

CHILDHOOD HEALTH AND ITS LEGACIES IN CHINA: EVIDENCE FROM CHARLS

James P. Smith

(with Shen Yan, John Strauss, and Zhao Yaohui)

Progress of CHARLS

- **Pilot survey in Zhejiang and Gansu in 2008**
- **National baseline survey in 2011**
- **About 10,000 households, 18,000 individuals to be surveyed in 200 counties**
- **Follow up every two years**

Questionnaire Structure

- Demographics
- Family structure/transfer
- **Health status and functioning**
- Biomarkers
- Health care and insurance
- Work, retirement and pension
- **Income and consumption**
- **Assets (individual and household)**

- Community survey

- Policy survey

The Pilot

- Carried out in summer 2008 at two provinces
- **Zhejiang** is the richest province, dynamic in terms of fast economic growth, private sector, small-scale industrialization, and export orientation
- **Gansu** is the poorest province in China, very rural

Sample Size and Response Rate %

	Total	Urban	Rural	Zhejiang	Gansu
Total sampled	2592	1281	1311	1350	1242
Age-eligible rate	69.3	65.1	73.4	71.3	67.2
Response rate*	84.8	79.3	89.7	83.9	85.8
Total Households responded	1570	691	879	831	739

*Response rate is based on the age-eligible households.

Childhood Health Status and SES

- **Childhood health: General health before age 16**
- **Current Health Status**
 - **General Health Status now**
 - **Doctor diagnoses of chronic illnesses**
 - **Lifestyle and health behaviours: physical activities, smoking, drinking**
 - **Subjective expectation of mortality**
 - **ADLs, IADLs**

Definition of Expenditure Variables

- Household total expenditure is the sum of:
 - Food Expenditure
 - Expenditure on durable goods (values < 10,000 Yuan)
 - Expenditure on utilities
 - Expenditure on clothing
 - Expenditure on entertainment
 - Education and health expenditure
 - Fuel and transportation costs
 - Various fees

Definition of Asset Variables

- Net Assets in China can be decomposed into three categories:
 - **Net housing assets** = self-reported gross value of resident / other houses – mortgage loans
 - **Physical assets** = durable goods + production goods
 - durable goods: current value of automobile, motorcycle, refrigerator, TV, furniture, etc., owned by HH
 - production goods: current value of tractor, thresher, tractor tools, etc., owned by HH
 - **Net financial assets** = sum of individual net financial assets

Per Capita Household Total Income, Expenditure, and Net Wealth Across Regions

	Income		Expenditure		Net Wealth	
	Mean	Median	Mean	Median	Mean	Median
Urban Zhejiang	22336	12200	10677	8258	218605	80600
Rural Zhejiang	10391	6513	7575	5810	63996	29908
Urban Gansu	8557	5367	7549	4641	51043	38900
Rural Gansu	2335	950	3843	2928	7858	3783

Mobility of CHARLS Pilot Respondents

Where Were You Born?

- Same Place 49.3%
- Another Village in County 39.1%
- Another County in Province 7.5 %
- Another Province 4.1%
- Number of Provinces = 2
 - Counties =30
 - Communities = 95

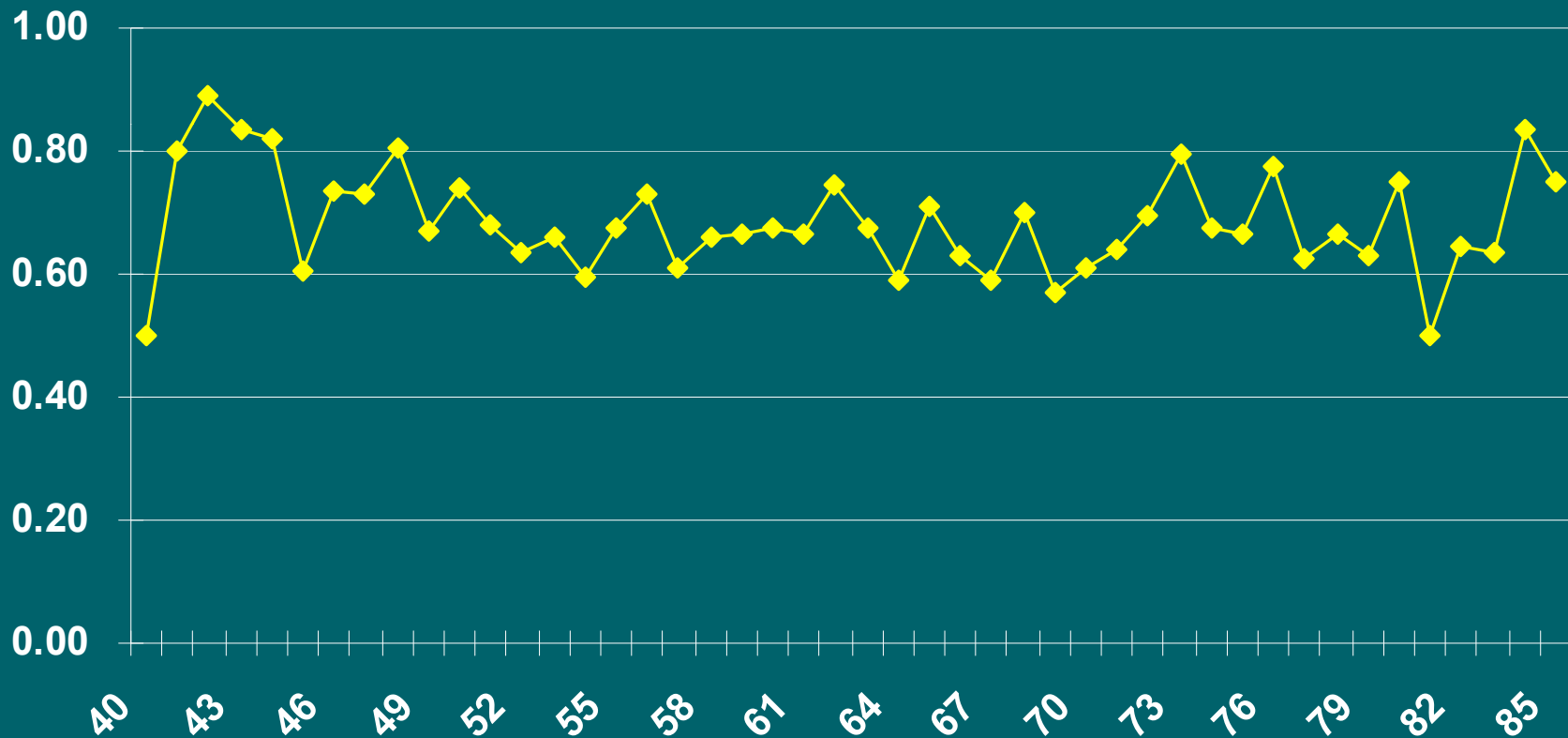
Percent Distribution of Childhood Health

Individual's Health Status During Childhood



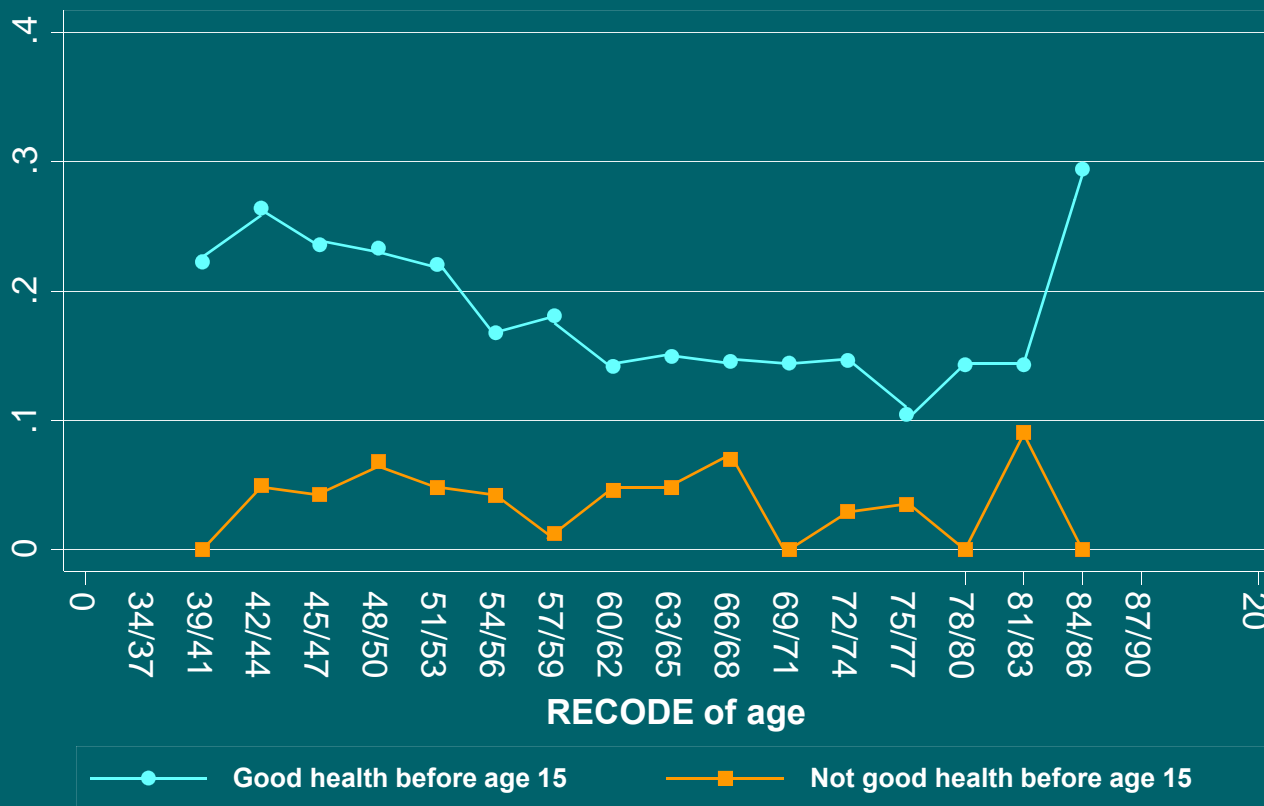
Trends in Childhood Health in Pilot Provinces: By Age

Percentage reporting Excellent/very good Childhood Health



Adult Health by Child Health in CHARLS Pilot

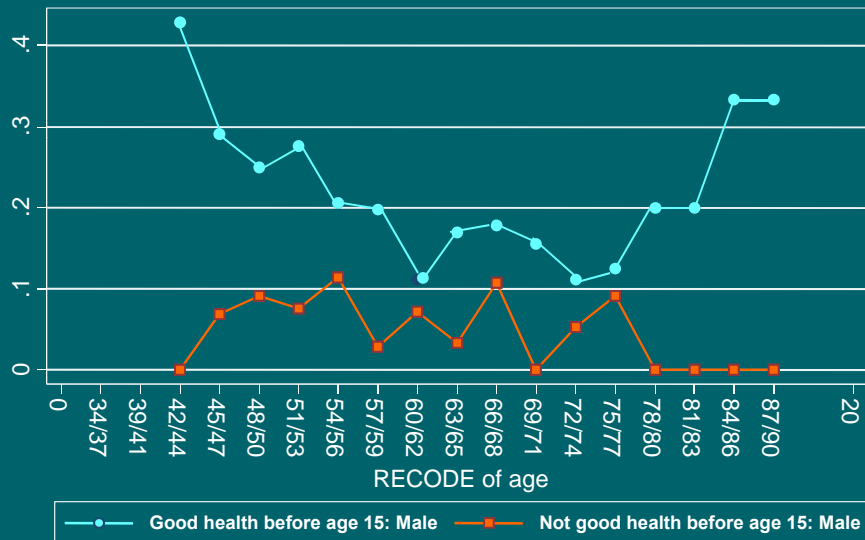
Health Excellent or Very Good by Health Status Before 15



from CHARLS DATA

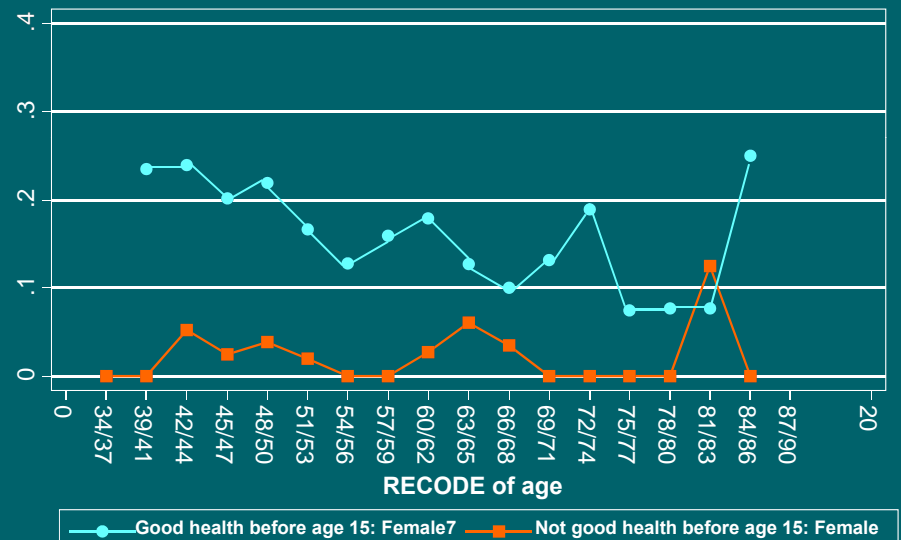
Adult Health by Child Health in CHARLS Pilot by Gender

Male Health Excellent or Very Good by Health Status Before 15



from CHARLS DATA

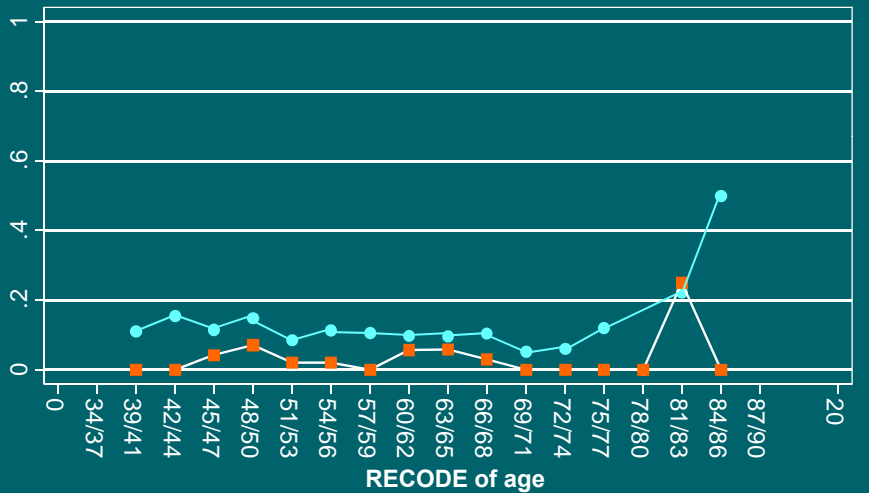
Female Health Excellent or Very Good by Health Status Before 15



from CHARLS DATA

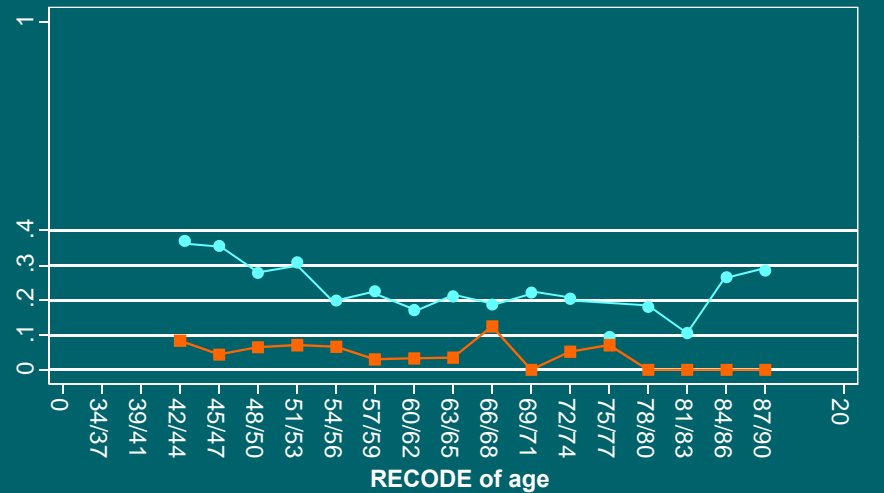
Adult Health by Child Health in CHARLS Pilot by Province

Gansu Health Excellent or Very Good by Health Status Before 15



from CHARLS DATA

Zhejiang Health Excellent or Very Good by Health Status Before 15



from CHARLS DATA

Analytical Approach

- **Examine the effect of being in excellent or very good childhood health on a series of adult outcomes**
- **A set of controls**
 - Always include age dummies 55-64, 65-74, 75+
 - Always run separate models for men and women
 - With and without controls for province and rural-urban residence (four groups)
 - With and without community fixed effects
 - With and without controls for SES measures (education, log income, log PCE)
 - Endogeneity argues for without

Analytical Approach — The Adult Outcomes

- **Adult Health Outcomes**
 - BMI, Depression, survival probability, general health status, ADLs and IADLs
- **Adult Health Behaviors**
 - Smoking, drinking, exercise
- **Adult Non-Health behaviors**
 - Marriage, mobility
- **Adult SES outcomes**
 - Education, income, and PCE

Estimated Effects of Childhood Health on Adult Health Outcomes

	Men	Women
BMI	+	0
Malnourished	-	0
overweight	+	0
Depression (CESD)	-/0	-
Word recall	0	0
Survival Prob	+/0	+
GHS	0	+
ADLs	0	-
IADLs	0	-/0

Estimated Effects of Good Childhood Health on Adult BMI

	All Men	Gansu	Zhejiang
Age Groups	0.901*** (0.21)	0.838*** (0.31)	0.907*** (0.27)
Province-rural	0.859*** (0.21)	0.812** (0.32)	0.919*** (0.27)
FE	0.911*** (0.20)	0.985*** (0.28)	0.861*** (0.28)

Estimated Effects of Good Childhood Health on Adult BMI <18.5

	All Men	Gansu	Zhejiang
Age Groups	-0.048** (0.20)	-0.066** (0.31)	-0.029 (0.21)
Province-rural	-0.048** (0.20)	-0.066** (0.31)	-0.029 (0.21)
FE	-0.046** (0.19)	-0.064* (0.32)	-0.031 (0.20)

Estimated Effects of Good Childhood Health on Adult BMI >25

	All Men	Gansu	Zhejiang
Age Groups	0.063** (0.25)	0.040 (0.38)	0.082** (0.34)
Province-rural	0.059** (0.25)	0.037 (0.38)	0.083** (0.34)
FE	0.062** (0.26)	0.050 (0.35)	0.074** (0.34)

Estimated Effects of Good Childhood Health on Adult Depression (CESD10)

	All Women	Gansu	Zhejiang
Age Groups	-1.754***	-1.861**	-0.891**
	(0.47)	(0.81)	(0.37)
Province-rural	-1.360***	-1.911**	-0.888
	(0.40)	(0.77)	(0.37)
FE	- 1.493***	-2.031**	-1.056***
	(0.40)	(0.76)	(0.39)

Estimated Effects of Good Childhood Health on Survive to Age 75

	All Women	Gansu	Zhejiang
Age Groups	-0.120*** (0.04)	-0.193*** (0.06)	0.000 (0.04)
Province-rural	0.088** (0.03)	-0.194*** (0.05)	0.001 (0.04)
FE	0.081** (0.04)	-0.197*** (0.05)	-0.002 (0.04)

Estimated Effects of Good Childhood Health on Adult Poor Health

	All Women	Gansu	Zhejiang
Age Groups	-0.131*** (0.03)	-0.101** (0.05)	-0.121*** (0.04)
Province-rural	-0.111*** (0.03)	-0.101** (0.04)	-0.121*** (0.27)
FE	-0.120*** (0.03)	-0.095** (0.04)	-0.143*** (0.03)

Estimated Effects of Good Childhood Health on Adult #ADLs

	All Women	Gansu	Zhejiang
Age Groups	-0.200*** (0.06)	-0.267** (0.11)	-0.084 (0.06)
Province-rural	-0.171*** (0.06)	-0.268** (0.13)	-0.084 (0.06)
FE	-0.187*** (0.07)	-0.269** (0.11)	-0.094 (0.06)

Estimated Effects of Childhood Health on Health Outcomes — Summary

- **Good Childhood Health related to adult health outcomes BUT**
 - Different results for men and women
 - No dramatic health results for men except for BMI
 - Big effects for women BUT
 - Much higher in Gansu

Analytical Approach — The Adult Outcomes

- **Adult Health Outcomes**
 - BMI, Depression, survival probability, general health status, ADLs, and IADLs
- **Adult Health Behaviors**
 - Smoking, drinking, exercise
- **Adult Non-Health behaviors**
 - Marriage, mobility
- **Adult SES outcomes**
 - Education, income, and PCE

Estimated Effects of Good Childhood Health on Adult Health Behaviors — Summary

	Men	Women
Ever Smoked	0	0
Current Smoked	0	0
Current Drinking	0	0
Heavy Drinking	0	0
Vig Exercise	-	?
Hours of Exercise	-	?

Estimated Effects of Good Childhood Health on Physical Activity

	All Men	Gansu	Zhejiang
Age Groups	-0.910** (0.36)	-0.231 (0.58)	-0.928* (0.46)
Province-rural	-0.612* (0.33)	-0.286 (0.49)	-0.893* (0.46)
FE	-0.780** (0.33)	-0.679 (0.47)	-0.840* (0.45)

Definition of Physical Activity in a normal week at least ten minutes a day- total time per week

- Vigorous activities make you breathe much harder than normal and may include heavy lifting, digging, plowing, aerobics, fast bicycling, and cycling with a heavy load.**
- Moderate physical effort make you breathe somewhat harder than normal and may include carrying light loads, bicycling at a regular pace, or mopping the floor**
- Walking- at home, at work, traveling place to place, for recreation, sport, exercise, or leisure**

Estimated Effects of Childhood Health on Health Behaviors — Summary

- **Good Childhood Health not related to conventional adult health behaviors (smoking, drinking) with the exception of physical activity**
 - Different results for men and women
 - For Men being in good childhood health
 - Reduces adult physical activity with much larger effect in Zhejiang
 - For Women being in good childhood health
 - Tends to increase physical activity with slightly larger effect in Gansu

Analytical Approach — The Adult Outcomes

- **Adult Health Outcomes**
 - BMI, Depression, survival probability, general health status, ADLs and IADLs
- **Adult Health Behaviors**
 - Smoking, drinking, exercise
- **Adult Non-Health behaviors**
 - Marriage, mobility
- **Adult SES outcomes**
 - Education, income, and PCE

Estimated Effects of Childhood Health on Adult Non-Health Behaviors

	Men	Women
Current Marriage	0	0
Mobility	0	0

Analytical Approach — The Adult Outcomes

- **Adult Health Outcomes**
 - BMI, Depression, survival probability, general health status, ADLs and IADLs
- **Adult Health Behaviors**
 - Smoking, drinking, exercise
- **Adult Non-Health behaviors**
 - Marriage, mobility
- **Adult SES outcomes**
 - Wealth, income, and PCE

Estimated Effects of Childhood Health on Adult SES Outcomes — Summary

	Men	Women
Ln PCE	+	0
Ln Income	0	0
Ln Wealth	+	0

Estimated Effects of Good Childhood Health on Adult In PCE

	All Men	Gansu	Zhejiang
Age Groups	0.118*	-0.038	0.128
	(0.06)	(0.10)	(0.09)
Province-rural	0.046	-0.050	0.142
	(0.07)	(0.10)	(0.09)
FE	0.041	-0.074	0.149*
	(0.08)	(0.15)	(0.08)

Estimated Effects of Good Childhood Health on Adult In income

	All Men	Gansu	Zhejiang
Age Groups	0.141	-0.049	-0.028
	(0.15)	(0.21)	(0.20)
Province-rural	-0.040	-0.050	0.001
	(0.14)	(0.21)	(0.19)
FE	-0.051	-0.167	0.062
	(0.15)	(0.22)	(0.19)

Estimated Effects of Good Childhood Health on Adult In Wealth

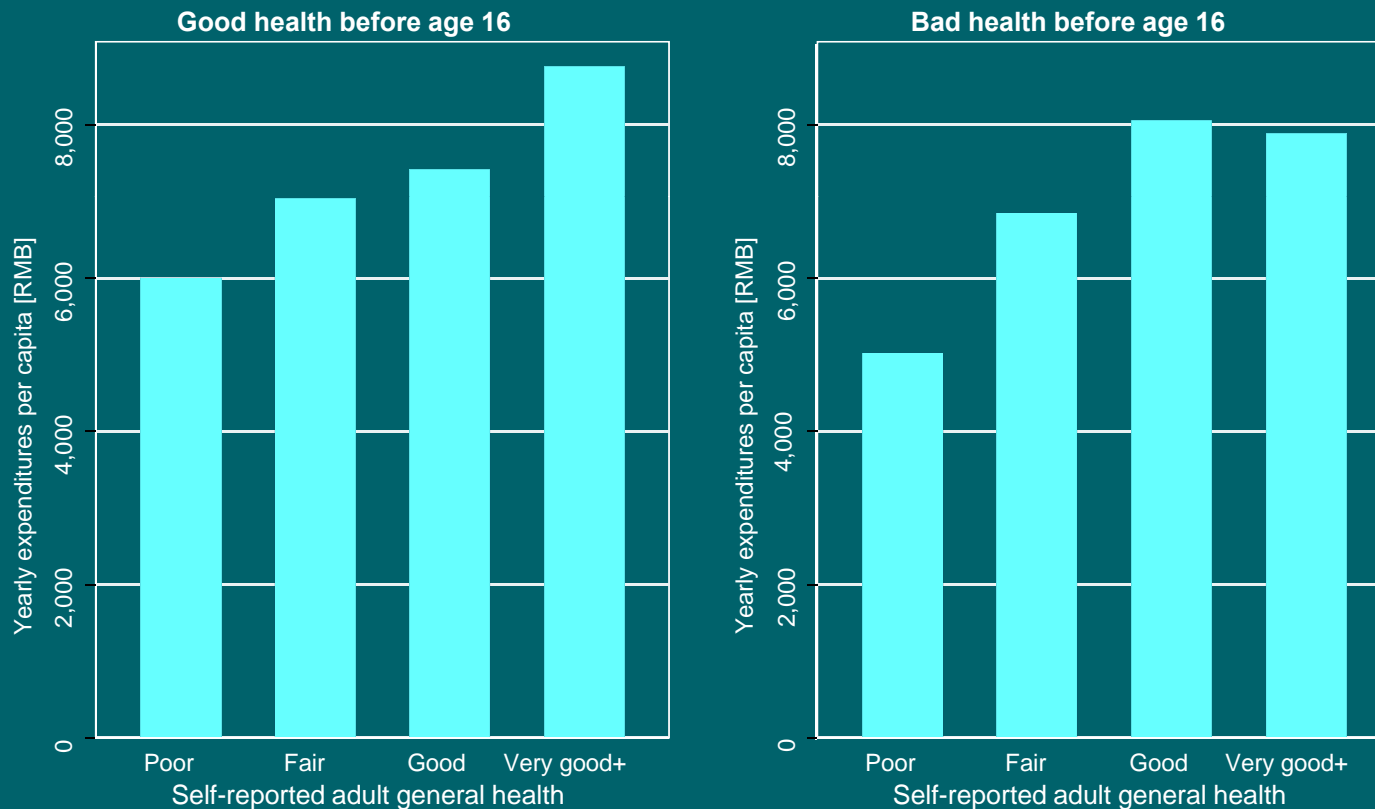
	All Men	Gansu	Zhejiang
Age Groups	0.559** (0.23)	0.236 (0.33)	0.353 (0.26)
Province-rural	0.303 (0.20)	0.214 (0.31)	0.400 (0.25)
FE	0.345 (0.21)	0.109 (0.32)	0.565** (0.27)

Estimated Effects of Childhood Health on Adult SES Outcomes — Summary

- **Good Childhood Health Improves Adult PCE, Income, and Wealth BUT**
 - Only for men
 - Only in Zhejiang and Not Gansu

Adult Health/ PCE by Childhood Health Status

Self-Reported Adult Health and Expenditures, by health before 16



Conclusions

- **Childhood health appears to matter for latter life outcomes**
 - **Effects appear to differ for men and women**
 - **Also differ significantly between the rural-economically less dynamic province compared to the more advanced dynamic province even though starting points were more similar**