

Social inequality in overweight: Do we know why?

Nicole Darmon

**INRA/INSERM Joint Research Unit in Human Nutrition
La Timone Medicine University, Marseille, FRANCE**

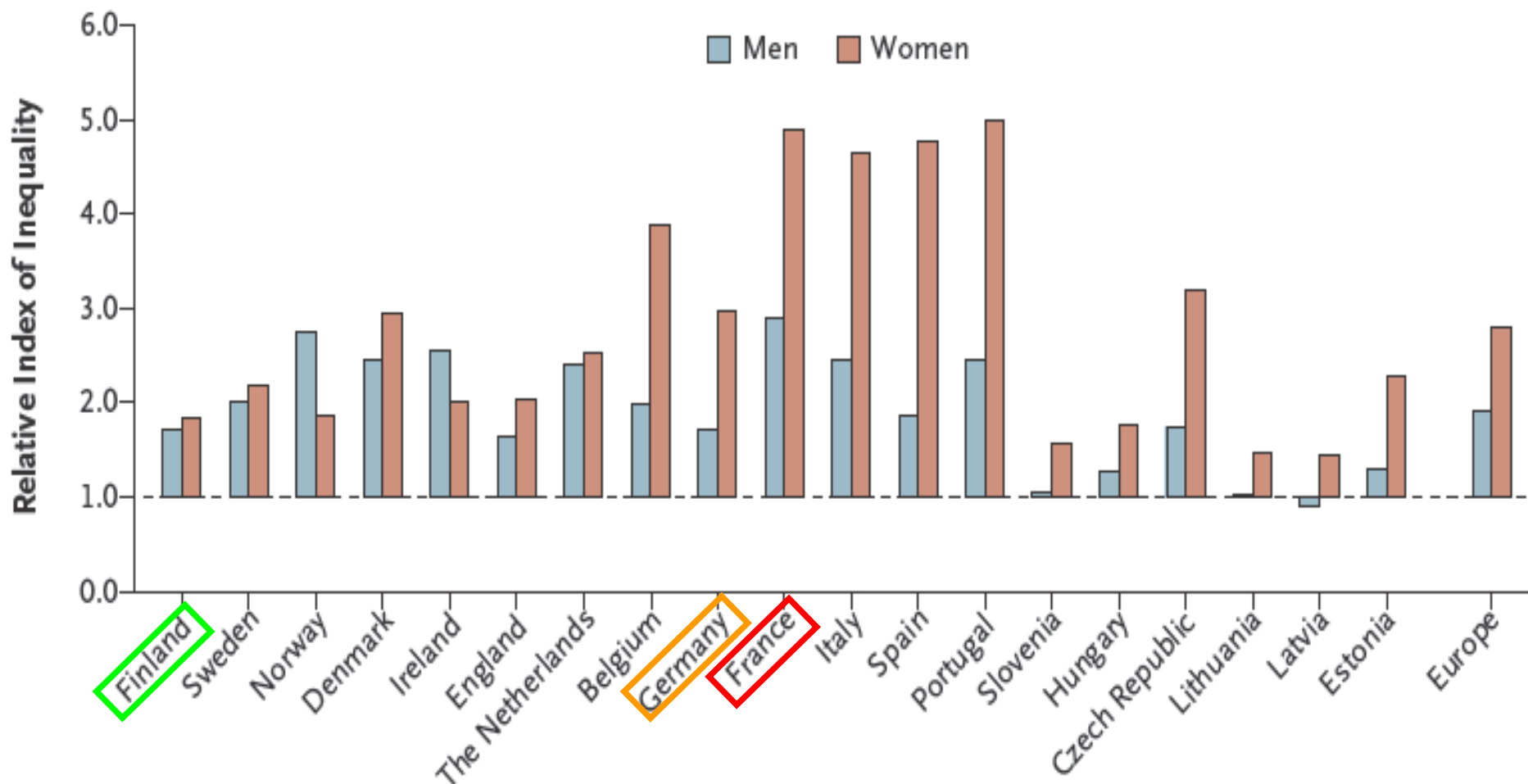
nicole.darmon@univmed.fr

1. Socio-economic inequalities in obesity in Europe and France: the facts

Relative inequalities in obesity in Europe

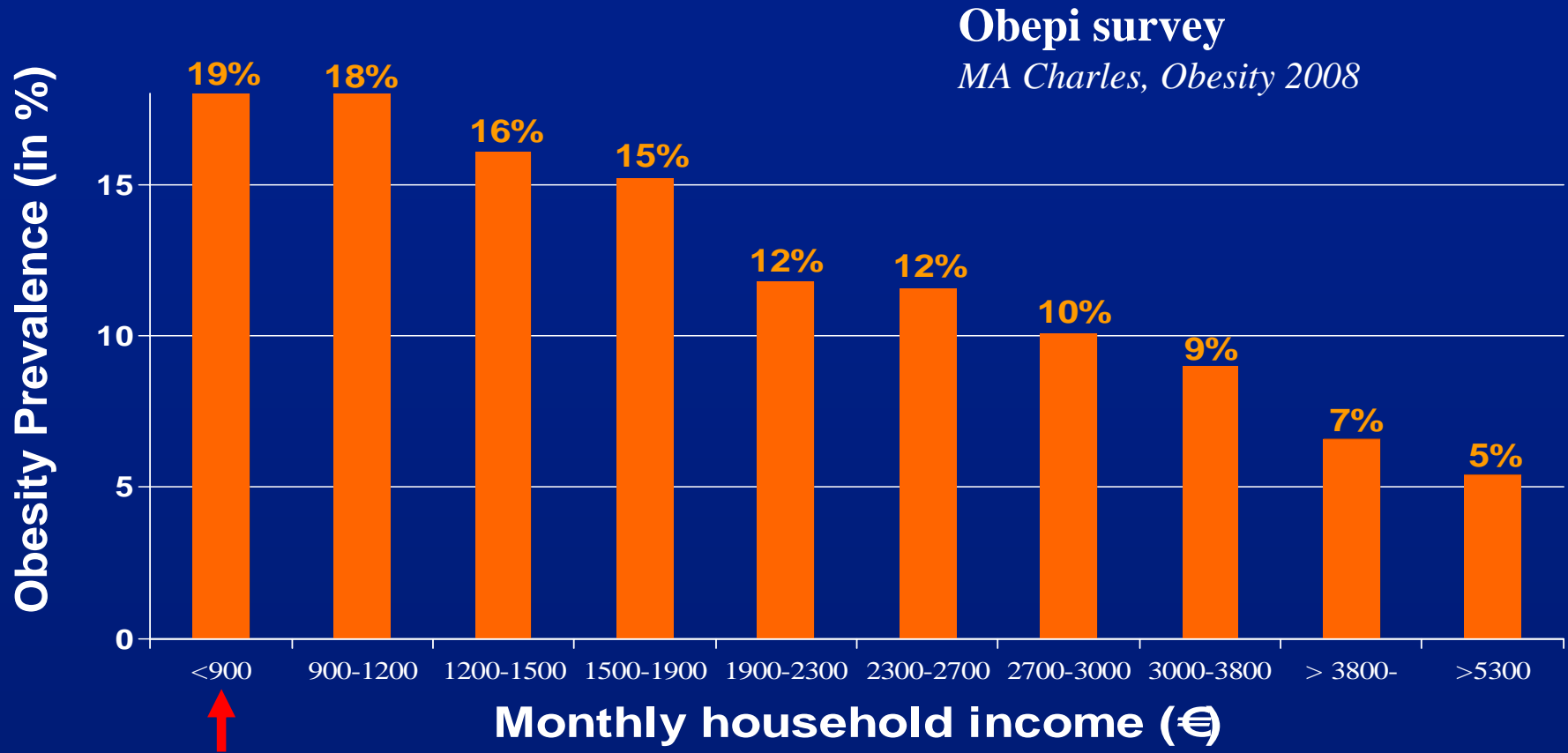
Mackenbach NEJM 2008

Obesity



=> France: one of the European countries where social inequalities in obesity are amongst the highest in Europe, especially for women

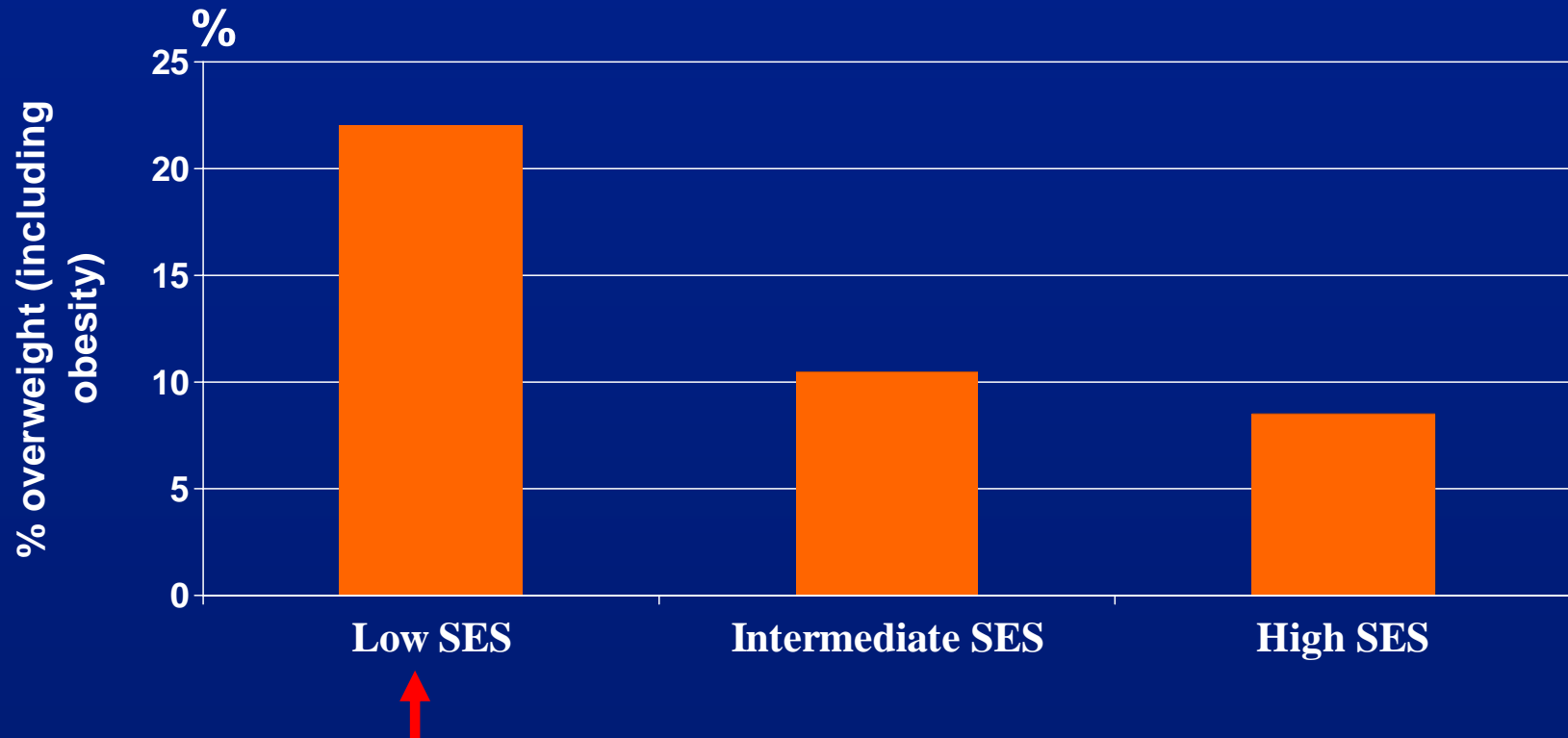
Prevalence of adult obesity by income in France, 2006



- ⇒ Higher prevalence of adults obesity in lower income households
- ⇒ This socio-economic gradient in adult obesity is also observed with other SES variables (education, occupation)

Prevalence of overweight in children 3-14 y-old in France 2006, by household socio-economic status

INCA survey
Lioret, Obesity, 2009



- ⇒ Higher prevalence of overweight (including obesity) in children from lower socio-economic households (composite index of SES)
- ⇒ This gradient also exists with parental education level and household income

2. Risk factors for obesity

Genetic factors, in utero and early-life conditions:

- Parent's obesity
- In utero exposure to tobacco (risk factor independent from low birth-weight)
- Low birth-weight (associated with rapid growth in the first 2 years of life)
- Absence of breastfeeding (duration of breast feeding, quality of breast-milk)
- Early introduction of cow's milk (esp. if low fat because of high P/L ratio)

All along the life (childhood, adolescence, adulthood):

- Low physical activity
- Inactivity/ Watching TV / Eating in front of TV
- Not enough fruit and vegetables / Too much sweet drinks
- Big portion sizes / High energy density / Low nutrient density

Most risk factors for obesity are also more prevalent in low SES populations

Genetic factors, in utero and early-life conditions:

- *Parent's obesity*
- *In utero exposure to tobacco*
- *Low birth-weight (associated with rapid growth in the first 2 years of life)*
- *Absence of breastfeeding (duration of breast feeding, quality of breast-milk)*
- *Early introduction of cow's milk (esp. low fat because high P/L ratio)*

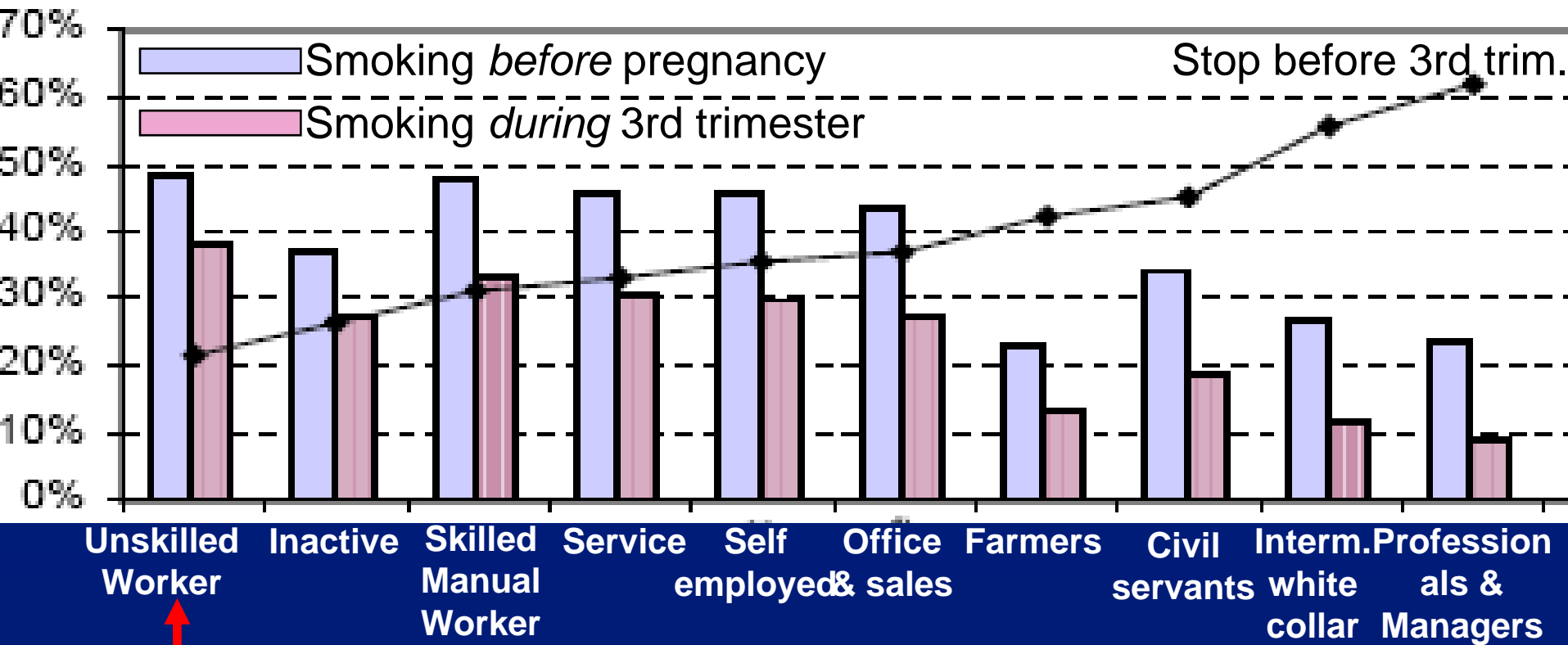
All along the life (childhood, adolescence, adulthood):

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➤ **Some illustrative data taken French studies** ➤

Percentage of women smoking during pregnancy according to occupation in France, 2003

National perinatal survey
Vilain, de Peretti, Herbert, 2003



- 50% female workers smoke during pregnancy vs 20% managerial staff.
- 3 times more managers vs unqualified workers give up smoking during pregnancy
- => Increased risk of being exposed to tobacco in utero for low SES babies

Low birthweight births (< 2500g), percent of live (first) births, according to mother's occupation -France, 2003

National perinatal survey
Vilain, de Peretti, Herbert, 2003

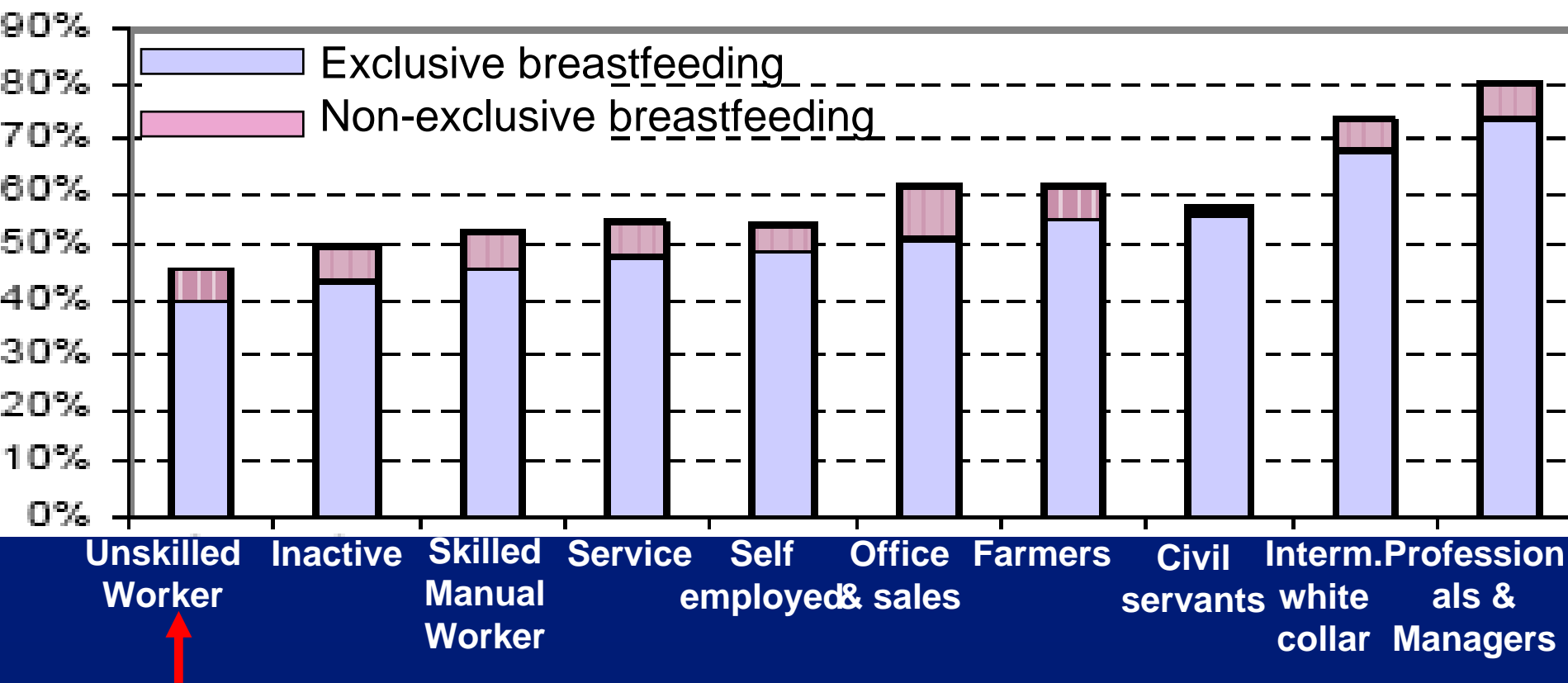


The prevalence of low birth-weight births decreases from 8 % to only 1 % when the occupation level of the mother increases

=> Increased risk of having a low weight at birth for low SES babies

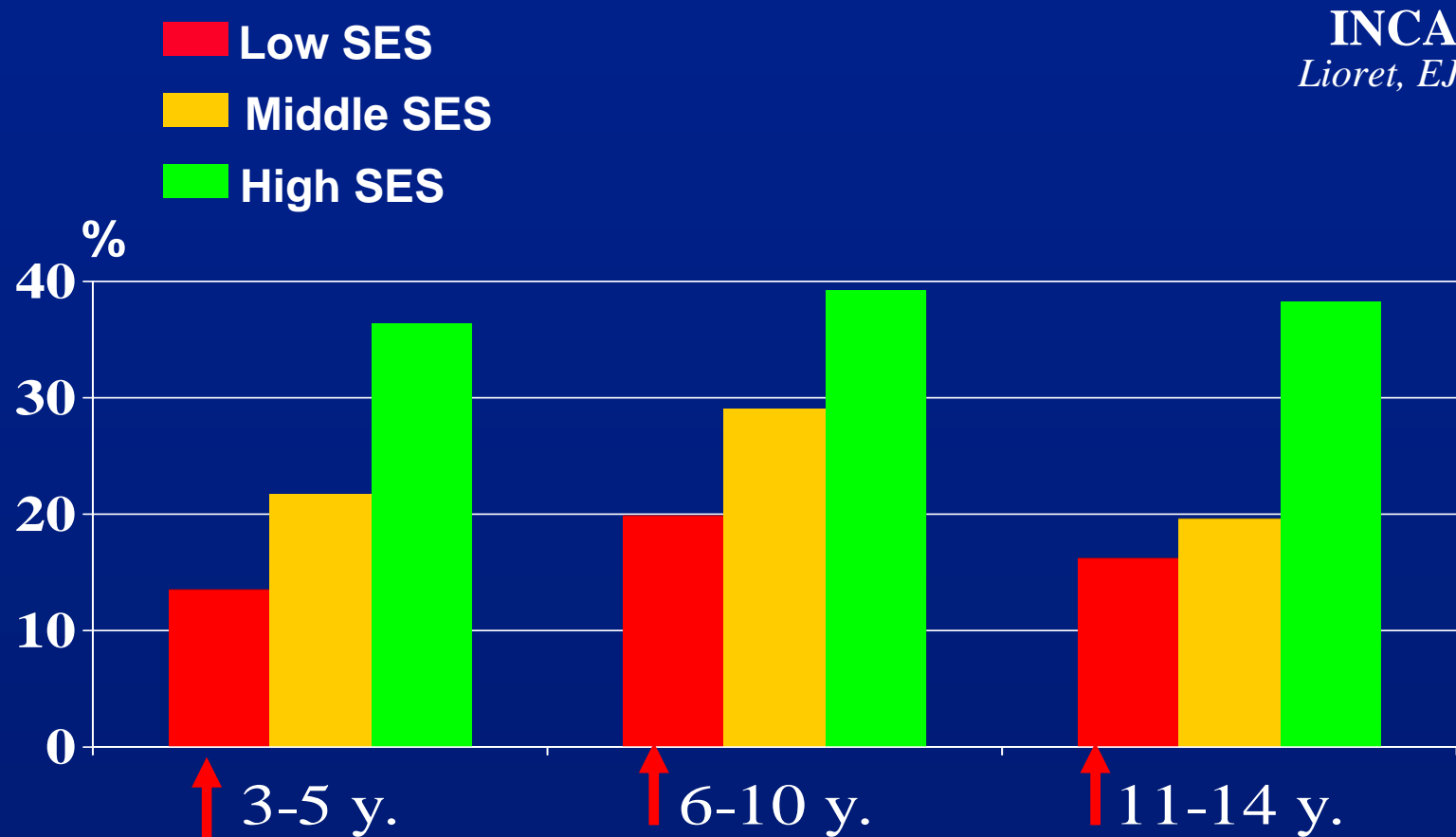
Breastfeeding status, according to mother's occupation in France, 2003

National perinatal survey
Vilain, de Peretti, Herbert, 2003



Increasing rate of breast-feeding with increasing mother's occupation level
=> Increased risk of not being breastfed for low SES babies

Prevalence (%) of low level of sedentary behaviour in children, according to age and SES in France, 2006

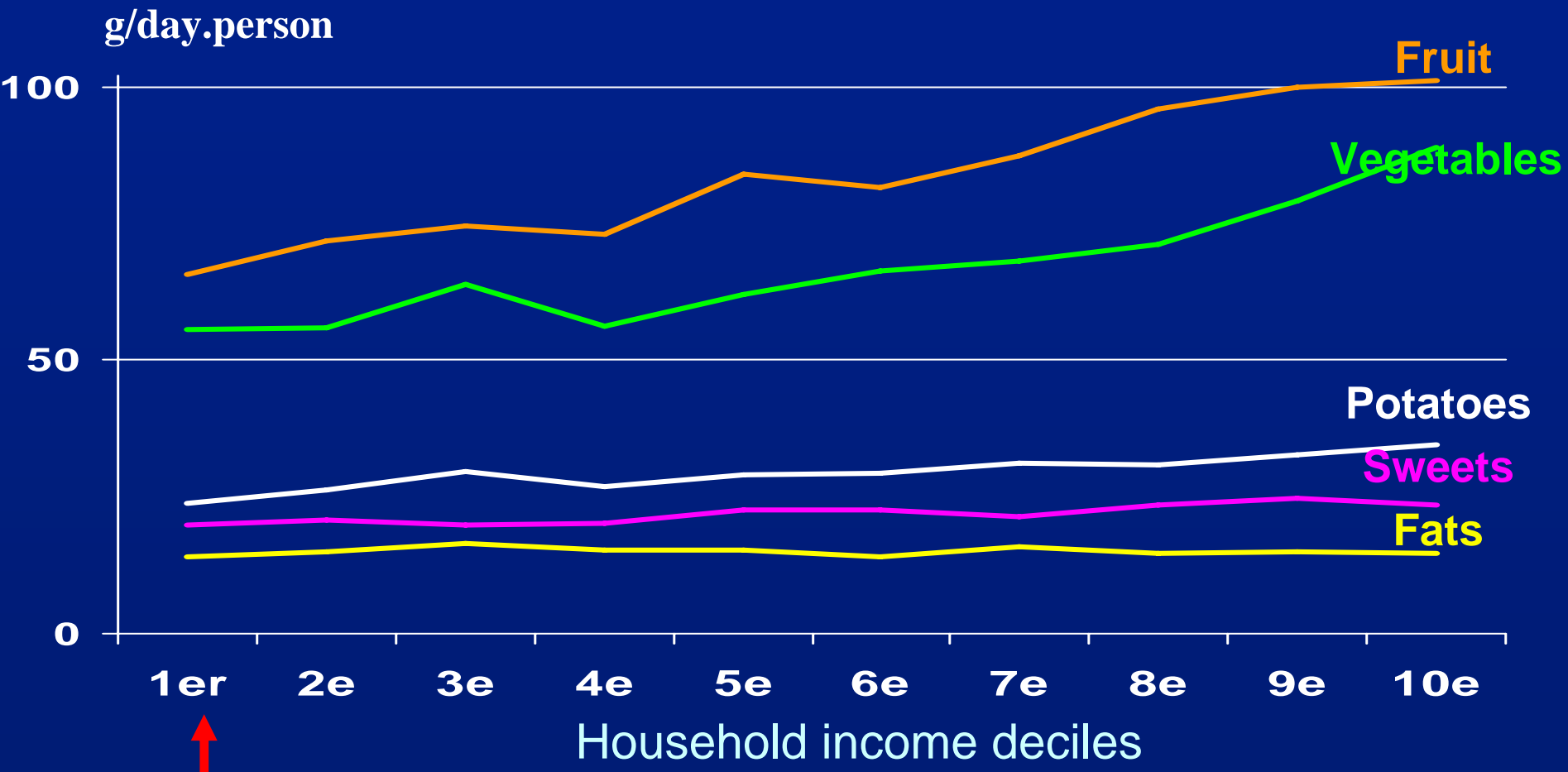


The proportion of children with a low level of sedentary behavior increases with increasing occupation level of the head of the household

=> Increased risk of being inactive for low SES children

Household food purchases, by income in France 2006

Insee Household budget survey F. Caillavet, 2006



Purchase of potatoes, sweets and fats is poorly related to income
Purchase of fruit and vegetables increases with increasing income

Food consumption and socio-economic status

Darmon & Drewnowski, literature review, Am J Clin Nutr, 2008

	High intakes among high-SES individuals	High intakes among low-SES individuals
Fruit & vegetables	Fruit & vegetables	
Cereals and starch	Wholegrain bread Unrefined cereals	Potatoes Refined cereals
Meat / Fish /Poultry / Eggs	Fish/ Seafood Lean meats	Eggs Fatty meats, fried meats, stew
Dairy products	Cheese	Milk
Drinks	Tea	Sweet drinks (children)

=> Foods recommended for health are generally consumed in lower amounts by low SES individuals

3. Additional explanatory factors

Most 'unhealthy behaviors' in childhood and adulthood are inherited from parental 'unhealthy behaviors', themselves influenced by:

Low SES in infancy

Low interest for health in the long term (because of more important and urgent problems)

Insufficient knowledge of the link between diet & health

Physical and structural barriers

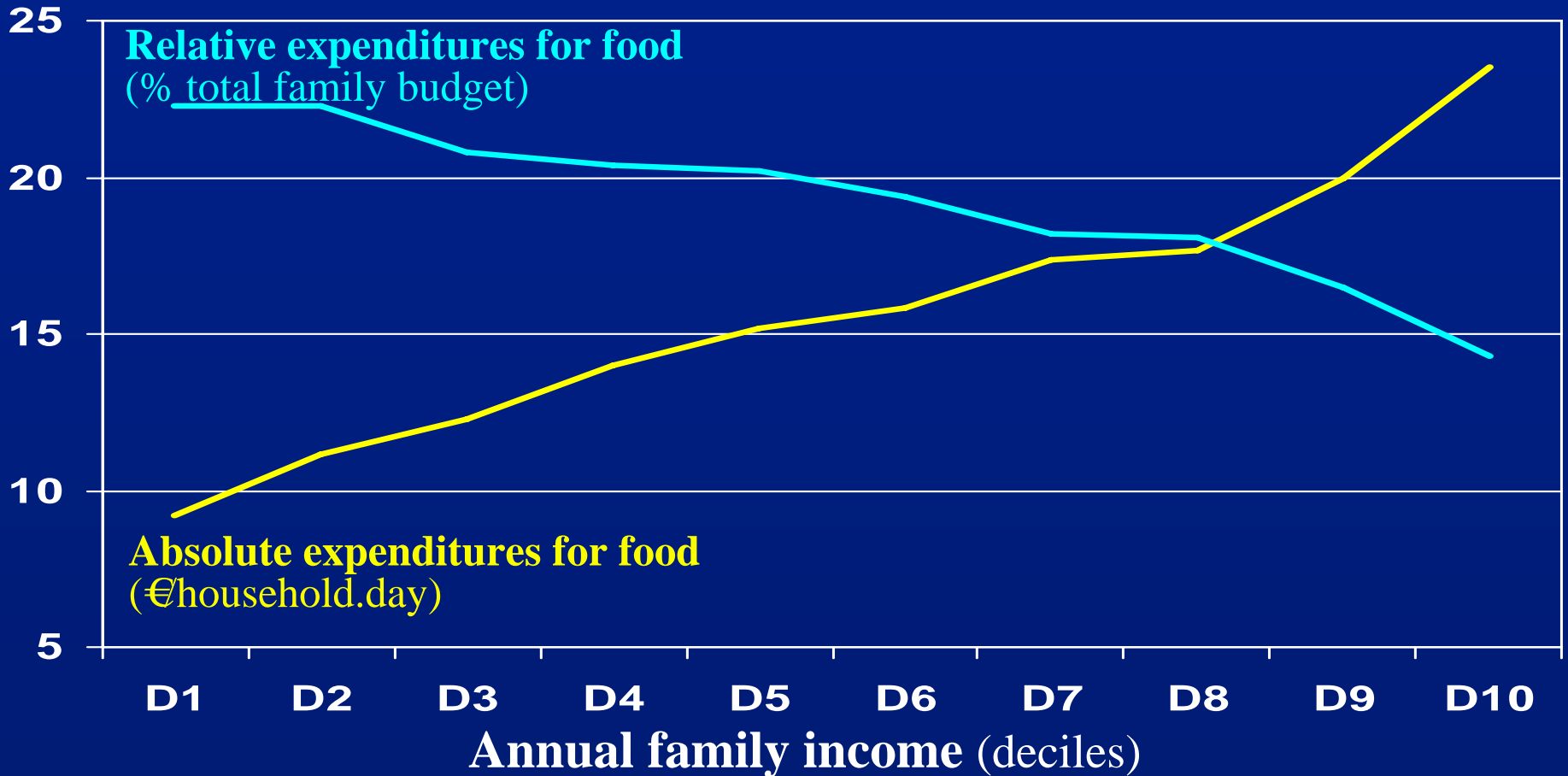
- insufficient areas conducive to physical activity?
- possible lack of shops offering healthy foods in deprived areas?
- problems of physical access to food shops

Economic barriers

- Food is the only expenditure line that can be decreased in a family budget
- High cost of leisure physical activity (sports, holidays..)
- High cost of a healthy diet (minimal cost strictly needed = 3.5 €d)

Relationship between the budget for food and household income in France 2006

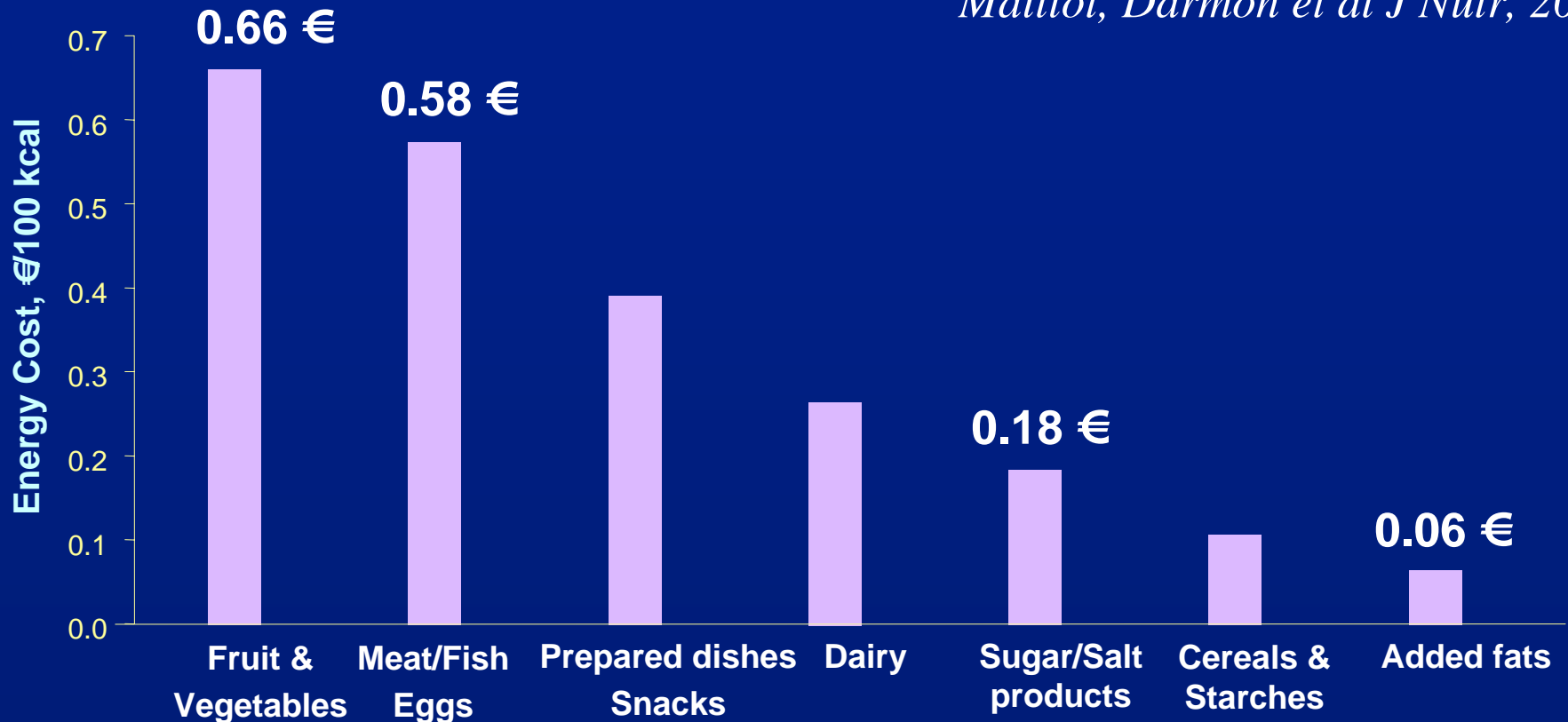
INSEE, French National Budget Survey, 2001



⇒ Low income people spend less money on food but this weights heavily on their family budget

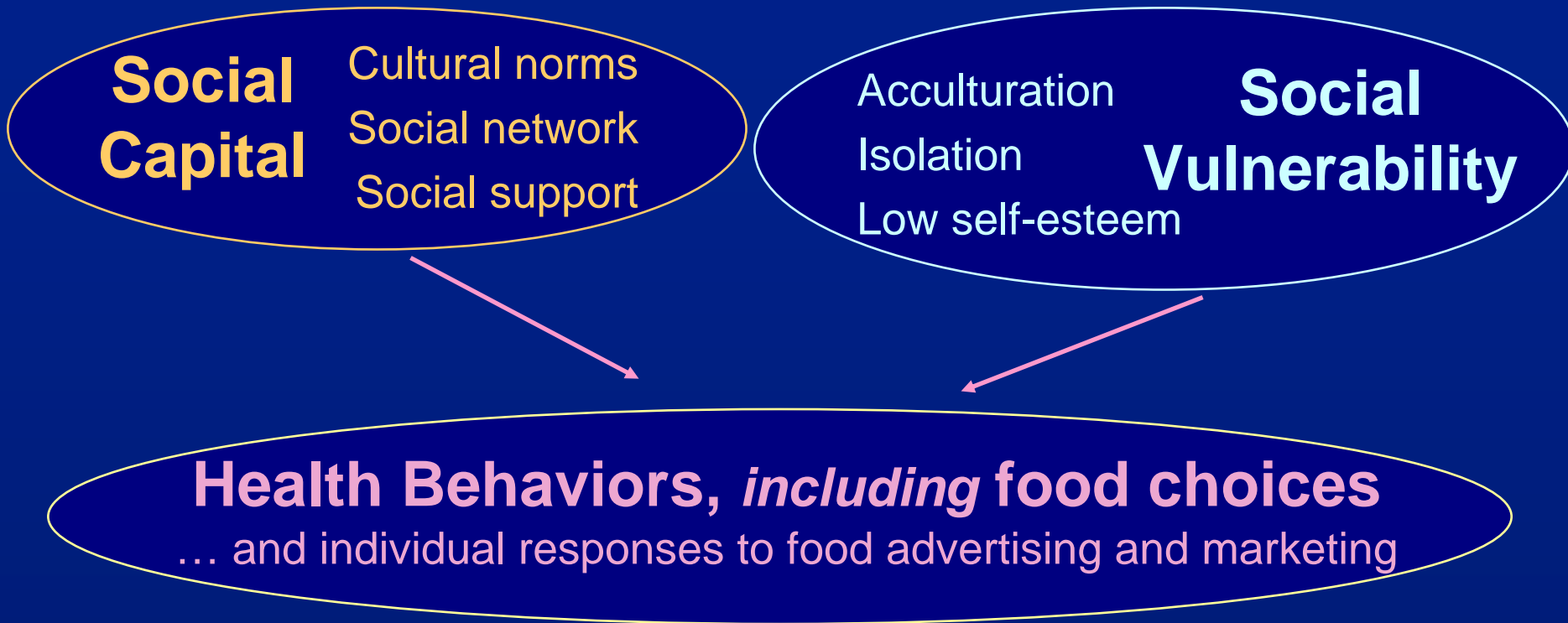
Cost of 100kcal from different food groups (1997 prices)

Maillot, Darmon et al J Nutr, 2007



- **In France, in 1997: the global structure of food prices was already unfavorable to healthy food choices**
- **Between 2000 and 2006, food prices increased by 14% in average, but fruit (20%) and vegetables (17%) increased more**
(data from the national institute of statistics)

Psycho-social factors

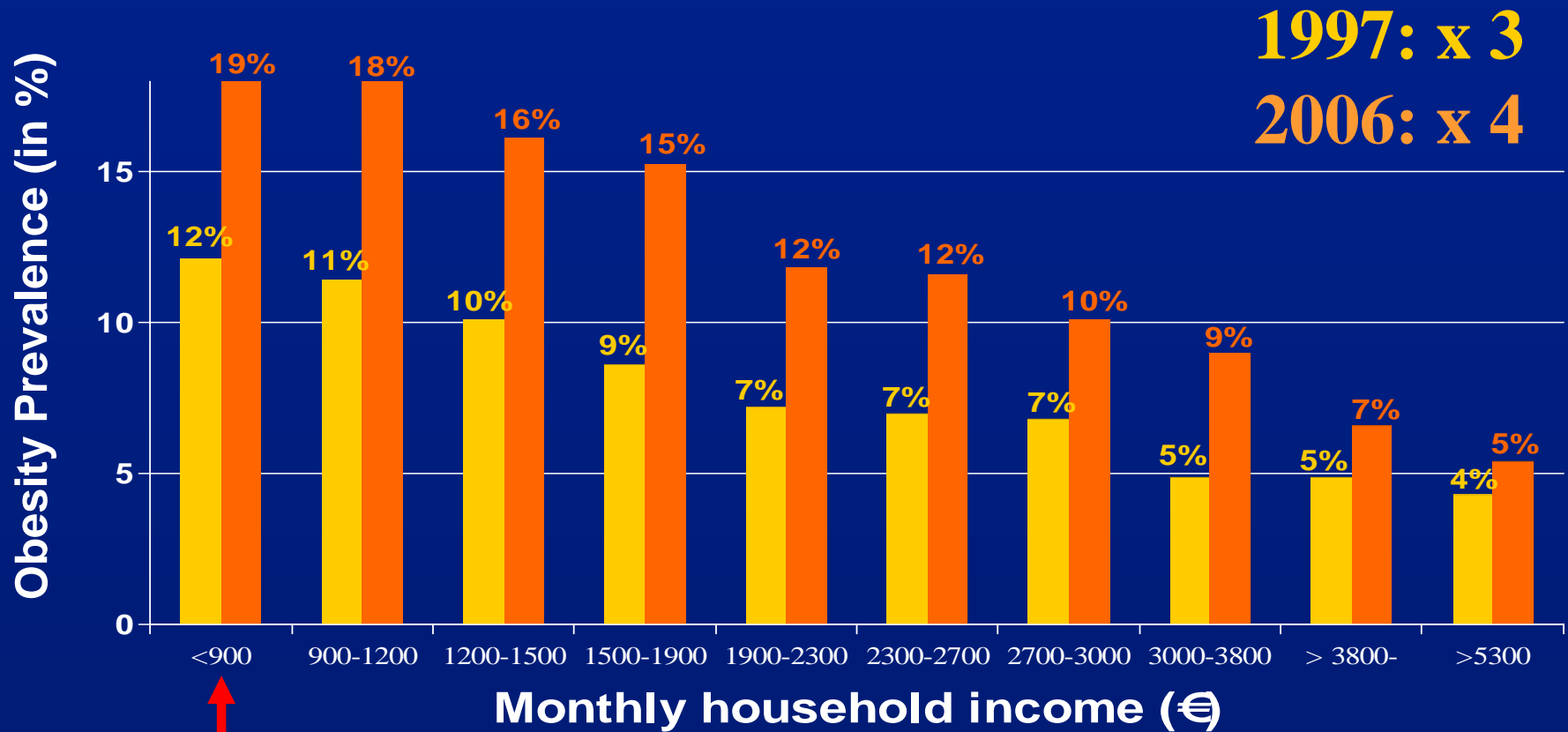


May explain some paradoxes in parental behavior:

- ✓ Not breast-feeding despite it is cheap: mother's low self-esteem
- ✓ Buying expensive branded junk food for children: to help « socialise » them

Evolution of the prevalence of adult obesity by income, in France between 1997 and 2006

MA Charles, Obesity 2008 (Obepi survey)



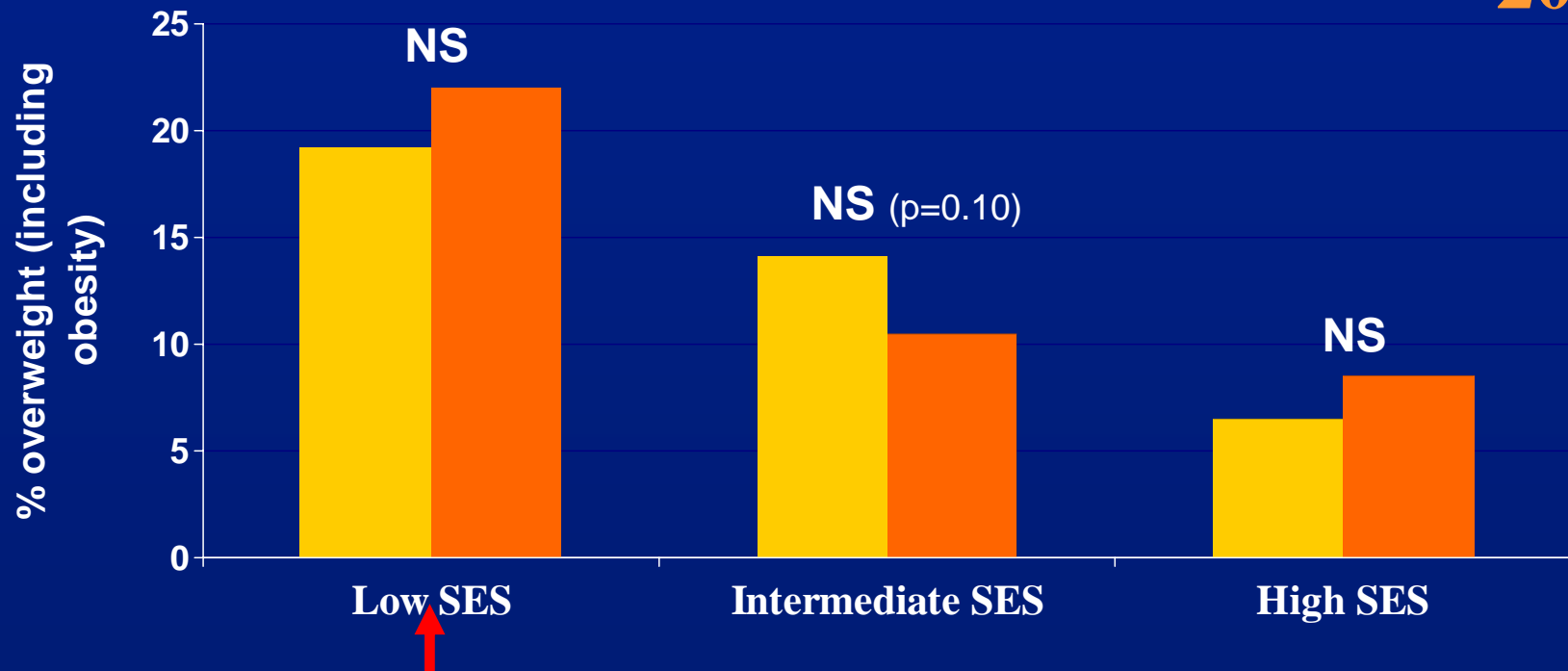
- ⇒ During the last 10 years, adult obesity increased in all SES categories, but it increased **MORE** in low SES ones
- ⇒ The socioeconomic gap in obesity is widening in adults

Evolution of the prevalence of overweight in 3-14 y old children in France between 1998 and 2006

Lioret, Obesity, 2009 (INCA survey)

1998

2006

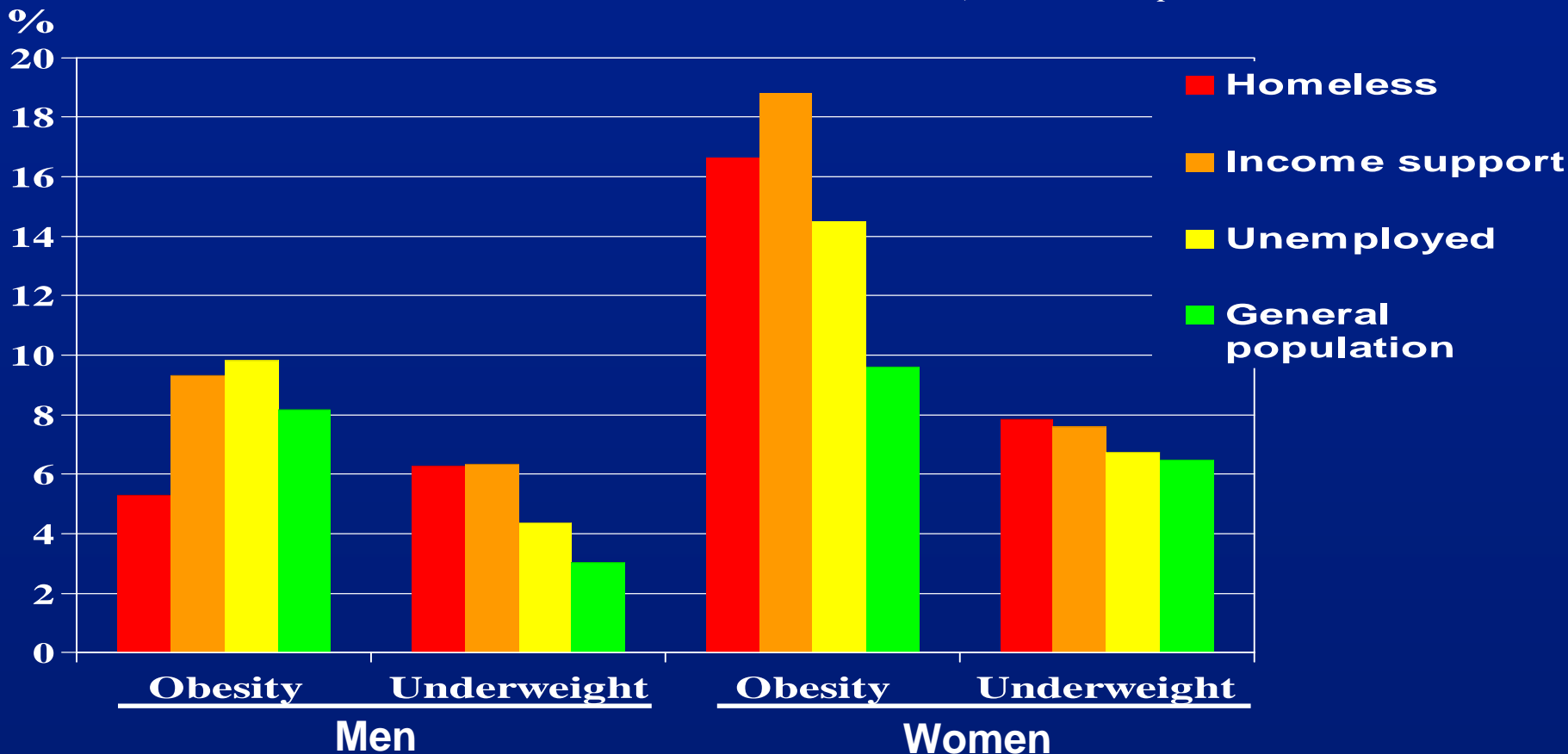


- ⇒ Global stabilization of children and adolescent overweight between 1998 and 2006 in France
- ⇒ But persistence of a strong inverse socioeconomic gradient

Inequalities in obesity... but also underweight in France

(data from 98 Health Centers, 1995-2002, n=1 070742 adults, 16-59 y.)

(Moulin, Dauphinot & coll, BEH, 43, 2005)



⇒ In France also, deprived populations are facing the so-called “double burden of malnutrition”:

- More obesity, especially in women
- More underweight, especially in men

- ✓ **Accumulation of risk factors for obesity in deprived populations**
- ✓ **Widening gap in the socioeconomic gradient in obesity**
 - **repetition from generation to generation**
 - **increasing income inequalities**
 - **double causal link (low SES \Leftrightarrow obesity)***

* In France, obesity is a significant predictor for job loss (in women only).



How preventing obesity in the whole population? *i.e. without increasing further social inequalities in health*

Consortium for the Prevention of Obesity in Europe

- Prevent maternal smoking during pregnancy in all women
- Promote breast-feeding in all women
- Improve the nutritional quality of milk formula (prot/lip, w6/w3), at low cost
- Screening for overweight and obesity, but not stigmatizing
- Modify the food offer (quality, portions, availability...), including food aid, school meals and work canteens, without increasing food prices
- Control nutrition information, claims and marketing, without increasing prices
- Promote everywhere environments conducive to daily physical activity
- Develop nutrition education programmes specifically tackling the problem of food access and food cost

FIGHT AGAINST SOCIAL AND ECONOMIC INEQUALITIES

**Thank you
for your
attention**

