

Socioeconomic Status and Overweight and Obesity: How Does the Gradient Change with Age? New Evidence from China

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Abstract

This paper presents a systematic analysis of the impact of socioeconomic status (SES) on overweight and obesity in China and investigates how and why the SES-obesity gradient differs with age. Using a longitudinal sample drawn from the China Health and Nutrition Survey (CHNS), I find that body mass index (BMI) is predicted to increase with age and is positively associated with SES during early childhood but becomes adversely related to childhood SES as children age into adulthood. Estimation results show that children from low SES families are less likely to be overweight or obese than their median and high SES peers. The results from subsamples stratified by living areas (rural vs. urban) reveal that the SES gaps of overweight and obesity are generally larger for urban residents than rural residents. My study indicates that females are significantly less likely to be overweight than males in China. The SES during childhood has independent effects after controlling for respondents' contemporaneous SES. Interestingly, the relationship between the contemporaneous SES of a male adult and his chance of being overweight or obese is significantly positive. In this instance, early childhood SES becomes insignificant. On the contrary, the contemporaneous SES of a female adult is negatively related with her chance of being overweight or obese.

JEL Classification Codes: I10, I18

Keywords: Overweight and Obesity, Socioeconomic Status, China

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1. Introduction

Emerging as a global epidemic, obesity has been recognized as a serious public health issue in both industrialized and developing countries due to its chronic health implications. Over the past two decades, China, the world's most populous country, has witnessed a dramatic increase in the prevalence of overweight and obesity. While it is particularly alarming that about one fifth of the one billion currently overweight or obese people in the world are Chinese, limited investigations have been conducted on China's recent epidemic and even fewer have been documented in the English literature. In this work, I focus on the role played by socioeconomic status (SES) on overweight and obesity in China and investigate how and why the SES-obesity gradient differs with age.

Numerous studies have investigated the positive association between socioeconomic status and health. Some of these studies have focused on the family income gradient in children's health. For example, Case et al. (2002) examined the way that relationship between SES and health changes with age among children. They show that the well-known cross-sectional relationship between SES and health exists in childhood and is more pronounced among older, rather than young children. Meanwhile, other studies have focused on obesity growth with age. Baum and Ruhm (2008) investigated how body weight and obesity change with age for a cohort moving through middle adulthood in the US, although their results, based on the self-reported height and weight data, may suffer from measurement errors. The lack of the childhood data also limits the age profile of SES-obesity gradients for young children within the literature. However, there is also a vast amount of work documenting that ill health in childhood affects adult health and SES through multiple pathways. Currie and Stabile (2003) found that the health of low-SES children worsens with age because they are subject to more shocks.

Although there is an expanding body of literature examining the relationship between SES factors and obesity for overweight and obese adults, less research has focused on the younger cohort. Growing evidence shows that childhood obesity has a profound influence on morbidity and mortality in adult life. In this paper, I present a systematic analysis of

the impact of socioeconomic status (SES) on overweight and obesity in China, investigate how the SES-obesity gradient differs with age, and study channels for these SES-disparities from early to middle adulthood. Moreover, it is argued that how SES and obesity are related among adults remains elusive. It is likely that the causality operates in either direction. I nevertheless expect that it may be easier to disentangle the issue of the causality among children because SES is mainly determined by parental characteristics instead of being influenced by their own obesity status and the related social consequences.

Many previous studies use cross-sectional data to document that the connection between SES and weight that strengthens over time. However, since such data provide only contemporaneous information, it is hard to study how SES in earlier life is related to adult obesity. Using a longitudinal sample drawn from the China Health and Nutrition Survey (CHNS), this paper presents a dynamic description of the impact of SES on overweight and obesity status in China, as well as both how the SES-obesity gradient differs with age and channels for these SES-disparities. The average body mass index (BMI) is predicted to increase with age and is positively associated with SES during childhood. It becomes adversely related to childhood SES after growing up, which is consistent with research on the economics of obesity for adults from western countries. I also find that the SES-obesity gradient rotates most for the low SES cohorts. However, I do not find that higher childhood SES is related with a higher chance of overweight and obesity, as found in the literature using developed country data. Instead, I find that children from low SES families are less likely to be overweight or obese than their median and high SES peers, which is consistent with research on Chinese obesity (Wang, 2001). The results from subsamples stratified by living areas (rural vs. urban) reveal that the SES gaps of overweight and obesity are generally larger for urban residents than rural residents.

This study indicates that females are significantly less likely to be overweight or obese than males in China. The SES during childhood has independent effects after controlling for respondent adult SES. Interestingly, there is a significantly positive relationship between the adult SES of a man and his chance of becoming overweight or

obese. In this instance, early childhood SES becomes insignificant. On the contrary, the adult SES of a woman is negatively related with her chance of being overweight or obese.

The rest of the paper proceeds as follows: Section II describes an overview of the data. Section III presents a model of weight production. Section IV explains estimation methods. Results appear in Section V, and Section VI concludes.

2. Data and Summary Statistics

This paper uses an ongoing longitudinal dataset from the China Health and Nutrition Survey (CHNS). The CHNS has collected a wide range of household, community, economic, and health facility data from nine Chinese provinces (Heilongjiang, Liaoning, Shandong, Jiangsu, Henan, Hubei, Hunan, Guangxi, and Guizhou) since 1989. A multi-stage, random cluster sampling design was used to draw the sample from nine provinces¹.

This study utilizes the 1991, 1993, 1997, 2000, 2004 and 2006 panels of CHNS, which include observations on 4,111 individuals in 1991 households between the ages of 2 and 38. Observations with missing information were excluded, leaving a final sample of 20,104 person-year observations.

I use Body Mass Index (BMI), measured by weight (kg)/height² (m²), to delineate overweight and obesity. In China, the most commonly used weight classifications for adults come from the WHO standard (World Health Organization, 2000) and the recently developed Chinese standard with lower BMI cutoff points (Wang et al. 2007).² Since it is argued that the WHO BMI cutoff points are developed primarily based on data collected in Western countries, the Cooperative Meta-Analysis Group of the Working Group on Obesity in China developed the Chinese standard based on analysis of data collected from 239,972 Chinese adults in the 1990s (Zhou, 2002). In this population, a BMI of 24 kg/ m² was found to have the best sensitivity and specificity for identifying risk factors, including hypertension, diabetes, and dyslipidaemia. There is a growing body of evidence

¹ Data and documentation for the CHNS are available as public-use data sets from the Inter-university Consortium for Political and Social Research, University of Michigan.

² A detailed classification of overweight and obesity table is attached in the Appendix.

that people in China as well as some other Asian Pacific populations have an elevated risk for obesity-related diseases at a lower BMI than Caucasians (Zhou, 2002; Misra, 2003; and WHO, 2004). I take an agnostic view about which criteria are the “best” and present the results using both categorization methods. Following WHO’s recommendation, the more complicated gender- and age-specific growth charts with BMI cut-offs compiled by the Center for Disease Control and Prevention (Kuczmarski et al. 2000) are used to define overweight and obesity for persons under 21 years old. Children with a BMI above the age- and sex- specific 95th percentile of the BMI growth chart are classified as “obese”. Those with a BMI between the age- and sex- specific 85th and 95th percentile are classified as “overweight”.

Weight and height measurements were collected from all survey participants by trained health workers who followed standard protocol and techniques. Height was measured without shoes to the nearest tenth of a centimeter with a portable stadiometer. Weight was measured in light indoor clothing without shoes to the nearest tenth of a kilogram with a balance beam scale. Each of these measurements was taken by at least two health workers. One worker took the measurement, and the other recorded the readings.

‘Rural areas’ refer to villages where farmers live but not cities or towns. ‘Urban areas’ refers to cities and town inhabited by people not engaged in farm work. In China, people living in urban areas usually have better living standard, higher income and education, and better retirement benefits and health care services than those living in rural areas.

Table 1 shows means for the main variables used in the analysis. Average age and maternal education are similar for males and females, although about 13% of males but only about 10% of females were reported to be either overweight or obese. Males also have higher household income and higher rates of smoking and drinking. The rural and urban differences are very pronounced in China. Urban residents are heavier, earn higher income, have greater rates of obesity and overweight. No significant difference is found in smoking rates although rural residents tend to drink less than their urban counterparts. In contrast to the reverse relationship between SES and obesity shown in the literature, I

find that the likelihood that the respondent is either overweight or obese rises as maternal education increases. The SES difference is extremely evident between low and medium-to-high SES individuals. Compared to less advantaged individuals, respondents with medium and highly educated mothers are more often obese or overweight, although they tend to smoke and drink less.

Table 2 presents descriptive statistics for the growth in BMI and obesity prevalence from 1991 to 2006 for the CHNS cohort. The average BMI of CHNS respondents rose 13 percent (from 17.23 to 19.43 kg/m²) between 1991 and 2006, while obesity prevalence more than doubled [from 3.65% to 7.56% (WHO criteria) and 8.23% (Chinese criteria)] and the chance of being overweight increased at the similarly alarming rate as obesity [from 4.9% to 9.42% (WHO criteria) and 10.37% (Chinese criteria)].

In 1991, the average BMI and overweight prevalence for males and females were similar. Males became heavier and were much more likely to be overweight by 2006 (from 4.25% to 11.92%), while female overweight rates stay quite stable at about 5.6% over those 15 years. The obesity prevalence for both men and women increases more than 100%.

The last three rows of Table 2 present how the body weight statistics change over time if the sample is stratified by early life SES which is indexed by maternal education level. The rise of overweight prevalence is the most pronounced in the low maternal education group (from 4.2% to 9.45%), given that the overweight prevalence is very similar among different SES groups in 2006. In contrast, the rise of obesity is the most dramatic in the medium education group (from 4.6% to 10.30%). Three factors may explain this result. First, with the subsequent rapid economic development in China in the 1990s, the disadvantaged respondents in 1991 witnessed the fastest change in their lifestyle, and exhibited similar overweight prevalence to their previously advantaged counterparts. Second, as shown from the table, the obesity prevalence for those whose mothers have medium education not only increased most rapidly but also became the most likely group to be obese when compared to the most disadvantaged and advantaged. This may be due to the fact that low SES respondents are not wealthy enough to consume modern fast foods, which is still quite expensive in China, while the medium SES

individuals can afford it. On the other hand, the highest SES respondents could afford those high calorie foods, but may be well-informed that overconsumption of those foods is not healthy. Third, compared to the low SES group, medium and high SES people are more likely to reside in the highly populated urban areas where land becomes scarcer, which limit the physical education area. It also makes people rely more on the buses and taxis, instead of walking or bicycles.

3. Model of Flow of Calories and Weight Production

Culter et al. (2003) developed a framework on weight gain through the flow of calories. When the calories consumption (I) exceeds calories expenditure (E), the body weight (W) gets heavier. Three major sources of calories expenditure includes basal metabolism (B), food processing (F) and calories burned by physical activity (P), which can be expressed as:

$$E_{it} = B_{it} + F_{it} + P_{it}$$

Basal metabolism is defined as the minimum energy output of the body required to sustain basic bodily functions when fasting and completely at rest, and expressed as the calories released per unit of body weight (W) plus an individual-specific component:

$$B_{it} = a_i + bW_{it}$$

The energy cost of basal metabolism increases if a person weighs more. For simplicity, the energy cost of food processing is assumed to be about 10 percent of total energy expenditure (Culter et al., 2003). The calories consumption of physical activity varies with weight according to:

$$P_{it} = f_a(T) * W_{it}$$

where $f_a(T)$ is the exercise index indicating the sum of physical activity during time period T, $f_a(T) = \sum_a \gamma_a Time_a$.

The body weight will stay the same at time t if

$$I_{it} = B_{it} + F_{it} + P_{it}$$

or

$$W_{it} = \frac{0.9 I_{it} - a_i}{b + f}$$

The model clearly demonstrates the possible mechanisms that may link weight with SES. If the SES of an individual has an impact on the amount of calories a person consumes, the intensity of physical activity he participates, and the baseline metabolism rate, he/she will end up with weight gain or loss depending on the direction of the impact. In China, especially the urban areas, if advantaged individuals have more resources to consume a greater number of calories, they will weigh more than their disadvantaged counterparts. On the other hand, if the advantaged individuals are better informed about healthy foods and dieting, the pathway will work in the opposite direction. This model allows the possibility of empirically testing how weight is related to both early life and current self SES.

4. Empirical Strategy

The linear regression analysis will be used to explore how age and SES-obesity gradient are associated for the easier interpretations. The basic model is specified as:

$$(1) Y_{it} = \beta_0 + \beta_1 year_{it} + \beta_2 sex_i + \beta_3 age_{it} + \beta_4 SES_i + \varepsilon_{it}$$

where Y_{it} denotes BMI, obesity or overweight for person i at time t , $year_{it}$ is a vector of survey year dummy variables, sex_i is the gender variable, age_{it} is the age of individual i at time t , SES_i denote the early childhood socioeconomic status, and ε_{it} is the error term. More regressors, such as respondent education level, will be added in the subsequent econometric models to better understand the mechanism through which childhood SES may operate. In this basic model, the SES-gradients on weight related outcomes (β_2) are restricted to be age-invariant. This could be relaxed by estimating:

$$(2) Y_{it} = \beta_0 + \beta_1 year_{it} + \beta_2 sex_i + \beta_3 age_{it} + \beta_4 SES_i + \beta_5 SES_i * age_{it} + \varepsilon_{it}$$

where β_5 , the coefficient of the interaction term $SES_i * age_{it}$, estimates how SES-gradients vary with age. Furthermore, a linear model is specified to test whether the early life SES has independent effects from current SES as follows.

$$(3) \quad Y_{it} = \beta_0 + \beta_1 year_{it} + \beta_2 sex_i + \beta_3 age_{it} + \beta_4 SES_i + \beta_5 CurrentSES_i + \varepsilon_{it}$$

The models are analyzed by using the information of both early life and adult socioeconomic status from CHNS panel data. This paper further stratifies the sample by sex and urban/rural residency to discover possible different pathways for the empirical relationship between SES and overweight or obesity among diverse demographic groups in China.

5. Estimation Results

Estimates of equation (1) and (2) are presented in Tables 3a-3c, with additional covariates limited to gender and survey year.³ Table 3a reports the estimates of age and SES gradients in BMI and obesity using trichotomous maternal education variable as the proxy for respondent's early life SES.⁴ Columns (1), (3) and (5) report the estimated age and SES gradients for BMI and obesity prevalence controlling for the low and medium early life SES, with the high category (high middle school and above) constituting the reference group. Columns (2), (4) and (6) include an interaction term between age and maternal education to examine how SES gradients change with age.

Columns (1), (3) and (5) show that BMI is predicted to increase by 0.29 kg/m² per year of age and low (medium) SES individuals are expected to have a BMI 0.191 (0.194) percentage point below that of high SES peers and 0.02 (0.17) percentage point less obesity prevalence. These coefficients are all statistically significant except for obesity prevalence. After adding the interaction between age and maternal education, the SES

³ The coefficients on the survey year dummies are omitted from the table results.

⁴ Corresponding to the categories used in the descriptive analysis previously, maternal education is low for respondents whose mothers have completed primary school or less, medium for lower middle school, high for high middle school or above.

disparities initially narrow with age and eventually SES and the obesity prevalence hold a negative relationship. Specifically, the low SES group has the lowest chance of being obese when the respondent is young, but the negative difference in obesity prevalence between low and medium (high) SES groups shrinks gradually over age and becomes positive as the individual reaches about 12 years old. The obesity disparity between low and high SES groups starts from -4.08 percentage points at birth and grows by 0.35 percentage points per year (7 points over 20 years).

Table 3b specifies SES as a continuous variable measured by years of maternal completed schooling. The basic model indicates that BMI (obesity) increases (decreases) statistically significant by 0.29 kg/m² (0.57 percentage points) per year of age and increases 0.44 kg/m² (0.03 percentage points) for each additional year of schooling completed by the mother. The age effects are consistent with those obtained from table 3a. Table 3c further includes both overweight and obesity prevalence. The results are similar in sign to table 3a, with a greater magnitude for each coefficient.

Tables 4a-4c provides gender-specific estimates on the age effects of SES gradients. The average age effect is similar for males and females, but the SES disparity is considerably different between men and women. The low SES male BMI is 0.32 kg/m² higher on average than for high SES men at birth, while the low SES female BMI is 1.04 kg/m² lower than for high SES women at birth [Tables 4a-4b, Column (2)]. The SES disparity on BMI narrows by 0.05 per year of age for males and 0.08 per year of age for females. Male (female) obesity prevalence at birth is 3.24 (5.25) percentage points lower for low maternal education group than the high SES peers at 5% (0%) significance level. The coefficient on the interaction between age and low maternal education is 0.003 for males and 0.0043 for females. Therefore, the SES disparity is decreasing with age at early childhood, and reverses after becoming a teenager. The chance of obesity for a low SES girl is initially 2 percentage points lower than a boy, but the SES gradient on obesity rotates faster for women than men.

Table 4c incorporates both overweight and obesity prevalence to examine how the SES gradients rotate with age for men and women. The results are consistent with the results shown in Tables 4a-4b, but at a stronger rate. Under China's criteria, male

(female) overweight/obesity prevalence at birth is 5.11 (6.57) percentage points lower for the low maternal education group than high SES peers at 1% (0%) significance level. The coefficient on the interaction between age and low maternal education is 0.003 for males and 0.0048 for females. These results confirm that the SES gradient on obesity rotates faster for women than men.

Table 5 presents the predictions of BMI and overweight and obesity prevalence for different age groups. The data are further stratified by gender and maternal education level. A low SES individual has the highest chance of being obese or overweight by the age of 20 and the disparity keeps rotating more with age. By age 40, the gradient is much steeper among different SES peers.

Table 6a relaxes the assumption that urban and rural residents have the same age and SES gradients by providing separate area-specific estimates. The SES disparities are much larger and rotate more with age for urban residents. The economic development disparity between urban and rural areas in China gives the urban residents more resources to consume a higher level of calories than rural people. Table 6b displays the area-gender-specific estimates. For both the urban and rural areas, SES disparities rotate more for women than men. The disadvantaged urban females (males) are initially 14.52 (11.03) percentage points less likely to be overweight or obese than their advantaged urban peer females, while the SES disparity for disadvantaged urban females (males) reverses direction with age and widens at 1.15 (0.62) percentage points per year of age.

To investigate the possible mechanisms for the above findings that the SES gradients rotate with age, the estimates of equation (3) using adult sample are presented in Tables 7a-7d.⁵ There is a great deal of evidence that the SES at young ages is related with adult overweight or obesity. Adult weight could be affected by contemporaneous socioeconomic conditions which might be highly correlated with early life SES. Another possible situation is that the early life SES is the determinant of adult weight instead of adult SES. The last possibility is that both early life SES and adult socioeconomic conditions have independent effects. Early life SES and current SES are proxied by

⁵ Only adult respondents (age>18) are used for this analysis.

maternal education level and respondent's completed grade, respectively.⁶ The estimations in tables 7a-7b assume that the childhood SES and contemporaneous SES gradients are the same for males and females. The average BMI rises with age during adulthood. The results show that neither the childhood nor adult SES gradient for obesity is found, but early life SES is a significant determinant of overweight prevalence while adult SES is not. The chance of being overweight or obese is 0.93 percentage points greater when the respondent's maternal education increases one level (5% significance). To further investigate the gender differences in the possible SES transmission processes, tables 7c-7d report the gender-specific estimates of equation (3). The most interesting results show that the current SES of a man has a significantly positive relationship with his chance of being overweight or obese, while early childhood SES becomes insignificant. On the contrary, the current SES of a woman has a significantly negative relationship with her chance of being overweight or obese. Specifically, the chance of being overweight or obese for males increases by 1.52 percentage points when the current education rises by one level. The chance of being overweight or obese for females decreases by 1.9 percentage points when the current education rises one level.

The different gender-specific current SES gradients may stem from a variety of factors. One of the most important reasons could be that the job and marriage markets for females are quite different. Better educated women tend to have better information on the benefits of fitness, and thus remain competitive in both job and marriage markets. On the contrary, Chinese males are much less sensitive to their shape than females and sometimes being a little overweight is a symbol of wealth in Chinese culture. This also implies that the public health policy on Chinese overweight and obesity problem should take into account the gender difference.

⁶ The education level are categorized by 7 groups: 0-none, 1-graduated from primary school, 2-lower middle school degree, 3-upper middle school degree, 4-technical, or vocational degree, 5-university or college degree, and 6-master's degree or higher.

6. Discussion

Average BMI rises with age from early childhood to middle adulthood. The fact that SES differences in obesity and overweight grow with age from the early adulthood confirms the results of previous research on other health outcomes. This paper goes further and provides new evidence of age profile of SES-gradients. First, until about 12 year olds, the SES is positively associated with the chance of being obese or overweight. That is, children from mothers with higher maternal education are subject to a higher risk of obesity and being overweight. This trend diminishes gradually as children age into adulthood. SES-gradients in BMI and obesity rotate over age, consistent with previous research results. Second, the SES gaps of overweight and obesity are generally larger for urban residents than rural residents. The disadvantaged urban female residents are the least likely group to be overweight in their early life, but the corresponding SES-gradient rotates the most with age. Third, the SES transmission process is different for men and women in China. Higher adult SES is associated with a higher chance of obesity and being overweight for males, but is associated with a lower chance of obesity and being overweight for females.

Rather, it is important to both understand and address the reasons behind this new empirical evidence. The observed linkages are not necessarily causal. This paper does not address whether rural/urban and gender disparities result from omitted characteristics. Information on the physical activities, energy intake and family income could be considered in the regression analysis for future research intending to fully understand the mechanism behind these patterns.

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Table 1: Descriptive Statistics by Gender, Living Area and SES

Variable	Full	Gender		Living Area		Maternal Education		
	Sample	Male	Female	Rural	Urban	Low	Medium	High
BMI	18.01 (0.03)	18.20 (0.03)	17.79 (0.04)	17.90 (0.03)	18.29 (0.05)	18.37 (0.03)	17.46 (0.05)	17.71 (0.07)
age	12.61 (0.05)	13.08 (0.07)	12.05 (0.06)	12.50 (0.06)	12.90 (0.09)	14.10 (0.07)	10.60 (0.08)	10.80 (0.10)
Obese	4.84% (0.15%)	5.63% (0.22%)	3.88% (0.20%)	4.68% (0.18%)	5.25% (0.30%)	3.78% (0.18%)	6.25% (0.32%)	6.17% (0.44%)
Overweight	6.78% (0.18)	7.39% (0.25%)	6.05% (0.25%)	6.26% (0.20%)	8.14% (0.36%)	6.29% (0.23%)	7.07% (0.34%)	8.12% (0.50%)
Overweight and Obese	11.62% (0.23%)	13.03% (0.32%)	9.94% (0.31%)	10.94% (0.26%)	13.39% (0.45%)	10.07% (0.28%)	13.32% (0.45%)	14.29% (0.63%)
Male	54.65% (0.35%)	---	---	55.58% (0.41%)	52.24% (0.67%)	55.34% (0.47%)	53.98% (0.66%)	53.28% (0.91%)
Rural	71.95% (0.32%)	73.18% (0.42%)	70.47% (0.48%)	---	---	79.36% (0.38%)	68.12% (0.62%)	51.30% (0.91%)
Number of Children in Household	1.51 (0.01)	1.41 (0.01)	1.63 (0.01)	1.61 (0.01)	1.25 (0.01)	1.55 (0.01)	1.52 (0.01)	1.34 (0.01)
Mother's Education (years)	8.10 (0.05)	8.09 (0.07)	8.10 (0.08)	7.76 (0.05)	8.86 (0.11)	6.41 (0.06)	8.20 (0.05)	10.51 (0.11)
Household Income (RMB)	15,103.52 (122.79)	15,352.15 (183.19)	14,808.62 (157.59)	13,332.35 (133.01)	19,625.36 (264.40)	13,232.89 (159.04)	16,126.95 (209.81)	20,113.36 (369.92)
Ever Smoked	6.76% (0.18%)	12.20% (0.31%)	0.22% (0.05%)	6.86% (0.21%)	6.53% (0.33%)	9.83% (0.28%)	3.04% (0.23%)	2.24% (0.27%)
current smoker	6.46% (0.17%)	11.68% (0.31%)	0.18% (0.04%)	6.57% (0.201%)	6.19% (0.32%)	9.40% (0.27%)	2.89% (0.22%)	2.11% (0.26%)
Drink Frequency (0-6)	0.28 (0.01)	0.45 (0.01)	0.08 (0.01)	0.26 (0.01)	0.35 (0.02)	0.37 (0.01)	0.18 (0.01)	0.14 (0.01)
bus	6.16%	5.97%	6.41%	3.18%	12.75%	4.31%	6.03%	10.50%

	(0.29%)	(0.38%)	(0.44%)	(0.25%)	(0.71%)	(0.36%)	(0.48%)	(0.81%)
bike	23.46%	23.66%	23.19%	22.51%	25.57%	21.70%	23.52%	27.81%
	(0.61%)	(0.81%)	(0.93%)	(0.72%)	(1.13%)	(0.85%)	(1.09%)	(1.46%)
Number of Observation	20104	10986	9118	14465	5639	11389	5684	3031

Note: (1) Data Source: China Health and Nutrition Survey (1991, 1993, 1997, 2000, 2004 and 2006). (2) Standard errors are shown in parentheses. (3) Information on BMI, obesity and overweight are calculated using the weight and height measurements by health professionals following the criteria created by the Working Group on Obesity in China. (4) Maternal education is low for respondents whose mothers has completed primary school or less, medium for lower middle school, high for high middle school or above. (5) Household income is inflated to 2006-year Chinese yuan (RMB).

Table 2: Overweight and Obesity Prevalence by Survey Year

	BMI		WHO				Chinese			
	1991	2006	Overweight		Obesity		Overweight		Obesity	
	1991	2006	1991	2006	1991	2006	1991	2006	1991	2006
Full Sample	17.23 (0.05)	19.43 (0.10)	4.90% (0.34%)	9.42% (0.64%)	3.65% (0.29%)	7.56% (0.58%)	4.96% (0.34%)	10.37% (0.67%)	3.65% (0.30%)	8.23% (0.60%)
Males	17.11 (0.06)	19.97 (0.13)	4.25% (0.44%)	11.92% (0.91%)	4.34% (0.44%)	8.27% (0.78%)	4.30% (0.44%)	12.88% (0.95%)	4.35% (0.44%)	9.38% (0.82%)
Females	17.36 (0.07)	18.62 (0.15)	5.56% (0.51%)	5.69% (0.80%)	3.00% (0.38%)	6.52% (0.85%)	5.66% (0.52%)	6.64% (0.86%)	2.91% (0.38%)	6.52% (0.85%)
Low Maternal Education	17.74 (0.06)	19.77 (0.15)	4.20% (0.38%)	9.45% (0.98%)	3.13% (0.33%)	5.00% (0.73%)	4.30% (0.39%)	10.80% (0.10%)	3.13% (0.33%)	6.00% (7.93%)
Medium Maternal Education	16.26 (0.09)	19.03 (0.16)	6.38% (0.82%)	9.25% (1.02%)	4.60% (0.70%)	10.30% (1.07%)	6.42% (0.82%)	9.76% (1.00%)	4.60% (0.70%)	10.75% (1.10%)
High Maternal Education	16.15 (0.11)	19.48 (0.25)	6.12% (1.10%)	9.68% (1.47%)	4.85% (1.00%)	8.00% (1.40%)	6.12% (1.10%)	10.67% (1.54%)	4.85% (0.99%)	8.19% (1.37%)

Table Notes: (1) Standard Errors are reported in parentheses. (2) The criteria for overweight and obesity categorization for respondents whose age are less than 20-year-old is based on CDC. (3) Maternal education is categorized as ‘Low Maternal Education’ if the mother has ‘0-No or some primary school’ or ‘1-graduated from primary school’; ‘Medium Maternal Education’ if she obtains ‘2-lower middle school degree’, ‘High Maternal Education’ if she achieves ‘3-upper middle school degree’ or ‘4 technical or vocational degree’; ‘5-university or college degree’ or ‘6 master’s degree or higher’. (4) Data is from the 1991 and 2006 years of the China Health and Nutrition Survey (CHNS).

Table 3a: Econometric Estimates of Age and SES Gradients in BMI and Obesity-Trichotomous SES

		(1)	(2)	(3)		(4)	(5)		(6)	(7)	(8)
		Body Mass Index		WHO Reference		China Criteria				Age<20	Age≥20
				Obesity prevalence		Obesity prevalence					
age		0.2858*** (0.0036)	0.2877*** (0.0100)	-0.0057*** (0.0002)	-0.0084*** (0.0007)	-0.0051*** (0.0003)	-0.0079*** (0.0007)	-0.0108*** (0.0009)		0.0001 (0.0034)	
Low education	mother	-0.1908** (0.0628)	-0.2084 (0.1344)	-0.0002 (0.0043)	-0.0408*** (0.0093)	-0.0010 (0.0045)	-0.0423*** (0.0095)	-0.0342** (0.0111)		-0.0343 (0.0820)	
Median education	mother	-0.1938** (0.0671)	-0.0741 (0.1447)	-0.0017 (0.0046)	-0.0163 (0.0100)	-0.0010 (0.0047)	-0.0189 (0.0102)	-0.0215 (0.0117)		0.0419 (0.0923)	
Age* low education	mother		0.0008 (0.0106)		0.0035*** (0.0007)		0.0036*** (0.0007)	0.0031** (0.0010)		0.0008 (0.0035)	
Age* median education	mother		-0.0113 (0.0119)		0.0013 (0.0008)		0.0016 (0.0008)	0.0019 (0.0011)		-0.0023 (0.0039)	
female		-0.0808 (0.0424)	-0.0790 (0.0424)	-0.0198*** (0.0029)	-0.0192*** (0.0029)	-0.0204*** (0.0030)	-0.0198*** (0.0030)	-0.0179*** (0.0033)		-0.0112* (0.0054)	
_cons		15.0248*** (0.1091)	15.0016*** (0.1455)	0.1386*** (0.0075)	0.1656*** (0.0100)	0.1363*** (0.0077)	0.1646*** (0.0103)	0.1734*** (0.0113)		0.0226 (0.0806)	
N		20104	20104	20104	20104	20104	20104	17369		2735	

Note: Linear probability models are used to estimate the relationship between age, socioeconomic status and their interaction on obesity. The regressions also control survey year dummies. Standard errors are reported in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3b: Econometric Estimates of Age and SES Gradients in BMI and Obesity-Continuous SES

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
			WHO reference		China reference		Age<20	Age≥20
	Body Mass Index		Obesity prevalence		Obesity prevalence			
age	0.2870*** (0.0036)	0.2941*** (0.0047)	-0.0057*** (0.0002)	-0.0044*** (0.0003)	-0.0050*** (0.0003)	-0.0038*** (0.0003)	-0.0069*** (0.0005)	0.0003 (0.0010)
Mother education (Years)	0.0437* (0.0189)	0.1238** (0.0394)	0.0003 (0.0013)	0.0150*** (0.0027)	0.0010 (0.0013)	0.0145*** (0.0028)	0.0131*** (0.0034)	0.0003 (0.0181)
Age* mother education		-0.0066* (0.0028)		-0.0012*** (0.0002)		-0.0011*** (0.0002)	-0.0012*** (0.0003)	0.0001 (0.0007)
female	-0.0811 (0.0424)	-0.0776 (0.0424)	-0.0198*** (0.0029)	-0.0192*** (0.0029)	-0.0204*** (0.0030)	-0.0198*** (0.0030)	-0.0179*** (0.0033)	-0.0114* (0.0054)
_cons	14.8025*** (0.1034)	14.6975*** (0.1129)	0.1374*** (0.0071)	0.1181*** (0.0078)	0.1339*** (0.0073)	0.1162*** (0.0080)	0.1306*** (0.0086)	0.0004 (0.0251)
N	20104	20104	20104	20104	20104	20104	17369	2735
r2	0.3058	0.3060	0.0389	0.0407	0.0329	0.0344	0.0454	0.0104

Note: The regression models in this table use continuous variable maternal education in years as the socioeconomic indicator. The regressions also control survey year. Standard errors are reported in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 3c: Econometric Estimates of Age and SES Gradients in BMI and Overweight/Obesity

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Body Mass Index		WHO reference		China reference		Age<20	Age≥20
			Overweight/obesity prevalence		Overweight/obesity prevalence			
age	0.2858*** (0.0036)	0.2877*** (0.0100)	-0.0066*** (0.0004)	-0.0116*** (0.0010)	-0.0047*** (0.0004)	-0.0104*** (0.0011)	-0.0158*** (0.0012)	0.0057 (0.0081)
Low maternal education	-0.1908** (0.0628)	-0.2084 (0.1344)	-0.0170** (0.0065)	-0.0904*** (0.0138)	-0.0154* (0.0067)	-0.1014*** (0.0142)	-0.0508** (0.0156)	-0.1022 (0.1972)
Median maternal education	-0.1938** (0.0671)	-0.0741 (0.1447)	-0.0128 (0.0069)	-0.0425** (0.0148)	-0.0113 (0.0071)	-0.0449** (0.0153)	-0.0340* (0.0165)	-0.2076 (0.2218)
Age* Low maternal edu		0.0008 (0.0106)		0.0064*** (0.0011)		0.0075*** (0.0011)	0.0028* (0.0014)	0.0032 (0.0083)
Age* Median maternal edu		-0.0113 (0.0119)		0.0027* (0.0012)		0.0031* (0.0013)	0.0016 (0.0015)	0.0087 (0.0094)
female	-0.0808 (0.0424)	-0.0790 (0.0424)	-0.0313*** (0.0044)	-0.0302*** (0.0044)	-0.0320*** (0.0045)	-0.0307*** (0.0045)	-0.0222*** (0.0046)	-0.0345** (0.0130)
_cons	15.0248*** (0.1091)	15.0016*** (0.1455)	0.2803*** (0.0112)	0.3300*** (0.0149)	0.2711*** (0.0116)	0.3291*** (0.0154)	0.3308*** (0.0158)	0.0091 (0.1937)
<i>N</i>	20104	20104	20104	20104	20104	20104	17369	2735

Note: Standard errors are reported in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4a: **Male** Econometric Estimates of Age and SES Gradients in BMI and **Obesity**

	(1)	(2)	(3)	(4)	(5)	(6)
	bmi	bmi	nobesity	nobesity	cnobesity	cnobesity
age	0.2709*** (0.0046)	0.3169*** (0.0136)	-0.0060*** (0.0003)	-0.0084*** (0.0010)	-0.0053*** (0.0004)	-0.0074*** (0.0010)
Low mother education	-0.2894*** (0.0863)	0.3246 (0.1822)	0.0031 (0.0064)	-0.0324* (0.0135)	0.0012 (0.0065)	-0.0303* (0.0138)
Median mother education	-0.2349* (0.0921)	0.1883 (0.1962)	0.0002 (0.0068)	-0.0143 (0.0145)	0.0001 (0.0070)	-0.0127 (0.0149)
Age* low mother education		-0.0538*** (0.0142)		0.0030** (0.0010)		0.0027* (0.0011)
Age* median mother education		-0.0387* (0.0160)		0.0013 (0.0012)		0.0012 (0.0012)
_cons	15.2113*** (0.1461)	14.7450*** (0.1959)	0.1457*** (0.0108)	0.1700*** (0.0145)	0.1437*** (0.0111)	0.1652*** (0.0149)
<i>N</i>	10986	10986	10986	10986	10986	10986

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4b: **Female** Econometric Estimates of Age and SES Gradients in BMI and **Obesity**

	(1)	(2)	(3)	(4)	(5)	(6)
	bmi	bmi	nobesity	nobesity	cnobesity	cnobesity
age	0.3070*** (0.0057)	0.2478*** (0.0147)	-0.0055*** (0.0004)	-0.0085*** (0.0009)	-0.0049*** (0.0004)	-0.0085*** (0.0009)
Low mother education	-0.0738 (0.0915)	-1.0413*** (0.1994)	-0.0040 (0.0058)	-0.0525*** (0.0126)	-0.0036 (0.0059)	-0.0581*** (0.0128)
Median mother education	-0.1537 (0.0977)	-0.4043 (0.2139)	-0.0041 (0.0062)	-0.0184 (0.0135)	-0.0024 (0.0063)	-0.0262 (0.0138)
Age* Low mother education		0.0851*** (0.0160)		0.0043*** (0.0010)		0.0048*** (0.0010)
Age* Median mother education		0.0225 (0.0179)		0.0013 (0.0011)		0.0022 (0.0012)
_cons	14.7075*** (0.1570)	15.3256*** (0.2122)	0.1110*** (0.0099)	0.1424*** (0.0134)	0.1078*** (0.0101)	0.1453*** (0.0137)
<i>N</i>	9118	9118	9118	9118	9118	9118

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 4c: Male and Female Econometric Estimates of Age and SES Gradients in **Overweight/Obesity**

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Male Overweight Prevalence				Female Overweight Prevalence			
	WHO		China		WHO		China	
age	-0.0062 ^{***} (0.0005)	-0.0096 ^{***} (0.0015)	-0.0042 ^{***} (0.0005)	-0.0087 ^{***} (0.0015)	-0.0079 ^{***} (0.0005)	-0.0142 ^{***} (0.0014)	-0.0060 ^{***} (0.0006)	-0.0129 ^{***} (0.0015)
Low mother education	-0.0197 [*] (0.0093)	-0.0694 ^{***} (0.0196)	-0.0177 (0.0096)	-0.0814 ^{***} (0.0202)	-0.0152 (0.0088)	-0.1136 ^{***} (0.0193)	-0.0142 (0.0091)	-0.1238 ^{***} (0.0199)
Median mother education	-0.0137 (0.0099)	-0.0339 (0.0211)	-0.0103 (0.0102)	-0.0408 (0.0218)	-0.0129 (0.0094)	-0.0519 [*] (0.0207)	-0.0137 (0.0097)	-0.0480 [*] (0.0213)
Age* Low mother education		0.0043 ^{**} (0.0015)		0.0055 ^{***} (0.0016)		0.0087 ^{***} (0.0015)		0.0097 ^{***} (0.0016)
Age*Median mother education		0.0018 (0.0017)		0.0028 (0.0018)		0.0036 [*] (0.0017)		0.0031 (0.0018)
_cons	0.2748 ^{***} (0.0157)	0.3087 ^{***} (0.0210)	0.2644 ^{***} (0.0162)	0.3092 ^{***} (0.0217)	0.2596 ^{***} (0.0152)	0.3263 ^{***} (0.0205)	0.2514 ^{***} (0.0157)	0.3231 ^{***} (0.0212)
<i>N</i>	10986	10986	10986	10986	9118	9118	9118	9118

Note: Standard errors in parentheses * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 5: Predicted BMI and Obesity/Overweight Prevalence by Age and SES

	BMI		WHO				Chinese			
			Overweight		Obesity		Overweight		Obesity	
	20 Years Old	40 Years Old	20 Years Old	40 Years Old	20 Years Old	40 Years Old	20 Years Old	40 Years Old	20 Years Old	40 Years Old
Full Sample										
Low Maternal Education	20.111	25.882	5.58%	5.04%	0.93%	-8.88%	7.31%	9.97%	1.55%	-7.02%
Medium Maternal Education	20.003	25.532	4.97%	1.49%	-1.03%	-15.26%	5.72%	3.50%	-0.05%	-12.58%
High Maternal Education	20.303	26.057	4.81%	-1.44%	-2.04%	-18.90%	5.47%	0.38%	-1.43%	-17.22%
Male										
Low Maternal Education	20.147	25.918	6.08%	5.54%	1.80%	-8.01%	7.80%	10.46%	2.45%	-6.12%
Medium Maternal Education	20.039	25.568	5.47%	1.99%	-0.16%	-14.39%	6.22%	3.99%	0.84%	-11.68%
High Maternal Education	20.338	26.093	5.31%	-0.94%	-1.17%	-18.03%	5.96%	0.87%	-0.53%	-16.32%
Female										
Low Maternal Education	20.068	25.839	4.98%	4.44%	-0.11%	-9.93%	6.71%	9.37%	0.47%	-8.10%
Medium Maternal Education	19.960	25.489	4.37%	0.88%	-2.08%	-16.31%	5.13%	2.91%	-1.14%	-13.66%
High Maternal Education	20.259	26.014	4.21%	-2.05%	-3.08%	-19.95%	4.87%	-0.21%	-2.51%	-18.30%

Note: Predictions are obtained from the estimation results of Table 3a.

Table 6a: Econometric Estimates of Age and SES Gradients in BMI and Overweight/Obesity By Urban/Rural

	(1)	(2)	(3)	(4)	(5)	(6)
	BMI		Overweight/Obesity		Obesity only	
	Urban	Rural	Urban	Rural	Urban	Rural
age	0.2397*** (0.0191)	0.3233*** (0.0187)	-0.0142*** (0.0017)	-0.0096*** (0.0018)	-0.0093*** (0.0012)	-0.0079*** (0.0013)
Low maternal edu	-0.3919 (0.2731)	0.2162 (0.1972)	-0.1272*** (0.0296)	-0.0554* (0.0237)	-0.0383 (0.0216)	-0.0360* (0.0177)
Medium maternal edu	-0.4616 (0.2836)	0.4055 (0.2164)	-0.0590 (0.0307)	-0.0145 (0.0257)	-0.0201 (0.0222)	-0.0092 (0.0190)
Age* Low mother edu	0.0174 (0.0200)	-0.0256 (0.0190)	0.0087*** (0.0020)	0.0045* (0.0019)	0.0039** (0.0013)	0.0031* (0.0013)
Age* medium mother edu	0.0274 (0.0222)	-0.0479* (0.0209)	0.0048* (0.0022)	0.0006 (0.0021)	0.0021 (0.0015)	0.0006 (0.0014)
female	-0.1165 (0.0863)	-0.0797 (0.0479)	-0.0255** (0.0086)	-0.0335*** (0.0049)	-0.0100 (0.0057)	-0.0234*** (0.0034)
_cons	15.2431*** (0.2306)	14.6165*** (0.1882)	0.3598*** (0.0331)	0.2989*** (0.0258)	0.1735*** (0.0245)	0.1587*** (0.0194)
N	5639	14465	5639	14465	5639	14465
r2	0.2587	0.3291	0.0466	0.0363	0.0487	0.0385

Note: Obesity and overweight are reported based on WHO criteria. Standard errors in parentheses . * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 6b: Econometric Estimates of Age and SES Gradients in BMI and Overweight/Obesity By Gender and Area

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	Overweight/Obesity (WHO)				Overweight/Obesity (China)			
	Urban		Rural		Urban		Rural	
	Male	Female	Male	Female	Male	Female	Male	Female
age	-0.0106*** (0.0022)	-0.0183*** (0.0021)	-0.0089*** (0.0020)	-0.0108*** (0.0020)	-0.0091*** (0.0023)	-0.0172*** (0.0022)	-0.0085*** (0.0021)	-0.0092*** (0.0021)
Low maternal edu	-0.1103** (0.0349)	-0.1452*** (0.0342)	-0.0482 (0.0252)	-0.0598* (0.0252)	-0.1231*** (0.0362)	-0.1616*** (0.0351)	-0.0638* (0.0260)	-0.0665* (0.0261)
Age* low mother edu	0.0062* (0.0025)	0.0115*** (0.0025)	0.0033 (0.0021)	0.0056** (0.0021)	0.0074** (0.0026)	0.0129*** (0.0026)	0.0050* (0.0021)	0.0062** (0.0022)
Medium maternal edu	-0.0396 (0.0357)	-0.0776* (0.0340)	-0.0208 (0.0271)	-0.0047 (0.0272)	-0.0530 (0.0370)	-0.0762* (0.0349)	-0.0277 (0.0279)	0.0024 (0.0281)
Age*medium mother edu	0.0041 (0.0028)	0.0056* (0.0028)	0.0002 (0.0023)	0.0008 (0.0023)	0.0059* (0.0029)	0.0054 (0.0028)	0.0011 (0.0024)	-0.0000 (0.0024)
_cons	0.3358*** (0.0371)	0.3622*** (0.0346)	0.2902*** (0.0267)	0.2755*** (0.0267)	0.3345*** (0.0385)	0.3604*** (0.0355)	0.2945*** (0.0275)	0.2701*** (0.0277)
<i>N</i>	2946	2693	8040	6425	2946	2693	8040	6425
<i>r</i> ²	0.0384	0.0626	0.0379	0.0350	0.0321	0.0516	0.0320	0.0244

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7a: Econometric Estimates of Obesity and Current/Childhood SES Gradients

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Body Mass Index			WHO Reference			China Reference		
				Obesity			Obesity		
age	0.1151*** (0.0144)	0.1158*** (0.0140)	0.1171*** (0.0145)	0.0009 (0.0005)	0.0008 (0.0005)	0.0009 (0.0005)	0.0033*** (0.0007)	0.0030*** (0.0007)	0.0034*** (0.0007)
Maternal education	-0.0201 (0.0491)		0.0191 (0.0525)	0.0015 (0.0019)		0.0016 (0.0020)	0.0062* (0.0024)		0.0054* (0.0026)
Respondent education		-0.0858 (0.0440)	-0.0915 (0.0467)		0.0003 (0.0017)	-0.0002 (0.0018)		0.0040 (0.0022)	0.0023 (0.0023)
Female	-0.1920 (0.0999)	-0.1790 (0.1007)	-0.1799 (0.1008)	-0.0061 (0.0038)	-0.0061 (0.0038)	-0.0062 (0.0038)	-0.0057 (0.0049)	-0.0058 (0.0050)	-0.0061 (0.0050)
_cons	18.4256*** (0.3288)	18.5445*** (0.3312)	18.5215*** (0.3373)	-0.0094 (0.0124)	-0.0073 (0.0126)	-0.0093 (0.0128)	-0.0594*** (0.0163)	-0.0569*** (0.0165)	-0.0634*** (0.0168)
N	4162	4122	4122	4162	4122	4122	4162	4122	4122
r2	0.0403	0.0415	0.0416	0.0093	0.0091	0.0093	0.0191	0.0183	0.0193

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7b: Econometric Estimates of Overweight/Obesity and Current/Childhood SES Gradients

	(1)	(2)	(3)	(4)	(5)	(6)
	Overweight/Obeisty Prevalence (WHO)			Overweight/Obesity Prevalence (China)		
age	0.0112*** (0.0013)	0.0105*** (0.0013)	0.0112*** (0.0013)	0.0158*** (0.0015)	0.0153*** (0.0015)	0.0159*** (0.0015)
Mother education	0.0087* (0.0044)		0.0093* (0.0047)	0.0082 (0.0051)		0.0095 (0.0055)
Respondent education		0.0017 (0.0039)	-0.0011 (0.0042)		-0.0002 (0.0046)	-0.0030 (0.0049)
female	-0.0105 (0.0090)	-0.0095 (0.0090)	-0.0099 (0.0090)	-0.0056 (0.0104)	-0.0042 (0.0105)	-0.0046 (0.0105)
_cons	-0.1737*** (0.0295)	-0.1616*** (0.0297)	-0.1728*** (0.0302)	-0.2601*** (0.0342)	-0.2457*** (0.0345)	-0.2572*** (0.0351)
N	4162	4122	4122	4162	4122	4122
r2	0.0410	0.0401	0.0410	0.0510	0.0503	0.0510

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

Table 7c: Econometric Estimates of Overweight/Obesity and Current/Childhood SES Gradients for Males

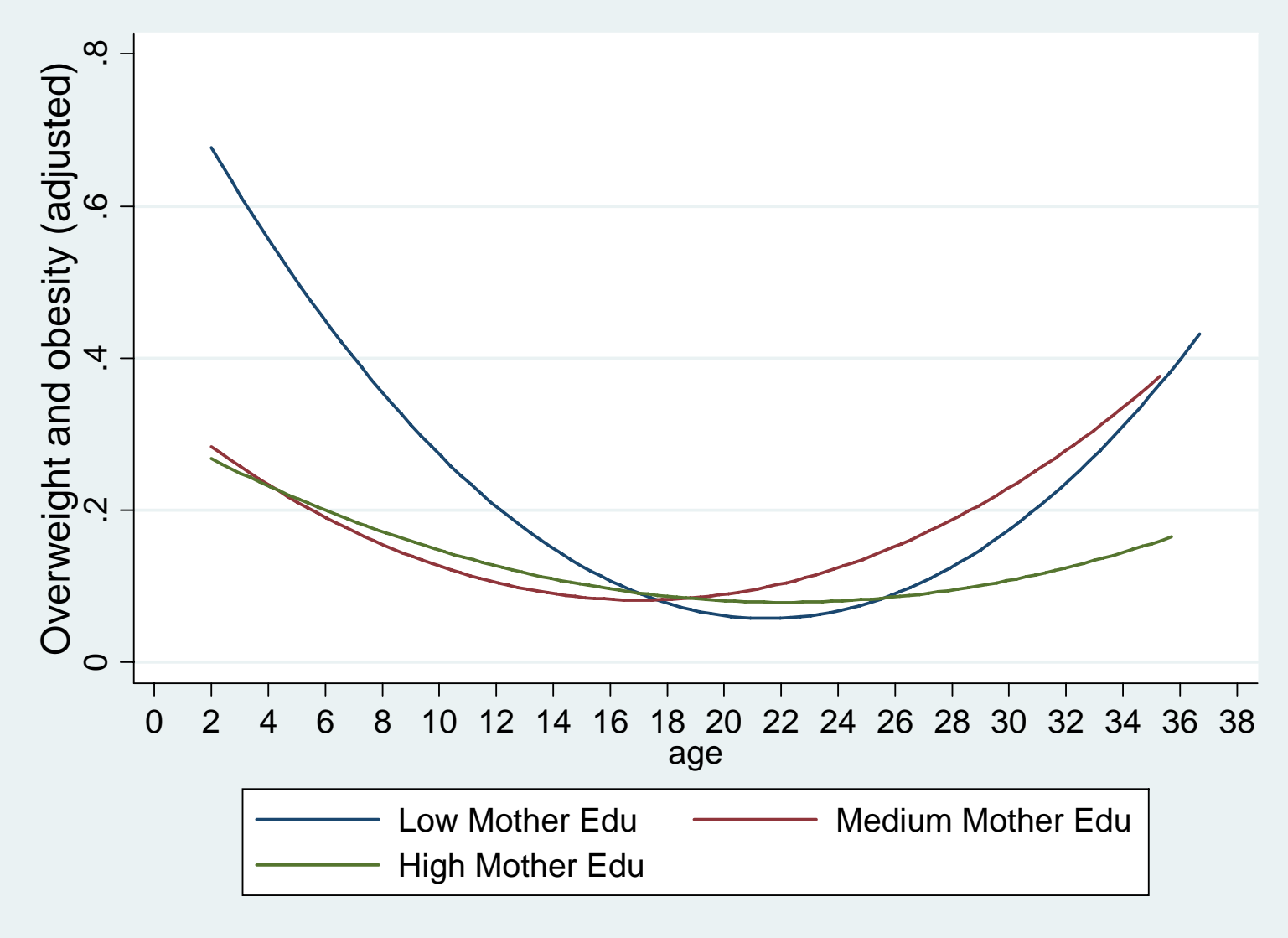
	(1)	(2)	(3)	(4)	(5)	(6)
	Overweight/Obesity Prevalence (WHO)			Overweight/Obesity Prevalence (China)		
age	0.0114*** (0.0016)	0.0104*** (0.0016)	0.0114*** (0.0016)	0.0146*** (0.0019)	0.0136*** (0.0018)	0.0146*** (0.0019)
Mother Education	0.0168** (0.0062)		0.0119 (0.0065)	0.0184** (0.0070)		0.0122 (0.0074)
Respondent education		0.0185** (0.0056)	0.0152* (0.0059)		0.0227*** (0.0064)	0.0193** (0.0067)
_cons	-0.1337** (0.0471)	-0.1404** (0.0467)	-0.1680*** (0.0490)	-0.1686** (0.0538)	-0.1851*** (0.0533)	-0.2133*** (0.0560)
<i>N</i>	2567	2544	2544	2567	2544	2544
r2	0.0554	0.0570	0.0582	0.0652	0.0675	0.0685

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Table 7d: Econometric Estimates of Overweight/Obesity and Current/Childhood SES Gradients for Females

	(1)	(2)	(3)	(4)	(5)	(6)
	Overweight Prevalence (WHO)			Overweight Prevalence (China)		
age	0.0090*** (0.0022)	0.0089*** (0.0022)	0.0093*** (0.0022)	0.0176*** (0.0027)	0.0178*** (0.0027)	0.0181*** (0.0027)
Mother Education	-0.0002 (0.0060)		0.0080 (0.0065)	-0.0052 (0.0072)		0.0066 (0.0078)
Respondent education		-0.0164** (0.0052)	-0.0190*** (0.0057)		-0.0254*** (0.0063)	-0.0276*** (0.0068)
_cons	-0.1087* (0.0461)	-0.0797 (0.0467)	-0.0861 (0.0470)	-0.2643*** (0.0553)	-0.2275*** (0.0559)	-0.2327*** (0.0563)
<i>N</i>	1595	1578	1578	1595	1578	1578
<i>r</i> ²	0.0157	0.0219	0.0228	0.0306	0.0407	0.0411

Note: Standard errors in parentheses. * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$



Appendix: Weight Classifications Based on BMI for Adults

	Underweight	Normal weight	Overweight	Obesity	Overweight and Obesity
(1) WHO Standard	$BMI < 20$	$20 \leq BMI < 25$	$25 \leq BMI < 30$	$BMI \geq 30$	$BMI \geq 25$
(2) Chinese Standard	$BMI < 18.5$	$18.5 \leq BMI < 24$	$24 \leq BMI < 28$	$BMI \geq 28$	$BMI \geq 24$