The U.S. Obesity Epidemic: New Evidence from the Economic Security Index [1] [2] [3]

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Abstract

A growing body of research supports the "economic insecurity" theory of obesity, which posits that uncertainty with respect to one's material well-being may be an important root cause of the modern obesity epidemic. This literature has been limited in the past by a lack of reliable measures of economic insecurity. In this paper we use the newly developed Economic Security Index to explain changes in U.S. adult obesity rates as measured by the National Health and Nutrition Examination Surveys (NHANES) from 1988–2010, a period capturing much of the recent rapid rise in obesity. We find a robust positive and statistically significant relationship between obesity and economic insecurity that holds for nearly every age, gender, and race/ethnicity group in our data, both in cross-section and over time.

Keywords: obesity, body mass index, economic insecurity

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1. Introduction

Obesity rates have risen dramatically in the U.S. since the 1980s, but not all demographic groups have been equally affected (Wang and Beydoun, 2007). While most obesity research has focused on dietary quality or the implicit price of a calorie (World Health Organization, 1998; Cutler et al., 2003; Chou et al., 2004), a growing body of evidence suggests *economic insecurity* (defined, roughly speaking, as the extent to which an individual's financial well-being is at risk) may be an important causal factor. The theory–inspired by theory and evidence from behavioral ecology–posits that economic insecurity triggers a physiological fattening response, in which at-risk individuals gain weight in a biological attempt to "prepare for the famine" (Smith, 2009; Smith et al., 2009; Offer et al., 2010; Wisman and Capehart, 2010; Smith, 2012b).

One longstanding barrier to estimating the effect of economic insecurity on obesity has been the inherent difficulty involved with measuring economic insecurity. Defined as "uncertainty of future income," measuring insecurity necessarily requires estimation of a probability distribution, a data intensive task. Researchers interested in this question have thus resorted to aggregate (e.g, country-level) data (Offer et al., 2010; Smith, 2012a; de Vogli et al., 2013), for which aggregate indicators of economic insecurity are available, or to individual-level panel data from which income or employment volatility over time can be measured (Smith et al., 2009; Barnes et al., 2013). These studies provide support for the economic insecurity hypothesis, but each has weaknesses: country-level panels, for instance, necessarily entail exceedingly

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small samples and a limited number of co-variates; while individual-level panels also generally have limited sample size, a problem that is exacerbated when the longitudinal nature of the data is used to estimate insecurity.

In this paper we make use of new data, in the form of the *Economic Security Index* (ESI) recently developed by Hacker et al. (2012). The ESI provides a consistent measure of economic insecurity (specifically, the probability of a 25% year-to-year household income decline) for the U.S. population by race/ethnicity, age, gender, household income, family structure, and geographic location. At the time of this writing, annual ESI estimates are available back to 1986, covering much of the period over which the obesity epidemic has occurred.

A second barrier to the study of the relationship between obesity and economic insecurity is the problem of endogeneity common to population-based studies of obesity. Because many determinants of body mass index (diet, exercise, career, etc.) are influenced by individual choices and that body mass itself might, in turn, influence or constrain those choices, it is always possible that an association between obesity and one or more putative causes (including economic insecurity status) is caused by either unobserved heterogeneity (i.e., a third factor causing both variables to co-vary) or by reverse causation. Because we are interested in identifying the causal relationship (if any) running from economic insecurity to obesity, in this paper we have chosen to exploit variation in the ESI along just four dimensions: time, age, gender, and race/ethnicity. Although, as noted above, the ESI can in practice be associated with other characteristics, we limit our analysis to characteristics that can most safely be considered exogenous to the economic environment. Thus if we find that obesity status tracks economic

insecurity along these dimensions, it cannot be argued, for instance, that obese people have selected themselves into high-ESI categories.

2. Empirical Model

This paper asks a simple question: To what extent can changes in the ESI explain changes in obesity rates in the U.S. since the 1980s? We estimate the following model:

$$BMI_{ij} = ESI_j\alpha + X_{ij}\beta + \sigma_{ij} \tag{1}$$

where BMI_{ij} is individual i's obesity status (body mass index$\geq$ 30), ESI_j is individual i's economic security index, as determined by year and exogenous demographic characteristics, X_{ij} is a vector of i's personal and group-level characteristics, and σ_{ij} is a disturbance term.

The economic insecurity hypothesis predicts $\alpha > 0$. Because we use a linear probability model in most specificaitons, our estimates of α can be interpreted as the marginal effect of an increase in the probability of experiencing a 25% income drop (i.e., an increase in an individual's ESI) on the probability of being obese.

It is important to note that ESI is distinct from the group-level unemployment rate, which does not measure year-to-year transitions or threats to household income other than job loss. Moreover, since the most commonly used unemployment statistics exclude discouraged workers, they are likely to understate the severity of prolonged downturns in the economy. Indeed, previous research on the effect of unemployment on obesity has generally shown a *negative* relationship, with people losing weight, other

things equal, during recessions (Ruhm, 2000, 2005) or when currently unemployed (Barnes et al., 2013). The theoretical explanation usually offered for this phenomenon is that unemployment rates (and/or non-employed status) are indicators of a lower opportunity cost of time. Because both physical exercise and eating well are relatively time-intensive activities, it is reasonable to expect body weight to fall, on average, when hour worked in the economy are reduced. We test for the presence of this phenomenon in Section 4, below.

3. Data

We utilize data from two sources: the Current Population Survey (CPS) and the National Health and Nutrition Survey (NHANES).

3.1. CPS and the ESI

As our primary measure of economic insecurity, we use the Economic Security Index (ESI) developed at Yale University's *Institution for Social and Policy Studies* and described in Hacker et al. (2012). The ESI is derived from the U.S. Current Population Survey (CPS), in which household incomes can be linked year-to-year by residence. The ESI is defined as the proportion of individuals in a given demographic group who experience a year-to-year decline of at least 25% of available household income (adjusted for household size, out-of-pocket medical expenses, household debt service, and the buffering effect of wealth, but excluding retirement events). Though the ESI is available annually since 1986, we use a 5-year moving average in our analysis, for three reasons: First, we are interested in using the ESI as a proxy for perceived economic insecurity. It seems likely to us that per-

ceptions of threats to material well-being are likely to be based not just on current-year experience, but also on experienced insecurity in recent years (Smith et al., 2009). Second, the highest-quality obesity data are available only as 2- and 3-year samples, making annual analysis infeasible. Third, given the many dimensions along which we allow ESI to vary, the CPS cell size becomes quite small in some cases, diminishing the precision of our ESI estimates. Using a 5-year average ameliorates all of these concerns. In some regressions we also use demographic-group-level estimates of the unemployment rate; for purposes of comparability we also construct these from the CPS as 5-year averages.

3.2. National Health and Nutrition Examination Survey (NHANES)

The NHANES is an ongoing survey that provides individual-level measured height and weight (along with other demographic and health information) for nationally representative repeated cross-sections of the U.S. civilian population. Our data begin with the six-year NHANES III survey (1988–1994), which can be subdivided into two nationally representative 3-year samples (1988–1991 and 1992–1994), and continue with the "continuous NHANES," published as representative 2-year samples from 1999 to 2010. This gives us a total of eight time periods spanning a time in which obesity rates rapidly increased in the U.S.

4. Results

Table 1 lists descriptive statistics for our data. Table 2 shows the effect of controlling for demographic fixed effects. Note that in comparing column (2), in which controls for all demographic characteristics are in-

cluded, to columns (3)–(6), in which demographic controls are dropped one at a time, the coefficient on ESI increases (from a baseline value of 0.662) in every case but one. This suggests that variation in ESI across each of these categories (year, gender, and race/ethnicity) is positively associated with obesity status. The negative (but statistically insignificant) coefficient on ESI in column (6) suggests that this not true across age groups. The specification shown in column (7) more completely de-trends the data by controlling for demographic fixed effects separately in each of the eight time periods covered by our data. Because we are interested both in understanding the extent to which the ESI can explain the overall time trend in obesity and the extent to which the observed effect is robust to year controls, we use variations on both specifications (3) and (7) in subsequent analysis.

Table 3 shows the effect of controlling for income and unemployment status. The first column reproduces specification (7) of Table 2; the first three covariates (ESI, mean income-to-poverty ratio, and unemployment rate) are group-level variables derived from the CPS, while the next seven are measured at the individual level in NHANES. Taken together, the results here suggest that our estimates of the effect of ESI on obesity are robust to controls for these covariates, and that group-level unemployment rate appears to have an independent negative effect on obesity, consistent with previous reports in the literature discussed above.

Table 4 breaks out the marginal effects of ESI on obesity by demographic group (controlling again for group-year fixed effects as in specification (7) of Table 2). It is notable that every estimate is positive and statistically significant except three: the marginal effect of ESI on male obesity is negative but not statistically significant, and the marginal effect of ESI on obesity

among both white non-Hispanics and "other" non-Hispanics is positive but not statistically significant.

Table 5 shows estimates for regressions run separately for each race-gender group, this time omitting year controls as in specification (3) of Table 2. This table also further examines the interaction of both ESI and group-level unemployment rates with individual employment status. Again, the marginal effects of ESI on obesity are mostly positive, while marginal effects of unemployment rate are mostly negative. It is also interesting to note that in every regression but one, the magnitudes of our ESI estimates are largest for individuals who report being currently unemployed; no such pattern emerges for unemployment rate, suggesting that group-level unemployment may be serving as in indicator of the opportunity cost of time among both working and non-working adults.

In Table 6 we test the robustness of our estimates to the use of alternative measures of body mass as dependent variable. Specification (1) again replicates specification (7) of Table 2; the others vary only in the dependent variables, where BMI is a continuous variable representing body mass index calculated from measured height and weight; BMI20, BMI25, and BMI35 are binary variables defined by BMI cut-offs of 20, 25, and 35, respectively; and 10-year weight change is self-reported (asked of individuals 35 years and older in NHANES) and measured in pounds. The coefficient on ESI is positive and statistically significant in each case.

5. References

Barnes, M.G., Smith, T.G., Yoder, J.K., 2013. Effects of household composition and income security on body weight in working-age men. Obesity doi:10.1002/oby.20302.

PMID: 23703907.

Chou, S.Y., Grossman, M., Saffer, H., 2004. An economic analysis of obesity: Results from the behavioral risk factor surveillance system. Journal of Health Economics 23, 565–587.

Cutler, D.M., Glaeser, E.L., Shapiro, J.M., 2003. Why have Americans become more obese? Journal of Economic Perspectives 17, 93–118.

Hacker, J.S., Huber, G., Nichols, A., Rehm, P., Schlesinger, M., Valletta, R.G., Craig, S., 2012. The Economic Security Index: a new measure for research and policy analysis. Working Paper Series 2012-21. Federal Reserve Bank of San Francisco. URL: http://ideas.repec.org/p/fip/fedfwp/2012-21.html.

Offer, A., Pechey, R., Ulijaszek, S., 2010. Obesity under affluence varies by welfare regimes: The effect of fast food, insecurity, and inequality. Economics and Human Biology 8, 297–308.

Ruhm, C., 2005. Healthy living in hard times. Journal of Health Economics 24, 341–363. doi:10.1016/j.jhealeco.2004.09.007.

Ruhm, C.J., 2000. Are recessions good for your health? Quarterly Journal of Economics 115, 617–650.

Smith, T.G., 2009. Reconciling psychology with economics: Obesity, behavioral biology, and rational overeating. Journal of Bioeconomics 11, 249–282.

Smith, T.G., 2012a. Behavioural biology and obesity, in: Offer, A., Pechey, R., Ulijaszek, S. (Eds.), Insecurity, Inequality, and Obesity in Affluent Societies. Oxford University Press.

Smith, T.G., 2012b. Review of *Obesity and the Economics of Prevention: Fit Not Fat* by Franco Sassi, 2010. American Journal of Agricultural Economics 94, 815–821.

Smith, T.G., Stoddard, C., Barnes, M.G., 2009. Why the poor get fat: Weight gain and economic insecurity. Forum for Health Economics & Policy 12, Article 5.

de Vogli, R., Kouvonen, A., Elovainio, M., Marmot, M., 2013. Economic globalization, inequality and body mass index: a cross-national analysis of 127 countries. Critical Public Health , 1–15URL: http://www.tandfonline.com/doi/abs/10.1080/09581596.2013.768331, doi:10.1080/09581596.2013.768331.

Wang, Y., Beydoun, M.A., 2007. The obesity epidemic in the United States–gender, age, socioeconomic, racial/ethnic, and geographic characteristics: A systematic review and meta-regression analysis. Epidemiologic Reviews 29, 6–28. URL: http://epirev.oxfordjournals.org/content/29/1/6, doi:10.1093/epirev/mxm007. PMID: 17510091.

Wisman, J.D., Capehart, K.W., 2010. Creative destruction, economic insecurity, stress, and epidemic obesity. American Journal of Economics and Sociology 69, 936–982.

World Health Organization, 1998. Obesity: Preventing and Managing the Global Epidemic, Report of a WHO Consultation on Obesity, Geneva, 3-5 June, 1997. World Health Organization.

Table 1: Descriptive Statistics

	Mean	SD	Min	Max	N
ESI	0.199	0.043	0.095	0.376	49,971
Mean PIR (CPS)	3.213	1.143	1.479	5.921	49,971
PIR (NHANES)	2.458	1.668	0	11.889	45,447
Unempl. Rate (CPS)	0.07	0.03	0.025	0.223	49,971
Unemployed (NHANES)	0.04	0.196	0	1	49,954
Employed (NHANES)	0.549	0.498	0	1	49,958
Married	0.556	0.497	0	1	49,919
High School	0.266	0.442	0	1	49,785
Some College	0.224	0.417	0	1	49,785
College	0.153	0.36	0	1	49,785
BMI	27.877	6.352	11.679	130.21	48,376
BMI20	0.937	0.242	0	1	48,376
BMI25	0.64	0.48	0	1	48,376
BMI30	0.301	0.458	0	1	48,376
BMI35	0.121	0.326	0	1	48,376
1990	0.177	0.381	0	1	49,971
1993	0.179	0.383	0	1	49,971
1999	0.094	0.292	0	1	49,971
2001	0.105	0.307	0	1	49,971
2003	0.101	0.301	0	1	49,971
2005	0.1	0.3	0	1	49,971
2007	0.119	0.324	0	1	49,971
2009	0.126	0.332	0	1	49,971
18-34	0.316	0.465	0	1	49,971
35-44	0.166	0.372	0	1	49,971
45-54	0.139	0.346	0	1	49,971
55-64	0.132	0.339	0	1	49,971
65-74	0.127	0.333	0	1	49,971
75+	0.121	0.326	0	1	49,971
Female	0.51	0.5	0	1	49,971
Male	0.49	0.5	0	1	49,971
Hispanic	0.282	0.45	0	1	49,971
Black NH	0.234	0.424	0	1	49,971
White NH	0.452	0.498	0	1	49,971
Other NH	0.032	0.176	0	1	49,971

Sources: U.S. Current Population Survey, NHANES III & 1999–2010

Table 2: Effect of Economic Insecurity on Obesity: Role of Demographic FE

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ESI	0.894***	0.662***	1.045***	1.158***	0.935***	-0.179	0.713***
	(0.162)	(0.103)	(0.184)	(0.102)	(0.0988)	(0.168)	(0.107)
1993		0.0350***		0.0332***	0.0341***	0.0415**	
		(0.00880)		(0.00941)	(0.0104)	(0.0195)	
1999		0.0969***		0.101***	0.0935***	0.0951***	
		(0.00947)		(0.0102)	(0.00995)	(0.0203)	
2001		0.0710***		0.0691***	0.0662***	0.0789***	
		(0.0102)		(0.0109)	(0.0105)	(0.0214)	
2003		0.0985***		0.0936***	0.0913***	0.107***	
		(0.0106)		(0.0106)	(0.0120)	(0.0206)	
2005		0.118***		0.111***	0.112***	0.131***	
		(0.0109)		(0.0117)	(0.0124)	(0.0208)	
2007		0.124***		0.116***	0.115***	0.149***	
		(0.00863)		(0.00911)	(0.00986)	(0.0188)	
2009		0.137***		0.125***	0.122***	0.170***	
		(0.0110)		(0.0111)	(0.0123)	(0.0216)	
Female		0.0528***	0.0363***		0.0427***	0.0854***	
		(0.00663)	(0.00971)		(0.00654)	(0.0110)	
White NH		0.109***	0.102***	0.122***		0.0892***	
		(0.0136)	(0.0159)	(0.0137)		(0.0149)	
Black NH		0.165***	0.129***	0.151***		0.190***	
		(0.0146)	(0.0174)	(0.0153)		(0.0163)	
Hispanic		0.112***	0.0823***	0.0991***		0.132***	
		(0.0136)	(0.0157)	(0.0139)		(0.0156)	
Age 35-44		0.117***	0.125***	0.127***	0.122***		
		(0.00810)	(0.0141)	(0.00774)	(0.00930)		
Age 45-54		0.140***	0.154***	0.147***	0.144***		
		(0.00976)	(0.0141)	(0.0102)	(0.0110)		
Age 55-64		0.155***	0.165***	0.160***	0.158***		
		(0.00838)	(0.0137)	(0.00892)	(0.00925)		
Age 65-74		0.119***	0.125***	0.123***	0.121***		
		(0.00929)	(0.0143)	(0.0100)	(0.0104)		
Age 75+		-0.0215**	-0.0298**	-0.0310***	-0.0285***		
		(0.00838)	(0.0136)	(0.00846)	(0.00861)		
Constant	0.122***	-0.128***	-0.102***	-0.197***	-0.0531***	0.0819**	0.0294
	(0.0323)	(0.0234)	(0.0387)	(0.0250)	(0.0198)	(0.0341)	(0.0444)
Year*Group FE?	No	No	No	No	No	No	Yes
Observations	48,376	48,376	48,376	48,376	48,376	48,376	48,376
R-squared	0.007	0.049	0.038	0.047	0.045	0.029	0.051

Dependent variable is obesity status (BMI$\geq$ 30). Sources: See Table 1.
Robust standard errors in parentheses (clustered by age-race-gender-year)
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 3: Unemployment & Other Measures of Income

	(1)	(2)	(3)	(4)	(5)	(6)	(7)
ESI	0.713***	0.729***	0.732***		0.729***	0.745***	0.725***
	(0.107)	(0.110)	(0.106)		(0.109)	(0.107)	(0.108)
Mean PIR		0.00927					
		(0.0102)					
Unempl. Rate				-0.707***	-0.746***	-0.754***	-0.807***
				(0.190)	(0.189)	(0.200)	(0.204)
PIR			-0.0101***			-0.00835***	-0.00593***
			(0.00185)			(0.00191)	(0.00189)
Unemployed						-0.0130	-0.00949
						(0.0120)	(0.0121)
Employed						-0.0265***	-0.0260***
						(0.00655)	(0.00653)
Married							0.0312***
							(0.00542)
High School							0.0116*
							(0.00616)
Some College							0.0139**
							(0.00616)
College							-0.0510***
							(0.00814)
Household Size							0.000830
							(0.00147)
Year*Group FE?	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	48,376	48,376	44,027	48,376	48,376	44,017	43,884
R-squared	0.051	0.051	0.051	0.050	0.051	0.052	0.055

Dependent variable is obesity status (BMI$\geq$ 30). Sources: See Table 1.
Robust standard errors in parentheses (clustered by age-race-gender-year)
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 4: Effect of Economic Insecurity by Demographic Characteristics

	(1)	(2)	(3)	(4)	(5)
ESI	0.713***				
	(0.107)				
ESI*1990		0.387**			
		(0.169)			
ESI*1993		0.797***			
		(0.212)			
ESI*1999		1.340***			
		(0.369)			
ESI*2001		1.274***			
		(0.388)			
ESI*2003		0.336			
		(0.384)			
ESI*2005		1.067**			
		(0.521)			
ESI*2007		0.841***			
		(0.238)			
ESI*2009		0.732***			
		(0.233)			
ESI*Male			-0.0948		
			(0.155)		
ESI*Female			0.859***		
			(0.118)		
ESI*Black NH				1.298***	
				(0.142)	
ESI*White NH				0.00761	
				(0.195)	
ESI*Hispanic				0.513***	
				(0.116)	
ESI*Other NH				0.225	
				(0.264)	
ESI*Age 18-34					0.575***
					(0.138)
ESI*Age 35-44					0.720***
					(0.130)
ESI*Age 45-54					0.807***
					(0.197)
ESI*Age 55-64					0.827***
					(0.184)
ESI*Age 65-74					0.791**
					(0.362)
ESI*Age 75+					0.715***
					(0.258)
Year*Group FE?	Yes	Yes	Yes	Yes	Yes
Observations	48,376	48,376	48,376	48,376	48,376
R-squared	0.051	0.051	0.052	0.052	0.051

Dependent variable is obesity status (BMI$\geq$ 30). Sources: See Table 1.
Robust standard errors in parentheses (clustered by age-race-gender-year)
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 5: ESI and Employment Status

	Black Men (1)	Black Women (2)	Hispanic Men (3)	Hispanic Women (4)	White Men (5)	White Women (6)
ESI*Employed	1.621***	0.563	1.215**	-0.145	3.478***	1.463
	(0.375)	(0.546)	(0.455)	(0.251)	(0.368)	(1.012)
ESI*Unemployed	1.742**	0.392	1.652*	1.295	4.157***	2.364
	(0.797)	(0.890)	(0.856)	(0.807)	(1.156)	(2.448)
ESI*OLF	1.663***	0.622	0.375	0.370	2.937***	1.739**
	(0.512)	(0.478)	(0.612)	(0.383)	(0.355)	(0.680)
Unempl.Rate*Employed	-1.453**	-3.384***	-0.904**	-1.281	-2.745***	-3.500*
	(0.697)	(1.130)	(0.384)	(0.784)	(0.817)	(1.745)
Unempl.Rate*Unemployed	-0.801	-3.454***	0.484	-2.642	3.819	-9.381*
	(1.205)	(1.147)	(1.713)	(2.531)	(2.419)	(4.974)
Unempl.Rate*OLF	-0.0292	-4.510***	-1.076*	-1.397*	-0.169	0.202
	(0.494)	(0.973)	(0.568)	(0.748)	(0.619)	(1.492)
Employed	0.113	-0.0385	0.173	0.252	0.430*	-0.157
	(0.234)	(0.279)	(0.204)	(0.271)	(0.221)	(0.365)
OLF	-0.0907	0.0826	0.387*	0.187	0.406*	-0.298
	(0.268)	(0.230)	(0.224)	(0.283)	(0.235)	(0.351)
Age 35-44	0.0943**	-0.0115	0.139***	0.113***	0.182***	0.129***
	(0.0375)	(0.0477)	(0.0261)	(0.0203)	(0.0169)	(0.0364)
Age 45-54	0.0889***	0.0205	0.160***	0.187***	0.212***	0.136***
	(0.0243)	(0.0645)	(0.0270)	(0.0293)	(0.0146)	(0.0339)
Age 55-64	0.107***	-0.0459	0.167***	0.160***	0.182***	0.153***
	(0.0316)	(0.0701)	(0.0248)	(0.0309)	(0.0221)	(0.0417)
Age 65-74	0.108***	0.00101	0.114***	0.0995**	0.1000***	0.0770**
	(0.0386)	(0.0548)	(0.0307)	(0.0392)	(0.0223)	(0.0308)
Age 75+	-0.0439	-0.159***	0.0294	-0.0858***	-0.134***	-0.0973***
	(0.0513)	(0.0534)	(0.0550)	(0.0294)	(0.0194)	(0.0313)
Constant	-0.0338	0.653**	-0.168	0.131	-0.665***	0.230
	(0.207)	(0.313)	(0.254)	(0.267)	(0.225)	(0.395)
Year*Group FE?	No	No	No	No	No	No
Observations	5,396	5,879	6,757	6,930	10,773	11,076
R-squared	0.019	0.035	0.030	0.038	0.039	0.028

Dependent variable is obesity status (BMI$\geq$ 30). Sources: See Table 1.
Robust standard errors in parentheses (clustered by age-race-gender-year)
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$

Table 6: Effect of Economic Insecurity: Alternative BMI Measures

	Dependent Variable					
	BMI30	BMI	BMI20	BMI25	BMI35	10yr wt change
	(1)	(2)	(3)	(4)	(5)	(6)
ESI	0.713***	12.32***	0.269***	1.055***	0.204***	32.31***
	(0.107)	(1.869)	(0.0577)	(0.139)	(0.0700)	(9.292)
Year*Group FE?	Yes	Yes	Yes	Yes	Yes	Yes
Observations	48,376	48,376	48,376	48,376	48,376	31,620
R-squared	0.051	0.069	0.027	0.065	0.040	0.091

Robust standard errors in parentheses (clustered by age-race-gender-year)
***$p < 0.01$, **$p < 0.05$, *$p < 0.1$