

# Food Policy Options

## Preventing and Controlling Nutrition Related Non-Communicable Diseases

Report of a World Health Organization (WHO) and World Bank Consultation

November 20-21, 2002





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## Health, Nutrition and Population (HNP) Discussion Paper

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ISBN 1-932126-79-1

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# Health, Nutrition and Population (HNP) Discussion Paper

## Food Policy Options *Preventing and Controlling Nutrition Related Non-Communicable Diseases*

World Health Organization (WHO)<sup>a</sup> and World Bank<sup>b</sup>

Report of WHO and World Bank Consultation,  
World Bank, Washington DC, USA. November 20-21, 2002

**Abstract:** Although diet structure and activity throughout the developing world have shifted drastically over the past several decades, little is known about effective policies to influence the supply and demand for food to control the undesirable effects, such as obesity, heart disease and cancer, of those shifts. Two questions specifically need to be addressed: a) Are the traditional policy levers for crops and livestock still important and feasible options, considering the latest developments in processing, distribution and marketing? b) What research should be done in the process of formulating an 'Action Agenda' over the longer term.

The answer to question one, concerns 'Traditional' versus 'New Policy Levers', and includes: i) recognition of the limitations of conventional food policies; ii) demanding truth in advertising; iii) harnessing the influence of supermarkets and multinational corporations; iv) choosing realistic options to shift demand; v) addressing internal infrastructure; vi) using schools for targeted intervention.

The second question concerns the needed research for an 'Action Agenda'. There is a major need for longitudinal research to follow individuals and households in the way the China Health and Nutrition Survey does. Currently, few studies allow linkage of prices, diet, and health outcomes in any systematic manner that considers the timing of the changes. Details of the recommended research is outlined in the text.

**Keywords:** Nutrition-related non-communicable diseases; food policy; capacity development.

**Disclaimer:** The findings, interpretations and conclusions expressed in the paper are entirely those of the authors, and do not represent the views of the World Bank, its Executive Directors, or the countries they represent.

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This report and the presentations are available on the following websites:

<http://www.worldbank.org/nutrition>

<http://www.who.int/hpr/global.strategy.shtml>



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## FOREWORD

At the time of writing, millions of people, both in the industrial and developing worlds, are still malnourished or go to bed hungry. In the past, malnutrition was a term mainly associated with a lack of food, insufficient dietary diversity, and poor health care, that led to micronutrient deficiencies, wasting and stunting, and death. These are still the leading nutritional problems in large parts of the world. Yet, as more countries become industrialized, malnutrition due to diets containing too many calories and saturated fats, and more sedentary life styles, is increasing rapidly. The consequences are devastating, compromising quality of life, increasing health care costs and causing premature death due to chronic diseases. The issues that affect food consumption, including individual and household behaviour, marketing, policy-making and political choice and the incentives that influence choices are complex, and vary among countries and cultures. While there is still a window of opportunity to slow down or reverse these dietary trends, it is imperative that we identify and address the root causes of the problem.

The consultative meeting hosted by the World Bank and the World Health Organization was therefore timely. It explored how food policy changes could contribute to the prevention and control of nutrition related non-communicable diseases, and identified research priorities to inform an agenda for further action. The meeting identified feasible options, such as using school-based programs to increase consumption of fruits and vegetables, that countries could pilot test and expand in the short term. At the same time, the deliberations also demonstrated that few simple solutions exist, and that research is required to understand current trends, and identify effective policy levers in diverse settings. WHO was mandated by its Member States in 2002 to develop a Global Strategy on Diet, Physical Activity and Health for presentation to the World Health assembly 2004. It is currently engaged in wide-ranging consultations with Member States, UN and other international agencies, civil society and the private sector, on this issue. Recommendations from the Food Policy meeting will inform these consultations.

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## ACKNOWLEDGMENTS

This report summarizes the presentations and discussions at a consultation on November 20-21, 2002, at the World Bank Headquarters in Washington, DC.

The consultation was organized by members of the Health, Nutrition and Population unit of the Human Development Network. The consultation report was prepared by Lisa Jahns and Cara Roberts Eckhardt, with assistance from Barry Popkin and Milla McLachlan. Important contributions were made by the presenters and discussants at the meeting: Pekka Puska and Pirjo Pietinen (WHO); Lawrence Haddad and Christopher Delgado (International Food Policy Research Institute), James E. Tillotson (Tufts University), Thomas Reardon (Michigan State University), Marion Nestle (New York University), Corinna Hawkes, independent consultant, Rachel Nugent (National Institutes of Health), Emmy B. Simmons (USAID) and by the following World Bank Staff: Robert Hecht, Gershon Feder, and Cornelis van der Meer. Jeanine Comeau coordinated and facilitated preparations for the meeting, assisted by Merced Doroteo. The final report was prepared and edited by Kathy Lynch, and designed and formatted by Gisele Biyoo.

The World Bank gratefully acknowledges receipt of a grant from The World Health Organization to finance this consultation.



## INTRODUCTION

The structure of diet and activity throughout the developing world has shifted drastically over the past several decades. People are eating less of the traditional basic starchy staples and high-fiber foods, and more of the foods higher in fat and calories, such as edible oils, meats, processed staples and sugar. Under-nutrition and over-nutrition increasingly exist side by side, often in the same household. Work and leisure patterns have also changed, as economies grow and diversify, and incomes rise. People need fewer calories to perform their daily activities, but they are eating more.

Although incomes have risen, fertility rates have dropped, and people are living longer, we are finding that obesity, diabetes, hypertension, and cardiovascular disease (CVD) are on the rise among those living in the transitional economies. Increases in cancer, which lags other nutrition-related non-communicable diseases, can also be seen in many developing countries. All these phenomena have profound implications for health care policy and for economic development itself.

Little is known about effective policies to influence supply and demand for food to control the undesirable effects of shifts to diets that enhance obesity, heart disease and cancer. To lay the groundwork for an 'Action Agenda', improve understanding of key policy levers, and start policy advocacy to prevent and control nutrition-related non-communicable diseases, the World Health Organization (WHO) and The World Bank convened a panel of 16 food policy specialists, scholars and key actors at the Bank's Washington headquarters on November 20 - 21, 2002. This report summarizes the papers presented, discussions, and conclusions.



## PART 1: THE NUTRITION TRANSITION

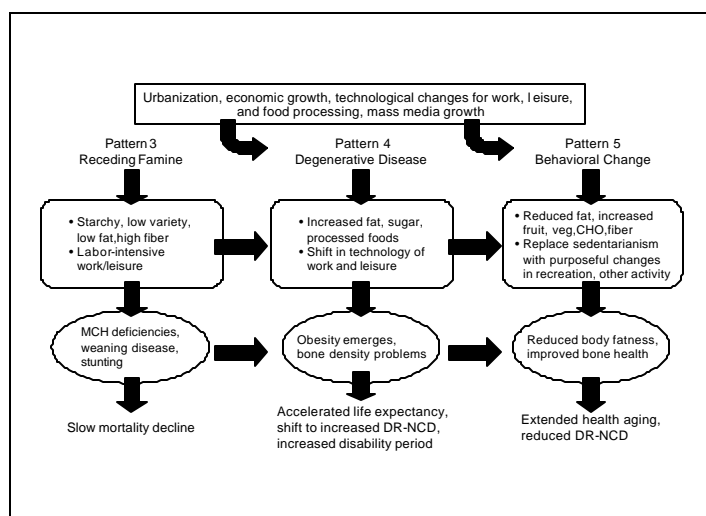
### THE NUTRITION TRANSITION UNDERWAY IN THE DEVELOPING WORLD - BARRY POPKIN

A 'nutrition transition' occurs as incomes rise and populations become more urban. The transition occurs in several stages, here characterized as patterns. In Pattern 1, a hunter-gatherer culture, the diet is high in carbohydrates, fibers, and low-fat wild meats. In Pattern 2, a time of periodic famine with increased social stratification, the diet is influenced by social status and gender.

Figure 1 illustrates Patterns 3 to 5. During Pattern 3, famine recedes, work and leisure activities remain energy-intensive and the diets are low in fat, but starchy and high in fiber. Mortality slowly declines. However, in Pattern 4, there is a shift from agriculture-based, labor-intensive work and high-starch based diets to sedentary work and diets higher in fat and energy density. Although life expectancy accelerates, nutrition related non-communicable diseases (NR-NCDs), also rise. This occurred during the 1950s to the 1980s in developed countries, and was associated with rapid urbanization, economic growth, technological advances for work, leisure and food processing, and mass media growth. Although these diseases were once thought to be 'diseases of affluence', they are now also increasingly found among the poor, and the overall disease burden for NR-NCD is rapidly shifting to the poor.

Pattern 5, illustrated in Figure 1, is discussed later in this section.

Figure 1. Stages of the Nutrition Transition



CHO: carbohydrates

MCH: maternal and child health

NR-NCD: nutrition-related non-communicable disease.

Source: Popkin BM, An overview on the nutrition transition and its health implications: the Bellagio meeting, *Public Health Nutrition* 2002, 5(1A), 93-103

## Nutrition-Related Health Concerns

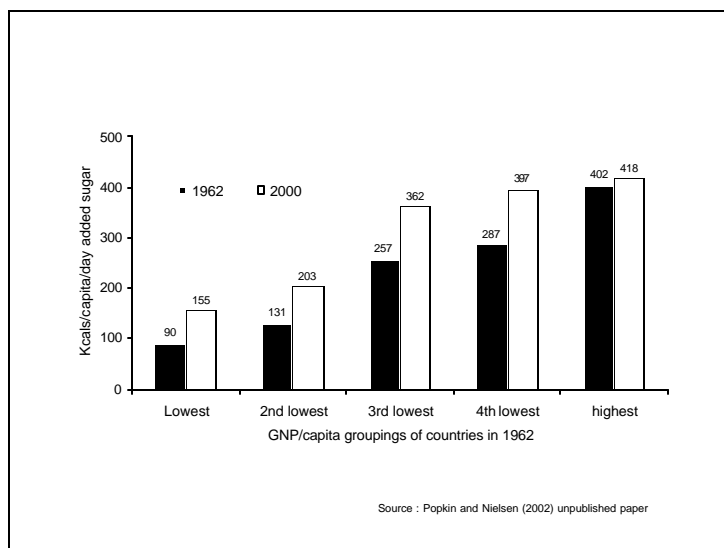
The key nutrition-related health concerns encompass dietary elements, physical activity, and health outcomes.

### Dietary Elements:

Beneficial foods include high-fiber grains, fruits and vegetables, legumes and reasonable amounts of animal source foods (ASF) that are important sources of micronutrients. Unhealthy foods include saturated fat, trans-fatty acids, refined carbohydrates, and excess sugar and salt (which is often added in processing).

High-fat, energy-dense diets are becoming more common in developing countries than in the industrial world. Cheap edible oils have increased fat intake among all income groups, and sugar consumption is growing fastest in developing countries (Figure 2). In low and middle income countries, added sugar contributes an additional 100 to 300 kilocalories (kcal) a day. In China, for example, the energy density of adult diets increased by 13 percent in just a decade. In the 1980s, low-fat diets were the rule (less than 10 percent of total energy intake). However, by 2000 more than 50 percent of high-income earners had high-fat diets (more than 30 percent of total energy). As income rises, the poor spend more of their income on fat than the rich. For every 1.0 percent increase in income, the poor increase their intake of fats by 0.3 percent.

Figure 2. Relation between Changes in GNP and Added Sugar



Source: Nielsen and Popkin. The Sweetening of the World's Diet (unpublished 2003)

### Physical Activity:

Over the past 25 years, people, especially urban dwellers, have been using fewer calories at work and at play. The shift from work in agriculture and other energy-intensive occupations to service jobs and technological advances in transportation and other fields has led to reductions in activity. For example, in China, 90 percent of people have television and a third have cable. Television has not only changed the nature of leisure activities, but also influences the way



people want to live. Chinese men, who acquire motorized vehicles, are twice as likely to become obese as those with non-motorized vehicles, such as bicycles.

**Health Outcomes:**

Just a short time ago, smallpox, polio, and other communicable diseases were the main health threats in the developing world. Now NR-NCD's, once the purview of the rich, are becoming prevalent in less affluent parts of the world, for example, CVD is making strong inroads in Asia, North Africa, China, and India.

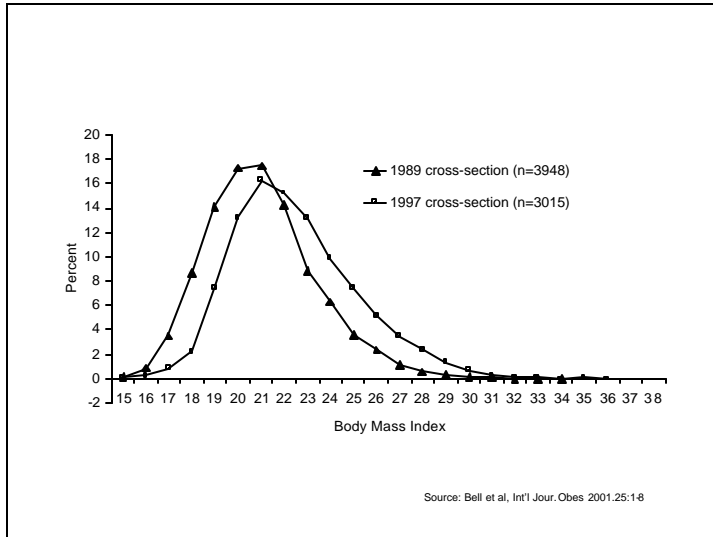
Although currently less prevalent in poorer countries than in the United States, obesity is growing at a faster rate. Table 1 shows the percentage of populations that are obese, and Figure 3 shows how overweight almost tripled among Chinese men and doubled among women from 1989 to 1997.

Table 1: Percentage of Obese Population

<i>Country/region</i>	<i>Obesity (percentage of population)</i>
United States	50–60
Mexico	50–60
Brazil	30–60
Asia	10–30
North Africa and Middle East	25–70
Africa	10–15
South Africa, black	
Men	30
Women	60

Source: Popkin BM, An overview on the nutrition transition and its health implications: the Bellagio meeting, *Public Health Nutrition* 2002,5(1A), p. 93–103

Figure 3: Overweight among Chinese Adults, 1989–97

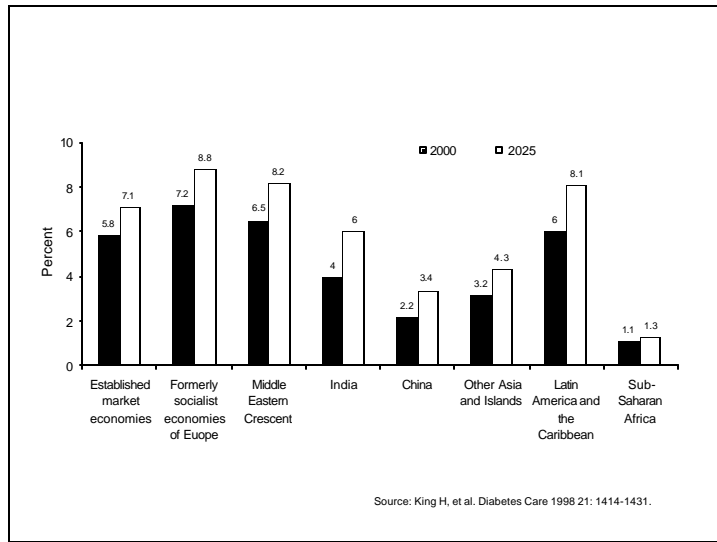


Note: The graph depicts the eight-year change in the body mass index (BMI) distribution for a cross-section of Chinese adults aged 20 to 45 years.

Source: Bell C, Ge K, Popkin BM. Weight gain and its predictors in Chinese adults. *International Journal of Obesity* 2001. 25:1079-1086

Obesity, a precursor to hypertension, strokes, degenerative disease, other non-communicable diseases (NCDs), and eventually cancer, is particularly associated with adult-onset diabetes mellitus (Figure 4). In the past, diabetes was a disease of middle age, but now it is increasing among younger adults. Adult onset diabetes is more prevalent in the Middle East than in the United States, and two-thirds of the new cases are in the developing world, with over half of them in China and India.

Figure 4: Diabetes Mellitus among Adults by Year and Region



Note: The graph depicts the prevalence of diabetes mellitus among adults 20 years of age and older.

Source: King H, Aubert RE, Herman WH. Global burden of diabetes, 1995-2025: prevalence, numerical estimates, and projections. *Diabetes Care*. 1998. Sep;21(9):1414-31.

### *Nutrition-Related Policy Concerns*

NR-NCDs, once a burden of the affluent, now also afflict the poor who are less able to pay the treatment and management costs. The shifting of this burden to the poor makes control and prevention of NCDs a key development issue. Dealing with it will require behavioral changes throughout the population and reorientation of public health policy, which is still currently focused on communicable diseases. We have already showed how the poor were more likely to be obese in many developing countries. Elsewhere, we have also examined nationally representative data from 38 developing countries, and showed that there is greater obesity among low socio-economic status (SES) individuals than among high SES individuals in countries with more than a gross national product (GNP) of \$2500 (Monteiro et al, draft 2003).

Pattern 5 of the nutrition transition (Figure 1) begins with an individual and public awakening to the importance of sound nutrition and exercise, and a thriving economy. In some places, this awareness is dawning, but is limited to the better educated and the better off. In Brazil in 1996, higher levels of smoking and a greater intake of added sugar were more prevalent among the poor than among the better off and better educated, and within 15 years the poor are projected to have a higher fat diet than the rich. The rich consume more fruits and vegetables and engage in more leisure time physical activity. Similarly, in South Africa and China, better educated women are less likely to be overweight.

Changes of this sort are representative of the fifth and final stage in the nutrition transition, where the new 'in' is a healthy diet and lifestyle. The policy challenge is to find the levers that will start or accelerate these changes.

## ANIMAL SOURCE FOODS - CHRISTOPHER DELGADO

The revolution in animal source foods (ASF's include fish, red meat, pork, dairy products, eggs), refers to the increase in demand for, and production of, meat, fish, and milk in low-income developing countries. It affects health, trade and poverty eradication efforts.

Growth in ASF production in the developed world is now flat as the market is saturated. From 1975 to 1999, animal products drove the production expansion in developing countries, which account for more than half the world's meat production (Table 2). Since 81 percent of the world's people live in developing countries, small shifts in their diets result in huge changes in the world market. In areas of the world where smallholder agriculture predominates, ASF production presents an unparalleled opportunity to build livelihoods.

Table 2. Developing Countries Share of World ASF Production (percent)

<i>Commodity</i>	1982-84	1996-98
Meat	36	52
Food fish	51	72
Milk	24	38

### Sources:

1. Delgado DL, Rosegrant M, Steinfeld H, Ehui S, Courbois C. Livestock to 2020: the next food revolution. *Food, Agriculture, and the Environment Discussion Paper 28*. IFPRI, FAO and ILRI. IFPRI, Washington D.C., 1999.
2. Food and Agricultural Organization of the United Nations. FAO Statistical databases. Rome, FAO. <http://apps.fao.org/subscriber> Accessed 1/02

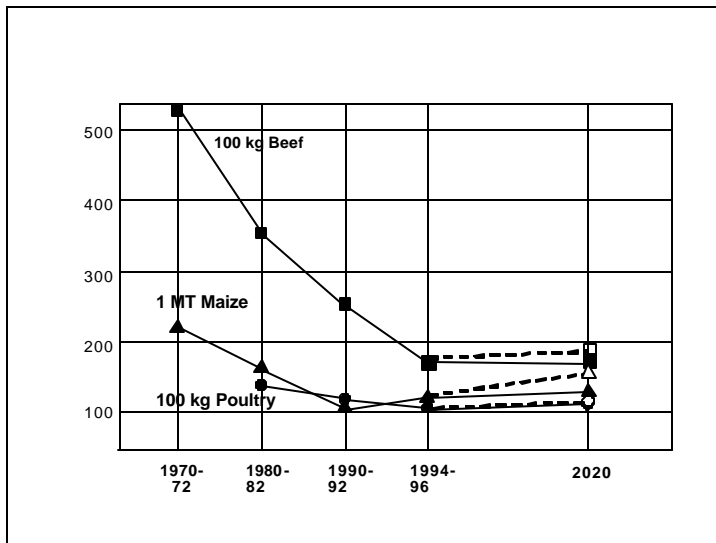
### ***What Drives the ASF Revolution?***

The ASF revolution is driven by demand, as ASF displace cereals in diets. People in China, South Korea, Morocco and elsewhere are eager to spend new income on red meat. Over time, more and more households will spend larger parts of their food budgets on animal products. However, currently the per capita consumption figures in developing countries hide

differences across income groups. For the most part, the rich are consuming far more animal source foods, and the poor get very little.

Since 1970, relative prices of food have dropped considerably and most dramatically for beef (Figure 5). Due to market saturation and technological changes that increase productivity, the ASF revolution is projected to bottom out by 2020. As relative commodity prices decrease and income increases, people usually increase the diversity of their diet and shift into higher priced commodities and processed convenience foods. While average income growth explains overall growth, urbanization and population growth explain the greater increase in ASF demand in developing countries relative to developed countries.

Figure 5: World Commodity Prices, 1990 - 2020 (U.S. dollars)



Source: Delgado CL, Rosegrant M, Steinfeld H, Ehui S, Courbois C. Livestock to 2020: the next food revolution. *Food, Agriculture and the Environment Discussion Paper 28*. IFPRI, FAO and ILRI. IFPRI, Washington D.C., 1999

Projected price changes reflect fish price increases and decreases in the prices of other animal products (Table 3). This is largely due to production constraints on high value finfish. In developed countries, better-off consumers are eating less low-priced fish (e.g., canned tuna), and eating more high-priced fish (e.g., Atlantic salmon). The use of fishmeal as poultry feed will likely decrease as prices rise.

Table 3: Projected Price Changes, 1997–2020

Commodity	Percent Change
High-value finfish	+15
High-value other	+4
High-value crustaceans	+16
Low-value food fish	+6
Fishmeal	+18
Fish oil	+18
Beef	-3
Pork	-3
Sheep and Goat	-3
Poultry	-3
Eggs	-3
Milk	-8
Vegetable meals	-1

Source: Delgado DL, Wada N, Rosegrant M, Meijer S, Ahmed M. *Fish to 2020: Supply and Demand in a Changing World. IFPRI book series*, Washington D.C. (forthcoming 2003)

### ***The ASF Revolution in China and India***

China and India are excellent examples of developing countries whose production and demand greatly affect world prices. Aquaculture supplies 31 percent of world food fish, and China farms 60 percent of those fish. China also produces 40 percent of the pork in the world, but is promoting beef consumption because beef requires less grain than pork. Projections to 2020 include huge increases in China’s food fish consumption and beef production.

India is the world’s largest producer of milk and much is used in the large amounts of sweets, containing mostly milk and sugar, which are processed and distributed in-country. Forty-two percent of the population does not eat any ASFs, and only the Muslim segment of the population consumes beef. India has food safety systems in place, especially in urban areas.

### ***The Production Response***

The world is changing for producers. Vertical coordination in market channels is increasing quickly and production is being scaled up in both developed and developing countries. This is a fundamental change from small producers to agribusiness. Growing demand for food safety and convenience, already seen in urban Asia, affects whether small producers can stay involved which is a big problem if many farmers are smallholders.

Development assistance in rural development is a key. Without action, livestock production will continue to industrialize. Increasingly global issues include environmental and animal welfare, and disease control to prevent the spread of zoonotic disease through trade of

feed and animal products. However, regulation does not work in places where the rule of law does not exist.

Developing countries will produce 63 percent of the world's meat and 50 percent of its milk in 2020. This global food activity is transforming the grain markets for animal feed. It also leads to resource degradation, rapid increases in feed grain imports, concentration of production and consumption, and promotes social change. Whether the ASF revolution is a curse or a blessing depends on policy and technology.

### ***The Downside of the ASF Revolution***

The ASF revolution raises concerns about nutrition, poverty and sustainability. The nutritional benefits may not occur fast enough for the people who need them most, and nutrition related NCDs are on the rise. The same forces that promote increased consumption of ASF may be linked to other risky changes, such as smoking or high fat diets. The increased trade of perishables and changing modes of production lead to food safety issues.

Scaling-up production may put small producers, mixed farmers, and artisanal fisher folk out of business, and demand for food safety could also exclude poor producers. Degradation of the resource base will also harm the rural poor.

### ***Key Issues for Developing Countries***

As the 21<sup>st</sup> century unfolds, food safety, disease control, and credible certification will become increasingly important. To assure the continued participation of the poor in the production of high-value items, a viable organizational path is needed, with solid institutions. To promote institutional change, a targeted policy is needed that encompasses science and public goods. Interface of policy and technology is a key to economic and environmental sustainability. There is also a role for public education combined with economic policies.

When developing strategies, the broad issues have to be put into perspective. For instance, more meat and milk means more saturated fat in diets but as every third death around the world is due to CVD, the ASF revolution raises medical issues. There are various entry points to effect policy change, such as the processed food industry to assure transparency of commodities (such as the oils), used in processing, and these should be used.

## **REDIRECTING THE NUTRITION TRANSITION: WHAT CAN FOOD POLICY DO? - LAWRENCE HADDAD**

In developing countries, the rich and poor in the city and the country are taking up higher fat diets and less energetic lifestyles. The severe health and related economic consequences of these trends demand an exploration of policy options to head them off. This means identifying the drivers and the potential role of public policy to alter these trends and recognizing the constraints to relevant policy formulation.

## ***Drivers of Nutrition Transition Trends***

A variety of factors drive the nutrition transition in developing countries. Many higher price elasticity foods have high fat contents. Thus, as incomes rise, the proportion of the household food budget spent on higher fat foods increases more relative to spending on other types of foods. Furthermore, although the prices for all goods rise as countries modernize, food prices rise more slowly than the prices of other goods due to advances in production and distribution techniques. This facilitates the purchase of a wide variety of processed foods. Urbanization is associated with the structural shift in preferences for processed foods, as more time is spent away from home, more prepared foods are purchased, and the infiltration of advertisements through the media grows. Trade liberalization also helps decrease the prices of a variety of foods, including edible oils and other foods high in fat. Finally, recent research suggests that people born with intra-uterine growth retardation (IUGR) due to maternal under-nutrition are 'programmed' to conserve fat and are thus more likely to become obese later in life in the context of plentiful diets<sup>1</sup> IUGR is common in developing countries and so therefore, some of the boom in overweight and obesity rates emerging worldwide may be biologically driven.

## ***The Role of Public Policy***

Policy has a potential role in diminishing the poor health and negative economic outcomes associated with the increase in overweight and obesity in developing countries through both demand and supply side interventions.

One demand-side option is to change the relative prices of healthy and unhealthy foods. However, this option is not easy for several reasons. First, raising the prices of unhealthy products is politically difficult, for example, through a tax on high-fat items. Second, it is difficult to identify products whose prices could be raised without harming some portion of the population. Although meat tax might be desirable to encourage high-income overweight people to decrease their saturated fat intake, this policy would make it difficult for low-income undernourished populations to access an important source of protein and micronutrients. Raising the price of edible oils might be a safer option, but there are still undernourished populations that rely on edible oils as a high caloric-density additive to weaning foods. Other non-price related demand-side interventions are also an option. Food labels could be used to provide clearer information about product contents. Information campaigns could be staged to raise awareness of the consequences of obesity. School-based interventions could be used to improve diet and activity, as has been done in Singapore. Traditional cooking methods could be taught and encouraged, as has been done in Korea. National dietary guidelines for nutritional well-being could be publicized, as has been done in China. Mass media campaigns to reduce overweight could be conducted, as has been done in Brazil. However, such options need to be evaluated because little is known about their effectiveness.

The following supply-side interventions should also be explored. Increasing investment in agriculture could raise productivity and lower the price of fruits and vegetables that are less sensitive to the environment. Investment could also be used to explore low-fat livestock technologies. Better crop insurance could reduce the risk of growing healthy but less hardy

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<sup>1</sup> Barker, DJP. Fetal Origins of coronary heart disease, *British Medical Journal* 1995, 311:171-174



produce crops. Quantity restrictions on low-fat food production could be lifted. Consideration of fat content could be incorporated into food-safety standards. Trade policies could be altered to reduce import tariffs on fruits and vegetables into developing countries. Standards for fat content of processed foods and school lunches could be established and toughened. Combating under-nutrition could reduce the incidence of IUGR and a future tendency towards obesity among some portions of developing-country populations.

Such interventions require a great deal of financial and structural investment and should be evaluated with regard to their potential success and effectiveness, considering also unintended effects. For example, it is important to remember that a large proportion of people in developing countries depend on farming for their livelihoods and that these farmers are a less powerful political force than farmers are in developed countries.

U.S. food policy instruments for controlling dietary fat (Table 4), provide an example of potential policy roles.

Table 4. U.S. Food Policy Instruments for Controlling Dietary Fat

Stage of the food system	Types of policy instrument	Examples used in dietary fat issue	Effectiveness in controlling fat intake
Food production	• Commodity price subsidies/supports	• Feed grain subsidies for feedlot animals • Dairy price supports	• Negative • Negative
	• Import/export quotas	• Export incentives for U.S. vegetable oil • Restrictions on beef imports	• Uncertain • Uncertain
Food processing	• Meat grading standards	• Beef grading (changes from choice to select)	• Positive
	• "Standards of identity"	• "Standards of identity" changed for low-fat milk and yogurt	• Positive
	• Food labeling	• Food label descriptors (e.g., "low fat") changed for fluid milk, ice cream	• Quite positive
Food distribution and marketing	• Marketing orders for dairy	• Changes in milk marketing orders	• Negative
	• Food labeling	• Use of "% lean" claims on ground beef • Restaurant labeling of menu items with "low fat" claims	• Slightly negative • Slightly positive
	• Food advertising	• Harmonization between the Federal Trade Commission and Food and Drug Administration on ads using fat "descriptors"	• Uncertain
Food consumption	• Food labeling	• Fat descriptor information on food label	• Positive
	• Dietary information campaigns to public	• Dietary guidelines	• Quite positive
	• Commodity promotion boards	• Food Guide Pyramid	• Negative
		• Promotion of cheese, ice cream, milk, beef, pork	

Sources: Sims LS. The politics of fat. 1998. Armonk, NY: M.E. Sharpe Inc.

### ***Constraints to Relevant Policy Formulation***

'Triggers' can spur the successful government regulation of private behavior under certain circumstances<sup>2</sup>. Table 5 provides some examples in the context of the high prevalence of obesity in the United States. With regard to the nutrition transition in developing countries, a number of constraints on policy formulation have stopped the triggers necessary to catalyze change from being activated. As discussed, it is difficult to identify a clearly offending food

<sup>2</sup> Kersch R, Morone J. When personal becomes political: the case of obesity. 2002. Syracuse University (unpublished)

product, as foods such as meat might be detrimental in high-fat diets and crucial in inadequate diets. In addition, developing countries have broader farm constituencies and no private externalities.

Table 5. ‘Triggers’ for Successful Government Regulation of Private Behavior

<i>Trigger</i>	<i>Comments</i>	<i>Power of obesity triggers in United States</i>
1. Social disapproval	Recognition by society as a "bad thing"	There is a popular disapproval of obesity
2. Medical Science	Role is to challenge myths	There is strong evidence linking diet to obesity and obesity to chronic diseases
3. Self-Help	Alcoholics Anonymous	Overeaters Anonymous, Weight Watchers
4. Demonize user	Feared drug-crazed	Obesity does not play on fears. No evidence of trigger yet.
5. Demonize provider	Big Tobacco	No "Big Chocolate" yet. "Fast Food Nation" gaining consciousness. No evidence of trigger yet.
6. Mass movement	Protests, rallies	No evidence of antiobesity campaigns (possibly the opposite, regarding accepting body image). No trigger yet.
7. Interest group action	Lawyers and lobbyists	Yet to be achieved. No trigger yet.

Source: Kersch R, Morone J. 2002. When personal becomes political: the case of obesity. Syracuse University (unpublished)

Research to fill current information gaps could help create a context in which triggers in developing countries could be activated and effective policies could be formulated (Box 1).

Box 1. Information Gaps
Use existing survey data to systematically chart trends in the availability of ‘bad’ food components – for a large number of countries. State of Food Insecurity (SOFI) updates.
Estimate food price elasticities in developing world that link the consumption of various foods with fats and chronic disease <ul style="list-style-type: none"> <li>- identify by income, income source, and type of urbanization</li> <li>- assess tradeoffs between under and over nutrition</li> </ul>
Run more pilots, and more evaluations of pilots, for obesity and overweight prevention on both demand and supply side
Study the investments and institutional innovations that smallholder farmers need to link up with growing domestic and international markets for healthy foods
Do more work on linking trade policy with health outcomes, via computable general equilibrium models (CGEs)
Investigate policy process – why has the success of the public health response to chronic disease varied?
Identify win-win public-private partnerships
Examine the possible incorporation of saturated fat content into food safety standards

Source: Lawrence Haddad

## **PART 2: OVERVIEW OF THE DYNAMIC SHIFTS IN PROCESSING, MARKETING AND DISTRIBUTION**

### **MULTINATIONAL FOOD COMPANIES AND DEVELOPING NATIONS' DIETS - JAMES TILLOTSON**

Multinational food companies are powerful change agents introducing Western diets to developing countries. Countering the influence of these corporations with policies and interventions to support healthful diets requires an understanding of their power. Most of the world's top food and beverage companies are based in the United States. Because the Western concept of financial success with regard to business is to show uninterrupted market growth, and because Western markets have been largely saturated, these corporations work to continually expand their consumer base around the world.

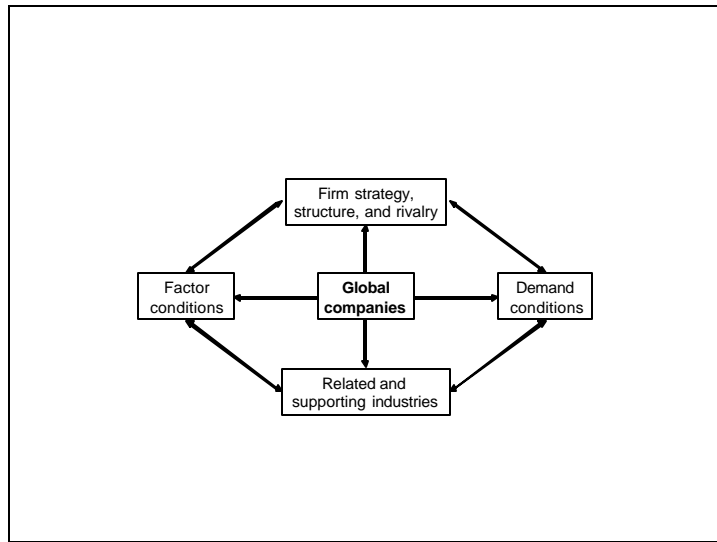
This tactic has been successful for a number of reasons. Multinational corporations have vast financial resources, offer desirable brands, and use marketing techniques that have allowed them to rise to global success over years of competition with other companies. They also offer benefits to developing countries, such as, employment opportunities, increased commerce, improved food safety, and foreign investment.

It is important to remember that the marketing techniques of the multinational companies have been honed over time mainly in response to consumer taste preferences and by concerns about factors, such as, product convenience, market growth, and product distribution. These strategies have resulted in products that the public enjoys, that are readily available and affordable, and that require little to no preparation. Concerns about health and nutrition have not played a role in this process.

Figure 6 is a conceptual diagram of the four factors that lead to competitive advantage for corporations. In the United States, all these factors are present. With regard to factor endowment, the United States has provided multinational corporations with human, physical, knowledge, and capital resources, as well as infrastructure. In terms of related and supporting industries, there is a strong presence of supplier and related industries in the United States. The demand conditions in the United States include a large market, sophisticated and demanding buyers, and early market demand. Last, domestic rivalry, company goals, and the influence of national prestige have provided a context for firm strategy and rivalry. Understanding these factors is important, as these same factors and known marketing techniques will be used in developing countries.

We know a great deal both about the way multinational food corporations work and about nutrition needs, but how these fields can be put together to benefit the health of citizens in both developed and developing countries is not clear.

Figure 6. The Competitive Advantages of Nations



Source : Porter ME. The competitive advantage of nations. New York, Free Press, 1990

### **SUPERMARKETS AND NUTRITION IN DEVELOPING COUNTRIES: HYPOTHESES AND EMERGING EVIDENCE - TOM REARDON**

The role of supermarkets in developing countries is growing rapidly. For example, in Latin America, supermarkets' share of all food retail grew from about 15 percent in 1990 to 60 percent by 2000. For comparison, 80 percent of food retail in the United States took place in supermarkets in 2000. In one decade, the role of supermarkets in Latin America has expanded in a way that took 50 years in the United States. Supermarket use has spread across both large and small countries, from capital cities to rural villages, and from upper and middle-class families to the working class. This same process is also occurring at varying rates and is at different stages in Asia, Eastern Europe, Russia, and Africa.

There are many drivers of this phenomenon. From the consumer side, demand for processed and nonstaple foods in developing countries is on the rise. Additionally, as countries modernize, the opportunity cost of women's time has grown, building a market for timesaving prepared foods. Transportation and access to technology, such as refrigerators has also played a role in the demand for, and access to, supermarkets. Other drivers include the liberalization of foreign direct investment, trade liberalization, and the saturation of Western markets that have pushed growing companies into other locales. Furthermore, improvements in the logistics and procurement systems used by the supermarkets have allowed them to compete on cost with typical outlets in developing countries, the small 'mom-and-pop' stores and wet markets (open public markets) for fruits and vegetables.

Due to these factors, consumers in developing countries are flocking to supermarkets, although most fruit and vegetable purchases are still made in smaller markets. Thus, from a policy standpoint, it is important to consider whether supermarkets might be used as a tool to

improve diets in developing countries and combat the poor health outcomes associated with rising rates of overweight and obesity.

Policymakers should consider interacting with the buyers for supermarket chains. These officers are responsible for market growth and consider such issues as product and transaction costs, food quality and safety, convenience, and product diversity when deciding what to carry in their stores. Their decisions influence and are influenced by consumers. This discussion focuses on the dynamics between supermarkets and urban consumers, although policymakers must also consider the effects of supermarkets on small retailers and small farmers.

Snacks are the fastest growing type of food trade and consumption in most parts of the world, and they are successfully marketed in supermarkets. Thus, supermarkets are powerful retail facilitators and drivers of consumption patterns and food trends, but they also mirror consumer demands. For example, consumers demand fresh local produce in very poor countries and purchase these goods from small vendors. As countries become more developed and infused with Western culture, the demand for processed foods and snacks rises and supermarkets work their way into the local market by providing these goods. In developed countries such as the United States, a focus on fresh produce returns, and supermarkets import fresh and organic produce from non-local producers to satisfy that demand. In other words, supermarkets provide what their customers want.

Supermarkets are large providers of processed high-fat foods in developing countries, but they have also been the purveyors of some good. For example, supermarkets were behind the development of ultra heat treated (UHT) milk, providing a safe source of milk for all income groups, and have been key players in establishing food safety standards. The marketing budgets for large supermarket chains are enormous, and the expansion of supermarkets into developing countries is unavoidable. Once supermarkets are recognized as an adaptable, efficient, service-delivering force that can affect consumer nutrition, any policy agenda for improving nutritional status in developing countries should consider the involvement of supermarkets.

Policy agendas that target supermarkets should start by recognizing that supermarket buyers, motivated chiefly by profits, would be eager to be a part of any policy initiative that might boost sales. For example, nutrition education could be funneled through marketing campaigns as has been done with the Five-a-Day (fruits and vegetables) campaign in the United States. Governments could consider offering tax incentives to supermarkets that do participate in nutrition education. Supermarkets could also become involved in providing consumers with information through labeling rules, and perhaps, also in preferential pricing (if profitable). However, policymakers should keep in mind that supermarket chains will not participate in any plan that would alienate them from global providers, and that they will always be driven, first and foremost, by profits.

## **MARKETING, DISTRIBUTION, AND FOOD POLICY - CORINNA HAWKES**

As snack foods gain popularity in developing countries, large corporate providers of these products expand worldwide. That is why the market activities of such companies and their role in dietary changes must be understood. Corporations such as Coca-Cola, Pepsi-Cola,

McDonald's, and Tricon market aggressively in developing countries to make their products popular and profitable. The marketing goal—to change consumption patterns and create demand—thus influences diets in populations undergoing the nutrition transition. The main targets of such campaigns are teenagers and children. Corporations use several marketing strategies to create demand worldwide. These strategies can be categorized under five headings: place, price and package, product expansion, promotion, and public relations.

#### *Place*

Companies increase product availability by increasing the number of sales outlets. Companies forge relationships with small retailers by providing technology. For example, soft drink companies often provide small retailers with refrigerators so they can sell consumers drinks that are cold and ready to consume.

#### *Price and Package*

Companies aim to make their products cheap enough for a wide variety of consumers to purchase. For example, soft drink companies have produced smaller cheaper bottles of product in India so that their consumer base can include the poor.

#### *Product Expansion*

Companies respond to consumer tastes. For example, McDonald's offers rice in their Hong Kong franchises and offers vegetarian options in their Indian locations.

#### *Promotion*

Companies have access to enormous budgets to market their products in a variety of ways. For example, marketers attempt to link products with lifestyle aspirations, and restaurants offer toys with kids' meals.

#### *Public Relations*

Companies provide services as a way of further marketing. For example, companies might build community playgrounds, or sponsor sports events to gain recognition.

By being aware of the market activities of large corporations in developing countries, policymakers can plan actions more effectively.

## **U.S. FOOD POLICY - MARION NESTLE**

In the United States, obesity has assumed epidemic proportions in the past 15 years. Obesity is a function of intake and activity. People are eating more often, they are eating larger portions, and they are consuming more energy than they expend. Among the public, there is a disconnect between portion size and energy content. The public must be made aware that increasing portion sizes leads to increasing energy consumption, which leads to obesity.

Convenience, personal food preferences, and global food marketing determine dietary choice in the United States. With the demographic and work pattern changes, convenience is most important. Personal food preferences are influenced by education, income, age, gender,

family background, and ethnicity. Global food marketing, despite its influence, is the category no one talks about.

Food is cheap in the United States, not just because the country is wealthy, but because subsidies and agricultural policy give producers incentive to make more. When under-nutrition was the main problem, this made sense, but today, *over*-nutrition is the bigger problem. The United States greatly overproduces food; 3,800 kcal/day/person. This is an increase of 500 kcal/day since 1970.

Because food is so abundant, U.S. producers face a very competitive environment. Producers have two choices, advocate eating more, or focus on getting people to eat their product preferentially. Since processing accounts for about 80 percent of consumer food cost (much more for animal products), the first choice is an easy one—the economic basis for expanding portion sizes is that the food is the cheapest part.

Advertising is only the tip of the marketing iceberg. For every dollar spent on media, \$2 is spent on coupons and other promotional devices. Most marketing dollars are spent on foods at the top of the U.S. Department of Agriculture Food Group Pyramid. Unsurprisingly, a “marketing dollars” pyramid looks just like the “actual consumption” pyramid. Here are some surprising facts:

- In 1999, direct and indirect food advertising amounted to US\$30 billion.
- Altoids mints have a US\$10 million a year budget. However, the five-a-day fruits and vegetables program, *in its best funded year*, had a US\$2 million budget, five times less than Altoids.

### *Suggested Policy Approaches*

Some policy approaches to deal with the obesity epidemic are:

- Implement national goals and form an oversight committee.
- State nutrition messages explicitly.
- Use advertising. Get soft drinks out of schools completely.
- Regulate TV commercials, especially those targeted at children.
- Adjust food prices and tax policies.

A paradigm shift has occurred in the last two years. The intervention focus has shifted from personal responsibility to the food environment. The time is right to look at environmental approaches to the U.S. obesity epidemic.



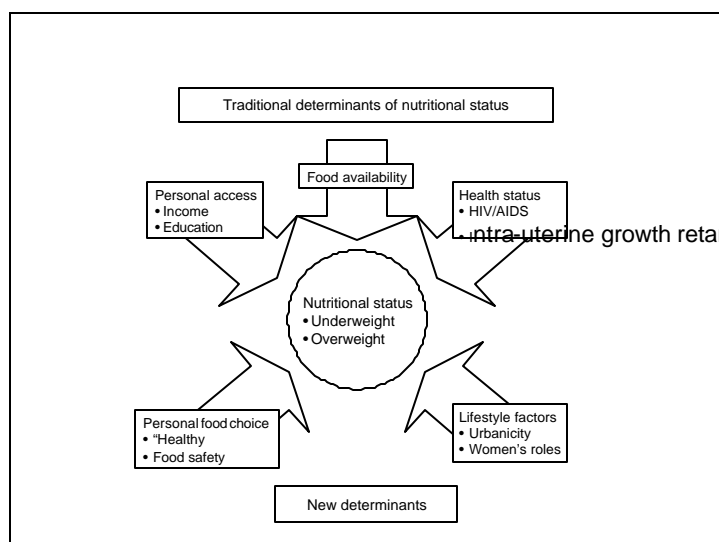
## PART 3: PANEL DISCUSSION - RESEARCH, PROGRAM, AND POLICY OPTIONS

### FRAMEWORK - EMMY SIMMONS

Work on nutrition in developing countries has traditionally involved under-nutrition, with its associated stunting and wasting. Now the research vocabulary has to expand to include overweight, obesity, and nutrition related non-communicable diseases.

Nutritional status has traditionally been driven by availability, access, and use of food. However, now two new drivers have been identified: personal food choice and lifestyle factors. (Figure 7). Each of these five determinants is driven by sets of policies.

Figure 7. Determinants of Nutritional Status



Source: Emmy Simmons

#### Food Availability:

Food availability is influenced by policies related to market regulation, investment, business, imports, licensing, marketing, prices, and environmental management. Tools include subsidies at local and global levels and incentives for local production. Investment by multinational corporations also plays a role in countries that have adequate banking infrastructure and cultures, which recognize the rule of law.

#### Personal Access:

Personal access to food is influenced by policies that affect social structure, household income, and education. Social safety net policies help people get ahead and prevent them from falling

behind in times of trouble. Crop insurance, for instance, offers protection against too much or too little rain.

#### Health Status:

Health status is influenced by policies at the age/gender/health nexus. Teenage girls are especially at risk for poor nutrition. To prevent adverse outcomes in the next generation policies should target women at risk of giving birth to low birth weight, IUGR babies. HIV/AIDS increases protein and micronutrient requirements. Zoonoses and aflatoxin are circular issues. Eating peanuts is recommended as a way of increasing protein and energy, but improper storage leads to aflatoxin which negatively affects immune status.

#### Personal Food Choice:

Cultural traditions, tastes, and preferences are changing with globalization. When people 'modernize', it usually leads to increased sugar consumption. But modernization also has healthful effects such as increased receptivity to health messages. In Africa, few health messages target positive consumption, but negative messages, such as concerns about genetically modified organisms, get through clearly.

#### Lifestyle Factors:

Urbanization, a key to lifestyle changes, is driven by policies (especially the absence of policies), from health care to education, and even to transport. For example, government failure to 'provide' health care, education, or rural roads hastens urbanization as people move to places offering more opportunities. Other policy oriented issues affect women's roles and set their lifestyles. In many Islamic countries, women have limited options to work outside the home.

Tables 6 and 7 summarize potential policy levers, respectively, for combating specific nutritional status conditions and for altering drivers of nutritional status. To be most useful, the matrixes should be country-specific.

Table 6. Matrix of Policy Levers to Combat Nutritional Status Conditions

<i>Nutritional status</i>	<i>Goals</i>	<i>Policy levers</i>
Obese and overweight	Change lifestyle ↑ Diversity of available food Change personal food choice	↑ Information and education ↑ Externalities ↑ insurance
Middle	↑ Access ↑ Diversity ↑ Micronutrients Change lifestyle Alter personal choices	↑ Information ↑ Infrastructure ↑ Research and development
Underweight	↑ Access ↑ Energy availability ↑ Energy density ↑ Micronutrients (function of choice and research and development)	↑ Infrastructure ↑ Research and development

Source: Emmy Simmons.

Table 7. Matrix of Policy Levers to Alter Drivers of Nutritional Status

<i>Drivers</i>	<i>Levers</i>
Food availability	Research and development, price, distribution
Personal access	Jobs, economic opportunity—vertical coordination, intra-household issues
Age/sex/health	Health care
Personal food choice	Health messages, regulations, education
Lifestyle factors	Rural/urban

Source: Emmy Simmons.

## PRODUCTS AND MARKETS IN DEVELOPING COUNTRIES - CHRISTOPHER DELGADO

Food is an economic issue and a cultural issue, with globalization affecting diets through changing markets and influencing culture. Therefore, food is an emotional topic for people around the world, and opinions will differ on policy objectives and instruments. Effective policies depend on coalition building and inclusion.

Table 8, that shows the types of markets and products available in developing countries, is useful for exploring potential policy levers. It shows that processed foods are offered mainly in the formal market sector and unprocessed foods primarily in the informal market sector. The play between these areas should be considered when considering policy options.

Table 8: Types of Products and Markets in Developing Countries

Products	Market Sector	
	Formal	Informal
Processed foods	X	
Unprocessed foods		X

Trying to lower people’s saturated fat intakes by raising the price of pork in formal market, for example, might push the pork market underground to the unprocessed informal area that is unaffected by the policy. This shift would introduce additional concerns regarding food safety, as the informal sector is also unaffected by food safety policies. Products subject to food safety concerns are mainly perishables with high transaction costs for both buyers and sellers. Education regarding such issues is important, and its funding should be considered together with other government funding of public goods. The example of pork shows that, when contemplating market interventions, possible information asymmetries, externalities, and issues of public good, should be considered.

Policy levers can also be considered in the context of supply versus demand. For example, the demand for food safety requirements is gaining strength in developing countries, even in small villages, yet most foods in rural areas are still supplied in the unregulated informal market. The demand for food safety requires a supply-side change. In meeting food safety requirements on the supply side, thought must be given to the effects of those policies on small businesses that are worried about their futures. There are opportunities for keeping small businesses in the market. For example, in the Philippines, a large company provides hogs, medical care, and feed to small farmers to produce products that meet standards. The corporation received tax benefits and transferred some of the responsibility for environmental standards to the small farmers, and the small farmers were able to stay in business.

A variety of tactics could be used to affect demand. Nutrition education and transparency in terms of labeling processed foods are two options. If people really understood the effects of trans-fatty acids, for example, demand for products containing hydrogenated oils might change.

Finally, to develop effective interventions, priority should be given to the following areas of research.

- The relation between price and demand and determining price responsiveness for the nutritional characteristics of specific commodities;
- The impact of urbanization, particularly advertising and other aspects of globalization, on nutritional outcomes;
- The costs and benefits of nutrition education;
- Ways to improve market access for people who do not get enough of fish, meat, and milk.

## **CASE STUDIES: FATS AND OILS, FRUITS AND VEGETABLES**

Two case studies were discussed, with an eye to increasing the proportion of the population with a healthy diet.

The first study illustrated the use of policy levers to change the consumption of fats and oils to more healthy oils. Participants agreed that, except in a few situations, while increasing edible dietary fats and oils is unnecessary for health, raising prices to decrease intake might hurt low-income people. Changing the type of fats used to more healthful types is another quite feasible and important option. Despite increases in obesity, some countries have made great strides in reducing mortality from cardiovascular disease, mainly by switching from saturated to unsaturated oils. In the case of many developing countries some of the edible oils consumed are quite unhealthy and there are substitutes available.

The second case study examined policy options to increase consumption of fruits and vegetables, which all participants agreed is desirable.

### **Case Study 1: Policy Levers to Affect Consumption of Fats and Oils in Nigeria, China and India**

#### **Nigeria**

The oils available in Nigeria are highly saturated palm oil, a little fat from meat, and small amounts of soybean and groundnut oil. What are the options to change the composition of oil in the market?

- Substitute soybean or groundnut oil? Soybean oil is ecologically limited. Groundnuts are limited by disease, and groundnut oil is very expensive.
- Import canola oil? This option involves international trade, possible dependence on multinational companies, and access issues such as how to get the oil to rural people. The red pigment in palm oil makes it esthetically pleasing and contains beta carotene (provitamin A). Is genetically modifying canola to contain beta carotene an option?
- Modify the fatty acid composition of local palm oil? Palm oil processors are interested in this possibility, which, though not simple, can be done. This may be a project for development funding.

#### **China**

China consumed a great deal of rapeseed oil that is very high in erucic acid, a quite pathogenic fatty acid. China has many liquid oil substitutes available, so substitution is easy.

## India

In India, substitution entails overcoming cultural preferences for hydrogenated oils and *ghee*. The latter is particularly high in trans-fatty acid. One project underway is attempting to genetically modify mustard oil to provide beta-carotene because the poor, who rely on mustard oil, are lacking in beta-carotene. The project is being conducted jointly with the Energy Department because the waste products go into energy briquettes, which are subsidized. This is another pathway to affect supply and demand.

## Case Study 2: Policy Options to Increase Consumption of Fruits and Vegetables

### Education

Promoting consumption of fruits and vegetables is a more complex issue than fats and oils. Price levers might be less effective than education because there are no good or bad vegetables to subsidize, and price supports are not discriminatory enough.

### Five-a-Day Initiative

The Five-a-Day (fruits and vegetables) program started in the United States at the National Cancer Institute (NCI). WHO sees Five-a-Day as a public-private partnership and potential method for pushing policy options to the governments of developing countries. While WHO is involved in promoting fruit and vegetable intake and a global version of Five-a-Day, implementation is unclear now.

### Public Investment

Perishability and seasonality are important factors in promoting consumption of fruits and vegetables. Public investment has been marginalized by commercial production of fruits and vegetables. Huge losses occur because these foods are so perishable. Provision of a public good in the form of transportation and refrigeration could bring down the cost structure. Little research and development (R&D) is being done in the fruit and vegetable section because it is not profitable. If property rights for new cultivars become enforceable, the private sector will undertake research and development, but alternatively, R&D could be subsidized.

In Brazil, 70 percent of every dollar the government gives to schools to feed children must be spent on local fruits and vegetables and a few other categories of minimally processed foods. What would be the ramifications of requiring schools to provide every child with an apple each day?

### Small Farmer Support

Kenya exports huge amount of fruits and vegetables for which there is no internal market. Increasing consumption of fruits and vegetables is a relevant issue for poor consumers who might be able to enhance small gardens and market their excess produce. However, without means of preserving their crops, small gardens cannot provide year-round produce.

## CONCLUSIONS

The consultation conclusions centered around two questions:

- 1) *Are the traditional policy levers for crops and livestock still important and feasible options, considering the latest developments in processing, distribution and marketing?*
- 2) *What research should be done in the process of formulating an agenda for action over the longer term?*

Conclusions, which stemmed from Question 1, concerned ‘Traditional’ versus ‘New Policy Levers’. They were as follows:

*First, it is important to recognize the limitations of conventional food policies.*

Raising the price of a product contributing to health problems among the upper socioeconomic levels would be difficult without penalizing the poor in developing countries. For example, if the price of meat were raised to discourage saturated fat intakes, poor undernourished portions of the population would be even harder pressed to meet their needs. For these reasons we must be careful about what subsidies and credits we change.

Policies affecting price cannot reach to the wet markets, still large suppliers of foods in developing countries for some sectors of the population. Raising prices of food products in the formal sector could push the market for a few items underground to the wet markets where food safety is of concern.

Pricing to influence consumption is more difficult for food items than it is, for example, in the case of tobacco. Cigarettes are harmful to everyone, and they are a single type of product. Most foods are neither inherently bad nor good; rather it is diets—the type, quality, and combination of food—that affect health. Also, where many foods provide similar nutritional value (e.g., all fruits), picking a food to subsidize might be difficult. Is subsidization of spinach, for example, desirable when a variety of fruits and vegetables in the diet is preferable?

Interventions that do not directly address price might be possible for perishables. For example, if refrigerators were supplied to wet market distributors, perhaps the price of perishable fruits and vegetables would fall.

*Second, demand truth in advertising.*

Labels could be required, stating sugar content, dangers of trans-fats, and the like.

*Third, harness the influence of supermarkets and multinational corporations.*

Both of these have huge impacts on both supply and demand in developing countries. Supermarkets and corporations are motivated by profit and growth, but if health promotion could be profitable, these companies would likely be more than willing to participate.

*Fourth, choose realistic options to shift demand.*

When trying to persuade people to lower their saturated fat intake, presenting healthier meats (chicken, fish, modified red meats) as substitutes for red meats would be a more likely candidate for success than try to substitute nonmeat products (such as soy).

*Fifth, address internal infrastructure.*

Kenya was discussed as an example of a country that has plenty of fruits and vegetables but has not been able to distribute them well domestically and exports much of this produce.

*Sixth, schools are a good target for intervention.*

Brazilian schools, for instance, have introduced a policy to feed each student an apple a day.

The second question around which the conclusions centered, concerned the needed research for an 'Action Agenda'. There is a major need for longitudinal research to follow individuals and households in the way the China Health and Nutrition Survey does. Few studies allow linkage of prices, diet, and health outcomes in any systematic manner that considers the timing of the changes.

Therefore, research is recommended in the following areas:

- Connections between price elasticities and chronic disease;
- Technological processes to make healthier foods and to make healthier foods more available (e.g. techniques to decrease the perishability of fruits and vegetables);
- Marketing and advertising to increase consumption of healthful foods;
- Projection of lifestyle changes as incomes increase;
- Impacts of labeling, education, and advertising;
- Involvement of corporations and supermarkets in nutrition policies and interventions;
- Price responsiveness for the nutritional characteristics of specific commodities;
- Income responsiveness to a range of food products and overall dietary pattern shifts;
- Impact of advertising and other aspects of globalization on nutritional outcomes;
- Costs and benefits of nutrition education;
- Improving market access for people who do not get enough high-protein foods such as fish, meat, and milk.



## ANNEX A: BACKGROUND PAPER

Multinational Food Companies and Developing Nations' Diets

**Dr. James E. Tillotson, Professor, Food Policy & International Business, Tufts University**

**January, 2003**

### Introduction

The role of multinational food companies in the diets of developing countries is a complex issue. Their role cannot be simply dismissed as completely beneficial or detrimental, but rather as offering a mixture of difficult trade-offs. Among these one of the most pressing issues is the trade-off between the important economic benefits these companies offer and the potential nutritional problems their food and beverage products might cause for the developing countries and their peoples.

Given the extent of the globalization of the world's food supply by these companies today, the issue is no longer whether or not this will occur, but rather what are the appropriate public policies to pursue in order to maximize the benefits from this economic trend, while minimizing the potentially detrimental nutritional aspects of this food-system globalization in the developing world.

Because this paper deals mainly with questionable aspects of the entry of the multinational food companies into the developing countries, the positive aspects will be first briefly noted. Many of these global food companies, seeking new commercial markets, do offer important advantages to these countries. They bring with them much needed foreign investments, commerce, employment, technology, business knowledge and improvements in the safety and the quantity of the food supply to these countries -- all economic and food inputs often desperately needed by these countries. These global companies can offer resources and knowledge to their populations that their governments cannot presently offer. (See Table 1)

Table 1

#### **Advantages of Multinational Food Companies for the Developing Nations**

- **Foreign Investment**
- **Increased Commerce**
- **Increased Employment**
- **Better Food Processing Technology**
- **Increased Commercial Knowledge**
- **Improved Safety of Food**
- **Increased Food Assurance**

All are factors of economic importance to these countries, with great immediate appeal to their governments. However, these attractive economic factors need also to be balanced against potentially long-term negative health influences of some of the new foods and beverages (energy dense/low-nutrient-content foods, high-fat-&-sugar-foods and beverages, high animal-source-content foods) being aggressively introduced by some multinational food companies in these countries. (See Note 1)

Developing countries whose consumer markets are the target of multinationals promoting such products need to consider undertaking comprehensive benefit/risk analyses of this business trend. Here, there is a need to differentiate between those companies that contribute overall benefits,

both economically and nutritionally, from those marketing products more questionable to the diets of these countries.

Public-health policies in the developing countries need to differentiate between these two types of multinational companies and their products and to put in place public policies to militate against the negative influences while encouraging positive influences multinational food companies can offer. (Only now in the industrial countries are public-health policies starting to deal with these issues, prompted by the pandemic increase in obesity and its resulting medical costs in these countries.)<sup>1</sup>

### Nutritional Issue

Anyone visiting developing countries and observing the changing consumer-buying habits of their populations becomes quickly aware of the influence that multinational food companies are already having on the diets of these countries. We see the nascent replication in the developing countries of the consumer processed-food diets of the industrial countries of both nutritionally worthwhile products as well as foods and beverages of more questionable nutritional benefits.

One is struck by the marked influence that a score or more of American-based multinational food and beverage companies and a smaller number of European-based multinational companies have already had on the diet transformation presently occurring in these countries. This dietary influence is particularly evident in the wide assortment of Western-country-type processed food (branded added-value consumer products and meals from fast service food restaurants) being successfully marketed and increasingly consumed in these countries.

Less obvious, but possibly of greater benefit to these countries, are the multinational agribusiness companies which import and distribute needed basic foodstuffs (grains) and many multinational food companies that market, both imported and domestically processed, consumer food products of a beneficial nutritional nature. The latter companies bring great economic benefits and improvements to the diets of these countries; public policy should encourage them to do business in the developing countries because they improve both the economy and dietary health of these countries. Many of these international companies have engaged in the food business in the developing countries for decades, with benefit to both diets and economies as well as to international companies' businesses.

This dietary change in the developing countries, with both positive and negative aspects, is obviously a major factor, perhaps a pivotal one, in what has been labeled the increasing "Westernization" of their diets. While many of the products resulting from this "Westernization" of the domestic diets marketed by foreign food companies are desirable and can improve local diets. The introduction of some processed foods and beverages (energy dense/low-nutrient content foods, high fat & sugar foods and beverages), replacing the traditional fruits, vegetables and whole grain foods in the diet, are nutritionally questionable, especially when coupled with a domestic diet that may be already nutritionally compromised. The growing appearance of Western-country-type processed foods of these latter types raises the concern that these countries will suffer nutrition-related non-communicable disease problems similar to those of the industrial nations. (See Notes 1, 2 & 3)

## Analysis

The purpose of this paper is not to deal with the direct human nutritional influence of this dietary trend, which others will consider, but rather to attempt to explain some of the major social, technological, economic and political factors responsible for this dietary trend occurring today in the developing countries.

The method of analysis therefore is based not on the nutritional sciences, but rather on the causes and history of the industrialization of the food supply leading to the Western-type commercial diet and the factors responsible for the “exporting” of this diet to the developing countries.

The author believes that one of the keys to understanding these developing countries’ dietary changes is gained by use of a system concept approach rather than by concentrating on any specific food or beverage or groups of food products that may result from such a system change. The author further believes that the developing of effective public health policies requires concentrating on the basic problem — the importation of the Western-type-country food system, with both its beneficial and negative aspects -- rather than on specific foods alone.

The nutrition sciences have made significant progress in determining which diets foster or reduce the risk of nutrition-related non-communicable diseases, but there has been little systematic study of how such diets develop or how such industrial developments (the negative aspects of commercial Western food diets) can be contained or modified as an aid to reaching public health goals. (See Table 2), The Public Health Paradox)

Table 2

### **The Public Health Paradox**

- **A great deal is known about the economic power of and the manner in which multinational food companies work, grow and prosper.**
- **A great deal is also known about the nutritional sciences and what people should eat for good health.**
- **But, much less is known on how to combine the two fields of knowledge in public health programs for the benefit of the citizens both in the industrial countries and now in the developing countries ! ( A Key research need).**

To date, attempts to explain the influence of global food companies on the Westernization of diets in developing countries have largely focused on marketing practices (branding, advertising, method of distribution, etc.). (See Table 3) While these factors are no doubt important, it should be realized that these are only applied business tactics, readily available to the entire commercial food sector in both the developed and developing countries. Therefore, these techniques alone are unlikely to satisfactorily explain the apparently disproportionate influence that a relatively

small number of multinational food companies' products are now having on shaping the diets of the developing countries.

Table 3

**Factors Commonly Attributed as the Source of the Marketing Power of Multinational Food Companies**

- **Advertising & Promotional Activities**
- **Brands & Products**
- **Financial Resources**
- **Political Power**

It suggests that successful public health remedial action can benefit from an understanding of how and why the Western-type, commercially-based diet developed in the industrial countries, and why and how a relatively small number of companies eventually would come to have such a disproportionate influence today on the diets in both the industrial countries, and now increasingly, in the developing countries.

The hypothesis of this paper is that to understand the present and future dietary changes occurring in the developing countries, it helpful to consider the industrialization or Westernization of the commercial food supply in the developing countries as an extension of the commercialization of the food supply that has already occurred in the industrial countries. In this industrialization process the multinational food and beverage companies are seen as carrier agents in the dietary transformation, with both its positive and negative economic and dietary implications for the developing countries.

It is accepted commercial knowledge that the multinational food companies' great business interest in entering developing countries is to seek new growth markets for their products. In recent years this international business strategy has been motivated by the maturing of commercial food markets in many industrial countries, due to product-saturated markets and zero or very low population growth. Developing countries offer potentially huge new markets for multinational food companies, facing no-growth in their home markets.<sup>2</sup> As a result, multinational food companies are currently aggressively pursuing markets in the developing countries. (See Table 4)

Table 4

**FACTORS FAVORING MULTINATIONAL FOOD COMPANIES ENTERING THE DEVELOPING COUNTRIES**

- **Industrial Countries' Domestic Markets Maturing for Many Food Products and Commodities**
- **Financial Motivations**
- **Attractive option due to Multinationals' Food Products, Brands, Business Abilities and Resources**
- **Developing Countries' Markets favorable to Food Products based on the Western Diet.**
- **Markets and the Social, Political, and Economic Conditions Favor the Growth and Development of Strong International Food Companies.**

An another important consideration is that it is already evident that developing countries' populations are finding the branded Western-type commercial food and beverages as organoleptically appealing as these products already are in the industrial countries. Moreover, these products have added strong consumer attraction in these countries because of the American cultural linkage which they offer. (See Note 3) If past economic history of developing countries is repeated, as these

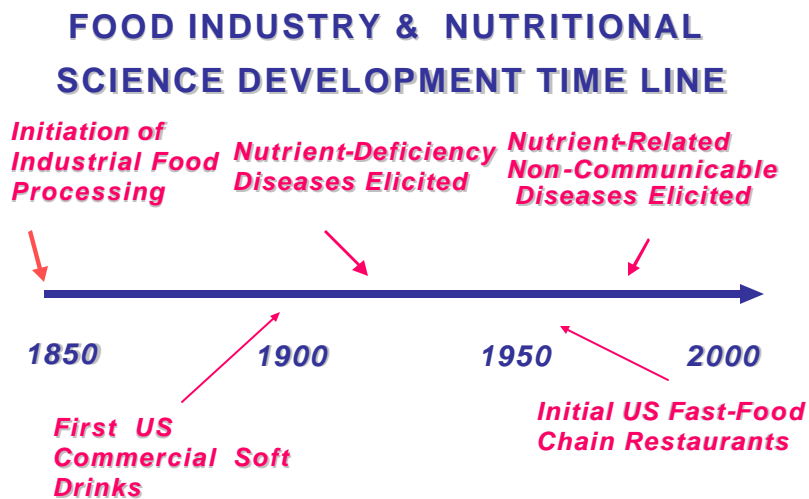
countries improve their economic conditions, the purchase of foods and beverages associated with the Western-type diet will increase in their domestic diets.

### Current Public Health Concerns and Opportunities

Paradoxically, public health efforts currently have a greater potential for preventing the negative dietary influences from the Western-type commercial diet (nutrition-related non-communicable diseases) in the developing nations. This is because the introduction of the Western-type processed diet to a significant degree is just starting in these countries whereas in the industrial countries, the Western-type processed-food diet is firmly embedded in the eating cultures of their populations. Or, to use the public health rationale: prevention is easier than cure.

Unfortunately in the industrial countries, prevention of negative influences was not possible during their diet's development phase, since the Western-type industrialization of the diet had been largely completed by the time the negative health implications were generally recognized and understood. This difference in opportunity arises from the timing of the Western-type industrialization of diet, which first began in the mid-nineteenth century and was largely completed by the middle of twentieth century. However, the full understanding of the influence of the Western-type processed food diet on the long-term health of its population (nutrition-related non-communicable diseases) occurred only during the latter half of twentieth century. (See Diagram 1)

Diagram 1



Consequently, much of the Western-type industrialization of the diet occurred without the guiding influence on public-health policies of the now-known health implications. As a result, it has greatly increased the difficulty of public-health remedial action to improve the industrial nations' commercial diets today. Obviously, a national diet once formed, and much enjoyed, is more difficult to modify than one being formed.

Most questionable is that industrial-country-based, multinational food companies are now introducing Western-type commercial food and beverage products to the developing countries,

apparently without consideration of the negative nutritional consequences of some of their products.

### Western Industrialization as a Causal Factor

The development of our current Western-type commercial diet (energy dense/low nutrient content foods, high-fat-&-sugar foods and beverages, high-animal-source content and low fruit, vegetable and fiber-content diets) can be attributed initially to the general industrialization of the North American and European economies beginning first in the nineteenth century. The explanation for this industrialization/economic process first occurring in these parts of world has been well documented by David Landis, a Harvard historian.<sup>3</sup>

From the start of the industrialization era in these regions, the food industry developed in response to the needs of feeding people leaving their previous agricultural life, with its closeness to immediate food-sources, to work in the cities and factories of the new industrial world.

The commercial system supplying processed food arose and prospered out of the needs of the people to be fed while they were fully engaged in other occupations and therefore through their wages to afford to pay others to supply their daily food. As a result, available agricultural products were processed by the developing rudimentary food industry into various commercial foods and food ingredients in order to facilitate their preservation, transportation, storage and sale in economical, convenient and acceptable units. An excellent historian's account of this first stage of commercial food processing in the industrial countries is told by Felipe Fernandez-Armesto of Oxford University.<sup>4</sup>

While the nature and form of the commercial processed food supply would change continuously during the next century and half. (See section below Development of the American Food Industry), the basic- economic-model and growth strategy of the food industry as supplying people's perceived needs would remain the same to this day. The food industry would economically grow and prosper in the industrial countries by answering foremost the people's organoleptic, economic and efficiency desires in food. This occurred without significant influence from the nutritional sciences, which only became a known and defining force with regard to nutrition-related non-communicable diseases late in the twentieth century.<sup>5</sup>

Therefore, through the first century of its development (1850's to 1950's) in the industrial countries, the food industries were not, and could not have been influenced by nutritional considerations which were unknown to science in this period. Significantly, during this critical period of food industry formation, the major driving force in shaping the commercial source and nature of the diet was solely its acceptability to the public (the industry's customers), based solely on its organoleptic, economic and efficiency attributes, using the crops and animals readily available for processing. This basic-food-industry growth strategy is still present in the industrial countries today. During the major part of the 150-year growth of the food-processing industries, public-health nutritional considerations have not been a major determining factor in its overall economic growth. (See Table 5)

Table 5

**The Strategy used by the Food Processing Industry in the Industrial Nations**

- **Answering the Public's Organoleptic Wishes**
- **Supplying Foods that the Public enjoys and Readily Eats.**
- **Supplying Food Products requiring less and less work to Prepare.**
- **Supplying Food Products ever more Affordable and Available.**
- **Supplying Food Products increasingly Designed to the Public's Changing Lifestyles.**

While the nutritional sciences have had some influence on improving the industrial nations' diets in the first half of the twentieth century by identifying and helping to prevent classical nutrient-deficiency diseases, the required dietary changes (vitamin & mineral enrichment and fortification of foods and ingredients) necessary to all-but-eliminate such diseases would not significantly influence the ongoing growth of the Western-type processed diet. In some cases (such as vitamin and mineral fortification of low-fiber starch ingredients) the change

actually enhanced the public's acceptance of the Western-type processed foods.

This early discontinuity between the timing of the understanding of diet as a potential causal agent in nutrition-related non-communicable diseases and the nature of the commercial food-supply that evolved would be the basis of future conflict between established business interests and public-health goals which have increasingly occurred in recent decades.

Based on such indicators today as the high incidence of obesity and diet-related chronic diseases among Americans, one can suspect that public health initiatives to date, mainly based on informational methods, have been of questionable success in significantly modifying the Western diet in the industrial countries. Similar health-informational initiatives would likely be equally ineffective in the developing countries, once the composition, structure and strategies of their food processing sectors have become similar to those of the industrial countries.

Some are coming to the belief that solving this public health dilemma requires understanding the nutrition-related problem as an industrial structural problem rather than one to be solely solved by consumer information and public-health initiatives. However, we have a limited systemic knowledge about how specific commercially-based diets develop, or even less about how they can be modified on a country-wide level, once formed, in order to achieve public-health goals. These are areas requiring more study as an aid to future public health policy formation. (See Table 2)

At the start of the twenty-first century, any successful public-health initiatives calling for fundamental dietary changes involving altering the industrial output of a large and established basic industry, such as the American food and beverage industry, plus changing the 100-year-old historically-enjoyed diet by some 280 million citizens will require much more than the hectoring of expert health committees, fuzzy dietary guidelines and overly-complex nutritional labeling of food products to solve. Presently the economic, social and political obstacles to such public-health initiatives in the industrial countries are more than formidable!

Today, business initiatives, rather than public-health initiatives, dictate much of the diet in the industrial nations.

Obviously, in the developing countries, the prudent public-health strategy today is to discourage further establishment of the negative aspects of the Western-type commercial diet being introduced and embedded into their eating culture. However, as in the industrial countries, which public-health programs and strategies should be pursued in the developing countries to be successful and effective are presently unclear.

### Factors Contributing to Industrialization of the Food Supply

This being said, it is beneficial to examine the social, technical, economic and political factors responsible for the growth of the food processing industry in the industrial countries, using the United States as the model both because of its present importance globally in defining the Western-type commercial food supply and because its agriculture and food industries initiated much of the development of the Western-type commercial food supply now spreading throughout the world.

The United States was selected also because of the importance of this country's multinational food companies in bringing the Western-type commercial food products to the developing countries. Presently among the ten largest food and beverage multinational companies, seven have their headquarters in the USA and all ten have extensive businesses interests in the USA, (See Table 6). Today, the North American food market is the largest consumer food-market in the world.

Table 6

#### **WORLD'S TOP 10 Food & Beverage Companies**

	Home Country	Food Sales 01
• Nestle	Switzerland	\$46,6 billions
• Kraft Foods	USA	\$38,1 billions
• ConAgra	USA	\$27,6 billions
• PepsiCo	USA	\$26,9 billions
• Unilever	NL/UK	\$26,7 billions
• ADM	USA	\$23,5 billions
• Cargill	USA	\$21,5 billions
• Coca-Cola	USA	\$20,1 billions
• Diageo	UK	\$16,6 billions
• Mars	USA	\$15,3 billions

In addition the world's three largest restaurant chains – *McDonald's*, *Burger King* and *Yum Brands* (*KFC*, *Pizza Hut*, *Taco Bell*) – were founded and developed, and today their restaurants are firmly and widely established in the eating culture of the United States. All three restaurant chains are now large multinational companies and are aggressively pursuing markets in the developing countries. (See note 3)

Analysis of this North American growth and the conditions responsible for its development is useful in understanding the public-health challenge to prevent the negative aspects of the commercial Western-type food and beverages from becoming further established in the developing countries. In addition, it will also be helpful in explaining the great appeal of Western-type commercial food and beverages, first in the industrial countries and now in the developing countries. Further, it better defines the challenge faced by public health initiatives to modify or uncouple this dietary appeal in the developing countries.

In tracing this development, key starting conditions were that the United States was a large, diverse and significant agricultural nation, heavily populated with a growing requirement for a commercial food-supply, and it was a nation in the forefront of the industrialization of society



occurring globally throughout the nineteen and twentieth centuries. In many ways the United States was the prime location for the development and growth of the present Western-type diet. The American approach to the commercial food supply became the template for the world's food industries.

Further, its government has historically favored, by its agricultural policies, an abundant and affordable food supply for its population, stressing the high production of both animal and crop production of a type that would come to form the basis of the Western-type processed-food supply. Without any intervening factors, of which there were none, the processed food supply would be developed by answering the population's food wants, using the crops and livestock available, which resulted in the present Western-type processed food diet. Due to the great economic success and wide consumer acceptance of this diet in the United States over the twentieth century, other industrial nations' food sectors emulated American products, processing, distribution techniques and business methods.

United States' economic policies have always encouraged the agricultural and food processing industries' growth as all-important, and have rewarded investment and commercial innovation in this sector for this objective. Its population was favored by rising income levels, thus creating constantly-expanding markets for the food and beverages industries throughout the major part of the twentieth century.

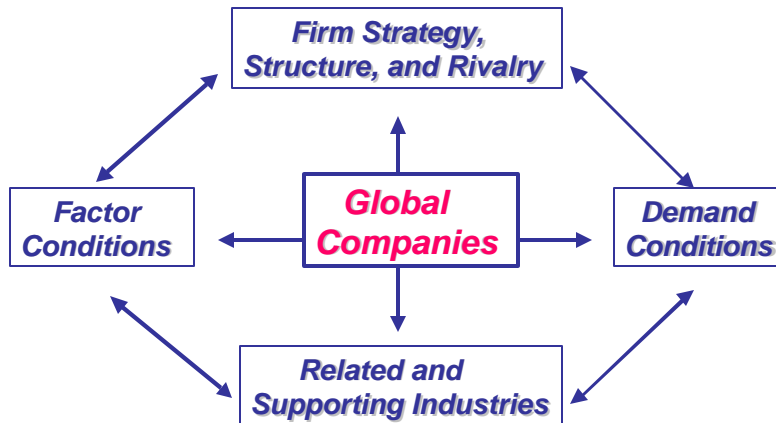
Culturally and socially, the increasing variety of available processed foods and beverages, developed and heavily marketed by the food industry, would prove increasingly acceptable to its population, fitting seamlessly into their changing industrial-era lifestyles. Because of these factors the Western-type processed food became not just a part of the diet, but the total diet of the industrial countries, firmly embedded in the eating culture and strongly supported by prevailing economic, social and political forces. As this country's food and beverage industries entered international business, their companies carried this business model around the world.

Michael Porter, the well-respected Harvard economist, has extensively studied the basis for various nations' world prominence in a number of industries (global champions) such as the United States in food processing. To explain this global prominence of certain nations' industry, he has identified a set of environmental conditions that favor the rise to global prominence of a nation's industry's leading companies.<sup>6</sup> (See Diagram 2)

Diagram 2

## Determinants of National Advantage

(Source Michael Porter - reference 6)



During the last century and half, all of these necessary economic conditions have been markedly present in the United States for the food-processing industries throughout their development. Moreover, these conditions have been arguably present to a greater degree than in any other industrial nation. (Notably missing in this well-respected explanation of a nations' industrial competitive advantage is any reference to the influence of the long-term health consequences from use of an industry's products, as a significant deterrent to commercial development. This is apparently not presently a determining factor of international success in the food processing industry.)

Beyond the very favorable economic and environmental conditions encouraging this development outlined above, other import factors equally responsible were the different phases of the commercial food supply development (see below), the high degree of innovation in both product and distribution achieved by American food sector, the development of new retail distribution systems, the inputs of successive waves of new food science and technology, as well as new business methods, both strategic and promotional, motivating the acceptance and purchase of Western-type commercial products. (See Table 7)

Table 7

### Major Strategic Objectives of the American Food Industry during Twentieth Century 's

- **Great Innovation in Products, Processing, Distribution and Marketing**
- **Organoleptic Quality of Products**
- **Consumer Convenience of Products**
- **Better Product Economics**
- **Improving Product Distribution**
- **Market Growth and Development of Large Market Share for Products**

The Western-type processed food diet is the product of a food delivery system which over the twentieth century has marshaled the strengths, resources and abilities of the largest free-market capitalistic economy. Under the economic and environmental conditions that existed in the United States during its development, coupled with the inherent organoleptic appeal of the American diet, any other dietary result would have been unlikely.

Were it not for the serious long term health

implications from the resulting diet, the development of this commercial food system and its resulting products would be seen as a model example of the industrialization era. In fact, even today, public policy in many of the industrial countries still greatly favors the advantages and growth of the Western-type processed food diet rather than acknowledging its serious negative health implications (USA & EC agricultural policies).

### Development of the American Food Industry: its Implications for Developing Countries

While a detailed, full account of the commercial development, during the nineteenth and twentieth centuries, of the Western-type commercial diet in the industrial countries is beyond the scope of this short paper, the following brief overview may be helpful to understand the potential marketing power of leading multinational food companies in the introduction of the Western-type commercial food products into the developing countries.<sup>7</sup>

The development of this commercial diet in the United States can be divided into three main historical eras as outlined below. (See Diagram 3) Each era was instrumental in developing the present structure and current business strategies employed by the food industry in producing consumer food products. This industrial development cycle, both in the United States and replicated in other industrial countries, has given rise to the majority of multinational food companies currently active in the developing countries.<sup>2,7,8.</sup>

Diagram 3



During each stage of this development cycle, internationally-oriented food companies from the industrial countries have either exported to or set up in the developing countries, production of the commercial food products germane to the era. For example, both *Nestle* and *Unilever* have been actively involved in international markets since the first decade of the twentieth century.

The globalization of the Western-type commercial diet in the developing countries is not a new phenomenon, but in recent years there has been a marked increase in products of questionable nutritional worth (soft drinks, fast-food restaurants and other types of “fun and recreational” food

and beverage products) marketed by multinational food companies to these countries. This recent economic trend has given rise to new nutritional concerns for these countries.

#### Retail commodity foods - 19<sup>th</sup> Century to 1930s

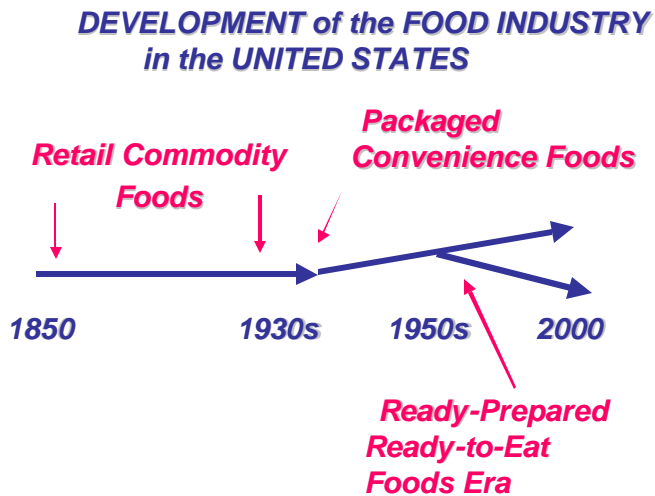
This was the formative stage of food industry in which the first food processing plants producing basic food ingredients (flour, sugar, salt, fat & oils, dairy, meat and other food staples, as well as vegetables and fruits) packaged in economic, convenient and consumer-acceptable units were established in the industrial countries. The agricultural products chosen for processing by such technologies as canning, freezing, drying, milling and other food engineering unit operations were based on a balance between those suitable for processing and storage and those that people would purchase for consumption.

This era also saw the growth of long-distance distribution and long-period storage of commercial food products, as well as the first establishment of retail sales outlets. Product branding and salesmanship were introduced as aids in the sale and distribution of manufacturers' products. The manufacturing strategy was production of high volumes, produced at low unit costs using investment in efficient processing plants to minimizing labor inputs. As the public purchased and consumed these first processed-food products they became accustomed to these as ongoing foods in their daily diet. This established the beginning elements of the Western-type diet which, from the first, was often high in sugars, salt, white flour, fat & oils, and animal-source ingredients and foods.

#### Packaged Convenience Foods - 1930s to 1980s

In the second era, aided by advances in food science and technology, many food companies successfully transformed themselves from processors and sellers of undifferentiated low-profitability commodity-type foods to producers and marketers of branded profitable packaged convenience foods (TV dinners, cake and desert mixes, frozen fully prepared items, crackers and snacks, and frozen and bottled beverages of all types). The vast number and quantities of these new food products being produced by the industry found the growing new supermarket chains as perfect distribution channels to the public that now lived increasingly in the suburbs, with automobiles to shop at these large, consumer acceptable new retail outlets. (See Diagram 4)

Diagram 4



The germane strategy used by these companies was to develop new and unique, attractively packaged foods that met the fancy, needs and budgets of consumers, and then to build the product into a national brand, using skillful advertising and promotion, aided greatly by (then new) television. As the public grew to know and want the new branded product through compelling marketing programs, sales increased, yielding both profitability -- and importantly -- funds for additional market development. The industry's growth strategy was primarily based on satisfying consumers' organoleptic, economic and efficiency desires in food.

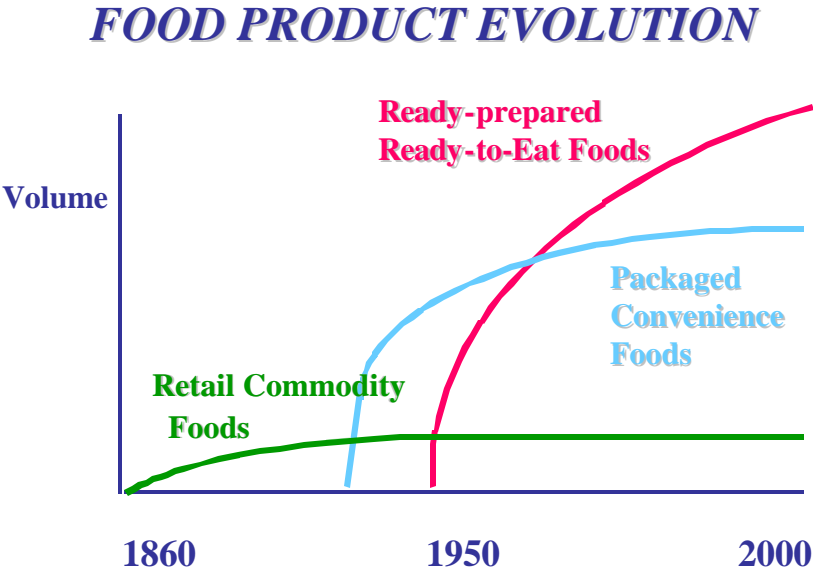
Companies successful at using this strategy came to dominate America's shopping carts and prospered. These products further acculturated the public to Western-type commercial foods often with product characteristics of energy dense/low-nutrient content, high fat & sugar, and high in animal-source content, and extended the consumer acceptance of commercial food products into the American diet. Industry economics, distribution and marketing power favored increasing industry consolidation, resulting in fewer but larger food companies. These "winners" in this Darwinian economic contest often became the leading multinational food and beverage companies in their search for additional market growth, carrying their products, processing methods and business methods around the world.

#### Ready-prepared Ready-to-eat foods - 1950s to the present

Starting in the 1950s with the founding of the leading fast-food chain, *McDonald's*, a new type of convenience food started rapidly entering the American market: ready-prepared foods that offered the public the ultimate in utility and convenience at very affordable prices - food requiring no preparation; food and beverages, both as hand-held snacks or full meals that can be purchased in fast-food outlets or restaurants, as well as in supermarkets and stores of all kinds. (See Diagram 4) Food and beverages were developed to be eaten at the site of purchase, in the home or on the move. The rapid and extensive growth plus the commercial origin of these modern ready-prepared foods was without parallel. By the early 1990s American would be spending approximately half of their total food purchase dollars on ready-prepared foods and beverages.

Socio-economic factors, in particular, were largely responsible for the success of these new ready-prepared convenience foods. Americans were experiencing unprecedented economic growth, affluence was molding their expectations, and ready-prepared foods and beverages became “affordable luxuries” for all. A major factor in the growth of these foods was the increasing participation by women in the work force; overworked, time-constrained consumers, often in dual-income or single parent households, not having the time, energy or desire to cook, consumed these products in record amounts. (See Diagram 5)

**Diagram 5**



Ready-prepared foods were ideally suited, in both form and price, to newly developing eating pattern of consumers. At the forefront of this changing in eating habits were the fast-food outlets. By 1998, the 20 largest fast-food chains would have 79,922 outlets in the United States, with annual sales of \$56 billion dollars, accounting for 22% of total restaurant sales. Many of the ready-prepared ready-to-eat foods marketed by this sector increased the questionable nutrition aspects of the Western-type commercial diet.

Like the “winners” in the Darwinian economic contest among packaged convenience food companies above, the leading American restaurant chains often became multinational restaurant companies in their search for new market growth, carrying their menus, restaurants’ format and business methods around the world.

## Conclusion

From this century-long industrial development has evolved a small number of leading global food companies of both consumer food products and ready-prepared foods with these operating characteristics: (See Table 8)

Table 8

### **Operational Characteristics of Multinational Food Companies**

- **Very Capable with Great Resources**
- **Sell Global Brands or Major Western Food Commodities**
- **Food & Beverage Products based on Western Food Supply**
- **Commercial Strategy includes Increasing Market Growth in the Developing Countries**
- **Predominantly US Based Companies or Influenced by US Food Business Strategy**
- **“Winners” in 150 years of Commercial Development in the Industrial Countries**

- \* Producing commercial food products that the majority of the population finds enjoyable to eat and use as a major source of their daily diet through repeated purchases, offered at convenient delivery sites.
- Producing products heavily oriented to those offering energy-dense/low-nutrient content foods and beverages, high added sugar & fat content foods and beverages and products with high animal-source content.
- Producing increasing percentages of finished food products requiring no or very minimum further preparation, distributed ever-more-widely beyond tradition food channels.
- Producing attractive mass-produced branded food and beverages that are relatively inexpensive in the industrial nations, accounting for decreasing percentage of consumers' rising disposable income.
- Producing global brands marketed and distributed by ever-larger food companies with continuously greater resources, competing in markets with markedly decreasing numbers of competing firms with often one to four brands dominating food product categories.
- Skilled marketing firms with single business strategies aimed at economic and volume growth based on continuously answering consumers' changing organoleptic and lifestyle needs through on-going distribution and technical innovation.
- Firms which have continuously improved through innovation their marketing, promotional and selling capabilities of leading global brands.
- Food firms that due their great size, employment, resources and their pivotal importance in the use and distribution of agricultural products are favored by government and financial institutions.

This is a select group of food companies – the few winners in a decades long market struggle - which have reached market dominance in various product categories in their home markets and now have the motivation, resources, products, management skills to successfully undertake international expansion. (See Table 9)

Table 9

**Consumer Objectives of the Multinational Food Companies in Foreign Markets**

- **Organoleptic Quality of Products**
- **Convenience of Products**
- **Product Economics**
- **Product Distribution**
- **Market Growth and Share of Market for Products**
- **Nutrient Related Non-Communicable Diseases Not a Strategic Consideration**

Their entry into these new global markets raises the following policy issues:

- The long-term health implications of introducing industrial nations' commercial food products into developing countries.
- The social and economic consequences of the introduction of food systems required for production of Western-type commercial foods.
- The appropriateness for the developing countries of the food and agricultural system required to support the production of the Western-type commercial food system for developing countries.
- The implications, for developing countries, of potentially allowing a significant part of the commercial food and beverage production of their countries to be under the ownership and control of a small number of multinational companies, with their strong financial resources and general all-round commercial abilities, dedicated to the production and marketing of the Western-type commercial food products. (Today, among the world's fifty largest companies, based on assets, seven are multinational food, beverage and food retailing companies, five USA & two EU companies.) (8)

While these issues will be dealt also with by others, it may be of some benefit in evaluating these issues to consider the development and resulting commercial structure that has give rise to Western-type commercial diet which has both positive and negative nutritional aspects, and the strategies, tactics and motivations of the multinational companies responsible for the introduction of these products into developing countries.



## Notes

1. *McDonald's*, the leading American fast-food chain, claims to be present in 121 countries with 30,000 restaurants, serving some 45 million customers a day, and *Coca Cola*, the leading international soft drink company, earns over 70 percent of its profits globally outside the United States.
2. *Financial Times* (July 27-28, 2002): in an article entitled Coca-Cola still the world's most valuable brand, "The value of the Coke brand edged ahead from last year's \$68.95 bn to \$69.64 bn as growing sales in developing [countries] markets helped offset weak demand in US."
3. *Financial Times* (January 20, 2003) in an article entitled China swallows fast food at an ever more rapid rate, "Samuel Su, the head of *Kentucky Fried Chicken's* operations in China, pauses when asked how many restaurants the group has on the mainland. 'As we're speaking, several are opening, so it's hard to get an exact number,' he says. With 200 stores opening last year, and at least the same number on track to begin business in 2003, it is little wonder Mr. Su has trouble keeping count. One thing he does know is that, 'we are expanding at the fast pace in [our entire] history'." This article predicted that the KFC fast food chain would have a total of 1,000 stores in China by the end of 2003. The article also reported that China's multinational company-sourced fast-food-market in 2001 reached a market worth of \$12 bn and forecasts this foreign-style fast food to grow by 150 % to \$31 bn in 2006.



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## ANNEX B: BACKGROUND PAPER

Redirecting the Diet Transition: What Can Food Policy Do?  
Lawrence Haddad, International Food Policy Research Institute  
January 2003

### Introduction

In the 20<sup>th</sup> century the industrialized countries witnessed a transition in disease burdens from acute forms of infection such as tuberculosis to chronic diseases such as heart disease. The 21<sup>st</sup> century will not witness a repeat of this for the developing countries. Instead, many of them will have to cope with a transition from acute disease to acute plus chronic disease. The two main drivers of this trend are diets and activity levels, both of which seem to be changing at historically rapid rates and across all income groups. Where good data are available they show that the consumption of fats, oils, and added sugar is increasing steadily in urban and rural areas and in better and worse off populations. Poor diet together with lower physical activity levels generates the co-existence of a double burden of under and overnutrition that in turn generates increased human suffering and increased economic costs.

This paper briefly documents these trends, their consequences, and the factors driving them and asks: “what can food policy do to redirect the transition in diets towards healthier outcomes?” The paper briefly reviews the potential of both demand side and supply side food policy options in this regard. The paper notes the challenges posed by the co-existence of under and overnutrition to the design of public policy intended to promote healthier diets due to the physiological, economic and political linkages between them.

### 2. The Nutrition and Diet Transitions

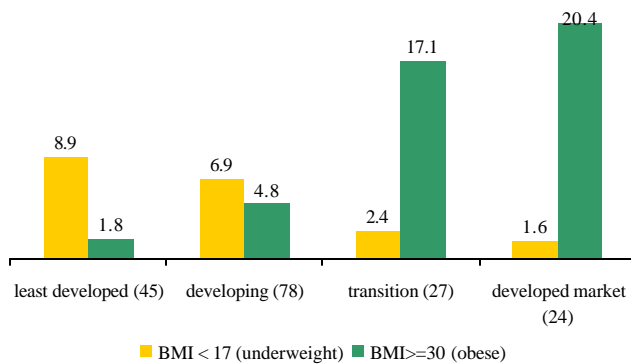
Changes in the nutrition status of populations can be measured by anthropometric data or less completely, by food intake data. Currently a global database on adult anthropometry<sup>3</sup> is unavailable and when it does is unlikely to have data over time.<sup>4</sup> Cross-section data do, however, provide some sense of the transition. Figure 1 shows the co-existence of under and overnutrition in terms of low and high body mass index values (BMI's) for 78 developing countries.

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<sup>3</sup> Typically the measure is body mass index, or weight divided by height squared.

<sup>4</sup> As of January 2003 the WHO website describes the status of the Global Database on Body Mass Index as: “Currently, efforts are being made to develop the Web-based mapping and information system of the WHO Global Database on Body Mass Index (BMI). It is expected that the first version will be released by mid-November 2002.”

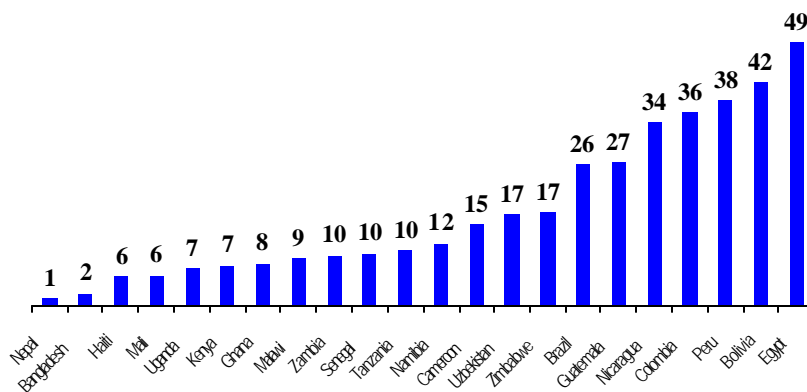
Figure 1: Percent below and above BMI cutoffs:  
Adults in 2000



[www.who.int/nut/db\\_bmi.htm](http://www.who.int/nut/db_bmi.htm)

In these nations 5 percent of the population is obese and 7 percent is underweight. Figure 2 demonstrates the coexistence of under and overnutrition within the same household.

Figure 2: Percent of households with preschool children that contain a stunted child and an overweight mother, 1990s



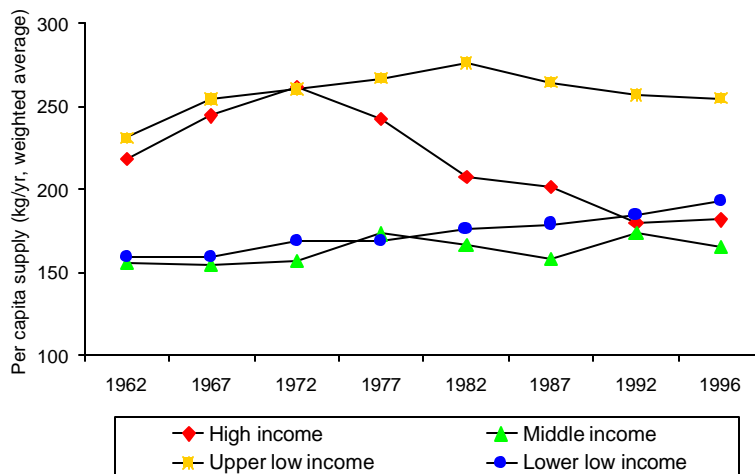
Garrett and Ruel 2001 (DHS data)

Using Demographic and Health Survey data and applying BMI cutoffs for mothers and low height for age cutoffs for their infants, we can see that in many countries over 10% of households

contain an overweight mother and a stunted child. That percentage rises to above 20 percent for countries as diverse as Brazil, Guatemala, Nicaragua and Egypt (Garrett and Ruel 2001).

There is very little nationally representative data on changes in diet composition. One either has to rely on FAO food supply data or on a very few good quality diet surveys.<sup>5</sup> Using FAO data for Asia, a region where diets are changing rapidly, Figures 3.1-3.5 show trend increases in per capita availability vegetable oils, dairy and eggs, animal fats, and fruits and vegetables for all income groups (Popkin, Horton and Kim 2001).

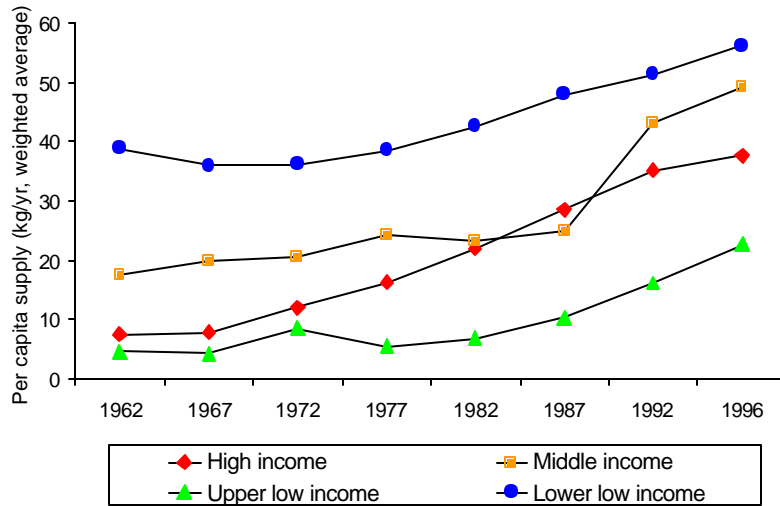
Figure 3.1 Trends in per Capita Supply of Cereals and Coarse Grains



Popkin, Horton and Kim 2001

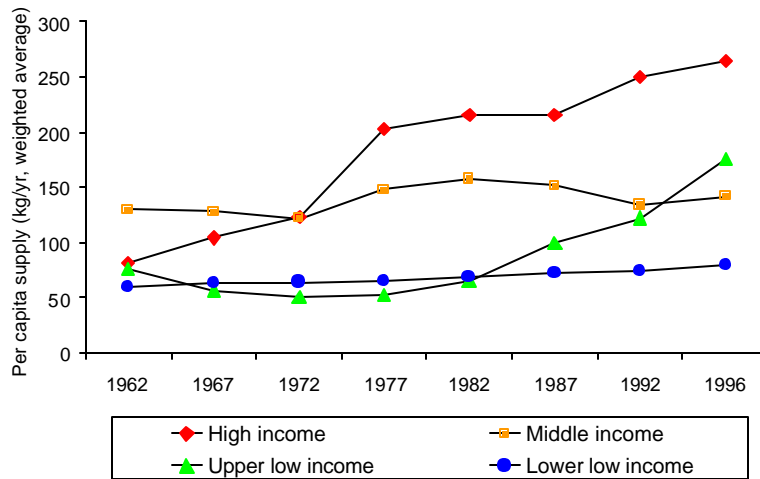
<sup>5</sup> There is an intermediate solution however—the use of nationally representative household level food acquisition data that are routinely collected for poverty monitoring purposes, but not analyzed from a food acquisition perspective (see Haddad 2001 for more on this).

Figure 3.2: Trends in Per Capita Supply of Dairy and Egg Products



Popkin, Horton and Kim 2001

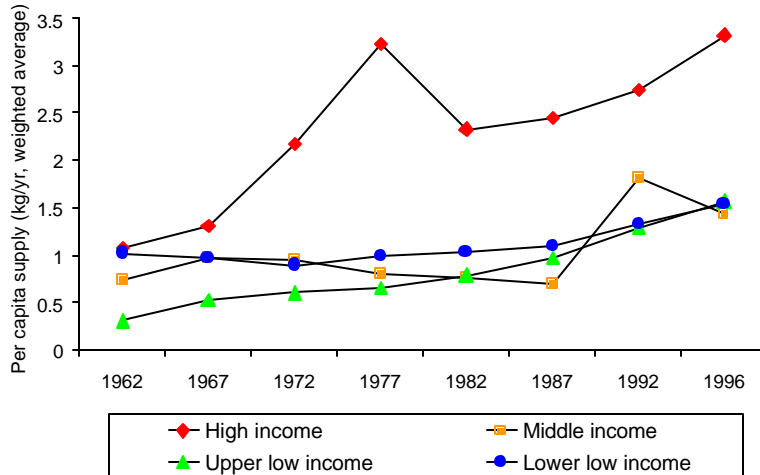
Figure 3.3: Trends in Per Capita Supply of Fruits and Vegetables



Popkin, Horton and Kim 2001

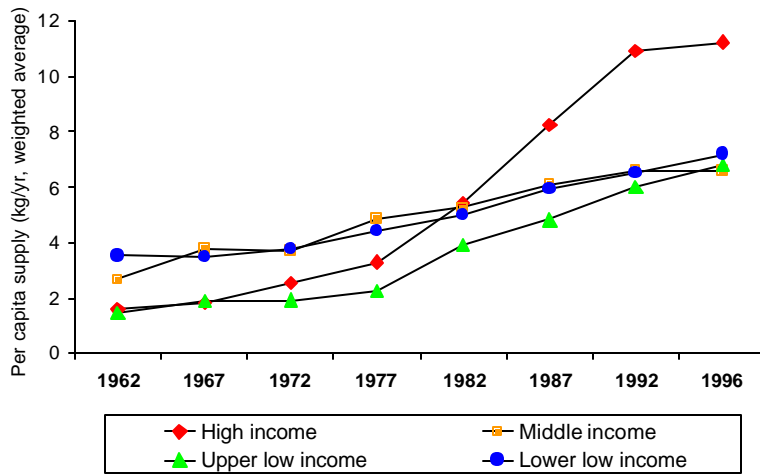


Figure 3.4: Trends in Per Capita Supply of Animal Fats



Popkin, Horton and Kim 2001

Figure 3.5: Trends in Per Capita Supply of Vegetable Oils

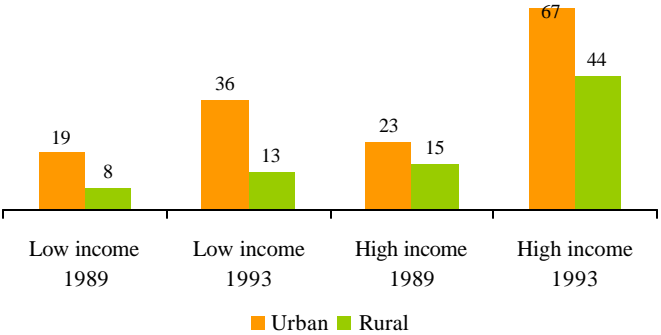


Popkin, Horton and Kim 2001

Consumption of cereals and coarse grains is static or falling for all income groups except the lowest. So at the national level, increases in availability of non-cereals are occurring at all

income ranges. At a sub-national level we have to rely on diet surveys. This source of data tends to show that these changes are taking place within many sub-groups within a country. Figure 4 from China demonstrates this startling trend. It shows that the percent of the population aged 20-45 years consuming more than 30% of energy from fat increased dramatically between 1989 and 1993 among the rich and poor and in urban and rural areas.

Figure 4: Trends in percent of population 20-45 years consuming more than 30% of energy from fat, by income group: China



Source: Guo et. al. 2000a

The most commonly tracked signal of poor diets is obesity. Obesity is an important risk factors for a variety of chronic diseases such as diabetes mellitus (type 2: non-insulin-dependent), coronary heart disease and stroke. It also increases the risk of several types of cancer, gallbladder disease, musculoskeletal disorders and respiratory problems.<sup>6</sup> Obesity reflects an imbalance between calorie intake and calorie requirements, but the source of calories consumed—even at energy balances at low BMI's--also matters for chronic disease, as summarized in Table 1.<sup>7</sup>

The growing importance of the diseases highlighted in Table 1 is illustrated in Figure 5. The figure presents estimates of disability adjusted life years lost to ischaemic heart disease in the developing world in 1990 and estimated projections to 2020.

<sup>6</sup> <http://www.who.int/archives/inf-pr-1997/en/pr97-46.html>

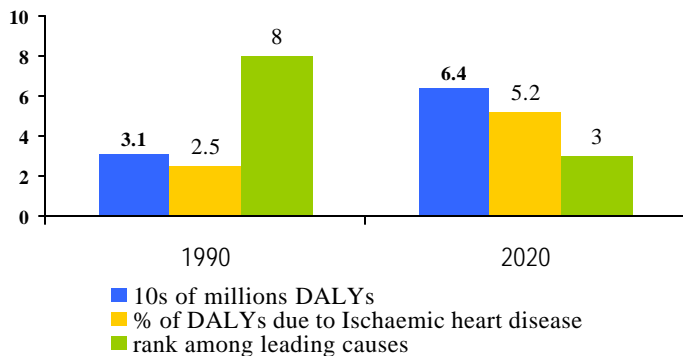
<sup>7</sup> particularly the consumption of trans fatty acids (Institute of Medicine 2002)

Table 1: Diet components and health risks

Diet Component	Health Risks
Vegetables	associated with reduced chronic disease risk, except potatoes
Fruit	associated with reductions in cardiovascular disease
Nuts and soy protein	associated with lower rates of cardiovascular disease
Ratio of white to red meat	fish and poultry associated with lower rates of coronary heart disease and cancer consumption of red meat and in particular processed meat associated with risks of certain cancers,
Cereal fibre	fibre from grain associated with reduced risk of coronary heart disease and stroke
Trans isomers of fatty acids	formed by partial hydrogenation of vegetable oils to produce margarines and shortening associated with coronary heart disease
Polyunsaturated : saturated fat ratio	higher polyunsaturated/saturated ratio associated with lower coronary heart disease risk
Alcohol	lower risk of cardiovascular disease with moderate alcohol intake

Adapted from McCulloch et. al. 2002

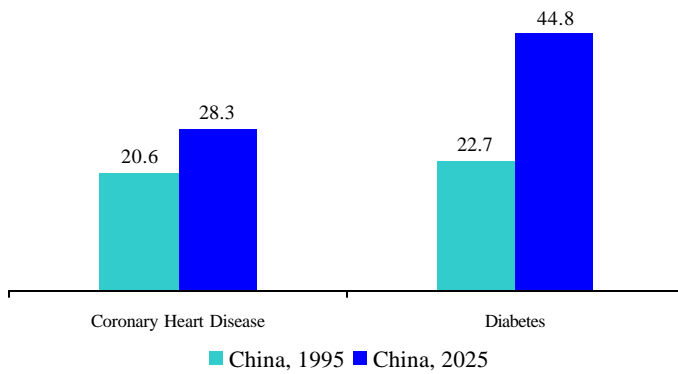
Figure 5: Growing Heart Disease in the Developing World



Murray and Lopez 1996

As we can see the total number of DALYs lost to this disease is projected to double in absolute terms and as a percent of overall DALYs from all sources. It moves up from 8<sup>th</sup> to 3<sup>rd</sup> among the leading causes of DALYs lost. The percent of chronic diseases such as these that can be attributed to diet is high and is projected to increase, at least for China. Figure 6 shows this very clearly, especially for diabetes, where projections estimate that 45 percent of the disease load in 2020 will be attributable to diets in 2020.

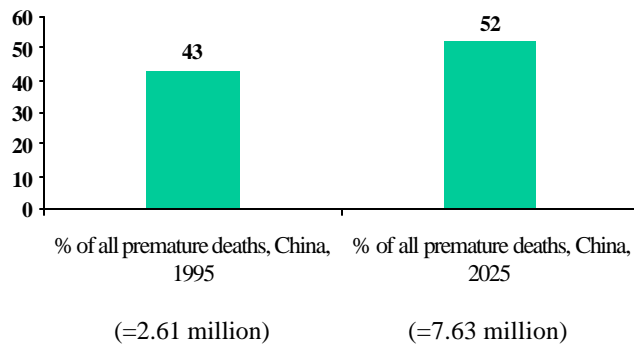
Figure 6: Percent of chronic disease attributed to current diet:  
China, 1995 and 2025



Popkin, Horton and Kim 2001

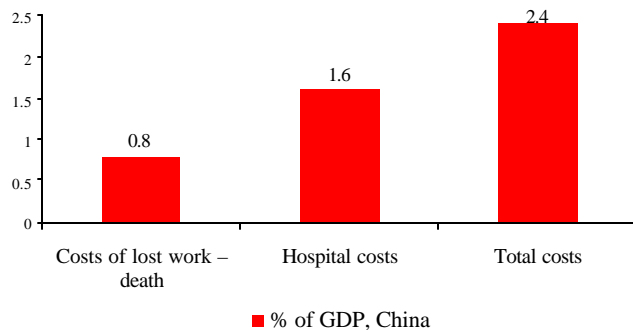
These diet-related chronic diseases are responsible for a large and growing burden of premature mortality in China (Figure 7) and are responsible for significant economic losses, very conservatively put at 2.4 percent of GDP per year (Figure 8).

Figure 7: Premature deaths per year due to diet-related chronic diseases in China



Source: Popkin, Horton and Kim 2001

Figure 8: Economic Costs of Diet-related Chronic Disease:  
China, 1995



Source: Popkin, Horton and Kim 2001

But are diets high in fat (especially trans fat and saturated fats) and added sugar and those low in vegetables, fruits, and cereal fiber inevitable in 2020? Can public policy do anything to move them towards greater health? In order to address these questions we need to first examine the drivers of the diet and nutrition trends outlined above.

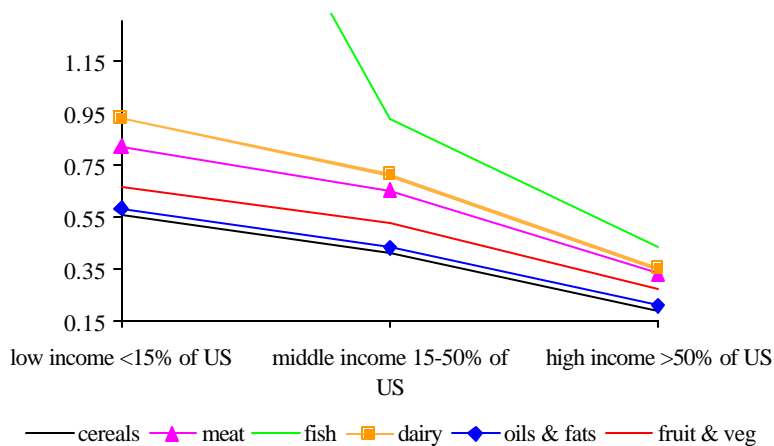
### 3. Drivers of Diet and Nutrition Trends

Commonly listed drivers of such trends include (a) income growth, (b) changes in relative prices caused by technology, institutional changes and policy changes and (c) the socioeconomic and activity changes associated with urbanization.

#### Income

We know that as income grows, consumers want to diversify out of cereals and other starchy staples. The consumption of the poorest households tends to be most responsive to increases in income at the margin. At higher income levels, price tends to play less of a role in governing food choices. Data from USDA (Figure 9) on how food expenditure responds to income increases (food expenditure-income elasticities) across a number of developing countries shows this.

Figure 9: Food Income Elasticities for Developing Countries by Income Level

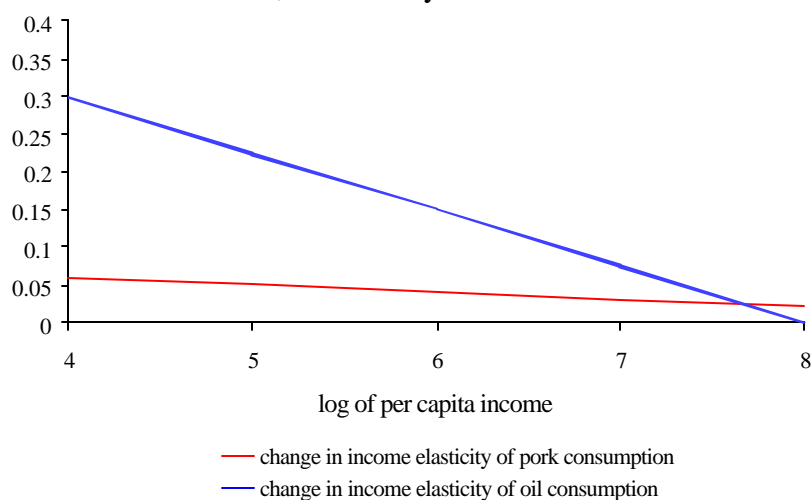


Regmi et. al. 2001

Note: these are food expenditure-income elasticities

The poorest countries have the highest elasticities. Fish, then dairy and then meats have the highest values followed by fruit and vegetables, oils and fats and lastly cereals. However, over time, the elasticities may increase before they decrease. Figure 10 presents elasticity estimates from China showing that the income elasticities for pork and oil increased between 1989 and 1993, and more so at the lowest income levels, especially for edible oil.

Figure 10: Change in Oil and Pork Income Elasticities:  
China, 1989-93 by Income Level



Guo et. al. 2000b

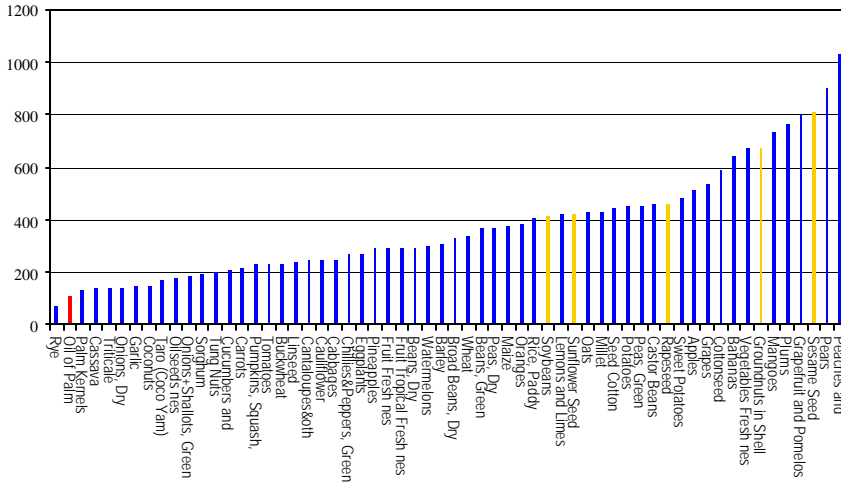
## Relative prices

Basic economics tells us that if the relative price of a foodstuff increases, demand for it will decrease. How have the relative prices of different foodstuffs changed over time?<sup>8</sup> Preliminary simple regression analysis of FAOSTAT's producer price series (no retail prices were available) for Nigeria, South Africa, India and China did not demonstrate any

significant systematic differences in relative price increases by food category with the exception of China (see Figure 11), where oils low in saturated fats (soybean, sunflower, rapeseed, and sesame seed) posted significantly higher price increases over the 1976-95 period compared to palm oil which showed one of the lowest price increases over than period.

<sup>8</sup> One price that we do not examine here is the wage rate, which has risen for occupations that tend to be less physically demanding. This of course is the other side of the coin, but one which, for now, we ignore with respect to what food policy can do.

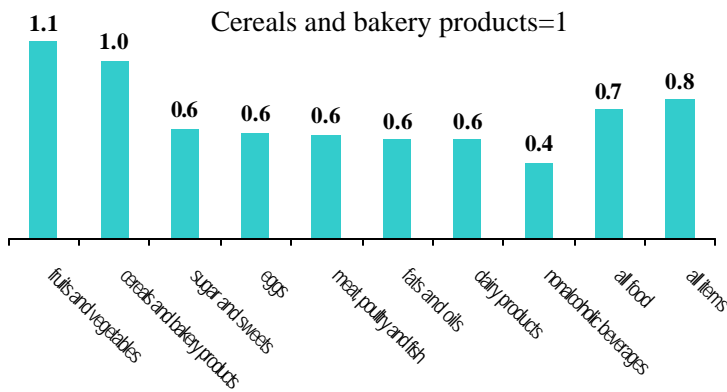
Figure 11: Percent increase in producer prices of various foods, 1995-1976: China



FAOSTAT database

In the USA, the relative price of nonalcoholic beverages (dominated by carbonated sweetened soft drinks) has dropped dramatically over the 1982-97 period as have the prices of dairy products, fats and oils, eggs, meat, poultry and fish, and sugar and sweets (see Figure 12).

Figure 12: Percent increase in retail prices, US: 1982-97

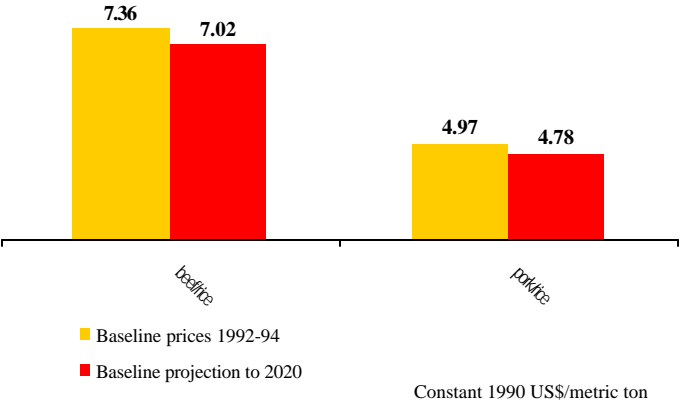


Putname and Allshouse 1999



Future projections of the internationally traded prices for nonstaple nonfruit and nonvegetable goods, whenever available, indicate a further decline in their price relative to cereals (e.g. Figure 13 for pork and beef relative to rice).

Figure 13: Real prices of livestock products as predicted by the IMPACT model: relative prices



Delgado et. al. 1999

More analyses of past trends in producer and in retail food prices need to be undertaken from a health perspective. For example, we do not have consumer food price trends by fat content. Such trends would help identify the main sources of any decline or increase in the price of fat or added sugar—which as we will see is obviously important for policy formulation. In addition there need to be more studies linking price trends to health outcomes. There are many linking undernutrition outcomes to price changes (e.g. Pitt and Rosenzweig 1986) but few linking rates of chronic disease or levels of obesity to relative price changes, controlling for a range of other factors. One of the few such studies to do so using US data suggests that 40 percent of the growth in weight of the US population between 1976 and 1994 is due to technology-based reductions in food prices (Lakdawalla and Philipson 2002 and also Philipson and Posner 1999).

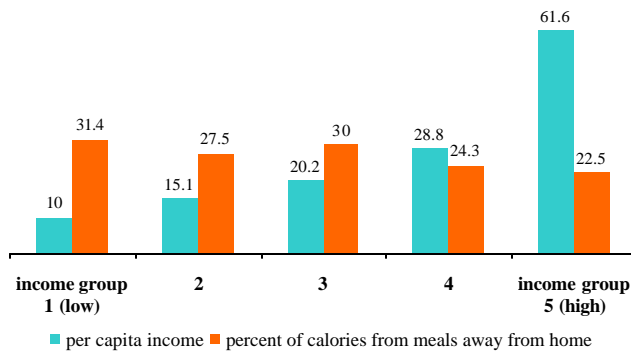
Technology innovation and policy may be one important source of change in the relative prices of foods that pose a chronic health risk, and institutional policy changes another. Examples of the latter include (a) trade policy governance and (b) changing food distribution mechanisms. An illustration of the first of these examples area is the entrance of China into the World Trade Organization is anticipated by many (e.g. Fang and Beghin 2000) to lead to a 20 percent decline in the price paid by consumers for soybean oil and related products. More research is needed from a health perspective on how trade liberalization will affect the price of different foods that represent different health risks. An illustration of the second of these examples is the rapid transformation of food retailing in Latin America. Reardon and Berdegue (2002) report that the percent of food distributed by supermarkets in retail outlets in the region grew from 10-20% in 1990, to 50-60% in 2000. Do these supermarkets provide poorer consumers with increased access to more unhealthy processed foods (e.g. those with high levels of trans fatty acids)? Do they also provide increased access to fresh fruit and vegetable products and other healthy diet

components? This is not yet clear, and more research is needed to identify win-win solutions where healthy foods represent healthy profits.<sup>9</sup>

## Urbanization

Urbanization is proceeding rapidly in the developing world. Urbanization is marked by a reduction in physical activity for the majority of the labor force. The density of residence of urban populations also lowers the per person cost of mass-media advertising, where the spending power of food manufacturers and processors surely outweighs that of public health authorities. The urban environment is also marked by a greater physical disconnect between places of work and residence and smaller household sizes. In this environment where time is scarcer, at least for those gainfully employed, and where the fixed costs of food preparation are higher in smaller families, more food tends to be purchased outside the home, even for poor households. Data from an Accra-wide survey (Figure 14) show that the poorest income quintile consumed more of its calories away from home (31.4%) than any other income group.

Figure 14: Calories From Food Away from Home  
(% of total): Accra 1997



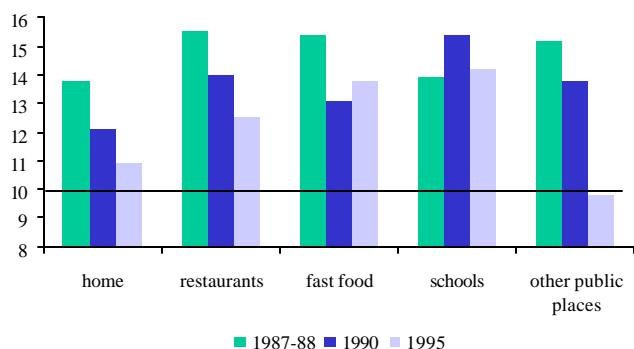
Maxwell et. al. 2000

Food from away from home sources tends to be higher in fat, often being refried many times over, although good data from the developing world are hard to get on this issue. In the US, data from the USDA (Lin et. al. 2000) show that the saturated fat content of foods consumed at home has dropped steadily over the 1980s and 1990s, whereas the fat content in fast food restaurants and in schools has remained high (see Figure 15).

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<sup>9</sup> Reardon and Berdegue (2002) note that profit margins are highest on fresh fruit and vegetables, but also on dairy and processed foods.

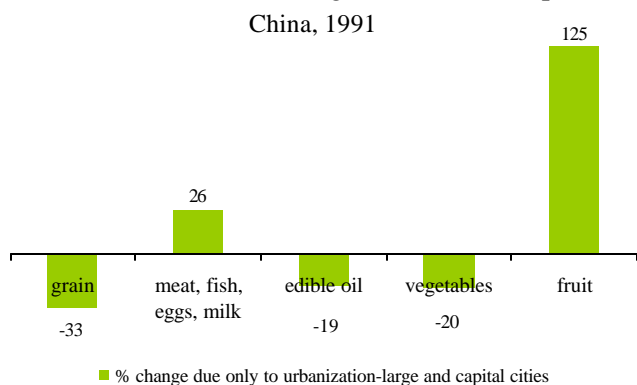
Figure 15: Percent of calories from saturated fats by location of consumption: USA



Source: Lin et. al. (2000)

Location clearly matters, then, even controlling for price and income. This is clearly shown by the modeling exercise for China, where food consumption shifts due to rural-to-urban migration were modeled, controlling for prices and income levels. The results are presented in Figure 16.

Figure 16: Percent change in consumption of a rural-to-urban shift, controlling for income and prices



Huang and Bouis 1996

Interestingly, in this case, urbanization seems to have led to a large increase, all things equal, in the consumption of fruit, a moderate increase in the consumption of meat, fish, milk and eggs and a moderate decline in the consumption of all other foods. Clearly one cannot generalize too much about the urban experience before more studies of this type are undertaken.

#### 4. What Can Food Policy Do?

This section briefly reviews the rationale for public action to steer the diet transition towards greater healthiness: what is the case for public action? It then reviews options from the supply side (that seek to influence the types of foods entering the food system) and from the demand side (that seek to influence the options and choices faced by consumers). The section then points out some of the tradeoffs between addressing under and overnutrition that are accentuated in a developing country context and ends with a short discussion of the political economy of public health policy in the area of food consumption.

##### 4.1 The Rationale for Public Action

Table 2 summarises the rationale for public action to influence the diet transition towards a healthier outcome. Perhaps the most obvious rationale is information asymmetry between producers and consumers about what is healthy and what is not. There may also be negative externality effects in terms of health care resources being directed away from infants to middle aged individuals and in terms of the intergenerational transmission of obesity from mother to baby (see Parsons, Power and Manor 2002). There will also be a case for public intervention if private sector incentives do not result in poorer consumers being able to access healthier food options, especially in the areas of basic processed foods. The point of this discussion is not to be exhaustive, but to remind the reader that any new area of proposed public action must rest on the broader principle of providing things that markets provide poorly.

**Table 2: The case for public policy intervention to reduce improve diet quality**

Rationale for public action	Example of broad area in which public intervention may be justified
Underprovision of "public" goods	If generation of healthy food and agriculture technologies not available to poorer consumers
Externalities not captured	Intergenerational negative externality justification? Health care costs diverted from prevention
Information asymmetries	Case for providing healthy alternatives Case for labeling; Nutrition Education
Capital market failure	Investing in anti-LBW interventions
Universal access and equity concerns	Obesity is linked to more marginal groups in US, UK
Health insurance market failure	Prevention and treatment of chronic diseases

### Food Policy Options

Options emanate from the supply side and the demand side, although success will obviously be enhanced via the effective interaction of both. Table 3 summarizes the food policy options available to moderate dietary fat intake based on US experience (see Sims 1998 and Ralston 2000).

**Table 3: Food Policy Instruments For Controlling Dietary Fat**

Stage of the Food System	Types of Policy Instrument	Examples Used in the Dietary Fat issue	Effectiveness in controlling fat intake
Food Production	Commodity price subsidies/supports	Feed grain subsidies for feedlot animals	negative
		Dairy price supports	negative
	Import/export quotas	Export incentives for U.S. vegetable oil	uncertain
Food Processing	Meat grading standards	Restrictions on beef imports	uncertain
		Beef grading (changes from choice to select)	positive
	"Standards of identity"	"Standards of identity" changed for low-fat milk and yogurt	positive
	Food labeling	Food label descriptors (eg "low fat", etc.) changed for fluid milk, ice cream	quite positive
Food Distribution and Marketing	Marketing orders for dairy	Changes in milk marketing orders	negative
	Food labeling	Use of "% lean" claims on ground beef	slightly negative
		Restaurant labeling of menu items with "low fat" claims	slightly positive
	Food advertising	Harmonization between the FTC and FDA on ads using fat "descriptors"	uncertain
Food Consumption	Food labeling	Fat descriptor information on food label	positive
	Dietary Information campaigns to public	Dietary guidelines	positive
		Food Guide Pyramid	quite positive
	Commodity promotion boards	Promotion of cheese, ice cream, milk, beef, pork	negative

Adapted from Sims 1998

Although focused only on dietary fat in the US, the table highlights several points. First, there are many stages in the food system where policy can act—both on the supply side and on the demand side. Second, many of the instruments may have small effects—either because behaviour is hard to change in the desired direction or because there are some behaviour changes that counterbalance desired changes in behaviour (e.g. the extra servings of lower calorie foods that maintain the overall calorie intake from that source: Sims 1998). Third, several instruments have ambiguous effects on fat intake—either because they have not been evaluated (e.g. harmonization of fat descriptors between regulatory agencies) or because their direct effects may be overwhelmed by their indirect effects (e.g. restrictions on beef imports may result in an overreaction from domestic beef producers and a search for new outlets for beef products). The table represents a menu of options that need to be evaluated if their impacts are to be maximized in the desired direction.

### Supply-Side Interventions

*More public investment in technology to deliver high-productivity, low cost vegetables and fruits and low-fat livestock products to poorer consumers.* The bulk of agricultural technology development in high value commodities such as livestock and fruits and vegetables tends to be undertaken by the private sector for larger farms. The high cost of cold chain systems reduces their access by small farmers. Increasing the productivity of fruits and vegetables and lower fat livestock products and reducing the transactions costs of delivering them to growing markets is an important area in which agricultural research and development can have a larger health impact

*Eliminate price incentives on growing high fat foods and relax quantity restrictions on growing healthier foods.* The commodity composition of these kinds of price and quantity restrictions reflect the economic, social and political importance of the various crops and growers associations and the small and large industries that rely on them. Whenever the welfare of small sub-groups is weighed against the broader interest, the politics of hurting a small but powerful group will usually outweigh the smaller negative impacts on a much vaster set of individuals (Nestle 2002). When small welfare losses result, over time, in a large cumulative disease burden, the economics of such tradeoffs needs to be revisited.

*Evaluate food trade policy from a health perspective.* GATT and the World Trade Organization use a number of agreements to navigate health issues, including the Sanitary and Phytosanitary (SPS) Agreement and the Trade Related Intellectual Property Rights (TRIPS) Agreement. Can these Agreements be used to regulate the health content of food imports? Past experience suggests, yes, if scientific risk assessments show danger. For example, using the SPS, the WTO stated that the overturning of the EU import ban on hormone-fed cattle was based on the absence of an empirical risk assessment. Perceptions of health risk were not sufficient to win the case for the EU (Bloche 2002). Beyond obvious health related trade instruments, can the health community influence the trade community in much the same way the labor and environment communities have done? If they can (questionable), when do the income losses to the poor from lower volumes of trade outweigh the health gains from an improved quality of trade? This is not known, but this is surely an area for future research as the percent of food consumed from trade increases.

*Tougher standards on fat content of food away from home and in schools.* In the US, for example, the menus in many public schools fail to meet US Department of Agriculture dietary guidelines (Brownell 2002a,b).

*Reduce Malnutrition in Utero.* The so-called “Barker Hypothesis” posits that maternal dietary imbalances at critical periods of development in the womb can trigger an adaptive redistribution of fetal resources (including growth retardation). Such adaptations affect fetal structure and metabolism in ways that predispose the individual to later cardiovascular and endocrine diseases (Barker 1998). The correlation between low birth weight or early childhood stunting and later cardiovascular disease and diabetes may arise from the fact that nutritional deprivation in utero or in early childhood, “programs” a newborn for a life of scarcity. The problems arise when the child's system is later confronted by a higher fat, higher sugar diet, in combination with lowered activity patterns. If this hypothesis is borne out (and to date evidence is accumulating both for and against) it will serve to remind us that one food policy option for attenuating the impacts of the diet transition is to reduce intrauterine growth retardation. For example, based on a balanced review of the evidence as of 2000, Popkin, Horton and Kim (2001) conclude that in China approximately one third of diabetes can be traced back to low birth weight and stunting in infancy, with this percent declining in 2020, on the assumption that low birthweight and stunting will decline. There are a number of interventions to address low birth weight at term, ranging from the immediate (e.g. improving the food intake quantity and quality of adolescent girls and expectant mothers and improving the quality of pre-natal care) to the underlying (e.g. improve women's status relative to men in terms of resource allocation decisions).

#### Demand-Side Interventions

*Increase the relative price of unhealthy choices.* This is an option that those who come from the anti-smoking campaigns might find appealing. It often underlies discussions of what food policy can do to increase the healthiness of the diet transition—increase the price of offending foods (e.g. Guo et. al. 1999). Food price policy in developing countries has a rich analytical underpinning, although principally from the undernutrition perspective (e.g. Alderman 1986). However, it is difficult in practice to identify a food for which an increase in price will not reduce access to healthy components of a diet—components that in a developing country context may be in short supply. Examples in Figures 17a and b illustrate this for US data on meat and edible oil consumption. As Figure 17a shows an increase in the price of meat does have a negative impact on fat and cholesterol intake, but it also has a negative impact on a wide range of diet components that are crucial to diets, especially those of infants and women such as iron, and calcium which are not found in high densities in non animal source foods.

Figure 17a: Responsiveness of nutrients (%) to a 1% increase in price of meat, US price elasticities

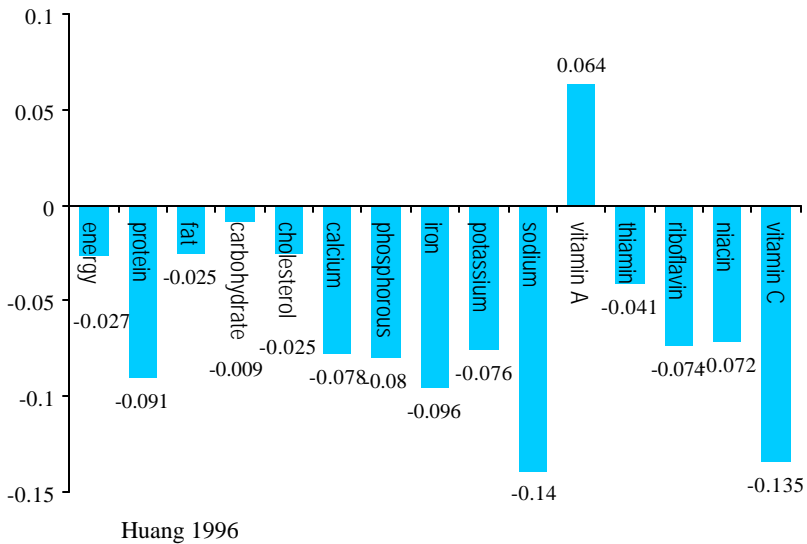
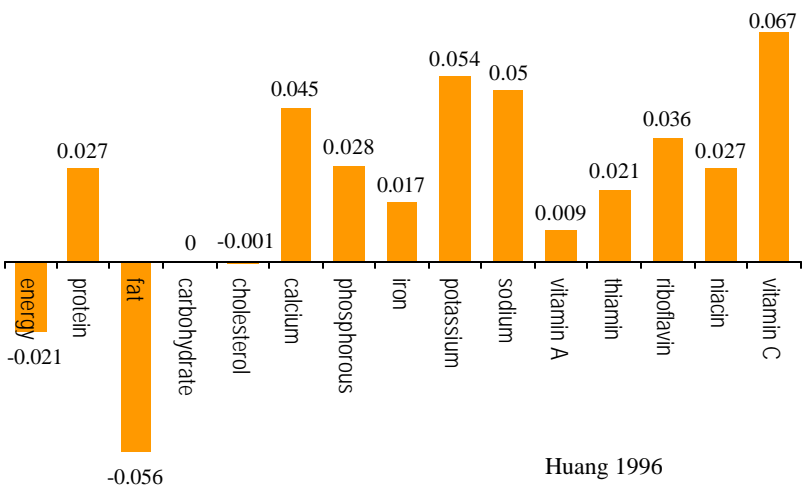


Figure 17b shows that an increase in edible oil prices does decrease fat consumption and increase the consumption of nearly every other diet component due to a substitution towards other foods.

Figure 17b: Responsiveness of nutrients (%) to a 1% increase in price of oil, US price elasticities



This is more in line with the kind of results we might be seeking. However, in a developing country context, edible oil is often used to increase the energy density of infant diets.



*Clearer information about product contents.* Food labeling can help in reducing information asymmetries, but often it can be confusing, is obviously of limited value in areas where literacy is weak, and may be better at discouraging certain types of behaviours perceived as risky than encouraging healthy behavior (e.g. Verbeke and Ward 2001 on BSE in Belgian beef)

*Better awareness about consequences of poor diet.* A number of initiatives have been employed in developing countries to raise awareness of the causes and consequences of poor diet. These involve a mass media campaign to reduce overweight in Brazil; dietary guidelines implementation for nutritional well being in China, and school-based training for improving diet and activity levels in Singapore (Doak 2002). Evaluations of the effectiveness and cost-effectiveness of these interventions are desperately needed.

#### 4.3 Policy Tradeoffs Accentuated in a Developing Country Context

Policy formulation on diet change in the developing world must build on the evidence base accumulated in the industrialized world. However, the developing country context is very different and policymakers must be aware of the following:

Food consumption deficits are still widespread. When looking for foods to discourage consumption of, remember that many groups require the *other* nutrients contained in the food (e.g. the micronutrients in livestock).

Certain groups of individuals will need to consume even foods that are “empty” sources of the diet component that is seeking to be discouraged, e.g. edible oils and infants.

The capacity to influence preferences via the public sector is likely to be lower than in the industrialized world. Whether the imbalance between public and private sector power to communicate nutrition messages is growing in the developing world is an open question, but with multinationals backing much of the nutrition messaging in the developing world, one would not be surprised to see this occurring.

On the supply side, anything done to discourage the consumption of a locally produced food considered harmful to health above some cutoff will harm the income generating ability of many smallholder farmers. They may not have the political strength of industrialized country farmers, but the economic impact on the rural economy of an attempt to alter consumption could be large. Many developing countries are desperate to increase foreign direct investment, not to discourage it. Attempts to discourage foreign supplies of foods that are designated “less healthy” will have employment and livelihood consequences that need to inform any decision taken.

#### 4.4 The Uniqueness of Food

There is somewhat of a temptation to fashion strategies that seek to curb diets that lead to large increases in the chronic disease burden after strategies employed to reduce smoking (World Bank 1999). Comparisons may be more valid in some countries with powerful judicial systems for those who can take advantage of them (e.g. the USA and the recent lawsuits taken out against fast-food retailers). But even in the industrialized countries there are some important differences between the two situations—i.e. poor diets are not the same as a smoking habit. First, there is a

difficulty in identifying the “offending product”. Second, there are no obvious tradeoffs with positive outcomes as outlined in section 4.3. Third, there are fewer obvious private externalities (there is no such thing as “secondary eating” with the possible exception of intrauterine nutrition). Finally, there is a broader constituency for food farmers than for tobacco farmers.

Because of these and other differences, the “triggers” for strong public action are not yet in place (Kersh and Morone 2002). Table 4 is adapted from Kersh and Morone (2002) and it lists the “triggers” for public action in health and assesses their strength in the US as applied to the obesity problem in the US. The authors conclude that only the first 3 of 7 triggers have been tripped: social disapproval, evidence from medical science and the evidence of self-help groups. Such constructs help us to remember that evidence is only one ingredient in the formulation and implementation of public health policy.

## 5. Information and Analysis Gaps

Research in the area of the diet and nutrition transition in developing countries is in its infancy. Most of the work has been spent documenting it and analyzing its causes. Much of this work has had to make do with crude food data (national supply, not household level availability or individual intake). Very little research has focused on policy analysis. The following areas deserve much more attention from the research community.

There is a need to use *existing* nationally representative household survey data to systematically chart trends in availability of “bad” food components. These datasets are available for a large number of countries, but are solely used to estimate poverty rates.

Food price elasticities need to be generated for large developing countries that are disaggregated enough to be policy relevant (e.g. “meat” is not useful, but “high fat beef products” might be).

The tradeoffs in terms of the consumption changes of different diet components of different population subgroups resulting from the change in the price of a single commodity need to be spelled out, as do the implications for smallholder income generation.

There need to be more evaluations of nonprice interventions to change diets, both in terms of quality and quantity.

There has to be more research on the investments and institutional innovations that smallholder farmers need to link up with growing domestic and international markets for healthy foods.

More research needs to be done that links trade policy with health outcomes, perhaps via the linkage of computable general equilibrium models (CGEs) and micromodels of individual welfare outcomes (e.g. Cogneau and Robilliard 2000)

Research on the policy process and the role of information will be useful to help us to understand why the public health response to chronic disease has varied in terms of effectiveness.

More research needs to be done on identifying institutional mechanisms for win-win public-private partnerships (e.g. Buse and Walt 2000) to reduce the amount of unhealthy fat and added sugar entering into the developing country food supply.

Too much of the evidence cited in this paper has come from one country, China. A similarly concerted effort needs to be undertaken in other large countries for which there are indications that the diet transition is accelerating—e.g. India, Brazil, Indonesia, South Africa and Nigeria.

## 6. Conclusions

The diet transition in the developing world seems to be accelerating. It seems to be a transition towards an increased burden of chronic disease. It is increasing human costs in terms of mortality and the disease burdens. It is increasing economic costs in terms of lower productivity. It is driven by changing preferences fuelled by growing incomes, changing relative prices, urbanization; by changing options fuelled by changes in food technology and changes in the food distribution systems, and by a legacy of low birth weights from the previous generation. Is there a case for public investment in efforts to influence the transition towards increasingly healthy outcomes? The existence of information asymmetries and negative externalities suggest so.

What can food policy do? We have identified a number of options from the food supply and food demand sides. These options have had mixed success in the industrialized countries. The policy tradeoffs in the developing world are even more complicated. For example, efforts to overcome overnutrition might well undermine efforts to overcome undernutrition. The public health antismoking policy model offers some insights, but it should not be leaned on too heavily—food is not tobacco. There are plenty of areas in which additional technical research is needed to assess competing risks and to help develop policy options and we have outlined some. But there is also a very great need for research to engage actors in the policy process underlying the diet transition. In a debate where so much is at stake—market shares, profits, livelihoods, and life itself- there is a potentially powerful role for the generators of balanced evidence to bring different actors to the table. This may help to improve the decision-making processes underlying the attempts of food policy to redirect the diet transition towards healthier outcomes.



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## ANNEX C :CONSULTATION AGENDA

LOCATION: World Bank – G Street  
1776 G Street, N.W.  
Room G8-099 (Sunlight Salon)  
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### Day 1: Wednesday, November 20, 2002

9:00-9:30 a.m. Introduction: Milla McLachlan, Robert Hecht and Pekka Puska

Moderator: Pekka Puska

#### **The Nutrition Transition Underway in the Developing World**

This component will provide a brief common background for the issues: the critical dietary concerns, the dietary intake dynamics and then the production dynamics in selected areas will be discussed. There will be a brief discussion of current and future health consequences.

9:30-10:15 a.m. Barry Popkin Presentation and discussion  
The Diet Transition, Overview (an introduction on key dietary concerns, diet shifts and related NCD changes)

10:15-10:40 a.m. Coffee

10:40-11:30 a.m. Christopher Delgado : Presentation and discussion: Shift in Animal Source Foods (this will include a presentation on animal food source shifts)

11:30 a.m.-12:30 p.m. Lawrence Haddad: Food policy options: the classical options for shifting the structure of diet in the agricultural sector.

12:30-1:45 p.m. Lunch

Moderator: Milla McLachlan

**Overview of the Dynamic Shifts in Processing, Marketing and Distribution** (note Delgado will earlier note some of the dynamics related to the centralization of livestock production)

1:45-3:00 p.m. Marketing, distribution and food policy: brief 20 minute overviews by James Tillotson, Thomas Reardon and Marion Nestle with an added 10 minute overview by Corinna Hawkes

3:00–3:30 p.m. Coffee

3:30–5:00 p.m. Panel discussion (Tom Reardon, James Tillotson, Marion Nestle and Corinna Hawkes)

## **Day 2: Thursday, November 21**

Moderator: Barry Popkin

### **Research, program and policy options**

9:00 a.m. - 12:30 p.m.

Panel Discussion, including Emmy Simmons, Gershon Feder, and Chris Delgado.

1. Traditional Policy levers for crops and livestock— this will focus both on what are the feasible options and also how important are they now with all the new developments in processing, distribution and marketing. What options are possible as we consider the new emerging forces in the marketing, processing, and distribution sectors?
2. Where do we go in terms of research? This is clearly important as we try to put together an agenda of action for the longer term.
3. What are the best understood current policy options for increasing fruit and vegetable intake, reducing saturated fat intake (i.e., beef and pork products and higher fat milk products) and enhancing more healthful animal food options? What can we do to enhance pulse intake?

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