



REVES@30, MICDA, May 30 - June 1, 2018

Changing of Mortality and Morbidity of Chinese Elderly

Xiaochun Qiao, PhD and Professor
Jilei Wu, PhD and Associate Professor
Xinchao Zhao, MSS

Institute of Population Research
Peking University, China

OUTLINE

- **BACKGROUND**
- **OBJECTIVE**
- **DATA & MATHOD**
- **RESULT**
- **CONCLUSION**



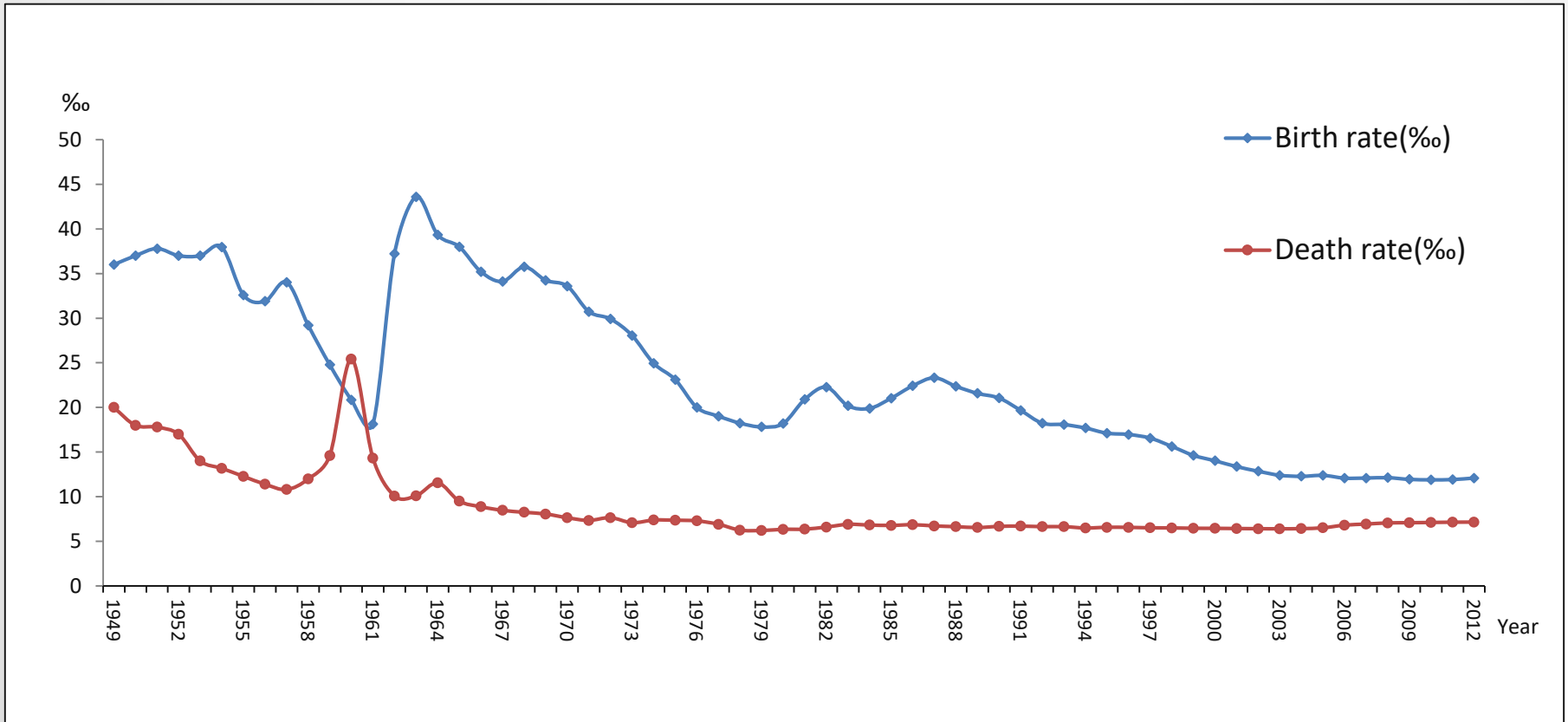
BACKGROUND

China has experienced two exceptional changes since the last quarter of the last century:

- ❑ Demographic Transition (45years)
- ❑ Economic Transition (40 years)



BACKGROUND — DEMOGRAPHIC TRANSITION (1949-2012)



Data source: National Bureau of Statistics of China

Note: Figures 1981 (inclusive) are from household registrations; for the year 1982, 1990, 2000 and 2010 are the census year estimates; the rest of the data covered in those years have been estimated on the basis of the annual national sample surveys of population.

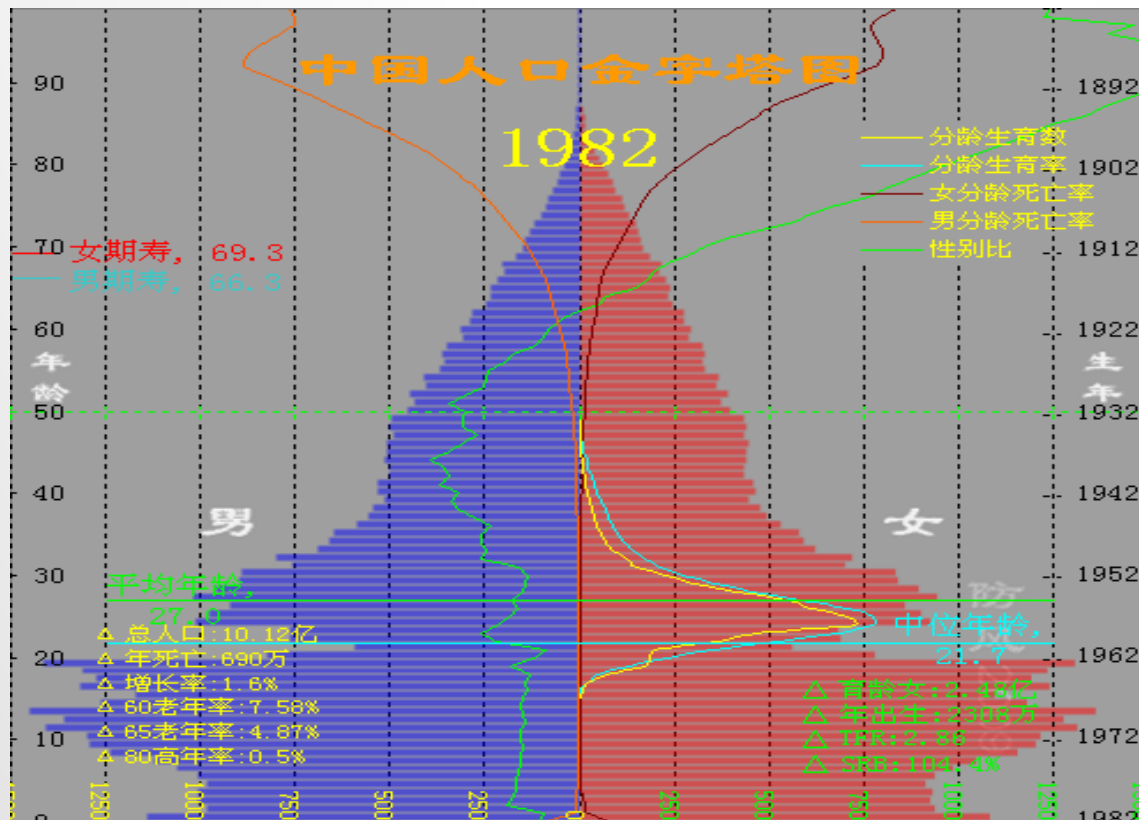


BACKGROUND — POPULATION AGING

Changing of age structure and related demographic factors in China

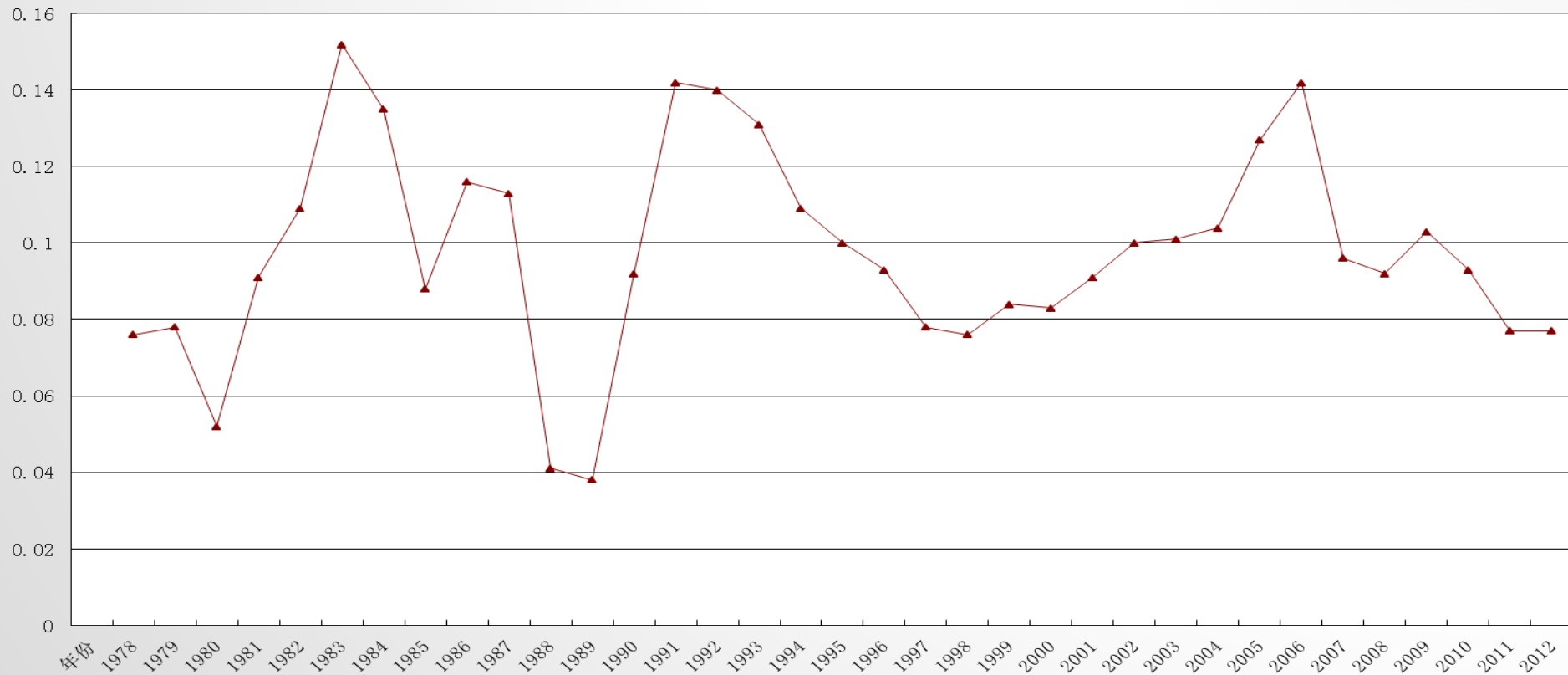
1982 – 2050

(From UN sources)

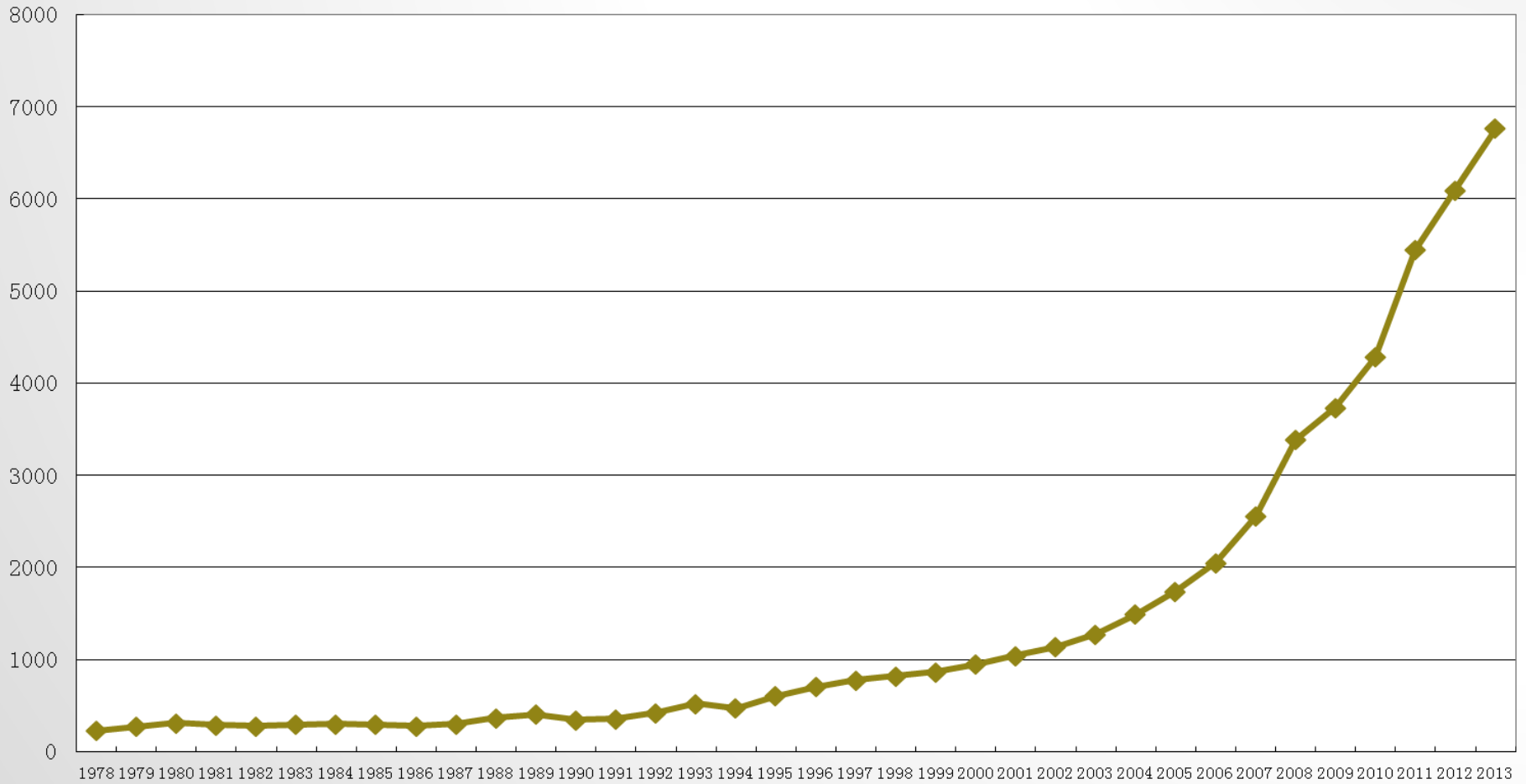


BACKGROUND — ECONOMIC TRANSITION (1978-)

GDP Increase Rate, 1978–2013



GDP per capita, 1978–2013



BACKGROUND — Life Expectancies at Age 60

By Sex and Year of the Censuses, 1982, 1990, 2000 and 2010



Data source: The census office of the state council. National Bureau of Statistics PRC. Data of the Third/Fourth/Fifth/Sixth Population Census China. [EB/OL]. Beijing: China Statistics Press, 1982/1990/2000/2010



OBJECTIVE (QUESTION)

Whether health status of Chinese elderly increased, following the increase of life expectancy and the increase of GDP and GDP per capita since the economic take-off at the late of 1980s?



DATA ISSUE

- There were almost no reliable data dealing with mortality and morbidity before 1980s due to lack of national surveys involving health and death in China at that time.
- It was the first time that China enumerated the death within the year of 1981 at the third national population census in 1982, and the first national elderly survey and the first disabled survey were all conducted by the government in 1987.



DATA

- **Mortality related data:**
 - All national censuses and intercentral censuses (1% survey), that is, 1982, 1987, 1990, 1995, 2000, 2005, 2010, and 2015.
- **Health related data:**
 - *Perceived (Self rated) Health:* Elderly survey by the China Social Science Academy in 1987, and aging surveys by the China Research Center on Aging in 1992, 2000, 2006, 2010, and 2015.
 - *Ability of self-care:* Elderly survey by the China Social Science Academy in 1987, and aging surveys by the China Research Center on Aging in 1992, 2000, 2006, 2010, and 2015.
 - *The question was asked : “Can you take care of yourself in your daily living?”*



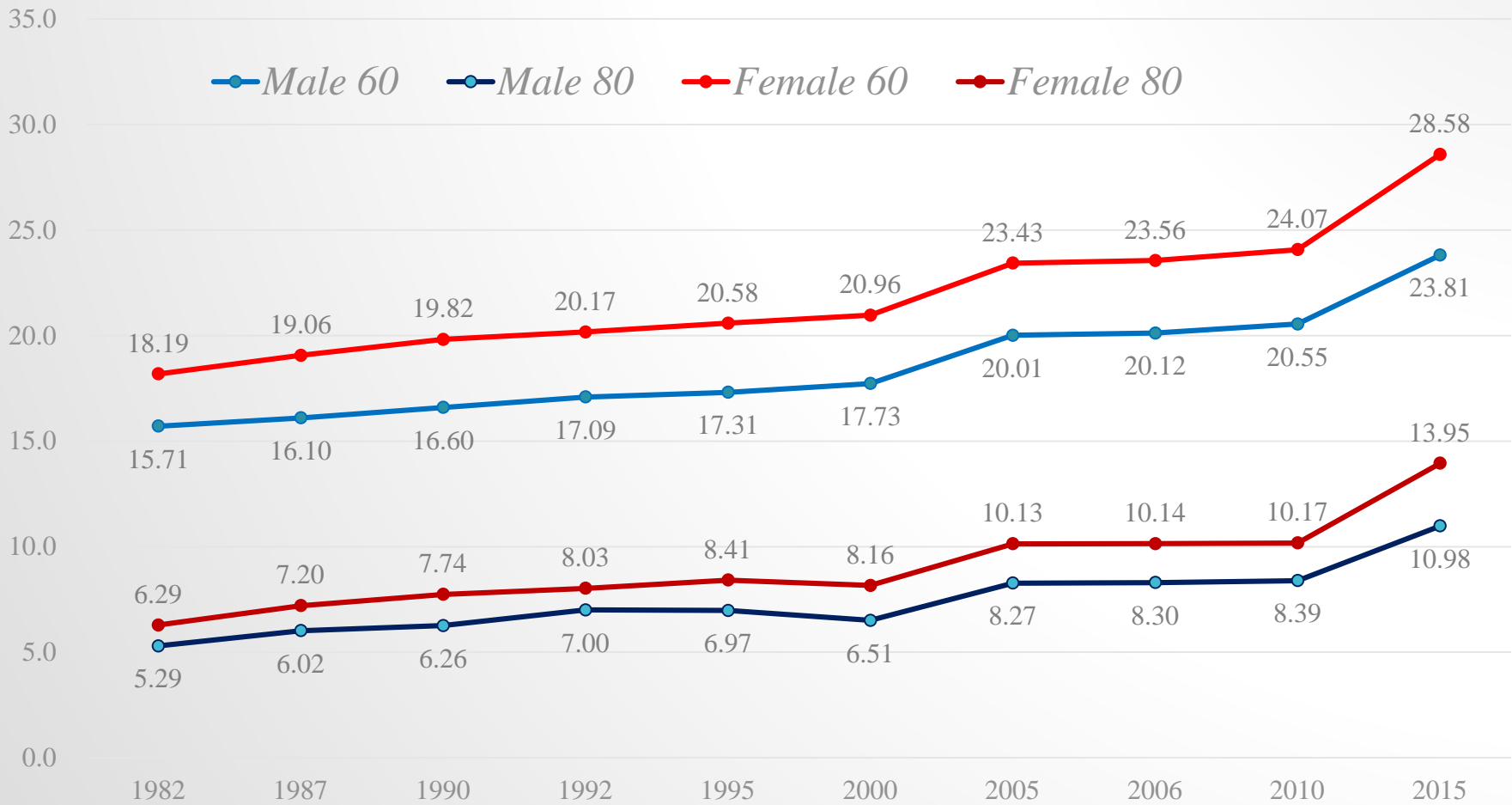
DATA AND METHODS

- *Chronic Disease: The China Research Center on Aging in 1992, 2000, 2006, 2010, and 2015.*
 - *By the question: “Do you have any diseases?” The answer provided was only “Yes” or “No”. This subjective response depended on if the diseases had been discovered by doctors and had been known by respondents.*
- *Disability: 1987 and 2006 national sample survey of the disability.*
 - *The sampling survey with the classification and definition of diverse disability had been determined prior to the enumeration implementation, and relevant doctors had been conscientiously chosen to ultimately make examination on whether the identified person was a real disabled, the quality of the data is good enough to use to calculate the disability-free life expectancy(DFLE) of China.*

✓ *The Sullivan method*



The Life Expectancies at Age 60 and 80, by Sex and Years



PHE and LE for Males and Females by Years

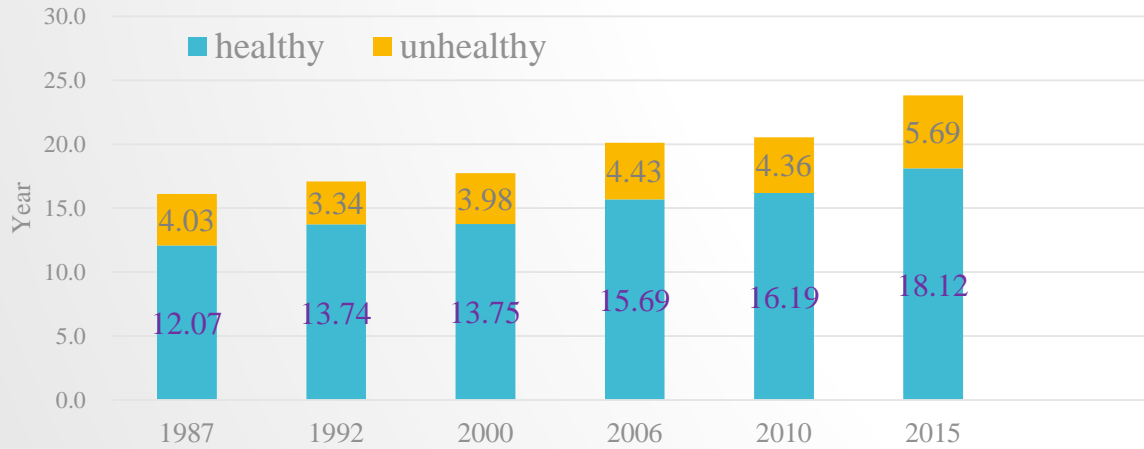
	1987				1992				2000			
	LE	PHE	s.e.	PHE/LE(%)	LE	PHE	s.e.	PHE/LE(%)	LE	PHE	s.e.	PHE/LE(%)
Male 60	16.10	12.07	0.04	75.0	17.09	13.74	0.11	80.4	17.73	13.75	0.06	77.6
65	12.83	9.53	0.05	74.3	13.76	10.83	0.12	78.7	14.15	10.64	0.06	75.2
80	6.02	4.57	0.08	76.0	7.00	5.40	0.19	77.1	6.51	4.51	0.06	69.4
Female 60	19.06	13.51	0.05	70.9	20.17	15.33	0.08	76.0	20.96	14.70	0.07	70.1
65	15.40	11.00	0.05	71.5	16.39	12.28	0.08	74.9	17.05	11.51	0.07	67.5
80	7.20	5.42	0.07	75.3	8.03	5.91	0.10	73.1	8.16	5.10	0.08	62.5

	2005				2010				2015			
	LE	PHE	s.e.	PHE/LE(%)	LE	PHE	s.e.	PHE/LE(%)	LE	PHE	s.e.	PHE/LE(%)
Male 60	20.12	15.69	0.06	78.0	20.55	16.19	0.06	78.8	23.81	18.12	0.03	76.1
65	16.40	12.40	0.06	75.6	16.76	12.83	0.06	76.6	19.90	14.71	0.03	73.9
80	8.30	5.48	0.07	66.1	8.39	5.54	0.06	66.1	10.98	7.47	0.03	68.0
Female 60	23.56	16.75	0.08	71.1	24.07	17.45	0.08	72.5	28.58	19.52	0.03	68.3
65	19.49	13.36	0.07	68.5	19.89	13.89	0.07	69.9	24.25	16.03	0.03	66.1
80	10.14	6.05	0.08	59.7	10.17	6.13	0.07	60.2	13.95	8.48	0.03	60.8

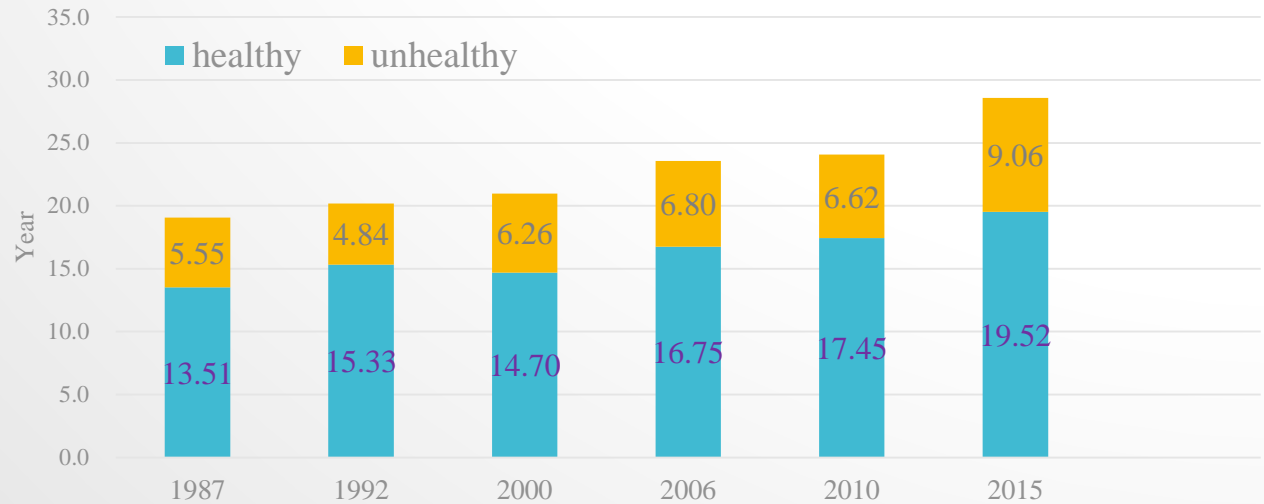


PHE for Males and Females at Age 60

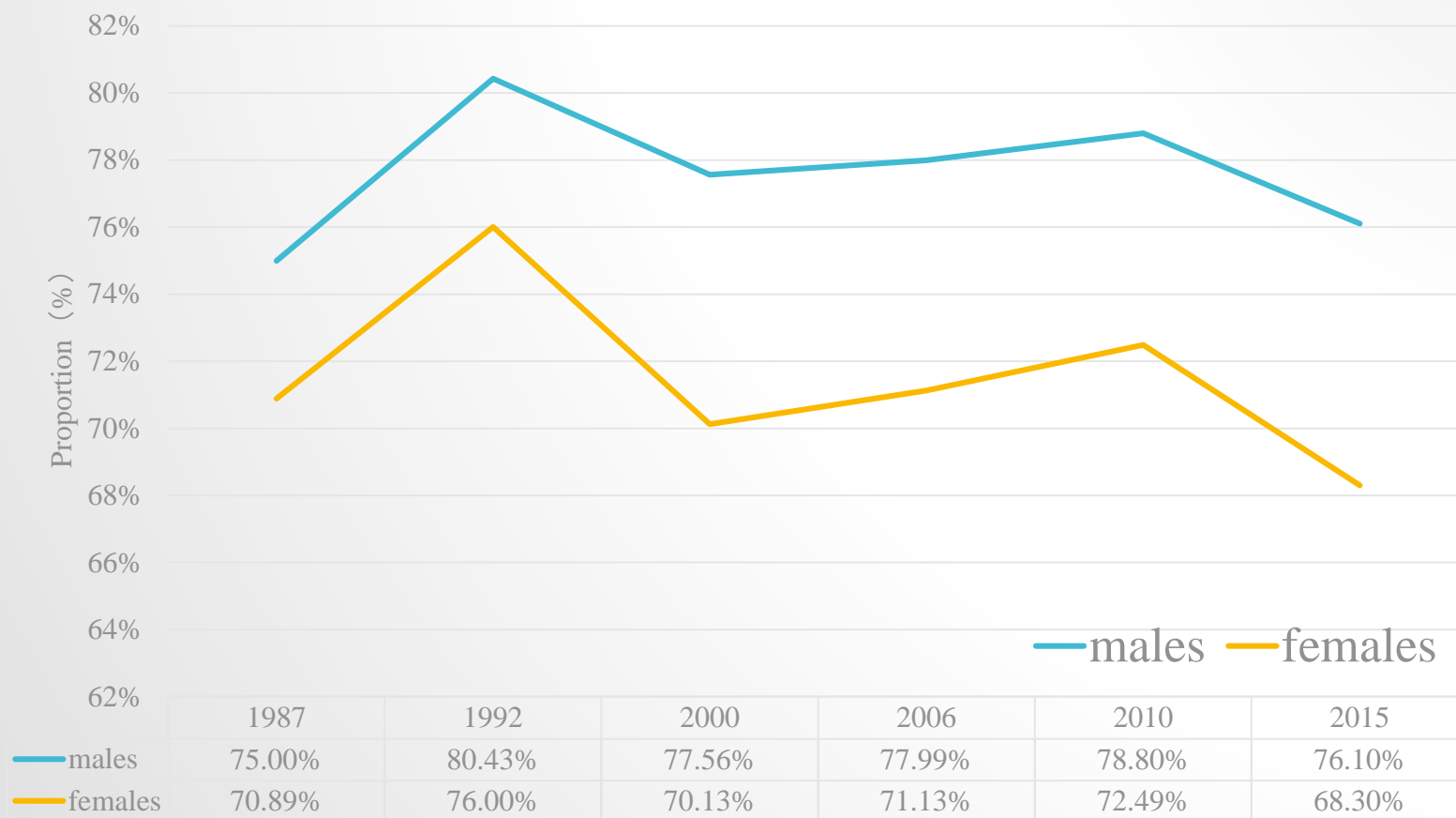
Males



Females



Healthy Proportions for PHE at Age 60



Life Expectancy with Ability of Self-Care by Years and Sex

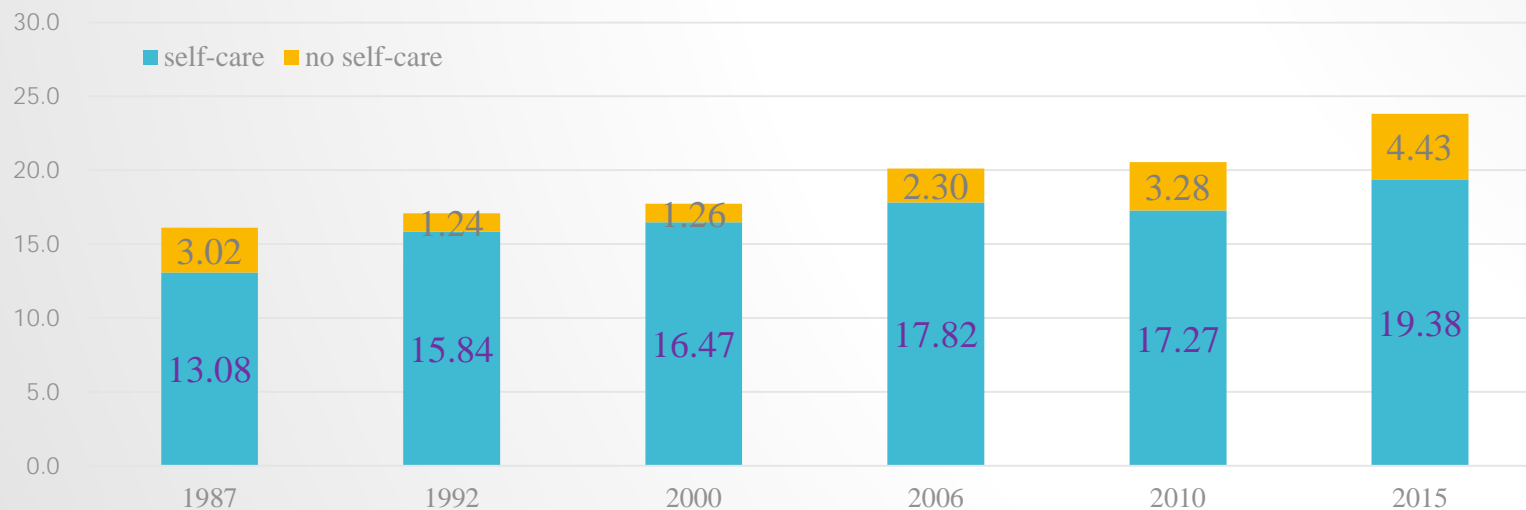
	1987				1992				2000			
	LE	ASLE	s.e.	ALSE/LE(%)	LE	ASLE	s.e.	ALSE/LE(%)	LE	ASLE	s.e.	ALSE/LE(%)
Male60	16.10	13.08	0.04	81.3	17.09	15.89	0.05	93.0	17.73	16.47	0.04	92.9
65	12.83	9.89	0.04	77.1	13.76	12.58	0.05	91.4	14.15	12.91	0.05	91.2
80	6.02	3.48	0.07	57.9	7.00	5.84	0.10	83.5	6.51	5.31	0.08	81.7
Female60	19.06	15.49	0.05	81.3	20.17	18.32	0.06	90.8	20.96	18.78	0.06	89.6
65	15.40	11.90	0.05	77.3	16.39	14.59	0.07	89.0	17.05	14.90	0.06	87.4
80	7.20	4.54	0.06	63.0	8.03	6.26	0.10	78.0	8.16	6.05	0.08	74.2

	2006				2010				2015			
	LE	ASLE	s.e.	ALSE/LE(%)	LE	ASLE	s.e.	ALSE/LE(%)	LE	ASLE	s.e.	ALSE/LE(%)
Male60	20.12	17.82	0.06	88.6	20.55	17.27	0.06	84.1	23.81	19.38	0.03	81.4
65	16.40	14.11	0.06	86.0	16.76	13.55	0.05	80.8	19.90	15.57	0.03	78.2
80	8.30	5.96	0.08	71.8	8.39	5.22	0.06	62.3	10.98	6.95	0.03	63.3
Female60	23.56	19.90	0.07	84.5	24.07	19.23	0.07	79.9	28.58	21.59	0.03	75.5
65	19.49	15.84	0.07	81.3	19.89	15.15	0.07	76.2	24.25	17.43	0.03	71.9
80	10.14	6.52	0.08	64.3	10.17	5.85	0.07	57.5	13.95	7.80	0.03	55.9

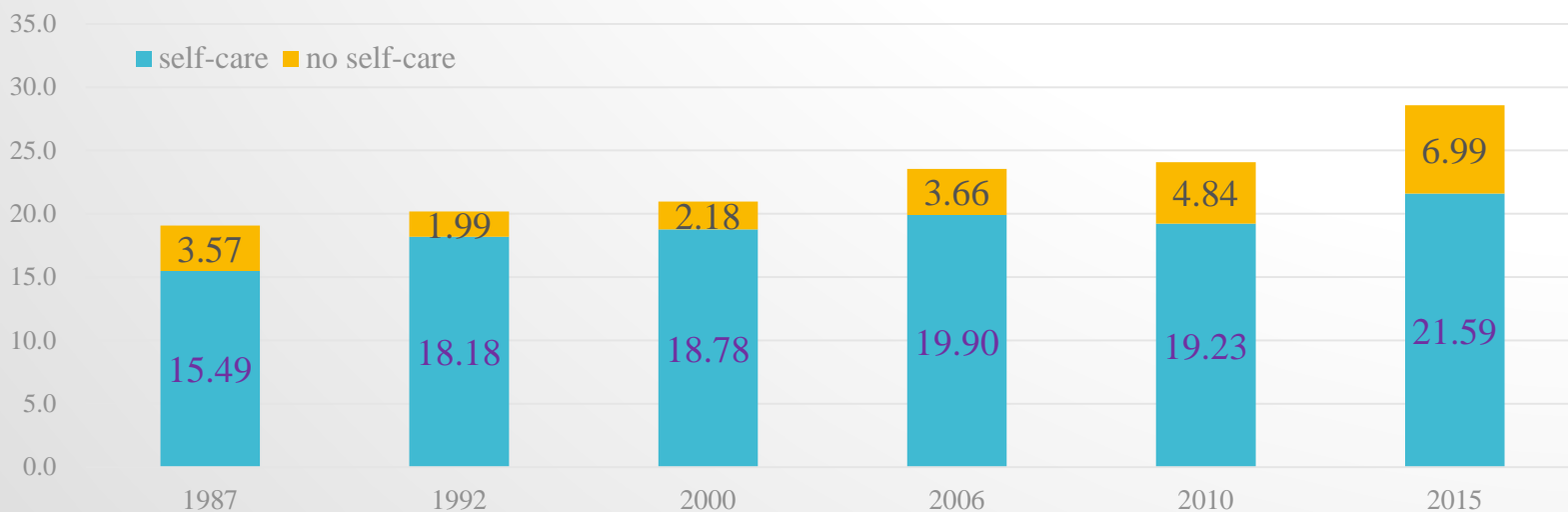


Life Expectancy with and without Ability of Self-care at 60, by Sex

Males



Females



Life Expectancy Free of Illness (chorionic diseases)

Age, Sex and Years

Free of illness of Life Expectancy for Males

	1992				2000				2006				2010				2015			
	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)
60	17.09	5.68	0.03	33.22	17.73	7.59	0.04	42.80	20.12	5.67	0.03	28.17	20.55	5.28	0.03	25.67	23.81	4.43	0.01	18.59
65	13.76	4.39	0.03	31.91	14.15	5.82	0.04	41.14	16.40	4.29	0.02	26.14	16.76	3.86	0.02	23.05	19.90	3.25	0.00	16.34
80	7.00	2.24	0.05	32.03	6.51	2.83	0.05	43.50	8.30	2.03	0.02	24.50	8.39	1.58	0.02	18.90	10.98	1.53	0.00	13.90

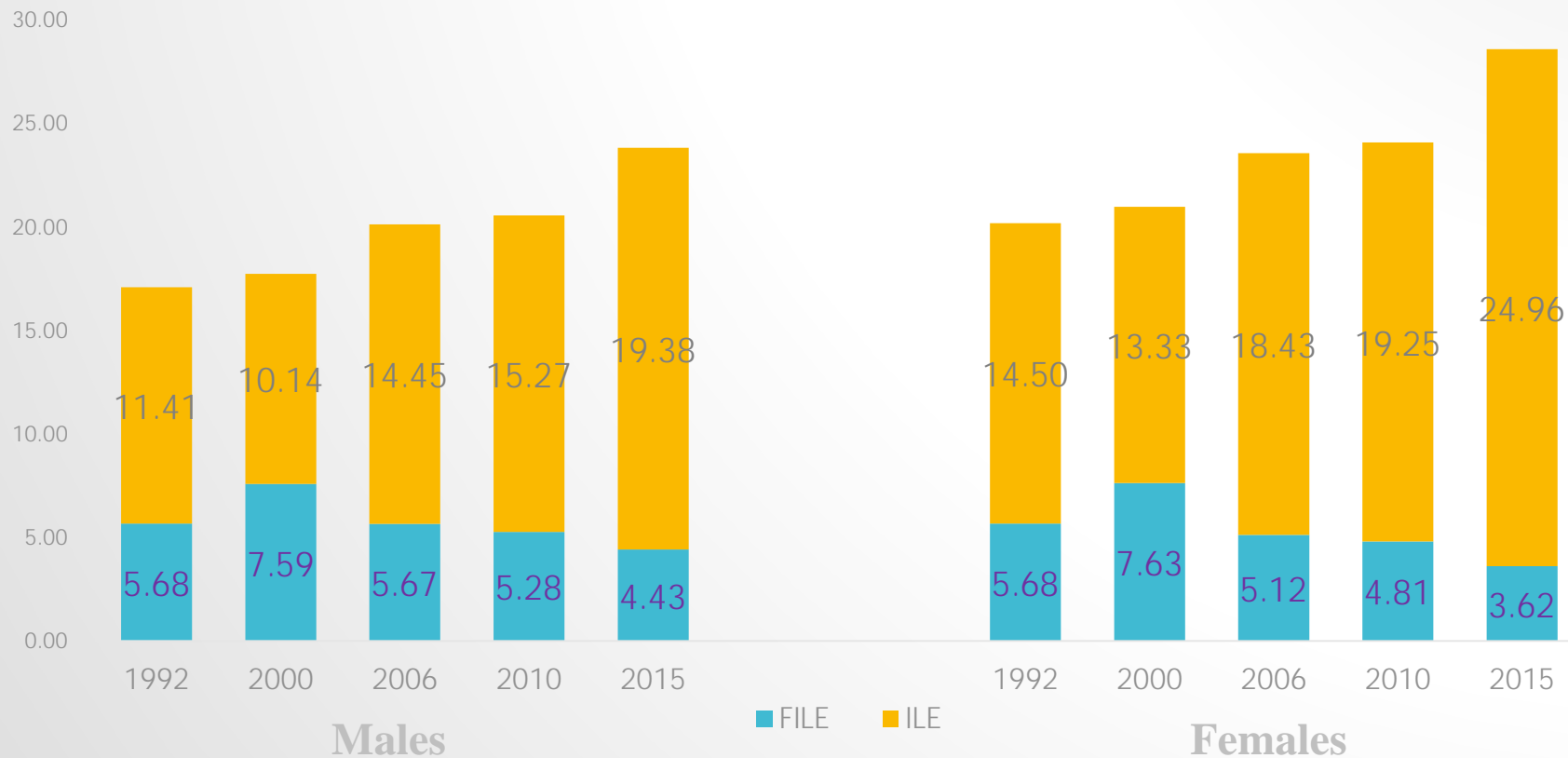
Free of illness of Life Expectancy for Females

	1992				2000				2006				2010				2015			
	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)	LE	FILE	s.e.	FILE/LE(%)
60	20.17	5.68	0.03	28.14	20.96	7.63	0.04	36.42	23.56	5.12	0.02	21.75	24.07	4.81	0.02	20.00	28.58	3.62	0.00	12.67
65	16.39	4.57	0.03	27.90	17.05	6.18	0.04	36.24	19.49	4.03	0.02	20.68	19.89	3.58	0.02	18.00	24.25	2.71	0.00	11.16
80	8.03	2.30	0.04	28.59	8.16	3.26	0.05	39.90	10.14	2.05	0.02	20.20	10.17	1.60	0.01	15.70	13.95	1.42	0.00	10.20



Life Expectancy Free of Illness (chronic diseases)

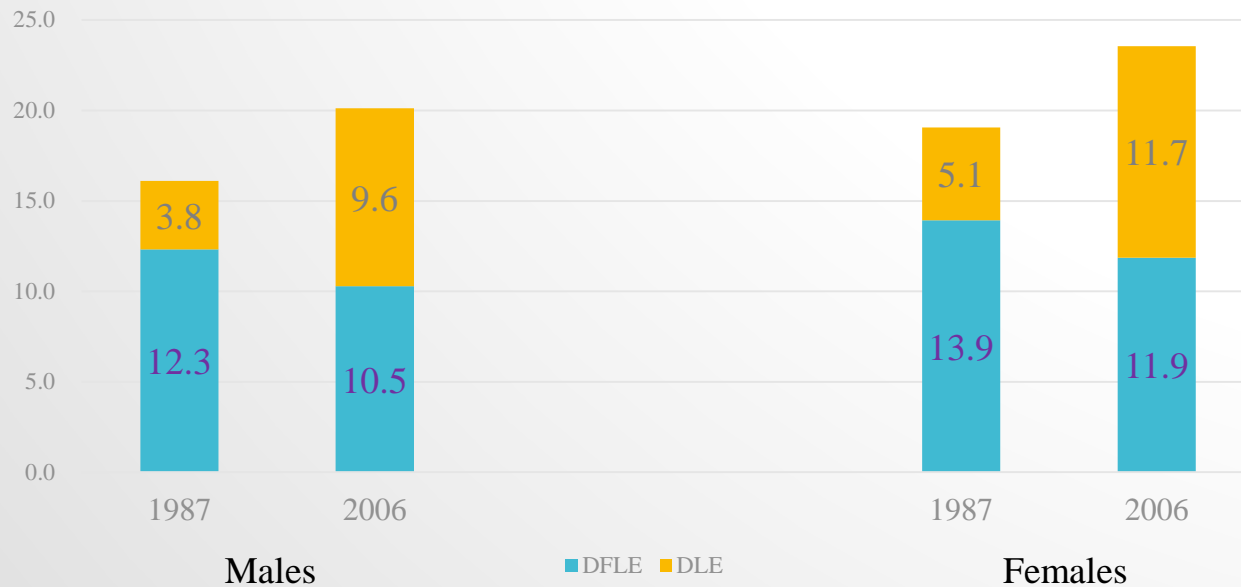
Males and Females at Age 60



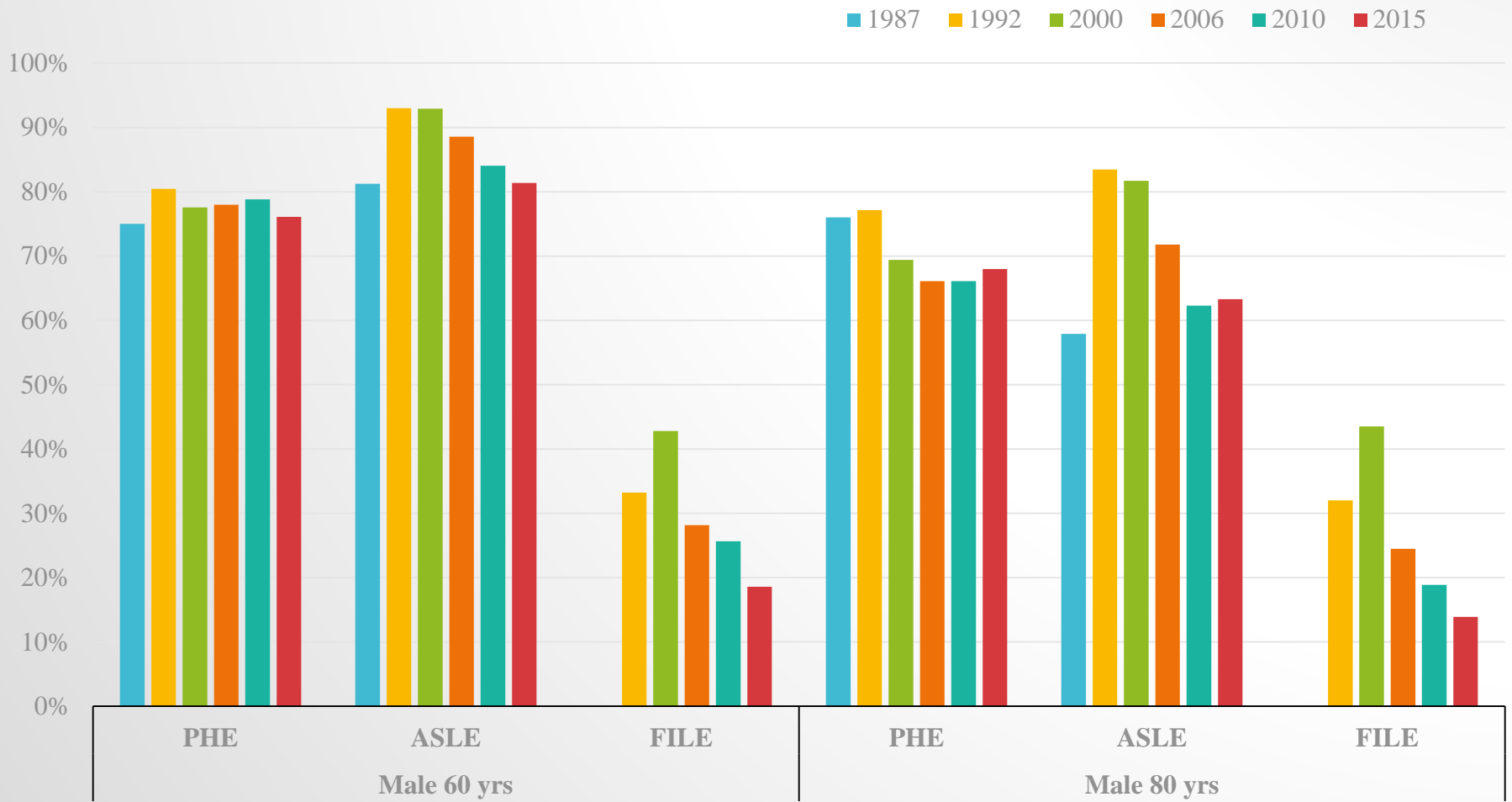
Disability Free Life Expectancy by Age, Sex and Years

	Age	1987				2006			
		LE	DFLE	SE	DFLE/LE(%)	LE	DFLE	SE	DFLE/LE(%)
Male	60	16.10	12.32	0.04	76.5	20.12	10.49	0.03	51.2
	65	12.83	9.20	0.04	71.7	16.40	6.45	0.03	39.3
	80	6.02	3.18	0.06	52.8	8.30	4.70	0.03	56.6
Female	60	19.06	13.9	0.04	73.1	23.56	11.86	0.03	50.4
	65	15.40	10.49	0.04	68.1	19.49	7.84	0.03	40.2
	80	7.2	3.56	0.05	49.4	10.14	5.73	0.03	56.5

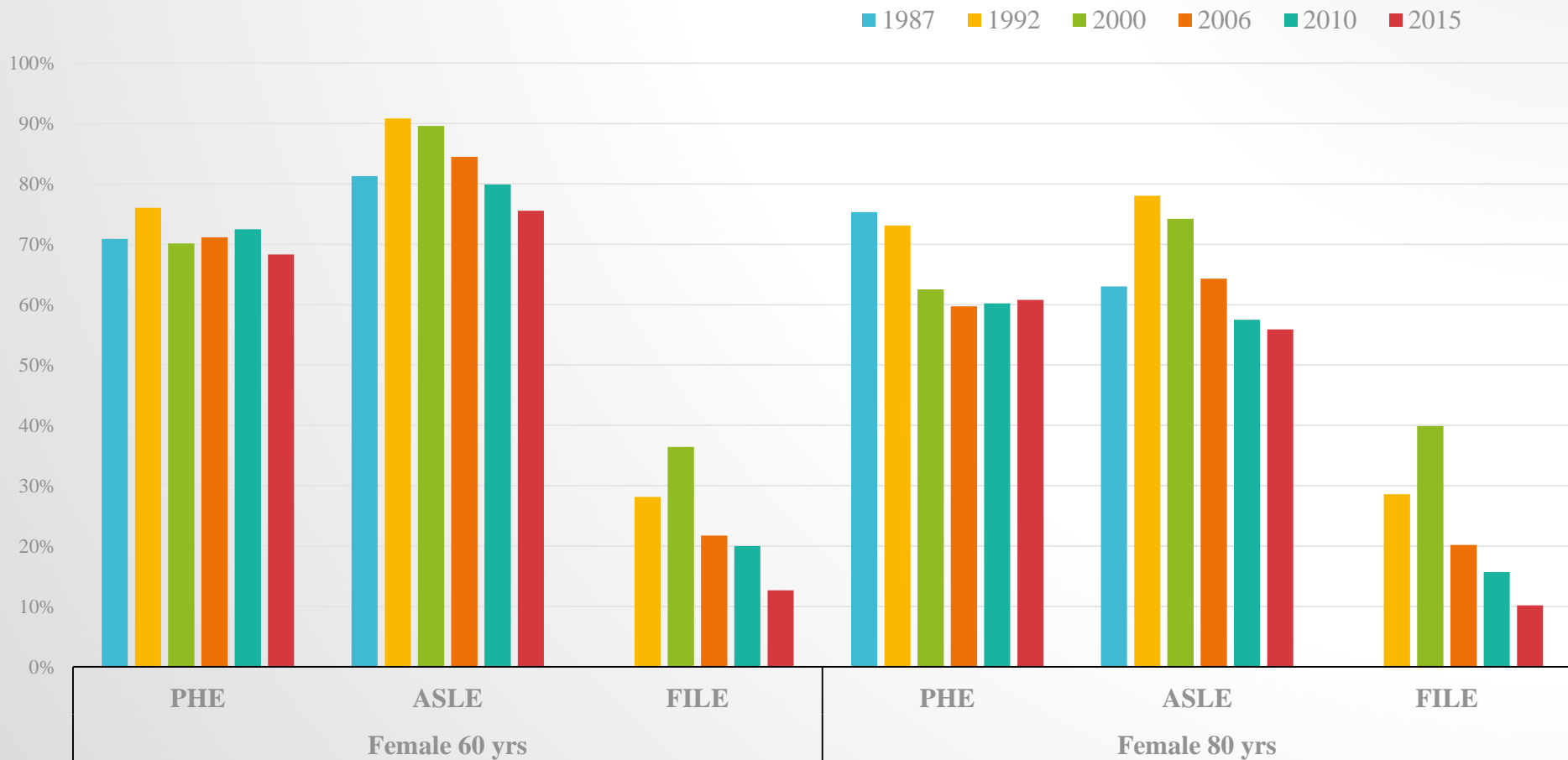
DFLE at Age 60



Proportions with Healthy Status for Males at 60 & 80



Proportions with Healthy Status for Females at 60 & 80



CONCLUSIONS

- Compressions of morbidity happened at the early time and expansions usually happened at the late time after 1992 or 2000
- Usually, the higher of the age, the higher the extent of expansion, with exception of DFLE
- The proportion of disability free life expectancies decreased greatly from 1987 to 2006, showing the high expansion of morbidity for young elderly and compression for oldest old.
- Life expectancy free from illness accounted for the lowest proportions of healthy status, while the life expectancy free from self care accounted for the highest proportions; the perceived health expectancy and disability free life expectancy located in the middle.
- In general, the increase of income and increase of LE were unable to improve health status for Chinese elderly.





Thank You

