005 for China:

- Caution—data in the table are not adjusted for underreporting, so the true death rates are not this low. Focus only on the **TRENDS**.
- Death rates for girls and women continued dropping in all age groups. Amazingly, this was true in cities, towns, and also rural China. These continuing survival improvements for females reflect the very real rising status of girls & women and increasing gender equality.
- Males—continuing mortality decline for children and for men ages 40 and older.
- But mortality of young adult men stopped declining and maybe rose from 2000 to 2005. Data from the 2010 census will help clarify male young adult mortality trends.

Mortality trends by age-sex group

2000-2005:

Declining mortality in all broad age-sex groups, except for young adult men ages 15-39.

Is it real? We will know soon.

If real, why is this happening?

China: Young adult male mortality

- Caution—absolute mortality rates are very low for young adults in China, so a small increase in mortality is not important from an international comparative perspective.
- The small increase in young adult male death rates may be real—continues a prior incipient flattening of male death rates in these ages. Some rise in male death rates in cities and towns, but strong reported death rate increases for rural males 10-49—especially RURAL men in POORER provinces.
- Causes could be more dangerous work for poor men in prime working ages, also more alcohol and tobacco use.
- 2010 census data will clarify what the trends are.

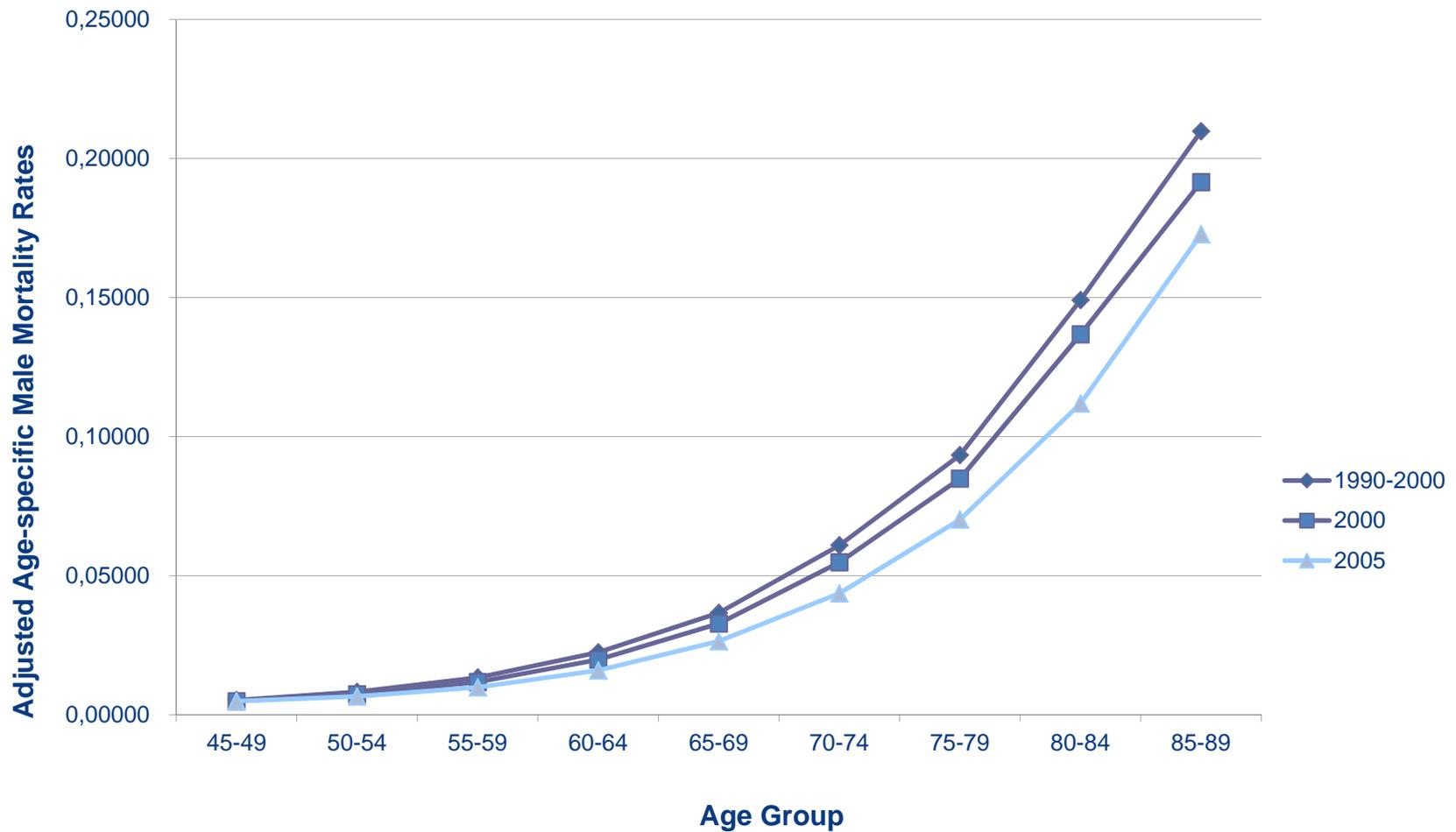
China: Life Expectancy by Sex, 1964-2005

Year or period	Total	Female	Male	Female minus male
1964-1982	60.1	61.4	59.0	2.4
1982-1990	67.3	68.8	65.9	2.9
1990-2000	69.6	71.1	68.3	2.9
2000	70.7	72.2	69.3	2.9
2005	73.9	76.0	71.8	4.2

Sources: Judith Banister & Kenneth Hill, "Mortality in China 1964-2000," *Population Studies*, Vol. 58, No. 1, 2004, pp. 55-75. Judith Banister, "Poverty, progress, and rising life expectancy," in *Transition and Challenge: China's Population at the Beginning of the 21st Century*, edited by Zhongwei Zhao and Fei Guo. Oxford, England: Oxford University Press, 2007, p. 146. China NBS, 2005 National 1% Sample Survey Data, Table 10-3.

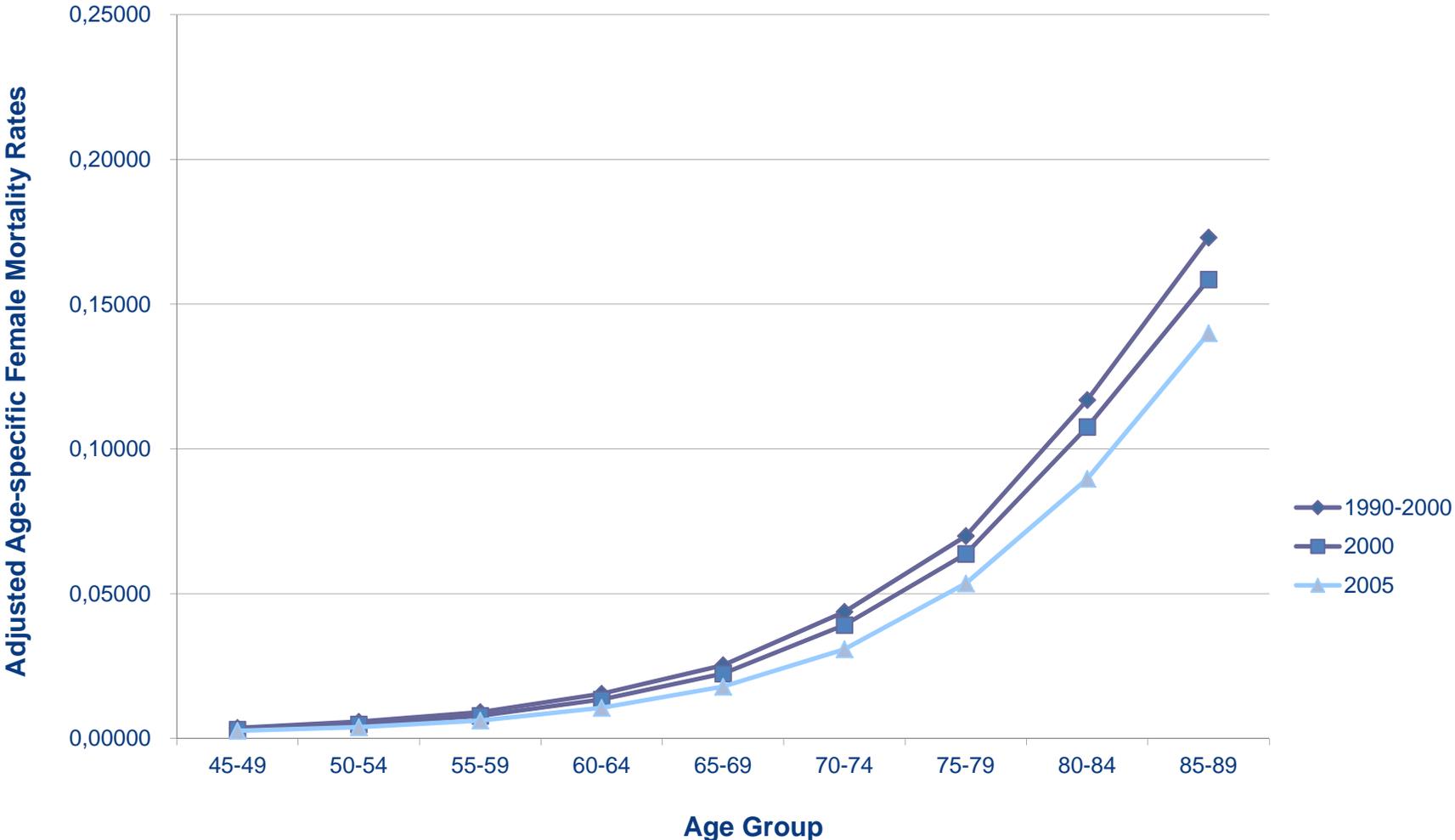
Notes: All life tables are adjusted for underreporting of deaths. The 2000 and 2005 life tables assume the same levels of completeness of death reporting as for 1990-2000. The 2000 and 2005 life tables are also adjusted to match the reported infant mortality and under-five mortality rates from the Child Mortality Surveillance System.

Declining Death Rates for China's Men from their Late Forties through 85-89



Sources: J. Banister and Kenneth Hill, *Population Studies*, 58, 1, 2004; Current research by Banister. Based on censuses of 1990 & 2000; 2005 1% population survey, adjusted for underreporting of deaths.

Declining Death Rates for China's Women from their Late Forties through 85-89

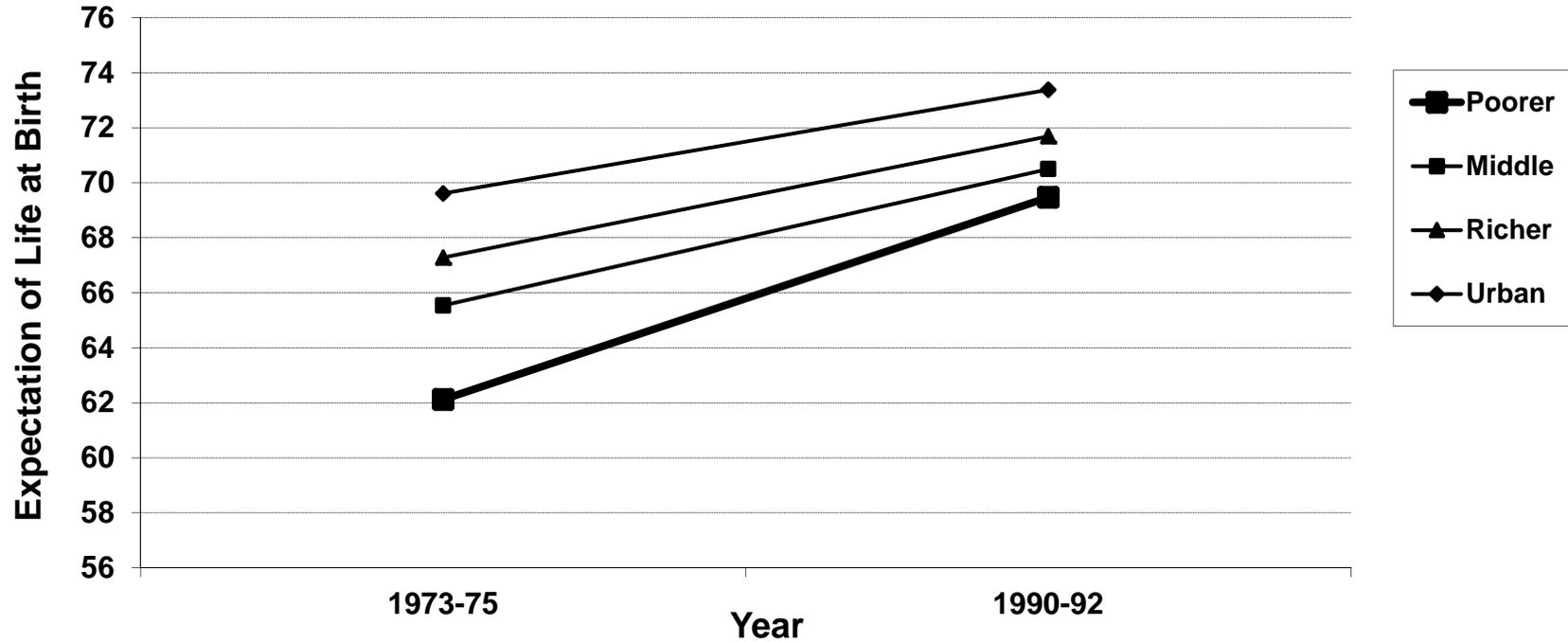


Sources: J. Banister and Kenneth Hill, *Population Studies*, 58, 1, 2004; Current research by Banister. Based on censuses of 1990 & 2000; 2005 1% population survey, adjusted for underreporting of deaths.

Rural and Urban Mortality

Figure 1. China, Mortality Surveys, 1973-75 and 1990-92

Expectation of Life at Birth by Economic Level



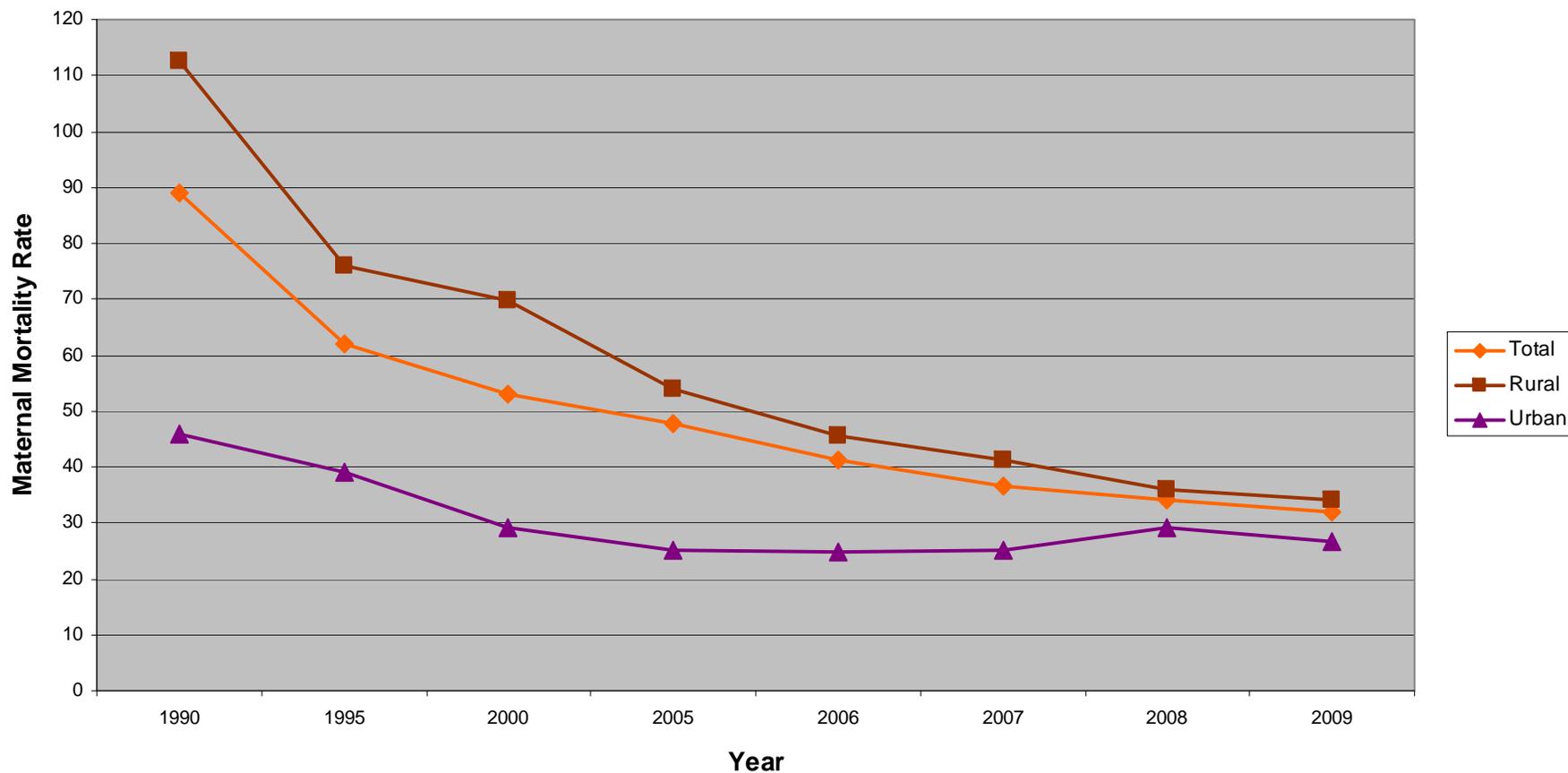
Source: Judith Banister, Jun Gao, and Keqin Rao, "Survival and health in rapidly developing China," presented at the Annual Meeting of the Population Association of America, Los Angeles, Mar. 2000.

Notes: Calculated from 1973-75 and 1990-92 mortality data collected in the same whole counties and city districts covering 10 percent of China's population; mortality surveys conducted by China's Ministry of Health. Deaths have not been adjusted for underreporting; therefore, the life expectancies calculated from the collected data are higher than the true levels.

China's Urban-Rural Mortality Differentials

- Though survival improvement has been happening everywhere in China, the urban-rural gap remains large.
- As of the 2000 population census, expectation of life at birth was almost 6 years more in urban than rural China.
- The less developed western provinces have a much greater urban-rural disparity in life expectancy than the far more developed eastern provinces.
- Some hunger and malnutrition remains in China (10% underweight below age 5), especially in the poor rural areas.

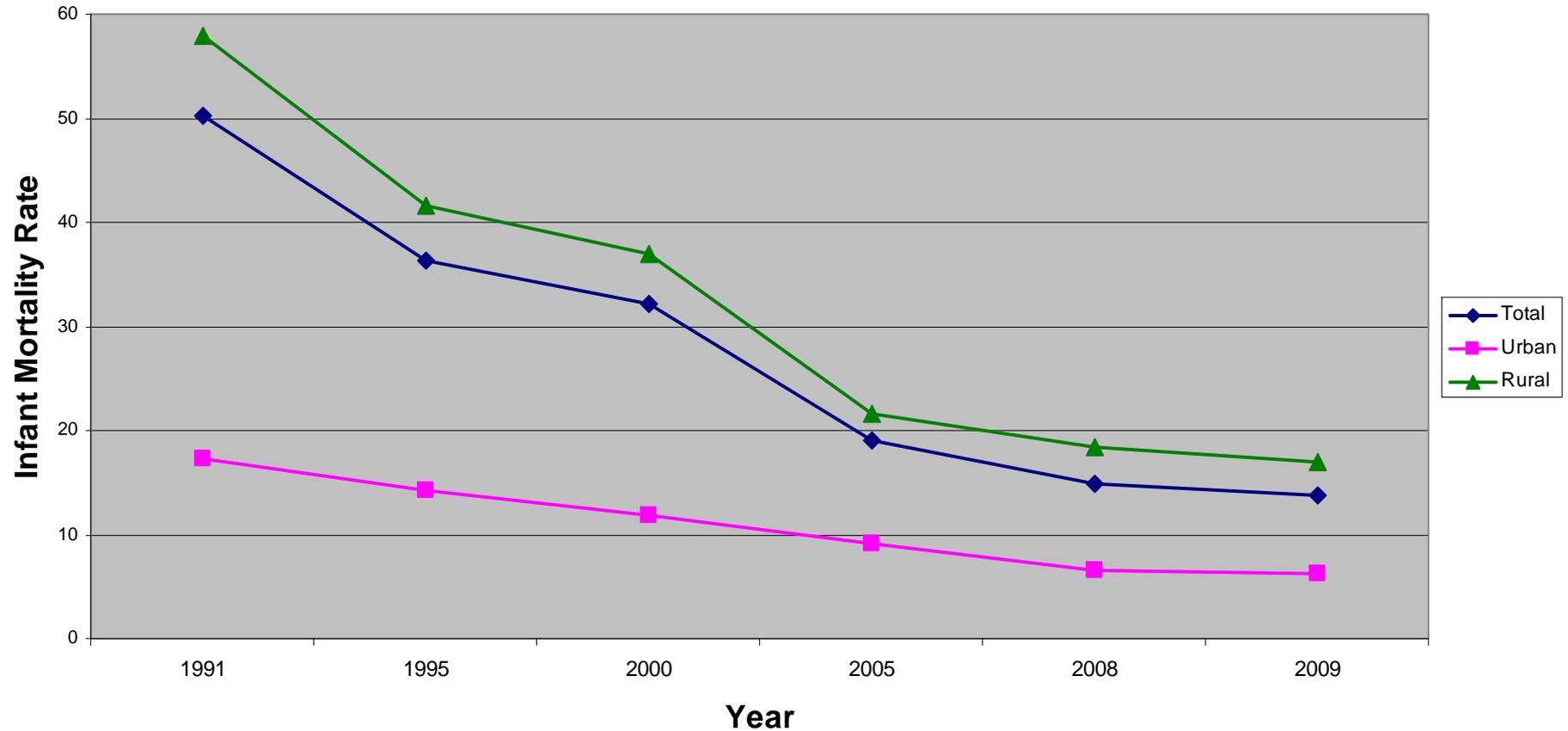
China: Maternal Mortality Rates, 1990-2009 (per 100,000 live births)



Note: Data from China's Child and Maternal Mortality Surveillance System.

Source: *China Health Yearbook 2010*, [in Chinese], p. 655.

China, Infant Mortality Rates, 1991-2009 (Infant deaths per 1,000 live births)

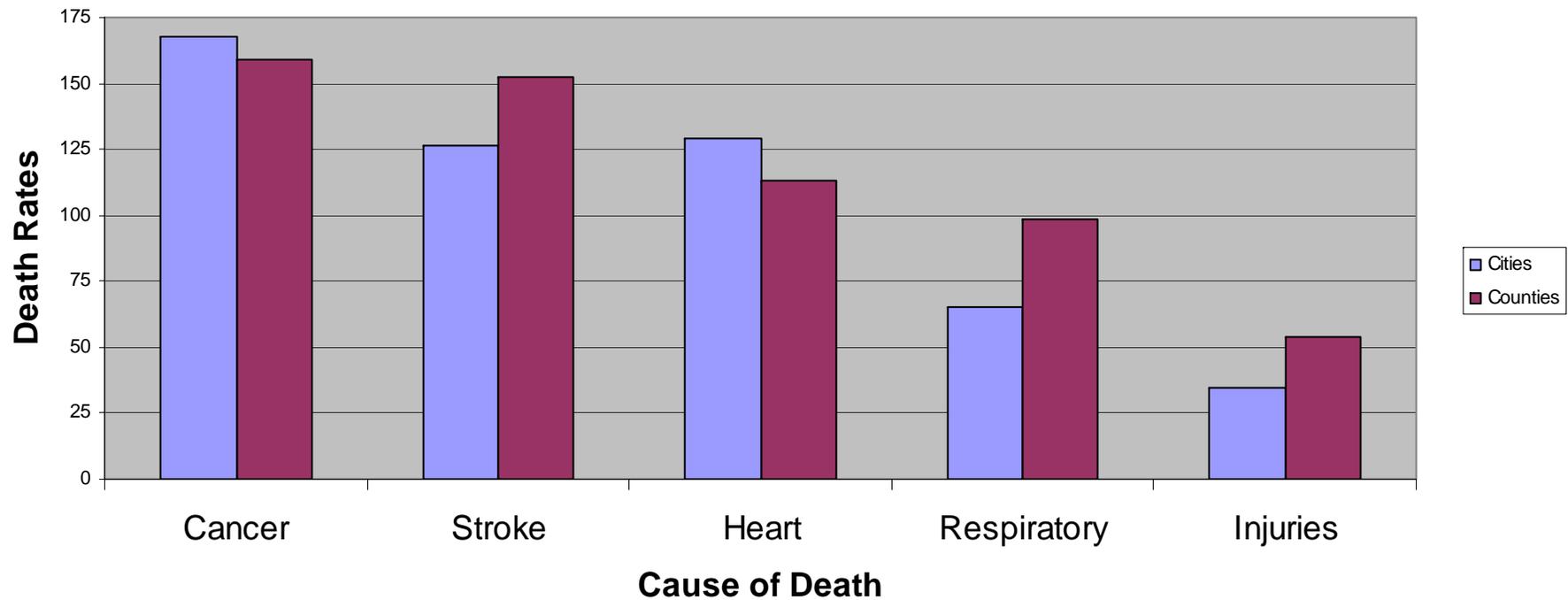


Note: Data from China's Child and Maternal Mortality Surveillance System.

Source: *China Health Yearbook 2010*, [in Chinese], p. 657.

China: Causes of Death

China, Death Rates for the Five Leading Causes of Death, Cities and Counties, 2009 (Death per 100,000 population in cities, and in counties)



Source: China Health Yearbook 2010, [in Chinese], p. 660.

China: Causes of death today

- China's major causes of death today are all chronic, non-communicable diseases.
- In rural and in urban China, only 1% of deaths are from infectious diseases.
- The big killers—cancer, cerebrovascular disease, heart disease, and chronic respiratory disease—cause 79% of deaths in cities and 80% in counties.
- Injuries cause 6% of city deaths and 8% of county deaths.

China: Morbidity Rates & Trends

China morbidity rates 2003 and 2008 and a 2004 survey

- Female morbidity rates are always reported to be much higher than male rates.
- Urban morbidity rates are reported to be much higher than rural rates. [A 2004 national survey also confirmed that both villagers and migrants rate their current physical health and emotional health significantly better than do urban citizens.
- Source: Martin King Whyte & Zhongxin Sun, “The impact of China’s market reforms on the health of Chinese citizens: Examining two puzzles,” *China: An International Journal* 8,1 (Mar. 2010): 1-32.]

China, Two-week morbidity rates, 2003 and 2008 national health surveys
(per thousand population, by sex and urban & rural areas)

	Total		Urban		Rural	
	2003	2008	2003	2008	2003	2008
Two-week morbidity rate	143	189	153	222	140	178
Male	130	170	136	203	129	159
Female	156	207	170	240	151	194

Note: China Ministry of Health, China National Health System Surveys of 2003 and 2008.

Source: *China Health Yearbook*, [in Chinese], p. 642.

Why is morbidity reported to be rising in China?

- Some of it might be real, such as rising diabetes due to more overweight and obesity, and rising chronic disease rates due to longer lives and population aging.
- Banister hypothesis: Most of the reported increases in morbidity are not real, but are due to greatly improved diagnosis and detection of chronic health issues, especially high blood pressure, diabetes, cancer & heart disease.

Research Needed

- Analyze 2010 census mortality data as soon as results become available.
- Study more closely the age-specific morbidity and mortality data over time to specify levels and trends by age group.
- Analyze specific causes of morbidity and of death to better understand China's health and survival situation and guide public health policy there.

Conclusions:

- Mortality decline has continued in China for almost the entire 6 decades since 1949, in spite of poor medical insurance coverage during the most recent 3 decades.
- China's expectation of life at birth was about 74 years (72 years for males and 76 for females) in 2005, and is now about 75 years.
- China's successes in extending survival are due to: government emphasis and policies, land reform and good access to food and agricultural land by the population, extremely rapid economic growth, urbanization, fertility decline & focus on quality of children, rising literacy and educational level, and priority attention to poverty decline.