

Economic Valuation of Environmental Health Risks to Children

Executive Summary

Recent epidemiological studies have highlighted the special vulnerability of children to environmental degradation.

There is increasing concern that the health of children is particularly affected by environmental conditions. Important examples include the aggravation of respiratory diseases (such as asthma), lung development, water-borne diseases (such as gastro-enteritis) and increased cases of premature deaths among children. For instance, the World Health Organisation (WHO) Task Force for the Protection of Children's Environmental Health reports that respiratory infections account for 20% of mortality in children under the age of five. Many OECD Member countries are also reporting asthma epidemics aggravated by air pollution: for example, in the United States nearly 1 in 13 school-age children (approximately 4.8 million) has asthma, and the rate is increasing more rapidly in school-age children than in any other group.

Because of different daily behavioural patterns, adults and children are not exposed to the same environmental risks. In addition, they do not respond to the risks in the same manner as adults. In order to guide policy making, governments and public agencies require estimates of the benefits associated with a risk reduction to children. Despite the increasing interest in the linkages between children's health and the environment, there have been few economic studies focusing on the estimation of the benefits of reducing environmental health risks to children.

A better understanding of the conceptual and practical problems associated with undertaking valuation studies in the case of children would allow policymakers to better evaluate environment-related health risks that particularly affect children, and would contribute to the development of guidelines for the valuation of children's health environmental risk. This book proposes an overview of the main methodological problems associated with the valuation of health risks to children, including environmental risks.

The valuation of benefits to children's health is more challenging than that of adults.

In many respects, the valuation of health benefits to children is associated with issues that may have serious policy implications. An important issue relates to the special vulnerability of children to environmental degradation. A focus on the epidemiological differences between adults and children underlines how important it is in policy-making not to consider children simply as little adults. Additional differences between adults and children in terms of the valuation of such impacts also highlight the need for children-specific values when designing environmental policies.

One of the most important differences between the valuation of children's health and that of adults is related to the elicitation of children's preferences. Even in the case of adults' preferences, reliable estimation is far from straightforward. In the context of valuing

children's health, it is even more difficult to obtain preferences because children cannot be directly asked about the value they place in risk reduction. According to standard economic theory, their limited understanding of trade-offs (for example, between money and health) and of budget constraints makes them unreliable decision makers. As a consequence, it is necessary to rely on a proxy to elicit children's preferences.

Parents are the most intuitively appealing proxy and are usually asked to reveal the value they place on their children's health. However, asking parents (or caregivers) about the maximum amount they would be willing to pay to reduce health risks to their children shifts the context of valuation into a household context. The choice of an intra-household allocation model then becomes crucial. In addition, household-related factors, such as the household structure and composition, or the household preferences, may significantly affect individual's values as shown in some empirical studies.

Other important issues include the differences in age between adults and children, the existence of long latency periods between the exposure to environmental pollution and the onset of an illness, the discounting of health benefits to children, as well as economic uncertainties. These additional difficulties have to be accounted for when evaluating the social benefits of the reduction of environmental health risks to children.

The literature on the economic valuation of environmental health risks to children is not as developed as that regarding adults. Important points, such as the most appropriate valuation methodology or the most relevant benefit measure, have not been completely addressed yet, although the contingent valuation approach and the willingness-to-pay values it provides appear to be quite reliable in the context of valuation of children's health. Further empirical work is necessary, both in the epidemiological and the economic fields, in order to provide a complete set of data and figures that could be used in policymaking.

Actual lack of reliable data and analysis may have serious policy implications.

Although empirical evidence is limited and data are missing, policymakers have to take decisions and set priorities. However, inappropriate consideration of epidemiological and valuation differences between adults and children could lead to inefficient policy decisions. On the one hand, ignoring risk differences between adults and children could lead to setting wrong standards, concerning, for example, the maximum allowable level of air pollution emissions. On the other hand, ignoring the valuation differences between adults and children could lead to wrong policy priorities being set within the health and environment fields. This raises questions on the validity of policies currently in place: Do they reflect the differences between adults and children? Are they appropriate?

In the light of previous considerations on the methodological difficulties associated with the valuation of children's health, further research would be necessary to determine first, the most relevant measure of benefits and then, the most appropriate valuation technique. Valuation differences may affect the values individuals would be willing to pay to reduce health risks to children, but the order of magnitude is still to be determined. In addition, it would be necessary to better understand how these values differ with the characteristics of individuals. Finally, given regional disparities, comparative economic studies carried out in different countries would contribute to generating comparative and credible values.