Macroeconomics of NCD Health Policy

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Abstract

Unwholesome consumption and externalities (unhealthy food, alcohol, tobacco, and physical inactivity) cause non-communicable chronic diseases (NCDs), distorting human and economic development. NCD policies must: 1) reduce risk factor prevalence; 2) provide cost-effective medicine; hence 3) develop substantial, evidence-based, policy capabilities; following a process of significant societal learning. Because unwholesome consumption goods are produced by global corporations with extensive influence, it is also necessary to strengthen global governance capabilities. Generating the knowledge and experience to implement cost-effective health is also a costly challenge. The Region of the Americas can therefore benefit from a continental cooperation strategy for implementing NCD health policies.

1. Introduction

The objective of this section is to examine the macroeconomic dimensions of public, evidence-based health policies for reducing the prevalence of non-communicable chronic diseases (NCDs) and their risk factors in the Region of the Americas. The aim is to give a broad outline of the macroeconomics of NCDs, ranging from risk factor management and health costs to long-term economic growth and human development.[1]

[1] I take broadly from and continue Mayer-Foulkes and Pescetto-Villouta (2012).

1.1 Main characteristics of NCDs

NCD's are long lasting, slow progressive diseases. The four main types are cardiovascular diseases (such as heart attack and stroke), cancers, chronic respiratory diseases and diabetes. NCDs and the multisectoral policies necessary to reduce their risk factors constitute a priority in the political and public health agendas. The reason is that NCDs are associated with high social, economic and health costs due to the unnecessary loss of potentially healthy life and increased household costs associated with health care. Moreover, the main risk factors for these diseases are well known negative, manmade, impacts of economic sectors producing *unwholesome* consumption goods or externalities (mainly tobacco use, the harmful use of alcohol, unhealthy diets high in fats, salts and sugar, and physical inactivity) (WHO, 2015). Thus while the challenge for the health sector is itself formidable, in fact preventive policies are indicated for NCDs. These require the implementation of public, evidence-based policies to modify the behavior of consumers, producers and urban planners, amongst others. The corresponding economic evaluations span the macroeconomic, long-term behavior of the concerned economies and their economic partners.

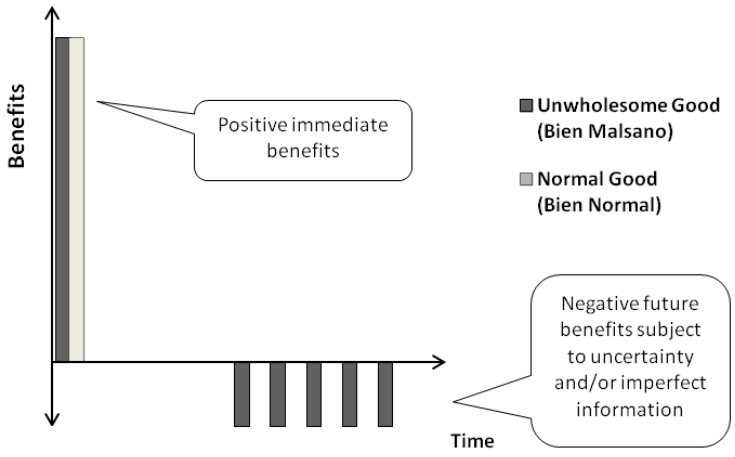

Figure 1. Definition. An *unwholesome good* is one that has an immediate benefit, as a normal good, but also negative future benefits subject to uncertainty and/or imperfect information.

The prevalence of NCDs presents a singular characteristic as compared to infectious and deficiency diseases. This is its relation with *unwholesome*

lifestyles, specifically lifestyles characterized by the consumption of unhealthy food, abuse of alcohol and/or tobacco, and physical inactivity. To better understand what this means we define the concept of an *unwholesome good* (*bien malsano* in Spanish). This is a good that presents an immediate benefit but also long-term, future negative impacts, about which the consumer and even the producer may be uninformed and uncertain (Figure 1). The main NCD risk factors are unwholesome goods produced for profit or as externalities. They bring up issues of knowledge, learning and irrationality in consumption decisions, and responsibility in production and advertising. While it could be rational to consume unwholesome goods, as when soft drinks substitute for potable water, it can also express irrational ignorance, if for example the perceived benefit of a soft drink habit is self-esteem and the unwitting consequence is long-term illness or death.

1.2 The burden of NCDs

Non-communicable chronic diseases (NCDs) have been recognized as the greatest cause of premature death and morbidity in Latin America and the Caribbean (LAC) since the 2002 Pan American Sanitary Conference. According to 2007 estimates, 76% of LAC deaths were related to NCDs, 60% of these to the principal NCDs; PAHO also estimates that some 250 million people are living with a NCD (Pescetto, 2011). Without intervention, NCD trends are projected to rise across all countries in Latin America (Webber 2012). The economic burden of NCDs is expected to rise significantly in the following decades, to around 4% of global GDP (Suhrcke et al, 2006), enough wealth to eradicate two dollar-a-day poverty (Bloom et al, 2011). The fiscal costs are expected to be higher than retirement costs (Olusoji, Robles & Smith, 2007). Chronic diseases pose huge long-term costs in health care, whether provided by families or health systems. They also impact poor and vulnerable populations disproportionately. NCDs imply a huge organizational and technological challenge for health systems. Finally, even individual disease categories such as cardiovascular disease (Suhrcke and Urban, 2010) and diabetes (Javitt and Chiang 1995) pose a growing threat to economic development, because of their direct health and health care impacts and because of indirect costs in long-term human capital formation and returns.

1.3 Economics of NCD health policies

NCD risk factors are to a large extent man-made. They result from individual and collective decisions that give rise to unwholesome consumption and externalities. Diseases are prevented by individual and social behavioral changes rather than, for example, vaccinations and antibiotics. Thus to formulate NCD policy requires 1) an analysis of the decisions determining the prevalence of NCD risk factors, and 2) an analysis of the economic impacts of NCDs once they occur, whose reduction is the objective of policy. Both of these elements are necessary for a full macroeconomic understanding of NCDs. This is the essence of Maher et al's (2009) two-pronged approach to NCDs. We look first at the economic impacts of NCDs and then analyze the economics of the prevalence of NCD risk factors.

2. Human development and economic growth

NCDs are long-term illnesses whose impacts range over the life-cycle. They affect human performance due to a high rate of disability and mortality. Labor time is reduced and with it the action of human capital as well. These in turn reduce income and can also reduce technological change, which is one of the drivers of growth. Labor time and disposable income are also reduced in that work and income must be redirected towards caring for the ill. By reducing useful working life and available income, NCDs also reduce the attractiveness of investing in human capital, as well as the resources available for doing so. Savings are reduced for the same reasons. Thus, the economic impacts of NCDs can be understood in terms of a model of human development.

PAHO played an active role in the first wave of studies on health and economic growth (Commission on Macroeconomics and Health, 2001). The Nobel Prize winning, long-term perspective on the impact of secular changes in poverty and health on economic growth, synthesized in the concept of techno-physio evolution, played an important motivating role (Fogel, 2002).

This long-term perspective can be formalized in a human development model (Mayer-Foulkes, 2008a) that incorporates technological change and successive barriers to life-long human capital investment. The model explains lagging human development and persistent poverty in an intergenerational context

of economic growth that benefits and is benefitted by health.[2,3] It also underscores the importance of early child development for adult education, health and income.

The prevalence shift from infectious and deprivation diseases to NCDs can be considered as a further stage of techno-physio evolution, following the emergence from a poverty concerned with infant mortality, stature and nutrition, infectious and deficiency diseases, maternal health and life expectancy. The epidemiological transition towards NCDs was first defined as a concept by Omran (1971) in conjunction with the demographic transition. It is now clear that this transition is not as unidirectional as was first conceptualized. Several stages of the transition may overlap in the same country. It is quite possible to have:

(1) Epidemiological transitions *differentiated across socioeconomic levels*, as explained by the human development trap model (Figure 2);

(2) *Unwholesome epidemiological transitions*: health and demographic transitions impacted by unwholesome consumption and externalities, impacting population and life cycle profiles of health and education (Figures 3 and 4).

The human development process is inserted in the economy and defines and interacts with labor supply, saving, investment, health and education costs, technological change, and so on. It is also subject to the impacts of unwholesome consumption and externalities.

3. The economics of NCD risk factors

The main NCD risk factors are unhealthy diets (high in fats, salt and sugar), abuse of alcohol and/or tobacco, summarized as *unwholesome consumption*, and physical inactivity, summarized as *unwholesome externalities*. The demand and supply of these unwholesome risk factors are directly linked with the policies and politics of their regulation.

[2] Human development lags spanned four generations in the stature transition in Bolivia, Brazil, Guatemala and Peru, and in the cognitive transition in Mexico (Mayer-Foulkes 2008b, 2008c).

[3] Human development also interacts with the transition towards democracy. See Ranganathan et al (2015) for an empirical evaluation, Mayer-Foulkes (2013) for further discussion and references.

3.1 Demand, supply, and political economy of unwholesome consumption

The nutrition transition that has tended to replace a traditional diet rich in fruit and vegetables with an unwholesome diet rich in calories derived from animal fats, and lower in complex carbohydrates (Popkin, 2002; Yach and Beaglehole, 2004) is a major risk factor for NCDs (WHO, 2005). Among the underlying determinants of this and other NCD risk factors are the major forces driving social, economic and cultural change, including globalization, urbanization and the general policy environment (WHO, 2002).

The nutrition transition cannot be understood as a rational process of maximization of preferences conforming to the basic economic paradigm of rational individual and social choice. Instead, we see irrationality exploited for profit. An example is furnished by the existence of very simple cost-effective measures to reduce the impact of NCDs, such as reducing the consumption of salt, sugar, alcohol and tobacco. Another example is the impact of advertising on children and adolescent obesity. At the very least, cultivating rationality involves a very significant process of learning. Some advances beyond the paradigm of rational maximization of preferences are currently emerging for economics. Examples are given by Elster (2007), working on self-interest and altruism, myopia and foresight, beliefs, emotions; collective belief formation, action and decision making; Kahneman (2011), working on the interaction between fast, intuitive, and emotional thinking and slower, more deliberative, and more logical thinking; and Akerlof and Kranton (2010), working on identity and social norms.

Exploiting irrationality for profit in the sale of unwholesome products involves adverse selection (consumer cannot evaluate the product from its appearance) allowing for irresponsible marketing and production (manufacturer knowingly produces and promotes unwholesome products), and other problems.

As for the supply of unwholesome consumption, this tends to be led by a small number of large corporations whose advertising plays a leading role in the nutrition transition. Nestle and Coca Cola each spent over $2.1 billion in advertisement in 2007 (Crain Communications Inc. and The Ad Age Group, 2008). For comparison, WHO's organization-wide budget for the two years 2008-2009, was also US$2.1 billion per year.[4] Global advertising spending by the top 100 advertisers, in measured media bought in 2007, was US$11.0 billion in food,

[4] Information read at http://www.un.org.np/agencyprofile/profile.php?AgencyID=12 on 11/20/2009.

US$3.8 billion in restaurants (such as McDonalds), US$3.7 billion in soft drinks, and US$1.6 billion in beer, wine and liquor. Their advertising budget of US$20.1 billion was ten times the full budget used by WHO to deal with world health issues. Advertising for the drug industry ran at US$9.4 billion, also way beyond WHO's capacity to regulate. Advertising in personal care (US$23.4 billion) and cleaners (US$3.3 billion) could also impact health.[5]

Following Pogge (2005a, 2005b), on the basis of the United Nations Declaration of Human Rights, the systematic nature of the damages caused by advertising implies that they are massive violations of human rights on account of the avoidable mortality and morbidity they produce.

3.2 Technological change and unwholesome consumption

The market power of the large corporations producing unwholesome consumption goods partly originates from technological innovation. When the cheapest technology in a class of foods produces a healthy product, there is no problem. The problem occurs when a cheap technology produces an unwholesome product. There may thus be an inherent bias towards unwholesome products in the innovation process, since a lot of processed foods are less healthy than their fresh, organic counterparts. Healthier products may be less susceptible to large-scale commercial production and therefore more expensive. Their production may therefore on the one hand be less competitive and on the other hand damage the environment less. It is necessary to understand the precise supply side economic determinants of the nutrition transition, which is shifting agricultural land use and perhaps reducing sustainability.

There is therefore room for public policies promoting innovation for a wholesome diet, particularly in fruit and vegetable agro industry. Part of the problem may be that small scale production, which wholesome food may require, needs more public support for innovation than large scale production.[6]

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[5] See Crain Communications Inc. and The Ad Age Group (2008), page 7, for a table with the data. These paragraphs on advertising are quoted from Mayer-Foulkes (2011).

[6] See Mayer-Foulkes and Hafner (2015) for an analysis of the macroeconomic distortions caused by large scale sector market power.

3.3 The allocation of land and unwholesome consumption

The boom in processed foods, alcohol and tobacco has led to large impacts on land allocation. The magnitude of the transformation is illustrated by the global transnational land grab[7], which is occurring mainly in Sub-Saharan Africa, but is also relevant in Latin America (GRAIN, 2010; Lopez-Gamundi and Hanks, 2011). Large corporations are purchasing land to produce healthy and/or unwholesome food for export, with profound implications for the future of world agriculture, the livelihoods and food security of many, and the distribution of income,[6] for decades to come (Cotula et al, 2009). The repercussions of the land grab include NCD risk factor prevalence through the global impacts of unwholesome production.

Policies to channel the agricultural process towards the production of healthy food are especially important.

3.4 Unwholesome externalities

The main NCD risk factor that works through externalities is lack of exercise, which is a consequence of urban living and working conditions. A series of policies are required in this regard, for example with respect to transportation.

These and other externalities such as urban and agricultural pollution need to be taken into account as NCD risk factors.

3.5 Outline of the static impacts of the unwholesome economy

An outline of expected static sectorial impacts of a substantial unwholesome sector is given approximately in Figure 5. When, for the reasons discussed above, unwholesome consumption becomes a larger sector of the economy than is optimal, it reduces the healthy food sector. Lifestyles and environmental externalities also reduce resources dedicated to exercise, for example through urban planning with less green spaces, unsafe streets and a lack of open spaces for

[7] The term "land grab" refers to the global wave of land purchases by transnational corporations (e.g. Cotula et al, 2009, from FAO, IIED and IFAD). The term highlights the impact of political and market power, thus distinguishing from the ideas of efficiency implied by competitive markets.

walking. The consequent increased prevalence of NCDs increases both private and public health expenditures. This reduces public expenditure on education and other social programs promoting equality. Another impact of NCDs is a reduction in productive labor, diminishing the aggregate product.

3.6 Globalization and NCD risk factor policy and policy-making

As the discussion has shown, NCD risk factors are produced in the global market. Globalization plays a critical role in the generation of global health (WHO, 2002), health determinants such as the environment (McMichael, 2002), health systems (Price et al., 2001), drug provision and tobacco consumption (Bettcher et al., 2000, Shibuya et al., 2003), and so on.

It follows that measures to regulate NCD risk factors may most efficiently be defined at the global level, consistently with the global market and legal framework. However, globalization has led to a weakening of governance vis a vis markets. While market power has increased to new global heights, on the one hand global governance development is only just beginning, while on the other national governance has been weakened by globalization through processes such as tax competition (Mayer-Foulkes, 2015). In addition, national policy-making must be consistent with WTO agreements, which include the onerous requirement of evidence-based support. For example, "the priorities of multinational corporations were key sticking points in discussions over the recently signed UN political declaration on NCDs" (Fink & Rabinowitz, 2011). WHO itself is not immune to these problems, which impact policy formulation and research objectivity (Williams, 2006; Shah, 2011; Feig & Shah, 2011).

The presence of market power in NCD risk factor production, made evident by the existence of lobbying, advertising and profits, implies the necessity for political action to put health policy into place. Producers of both NCD risk factors and health treatments in general are deeply involved in government decision-making on health policy. This includes, for example, heavy lobbying by the pharmaceutical sector. Chopra (2002) discusses the implications of corporate power for the promotion of healthy diets. The situation is so dire that Chopra and Darnton-Hill (2004) recommend a whole series of actions to take against the unwholesome food industry similar to those taken against the tobacco industry. The UN declaration on the Prevention and Control of NCDs (UN, 2011) is a step

in this direction, following the WHO Framework Convention on Tobacco Control. Magnusson (2007, 2009) discusses how to enhance and coordinate the global processes for health development. Horton and Lo (2014) consider protecting health the global challenge for capitalism.

The main policy recommendations for controlling NCD risk factors include taxes, labeling, legal dispositions and regulations on advertising and nutritional content, information campaigns and others, such as voluntary measures to improve their products, for example with regard to salt content, without some government initiatives to coordinate their industries. Cecchini (2011), Lauer (2011), Sassi & Hurst (2008), Sassi et al (2009a, 2009b, 2009c) compare the effectiveness of various such policy mixes for some OECD countries.

3.7 Regulating unwholesome goods and externalities

We have reviewed how reducing the prevalence of NCD risk factors is an essential component of NCD health policies. These risk factors are mostly the result of unwholesome production and externalities, and reducing them requires putting appropriate regulations into place. In fact, the WHO recommends a series of public health "best buys" for preventing NCDs in low- and middle-income countries, *all of which* imply regulation of unwholesome production (WHO, 2011). Some of these policies are already present in Latin American countries while others have yet to be put in place. Additionally, the WHO recommends a series of health system "best buys" for diagnosing and managing NCDs (Checkley, *et al.* 2014). As Latin American countries strive for universal health coverage, they should focus on providing these cost effective services for addressing NCDs.

Below we cite existing policies that concur with these WHO public health "best buys" and have successfully regulated unwholesome production. While most of these policies have been implemented at a national or subnational level, since NCD risk factors are produced in the global market, it follows that future measures to regulate them may be enacted more effectively at a global level via international partnerships and agreements.

Indeed, international actions by WHO such as the WHO Framework Convention on Tobacco Control adopted in 2005 have led to the successful

adoption and implementation of smoke-free policies in all of the Latin American and Caribbean Countries. Following this international action, national and sub-national legislation has provided effective mechanisms to increase the fraction of the population protected from secondhand smoke in Latin America, tax increase have reduced cigarette use (Guidon, et al. 2015) and many Latin American countries have adopted mandatory pictorial warning labels on cigarette packages (Sebrie, et al. 2012).

Policies regulating unhealthy foods have not had as much success. We define unhealthy foods as those high in fats, salts and sugar. In order to regulate fat content in food, several countries around the globe have enacted mandatory labeling of trans fats and even a complete ban of trans fat sale. However, in Latin America, only a few countries have enacted mandatory labeling and there are still no outright bans in place (Downs, et al. 2012). Moving on, there are currently no policies in place regulating sugar intake. Perhaps a viable policy option to reduce sugar consumption could involve monetary incentives. In fact, to reduce sugar intake in beverages, Blecher (2015) recommends a sugar-sweetened beverage tax, founded on previous successful policies that mandated tobacco and alcohol taxes in order to reduce their use. This tax could be based on calorie doses in order to create supply-side incentives for producers to lower calorie levels.

There is also a need for further policies regulating alcohol as an unwholesome good in Latin America. In fact, in recent years alcohol consumption has increased in most Latin American countries (Medina-Moraa, et al. 2000). In Australia, policies enacting taxes to increase alcohol prices have successfully decreased alcohol consumption at a population level (Jiang, Livingston 2015). In other countries, advertising banns have been strongly suggested but are not widely adopted (Parry, Burnhams 2012).

Physical inactivity is an unwholesome externality of urbanization and built environment. To increase physical activity the WHO recommends "public awareness… through mass media" (Checkley, et al. 2014). However, other policies have also proven to be effective options. Studies have shown that built environment has a significant impact on physical activity (Eichinger, et al. 2015). Therefore policies that change the built environment, for instance by creating a transportation system that facilitates physical activity or public parks with fitness equipment, could promote physical activity. Alternatively, in South Africa a private health insurance that incentivizes exercise has successfully increased participation in fitness-related activities and lowered health care expenditure

(Lambert, Alexander 2013). As Latin American countries move towards achieving universal health coverage, this strategy for reducing physical inactivity should be considered.

4. Conclusion: NCD health policies for the Region of the Americas

NCDs are a costly, lifelong phenomenon. By and large, an important portion of their disease burden is a consequence of unwholesome consumption and externalities. Thus NCD policies aim at 1) reducing the prevalence of risk factors, and 2) providing treatment in a cost-effective way. Each of these is complex to achieve, and requires 3) developing evidence-based decision making capabilities.

Just creating the databases and body of knowledge necessary for policy evaluation is itself costly and poses a scientific challenge that could take as much time to surmount as is needed to put preventive policies into place.

Moreover dealing with NCDs involves a learning process taking place at both the individual and social levels. In fact a considerable portion of NCD preventive policies can be thought of as implementing a learning process. It is therefore necessary to simultaneously implement health policy and construct the necessary evidence and experience base. This applies to implementing disease surveillance, reorienting health systems to respond to NCD, and implementing health promotion and disease prevention measures (PAHO, 2007).

NCD risk factors are produced globally. Their regulation must be consistent with global economic agreements such as the WTO. International agreements may therefore be the most effective and efficient instruments for reducing them. However, the concentrated market structure of unwholesome production has large national and international political economy impacts that not only distort national and global production and resource allocation, but also obstruct the development of these public health policies.

For the Region of the Americas it is clear that a strategy of cooperation is called for that takes advantage of the commonalities between these countries to bring together the necessary resources for meeting the technical, health and regulatory challenges of NCD policies. First, reducing the prevalence of NCD risk factors requires constructing global governance capabilities for establishing coordinated health policies. Second, the necessary data and knowledge needed for

reorienting health systems to respond to NCDs and for evaluating policy can benefit from collaboration for their development.

A series of designated cost-effective measures for risk factor prevention and disease prevention measures have already been established and provided a starting point for establishing NCD health policies (e.g. WHO's "best buys," WHO, 2011).

Multisectoral policies call for improving the food sector. Such policies must include promoting innovation for a wholesome fruit and vegetable agro industry. Some elements for a Healthy Diet Initiative for the Americas are proposed by Mayer-Foulkes and Pescetto-Villouta (2012).

At present, even information on the direct and indirect costs of NCD for countries in the Region is sparse. A concerted effort involving the collaboration of multiple institutions within and without the region is called for, to make possible the cost-effective reduction of NCDs.

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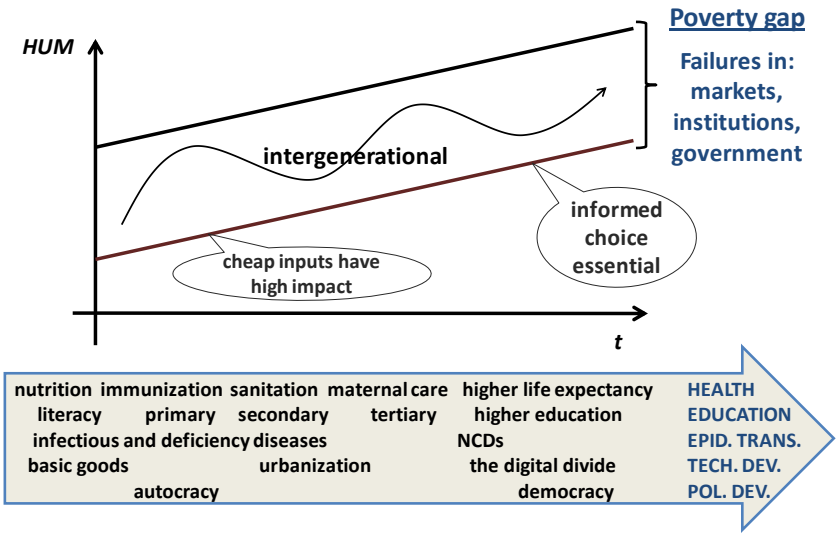

Figure 2. Human Development.

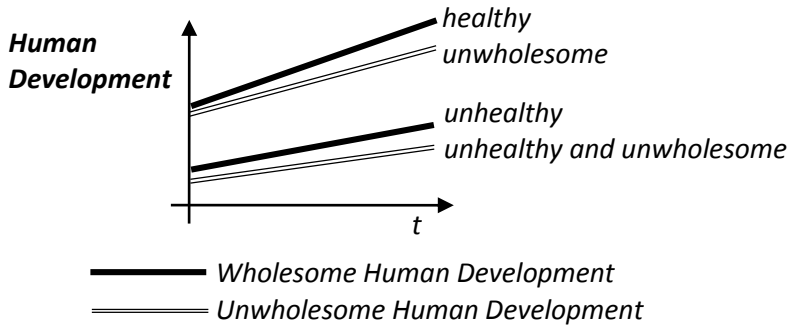

Figure 3. Wholesome and Unwholesome Human Development.

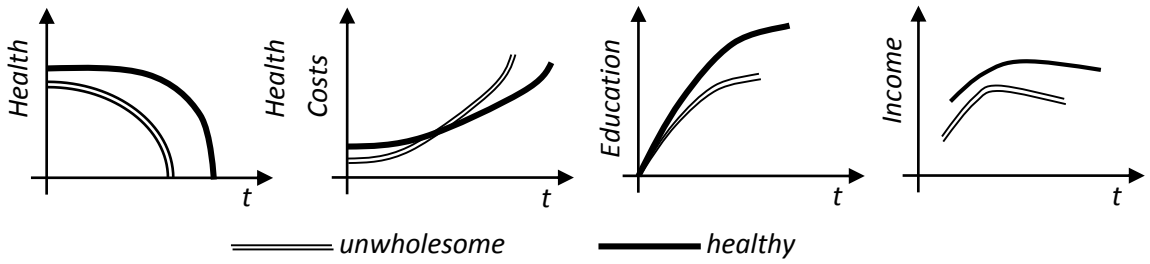

Figure 4. Stylized impacts of unwholesome lifestyles on lifelong profiles of health, health and home care costs, education, and income.

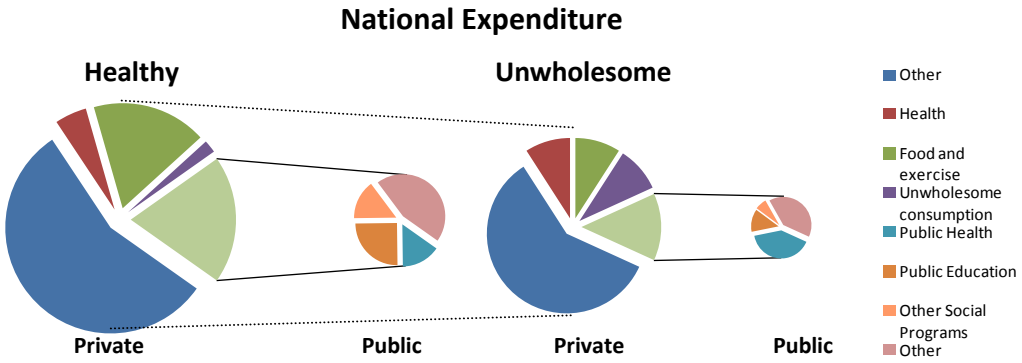

Figure 5. Outline of static impacts of unwholesome production.