

UN-SCN Meeting of the minds on Nutrition Impact of Food Systems
Geneva, 25-28 March 2013

The new role of industrial food
processing in food systems and its
impact on nutrition and health – a
perspective from the *South*

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Diets based on meals prepared with minimally processed foods and processed culinary ingredients

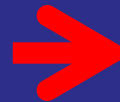


Diets based on ready-to-consume ultra-processed products (factory-to-table products)

Industrial food processing is now of the main shaping force of the global food system, and the main determinant of the nature of diets and related states of health and well-being



Diets based on meals prepared with minimally processed foods and processed culinary ingredients



Diets based on ready-to-consume ultra-processed products (factory-to-table products)

The new role of food processing in food systems and its impact on nutrition and health

- Types of food processing and potential impact on nutrition and health
- What is wrong with ultra-processing?
- Big Food going South: the `snack attack`
- The counterattack: public actions to promote traditional food systems and healthy diets

Monteiro C. (2009). Nutrition and health. The issue is not food, nor nutrients, so much as processing. ***Public Health Nutr*** 12: 729-31.

Monteiro C, Gomes F, and Cannon G. (2010) The snack attack. ***Am J Public Health***, 100 (6): 975-981.

Monteiro C et al. (2011) Increasing consumption of ultra-processed foods and likely impact on human health: evidence from Brazil. ***Public Health Nutr*** 14: 5-13.

Monteiro C and Cannon G. (2012) The Impact of Transnational 'Big Food' Companies on the South: A View from Brazil. ***PLoS Medicine***, 03 Jul 2012

Moubarac J-C et al (2012) Consumption of ultra-processed foods and likely impact on human health. Evidence from Canada. ***Public Health Nut*** 15: 1-9.

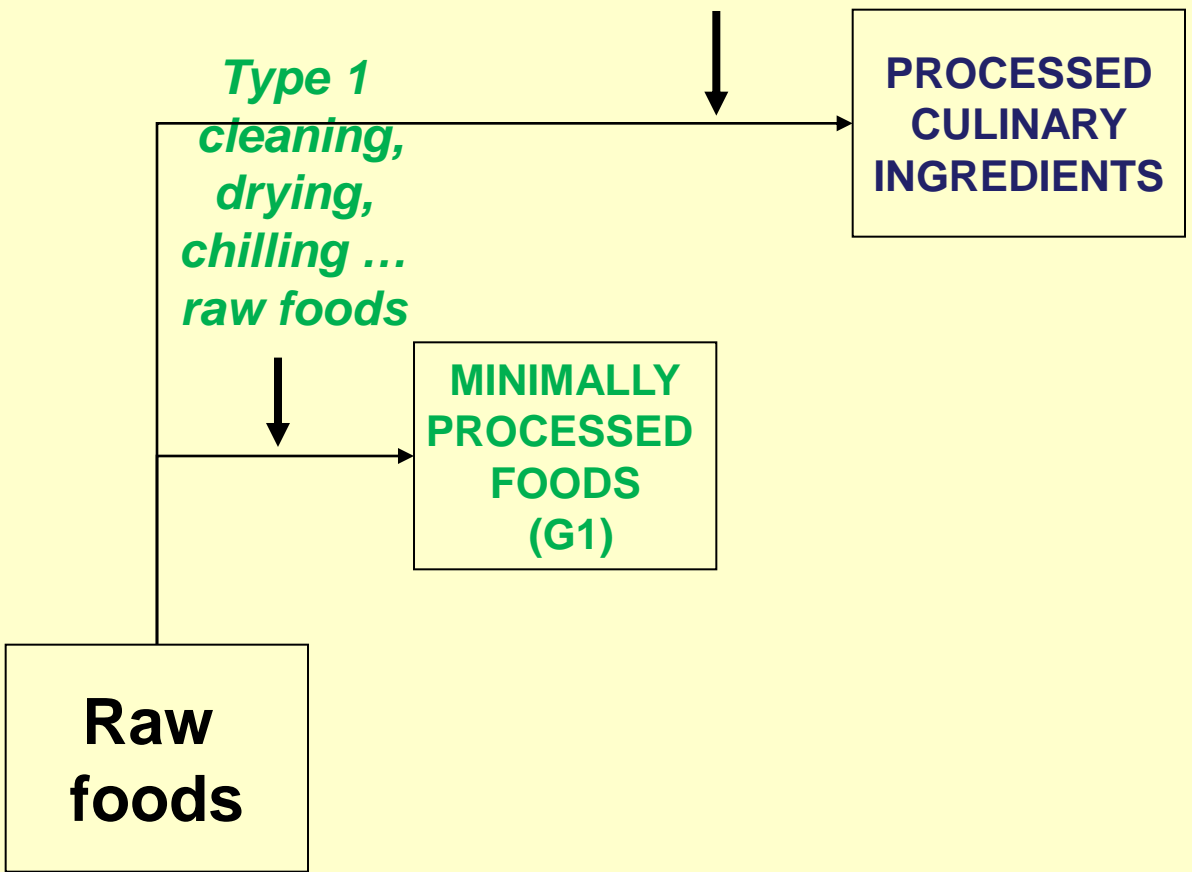
Moodie R, Stuckler D, Monteiro C et al (2013) Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. ***The Lancet***, Feb 12.

Moubarac J-C et al (2013) International differences in cost and consumption of ready-to-consume food and drink products: United Kingdom and Brazil, 2008-2009. ***Global Public Health*** (accepted)

- **Food processing:** a series of methods employed by the industry to convert raw foods into:
 - ✓ **minimally processed foods** which are less perishable and often require less time and effort with preparation and cooking; or
 - ✓ **processed culinary ingredients** which are used in the preparation of food-based dishes and meals; or
 - ✓ **ultra-processed ready-to-consume products** which are used to replace foods and freshly prepared food-based dishes and meals.

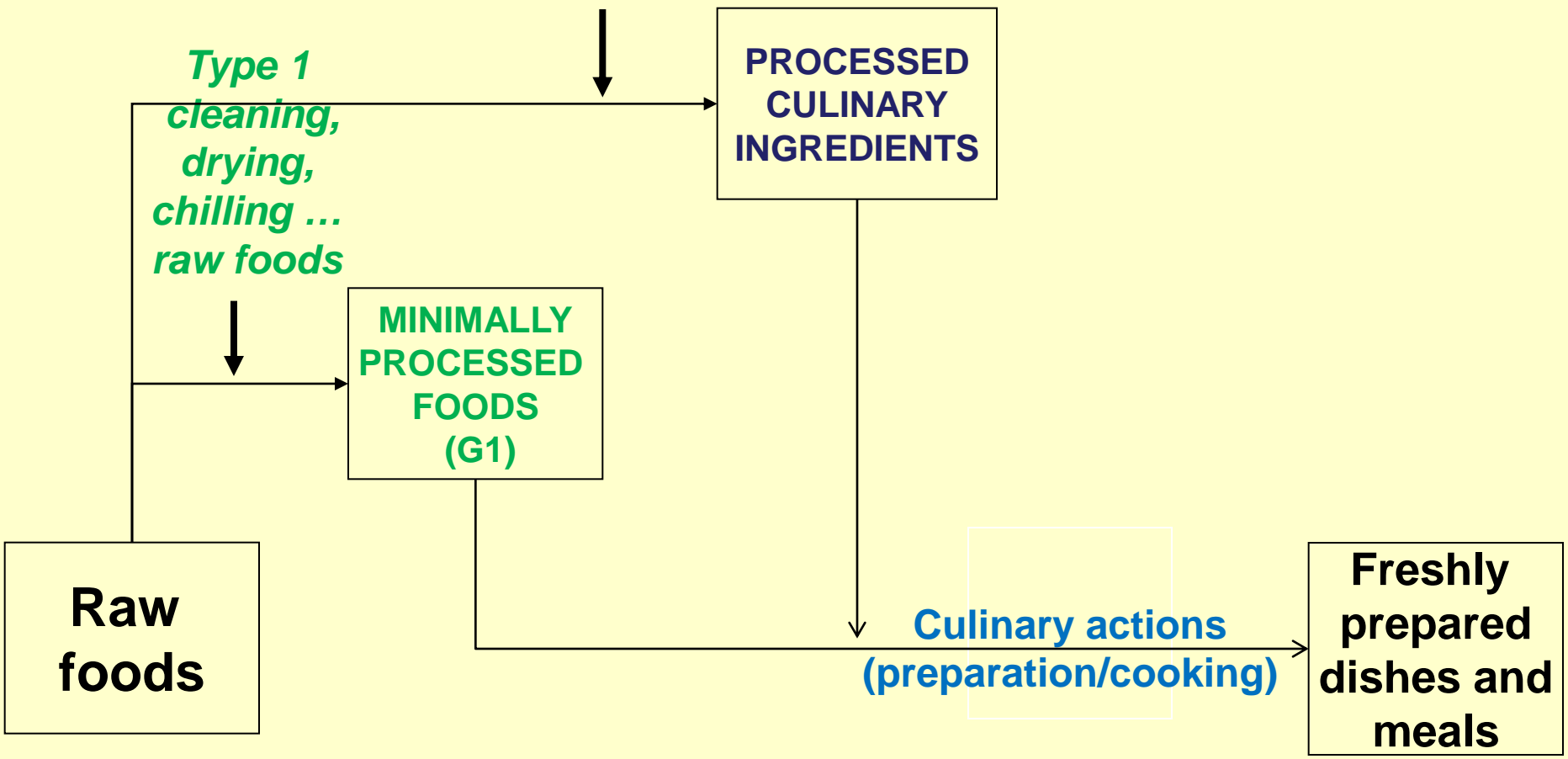
Types of food processing in the food chain

Type 2
Extraction and refinement
of substances from raw foods



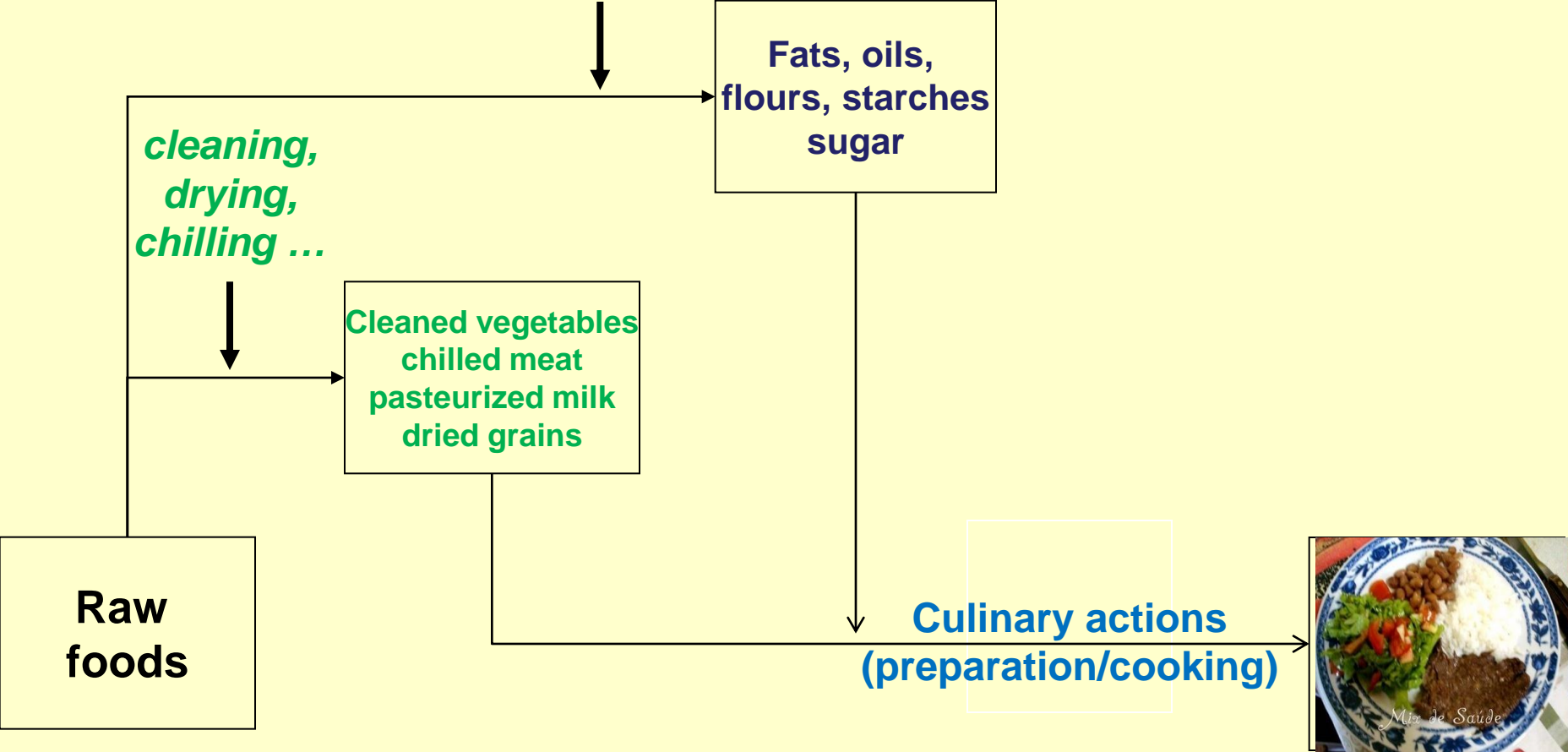
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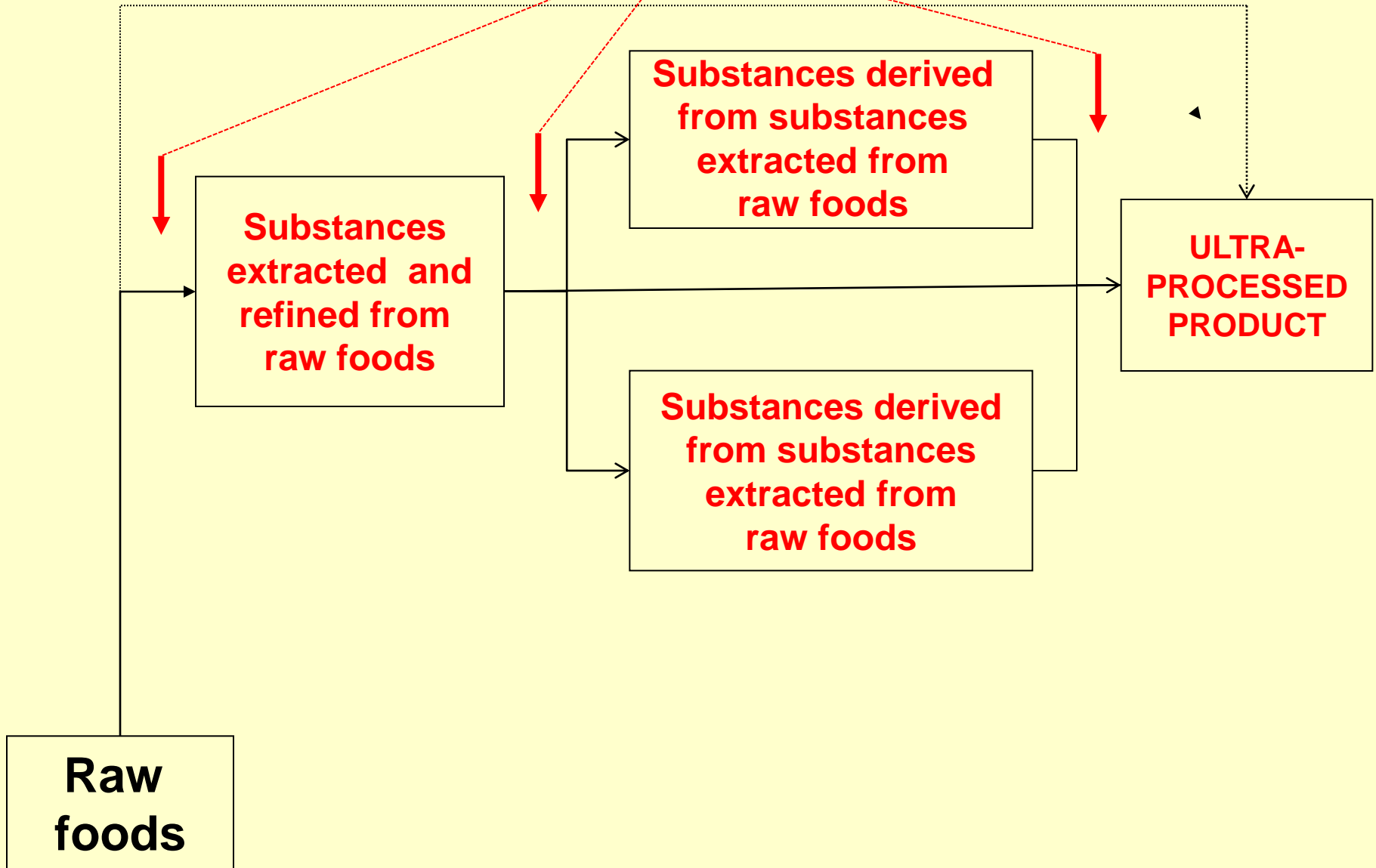


Minimally processed foods plus processed culinary ingredients when properly combined result in nutritionally balanced and highly palatable dishes and meals

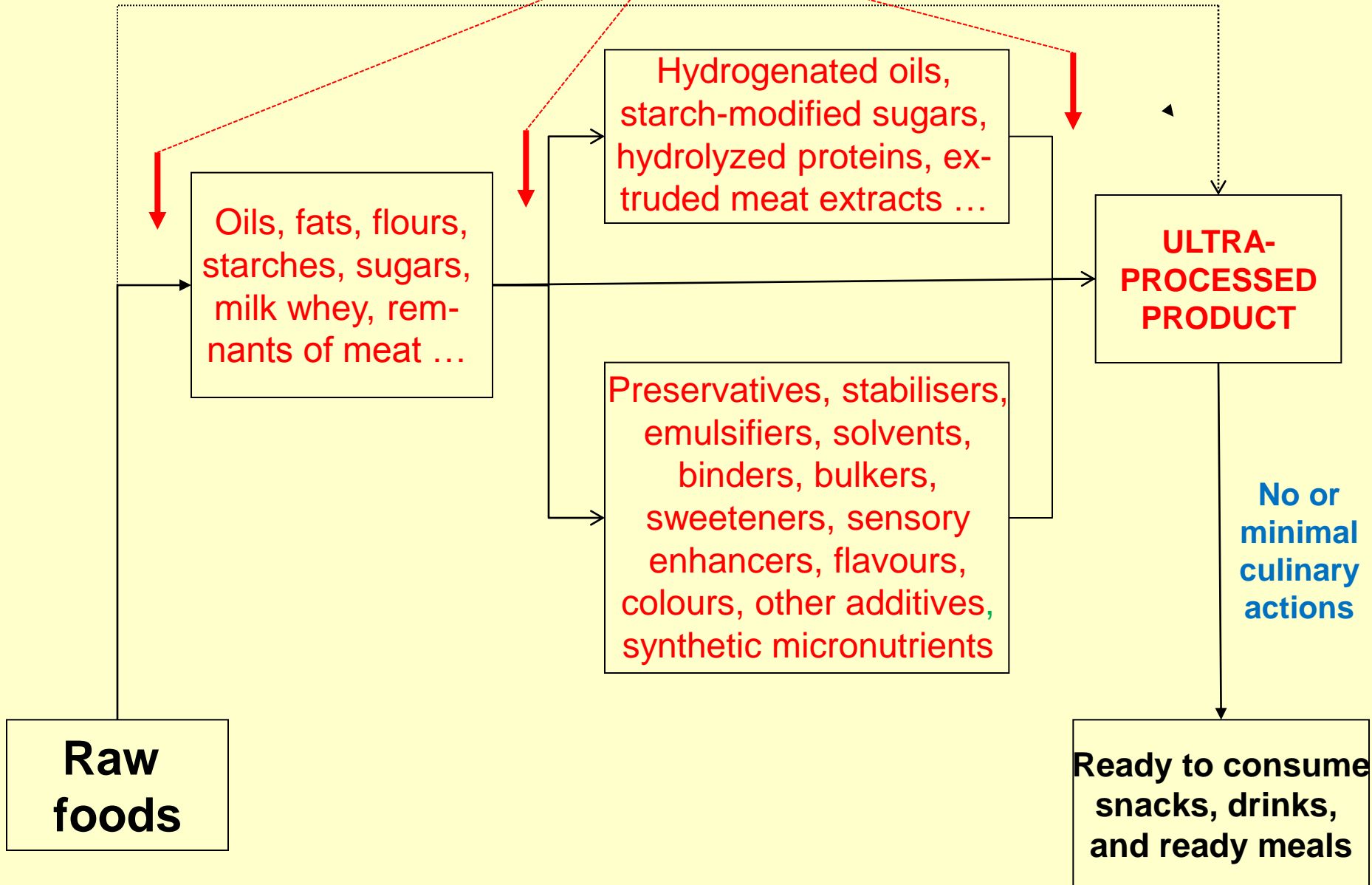
**Extraction and refinement
of substances from raw foods**



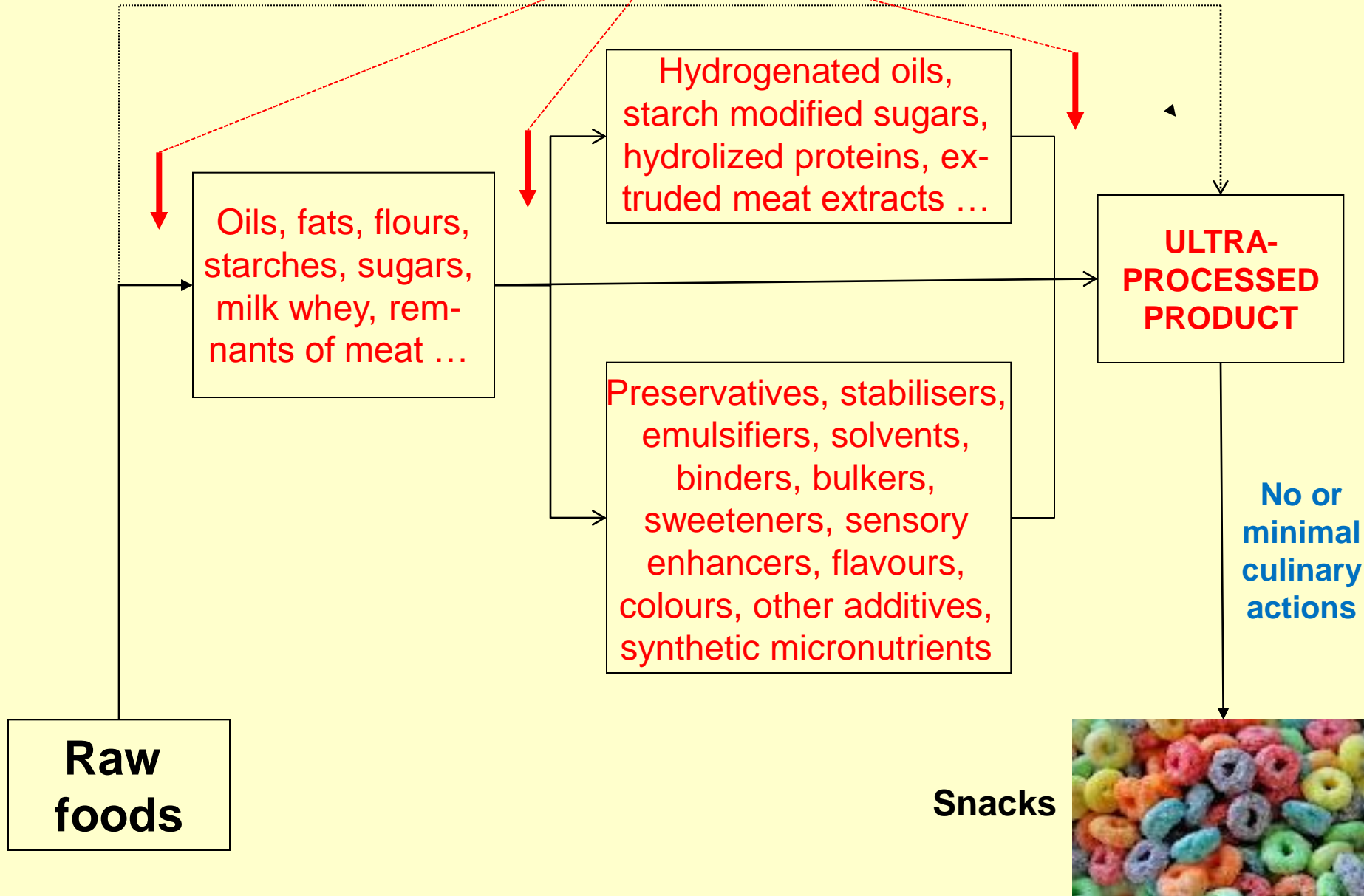
Type 3: ultra-processing



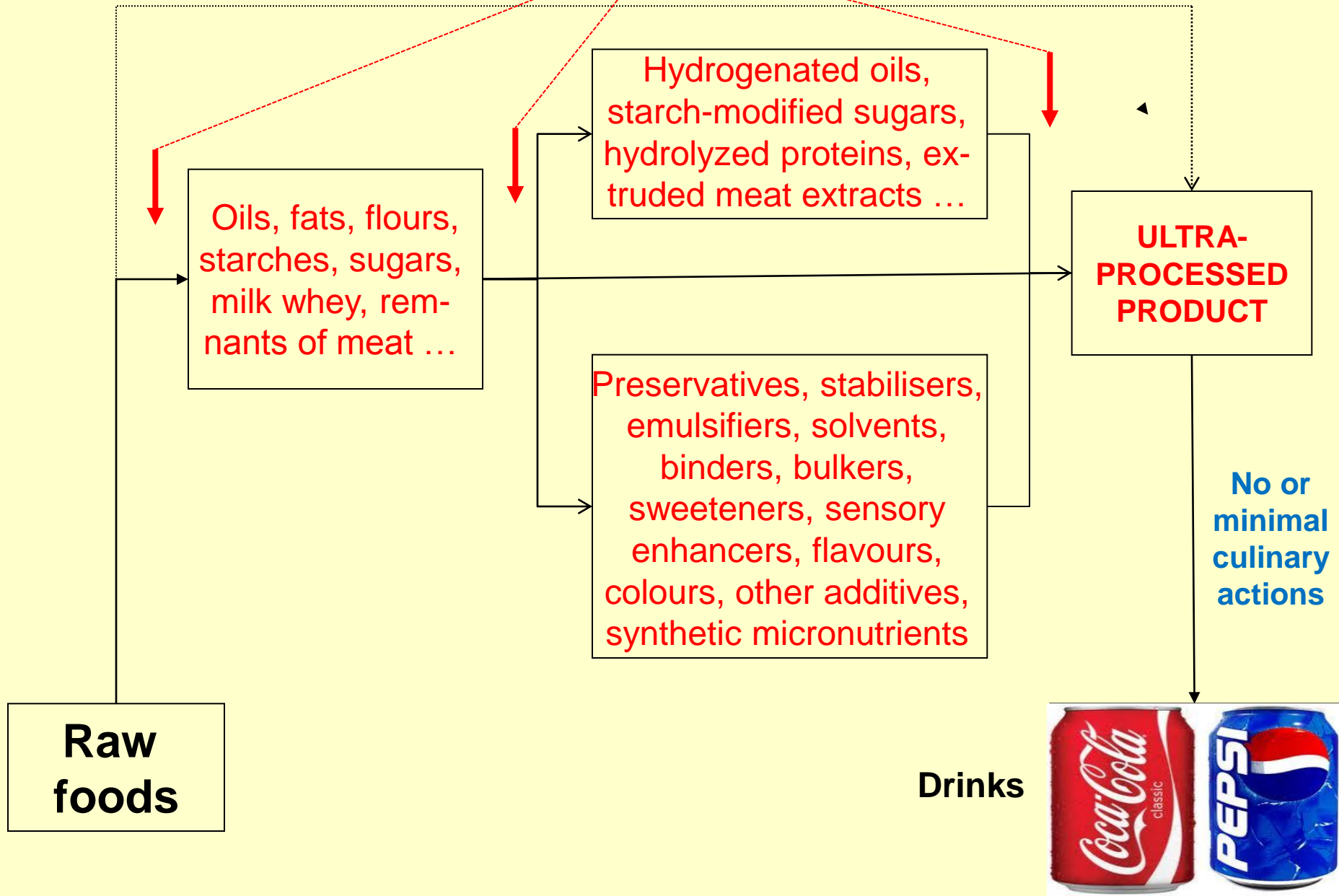
Ultra-processing



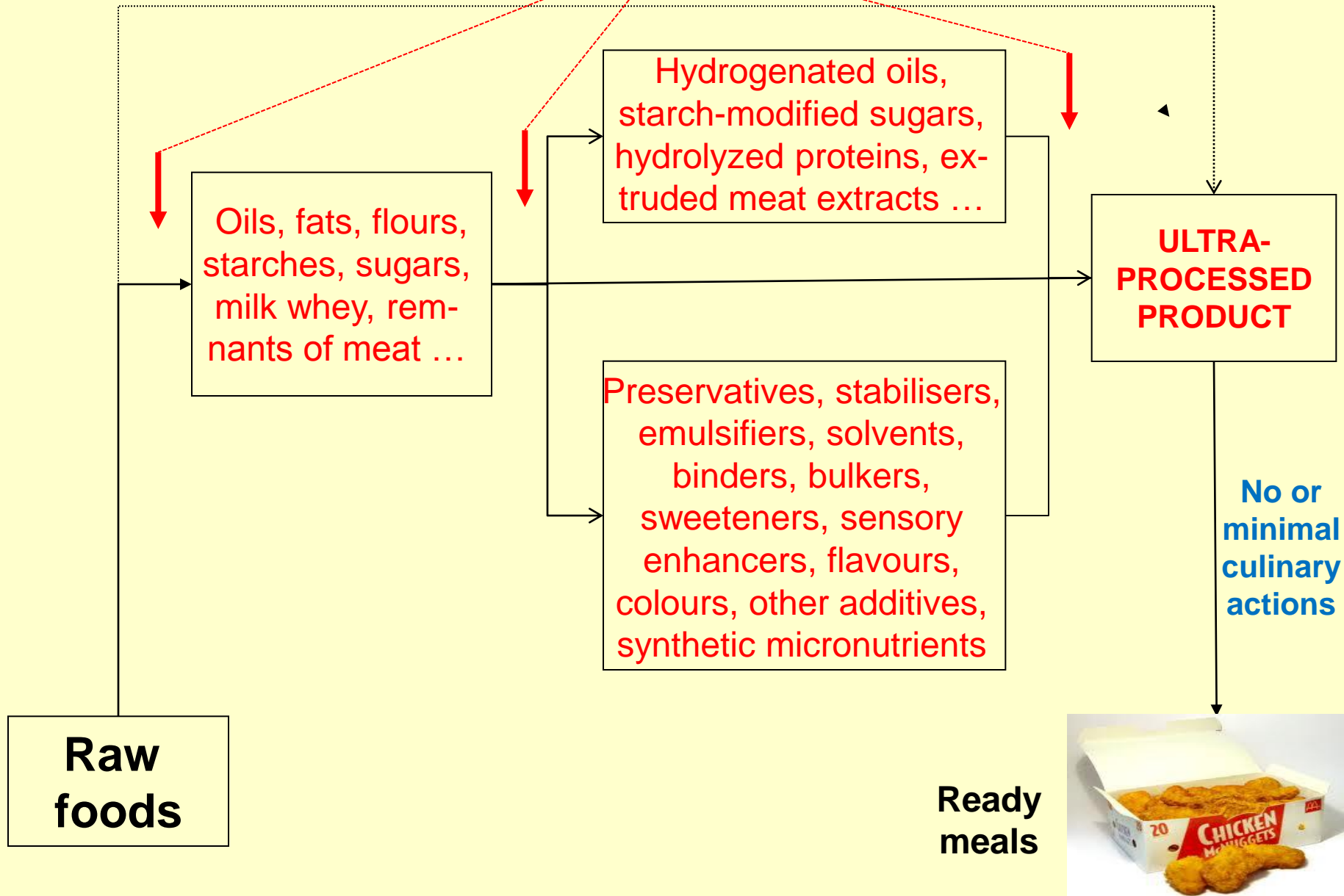
Ultra-processing



Ultra-processing



Ultra-processing



- *‘**Ultra-processed products** are food products manufactured from industrial ingredients resulting from the extraction, refinement and modification of constituents of raw foods with little or no whole food.’*
- *‘Their composition and formulation create products which are **accessible** (cheap), **convenient** (long duration, ready-to-consume), and **attractive** (intense sensorial properties) to the consumers and **highly profitable** (low cost ingredients) to the industry.’*
- *But not a win-win game ...*

The new role of food processing in food systems and its impact on nutrition and health

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When compared to naturally ready-to-consume foods (fruits, milk, nuts) and dishes made up from foods and culinary ingredients,

ultra-processed products have:

- ✓ less protein
- ✓ less dietary fiber
- ✓ more free sugar
- ✓ more total, saturated and trans fats
- ✓ more sodium
- ✓ higher energy density

Sources: Monteiro et al PHN 2011 and Moubarac PHN 2013

Overall diet quality according to the caloric share of ultra-processed products (quintiles). **Brasil 2009**

Indicator	Share of ultra-processed products					Goal
	<15	15-24	25-34	35-49	>=50%	
Protein (% total calories)	19.3	18.1	16.9	16.0	14.6*	10-15
Fiber (g/1,000 kcal)	13.1	12.3	11.3	10.2	8.6*	> 12.5
Free sugar (% total calories)	11.7	13.5	15.6	16.9	18.5*	< 10
Total fat (% total calories)	24.4	25.2	25.8	27.6	30.5*	15-30
Saturated fat (% total calories)	7.8	8.3	8.9	9.8	11.8*	<10
Energy density (kcal/g)	1.4	1.5	1.6	1.7	2.1*	

Source: Lousada ML. Doctoral thesis in preparation * p < .001 for linear trend

Overall diet quality according to the share of ultra-processed products (quintiles). **Canada 2001**

Indicator	Q1	Q2	Q3	Q4	Q5	Goal
Protein (% of calories)	14.9	14.1	13.8	13.4	11.6*	10-15
Fiber (g/1,000 kcal)	11.2	10.1	9.7	9.1	8.0*	> 12.5
Free sugars (% of calories)	9.2*	11.6	12.0	13.5	15.1*	< 10
Sodium (mg/1,000 kcal)	1.1	1.4	1.5	1.6	1.6*	< 1
Energy density (kcal/g)	1.8	2.0	2.1	2.1	2.3*	

Source: Moubarac J-C et al PHN 2012. * p < .001 for linear trend

Ultra-processed products harm gastric and brain structures which regulate satiety, appetite and energy balance, and induce overeating and obesity

✓ High energy density (all solid products)

Prentice & Jebb (2003) *Obes Rev.* 4:187-94

✓ Liquid calories (all sugared drinks)

Vartanian et al (2007) *Am J Public Health* 97: 667-75

✓ Hyper-palatability (all products)

Kessler (2009) *The End of Overeating*. New York, Rodale.

✓ **Habituation/addiction** (some products)

Brownell and Gold (2012) *Food and addiction*. New York, Oxford University Press; Garber and Lustig (2012). *Current Drug Abuse Reviews* 4(3): 146-162

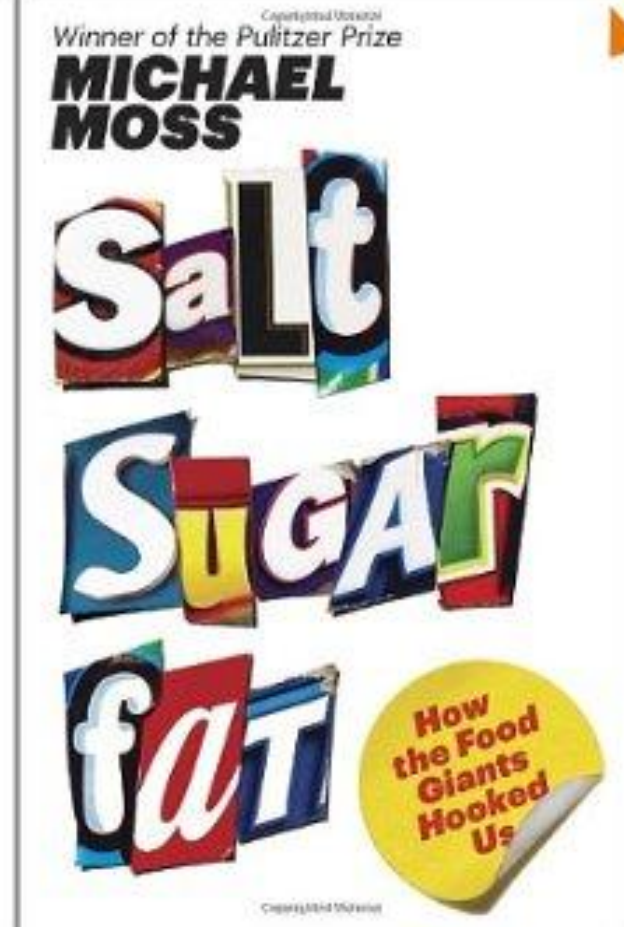
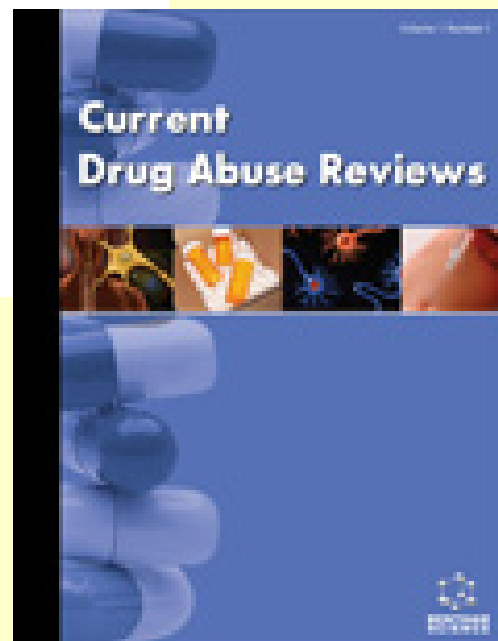
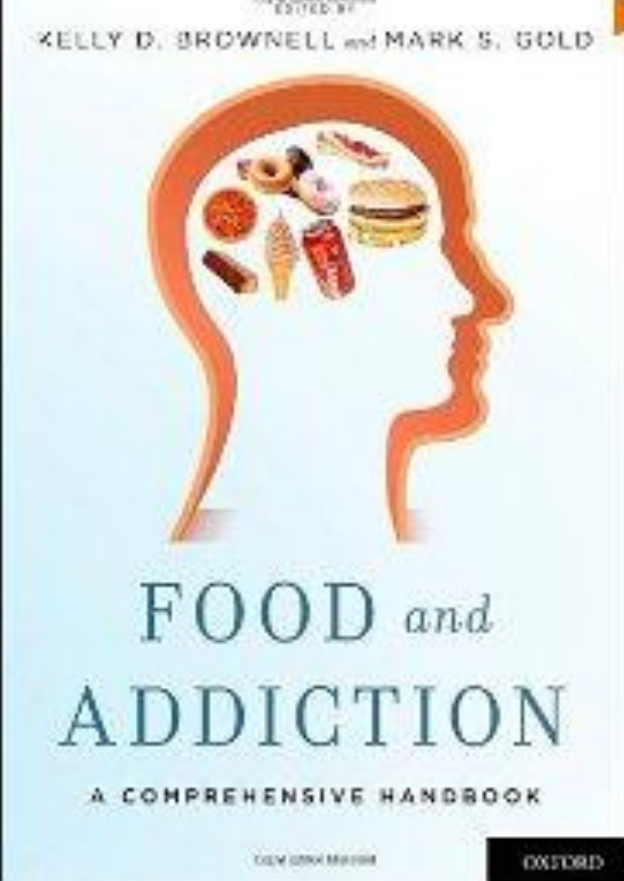
✓ Super size servings (many products)

Report of the DGAC on the *Dietary Guidelines for Americans* 2010

✓ Mindless eating (all products)

Cohen & Farley (2008) *Prev Chronic Dis* 2008;5:1-7

✓ **Aggressive marketing** (all products)



Garber AK, Lustig RH (2011) Is fast food addictive?
Curr Drug Abuse Rev 2011 Sep;4(3):146-62.

The marketing of **ultra-processed products** promotes compulsive overeating

Non stop

New brand of ultra-processed products in Brazil



It is one after the other!

The name says it all.

Non-stop is simply irresistible.

1 bite it
2 peel it
3 enjoy it

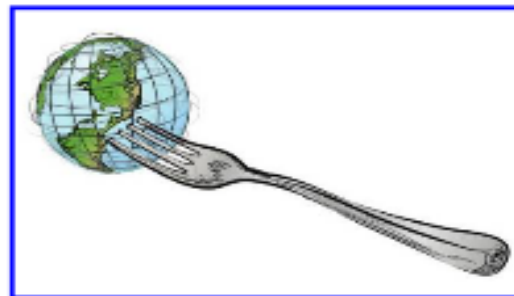


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American Journal of Public Health
June 2010, Vol 100, No. 6

The Snack Attack



“In the second decade of this century the time for collective action in the public interest has come once again. Transnational food and drink companies will respond in ways that can help to slow, stop, or even reverse the current global deterioration of public health, after they are obliged to do so by laws that change the rules of their game in favor of fairness, equity, and a better future.”

ARE THE TRANSNATIONAL

food and drink manufacturing, catering, and allied industries—whose bottom lines depend on pathogenic products—really planning to help control and prevent worldwide public health calamities? This seems to be what Yach et al, who all work for PepsiCo, are suggesting. They claim support from other companies who they say have “a vital role to play alongside governments, nongovernmental organizations, and academics in addressing nutrition.” We examine what this may mean.

OBESITY AND CHRONIC DISEASE

Yach et al state that transnational food and drink industries

Among other things the Strategy recommends that food and drink manufacturers limit levels of saturated fats, trans-fatty acids, free sugars, and salt in current products; formulate new products with better nutritional profiles; and reduce their promotion and marketing of processed products, especially to children.¹

The initial response to the Strategy in its draft stages by transnational industries was to force its dilution and to impede its approval by WHO member states. The heaviest pressure came from industry sectors whose profits depend on products high in sugar and salt, and also from the US government.^{2,3} Later, after approval of the Strategy and in response to pressure from several European govern-

ments, the WHO recommended that foods and drinks to children and in primary schools⁴

However, the “EU Pledge” applies only to advertisements in media vehicles with an audience of at least 50% of children younger than 12 years. It does not restrict use of licensed characters, games, and toys on packages or at points of sale. It exempts all products that conform to nutrition criteria devised by the individual companies themselves. It allows promotions in primary school “where specifically requested by or agreed with the school administration for educational purposes.”⁴

Examination of the criteria used to exempt products from any voluntary restriction suggests to us that the EU Pledge can also be seen to be a damage limitation exercise, designed to deter statutory

Carlos A. Monteiro, PhD,
Fabrício S. Gomes, MSc, and
Geoffrey Cannon, MA

Essay

The Impact of Transnational “Big Food” Companies on the South: A View from Brazil

Carlos A. Monteiro^{1*}, Geoffrey Cannon^{1,2}

1 Center for Epidemiological Studies in Health and Nutrition, School of Public Health, University of São Paulo, Brazil, **2** Editor, World Nutrition, World Public Health Nutrition Association, Rio de Janeiro, Brazil

This article was commissioned for the PLoS Medicine series on Big Food that examines the activities and influence of the food and beverage industry in the health arena.

Introduction

Throughout human history, traditional food systems and dietary patterns have been intrinsic to social, cultural, and economic life, and to personal commu-

Summary Points

- Traditional long-established food systems and dietary patterns are being displaced in Brazil and in other countries in the South (Africa, Asia, and Latin America) by ultra-processed products made by transnational food corporations (“Big Food” and “Big Snack”).
- This displacement increases the incidence of obesity and of major chronic diseases and affects public health and public goods by undermining culture, meals, the family, community life, local economies, and national identity.
- The penetration of transnational companies into Brazil has been rapid, but the tradition of shared and family meals remains strong and is likely to provide protection to national and regional food systems.

Policy Forum

Manufacturing Epidemics: The Role of Global Producers in Increased Consumption of Unhealthy Commodities Including Processed Foods, Alcohol, and Tobacco

David Stuckler^{1,2,3*}, Martin McKee², Shah Ebrahim³, Sanjay Basu^{2,4,5}

1 Department of Sociology, University of Cambridge, Cambridge, United Kingdom, **2** Department of Public Health and Policy, London School of Hygiene & Tropical Medicine, London, United Kingdom, **3** South Asian Chronic Disease Network, Public Health Foundation of India, New Delhi, India, **4** Department of Medicine, University of California San Francisco, San Francisco, California, United States of America, **5** Division of General Internal Medicine, San Francisco General Hospital, San Francisco, California, United States of America

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consumption of unhealthy foods, as risks initially most prevalent among the wealthiest shift to and become embedded among the lowest-income groups [5,6,7]. Paradoxically, these findings indicate that poverty, not higher income, may be a

net profit margins, for example, are about one-quarter of the retail price, making soft drink production, alongside tobacco production, among the most profitable industrial activities in the world. Indeed, transnational corporations that manufac-



Non-Communicable Diseases 4

Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries

Rob Moodie, David Stuckler, Carlos Monteiro, Nick Sheron, Bruce Neal, Thaksaphon Thamarangsi, Paul Lincoln, Sally Casswell, on behalf of The Lancet NCD Action Group

The 2011 UN high-level meeting on non-communicable diseases (NCDs) called for multisectoral action including with the private sector and industry. However, through the sale and promotion of tobacco, alcohol, and ultra-processed food and drink (unhealthy commodities), transnational corporations are major drivers of global epidemics of NCDs. What role then should these industries have in NCD prevention and control? We emphasise the rise in sales of these unhealthy commodities in low-income and middle-income countries, and consider the common strategies that the transnational corporations use to undermine NCD prevention and control. We assess the effectiveness of self-regulation, public-private partnerships, and public regulation models of interaction with these industries and conclude that unhealthy commodity industries should have no role in the formation of national or international NCD policy. Despite the common reliance on industry self-regulation and public-private partnerships, there is no evidence

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[http://dx.doi.org/10.1016/S0140-6736\(12\)62089-3](http://dx.doi.org/10.1016/S0140-6736(12)62089-3)
This is the fourth in a **Series** of five papers about non-communicable diseases
Melbourne School of Population Health, University of Melbourne, Melbourne, V

Annual growth rate (%) of volume consumption per person between 1997 and 2009.

	Low –income and middle-income countries	High-income countries
Packaged food	1.9%	0.4%
Soft drinks	5.2%	2.4%
Processed food	2.0%	1.4%
Snacks/snack bars	2.4%	2.0%
Alcohol	2.8%	1.1%
Tobacco	2.0%	0.1%

Moodie R, Stuckler D, Monteiro C et al. Profits and pandemics: prevention of harmful effects of tobacco, alcohol, and ultra-processed food and drink industries. *The Lancet*, Feb 12, 2013

The **marketing** of **UPF** targets low income families in emerging economies by using door-to-door vendors recruited in the communities



and offering products in smaller packages (“more accessible”) and “fortified” with micronutrients (“popularly positioned products”)

Nestle to Sail Amazon Rivers to Reach Emerging-Market Consumers

<http://www.bloomberg.com/news/2010-06-17>

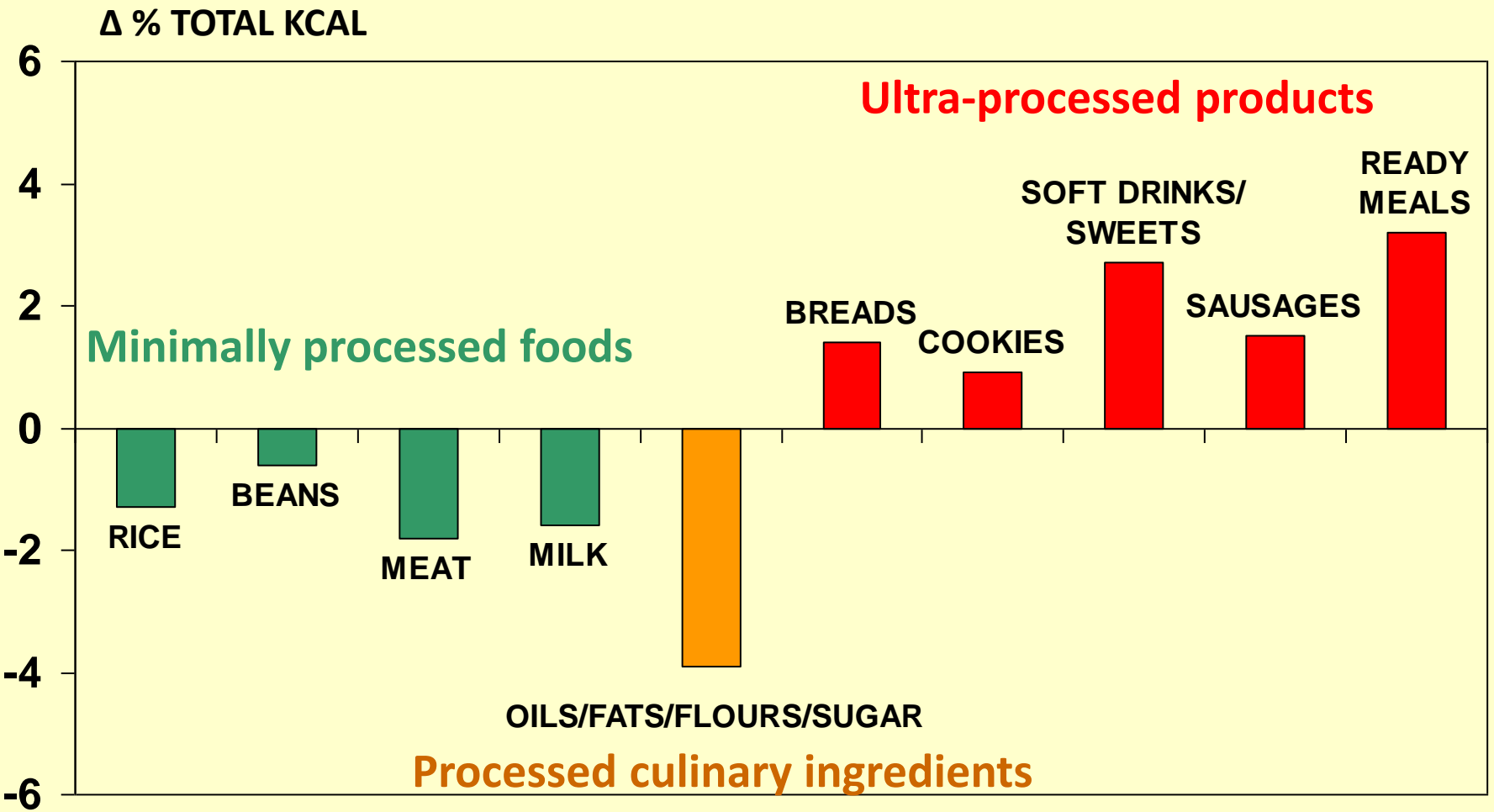


From a Nestlé press release:

Vevey, February 21, 2008

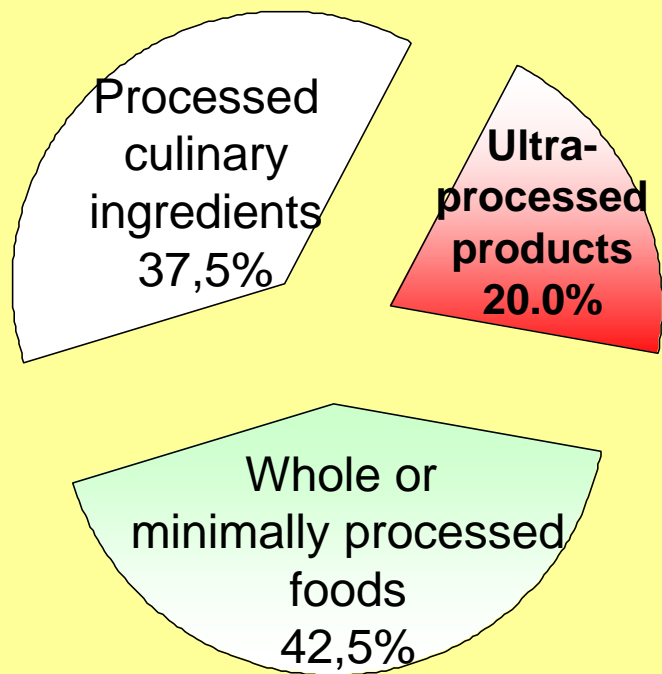
“Popularly positioned products (PPPs). Products aimed at lower income consumers in the developing world, **will continue to grow strongly in 2008** and beyond. Nestlé PPPs, which mostly consist of dairy products, *Nescafé* and *Maggi* culinary products, **grew by over 25%** to reach around CHF 6 billion in sales **in 2007**. The overall market for such products in Asia, Africa and Latin America is estimated at over CHF 80 billion.”

Changes in the share of food groups in urban household food acquisitions. Brazil: 1996-2009

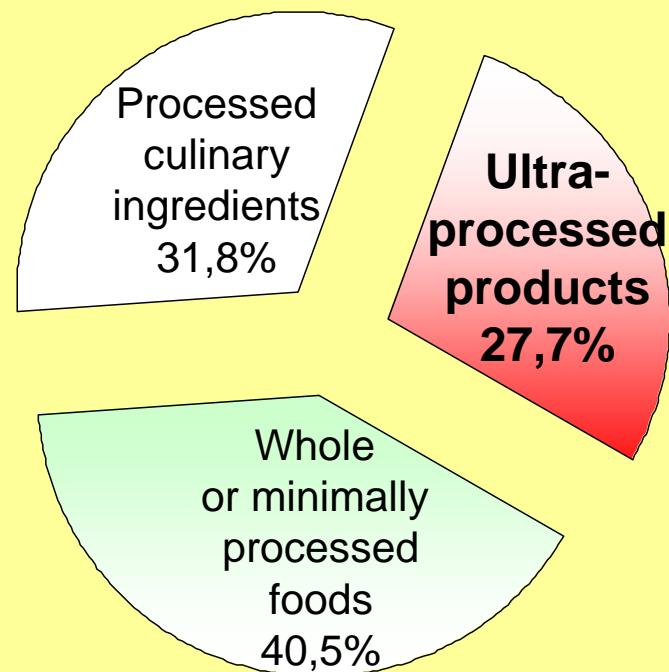


Source: Updated from Monteiro et al 2011 *Public Health Nut* 14(1): 5-13

Share of food groups in total household food acquisitions in Brazil

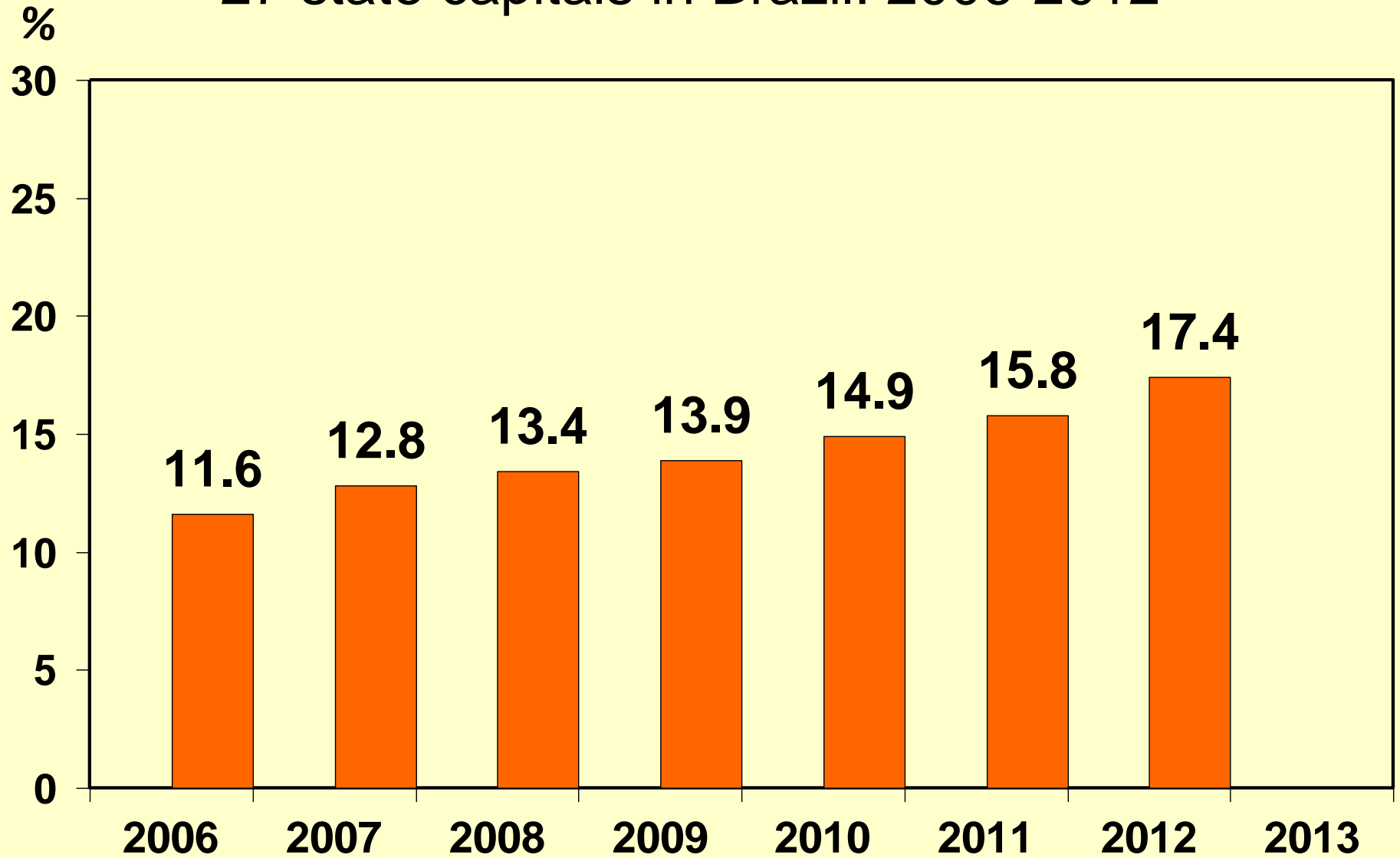


Brasil 2002-3



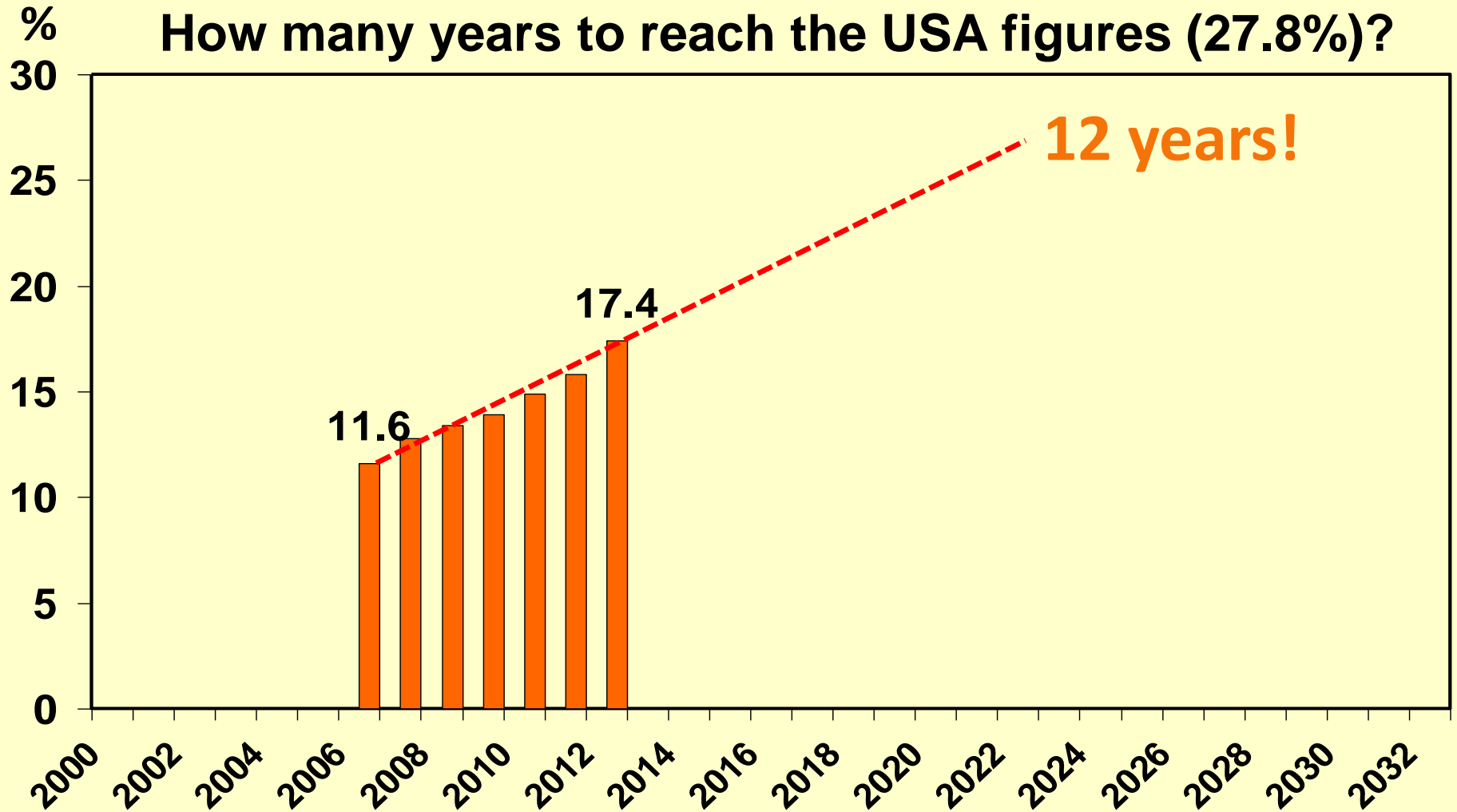
Brazil 2008-9

Prevalence (%) of obesity in the adult population of all 27 state capitals in Brazil: 2006-2012



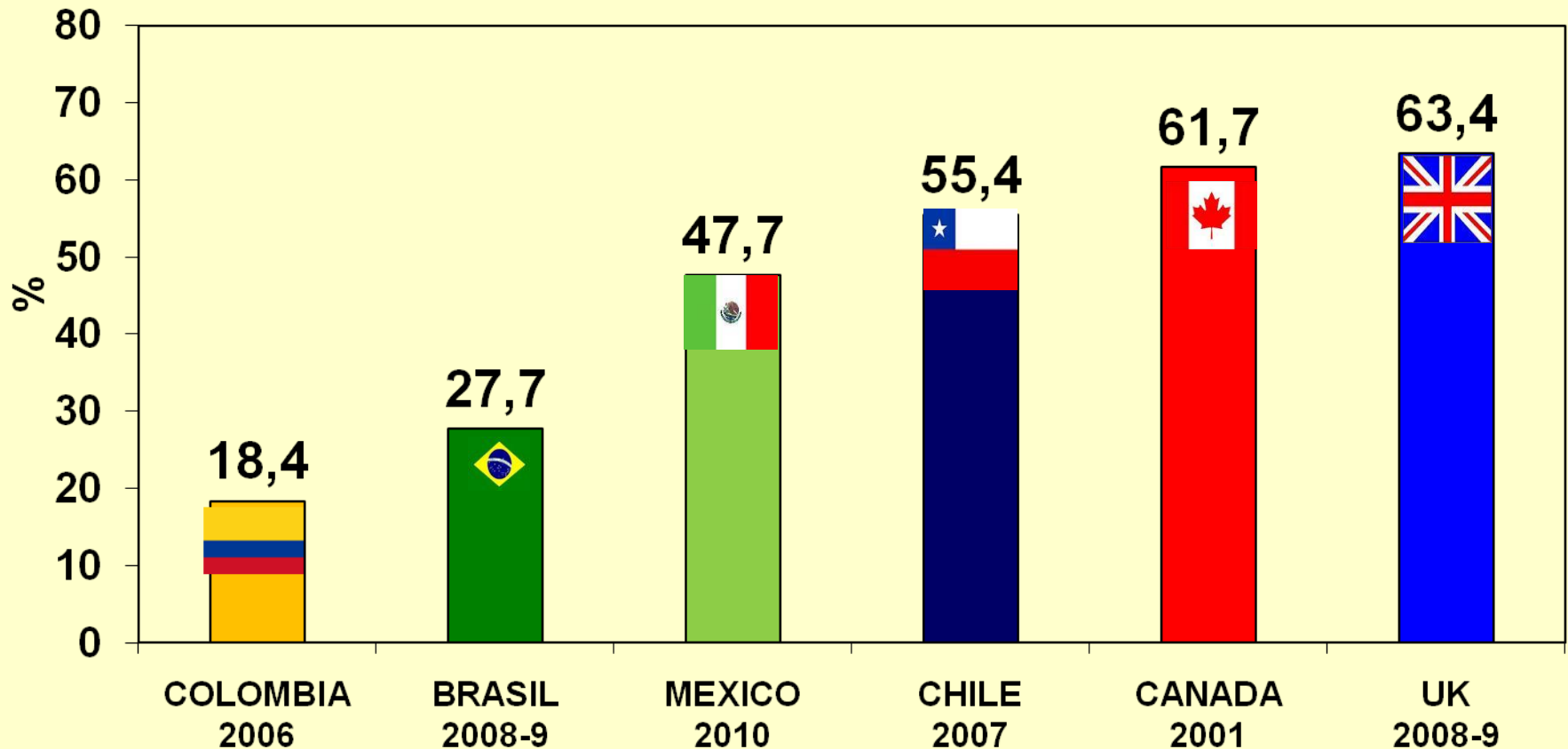
Source: VIGITEL Brazil (<http://portal.saude.gov.br/>)

Prevalence (%) of obesity in the adult population of all 27 state capitals in Brazil: 2006-2012



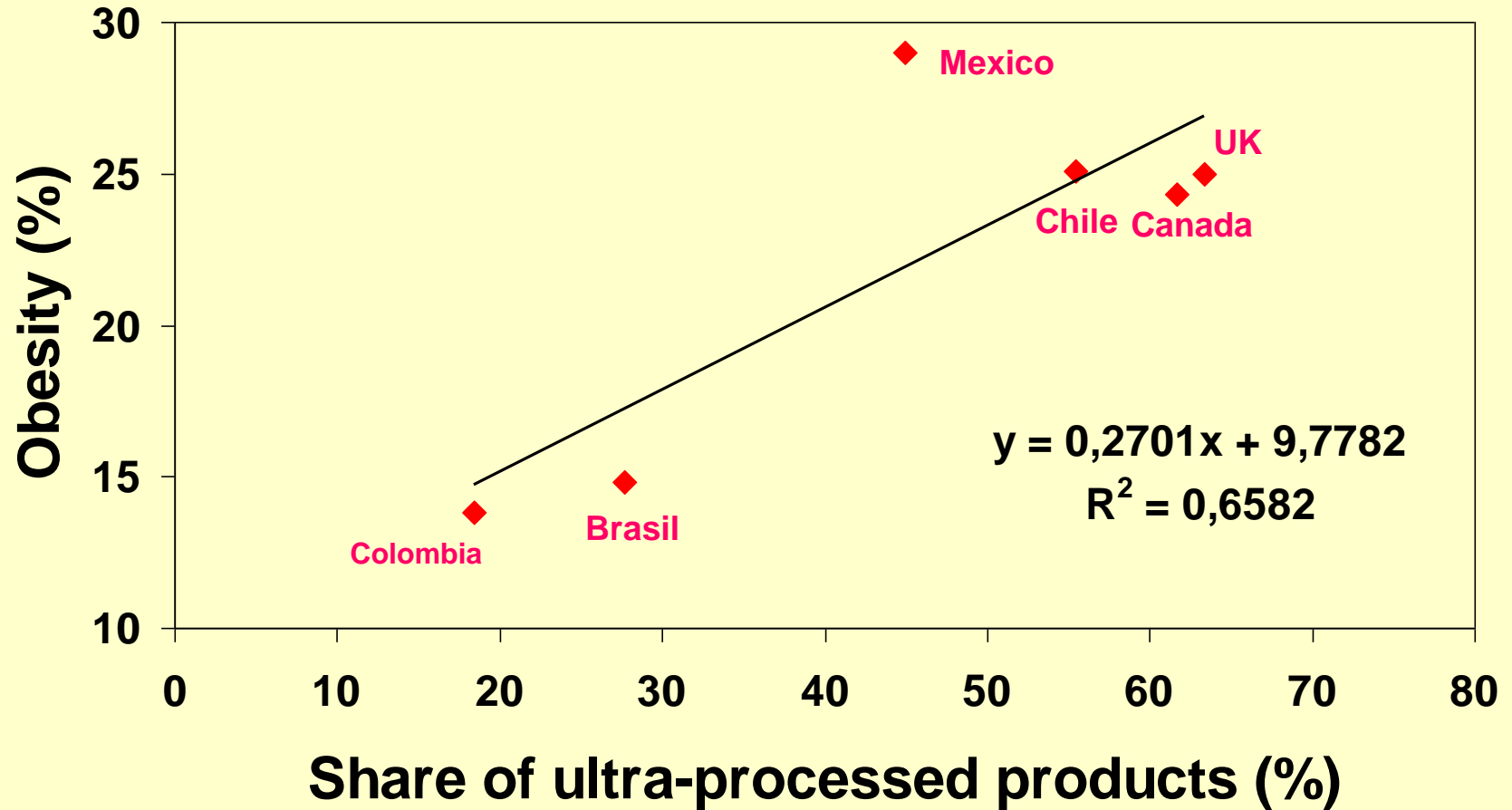
Sources: VIGITEL for Brazil (<http://portal.saude.gov.br/>) and BRFSS for USA

Caloric share (%) of **ultra-processed products** in the national food basket *



* Estimated from national household food expenditure surveys: Brasil (HBS), UK (LCF), Canada (FOODEX), Chile (EPF), Colombia (ENIG), and Mexico (ENIGH).

Obesity (%) and the caloric share (%) of ultra-processed products

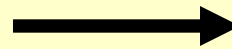


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**Business
as usual
(industry-driven
product reformulation,
self regulation etc)**

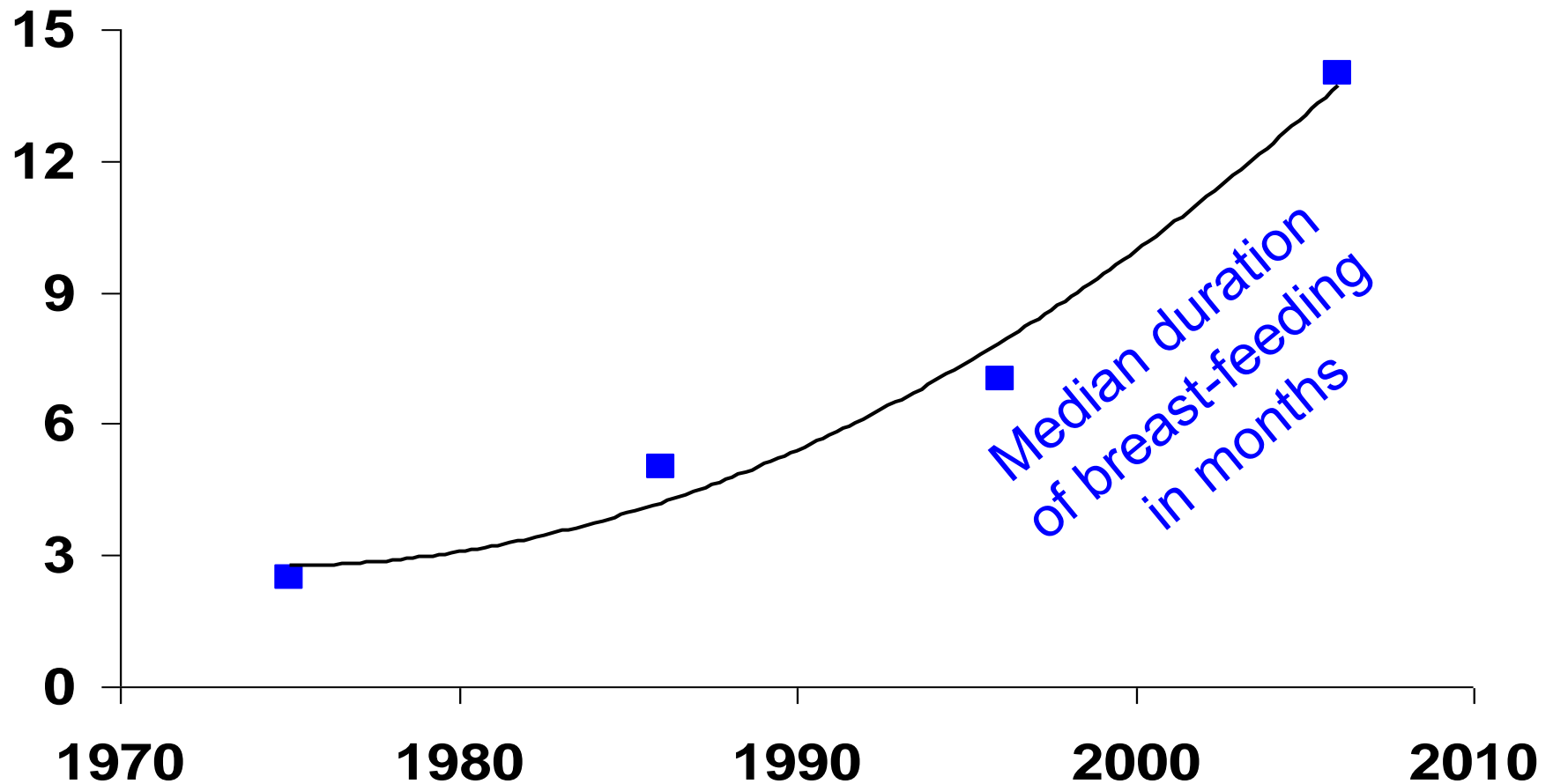




←
**Public actions
to incentive,
support, and
protect
traditional food
systems and healthy
dietary patterns**

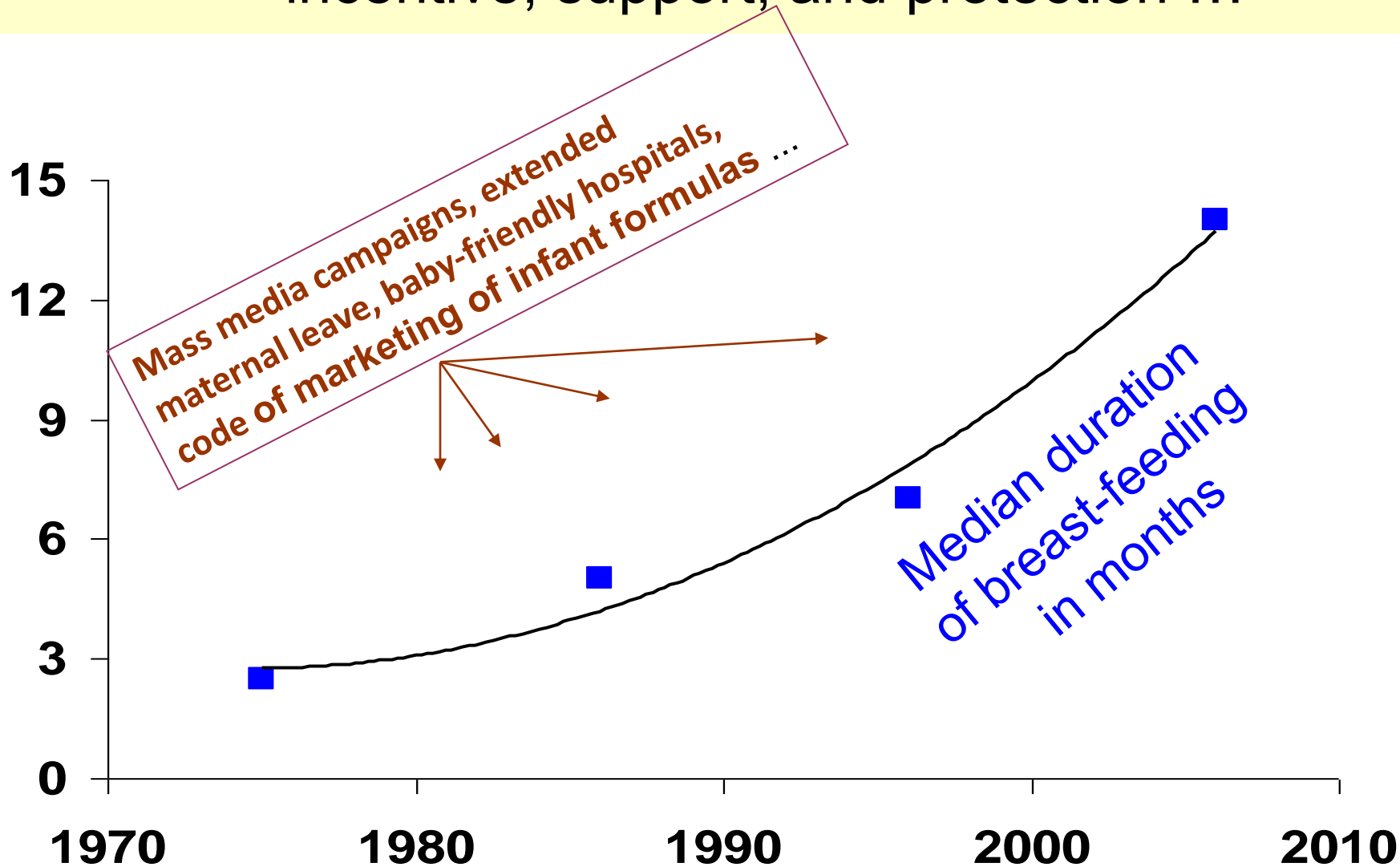


Consumption of human milk (unprocessed food) in Brazil



Source: Venancio and Monteiro 1998; PNDS 2007

Breast-feeding increased from 3 to 14 months with incentive, support, and protection ...



Public actions to incentive, support, and protect traditional food systems and diets: learning from breast-feeding!

ACTION	HUMAN MILK	MINIMALLY PROCESSED FOODS
Incentive	Information/education	Information/education (health, environment, and culture arguments)
Support	Maternal leave, baby-friendly hospitals, human milk banks	Subsidies and taxes, family agriculture support, government food procurement
Protection	Code to regulate the marketing of infant formulas	Code to regulate the marketing of ultra-processed products

THE FOOD SYSTEM

The big issue for nutrition



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Renata Bertazzi Levy, Rafael Claro, Jean-Claude Moubarac
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