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**Introduction to the economics of health
promotion and disease prevention**

**Book section
(Published version)**

Original citation: Originally published in: McDaid, David, Sassi, Franco and Merkur, Sherry, (eds.) *Promoting Health, Preventing Disease: The Economic Case*. UK higher education humanities & social sciences health & social welfare. Maidenhead, UK : Open University Press, 2015, pp. 3-18.

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Available in LSE Research Online: July 2016

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chapter **one**

Introduction to the economics of health promotion and disease prevention

Franco Sassi, Sherry Merkur and David McDaid

Economics, health promotion and disease prevention

This book is designed to provide an economic perspective on health promotion and chronic disease prevention. The book includes a framework for analysing the consequences of prevention strategies, which draws from disciplines such as psychology, sociology, epidemiology, and public health, in addition to economics. It also provides a compendium of evidence of the economic impacts of a range of policy interventions in a number of core areas of public health action. The approach builds on the hypothesis that countering the epidemic of chronic diseases that countries in Europe and elsewhere are experiencing with appropriate prevention strategies would provide the means for better increasing social welfare and/or enhancing health equity, compared with not taking preventive actions and simply treating chronic diseases once they emerge.

An economic perspective is about more than counting the costs associated with diseases, whether medical care costs or productivity losses. And, it involves more than assessing the cost-effectiveness of preventive interventions, although the latter is an important role for health economics. The potential for an economic approach to shape and inform the debate on prevention stretches beyond those aspects. Economics contributes to our understanding of the pathways through which chronic diseases are generated and of the choices and behaviours involved in those pathways. It provides the tools for developing effective and efficient policy strategies and addressing potential trade-offs between the goals of increasing social welfare and improving the distribution of health across individuals and population groups.

This book is designed for a broad audience of health policy makers, national and local, in countries at all levels of income; for public health practitioners and advocates; and for scholars in a number of relevant disciplines, ranging from

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health economics to sociology, political science, medicine and public health. It is meant to provide those audiences with a comprehensive view of the current evidence base in support of a broad range of public health interventions, addressing not only their effectiveness in improving population health, but also their implementation costs, impacts on health expenditures, and other economic consequences. Individual chapters provide critical reviews of the evidence base in specific areas, with a view to assessing the validity of the evidence and its generalizability to different settings. The geographical perspective of this book is that of the World Health Organization's (WHO's) European Region, but its scope stretches more widely, as evidence is reported and reviewed from studies undertaken in many countries, within and outside Europe.

The scope of the book

The field of health promotion and disease prevention is potentially vast, and in no way could this book have covered it comprehensively. A number of choices had to be made on the scope covered. The first one was about the health promotion and prevention interventions to be assessed. The book deals with interventions for the prevention of chronic noncommunicable diseases (NCDs), and certain types of injuries, while it does not cover the prevention of infectious diseases or their chronic sequelae. The choice was driven by the prominence that NCDs have acquired in many countries, due to their large and increasing disease burden, discussed later in this chapter. Correspondingly, the relative weight of infectious diseases has progressively decreased.

Much of the prevention of chronic NCDs is based on tackling behavioural risk factors, which are key determinants of those diseases. These include, in particular, tobacco smoking, harmful alcohol use, unhealthy diets, lack of physical activity, and other health-related behaviours. Several chapters later in the book address specific risk factor areas, focusing on the interventions available to prevent diseases by eliminating, or containing the impacts of, those risk factors.

Health-related behaviours are the dominant, albeit not exclusive, focus. This implies that the types of interventions reviewed are mostly those designed for healthy people with risk factors, and aimed at steering their behaviours towards healthier patterns. These interventions are often delivered outside the health care system, using resources from different areas of government spending. Less attention is devoted to the many forms of prevention that are typically delivered within the health care system, such as screening programmes, or pharmacological prevention (e.g. with statins, or anti-hypertensive medications), which of course are no less important than more upstream actions, but have been studied much more extensively than the latter.

Finally, the book takes primarily a government policy perspective, based on the argument developed later in this chapter that prevention is a legitimate area for government intervention because of market and rationality failures that would otherwise prevent individuals from maximizing their own welfare, and because of an undesirable distribution of health. However, the book also addresses interventions that are not solely, or not at all, part of the government

policy toolkit. Interventions led by private sector – business or civil society – organizations are discussed in several chapters, and evidence of their impacts is reviewed alongside that available for government interventions.

Chronic noncommunicable diseases and their prevention

Chronic NCDs are currently the main cause of both disability and death worldwide. This heterogeneous group of diseases, including, among others, cardiovascular conditions, cancers, chronic respiratory conditions and diabetes, affect people of all ages and social classes (WHO 2002). The latest global burden of disease estimates indicate that NCDs account for 85 per cent, 80 per cent and 75 per cent of the global burden of disease, respectively, in Western, Central and Eastern Europe. Similarly injuries, particularly on the roads or as a result of self-harm, account for a further 10 per cent, 11 per cent or 18 per cent of total disease burden (IHME 2013).

Globally, of the 58 million deaths occurring in 2005, approximately 35 million, or 60 per cent, were due to chronic causes. Most of them were due to cardiovascular disorders and diabetes (32 per cent), cancers (13 per cent), and chronic respiratory diseases (7 per cent) (Abegunde et al. 2007). This burden is predicted to worsen in the coming years. A WHO study projected an increase of global deaths by a further 17 per cent in the period 2005–15, meaning that of the 64 million estimated deaths in 2015, 41 million people will die of a chronic disease (WHO 2005), and NCD deaths would further increase to over 51 million in 2030, with three out of four NCD deaths expected in low- and lower-middle-income countries.

Chronic diseases and the increased mortality associated with them are not distributed evenly across social groups. Those in the most disadvantaged socioeconomic conditions typically display higher prevalence and mortality rates than those at the opposite end of the social spectrum, with a continuous gradient among groups positioned between the two extremes. In countries such as Finland, Norway, Denmark, Belgium, Austria and England researchers demonstrated a widening of inequalities in premature mortality from cardiovascular diseases and many cancers between socioeconomic groups (Mackenbach 2006).

The action plan devised by WHO as part of the global strategy for the prevention and control of NCDs (WHO 2008) focused on four chronic diseases accounting for 60 per cent of deaths worldwide: cardiovascular disease, cancer, diabetes, and respiratory disorders. Prominent, yet largely preventable, behavioural risk factors associated with these diseases – either directly or indirectly via risk factors such as increased blood pressure or cholesterol concentrations – include tobacco, harmful alcohol use, unhealthy diets, physical inactivity, and obesity. Smoking alone is estimated to be responsible for 22 per cent of cardiovascular diseases in industrialized countries, and for the vast majority of some cancers and chronic respiratory diseases (WHO 2002), and is responsible for the loss of 157 million disability-adjusted life-years (DALYs) globally (Lim et al. 2012). Alcohol use is associated with a loss of 75 million DALYs in men and 23 million in women. Overweight and obesity

account for the loss of 94 million DALYs, lack of physical activity for 70 million, and high cholesterol for 41 million (Lim et al. 2012).

An economic approach

Health: social determinants or individual responsibility?

The question whether health and health-related behaviours are the result of individual choice or external determinants and influences has been at the centre of the public health debate for a long time. Opposing views have formed on the subject, often linked with different ideological stances.

If health-related behaviours are viewed purely as the result of free choice, the case for 'collective intervention' is weakened. This may also lead to a culture of 'victim-blaming' (Evans and Stoddart 1994). If, on the other hand, behaviours are viewed as individual responses to environmental influences, the focus of policy will shift towards the environmental factors that determine individual behaviours. A balanced approach would, of course, recognize that elements of free choice coexist and interact with social determinants and influences in shaping individual health-related behaviours. Cutler and Glaeser (2005) observe that individual characteristics alone are unlikely to explain the uptake of health-related behaviours. They found that the correlation of risky behaviours in individuals appears to be very low: smokers are unlikely to be also heavy drinkers (correlation 12.9 per cent); obesity has virtually no correlation with smoking or heavy drinking; the uptake of medical preventive services like flu shots or screening is negatively, but very weakly, correlated with risky behaviours such as smoking, excess drinking, or having a high body mass index (BMI). Cutler and Glaeser also found empirical support for the hypothesis that certain 'situational influences' are likely to trigger specific lifestyle choices in those who are exposed to such influences, with an intensity of response that may be modulated by individual characteristics. One such situational influence that the same authors explore in some depth is change in food production technology. This has been partly responsible for dietary changes and for the rise of obesity rates, particularly in individuals and families whose time available for meal preparation and cooking has become increasingly limited (Cutler et al. 2003). This work lends support to the hypothesis that health-related behaviours are primarily determined by interactions between individual characteristics and specific environmental influences, rather than by the former alone.

If lifestyle choices are the result of environmental influences interacting with individual characteristics, then the socioeconomic gradient in lifestyles and related health outcomes is likely to reflect differences between individuals in the degree of control they have over their own environment. Research conducted in the United Kingdom since the 1970s on the relationship between socioeconomic position and health (Marmot 2004) underscores the importance of the ability of individuals to gain control over their own environment as a crucial determinant of the same individuals' health and health-related behaviours. Evidence is becoming available of the role of work-related stress in the relationship between

socioeconomic position and health. Stress was shown to be causally associated, for instance, with unhealthy lifestyles, the metabolic syndrome and coronary heart disease (Chandola et al. 2008). However, the direction of the causal relationship remains uncertain. Are individuals predisposed (genetically or by other means) to achieving a better control over their own environment also able to reach more privileged socioeconomic positions as well as a better health status through healthier lifestyle choices, or does a privileged socioeconomic position confer better control and healthier lifestyles?

An early and popular model of the determinants of health and health inequalities was centred on the individual and on his/her biological characteristics, with various 'layers of influence' on health (Dahlgren and Whitehead 1991). The latter include: individual lifestyle factors; social and community influences; living and working conditions; general socioeconomic, cultural and environmental conditions. Each of these layers has a direct influence on individual health, but interactions between layers contribute significantly to shaping the impact of each group of determinants. For instance, ample evidence suggests that lifestyle factors, or health-related behaviours, are in turn determined by social and community influences, as well as by general socioeconomic, cultural and environmental conditions. The existence of a socioeconomic gradient in all layers of determinants supports the view that these are closely interconnected. Understanding the relationships between layers of influence is as important as understanding the direct impact of each layer on individual health. The model was adopted as a conceptual basis for a review of health inequalities in the United Kingdom in the late 1990s (UK Department of Health 1998).

WHO established a Commission on the Social Determinants of Health in 2005 to emphasize the role of socioeconomic influences in shaping recent dramatic changes in population health patterns and trends at the global level. Wilkinson and Marmot (2003) identified ten areas in which solid evidence exists of the role of aspects of the social environment on health, elsewhere developed into a more extensive inventory of social determinants of health and evidence of their impact (Marmot and Wilkinson 2006). The conceptual framework developed for the work of the Commission attempts to build an overall model of the influences of two main groups of determinants: structural determinants, such as the socioeconomic and the political contexts, social structures and socioeconomic position; and intermediary determinants, which mediate the effect of the former, including biological and behavioural factors, living and working conditions, psychosocial factors and health system determinants (Solar and Irwin 2007).

The rationale for government intervention in health promotion

An economic approach to prevention involves interpreting health-related behaviours as the result of market dynamics leading to the consumption of commodities such as tobacco, alcohol, food and physical activity or leisure time. Individual choices are subject to many external influences and constraints, and are driven by opportunity, costs and other incentives. The dynamics, or mechanisms, that help shape our choices about our health-related

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behaviours are viewed by economists in the same way as market forces that influence other choices we make, for instance about the purchase of goods and services. This is regardless of whether or not any money changes hands. The health determinants that influence our lifestyles are in turn the result of similar dynamics.

Sometimes markets fail to operate efficiently. If those failures could be avoided, social welfare would be increased. Information failures may contribute to the adoption of unhealthy behaviours and lifestyles through an inadequate knowledge or understanding of the long-term consequences of such behaviours. The negative consequences of the unhealthy behaviours and poor lifestyles of any one individual can often have adverse impacts on many other people. The harm to public health from excessive alcohol consumption (which can increase the risk of domestic abuse and road traffic accidents) is one example of these additional impacts, which are referred to by economists as 'externalities'. Externalities may lead to the social costs and benefits of certain forms of consumption not being fully reflected in their private costs and benefits to individual consumers. For instance, the cost of a bottle of beer may not be high enough to fully reflect all the adverse impacts to society of excessive alcohol consumption. A biased perception of the importance of future risks may also prevent individuals from making choices in their own best interest now.

From an economic perspective, government intervention is justified in the presence of significant failures that limit people's ability to maximize their welfare through the market interactions in which they engage. This is largely what makes the economic perspective different from the public health perspective. In the absence of such significant failures, government intervention would be less justified, or not at all. Where market failures exist and have a significant impact, the benefits potentially deriving from tackling the inefficiencies they cause may sometimes justify some form of corrective action, either by governments or other actors, provided such actions are viable and effective. Several economists have reviewed potential market failures in relation to chronic diseases and prevention (e.g. Kenkel 2000; Cawley 2004; Suhrcke et al. 2006; Brunello et al. 2008). A summary of the main failures observed in connection with health-related behaviours is provided in the following sections.

Classical market failures: externalities and poor information

Health-related behaviours may entail costs that are not borne by those who engage in such behaviours. These spillover effects, or externalities, are a typical cause of market failure. Passive smoking is a common example, as it has been shown to cause negative health effects on individuals other than the smoker. Such effects would not be reflected in the price of cigarettes if this were set in a free market between the smoker and the tobacco manufacturer. This means that people are more likely to engage in poor behaviours than would be socially desirable, given the costs imposed on others. In many cases, these externalities can be 'internalized' so that the uptake of the behaviours that generate them may be brought in line with their actual social costs and benefits, rather than with the private costs and benefit experienced by the individual consumers themselves. Such measures are generally financial transfers, such as taxes

or subsidies, which may be imposed on, or offered to, the consumers or the suppliers of the commodity that generates the externality.

The use of taxes and subsidies in the presence of externalities may improve the efficiency of market exchanges, but they will also produce distributional changes (Sassi et al. 2013). For instance, if a government imposes a tax on a form of consumption that generates negative externalities, it may or may not be possible, or desirable, for the government in question to redistribute the tax revenues raised to those who suffer the consequences of the negative externality (which will be diminished by the tax, but not eliminated altogether). Similarly, if a commodity that produces positive externalities is subsidized, it may not be possible to fund the subsidy by charging those who enjoy the positive external effects. From a mere efficiency standpoint, what matters is just that welfare gains exceed any losses, but societies are not indifferent to the distribution of those gains and losses, therefore governments will have to take this into account in assessing the desirability of a policy to address externalities.

Externalities may derive from health-related behaviours such as, for instance, tobacco use – through second-hand smoking, violent and disorderly behaviour associated with alcohol abuse, or traffic accidents resulting from reckless driving. There are also deferred externalities, when people develop risk factors and chronic diseases that make them less productive, increase their use of medical and social services, which may be publicly funded, or require care to be provided by family and friends. Conversely, a reduced life expectancy may mean a less prolonged use of publicly funded medical and social services at the end of life. In addition to health expenditure and productivity, further externalities potentially associated with health-related behaviours can be found in the areas of consumption and savings (e.g. reduced consumption associated with disease), and education and human capital accumulation (e.g. reduced education of family members) (Suhrcke et al. 2006).

A second classical market failure is associated with the lack, or limited availability, of sound and reliable information on the costs and benefits of health-related behaviours. Information is a critical factor for markets to operate efficiently. In order to make rational and efficient choices, consumers have to be fully informed about the characteristics and quality of the goods they consume, about the benefits (utility) they will derive from consumption, and about the opportunity costs they will incur. In the case of health-related consumption behaviours, information is often lacking on the nature and the magnitude of the associated health risks. Information may be lacking because it does not exist (e.g. information on the long-term health effects of the consumption of genetically modified crops); because it is concealed or communicated in a misleading form by parties that have a vested interest (e.g. information on the health effects of smoking withheld by the tobacco industry in the recent past); or because it is complex and not easily accessible to the lay person (e.g. information on the health risks involved in the consumption of different types of fats).

The importance of information in forming health-related beliefs, a first step towards influencing lifestyle choices, is shown, for instance, by Cutler and Glaeser (2006) in their analysis of the determinants of higher smoking rates in Europe compared to the United States of America. The authors reach the

conclusion that beliefs were changed in the United States when ‘substantial information about the harms of smoking’ was made available to the public, while the same information appears to have been communicated less effectively in Europe.

The direct provision of information by governments (e.g. health education campaigns to influence individual behaviours) or the regulation of information (e.g. limits on advertising, guidelines on food labelling) are usually justified by limited or imperfect information on the part of the consumer. When information failures cannot be fixed, for instance because communication of information is difficult, governments may still attempt to compensate for the effects of imperfect information by influencing behaviours through appropriate incentives (e.g. fiscal incentives like taxes and subsidies).

Behavioural failures

A fast growing body of behavioural economics research has shown that the assumption of rationality of the agents involved in market transactions does not always reflect the actual behaviours of those agents. Failures of rationality may affect the way choices are made, the information upon which choices are based, or the preferences that guide those choices. The first aspect includes, for instance, the use of heuristics, or rules of thumb, in decision-making. The second includes a biased perception of the information available, because the way information is presented (framing) influences choices and because of cognitive errors in the interpretation of information. The third aspect includes inconsistent preferences for outcomes expected at different points in time, or for gains and losses.

Detailed studies of heuristics and framing effects are providing valuable insights into certain health-related behaviours for designing policies that are effective in making those behaviours more conducive to good health. Behavioural insights, in particular, have paved the way for new policy approaches, including changing default options, increasing the salience of the information provided to consumers, and are also helping to refine more traditional policy approaches such as regulation (mainly to prevent suppliers of health-related commodities from exploiting heuristics and framing effects to their own advantage) and taxation (by refining our knowledge of how different types of consumers are likely to react to price changes).

Time preferences also play a critical role in health-related behaviours. Understanding the way in which people discount future costs and benefits in making their lifestyle choices is critical to the design of effective policies to counter the possible long-term ill health effects of particular behaviours. A large body of empirical literature about time preferences in relation to a variety of outcomes, including health (reviewed by Lipscomb et al. 1996), suggests that there are no particular reasons for the future health risks associated with certain lifestyle choices to be discounted at particularly high, or particularly low rates. Some characteristics of those choices, such as the relatively small size of the perceived health risks involved, will make people discount more heavily those future risks. But other characteristics of the same choices will have the opposite effect.

Substantial empirical evidence shows that individual health-related behaviours often reflect hyperbolic discounting. This refers to an accelerated form of discounting, which heavily penalizes future outcomes in present judgements in a way that makes time preferences inconsistent. This is essentially a self-control problem. Take, for instance, an obese person who is perfectly aware of the long-term health risks associated with her condition. She may decide that such risks are offset by the pleasure she derives from her dietary habits and sedentary lifestyle at present, therefore she will choose to postpone quitting her habits. Procrastination is a key feature of hyperbolic discounting. She perceives this as a postponement because she feels that after some time (say, in one year) she will no longer value pleasure from her current lifestyle more highly than the long-term health risks associated with it. She is convinced that a year later she will be prepared to change some of her dietary and activity behaviours. However, after one year she will find herself discounting future health risks more heavily than she previously thought she would do, and she will still feel that the pleasures of her lifestyle offsets future health risks. Inconsistency in time preferences is reflected by the discrepancy between the way the individual originally thought she would discount future outcomes and the way she actually discounted them one year later. The result is a likely indefinite postponement of the decision to quit current habits. At least some evidence of hyperbolic discounting has been found in relation to obesity, one study reported that 'time inconsistent preferences regarding weight is a very common problem among teenagers, since the majority of them end up failing to reduce their BMI after having declared to be trying to lose weight' (Brunello et al. 2008).

Paternalistic government intervention to counter self-control problems would require 'tricky social welfare decisions', or a judgement of whether individuals' future self, or long-term preferences, should be given priority over their present self, or short-term preferences (Glaeser 2006). Such problems, in Glaeser's view, are best addressed by increasing the availability of 'technologies or contracts that facilitate private self-control'. An example could be the fiscal deductibility of private expenditures on devices that may facilitate self-control (e.g. nutrition advice, organized physical activities, etc.), or coverage of nicotine replacement therapies to aid smoking cessation. The latter measures, which essentially broaden individual choice, are often viewed as non-paternalistic interventions, as discussed in the section, 'Chronic noncommunicable diseases and their prevention', although in fact they do interfere with individual choice, and they may involve a significant cost, to be shared among all social groups when interventions are publicly funded.

Government intervention may also be justified when health-related behaviours are addictive, or habit-forming. This may happen because the commodities involved may generate forms of chemical dependence that make it difficult for individuals to quit consuming them, as is the case with many drugs, or because of psychological mechanisms that encourage the reiteration of consumption. The term 'habit' is generally used in relation to the latter, while the term 'addiction' is applied more widely, both in relation to drugs or tobacco smoking (which involves a certain degree of dependence on nicotine) and in relation to consumption that does not involve chemical dependence (e.g.

gambling addiction). It is the non-independence of these acts of consumption, as they may be influenced by previous consumption experiences, which may cause concern about individuals' ability to maximize their welfare. The presence of a chemical dependence may strengthen the justification for intervention, but some forms of psychological addiction may also be extremely powerful and potentially damaging. Forms of consumption involving interdependent choices over time are sometimes interpreted in economics as rational addictions, based on models originally proposed by Becker and Murphy (1988), strongly supported by empirical evidence (e.g. Chaloupka and Warner 1999).

Habit-forming behaviour is consolidated behaviour in which individuals engage over a prolonged period of time and from which they find it difficult to wean themselves. Habits typically involve a reduced motivation to seek and use information that may lead to a better understanding of the consequences of the behaviour in question, and to a tendency to discount the value of new information that is received, particularly when it highlights risks associated with the habitual behaviour. In addition, people who engage in habitual behaviour act on the implicit assumption that if they found the behaviour desirable when they first adopted it, it must also be desirable for them to continue to engage in the same behaviour (Maio et al. 2007). Consumers take up habits because they find it convenient to do so, but habits may prevent them from maximizing their own welfare.

Equity and health

A further factor that may contribute to justifying government intervention is an undesirable distribution of social welfare, of which health is an important component. Evidence of significant disparities in health status and longevity has been available for several decades in many countries, and governments have made commitments to reduce major disparities in health on equity grounds. Concepts of equity adopted by national governments and international organizations in relation to health often focus on health care and tend to be centred on notions of equality with respect to some relevant dimension, a common example being equal access for equal need. However, even when the focus is narrowly placed on health care, policy decisions are sometimes inconsistent with regard to their distributional effects and the balance they achieve between the goals of equity and efficiency (Donaldson and Gerard 1993; Sassi et al. 2001). Approaches to promoting equity with regard to health status have been more cautious, generally avoiding direct references to notions of equality, and rather focusing on the reduction of variations across population groups.

There is generally recognition that health disparities are likely to persist as long as social structures allow some degree of inequality. It has been argued that health inequalities, at least to a certain extent, are acceptable, or even desirable (Collison 1988), because of trade-offs between equity and efficiency, non-modifiable risk factors (for example, genetic heritage) and individual choice (driving, at least to some degree, health-related behaviours). The question for governments is what health inequalities should be tackled, and how much effort should be put into redressing them.

Prevention is bound to have distributional impacts. Different individuals and groups have different probabilities of developing chronic diseases, and have different outcomes once such diseases occur. Different individuals and groups also respond differently to preventive interventions. Potential distributional effects cannot be ignored in the design of preventive interventions. Not only should they be accounted for, but they can be openly pursued, in line with the distributional objectives of health and broader government policy. Prevention offers excellent opportunities for redistribution of health and longevity. Prevention strategies are not subject to the same moral imperative of health care, and may be more easily targeted to those individuals and groups who are deemed to need and deserve them the most. Chapter 12 provides an analysis of how alternative health promotion and disease prevention policies may impact on the distribution of health and social welfare.

Forms of government intervention in health promotion

Government interventions in health promotion and disease prevention have a significant potential for improving health, but will also interfere, at least to some degree, with individual choices and behaviours.

The least intrusive interventions are those aimed at widening choice by expanding the range of options individuals can choose from, or those aimed at making certain existing options more affordable. Persuasion and other non-price devices such as default rules are often advocated as minimally intrusive interventions which do not significantly affect rational consumers. However, governments may not always deliver persuasion effectively and in the best interest of individuals, and it is difficult to monitor whether they do so. Taxes and consumption bans are more transparent and contestable, although they may lead to welfare losses when consumers display varying degrees of rationality. Taxation models targeting the least rational consumers may be possible, but their development is still at a very early stage. Outright bans of selected choice options involve the highest degree of interference with individual choice. They may be difficult to enforce, particularly when demand is strong or consumption is addictive.

Heavier interference with individual choices may be justified when departures from rational decision-making and from an ideal efficient market model for lifestyle choices are significant, or when the consequences of those departures are particularly severe. The political costs of prevention, in the form of interference with individual choice, often follow an inverse pattern relative to the economic costs. Interventions that involve lower degrees of interference tend to have higher economic costs, and vice versa.

Actions that widen choice or make certain options more accessible are generally well accepted, despite the objections of some critics and their mild interference with free market interactions. These actions include support to access technologies that help private self-control. Opportunities for adopting actions of these types find their main limits in their financial costs, their efficiency and distributional implications. The use of actions involving higher levels of interference with individual choice may be met with increasing

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degrees of hostility, especially when only certain forms of consumption of a commodity are unhealthy and consumers differ in terms of the nature of their consumption. These actions become more appropriate when the consumption of a commodity is invariably unhealthy and bears a large potential for self-harm; in the presence of important classical market failures, particularly externalities; when actions may be targeted to population groups at the upper extreme of the bounded rationality spectrum (e.g. children, whose early life experiences and behaviours appear to contribute significantly to the formation of their long-term tastes and preference for food and drink, as well as their participation in physical activity) or groups that are particularly exposed to external influences that may trigger unhealthy behaviours (e.g. disadvantaged socioeconomic groups).

Whole-of-government and whole-of-society approaches

Health promotion and disease prevention policies are by no means confined to the health care sector. A large number of policies typically developed in other areas of government action may have an impact on health-related behaviours and, ultimately, on the health of a population. For instance, agricultural policies adopted in most countries, often based on taxes and subsidies, may change the relative prices of healthy foods, such as fruit and vegetables, as well as less healthy foods, such as those high in fat and sugar. Town planning, the design of the built environment and traffic regulation may provide incentives or disincentives for active transport (such as walking and cycling) as opposed to inactive (vehicular) transport. More generally, there is growing evidence that commodities like education, often delivered through public programmes, or at least publicly financed, may be positively associated with health, partly through their effects on lifestyle choices.

This book takes a whole-of-government approach, recognizing that public health policies must be developed across different sectors of government intervention, and that a sound and effective health promotion strategy must address policies in most areas of government intervention, which have potential consequences on population health. This approach, and the challenges it involves, are discussed in detail in Chapter 14.

Health promotion and disease prevention, however, are not an exclusive domain of government action either. Certain types of actions, particularly those aimed at widening choice, lowering the prices of certain choice options, influencing choices through persuasion, and even some regulatory actions, may be promoted or undertaken by actors other than governments, acting alone or in cooperation with governments. These actors may be as diverse as groups of individuals organized for the pursuit of special or general interests (e.g. community action groups, patient organizations, trade unions); professional and business organizations; research organizations and think tanks; civil society organizations; or the mass media. The importance of non-governmental action is underscored, for instance, by a comparative analysis of trends in smoking rates in the United States and Europe, discussed previously under the heading, 'Classical market failures: externalities and poor information', which

shows that information was conveyed more effectively in the United States thanks to the entrepreneurial action of anti-smoking interest groups (Cutler and Glaeser 2006).

Disparate motives may lead non-government actors to engage in actions aimed at influencing individual consumption choices in the best interest of consumers. Organized groups of individuals (e.g. consumer groups) may be particularly motivated to take action in situations of asymmetric market power, i.e. markets in which supply may be relatively concentrated, or in which information may be asymmetrically distributed between consumers and suppliers. In the absence of government intervention, because governments do not wish to interfere or intervention would be inefficient, consumers, or other individuals who care for their interests, may attempt to strengthen their position through organized actions. Professional organizations are a special case of such groups, particularly when professionals act as agents of consumers in the protection of their health, as with public health or medical professionals. Businesses may engage in the production and commercialization of healthy commodities whenever market opportunities emerge, but they will also engage in the production and commercialization of unhealthy, or potentially unhealthy, commodities when a market for these can be established. In the latter case, business organizations may be motivated to seek deviations from market dynamics in the best interest of consumers under the threat of tougher actions by other subjects, especially governments, which may affect the interests of their own members. For instance, business organizations may decide to adopt voluntary self-regulation schemes to pre-empt more cogent regulatory actions by government. Employers may, individually or collectively, promote lifestyle interventions for their own employees with a view to improving the overall health of the workforce and increasing productivity, or as part of a 'social contract' with workers. Health insurance organizations, again individually or collectively, may find that lifestyle change and prevention may provide the means for containing health expenditures by raising average levels of health in the pool of insurees. Research organizations, think tanks and the mass media often act as watchdogs on market dynamics and other social phenomena, and in this capacity they may be motivated to take action in the interest of consumers. Actions like those envisaged so far may purportedly be in the best interest of consumers, but even when in good faith, the actors who promote those actions may be prone to influences, biases, and other limitations of rationality that may cause the outcomes of such actions to deviate from their original goals.

The roles played by non-government actors are potentially very important in determining the success of complex preventive interventions. Unilateral actions by governments or others may often prove ineffective or impossible if other actors are not fully engaged in the design and implementation of such actions. In most cases, health promotion and disease prevention require sacrifices on the part of some of the actors involved, which may well be offset by the health benefits of prevention, but nevertheless must be understood and accepted by those who will have to bear them. Direct participation in the development of preventive interventions by all those who have a stake in the process is increasingly regarded as a pre-condition for successful prevention policies.

The structure of the book and remaining chapters

The first chapters of the book (2 and 3) are meant to provide a detailed view of the economic approaches available for the evaluation of policy interventions in the areas of health promotion and disease prevention. These include both a discussion of basic concepts and theories, and a practical illustration of methods and measures of cost and outcome that are typically used in such evaluations. Chapters 2 and 3 are intended to provide readers with the tools to interpret the evidence reviewed in the rest of the book, and also to offer guidance to those who intend to contribute to the economic evidence base on health promotion and chronic disease prevention.

The next set of chapters (4 to 10) represents the core of the book, and contains detailed reviews and analyses of the economic evidence available in specific risk factor areas. In particular, chapters 4 to 7 address behavioural risk factors (tobacco smoking, harmful alcohol use, physical inactivity and unhealthy diets), while Chapter 8 covers selected environmental risk factors, Chapter 9 road traffic injuries, and Chapter 10 mental health risk factors and conditions. The main findings of these chapters are also presented in a Policy Summary jointly published by the European Observatory and the Organisation for Economic Co-operation and Development (OECD) in December 2013.

The next four chapters address cross-cutting themes, including intervention on selected social determinants of health, with a focus, in particular, on education and early life interventions (Chapter 11); the distributional implications of policy actions in health promotion and disease prevention (Chapter 12); key implementation issues (Chapter 13) and cross-sectoral challenges (Chapter 14). Chapter 15 provides overall conclusions from the evidence presented in the rest of the book. A series of summary tables provides a critical appraisal of the evidence available on specific types of interventions, summarizing the key contents of chapters 4 to 10. These tables can be found in the Policy Summary (Merkur et al. 2013: 48-72).

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