Communities (Baltimore, MD)

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Presenters have no relevant conflicts of interest.

Content

- **Overview of the Baltimore Food System**
- B'More Healthy Communities for Kids
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Why we need systems approaches for a community settings

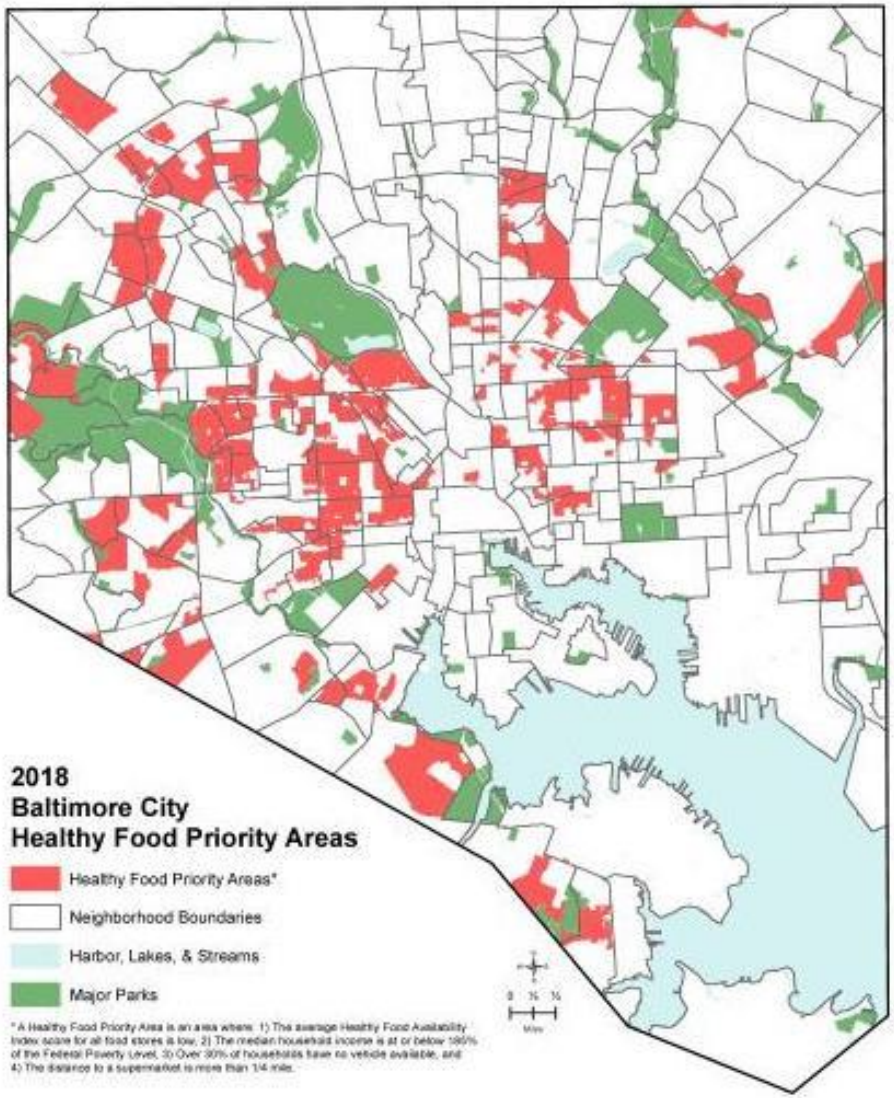
Global Obesity Prevention Center (GOPC)

A CITY COMMITTED TO BUILDING AN EQUITABLE AND RESILIENT URBAN FOOD SYSTEM

Sustainability Plan 2019

USE FOOD AS A CATALYST TO ADDRESS HEALTH, ECONOMIC AND ENVIRONMENTAL DISPARITIES IN HEALTHY FOOD PRIORITY AREAS

HEALTHY FOOD PRIORITY AREAS



Type of Stores	Avg HFAI Score
Small Grocery and Corner Stores	
525	9.1
Convenience Stores	
183	9.3
Public Markets	
6	14.0
Supermarkets	
47	27.7

JOHNS HOPKINS CENTER for A LIVABLE FUTURE

BALTIMORE CITY HEALTH DEPARTMENT

Baltimore Development Corporation

HEALTHY FOOD ENVIRONMENT STRATEGY

Resident-driven processes

Corner and convenience stores

Supermarkets

Public Markets

Food distribution and small businesses

Federal nutrition assistance

Urban agriculture

Transportation gaps

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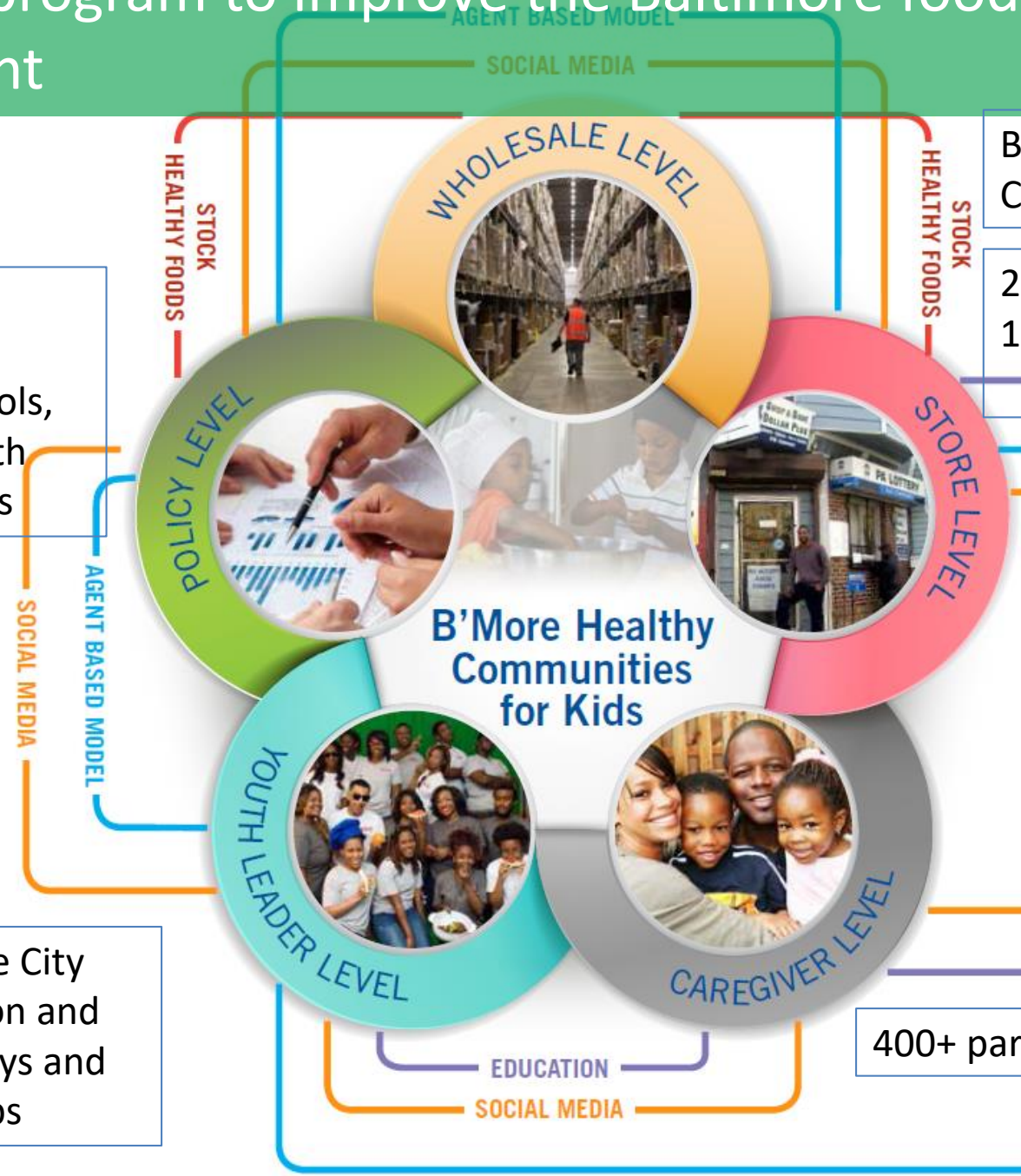
Multilevel program to improve the Baltimore food environment



Baltimore City Council, BCRP, Baltimore Schools, Baltimore Health Dept and others

B Green Cash & Carry, Jetro

25 corner stores, 13 carryouts

Baltimore City Recreation and Parks, Boys and Girls Clubs

400+ parents, children

Twitter: @

BHCK Policy Working Group

10 meetings w/ city stakeholders, since kick-off in July 2013

30+ working group members, representing various sectors:

- City Council
- City Health Department
- Baltimore City Public Schools
- Family League
- Recreation and Parks
- Wholesalers
- Academia

Baltimore City Councilman Carl Stokes

Baltimore City Councilman Pete Welch

Baltimore City Food Policy Director Holly Freishtat

BHCK Policy WG Activities

- Partnered with decision-makers
  - To develop and build the evidence base to support policies for a healthier food environment in Baltimore City
  - To sustain BHCK activities
- Requested to develop simulation model to provide evidence for urban farm tax credit

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A CITY WHERE COMMUNITIES THAT HAVE BEEN HISTORICALLY EXCLUDED FROM ACCESS TO LAND AND TO FRESH, HEALTHY, CULTURALLY-APPROPRIATE FOODS ARE THOSE THAT BENEFIT MOST FROM URBAN AGRICULTURE

URBAN AGRICULTURE

1. **Create ag land-use policies that encourage urban farms and local food production**
   - Identify land suitable for farming
   - Land tenure and pathways to ownership
   - Supportive policy
2. **Promote safe, environmentally sustainable, and socially responsible production**
   - Educational resources for growers
   - Resident/consumer buy-in
3. **Support growers to create financially viable urban agriculture**
   - Money and resources
   - Aggregation, urban-rural linkages
   - Increase demand for local products

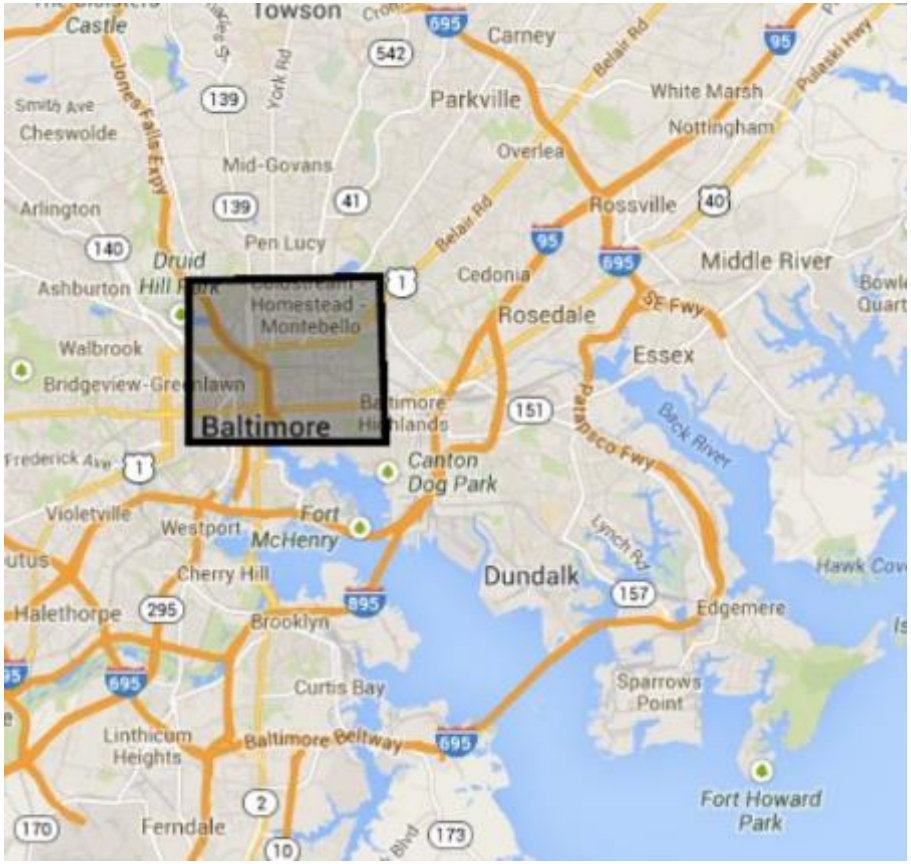
Property Tax Credits for Urban Agriculture

- Bill sponsored by Councilman Pete Welch
- Provide 90% tax credit to owners of vacant lots if they will convert them to urban farms
- BLIFE model modified to provide evidence for the bill

Baltimore Low Income Food Environment (BLIFE) ABM Characteristics

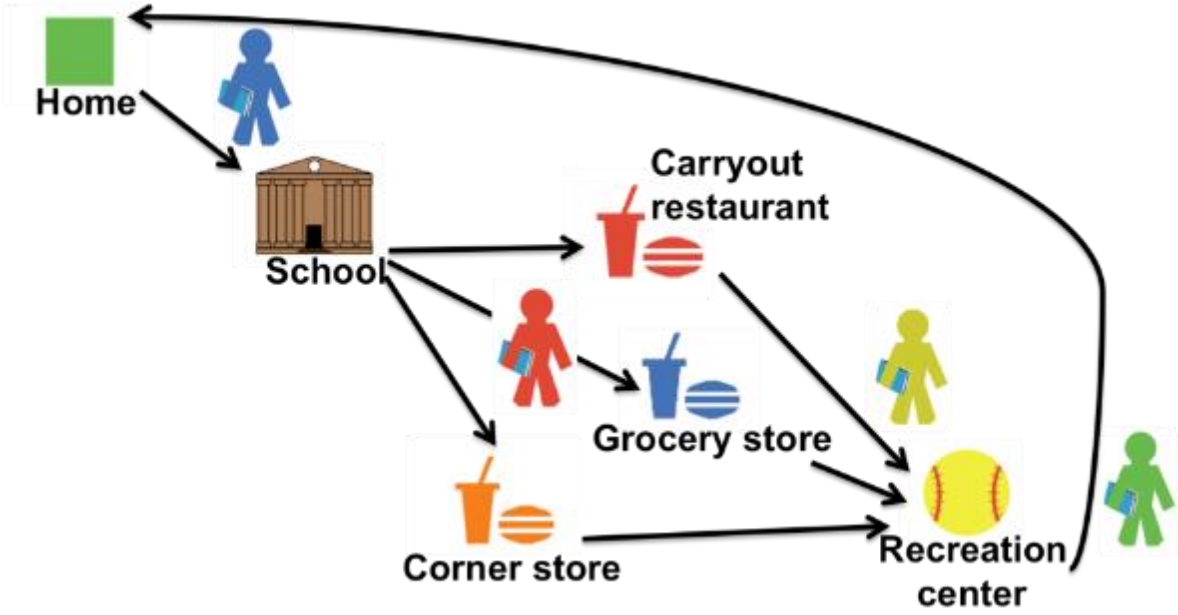
1. Geospatially explicit model of neighborhoods that include:
    - 50+ schools
    - 300+ corner stores and carry-outs
    - 7 recreation centers
    - ~10% of city area

2. Focus on after-school food consumption and activity

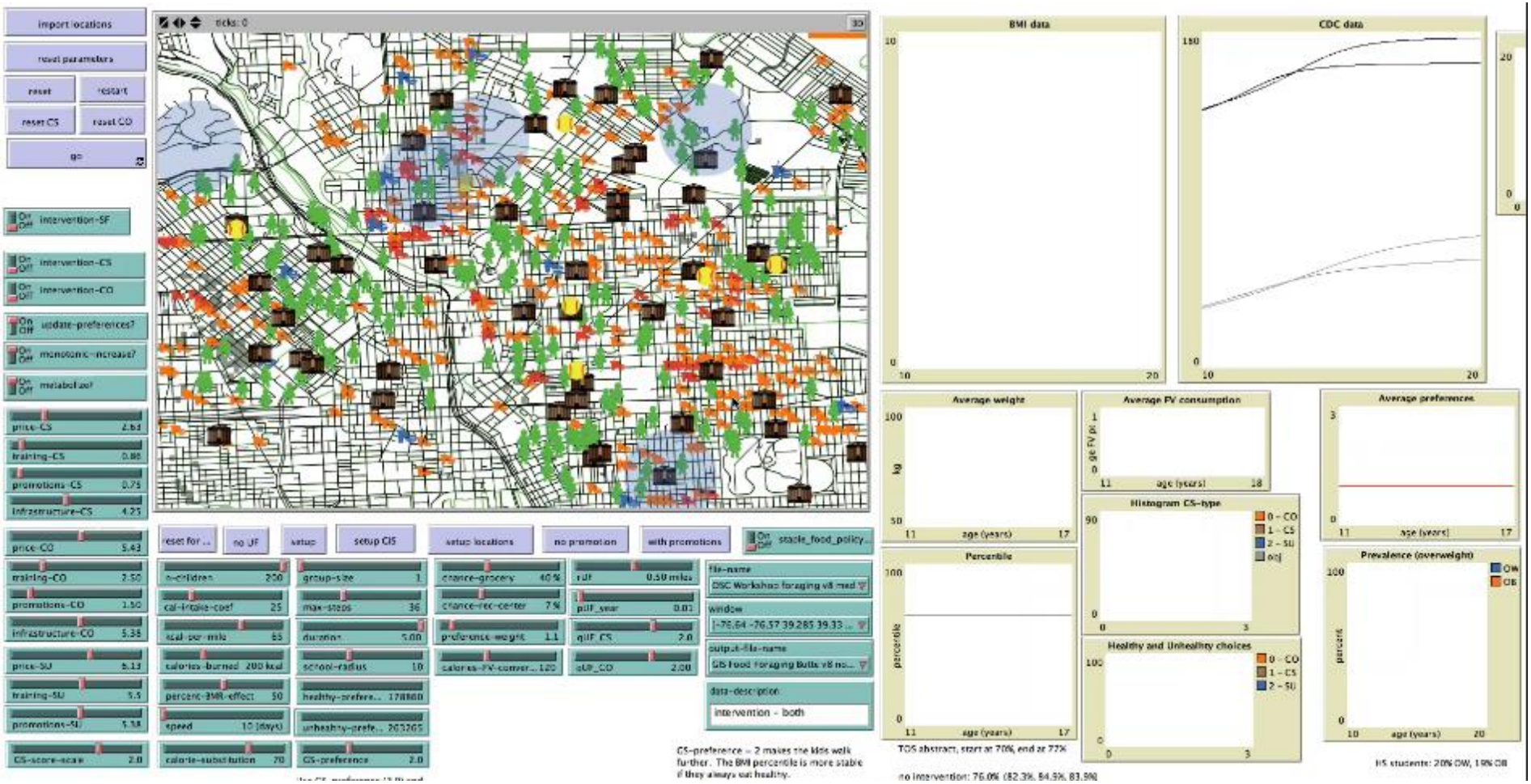


BLIFE Model Components

1. 299 Agents (adolescents 10-14 years)
    1. Gender
    2. Age
    3. Height
    4. Weight
    5. Home address
2. Agent activities
    1. Walking
    2. Exercising
    3. Eating
3. Model calibration
    1. CDC growth curves
    2. Project HeartBeat! (Dai et al., 2002)



BLIFE Model: Low income AA children after school food foraging



City Council approves tax credits for urban farmers, gives key approval on anti-human trafficking bill.

MAY 4, 2015, 7:42 PM

Urban farmers would qualify for property tax breaks of 90 percent, under a bill the City Council sent Monday to Mayor Stephanie Rawlings-Blake.

Rawlings-Blake is expected to sign the bill granting the tax breaks to farmers who grow and sell at least $5,000 of fruit and vegetables a year.

Related

Baltimore agency slow to hold officials accountable

Councilman William "Pete" Welch, the bill's sponsor, said the credits could help improve eating habits in the city, and in turn address some of Baltimore's health disparities. The credits could be used for five years before they would need to be renewed.

"We have to make available fresh fruit and vegetables, and we have to reduce the price of fruits and vegetables," Welch said. Some "people make decisions based on price, not on health."

Welch said the majority of his district is in a food desert, and residents lack easy access to supermarkets.

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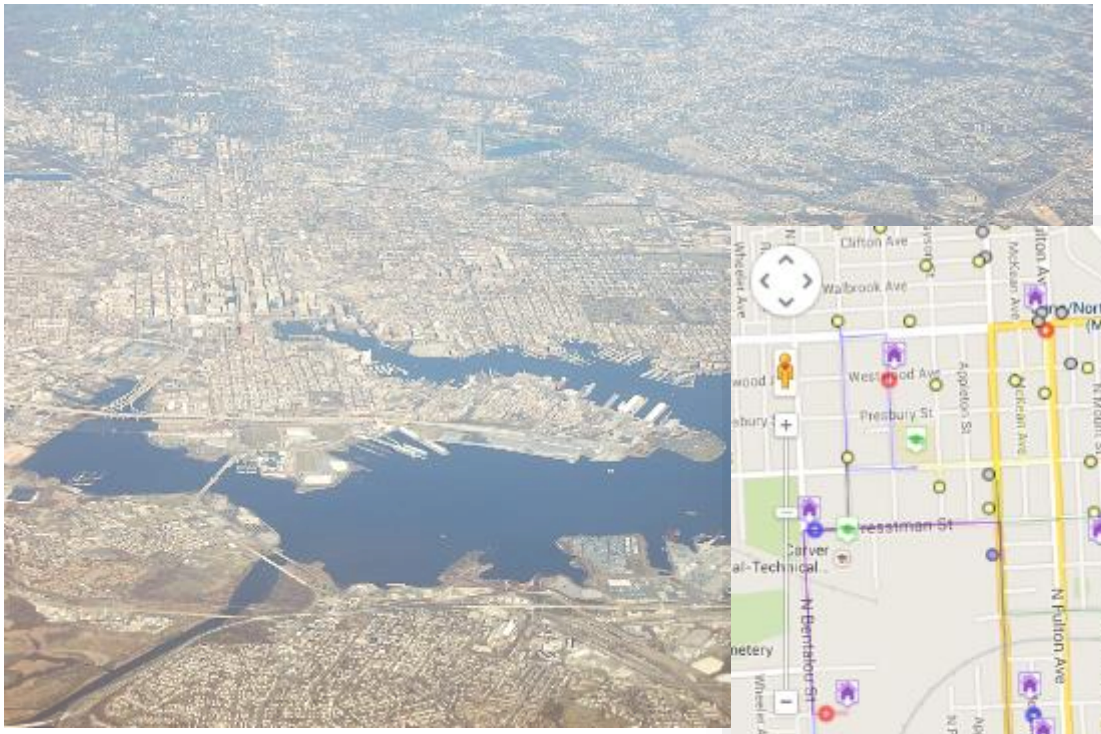
Jan 20, 2018, 09:16am EST

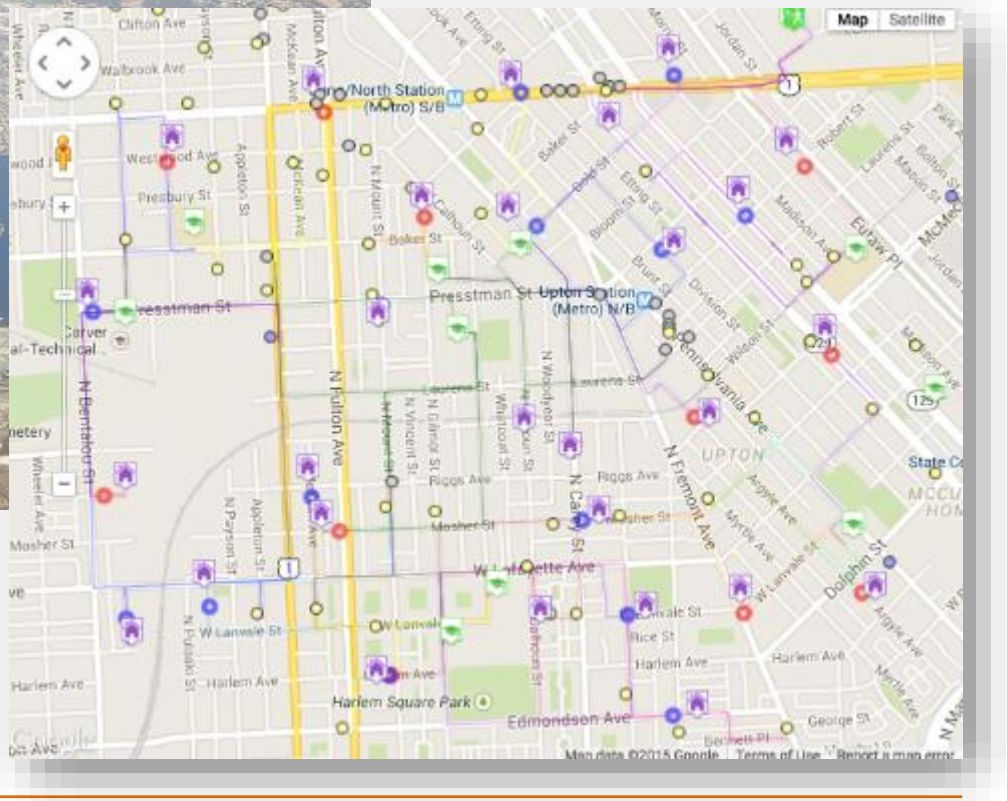
Here Is What Sugar-Sweetened Drink Warning Labels May Do To Obesity

Bruce Y. Lee Senior Contributor ⓘ
Healthcare
I am a writer, journalist, professor, systems modeler, computational and digital health expert, avocado-eater, and entrepreneur, not always in that order.

Forbes

Virtual Population Obesity Prevention (VPOP) Labs: "SimCity" for obesity prevention





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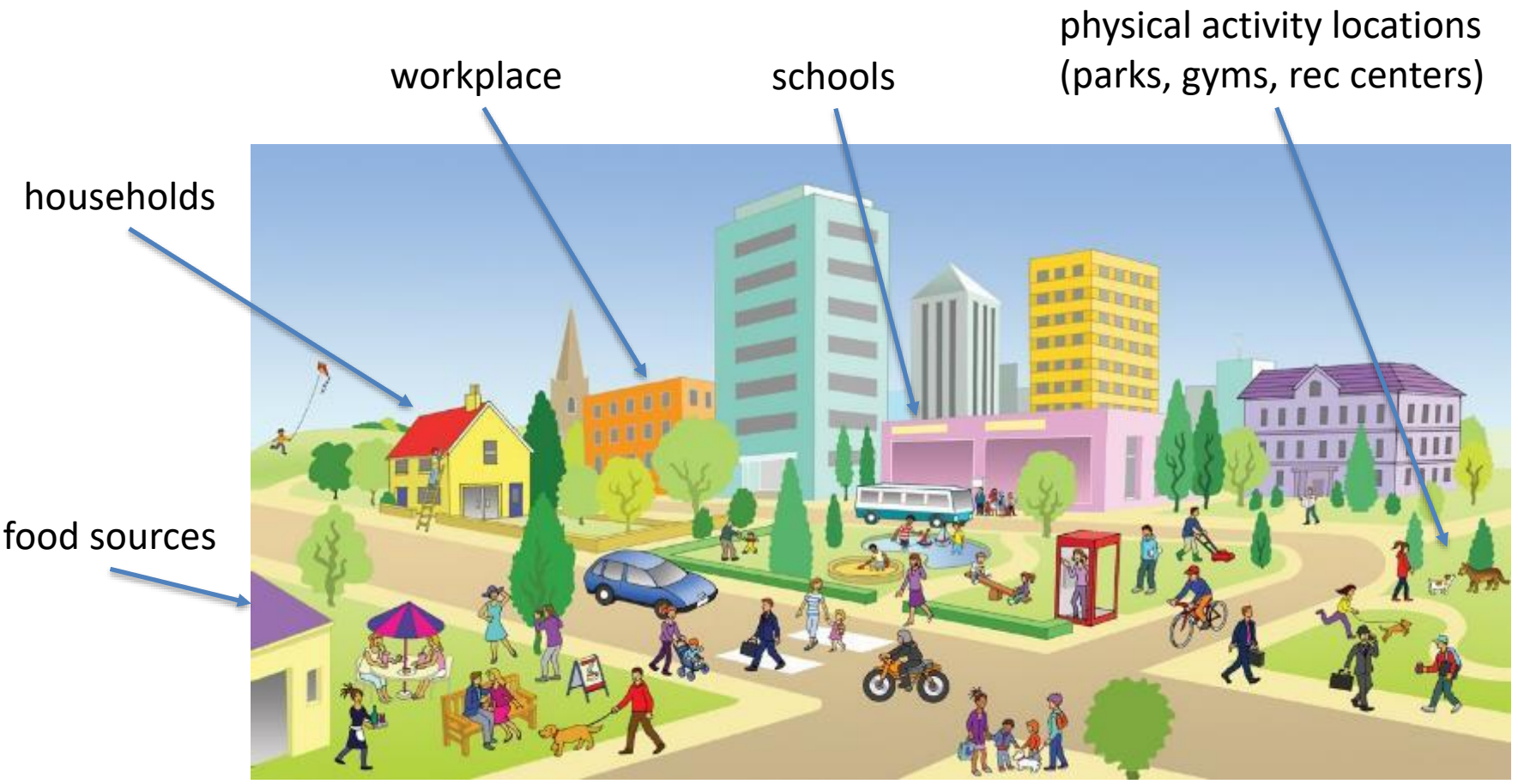
Representations of all key locations in Baltimore use geo-coded data



Each person represented by computational agent

Synthetic population built using census data

Each agent has the following characteristics:

- Age
- Gender
- Race/Ethnicity
- Socio-economic status
- Home assignment
- School assignment
- Height
- Weight

Data specific to Baltimore allows the model to truly analyze the systems within Baltimore

American Journal of
Preventive Medicine

RESEARCH ARTICLE

Simulating the Impact of Sugar-Sweetened Beverage Warning Labels in Three Cities

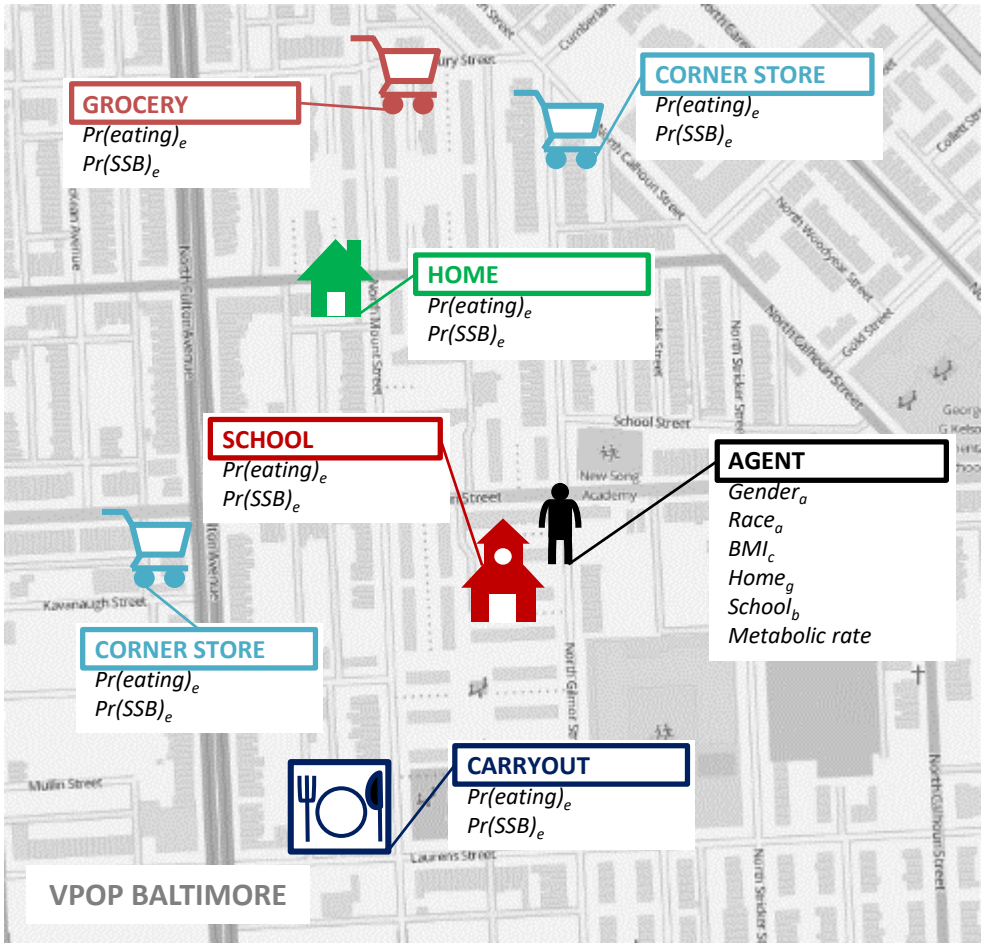
Bruce Y. Lee, MD,[1,2] Marie C. Ferguson, MSPH,[1,2] Daniel L. Hertenstein, BS,[1,2] Atif Adam, PhD,[1,2] Eli Zenkov, PhD,[1,3] Peggy I. Wang, PhD,[1,2] Michelle S. Wong, PhD,[1,4] Joel Gittelsohn, PhD,[1,2] Yeeli Mui, PhD,[2] Shawn T. Brown, PhD[1,3]

Introduction: A number of locations have been considering sugar-sweetened beverage point-of-purchase warning label policies to help address rising adolescent overweight and obesity prevalence.

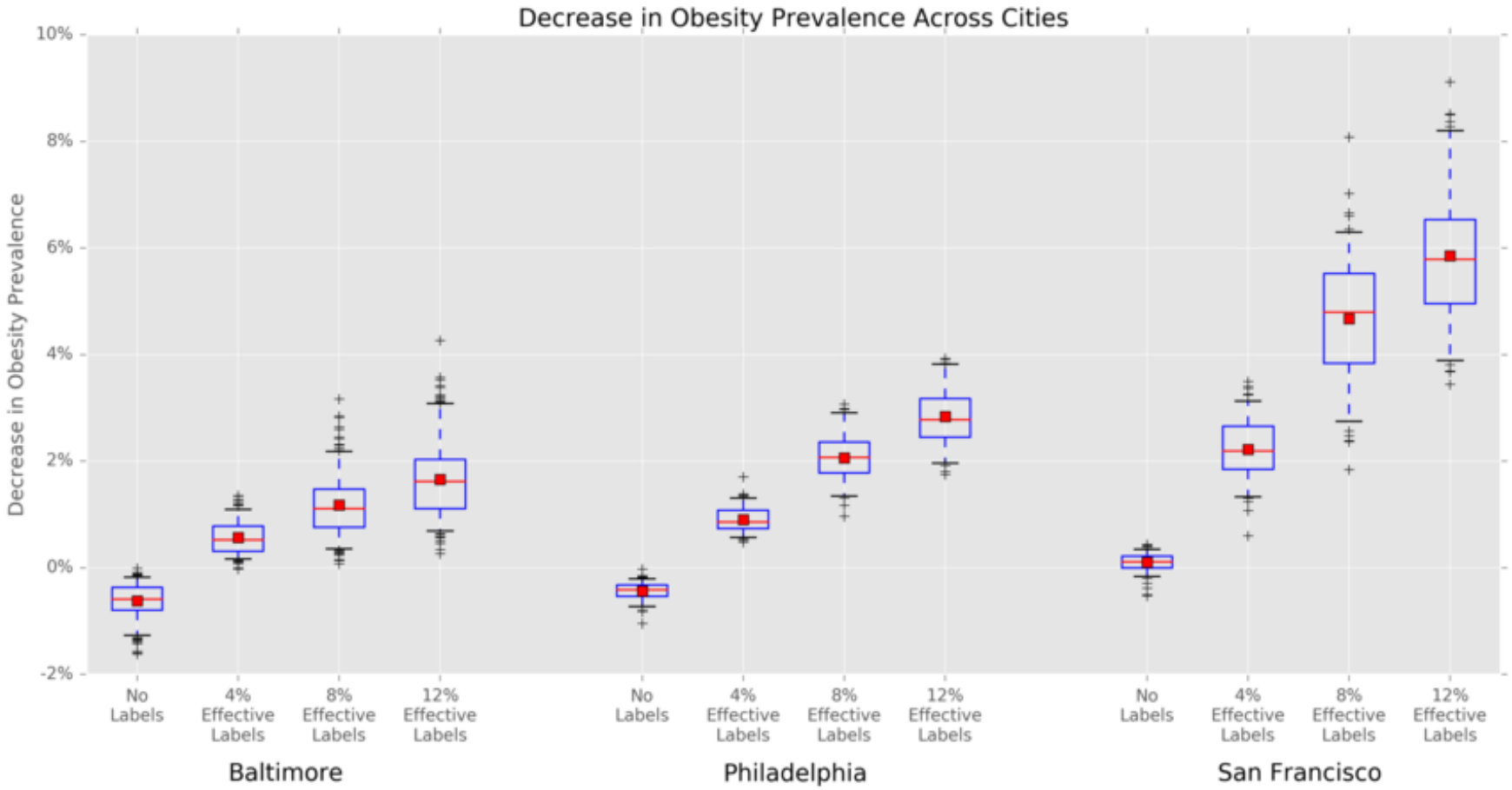
Methods: To explore the impact of such policies, in 2016 detailed agent-based models of Baltimore, Philadelphia, and San Francisco were developed, representing their populations, school locations, and food sources, using data from various sources collected between 2005 and 2014. The model simulated, over a 7-year period, the mean change in BMI and obesity prevalence in each of the cities from sugar-sweetened beverage warning label policies.

Results: Data analysis conducted between 2016 and 2017 found that implementing sugar-sweetened beverage warning labels at all sugar-sweetened beverage retailers lowered obesity prevalence among adolescents in all three cities. Point-of-purchase labels with 8% efficacy (i.e., labels reducing probability of sugar-sweetened beverage consumption by 8%) resulted in the following percentage changes in obesity prevalence: Baltimore: −1.69% (95% CI= −2.75%, −0.97%, $p<0.001$); San Francisco: −4.08% (95% CI= −5.96%, −2.2%, $p<0.001$); Philadelphia: −2.17% (95% CI= −3.07%, −1.42%, $p<0.001$).

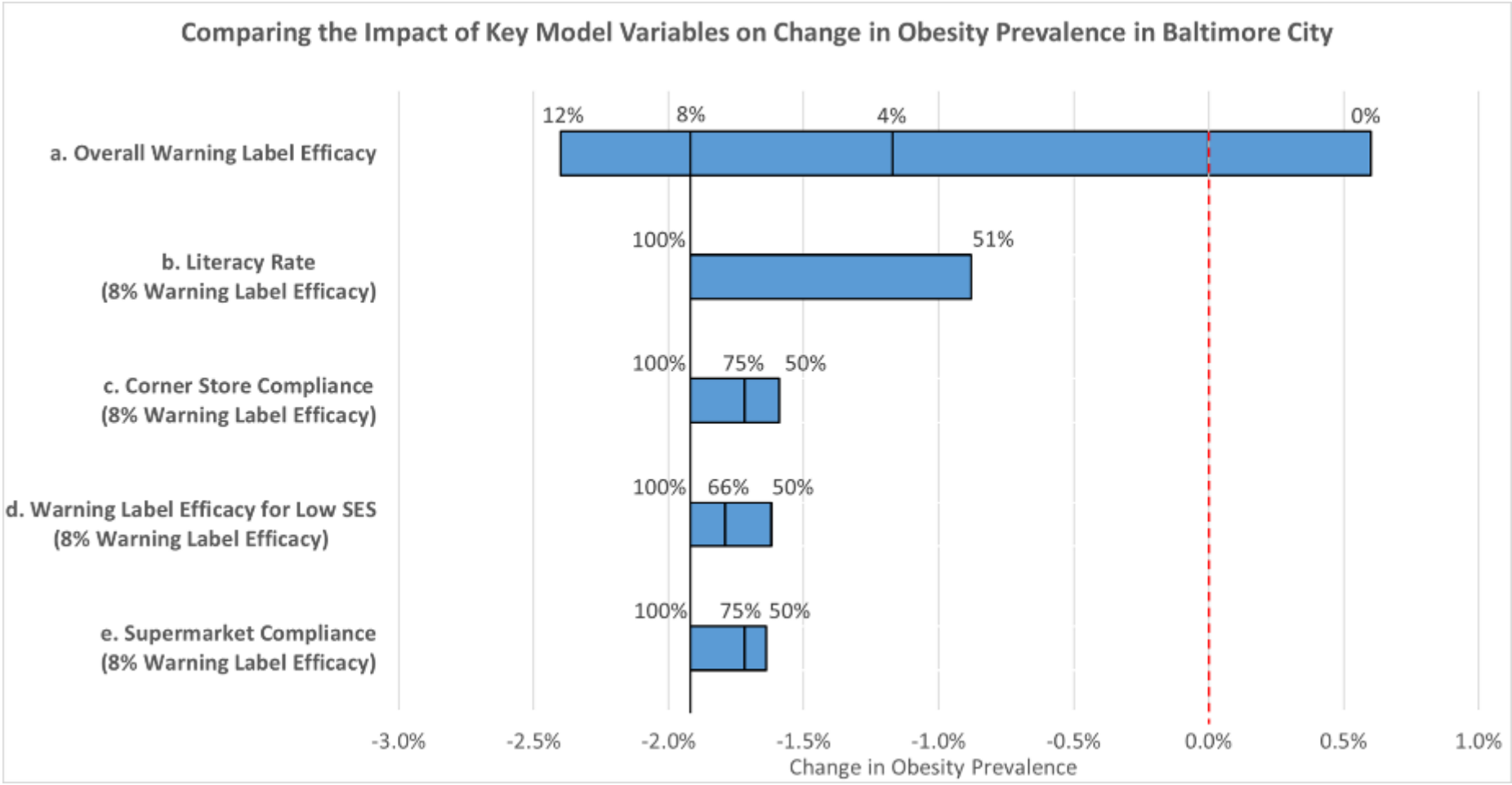
Sugar-Sweetened Beverage Warning Labels in Baltimore



Impact of sugar-sweetened beverage (SSB) warning labels



Impact of SSB Warning Labels under Different Conditions



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SMALL FOOD RETAILER RECOMMENDATIONS

RESIDENT FOOD EQUITY ADVISORS

2018 SMALL FOOD RETAIL RECOMMENDATIONS TO THE BALTIMORE FOOD POLICY INITIATIVE

2018 RESIDENT FOOD EQUITY ADVISORS

The Resident Food Equity Advisors (RFEA) work with the Baltimore Food Policy Initiative (BFPI) to collectively drive equitable food policies through an inclusive, resident-led process. Sixteen advisors were selected out of 89 applicants and were compensated for their time. RFEAs attended six meetings to learn and share their expertise related to small food retail. BFPI staff provided RFEAs with briefings and presentations from subject matter experts to equip the advisors with an appropriate understanding of the state of small food retail and potential policy and programmatic tools.

RFEA RECOMMENDATIONS: After an intensive process of learning, sharing and engaging, RFEA have generated four key recommendations on small food retail with a goal to not only serve existing customers but to also attract and encourage more residents to shop within their communities. These recommendations will be further researched and vetted by BFPI, and then incorporated into the Healthy Food Environment Strategy. These recommendations will be implemented in partnership with and by various stakeholder organizations and residents.

SMALL FOOD RETAIL

Corner stores and other small food retailers are an integral part of urban landscapes. These stores can be a food resource for many residents who lack access to reliable transportation, a supermarket in walking distance, or other fresh food options; however, prepackaged and highly processed foods are abundant at small food retailers – with few healthy options. Many of these establishments exist in the absence of a system to codify or standardize their operations. These facts – coupled with the prevalence of small food retail in low-income neighborhoods, compared to higher income jurisdictions – are representative of systemic inequities in urban food systems.

The 2017 cohort of RFEA identified small food retail (corner and convenience stores) as a policy issue they wanted to address in 2018. The advisor priorities were further underscored by the *Baltimore City's Food Environment, 2018 Report*, which showed there are over 708 small food retail stores across the city, and that on average, these store types carry the lowest amount of healthy food while remaining plentiful in unhealthy foods and beverages.

Meeting topics included: Defining food justice and equity, understanding policy tools and processes, examining the current state of small food retail, cultural biases related to store owners and communities, zoning, staple food ordinances, and business licenses. BFPI staff briefed advisors on policy best practices, existing regulations and ordinances, and brought in subject matter experts to equip the advisors with an understanding of the state of small food retail and potential policy and programmatic tools. RFEAs prioritized changes within the small food retail system to address — this document presents their recommendations to BFPI and other stakeholders.

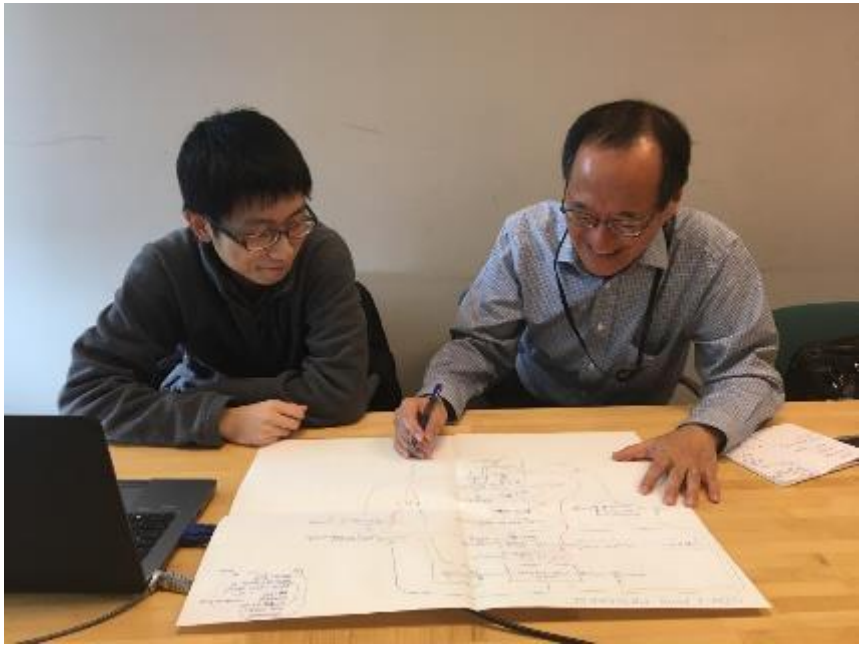
Quality of Food

Shopping Experience

Community & Store Cohesion

Economic Viability

Model Developers

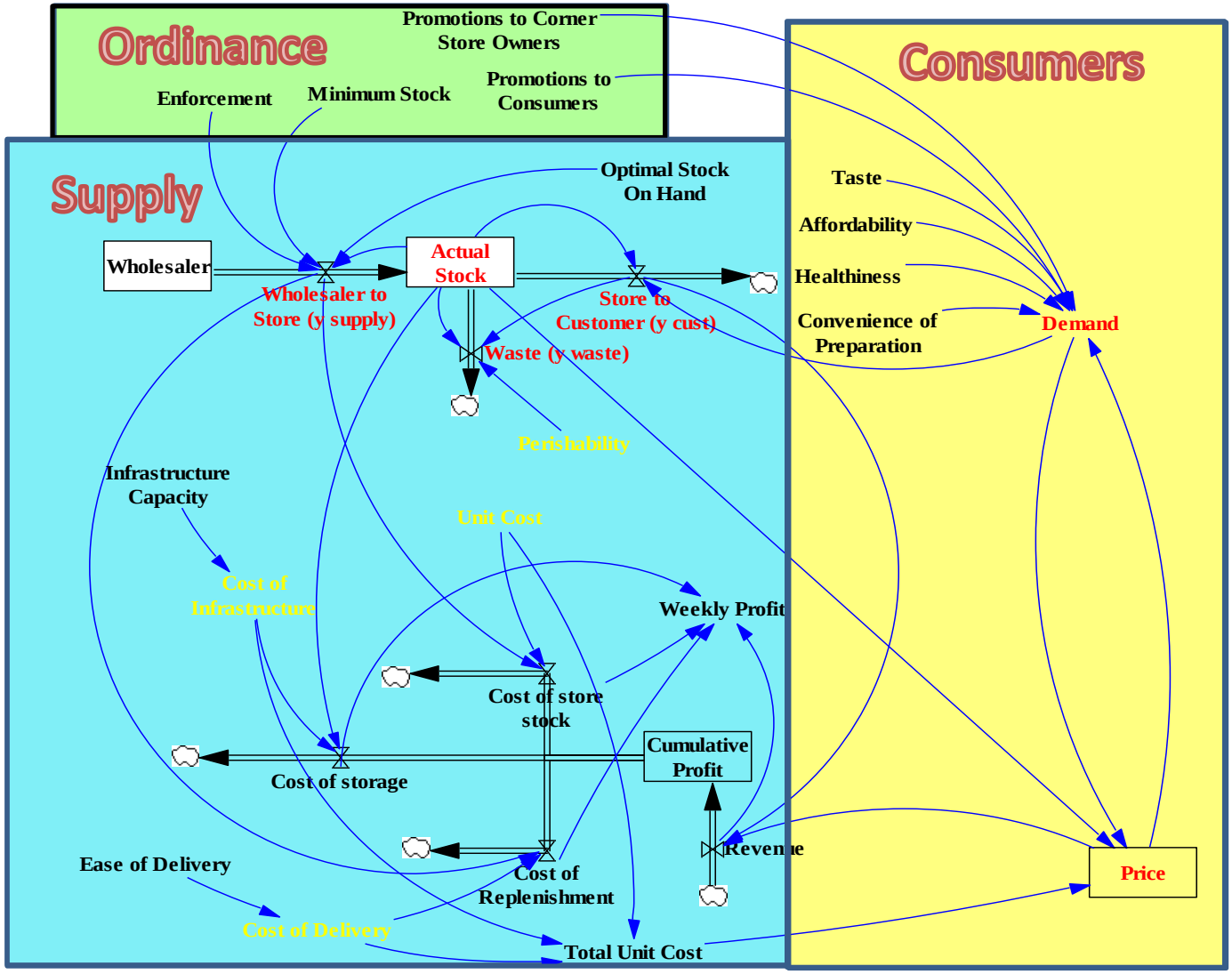


NOPREN

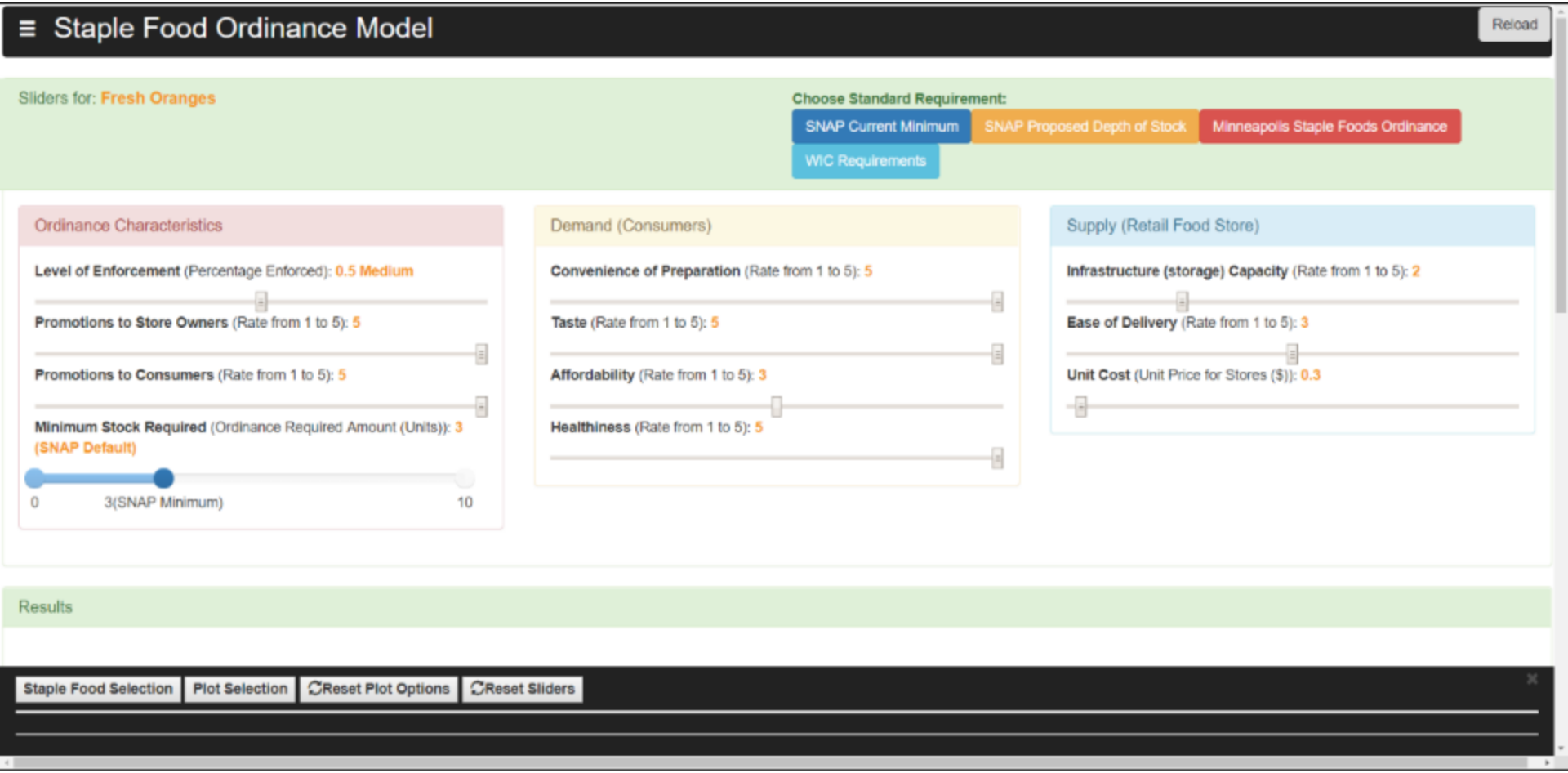
Staple Foods Ordinance Simulation

- To develop a **systems dynamic model** which allows us to simulate inclusion of different foods and beverages in different amounts in the proposed Baltimore staple foods ordinance, and then use the model collaboratively to recommend modifications to the ordinance.

Staple Foods Ordinance Flowchart



User Interface: Home Screen (Ex. Fresh Oranges)



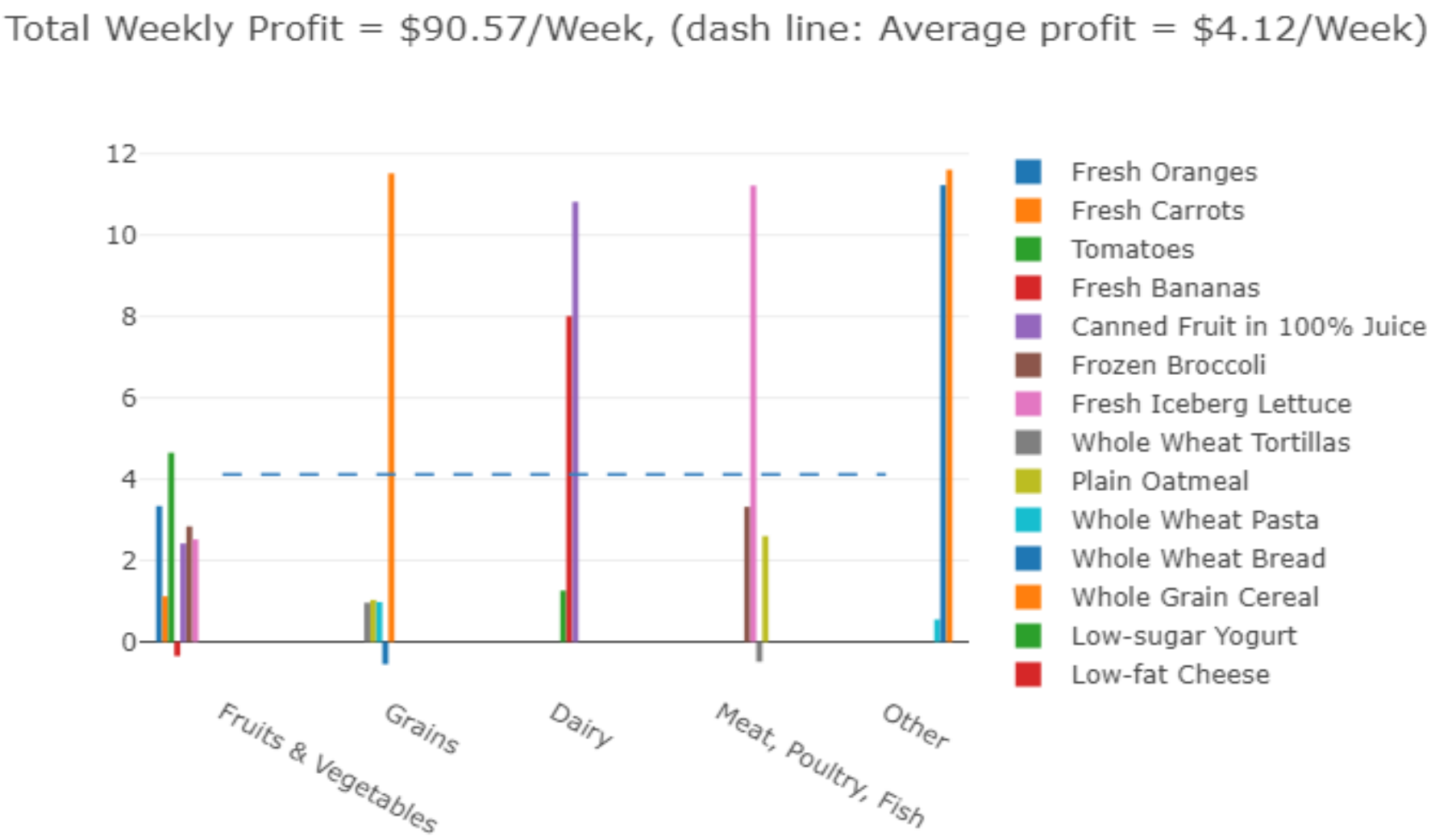
Four Simulations Run

- Basic SNAP
- SNAP Depth of Stock
- Minneapolis Staple Foods Ordinance
- WIC Requirements

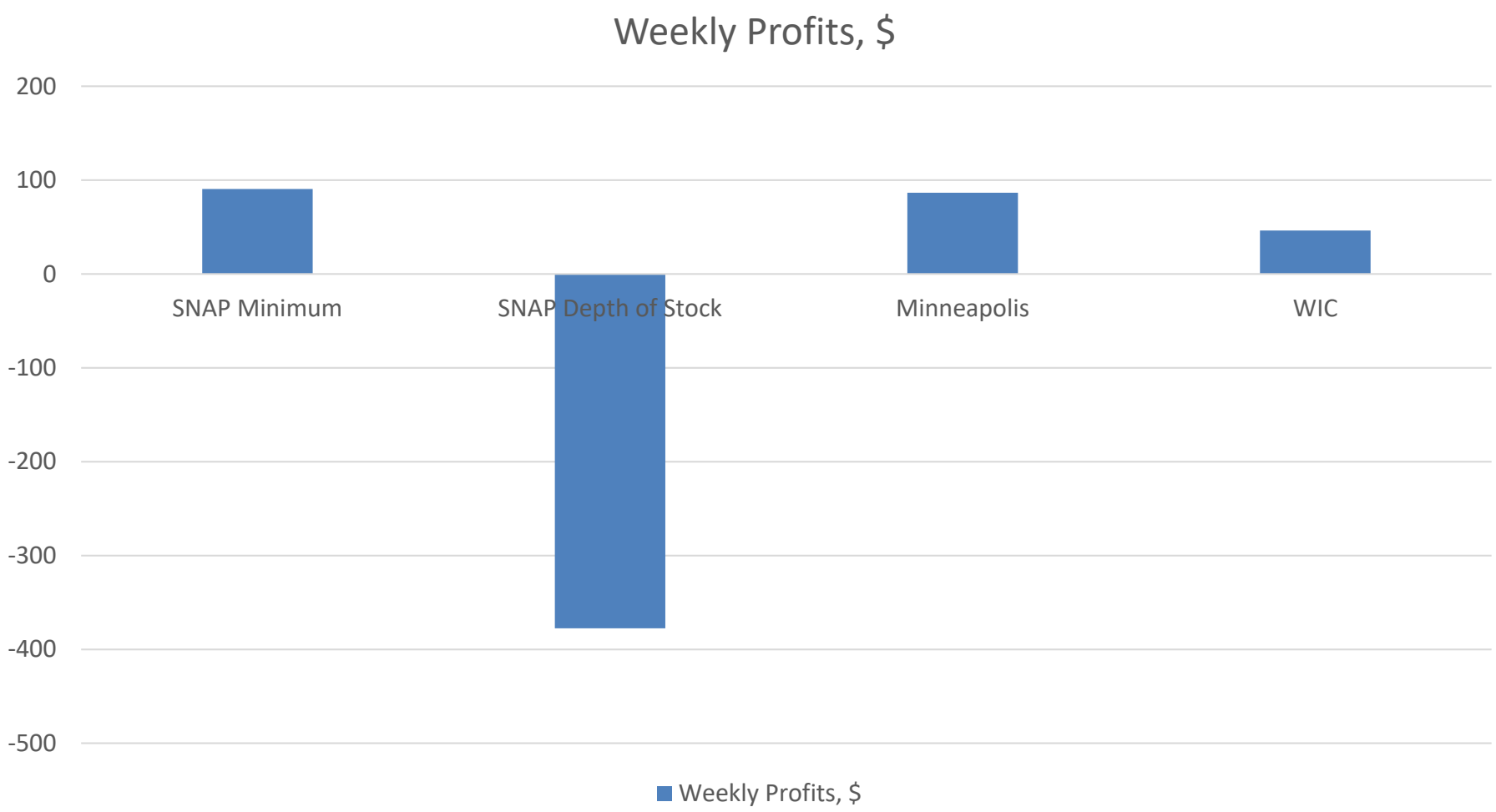
Simulation Details

SFO Simulation	Description	Required Minimum Stock	Enforcement
Basic SNAP	Minimal stocking requirements required to accept SNAP benefits	Low	Moderate
SNAP Depth	Stocking requirements for a food store under the 2016 USDA proposed enhanced depth of stock requirements	High	High
Minneapolis	Stocking requirements used by the Minneapolis SFO	Moderate	Low
WIC	Stocking requirements if the store participated in the WIC program as a vendor	High	High

User Interface: Weekly Profit, SNAP Minimum Requirements



Staple Foods Ordinance Model Simulations: Comparison of Weekly Profits Estimated for 22 Foods



SFO Simulation

Other Outputs:

- Optimal price to set foods
- Amount to order from supplier
- Level of consumer demand
- Waste
- Storage costs, etc.

Corner store owner showing stock

Limitations:

- Model specific to corner stores in Baltimore
- Low income communities
- Current simulation does not yet link to obesity, health

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Summary

Systems modeling can help:

- Better understand and address the complexities of a community
- Serve as a virtual community to test different policies and interventions
- Facilitate communications and engagement within a community
- Bring together diverse stakeholders

Questions and Discussion

Thank you!