



Why a Macroeconomic Perspective Is Critical to the Prevention of Noncommunicable Disease

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PERSPECTIVE

Why a Macroeconomic Perspective Is Critical to the Prevention of Noncommunicable Disease

Richard Smith

Effective prevention of noncommunicable diseases will require changes in how we live, and thereby effect important economic changes across populations, sectors, and countries. What we do not know is which populations, sectors, or countries will be positively or negatively affected by such changes, nor by how much. Without this information we cannot know which policies will produce effects that are beneficial both for economies and for health.

Bill Shankly (manager of Liverpool Football Club from 1959 to 1974) said football (soccer) is “not just a matter of life and death, it’s more important than that.” For economists, so are noncommunicable diseases (NCDs) (1). Not only are the effects of NCDs felt throughout the economy (Table 1), but since the agents contributing to NCDs are influenced by our lifestyles, effective preventive policies are likely to include mechanisms that themselves have appreciable economic impacts, such as taxing soft-drinks, increasing the use of public transport, or promoting lower-polluting energy sources (2, 3). Although the impacts of such policies may improve health, there will be substantive economic impacts as they ripple out through the economy, generating differential effects across various sectors, such as housing, transport, and agriculture. These economic effects may generate yet further health effects, which themselves then feed into the economy, generating yet more cycles of effects. This interaction and reciprocity between NCDs and the economy highlights the critical need for a macroeconomic perspective in the design, implementation, and evaluation of preventive policies to tackle NCDs.

Macroeconomics, as compared with microeconomics (which is focused upon “partial equilibrium” within a single sector, such as for housing or meat), is concerned with general equilibrium across all sectors, and thus how changes in one sector (e.g., increase in price) affect other sectors, with all these changes together comprising the overall “economic impact” of a single change (4, 5). For instance, the impact of pandemic influenza on the healthcare sector is minimal compared with its effect on gross domestic product (GDP) through impacts on other sectors (e.g., hotels, leisure, travel), which are a consequence of changes in individual behavior in response to pandemic threat and the mitigation policies themselves (6, 7).

Why Is This Important for NCD Prevention?

NCDs, such as diabetes, cancer, and heart disease, differ from infectious diseases, such as pandemic influenza, as they are not transmitted from person to person [although there is evidence emerging in the social sciences of “social contagion,” where social networks appear to influence the probability of obesity, for instance (8)]. However, they also differ in that they are intrinsically lifestyle diseases, and hence the cause and impact are linked in a multiplicity of ways to everyday economic activity (Fig. 1).

NCD-related health (Fig. 1, box 1) is determined directly by risk factors (Fig. 1, box 2), which include genetic predisposition to disease,

such as diabetes and heart disease, but also by a range of other social determinants of health, which refer to the general conditions in which people live and work, including levels and types of employment, environmental conditions, and education (9). These social determinants, contribute to the risk of different diseases, such as pollution-related diseases and cancer. They are also intimately linked with the household and individual (Fig. 1, box 3), which represent how people behave and, crucially, invest (or disinvest) in their health by what they consume and in the activities they undertake (8). For example, cancer and heart disease risk will be affected by decisions concerning smoking, alcohol consumption, and exercise. But risk will also influence household and individual behavior. For instance, an individual’s knowing that they have a higher genetic risk of heart disease may modify individual consumption of fast food. The healthcare sector (Fig. 1, box 4) comprises goods and services consumed by households principally to improve health status. Although these affect NCD-related health directly, they also impact on the household economy, which ultimately pays for them through taxation, insurance, or out-of-pocket. The level of ill-health caused by NCDs will also feed back and impact on the household, thus further affecting the risk of other health problems through reducing household income, and feed into healthcare provision through shaping the demand for services, and hence profile of provision (e.g., more insulin prescriptions).

Activity in all non-healthcare sectors in the economy (Fig. 1, box 5), such as agriculture, manufacturing, and education, impacts on the previous three components and, thus, NCDs. It is well established, for instance, that “wealthier is healthier” (10, 11), but that wealth also brings an increase in NCD risk, such as through changes in dietary habits, with the suggestion that in some cases this means that economic recessions can have positive health benefits (12). As countries grow wealthier, their populations experience increased desirability and availability of processed foods, perhaps mostly starkly indicated by the experience of some Pacific island populations where traditional diets have been displaced with high-fat imported foodstuffs and a concomitant increase in obesity rates and NCDs. Similarly, the transformation of food retail as countries become

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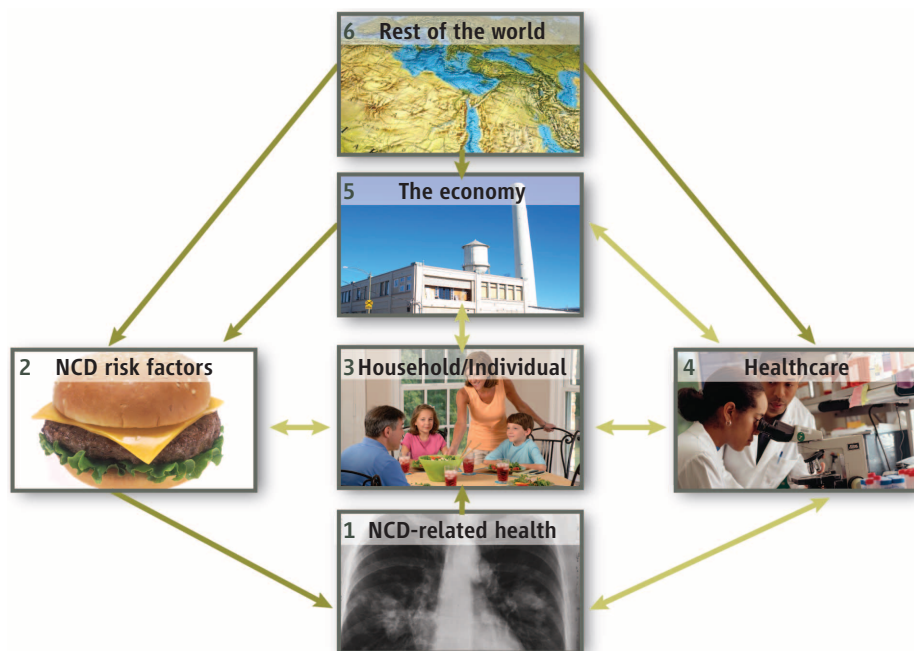


Fig. 1. Noncommunicable diseases and the macroeconomy.

more integrated in the global trading system has facilitated a pronounced shift to the consumption of processed food, and multinational fast-food outlets have made substantial investments in growing economies (13). It is also accepted that health positively affects the general economy through a fitter, more educated, and more productive workforce (14). Insecurity, as labor moves from one sector or location to another, generates ill-health directly through the stress caused by economic and social dislocation, and indirectly by increasing poverty (15). Economic well-being, tax rates, and other aspects also affect healthcare spending.

Finally, influences beyond our political borders act on these components (Fig. 1, box 6). For instance, climate change is a global issue with local consequences for NCD risk factors. Problems with subprime lending in the United States, or the Euro crisis, will affect household employment, income, and inflation in the United Kingdom, too. The migration of health professionals affects the ability to provide services required to treat NCDs.

Prices Are Pivotal

For economics, prices are pivotal. They enable exchange of goods and services and, crucially, determine the point of equilibrium, where demand and supply are balanced. Any change within the economy will affect price directly or indirectly, which will then disrupt this balance, and each sector will then have to adjust to a new equilibrium through changes in other prices. It is a simple, largely automatic, system that has profound implications for NCD prevention—illustrated by the current enthusiasm for a “fat tax” as a mechanism for reducing consumption of foods high in saturated fat through

increasing their price. Such a tax has been implemented in Denmark and Hungary and is now being considered by many others (16, 17).

The argument is simple. The current price of foods high in saturated fat does not adequately reflect the negative health effects, leading to overconsumption (compared to a hypothesized equilibrium where such health effects were captured in the price). Government can apply a tax to address this “market failure,” which increases price. We know that, in general, increasing price leads to a reduction in demand, which reduces consumption, and thus should reduce rates of NCD. Microeconomic, partial-equilibrium analysis will tell us how sensitive this demand is to a change in price (which we know is actually not very sensitive in the case of most foods) and thus by how much price needs to increase (usually, therefore, a lot) (16). The problem, from a macroeconomic perspective, is that it does not tell us anything at all about how other sectors will adjust and thus we cannot know what the overall net impact on the wider economy, or even health, will actually be.

Consider an example where such a tax increases the price of beef. How might consumers react? Any change in price will cause a recalibration of expenditure across the range of goods and services that individuals consume, not just beef. At the extremes, consumers may either reduce spending on beef, to keep spending on everything else the same, or spend less on something else to keep beef consumption the same. What are the implications of these two scenarios?

If consumers reduce their demand for beef, then beef farmers will experience reduced in-

come. Remember that the price is higher as a result of a tax, and hence this extra revenue per unit of beef goes not to the farmer, but to the government—generating further questions about what this tax revenue would be spent on, such as subsidizing fruit and vegetables versus reducing income tax, and the implications of that, which we don’t have time to consider here. As beef is less attractive to produce, farmers will transfer production to other products. Which other products is then the critical question. If it is biofuels, for example, this may have positive effects on the environment and thus further decrease risk factors for NCDs and multiply the health effect. Alternatively, if farmers switch to producing lamb, the increased supply will mean that the price of lamb will fall, and it may largely replace beef in the national diet, negating health benefits from reduced beef consumption.

Farmers could instead focus on increasing exports of beef, thus increasing consumption, and rates of NCDs, in other countries and effectively “exporting” the health problem. What if the beef consumed in one country is imported from another? In this case, it is possible that a tax may not be able to be levied, as it may violate World Trade Organization requirements if the country is a member state. But if a “fat tax” could be levied, then there are economic advantages as less income would be transferred overseas as beef imports declined (which will affect balance of payments and currency valuation with further spillover effects). However, again there could be negative health and economic implications for the countries from which the beef was imported. For example, although changing to a healthy diet may be beneficial for the United Kingdom, if this is achieved through reduced imports of beef, then Brazil (as the world’s largest exporter of beef) may see a substantive negative impact on its economy, and consequently its population’s health (18).

But what if consumers keep consuming beef, and instead spend less on something else? If less is spent on fruit and vegetables, for example, then this could make health worse. Alternatively, consumers may spend less on car travel, which could have further positive health benefits from reduced emissions, or spend less on leisure activities, possibly having negative health implications from reduced exercise, and certainly having economic implications for those sectors. Or they may spend less on flat-screen televisions or computer games, perhaps generating positive health effects if this leads to increased active leisure pursuits. As above, this spending reduction may affect imported goods, generating effects on the balance of payments of other countries and exchange rates. The ripples continue.

Thus, we know that such a food tax would impact directly on consumption patterns, but after that we know little about what will happen. A food tax will affect the risk of NCDs in an unpredictable manner as it begins to indirectly influ-

ence other sectors in the national economy and interface with the rest of the world. If the net effect is to increase health, then this should feed positively into the economy itself, by reducing healthcare costs and by improving workforce productivity. However, we do not know that this will be the effect, because we do not consider the broader macroeconomic picture.

What Is the Solution?

We know that a more comprehensive and integrated economic approach is required for developing optimal strategies for preventing and coping with NCDs; the health sector alone cannot achieve the required reduction in NCDs. We also know that there will be differential effects from these strategies across populations, sectors, and countries. What we do not know is which populations, sectors, or countries will be positively or negatively affected, or by how much.

As indicated above, to generate the most effective and acceptable policies to improve NCD prevention there is need to engage with macroeconomic factors to generate optimal prices, subsidies, safety nets, trade agreements, and so forth if a country decides it is advantageous to nudge its population toward healthier behavior. This presents several challenges, such as the specification of causal pathways and mechanisms to reconcile

and balance non-health (e.g., employment) versus health outcomes. Thus, to make the unknowns known will require a substantial paradigm shift in academic, professional, and policy circles (19). Critically, studies concerning the whole-economy effects at a global level are required. Current evidence tends to focus either upon the broad, general, effect of changes in disease upon the economy, or of changes in the economy upon disease (12), or focus upon a specific sector (e.g., studies concerning “fat taxes” tend to consider the impact of a price increase only on the food of interest) (16). Very few studies consider the cross-sectoral or cross-country causes or impacts of NCDs, and measures that may be used to prevent NCDs, or integrate the economic and health effects (18). Yet without this information, we cannot know which policies will produce net beneficial effects, for the economy or health, or what countervailing policies may be required to minimize negative spillovers.

Because NCDs affect the economy so profoundly and pervasively, we also need to quantify these effects, as it is often the economic case that swings the agenda and mobilizes resources. The history of communicable disease, in this respect, provides valuable lessons. The economic impact of HIV/AIDS, tuberculosis, and malaria in particular was important in mobilizing initiatives

such as the President’s Emergency Plan for AIDS Relief and The Global Fund to Fight AIDS, Tuberculosis and Malaria. This was due in part to the WHO Commission on Macroeconomics and Health in 2000, which established firmly that investments to reduce such diseases would be a primary driver of macroeconomic development (14). Having HIV/AIDS as the first health-focused UN high-level meeting in 2001 was also prompted by the devastating effect the virus was having on African economies (14). The second health-focused UN high-level meeting on the NCD challenge, in 2011, also stressed the economic impact of chronic disease (1). With the resolution of the 65th World Health Assembly in 2012 to reduce premature deaths from NCDs by 25% by 2025, the imperative now is to formulate strategies to achieve this target, which requires us to recognize that NCD prevention is “not just a matter of life and death, it’s more important than that.”

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Table 1. Projected foregone national income due to heart disease, stroke, and diabetes, 2006 to 2015 (20).

	Foregone GDP (U.S. \$ billions)		2015 (as a percentage of 2006 estimates)	Cumulative GDP loss (U.S. \$ billions) by 2015
	2006	2015		
China	1.01	1.84	182	13.81
India	1.35	1.96	145	16.68
Russia	1.49	1.64	110	16.09
Brazil	0.33	0.50	150	4.18
Indonesia	0.33	0.53	158	4.18
Mexico	0.48	0.89	186	7.14
Turkey	0.39	0.52	133	4.70
Pakistan	0.15	0.21	140	1.72
Thailand	0.12	0.18	150	1.49
Bangladesh	0.08	0.14	175	1.14
Ukraine	0.13	0.13	100	1.33
Egypt	0.11	0.14	125	1.26
Argentina	0.13	0.16	125	1.40
Burma	0.03	0.06	200	0.43
Iran	0.08	0.13	167	0.99
Poland	0.17	0.23	133	2.17
South Africa	0.16	0.21	133	1.88
Philippines	0.06	0.07	133	0.62
Colombia	0.07	0.10	150	0.82
Vietnam	0.02	0.03	200	0.27
Nigeria	0.12	0.12	100	1.17
Ethiopia	0.03	0.03	100	0.16
DR Congo	0.00	0.03	140	0.15
Total	6.8	9.8		83.8