

1 Supplementary Text:

We acknowledge that there are some limitations in our study. First, we used self-reported height and weight from survey data, which tend to underestimate actual body weight. Second, we used data collected from the early 1990s to 2001, the majority of the elderly in our sample were born in 1920s and 1930s. The demographic features and biological characteristics of these two birth cohorts are quite different from the later birth cohorts. Most importantly, the prevalence of obesity is increasing in younger generations (Must et al. 1999; Ogden et al. 2006; Parikh et al. 2007). The continuing increase in obesity epidemic is likely to add much more excess cost. Third, because of data limitations, we did not estimate the influence of supplemental insurance coverage on healthcare expenditures, especially prescription drug coverage. One of the most significant policy changes in recent years is the expansion of Medicare to include prescription drug coverage (Medicare Part D). Medicare Part D will very likely lead to an increase in access and utilization of prescription drugs, and improve average longevity among the elderly (Yang, Gilleskie, and Norton 2004). The overweight and obese elderly could benefit more than normal-weight elderly on the margin because of their higher need for prescription drugs due to the high prevalence of chronic diseases. Therefore, when projecting the financial burdens of body weight among the elderly population, future research should include the impact of Medicare Part D.

2. Estimation Results from the Simultaneous Equation System

Table A1a: Coefficients of Logit Models Predicting Probability of Positive Health Care Expenditures

| Selected Variables | Inpatient | Outpatient | Long-term Care | Prescription Drugs |
|-----------------------------------|-------------------|-------------------|-------------------|--------------------|
| Body Mass Index | | | | |
| BMI | -0.075 (0.016) | 0.062 (0.022) | -0.138 (0.024) | 0.071 (0.026) |
| BMI square/100 ^a | 0.126 (0.028) | -0.103 (0.040) | 0.217 (0.043) | -0.055 (0.049) |
| Acute Medicare Care Events | | | | |
| Cardio/cerebra vascular diseases | 1.844 (0.030) | 2.289 (0.083) | 1.286 (0.047) | 0.922 (0.065) |
| Respiratory system diseases | 1.801 (0.052) | 1.634 (0.174) | 0.749 (0.074) | 0.567 (0.103) |
| Cancer | 1.430 (0.057) | 2.730 (0.244) | 0.675 (0.091) | 0.508 (0.118) |
| Chronic Diseases | | | | |
| Cardio/cerebra vascular diseases | 0.076 (0.025) | 0.135 (0.036) | 0.042 (0.042) | 0.396 (0.040) |
| Respiratory system diseases | -0.127 (0.035) | 0.061 (0.053) | -0.139 (0.058) | 0.220 (0.060) |
| Cancer | 0.026 (0.031) | 0.184 (0.047) | 0.032 (0.051) | 0.098 (0.048) |
| Diabetes | 0.242 (0.031) | 0.305 (0.050) | 0.221 (0.051) | 0.422 (0.058) |

Note:

Standard errors are in parentheses. **indicates joint significance at the 5% level; * 10% level.

Additional explanatory variables include individual demographic features, and other exogenous variables that help the identification

a: Square of BMI and Age*BMI are scaled down to 1/100 of their original values for the convenience of estimation

Table A1b: Coefficients of OLS Models Predicting Log Health Care Expenditures, Conditional on Any

| Selected Variables | Inpatient | Outpatient | Long-term Care | Prescription Drugs |
|-----------------------------------|-----------------|-----------------|------------------|--------------------|
| Body Mass Index | | | | |
| BMI | 0.004 (0.010) | 0.019 (0.008) | 0.050 (0.018) | 0.049 (0.008)** |
| BMI square/100 ^a | -0.011 (0.017) | -0.024 (0.014) | -0.083 (0.033) | -0.052 (0.013)** |
| Acute Medicare Care Events | | | | |
| Cardio/cerebra vascular diseases | 0.450 (0.017)** | 0.808 (0.016)** | 0.152 (0.034)** | 0.350 (0.016)** |
| Respiratory system diseases | 0.185 (0.024)** | 0.642 (0.025)** | 0.032 (0.053) | 0.216 (0.025)** |
| Cancer | 0.397 (0.029)** | 1.089 (0.028)** | -0.169 (0.071)** | 0.081 (0.027)** |
| Chronic Diseases | | | | |
| Cardio/cerebra vascular diseases | -0.019 (0.017) | 0.111 (0.011) | -0.077 (0.031) | 0.338 (0.011)** |
| Respiratory system diseases | 0.000 (0.022) | 0.099 (0.017)** | -0.150 (0.042)** | 0.241 (0.016)** |
| Cancer | -0.010 (0.021) | 0.145 (0.015)** | -0.001 (0.037) | 0.031 (0.014)** |
| Diabetes | 0.070 (0.021)** | 0.241 (0.015)** | -0.055 (0.036) | 0.329 (0.015)** |

Note:

Standard errors are in parentheses. **indicates joint significance at the 5% level; * 10% level.

Additional explanatory variables include individual demographic features, and other exogenous variables that help the identification

a: Square of BMI and Age*BMI are scaled down to 1/100 of their original values for the convenience of estimation

Table A2: Coefficients from Equations Predicting Probability of Acute Medical Care Events

| | Heart Disease/Stroke ICD-9 390-439 | Respiratory ICD-9 480-496 | Cancer ICD-9 140-209 |
|------------------------------------|---------------------------------------|------------------------------|-------------------------|
| Body Weight | | | |
| BMI | 0.046 (0.018) ** | -0.186 (0.026) ** | 0.033 (0.051) |
| BMI square/100 ^a | -0.021 (0.030) | 0.269 (0.042) ** | -0.056 (0.083) |
| Age*BMI /100 ^a | -0.125 (0.030) ** | 0.050 (0.051) | -0.026 (0.074) |
| Functional Status | | | |
| Moderately Disabled | 0.225 (0.028) ** | 0.545 (0.049) ** | 0.146 (0.053) ** |
| Severely Disabled | 0.300 (0.038) ** | 0.590 (0.065) ** | -0.228 (0.087) ** |
| Existing Chronic Conditions | | | |
| Cario/cerebra vascular diseases | 1.156 (0.026) ** | 0.256 (0.043) ** | 0.035 (0.048) |
| Respiratory system diseases | 0.218 (0.033) ** | 2.138 (0.041) ** | 0.052 (0.064) |
| Cancer | -0.018 (0.031) | 0.086 (0.051) * | 1.987 (0.046) ** |
| Diabetes | 0.446 (0.030) ** | 0.060 (0.054) | 0.097 (0.062) |

Note:

Additional independent variables include demographic features, and other exogenous variables that help the identification. Standard errors are in parentheses. **indicates joint significance at the 5% level; * 10% level.

a: Square of BMI and Age*BMI are scaled down to 1/100 of their original values for the convenience of estimation

Table A3: Coefficients of Health Transition Equation

| | Death | Severely Disabled | Moderately Disabled |
|--|-------------------|-------------------|---------------------|
| Body Weight | | | |
| BMI | -0.395 (0.035) ** | -0.175 (0.030) ** | -0.082 (0.022) ** |
| BMI square/100 ^a | 0.649 (0.058) ** | 0.390 (0.050) ** | 0.223 (0.038) ** |
| Age*BMI /100 ^a | -0.009 (0.053) | -0.143 (0.046) ** | -0.096 (0.035) ** |
| Previous Functional Status | | | |
| Moderately Disabled | 1.732 (0.053) ** | 3.017 (0.057) ** | 2.156 (0.024) ** |
| Severely Disabled | 3.434 (0.068) ** | 5.343 (0.069) ** | 1.885 (0.053) ** |
| Major Medical Care Events During a Year | | | |
| Cardio/cerebra vascular diseases | 0.821 (0.052) ** | 0.575 (0.047) ** | 0.178 (0.034) ** |
| Respiratory system diseases | 0.775 (0.083) ** | 0.627 (0.079) ** | 0.360 (0.059) ** |
| Cancer | 1.692 (0.082) ** | 0.590 (0.098) ** | 0.311 (0.064) ** |
| Existing Chronic Conditions | | | |
| Cario/cerebra vascular diseases | 0.553 (0.044) ** | 0.372 (0.038) ** | 0.301 (0.024) ** |
| Respiratory system diseases | 0.432 (0.058) ** | 0.218 (0.052) ** | 0.330 (0.035) ** |
| Cancer | 0.256 (0.052) ** | 0.079 (0.046) * | 0.139 (0.030) ** |
| Diabetes | 0.692 (0.052) ** | 0.386 (0.046) ** | 0.299 (0.032) ** |

Note:

Additional independent variables include demographic features, and other exogenous variables that help the identification. Standard errors are in parentheses. **indicates joint significance at the 5% level; * 10% level.

a: Square of BMI is scaled down to 1/100 of its original value for the convenience of estimation

Table A4: Coefficients of BMI Transition Equation

| Variable | Coefficients |
|---|---------------------|
| Weight at the Beginning of a Year | |
| BMI | 0.961** (0.010) |
| BMI Square/100 ^a | -0.044** (0.018) |
| Functional Status at the Beginning of a Year | |
| Moderately Disabled | -0.024 (0.017) |
| Severely Disabled | -0.008** (0.024) |
| Major Medical Care Events During a Year | |
| Heart/Stroke | -0.049** (0.020) |
| Respiratory | -0.069** (0.036) |
| Cancer | -0.152** (0.041) |
| Existing Chronic Conditions | |
| Heart/Stroke | -0.018 (0.016) |
| Respiratory | -0.010 (0.022) |
| Cancer | 0.018 (0.019) |
| Diabetes | 0.072** (0.019) |

Note:

Additional independent variables include demographic features and other exogenous variables that help the identification

Standard errors are in parentheses. **indicates joint significance at the 5% level; * 10% level.

a: Square of BMI is scaled down to 1/100 of its original value for the convenience of estimation