

Lesson 2.4 – Food and Health

Alessandro Bonanno - Wageningen University

Learning outcomes

Recognize patterns characterizing the relationship between consumption of food products and health,

Assess the role of strategic decision making and policy makers intervention in this relationship.

Developed world and unbalanced diets

In developed countries, the relative price of food has been decreasing, thanks to the expansion in food supply due to agricultural innovation and increased efficiency.

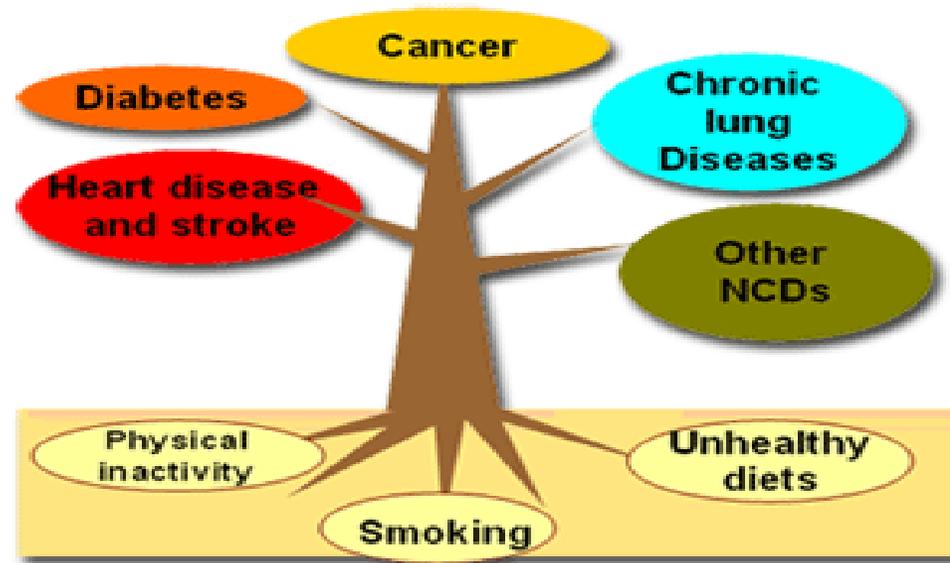
The increased supply of highly nutritious cheap food along with:

- 1) Increased purchasing power;
- 2) Lack of physical activity;
- 3) Several other factors (time constraints, income, etc...)

Resulted in an unbalance in caloric consumptions:

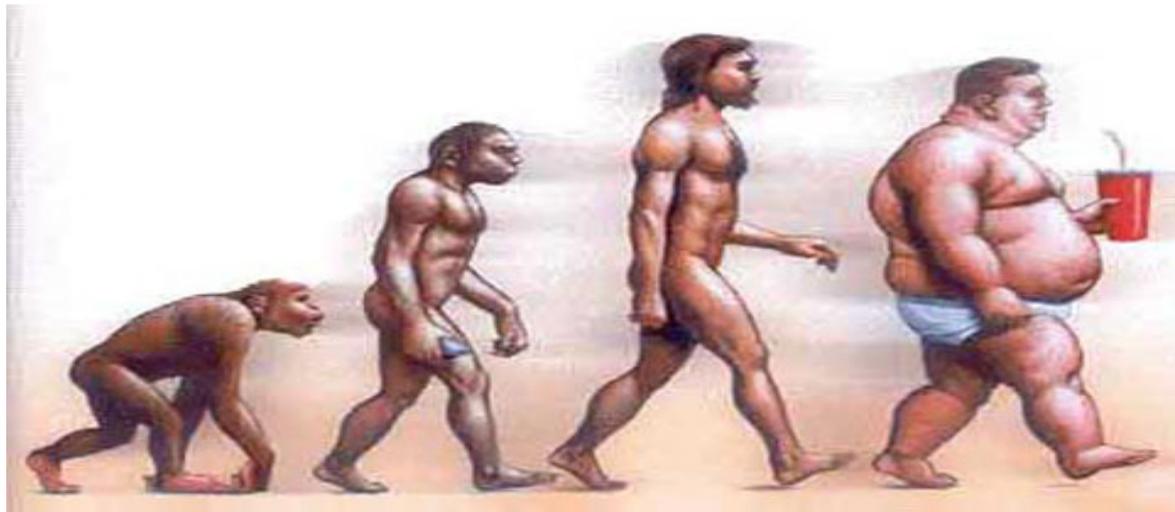
Calories ingested >> Calories consumed !!!

Poor diet is one of the risk factors associated with non-communicable disease (NCD) (WHO, 2003).



Health concerns associates with obesity

- Several medical conditions are (may be) associated with obesity
 - Type-2 diabetes, cardiovascular diseases, hypertension...
- Increase the risk of premature death (particularly worrisome for childhood obesity);
- Increase health care cost for the future generations.
- Overall childhood obesity is a larger concern than adult obesity



BMI: Body Mass Index = $\text{weight} / \text{height}^2$

Kilograms/m²

Pounds*703/inches²

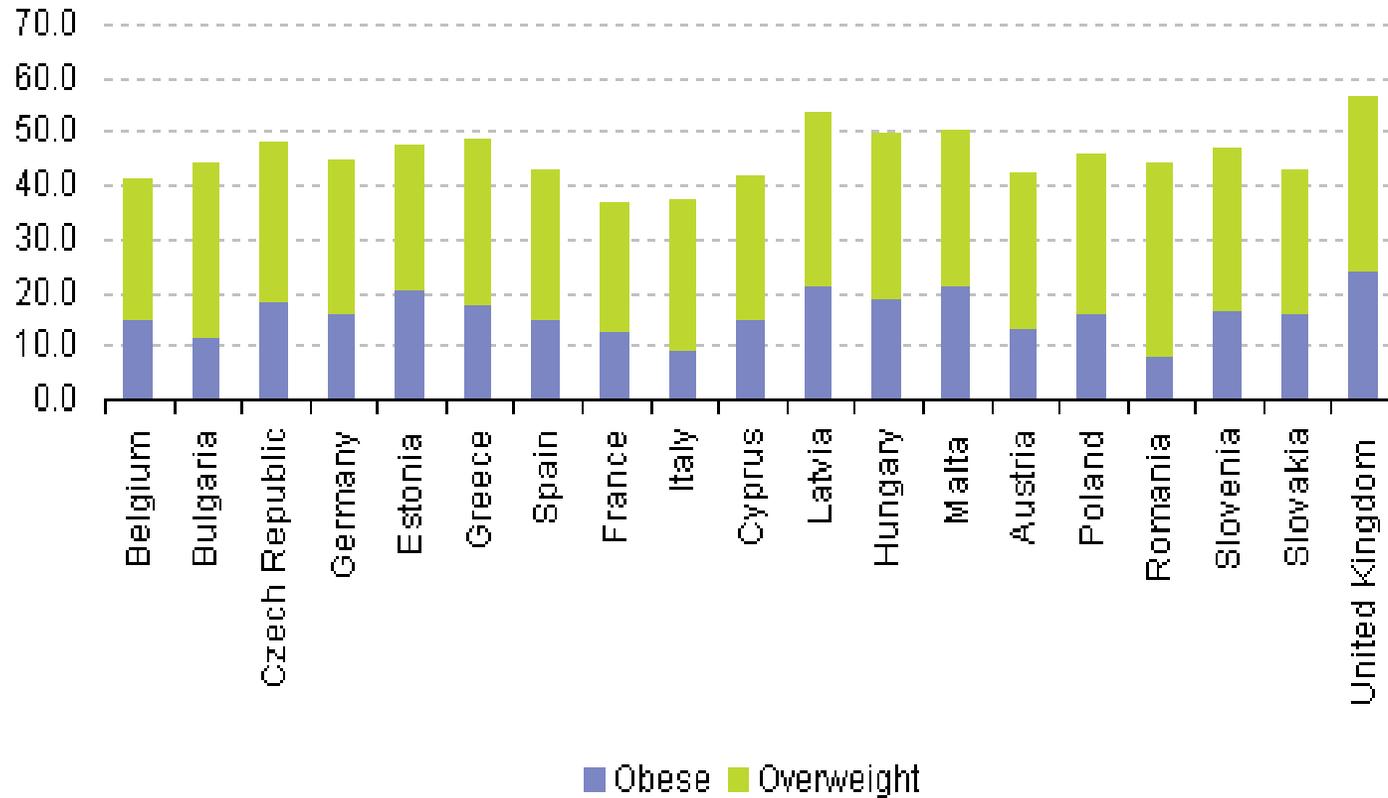
BMI General Categories:

- Underweight = <18.5
- Normal weight = $18.5-24.9$
- Overweight = $25-29.9$
- Obese ≥ 30

BMI categories vary in function of gender and age

For more info see <http://www.nhlbisupport.com/bmi/>

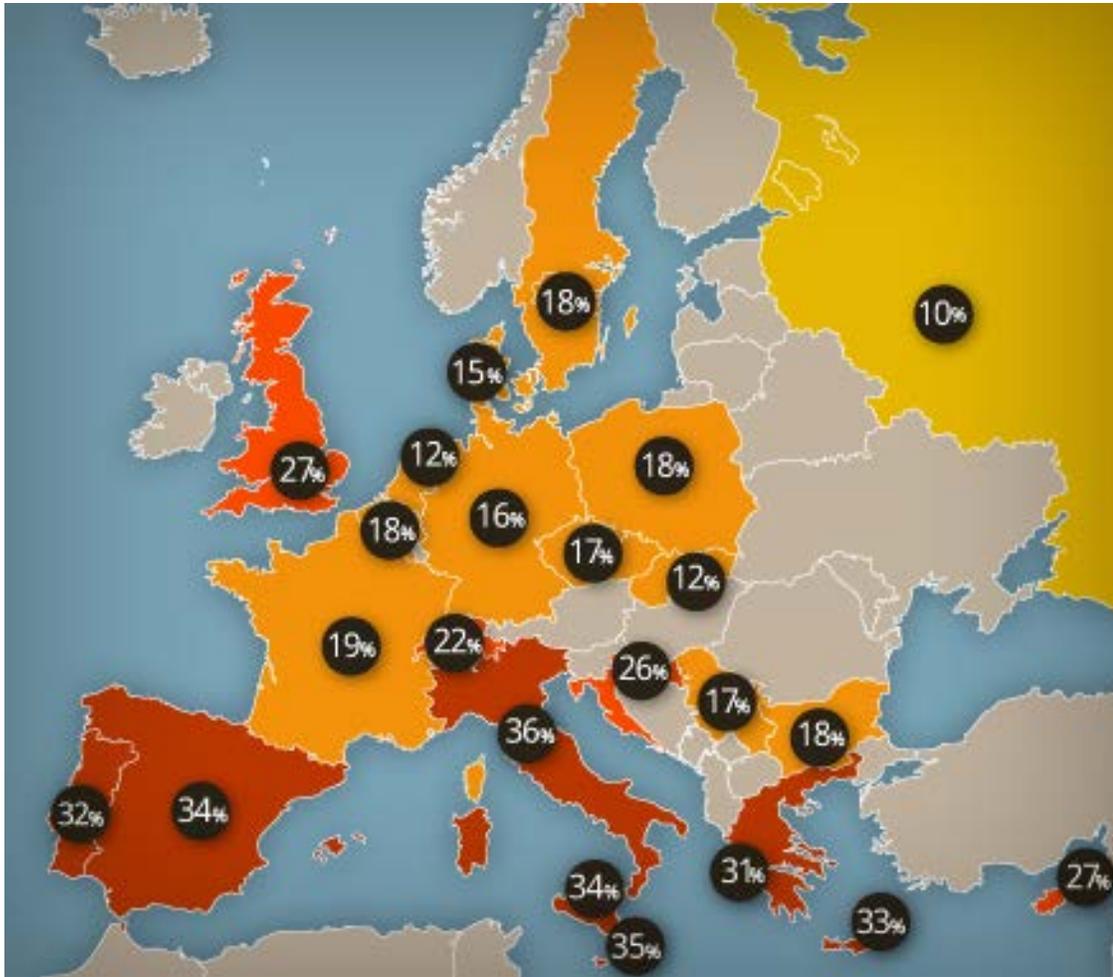
Share of female adults overweight and obese in EU Countries (2008)



Share of male adults overweight and obese in EU Countries (2008)



Prevalence of overweight children aged 7-11 years in EU countries.



Source: http://www.project-earlynutrition.eu/html/en/public/obesity_childhood.html

Original Data from IOTF (www.iotf.org)

Why do consumers buy more calories than they need?

- 1) Foods sold in larger portions;
- 2) Increasing inducement for buying more food (package meals etc...);
- 3) Advertising is more intense;
- 4) New groups are targeted (youths, minorities...);
- 5) Food is sold in various outlets/easily accessible ;
- 6) Engineered foods taste better (but contains more sugars or fats);
- 7) Low prices.

Other related issues?

- 1) Are some foods addictive?
- 2) Is food low in fat healthier?
- 3) Is it fats or carbs driving the issue?
- 4) Is it “Food Away From Home” a problem?

Several socio-economic factors impact the access to / consumption of healthy vs. unhealthy food.

- **Income** (candy bars cheaper than veggies)
- **Time constraints** (more prepared food – FAFH)
- **Nutrition education** (the role of the gatekeeper)
- **Availability of food outlets** (or lack thereof)
 - Food access
 - Food deserts
- **Culinary skills** (food manufacturers / food services have replaced the gatekeepers in assembling the full meal...)

What can food companies do?

- 1) Provide understandable (and more realistic / truthful) labels;
- 2) Increase the availability of healthful alternatives;
 - Modify food formulation while maintaining palatability (good taste)
- 3) Increase the cost of consumption (not the cost of food);
 - Alter convenience (alter package size and portions).

What can policymakers do?

- 1) Promote nutritional information/education, mindful eating and exercise
- 2) Create a revised nutrition labels
- 3) Increase artificially prices for unhealthy foods (Taxation)
- 4) Limit the reach of marketing campaign of unhealthy foods
- 5) Enforcing reduction of portions
- 6) Restrict access to unhealthy food

Problems with taxing “unhealthy” food

- 1) Taxing food could appear as the attempt by a “Big Brother” to interfere with personal liberties and freedom of choice;
- 2) Additional bureaucracy is undesirable;
- 3) Taxes on food products may be regressive (low income individuals impact more than high income ones);
- 4) Decisions on what would be taxed arbitrary;
- 5) Other unintended consequences.

The same arguments could be used against “Restrict access to unhealthy food” and “Limiting the reach of marketing campaign of unhealthy foods”

What are EU policymakers doing?

European Commission White Paper “Strategy for Europe on nutrition, overweight and obesity related health issues” (European Communities, 2007)

Four priority areas:

- 1) consumers’ information;
- 2) availability of healthy options;
- 3) encouragement of physical activity; and
- 4) priority groups and setting.

EU Platform for Action on Diet, Physical Activity and Health (henceforth the “EU Platform”), involves agents from the food industry, non-profit and consumer organizations monitoring current trends in diet and physical activity.

56% of the actions in the EU focus on information and education campaigns or on guidelines to encourage physical activity, 19% on advertising; 9% labeling; 6% reformulation, including availability of healthy food options and portion sizes. (European Communities, 2007)

Ex: “School Fruit Schemes” and “European Milk Scheme” encouraging healthy eating habits in young people providing them, respectively with fruits and vegetables and milk at school.

“Unhealthy” foods taxed in the EU

Hungary: confectionery, chocolate, cola, juice (if < 25% fruit); Energy drinks, salty snacks

Denmark: butter, margarine, cooking oil, vegetable oil, cola, juices, chocolate

Finland: Confectionery, ice cream, soft drinks

France: regular cola, low calorie cola, juices (1-99%)

For details see :

ECSIP Consortium (2014) “Food Taxes and Their Impact on Competitiveness in the Agri-food Sector”
prepared for the DG Enterprise and Industry

Ex: Fat Tax in Denmark

Introduced in October 2011 – Repealed in November 2012

Structure: tax on butter, milk, cheese, pizzas, meat oil and processed food if they contained more than 2.3% of fat.

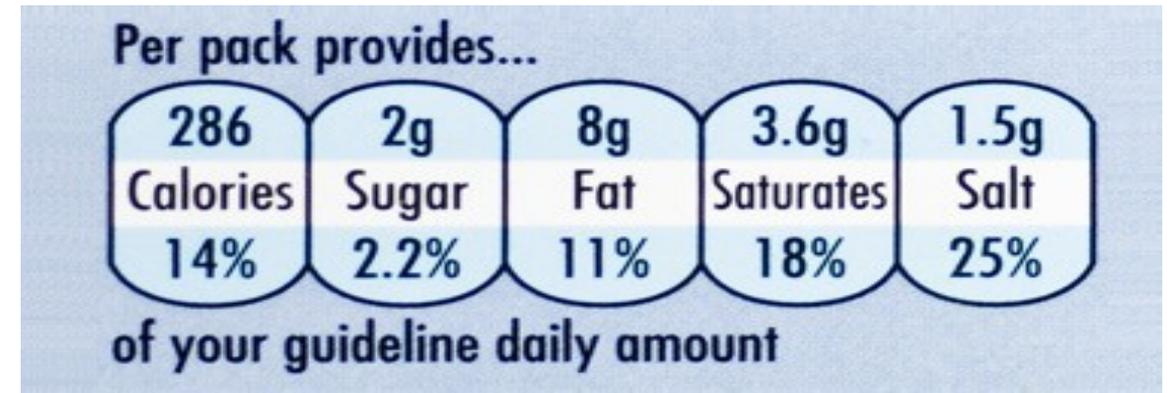
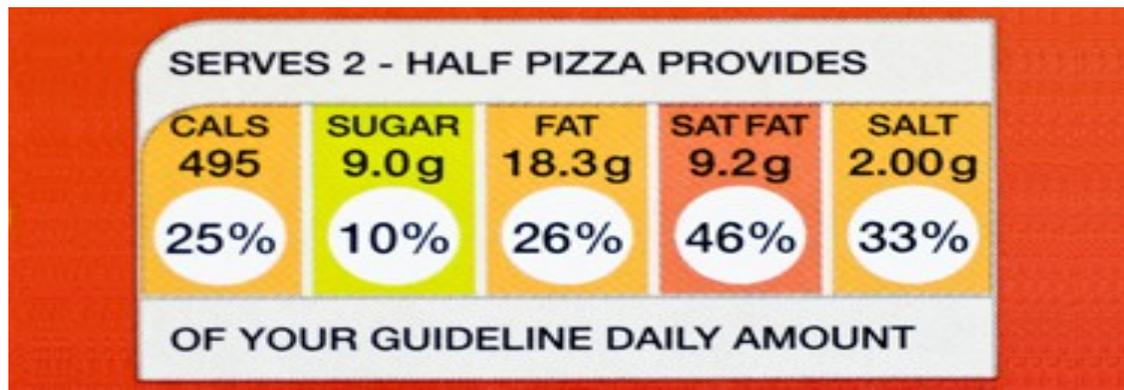
Detrimental effects:

- 10% of the revenue from the tax went to cover administrative cost
- Many Danes switched to cheaper brands or went to Germany or Sweden to shop
- Very limited impact – a survey found only 7% reducing consumption of “unhealthy” food
- Accounted for a sizeable portion of the inflation

Source: Institute of Economic Affairs (iea.org.uk – the proof of the pudding: Denmark’s Fat tax fiasco).

Front of package (FOP) nutrition labels

- Many supermarket chains and food manufacturers display nutritional information on the front of pre-packed food.
- Usually give a quick guide to:
 - Calories, sugar content, fat content, saturated fat content and salt content
 - Can be “tricky” because nutrient content can be referred to a “portion”.
- FoP nutrition labels may provide information about Guideline Daily Amounts (GDAs)
 - approximate amount of particular nutrients and calories required for a healthy diet.
- Information on the contribution a nutrient makes towards a GDA (expressed as %) can be found on the back or side of packaging.



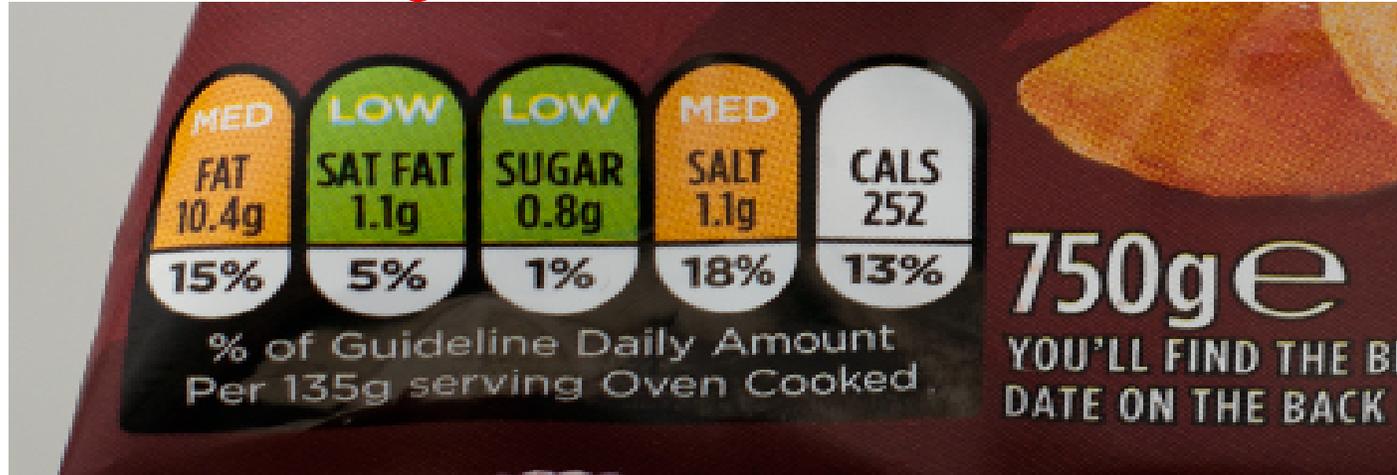
Traffic Light Color Coding (UK)

- Some front of pack nutrition labels use red, amber and green color coding. **Traffic light** color coding, tells consumers at a glance if the food has high, medium or low amounts of fat, saturated fat, sugars and salt.
 - red means high
 - amber means medium
 - green means low
- The more the green lights, the healthier the choice.

“Foods that have all or mostly green lights is a healthier choice. An amber light means neither high nor low, so you can eat foods with all or mostly amber lights most of the time. But a red light means the food is high in fat, saturated fat, salt or sugars and these are the foods we should cut down on. Try to eat these foods less often and in small amounts”

<http://www.nhs.uk/Livewell/Goodfood/Pages/food-labelling.asp>

Traffic Light Color Coding (UK)



How (and why) to make a “healthy” food product

Food manufactures can capitalize on consumers' increasing interest for health, by modifying the formulation of their products either subtracting unhealthy ingredients or adding healthy ones.

“Good for You” Foods (less is more):

- Low sodium;
- Reduced / no fat;
- No sugar added / low carbs
- etc...

Added Functionality Foods (*fortified or enriched*)

- High fiber;
- Juices with added calcium;
- Dairy products containing probiotic bacteria,
- Omega 3 enriched
- etc...

Several other products containing can have attributes which are also associated with health (Organic, Natural, Sustainable, Genuine etc...)

→ PROBLEM: INFORMATION OVERLOAD!!!!

“Nutrification” fortification vs. enrichment

Enrichment: restoration of the nutrient to the original level of the in the unprocessed food.

Fortification: nutrients are added to levels which are higher than those found in in the original, unprocessed foods.

Goiter (enlarged thyroid glands) was reduced largely in areas where water was low in iodine just by adding iodine to kitchen salt.

Since the 50's Many food products are fortified (for example milk with VITAMIN D, cereals with several other vitamins etc...).

What is a functional food?

- *American Dietetic Association*: any modified food or food ingredient that may provide a health benefit beyond the traditional nutrients it contains;
- *European Commission's Concerted Action on Functional Food Science in Europe (FuFoSE)* a food product can be considered functional if it has beneficial effects on one or more functions of the human organism thus either improving the general and physical conditions or/and decreasing the risk of the evolution of diseases.
- *International Life Sciences Institute of North America (ILSI)*: foods that, by virtue of physiologically active food components, provide health benefits beyond basic nutrition.
- *Health Canada*: similar in appearance to a conventional food, consumed as part of the usual diet, with demonstrated physiological benefits, and/or to reduce the risk of chronic disease beyond basic nutritional functions.

Who is functional foods' target market?

Main question: Are functional foods for the sick or the healthy?

The marketing of functional food is talking two separate directions:

- 1) Targeting people who have a particular medical condition;
- 2) Promoting the enhancement of health conditions of already healthy individuals.

2 Recent products developed by Dannon:

- Densia/Danaos - 400mg of Ca (twice the dose of other yogurts) and 5mg of vitamin D (25% of the recommended daily intake: helps the absorption of calcium in the body).
- Essensis, a functional drink with ProNutris: Borage Oil (Omega-6); Green Tea (antioxidants) and vitamin E.

Q: Who are the target markets of these products?
Only one product was successful, which one?

Are functional foods a “risky business”?

Not all product categories “believable” carriers of functional attributes.

- Consumers pay more attention to health-claims for product categories already perceived as healthy;
- Dairy, yogurt, cereals, bread and juice more likely to be seen as credible carriers of functional components.

Marketing efforts must be effective:

- An ineffective marketing campaign / positioning strategy may result in price as the main determinant of consumers’ switching between functional and conventional products;
- The premium price for functional foods is a major hurdle for acceptance and buying intention.

Costs of developing functional products may be prohibitive:

- Unilever invested more than 50 million US \$ to develop Nestlé Lc1 and the cholesterol-lowering margarine Becel (the estimated cost of developing a new food product is circa \$ 2 million).
- Small successful companies may be predated by larger ones.

EU's Nutrition and Health Claims Regulation

Regulation (EC) No 1924/2006 - Nutrition and Health Claims Regulation – NHCR

“... ensure that any claim made on foods' labelling, presentation or marketing in the European Union is clear, accurate and based on evidence accepted by the whole scientific community. Consequently foods bearing claims that could mislead consumers will be eliminated from the market.”

Two different categories of Health claims

Article 13.1 Claims: “General function” claims, refer to the role of a nutrient or substance in growth, development and body functions; psychological and behavioral functions; slimming and weight control, satiety or reduction of available energy from the diet.

Article 14 Claims: “Reduction disease risk” claims, state, suggest, or imply, that the consumption of a food category, a food, or one of its constituents, significantly reduces a risk factor in the development of a human disease.

Q: are these products vertically or horizontally differentiated?

“General function” claims are based upon existing knowledge or links between food and health and could be used by any manufacturers (benefits should be “easier” to prove)

Article 14 claims require:

1. Characterization of the active ingredients/principles;
2. Relevance of the sustained claimed effect;
3. Scientific evidence provided by efficacy studies.

From a Consolidated list of 4,637 “general function” claims, 222 approved claims were published in Regulation 432/2012; acceptance rate of Article 14 equally low

NHCR Implementation

Manufacturers must submit protocols to substantiate health claims on their products.

Protocols are reviewed by the panel on Dietetic Products, Nutrition and Allergies (NDA) of the European Food Safety Authority (EFSA).

Rejected claims can no longer be displayed on the product.

NHCR stringency

EFSA's main concern: minimizing the risk of making Type-I error, i.e. authorizing untruthful claims → higher probability of making Type-II errors, i.e. rejecting a true / correct claim (Hartmann, et al 2008).

100% rejection rate on “general function” claims based on probiotics: many shelved for “insufficient characterization.”

Opinion leaders and industry pundits: the NHCR may turn the European food industry into an “*innovation wasteland*” (Starling 2009).

The European federation of Health Product Manufacturers associations (EHPM) called for a reappraisal of the “*unduly restrictive*” EFSA process (Stodell 2011).

NHCR stringency

EFSA expert panel often dismissing results published in peer-reviewed journals → academic controversy.

Brookes (2010) survey of EU food supplement manufacturers:

- Sector specific losses in profits, employment and income generation;
- Higher consolidation may hurt smaller companies;
- Consumers' losses may occur due to decreased choice and lower competition.

Danone health claims for Activia and Actimel withdrawn in 2010; claims re-submitted after consulting EFSA for guidance rejected (again).

First a “Zero Claims” period selling products without health claims; then, reformulations followed linking health to vitamins, minerals or other compounds

What is the outcome?

Product reformulation, exit, rebranding;

- Danone health claims for Activia and Actimel withdrawn in 2010; claims resubmitted after consulting EFSA for guidance rejected (again).
 - First a “Zero Claims” period selling products without health claims; then, reformulations followed linking health to vitamins, minerals or other compounds
- Industry reports (Eurononitor International, 2014) most functional brands lost shares post NHCR;
 - In 2010-2013 changes in value shares between -5% (Danone Activia) and -20% (Nestle’s LC1);
 - Recent reports indicate a yearly 8% decline in the EU probiotic market

Are consumers better off?

What does the probiotic industry say?

http://www.nutraingredients.com/Ingredients/Probiotics-and-prebiotics/6-years-of-hurt-Probiotic-heavyweights-debate-the-EU-s-health-claim-blockade/?utm_source=newsletter_product&utm_medium=email&utm_campaign=02-Mar-2015&c=j3RinefNeW7YAyzp6nd%2FUw%3D%3D

Take-home messages

- Mitigating the growing incidence of diet-related non-transmittable diseases is on policy-makers agenda (in the EU and abroad)
- The increased demand for health-related properties in food products + policies incentivizing the adoption of healthier diets / lifestyles create new market opportunities (as well as new challenges) for agribusiness firms.
- Manufacturers provide consumers with more information regarding the nutritional profile of the products they sell.
- Reg. 1924/2006 creates a series of regulatory barriers that are reshaping the EU market of food products carrying health claims.