

Obesity: Nutrition, economics and policy



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Outline

- Obesity burden
- Explaining the global obesity epidemic
- Economic underpinnings
- Market failure for children
 - Unhealthy food and beverage marketing
- Approach to obesity prevention
 - Cost-effective programs
 - Cost-effective policies
- Directions of the food system





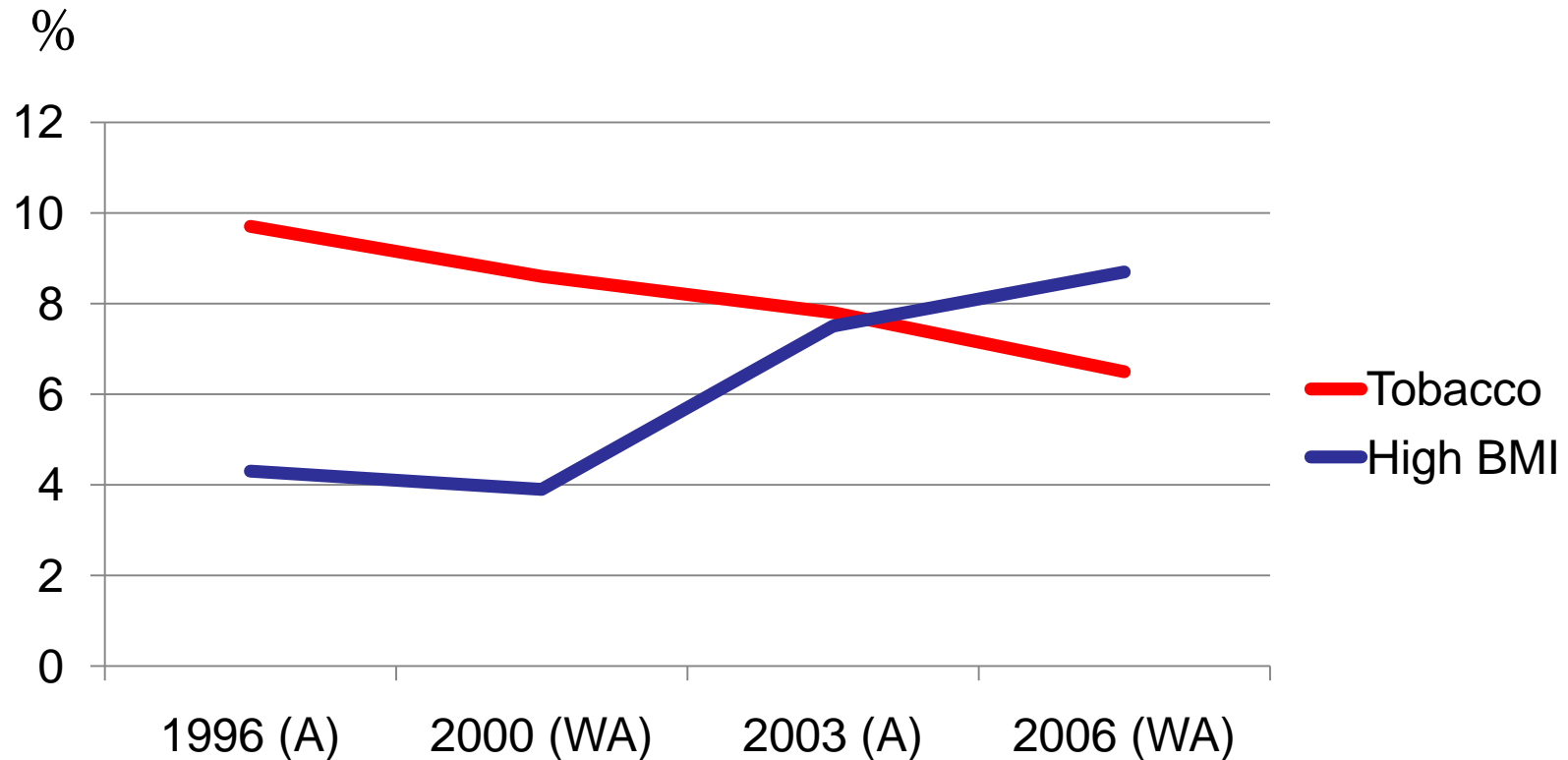
Obesity burden

- Cost of obesity studies
 - AIHW (for 1989-90): \$736m
 - Colagiuri et al (for 2005): \$10.7b
 - Access Economics (for 2008):\$58b
- Many different assumptions and different included costs account for the different results
- For children, carrying a 2-5% reduction of quality of life throughout life is substantial and uncounted





Changing risk factor burden



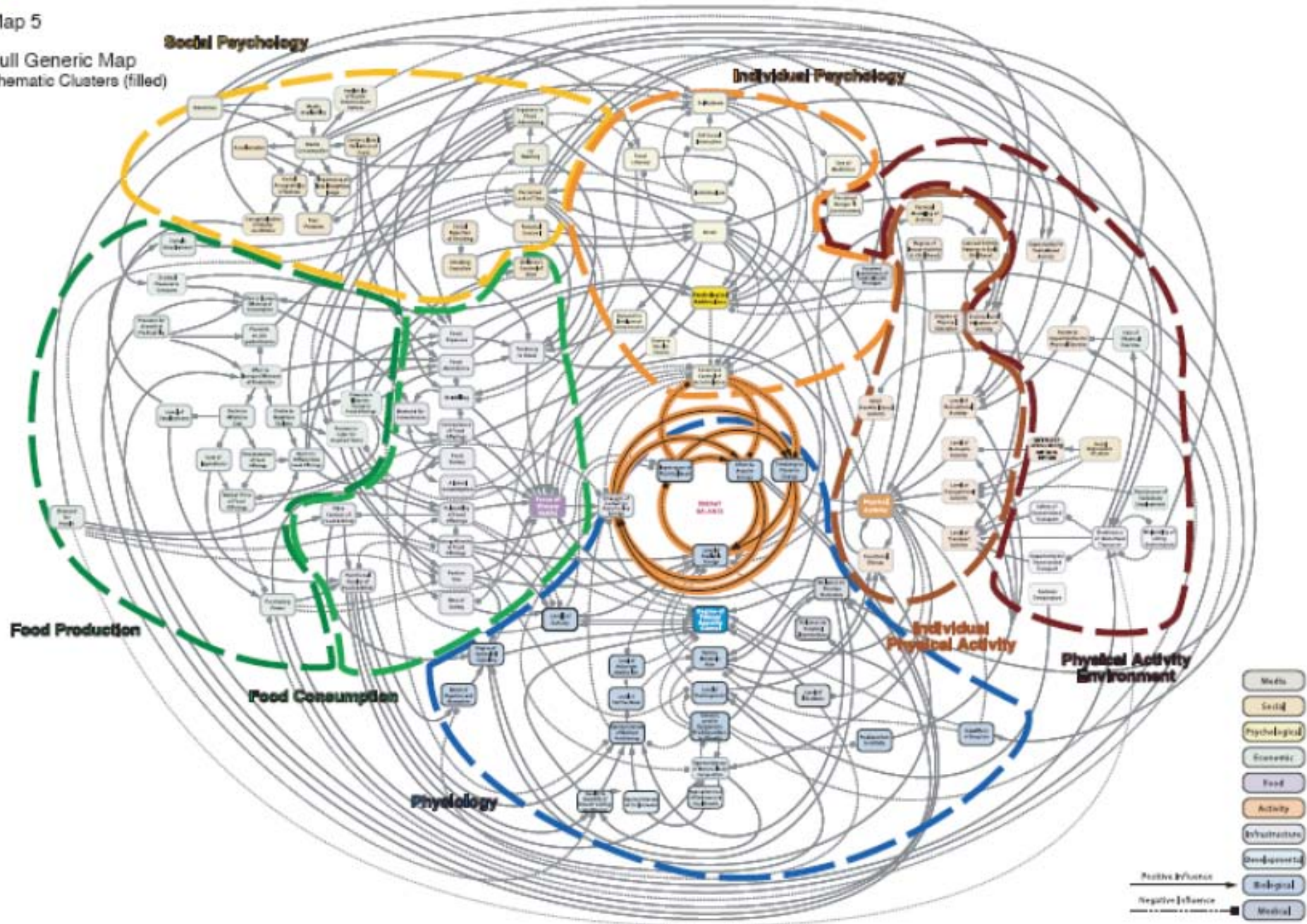
Hoad et al ANZJPH 2010

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Map 5

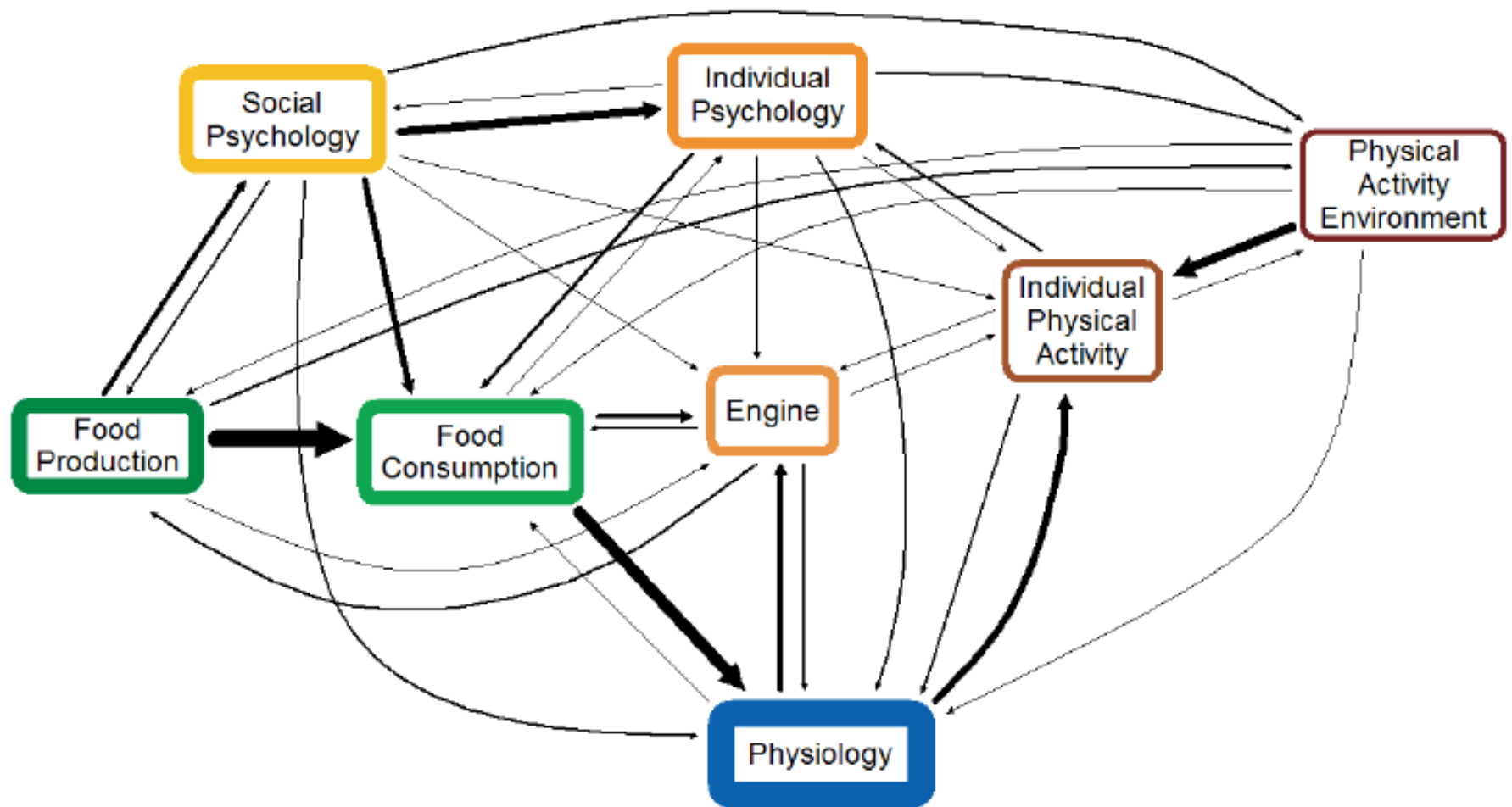
Full Generic Map
Thematic Clusters (filled)



- Media
 - Social
 - Psychological
 - Economic
 - Food
 - Activity
 - Infrastructure
 - Development
 - Biological
 - Medical
- Positive Influence →
Negative Influence - - -

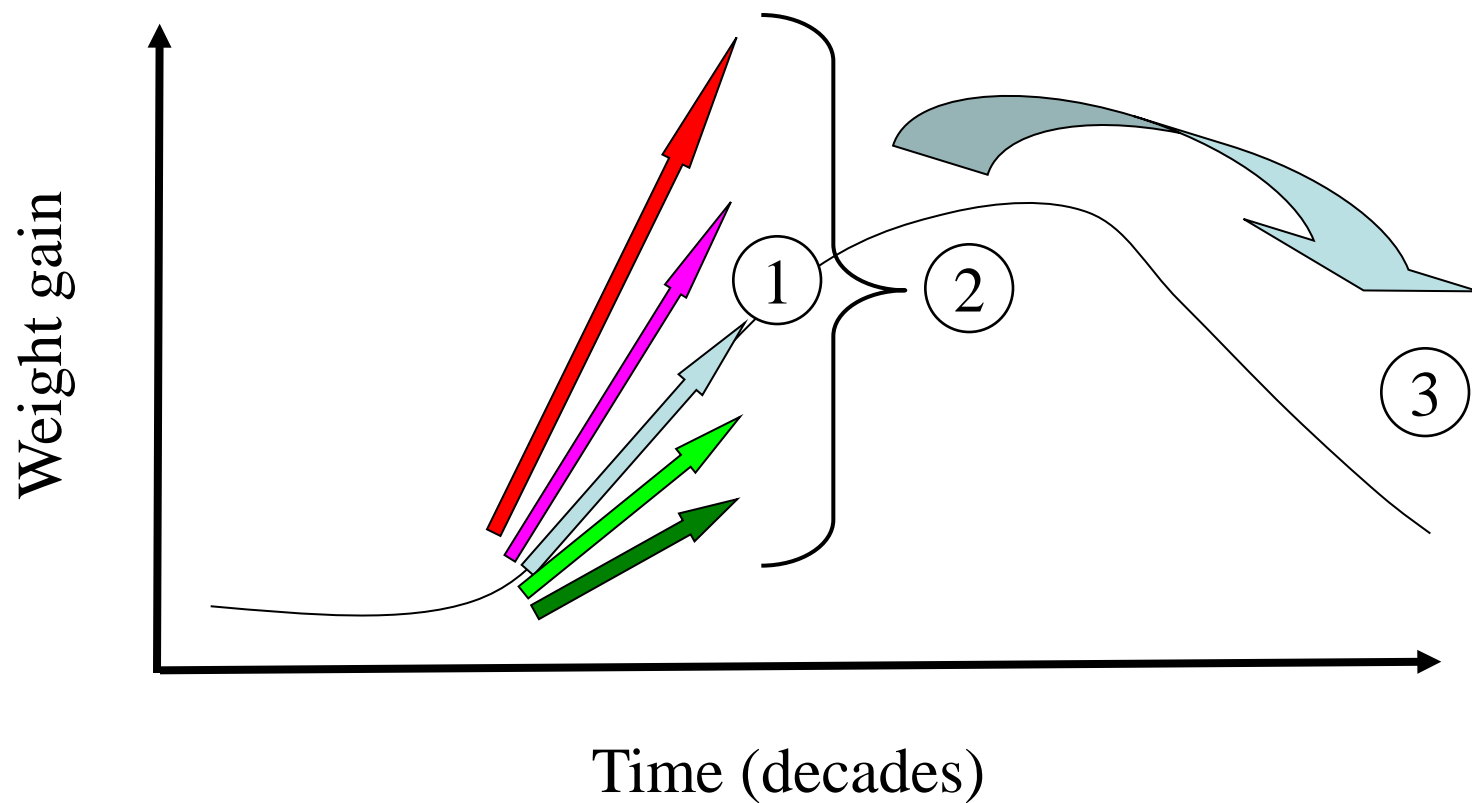


Reduced System Map



From Diane Finegood SFU

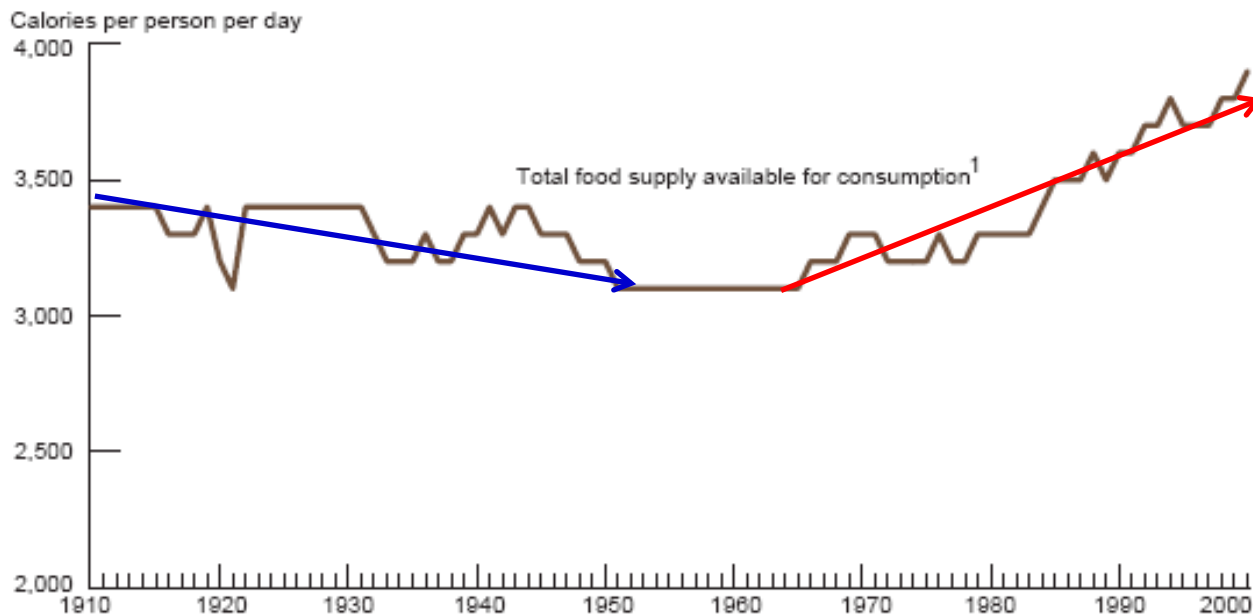
The key questions





Food energy supply, USA 1910-2000

Figure 1—Calories From the U.S. Per Capita Food Supply, Adjusted for Losses, Increased 20 Percent Between 1982 and 2000



¹ Rounded to the nearest hundred.

² Not calculated for years before 1970.

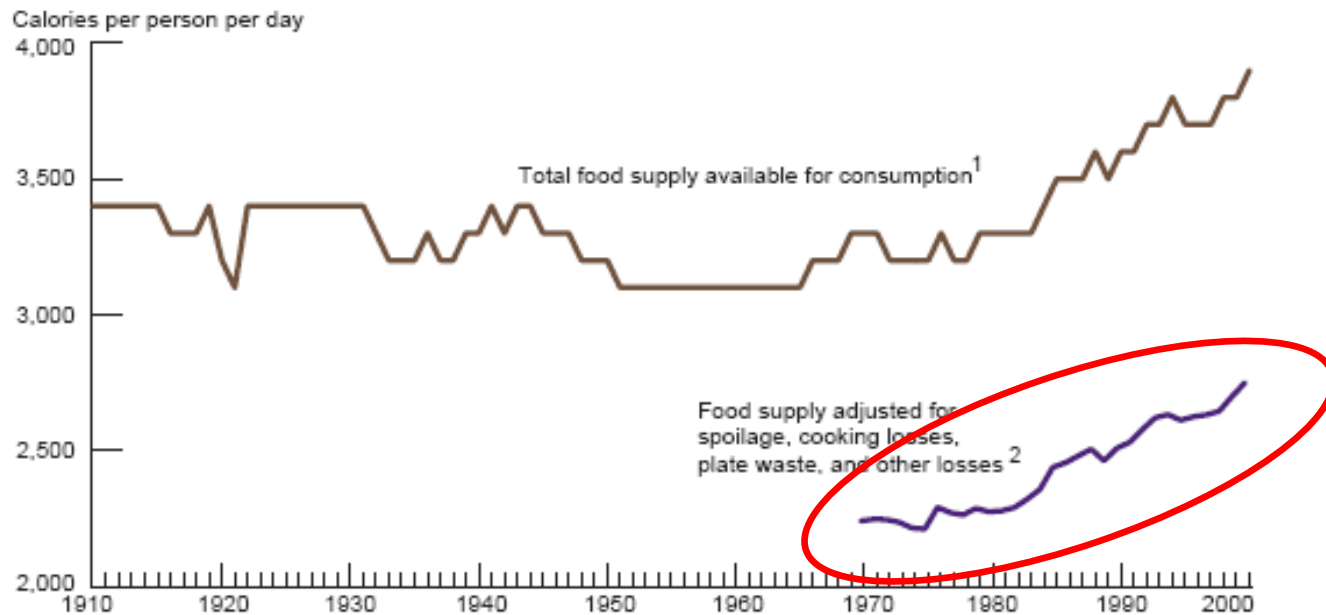
Source: USDA's Center for Nutrition Policy and Promotion; USDA's Economic Research Service.





Food energy supply, USA 1910-2000

Figure 1—Calories From the U.S. Per Capita Food Supply, Adjusted for Losses, Increased 20 Percent Between 1982 and 2000



Rise in food energy supply is more than enough to explain the rise in body weight in the US.
Swinburn et al
AJCN 2009

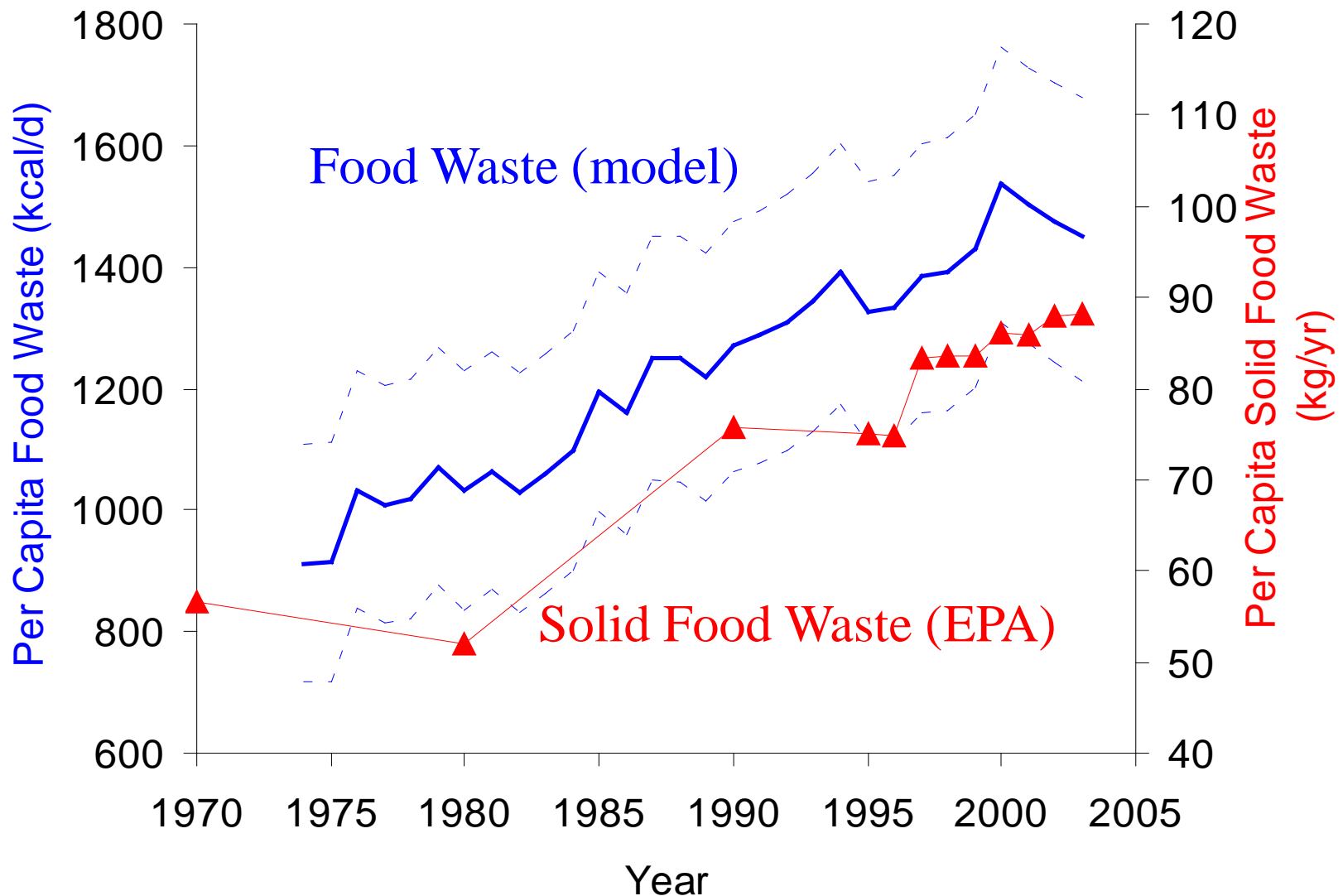
¹ Rounded to the nearest hundred.

² Not calculated for years before 1970.

Source: USDA's Center for Nutrition Policy and Promotion; USDA's Economic Research Service.



U.S. Food Waste





Layers of determinants (1)

1. Individuals

- Behaviours are the final common pathway for energy balance
- ‘Normal people in an obesogenic environment’

2a. Food environment

- Increasingly obesogenic
 - ↓Price, ↑Placement, ↑Promotion, ↑Products (very palatable)
- Other food factors eg culture





Layers of determinants

2b. Physical activity environments

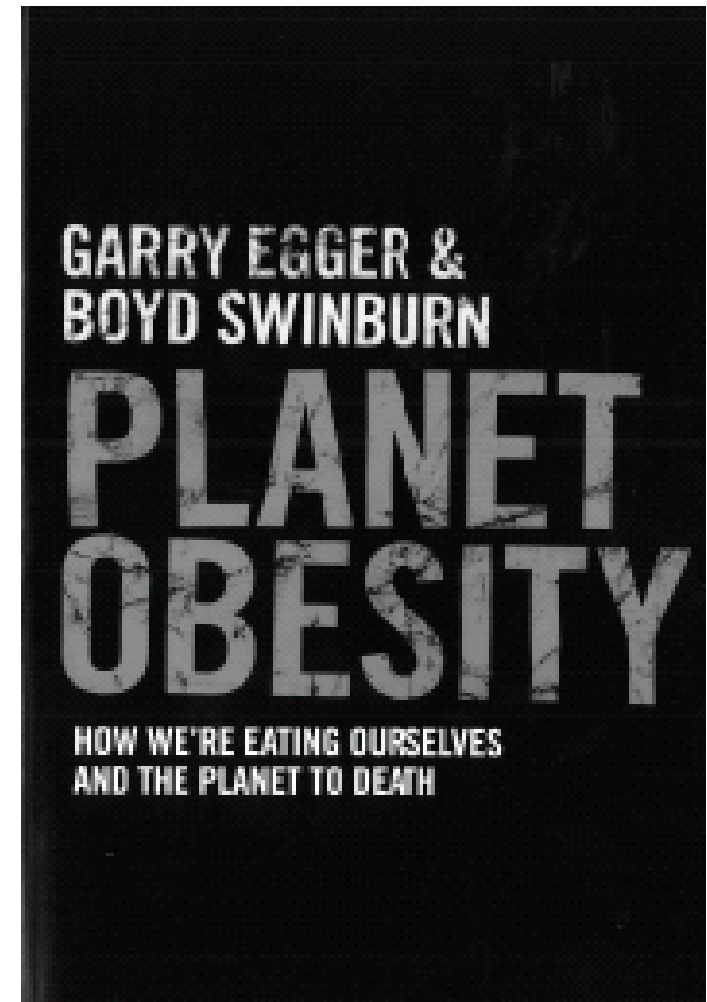
- Slowly changing, mixed directions
- Explains some differences between populations

3. Deeper social, economic, policy determinants

- Social changes eg women working
- ‘Normal businesses in an environment promoting consumption-based growth of the single bottom line’
- Efficient/effective commerce promotes overconsumption (obesity and climate change)



Joining obesity and climate change





Food and beverage marketing to children

- ‘Obesity is a sign of commercial success but market failure’ (Moodie et al, Int J Ped Obesity 2006)
 - Debate about whether there is classic market failure (Crowle & Turner 2010)
 - Other (non-economic) reasons for regulatory restrictions on junk food marketing to children
 - Unethical and a failure to protect the rights of the child eg Sydney Principles (Swinburn et al Public Health Nutr 2007)
 - Public demand (>90% support regulations)
 - Precautionary Principle (face of ↑ childhood obesity)





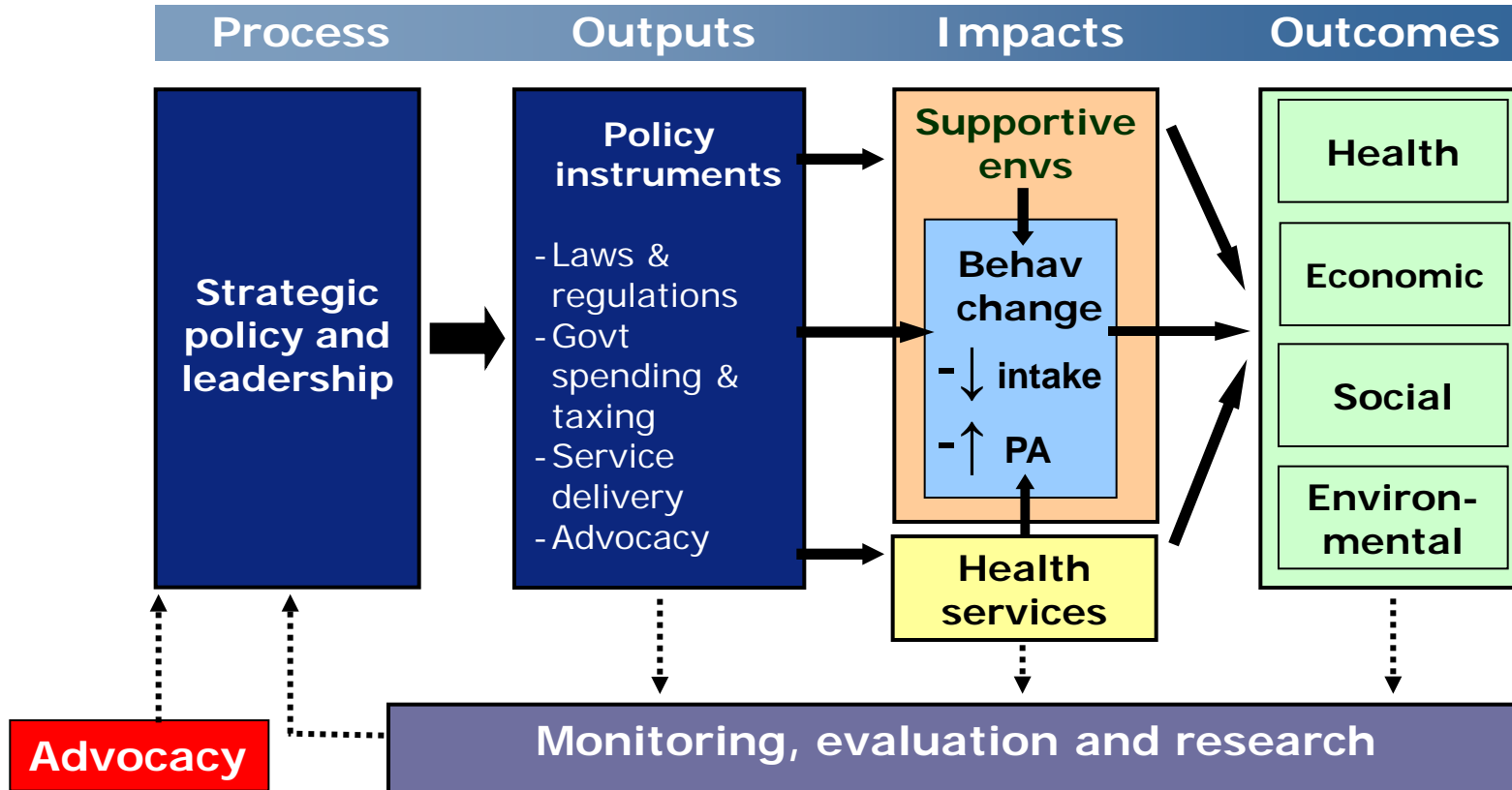
Market failure reasons

1. Vulnerable population who warrant protection from 'demerit' goods
2. Power and information imbalance
 - Children versus persuasive, pervasive marketing (eg IMC)
3. Major time-preference inconsistencies
 - Short-term gratification vs long term goals
4. Externalities – to household and taxpayer
 - Debated on strict economic terms





Obesity prevention policy framework

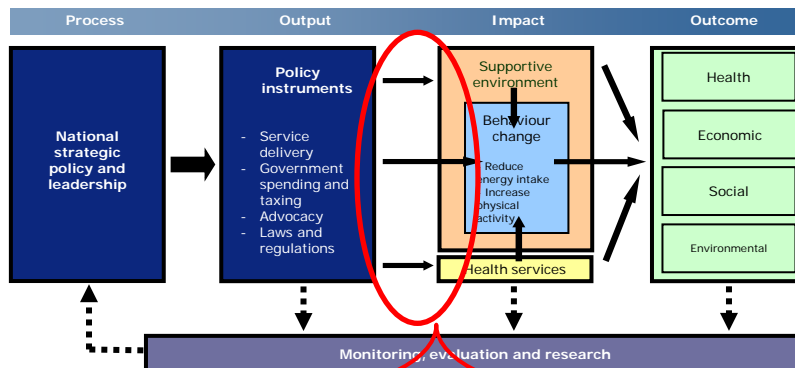


Sacks et al Obesity Reviews 2008 (Adapted from: WHO *Global Strategy on Diet, Physical Activity and Health: A framework to monitor and evaluate implementation*)





Integrating different public health approaches to obesity prevention policies



Socio-ecological (upstream) approach

Policies that shape the economic, social and physical (built and natural) environments

Lifestyle (midstream) approach

Policies that directly influence behaviour (reducing energy intake and increasing physical activity)

Medical (downstream) approach

Policies that support health services and clinical interventions

Policies that influence underlying determinants of health in society

Policies that influence food environments

Policies that influence physical activity environments

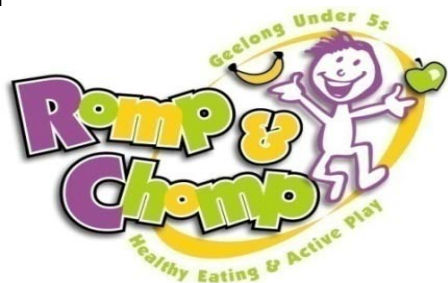




Obesity prevention: some observations

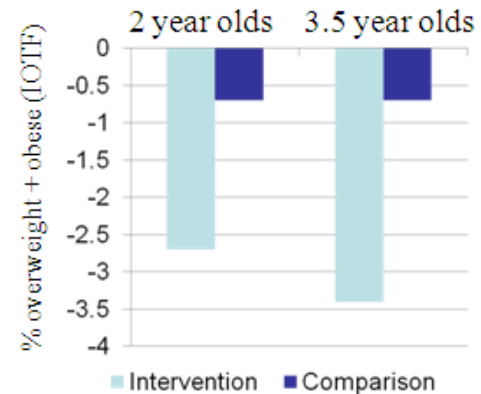
- 30 years of many reports but little progress
 - Contested causes and solutions, uncertain evidence, 'policy cacophony'
- Very poor monitoring (hidden)
- Food system determinants: local to global
- Govt more likely to fund expensive programs than implement low-cost policies
- Major \$\$ commitment through COAG funding
- PHT and Blewett report – need action





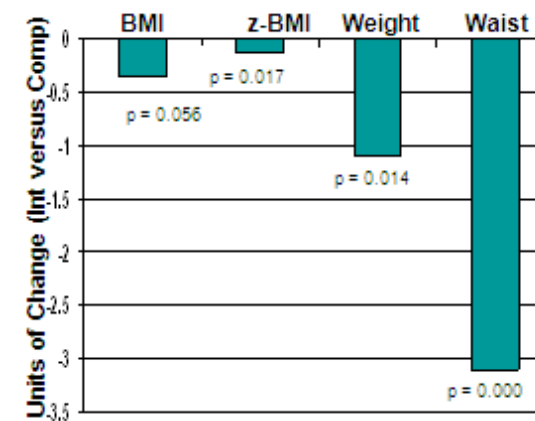
(Geelong) <5s¹
2004-'08

↓ 1.8% (2) & 2.7 % (3.5) over 3 y
\$100k for 12,000 children
Δ behaviours and environments
Δ state prevalence



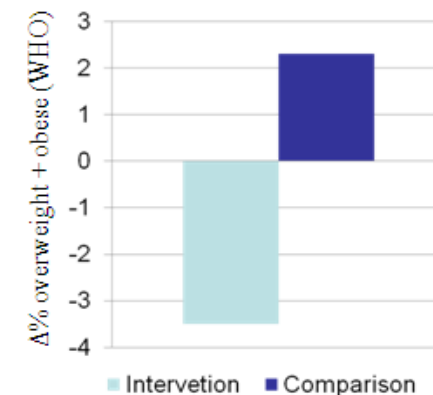
(Colac) 4-12²
2002-'06

↓ ~1kg, 3cm waist over 3y
Greater effect in lower SES children
No Δ 'safety measures'



(E Geelong) 13-18
2004-'08

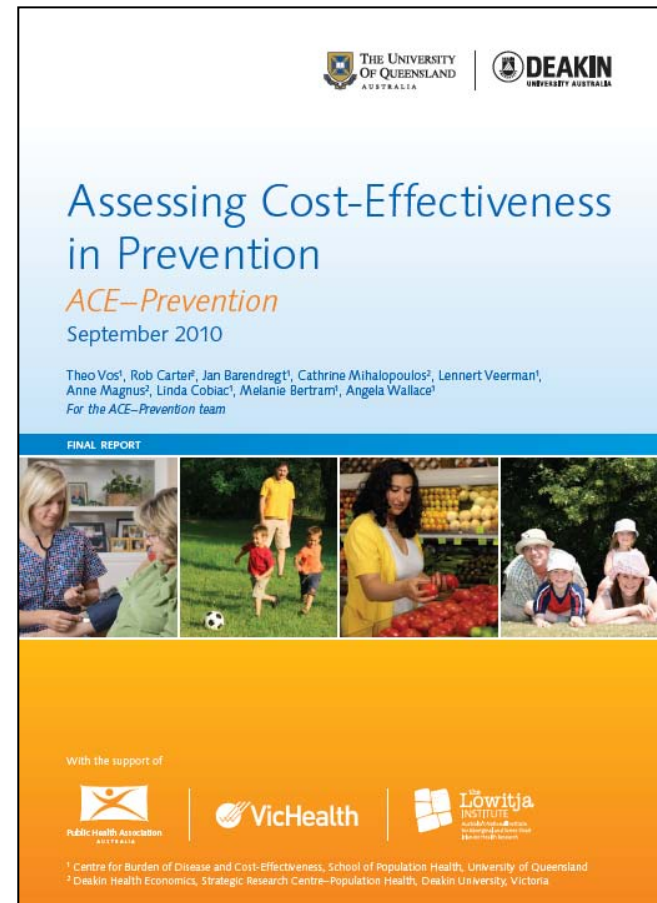
↓ 5.8 % over 3 years
Δ community capacity
Δ in school environments
No Δ behaviours





ACE Modelling studies (R Carter & T Vos)

- Technical analyses
 - Assess costs & health impacts (DALYs) of agreed interventions
- Due process with stakeholders
 - Agree on interventions, assumptions, and implementation filters
- *‘What evidence would it take for policy-makers to act?’*



Intervention	Target population	DALYs saved	Gross costs (AUD \$m)	Net cost per DALY saved (AUD \$m)	Strength of evidence 1=strongest
Unhealthy food and beverage tax (10%)	Adults	170,000	1	Cost-saving ⁶	4)
Reduction of advertising of 'junk food and beverages to children'	Children age 0- 14	37,000	0.13	Cost-saving	2)
Front-of-pack traffic light nutrition labelling	Adults	32,000	4	Cost-saving	5)
School-based education to reduce TV viewing	Primary school children (8-10)	8,600	27.7	Cost-saving	3)
Multi-faceted school-based program including nutrition and physical activity	Primary school children (age 6)	8,000	40	Cost-saving	3)
School-based education program to reduce sugar sweetened drink consumption	Primary school children (7-11)	5,300	3.3	Cost-saving	3)
Family based targeted program for obese children	Obese children (ages 10-11)	2,700	11	Cost-saving	1)
Multi-faceted targeted school-based program	Overweight/obese primary school children (ages 7-10)	270	0.56	Cost-saving	3)
Gastric banding – adults	Adults BMI>35	140,000	120	5,800	1)
Family-based GP-mediated program	Overweight/ moderately obese children (ages 5-9)	510	6.3	4,700	3)
Gastric banding - adolescents	Severely obese adolescents (ages 14-19)	12,300	130	4,400	1)
Multi-faceted school-based program without an active physical activity component	Primary school children (age 6)	1,600	51.2	21,300	3)
Diet and exercise	Adults BMI >25	3,000	140	28,000	1)
Low fat diet	Adults BMI>25	1,900	94	37,000	1)
Active After Schools Communities Program	Primary school children (5-11)	450	40.3	82,000	5)
Weight Watchers	Adults	54	5	84,000	1)
Lighten Up Healthy Lifestyle weight loss program	Adults	38	4	94,000	4)
TravelSMART Schools	Primary school children	90	13.1	117,000	4)
Orlistat	Adults BMI>30	2,100	1,500	700,000	1)
Walking School Bus	Primary school children	450	40.2	760,000	3)

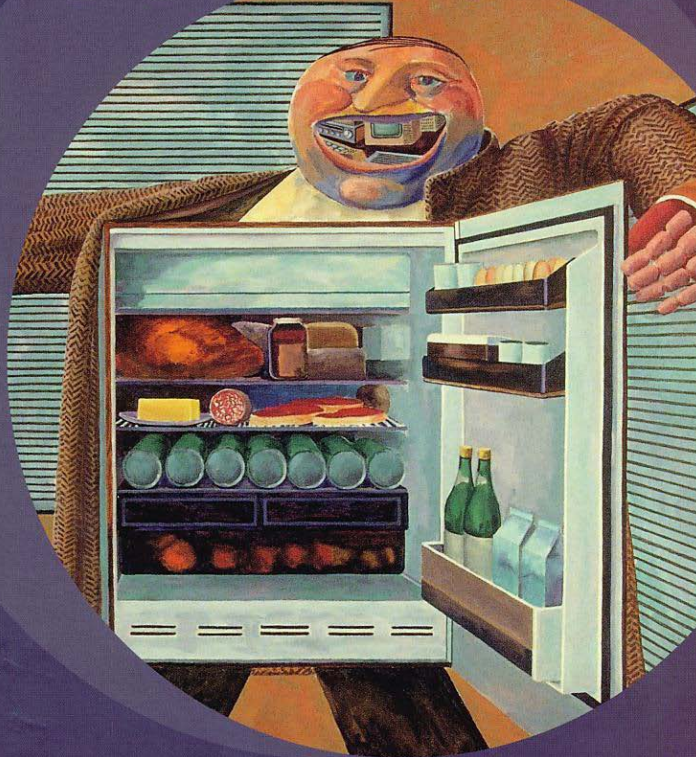


Interventions

- Policy interventions (usually effective and cost saving)
 - **Priorities**
 - Bans on junk food marketing to children
 - Public sector healthy food service policies
 - Traffic light front-of-pack labelling
 - Fiscal interventions (eg SSB tax, F&V subsidies)
- Programs (increasing evidence of effectiveness)
 - **Systems-oriented, multi-setting, child-focused**
- Health care interventions

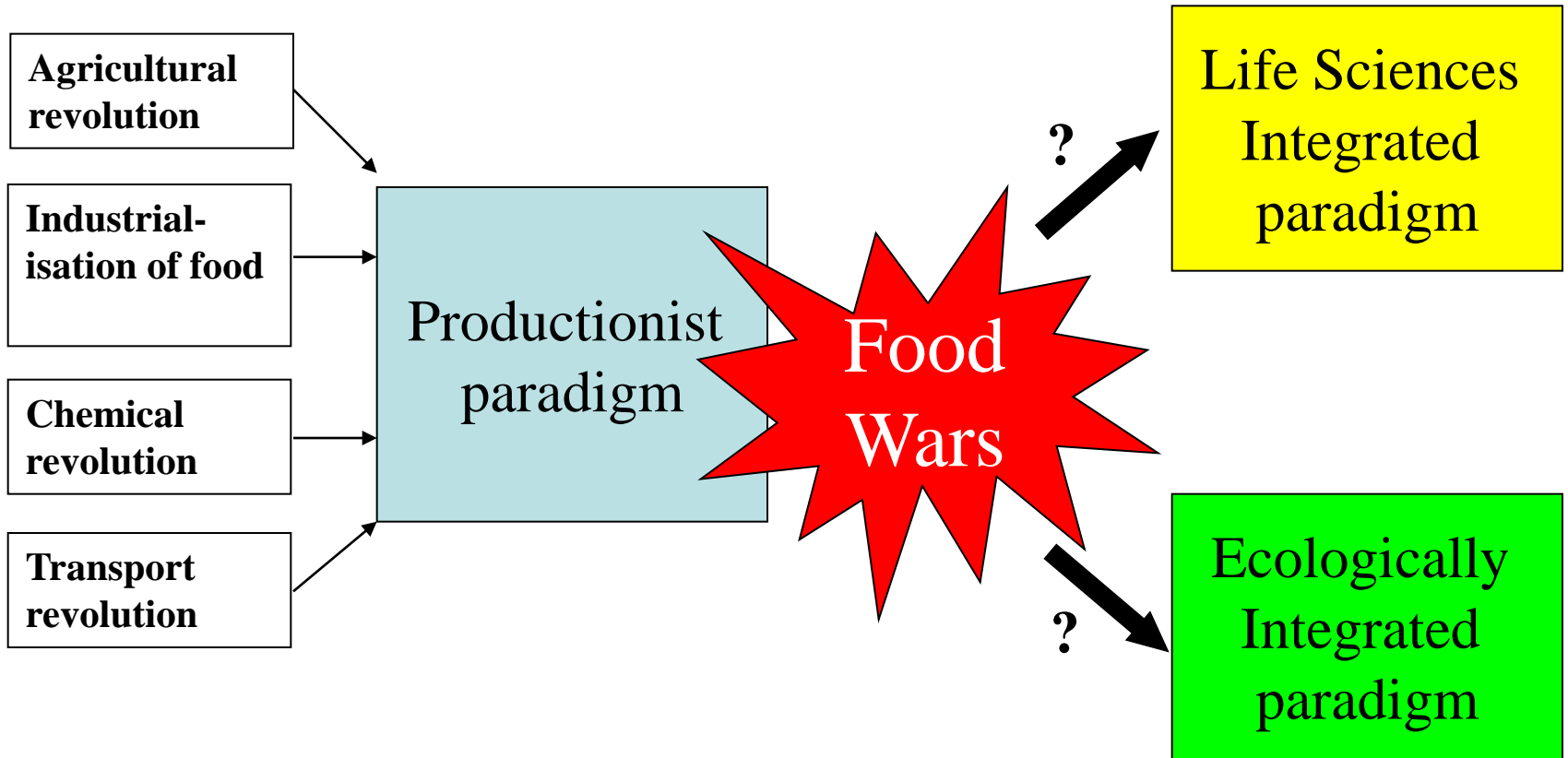


Food Wars



The Global Battle for **Mouths,**
Minds and Markets

Tim Lang and **Michael Heasman**



**Agricultural
revolution**

**Industrial-
isation of food**

**Chemical
revolution**

**Transport
revolution**

**Productionist
paradigm**

**Food
Wars**

**Life Sciences
Integrated
paradigm**

**Ecologically
Integrated
paradigm**

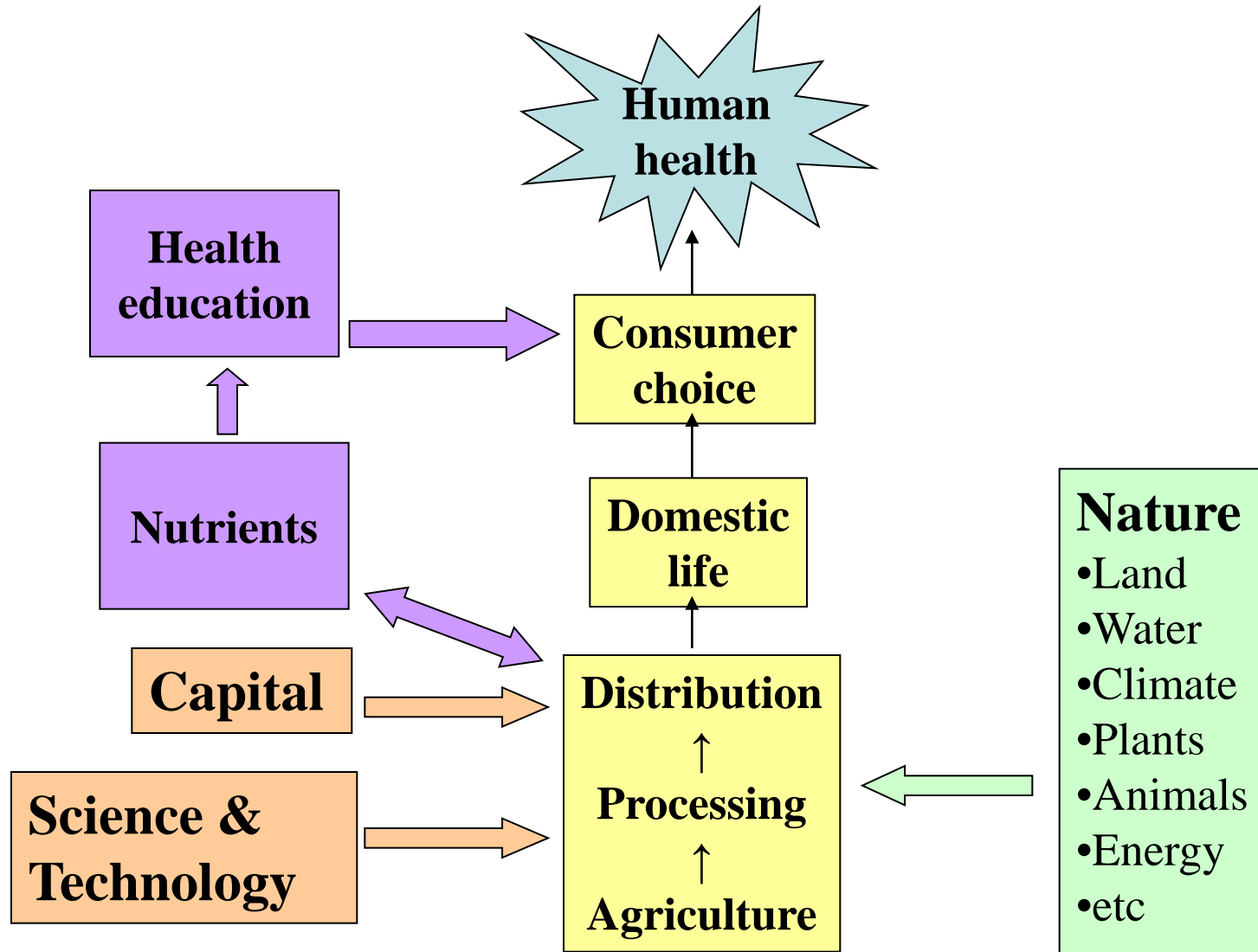


Conclusions

- Obesity is a major and rising burden
- The increase in mean body weight is predominantly driven by \uparrow energy intake
- Individuals respond 'normally' to an obesogenic environment
- Private sector responds 'normally' to the consumption-based growth policies
- Obesity: a commercial success but market failure
- Cost-effective policies are available and should be used as recommended



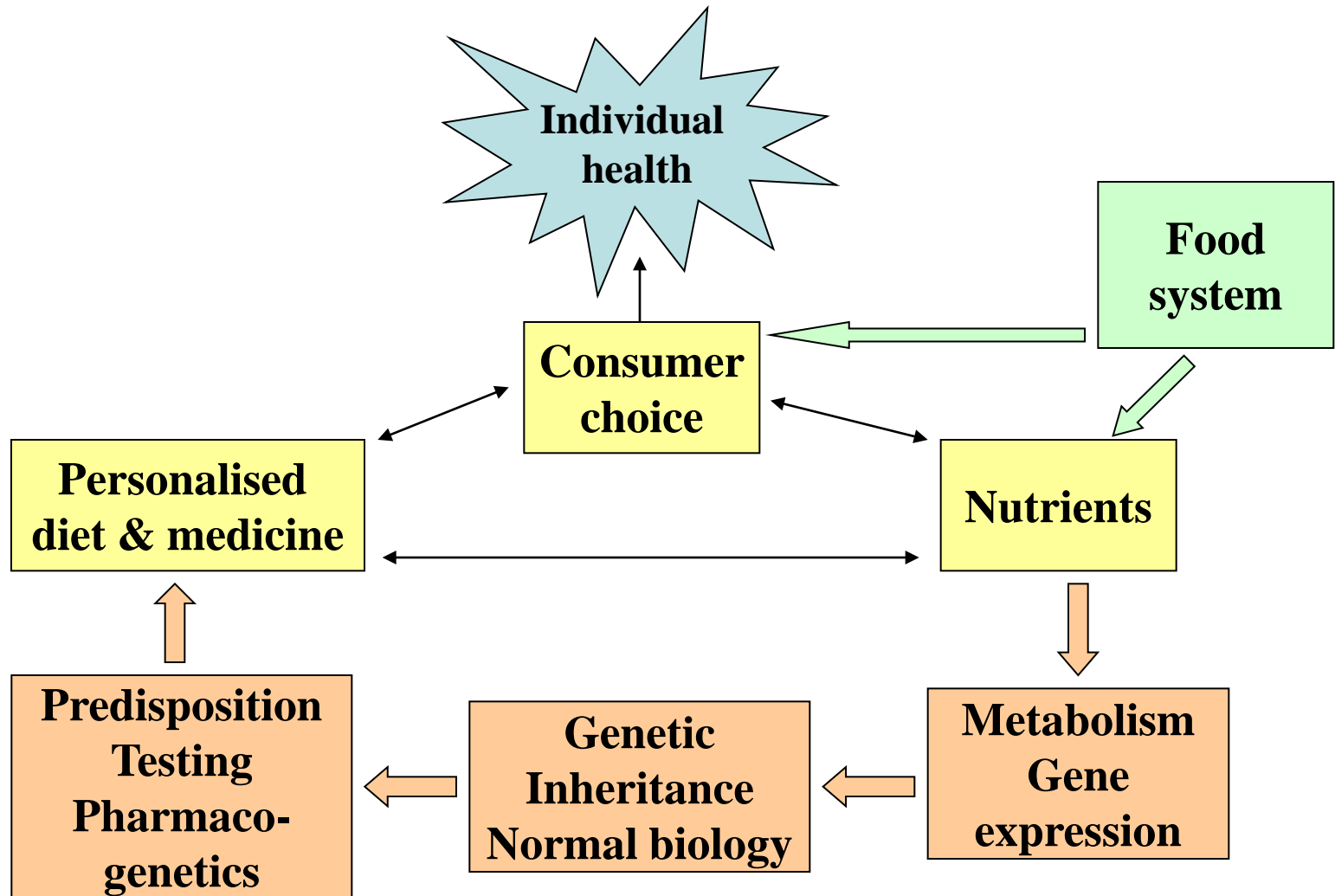
Productionist paradigm



‘Productionist’ features

- *Drivers*: raise output, mass markets
- *Approach*: quantity, efficiency, monoculture
- *Science*: agriculture, chemistry
- *Policy*: agriculture (subsidies)
- *Consumers*: price, convenience, safety
- *Problems*:
 - Overconsumption; unsustainable; uni-dimensional; health, environmental & social impacts (externalised costs)

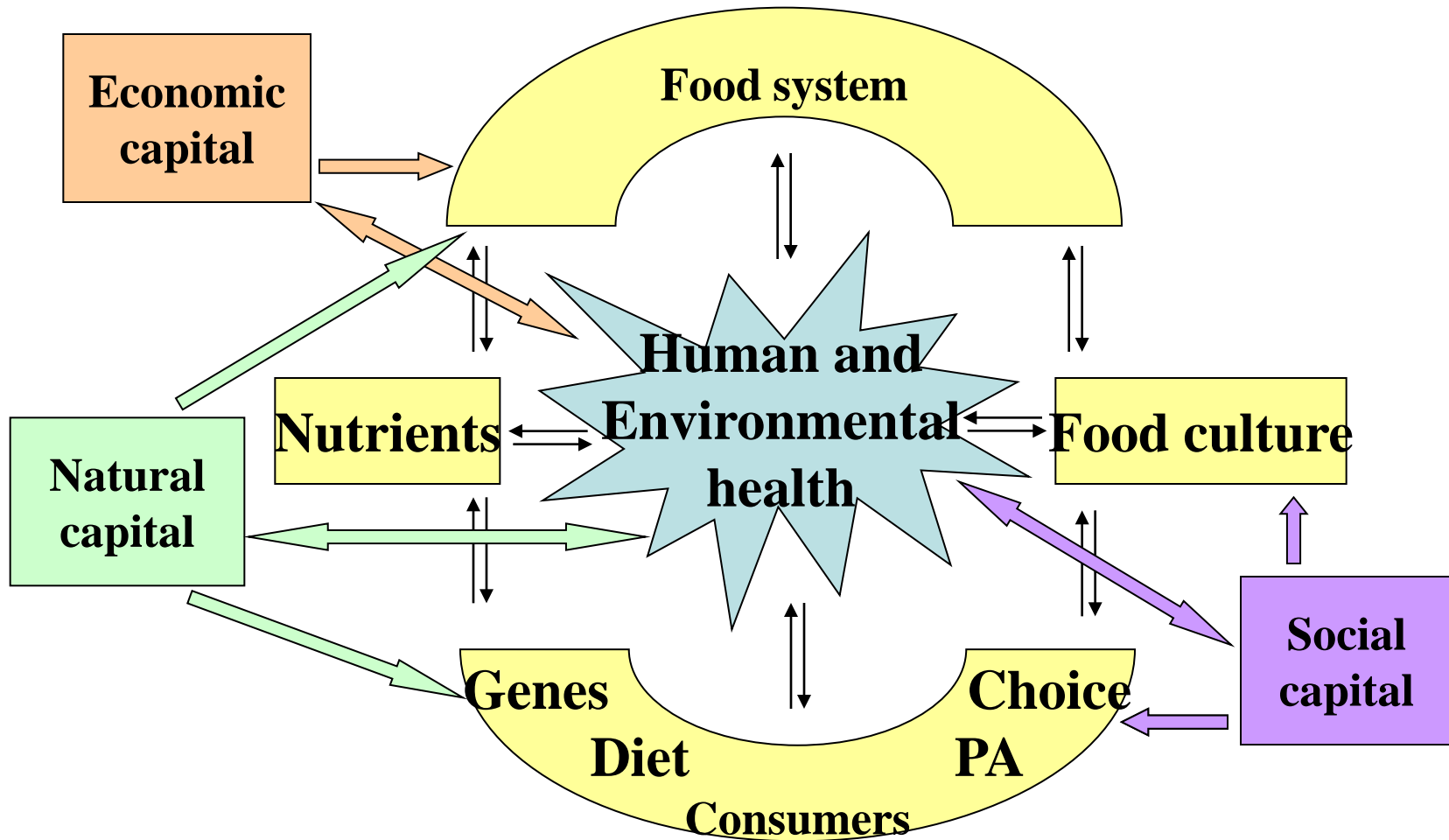
Life Sciences Paradigm



'Life Science' features

- *Drivers*: science, control food chain
- *Approach*: biotechnology (GM), monoculture
- *Science*: genetics, nutrition, biotech
- *Policy*: expert-led, trade/finance, challenges
regs
- *Consumers*: individual health, functional
foods
- *Problems*:
 - Unproven impacts; technology solutions (magic bullet); rich/poor divide; consumer resistance; sustainability; food industry as nutrition educators

Ecological paradigm



‘Ecological’ features

- *Drivers*: environments, diversity, waste reduction
- *Approach*: local/regional, organic, internalise costs
- *Science*: ecology, biology, some technology
- *Policy*: partnership (govt, industry, civil society)
- *Consumers*: citizens, broad health definitions
- *Problems*:
 - Unproven feasibility, weak political base (fringe); more difficult to quantify benefits; intensive local specialist knowledge; higher prices with internalised costs