***Additional Results***

The results that have been presented in the main text were related to the population with the lowest 40% of income (based on the NHANES dataset). In the following, the results from a similar set of experiments on the population with the lowest 23% and 13% of income are reported.

Fig 1. **Mean diets of the adult U.S. population with income on or below the 23rd percentile, as determined from the NHANES 2001-02 data and simulated by our method.** 95% confidence intervals are also shown.

Fig 2. **Mean diets of the adult U.S. population with income on or below the 13th percentile, as determined from the NHANES 2001-02 data and simulated by our method.** 95% confidence intervals are also shown.

Fig 3. **Mean diets of the adult U.S. population as determined from the NHANES 2001-02 data vs. the simulated diets from our model that included the effects of prior eating behaviors.** In this scenario, the food budget of the individuals with the lowest 23% of income is increased and is set equal to the cost of mean diet. 95% confidence intervals are also shown.

Fig 4. **Mean diets of the adult U.S. population as determined from the NHANES 2001-02 data vs. the simulated diets from our model that included the effects of prior eating behaviors.** In this scenario, the food budget of the individuals with the lowest 13% of income is increased and is set equal to the cost of mean diet. 95% confidence intervals are also shown.

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Fig .  **Income elasticity of demand for four different categories of food**. The results correspond to the ABM, the LP model (for the lowest 23% of income) and data from the World Bank’s International Comparison Program (ICP).

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Fig . **Income elasticity of demand for four different categories of food**. The results correspond to the ABM, the LP model (for the lowest 13% of income) and data from the World Bank’s International Comparison Program (ICP).