

**Supplementary Appendix**

to accompany

**Effects of Family, Friends, and Relative Prices on Fruit and Vegetable Consumption by  
African Americans**

by

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## **Marginal Effects**

Marginal effects are derived from the estimates reported in Table 4 in the paper and designed to measure the impact of a change in the value of a variable on the probabilities of the five consumption frequency categories. Thus, we compute five marginal effects per variable, with each one corresponding to the change in the probability of a particular consumption category. Each variable is analyzed one at a time; values of the other variables are set at their respective sample means. For indicator variables, we calculate probability increments resulting from an increase in the value of the variable from 0 to 1. For continuous variables, we compute numerical derivative values. Marginal effects associated with the latent consumption variables are calculated using derivatives with respect to coefficients on the constants in corresponding equations of system (2) in the paper. When all explanatory variables are kept fixed, a latent variable can be increased by incrementing the corresponding constant term.

To obtain the underlying probability values, we first calculate probabilities associated with each one of the 125 possible consumption category combinations per triplet before and after the change in a variable of interest. These probabilities are then aggregated and differenced to calculate the change in the probability for the five consumption categories for the youth, friend, and parent separately. The marginal effects account for the simultaneous equation nature of the estimated models and measure both direct and indirect impacts of a change in the variable, where the indirect impact arises from the presence of social multipliers.

The marginal effects for the fruit and vegetable consumption models are presented in Tables S1 and S2, respectively. The tables have three panels each, which separately show marginal effects for the youth (Panel A), friend (Panel B), and parent (Panel C). The included explanatory variables are the same in the three panels. A few brief comments to illustrate marginal effects are

in order. Based on the estimation results presented in Table 4 in the paper, the endogenous effect of the parent's consumption on the youth's consumption is positive and statistically significant; the endogenous effect of the friend's consumption on the youth is smaller in absolute magnitude and not statistically significant. The marginal effects of parent's consumption on the youth are confirmed for both fruit (Table S1) and vegetables (Table S2), and are substantially larger in absolute magnitude than the effects associated with the friend's consumption. The marginal effect of a youth having a high school degree and no longer being in school (in comparison to having the degree and still being in school) is to increase the probabilities of no fruit consumption by 0.045 and of consumption less than once a day by 0.039, and to decrease the probabilities of fruit consumption at least once a day, between 1 and 2 times a day, and twice a day or more by 0.010, 0.019, and 0.054, respectively. The corresponding effects for vegetable consumption are qualitatively similar and more pronounced in magnitude. These effects are relatively large because, for example, the actual incidence of fruit consumption at twice a day or more among youths is only 0.187 (see Table 2 in the paper). Consider food prices as another example illustrating marginal effects. From Table 4 in the paper, higher relative prices tend to negatively affect consumption, especially in the case of vegetables. The direction of corresponding marginal effects is intuitive. For instance, if the relative vegetable price increases by 0.10 (i.e., by 22% of its average value of 0.46), the probabilities of eating no vegetables and of eating vegetables less than once a day by the youth rise by 0.059 and 0.054, respectively, while the probabilities of eating vegetables at least once a day, between 1 and 2 times a day, and twice a day or more fall by 0.021, 0.023, and 0.070, respectively.

Table S1. Marginal Effects in Estimated Model of Fruit Consumption

	Consumption Frequency Category				
	(1) None	(2) <1/day	(3) 1/day	(4) 1-2/day	(5) 2+/day
<i>Panel A: Youth's consumption</i>					
Friend's consumption	-0.031	-0.030	0.005	0.014	0.042
Parent's consumption	-0.109	-0.108	0.017	0.049	0.151
Youth/friend is male	-0.017	-0.017	0.003	0.008	0.024
Youth's age, linear term	0.030	0.029	-0.005	-0.013	-0.041
Youth's age, quadratic term	0.004	0.004	-0.001	-0.002	-0.005
Youth has no HS degree, is in school	-0.021	-0.021	0.003	0.009	0.030
Youth has HS degree, is not in school	0.045	0.039	-0.010	-0.019	-0.054
Youth has no HS degree, is not in school	0.009	0.009	-0.002	-0.004	-0.012
Youth's relative bargaining power	-0.029	-0.029	0.005	0.013	0.040
Friend is African American	-0.003	-0.003	0.001	0.001	0.004
Friend's age, linear term	0.001	0.001	-0.000	-0.001	-0.002
Friend's age, quadratic term ( $\times 10$ )	-0.001	-0.001	0.000	0.000	0.001
Friend is in school	-0.001	-0.001	0.000	0.000	0.001
Parent's age, linear term ( $\times 10$ )	-0.011	-0.011	0.002	0.005	0.015
Parent's age, quadratic term ( $\times 1000$ )	0.014	0.014	-0.002	-0.006	-0.019
Parent has HS degree	0.003	0.003	-0.001	-0.001	-0.005
Parent is married	0.017	0.017	-0.003	-0.008	-0.023
Household income ( $\times 1,000$ )	-0.188	-0.186	0.030	0.085	0.259
Income < 100% of Federal poverty level	0.001	0.001	-0.000	-0.001	-0.002
Relative price	0.269	0.264	-0.045	-0.122	-0.367
Local poverty rate	-0.498	-0.493	0.078	0.225	0.688
Indicator for Georgia	0.021	0.020	-0.003	-0.009	-0.028
<i>Panel B: Friend's consumption</i>					
Youth's consumption	0.027	0.018	-0.005	-0.007	-0.032
Parent's consumption	0.012	0.008	-0.002	-0.003	-0.014
Youth/friend is male	-0.016	-0.011	0.003	0.005	0.020
Youth's age, linear term	-0.003	-0.002	0.001	0.001	0.004
Youth's age, quadratic term	-0.000	-0.000	0.000	0.000	0.001
Youth has no HS degree, is in school	0.002	0.001	-0.000	-0.001	-0.003
Youth has HS degree, is not in school	-0.004	-0.003	0.001	0.001	0.005
Youth has no HS degree, is not in school	-0.001	-0.001	0.000	0.000	0.001
Youth's relative bargaining power	0.003	0.002	-0.001	-0.001	-0.004
Friend is African American	-0.023	-0.015	0.005	0.006	0.026
Friend's age, linear term	0.010	0.007	-0.002	-0.003	-0.012
Friend's age, quadratic term ( $\times 10$ )	-0.004	-0.003	0.001	0.001	0.005
Friend is in school	-0.008	-0.005	0.001	0.002	0.009
Parent's age, linear term ( $\times 10$ )	0.001	0.001	-0.000	-0.000	-0.001
Parent's age, quadratic term ( $\times 1000$ )	-0.001	-0.001	0.000	0.000	0.002
Parent has HS degree	-0.000	-0.000	0.000	0.000	0.000

Table S1 – *Continues*

Table S1 – *Continued*

	Consumption Frequency Category				
	(1) None	(2) <1/day	(3) 1/day	(4) 1-2/day	(5) 2+/day
<i>Panel B: Friend's consumption – Continued</i>					
Parent is married	-0.002	-0.001	0.000	0.000	0.002
Household income (×1,000)	0.020	0.013	-0.004	-0.006	-0.024
Income < 100% of Federal poverty level	-0.000	-0.000	0.000	0.000	0.000
Relative price	0.375	0.249	-0.070	-0.105	-0.449
Local poverty rate	-0.469	-0.316	0.083	0.131	0.570
Indicator for Georgia	0.046	0.030	-0.008	-0.013	-0.055
<i>Panel C: Parent's consumption</i>					
Youth's consumption	-0.124	-0.139	0.032	0.040	0.191
Friend's consumption	-0.015	-0.017	0.004	0.005	0.023
Youth/friend is male	-0.008	-0.010	0.002	0.003	0.013
Youth's age, linear term	0.015	0.016	-0.004	-0.005	-0.022
Youth's age, quadratic term	0.002	0.002	-0.001	-0.001	-0.003
Youth has no HS degree, is in school	-0.010	-0.012	0.002	0.003	0.016
Youth has HS degree, is not in school	0.021	0.022	-0.007	-0.007	-0.030
Youth has no HS degree, is not in school	0.004	0.005	-0.001	-0.001	-0.007
Youth's relative bargaining power	-0.014	-0.016	0.004	0.005	0.022
Friend is African American	-0.002	-0.002	0.000	0.001	0.002
Friend's age, linear term	0.001	0.001	-0.000	-0.000	-0.001
Friend's age, quadratic term (×10)	-0.000	-0.000	0.000	0.000	0.000
Friend is in school	-0.001	-0.001	0.000	0.000	0.001
Parent's age, linear term (×10)	-0.024	-0.027	0.006	0.008	0.037
Parent's age, quadratic term (×1000)	0.031	0.034	-0.008	-0.010	-0.046
Parent has HS degree	0.002	0.002	-0.000	-0.001	-0.003
Parent is married	-0.014	-0.016	0.003	0.004	0.022
Household income (×1,000)	-0.165	-0.184	0.042	0.053	0.253
Income < 100% of Federal poverty level	-0.017	-0.020	0.004	0.006	0.027
Relative price	0.544	0.598	-0.149	-0.174	-0.819
Local poverty rate	-0.403	-0.452	0.102	0.130	0.623
Indicator for Georgia	0.051	0.056	-0.014	-0.016	-0.077

*Note:* Consumption frequency categories refer to the number of times fruit is consumed in the past seven days (see Table 2 in the paper for details). See Tables 1 and 3 in the paper for details on the variables.

Table S2. Marginal Effects in Estimated Model of Vegetable Consumption

	Consumption Frequency Category				
	(1) None	(2) <1/day	(3) 1/day	(4) 1-2/day	(5) 2+/day
<i>Panel A: Youth's consumption</i>					
Friend's consumption	0.055	0.051	-0.019	-0.021	-0.065
Parent's consumption	-0.159	-0.151	0.053	0.062	0.194
Youth/friend is male	0.006	0.005	-0.002	-0.002	-0.007
Youth's age, linear term	-0.017	-0.016	0.006	0.007	0.020
Youth's age, quadratic term	0.021	0.020	-0.007	-0.008	-0.025
Youth has no HS degree, is in school	-0.016	-0.015	0.005	0.006	0.020
Youth has HS degree, is not in school	0.061	0.049	-0.027	-0.022	-0.062
Youth has no HS degree, is not in school	-0.007	-0.007	0.002	0.003	0.009
Youth's relative bargaining power	0.005	0.004	-0.002	-0.002	-0.006
Friend is African American	0.005	0.005	-0.002	-0.002	-0.007
Friend's age, linear term	0.002	0.001	-0.001	-0.001	-0.002
Friend's age, quadratic term ( $\times 10$ )	-0.000	-0.000	0.000	0.000	0.001
Friend is in school	0.002	0.002	-0.001	-0.001	-0.003
Parent's age, linear term ( $\times 10$ )	-0.009	-0.009	0.003	0.004	0.011
Parent's age, quadratic term ( $\times 1000$ )	-0.002	-0.002	0.001	0.001	0.002
Parent has HS degree	-0.027	-0.023	0.011	0.010	0.030
Parent is married	-0.026	-0.025	0.008	0.010	0.033
Household income ( $\times 1,000$ )	-0.196	-0.184	0.068	0.076	0.236
Income < 100% of Federal poverty level	-0.008	-0.008	0.003	0.003	0.010
Relative price	0.589	0.543	-0.212	-0.225	-0.695
Local poverty rate	0.145	0.135	-0.051	-0.056	-0.174
Indicator for Georgia	-0.052	-0.048	0.018	0.020	0.062
<i>Panel B: Friend's consumption</i>					
Youth's consumption	-0.001	-0.001	0.000	0.000	0.001
Parent's consumption	-0.001	-0.001	0.000	0.000	0.001
Youth/friend is male	-0.019	-0.013	0.006	0.006	0.019
Youth's age, linear term	-0.000	-0.000	0.000	0.000	0.000
Youth's age, quadratic term	0.000	0.000	-0.000	-0.000	-0.000
Youth has no HS degree, is in school	-0.000	-0.000	0.000	0.000	0.000
Youth has HS degree, is not in school	0.000	0.000	-0.000	-0.000	-0.000
Youth has no HS degree, is not in school	-0.000	-0.000	0.000	0.000	0.000
Youth's relative bargaining power	0.000	0.000	-0.000	-0.000	-0.000
Friend is African American	-0.024	-0.015	0.009	0.007	0.023
Friend's age, linear term	-0.007	-0.005	0.002	0.002	0.007
Friend's age, quadratic term ( $\times 10$ )	0.002	0.001	-0.001	-0.001	-0.002
Friend is in school	-0.009	-0.006	0.003	0.003	0.010
Parent's age, linear term ( $\times 10$ )	-0.000	-0.000	0.000	0.000	0.000
Parent's age, quadratic term ( $\times 1000$ )	-0.000	-0.000	0.000	0.000	0.000
Parent has HS degree	-0.000	-0.000	0.000	0.000	0.000

Table S2 – *Continues*

Table S2 – *Continued*

	Consumption Frequency Category				
	(1) None	(2) <1/day	(3) 1/day	(4) 1-2/day	(5) 2+/day
<i>Panel B: Friend's consumption – Continued</i>					
Parent is married	-0.000	-0.000	0.000	0.000	0.000
Household income (×1,000)	-0.001	-0.001	0.000	0.000	0.001
Income < 100% of Federal poverty level	-0.000	-0.000	0.000	0.000	0.000
Relative price	0.702	0.473	-0.256	-0.209	-0.711
Local poverty rate	-0.143	-0.098	0.051	0.043	0.148
Indicator for Georgia	-0.019	-0.013	0.007	0.006	0.020
<i>Panel C: Parent's consumption</i>					
Youth's consumption	0.010	0.034	0.007	-0.008	-0.044
Friend's consumption	-0.002	-0.008	-0.002	0.002	0.010
Youth/friend is male	-0.000	-0.001	-0.000	0.000	0.001
Youth's age, linear term	0.001	0.003	0.001	-0.001	-0.003
Youth's age, quadratic term	-0.001	-0.003	-0.001	0.001	0.004
Youth has no HS degree, is in school	0.001	0.002	0.000	-0.001	-0.003
Youth has HS degree, is not in school	-0.002	-0.008	-0.002	0.002	0.011
Youth has no HS degree, is not in school	0.000	0.001	0.000	-0.000	-0.001
Youth's relative bargaining power	-0.000	-0.001	-0.000	0.000	0.001
Friend is African American	-0.000	-0.001	-0.000	0.000	0.001
Friend's age, linear term	-0.000	-0.000	-0.000	0.000	0.000
Friend's age, quadratic term (×10)	0.000	0.000	0.000	-0.000	-0.000
Friend is in school	-0.000	-0.000	-0.000	0.000	0.000
Parent's age, linear term (×10)	-0.004	-0.012	-0.003	0.003	0.016
Parent's age, quadratic term (×1000)	-0.001	-0.002	-0.000	0.001	0.003
Parent has HS degree	-0.003	-0.009	-0.002	0.002	0.011
Parent is married	-0.017	-0.062	-0.016	0.013	0.082
Household income (×1,000)	-0.189	-0.651	-0.136	0.145	0.833
Income < 100% of Federal poverty level	-0.002	-0.007	-0.002	0.002	0.009
Relative price	0.086	0.292	0.057	-0.065	-0.371
Local poverty rate	-0.054	-0.184	-0.038	0.041	0.235
Indicator for Georgia	-0.016	-0.055	-0.011	0.012	0.070

*Note:* Consumption frequency categories refer to the number of times vegetables are consumed in the past seven days (see Table 2 in the paper for details). See Tables 1 and 3 in the paper for details on the variables.