Index

Page numbers followed by the letter n indicate entries in notes, and page numbers followed by the letter b indicate entries in boxes.

Aben, Katja K. H. 83
Acemoglu, Daron 116
adult mortality 2–3; global goals for reduction of 6, 59–60, 143; IFs adjusted base case forecasts 145; in IFs integrated scenario analysis 151–2, 154; impact of road traffic accidents 85, 86–7; patterns affecting life expectancy measure 13, 56; WHO definition 13
Advisory Committee to the United States Surgeon General 82
Afghanistan 2, 28n, 153
Africa 28n, 61, 110, see also North Africa; sub-Saharan Africa; individual countries
age: and accumulation of noncommunicable diseases 10; as factor in analysing risks 45–6, 109, 110; in global goals for disease reduction 58–9; in IFs approach to health and productivity 122, 134; and longevity 23, 124–5, 141, 143; in measurement of morbidity and longevity 23, 124–5, 141, 143; and population in IFs integrated scenarios 148
agriculture 49, 159; effects of chemicals 90; increased productivity in low mortality scenario 131–2, 133, 135; IPCC on risks from global warming 105, see also crop production
Ahlulfia, Montek S. 76
AIDS see HIV/AIDS
air pollution 4, 6, 7, 24
air pollution (indoor) 64, 72, 92, 94, 95, 97–8, 111, 158; alternative scenarios 99–100; from solid fuel use 73, 91, 98–9
air pollution (outdoor urban) 73, 91, 92, 95, 100–2, 111, 158
alcohol use/abuse 74, 109, 143, 144, 148
Alma Ata Declaration (1978) 5, 26
Alsan, Marcella 126
alternative health futures 6, 7, 8, 30, 38, 157, 160; adult BMI and related mortality 80–2; biological context and human activity 139–40, 148, 154–5; childhood undernutrition and mortality 77–8; complexity and uncertainties 136, 159; disease burden patterns 149–52; economic consequences 153–4; education 68–9; GDP per capita 67–8; integrated scenario analysis 146–54, 155, 157; time and technology 69–70; tobacco use and related mortality 84–5; vehicle ownership and fatality rates 86–7, see also global health futures
AngloAmerican Mining 120 “Anglo-Saxon” societies 24–5
Angola 153
antibiotics 23, 24, 90, 91, 142, 143
antitrovarial therapy 65, 120
Arora, Suchit 115
Ashraf, Quamrul H. 117, 123
Asia 78, 83, see also Central Asia; East Asia; South Asia; individual countries
Australia 83
avian flu 143
Baldacci, Emmanuele 122
Bangladesh 11–12, 12–13, 76, 122
Barro, Robert J. 121
Becker, Gary 115, 118
behavioral changes: in Becker’s theory of human capital 115; and decline in transmission of HIV 65; proximate risk factors of health outcomes 16, 72, 73
behavioral risks: in “Anglo-Saxon” societies 25; and decline in life expectancy in Russian Federation 24
Bill and Melinda Gates Foundation 26
biology: certainty of death 9; in context and human activity 139–40, 148, 154–5; childhood undernutrition and mortality 77–8; complexity and uncertainties 136, 159; disease burden patterns 149–52; economic consequences 153–4; education 68–9; GDP per capita 67–8; integrated scenario analysis 146–54, 155, 157; time and technology 69–70; tobacco use and related mortality 84–5; vehicle ownership and fatality rates 86–7, see also global health futures
Bloom, David E. 115, 126
body mass index (BMI) 73, 78, 79, 80, 158; alternative scenarios 80–2; and risk of diabetes 35, 47
Bongaarts, John 28n
Botswana 2, 53, 148
Brazil 141, see also BRICS
breast cancer 80
Brenkert, Antoinette 106
BRICS (Brazil, Russia, India and China) 58, 141, 153
Brundtland, Gro Harlem 30
Caldwell, John 19, 25
Campbell-Lendrum, Diarmid 90–1, 104
Canada 24–5, 83
Cancer 3, 14; due to pollution 98, 144; health risks predisposing people to 72, 78, 80
Canning, David 115, 126
capabilities see human capabilities framework
capital: and GDP per capita 68; in IFs approach to health and economic growth 118, 123–6, 133–4, 134; in theories of economic growth 115, 117, 119, 132
carbon dioxide 105, 106–7, 108
cardiopulmonary diseases 100, 101, 102
cardiocvascular disease 3, 14, 35; attributable to environmental factors 94; and BMI risk factor 78, 81; as disability affecting productivity 120; due to urban air pollution 91, 100, 101; health risks predisposing people to 72; in IFs base case forecasts 60, 102, 143; in IFs combined risk analysis 110; as potential outcome of heat and cold stress 104; and reductions in cause-specific mortality 48; smoking as risk factor 82, 85; stagnation of gains in U.S. mortality rate 23, 144
Caribbean 59, 63, 69, 81, 101; effect of mortality changes on GDP 135; in IFs integrated scenario analysis 152; working-age demographics 129
Carson, Rachel 90
Carter, Nicholas 76
Central African Republic 153
Central Asia 60, 101; diabetes-related mortality rates 81; effect of mortality changes on GDP 128; in IFs integrated scenario analysis 151, 152; life expectancy rates in former communist countries 53
Central Europe 96
cerebrovascular disease 80
Chad 153
chemicals: and environmental and health concerns 91, 111; spraying of disease vectors 24, 139, 142
Chenery, Hollis 76
childhood undernutrition: alternative scenario to decrease mortality 77–8, 88; association with communicable diseases 21, 44–5, 46–7; as proximate risk factor 35, 72, 73, 74–8, 109; resulting in “stunting” 120–1, 122, 131
child mortality: from diarrheal diseases 64, 97; differences between high- and low-income countries 3; from diseases due to indoor air pollution 64, 98; GISMO forecasts 63–4; global goals 5–6, 58, 59; IFs approach regarding health spending 41, 44; IFs forecasts 126–7, 145; in IFs integrated scenario analysis 151–2; and labor force size 134; patterns affecting measure of life expectancy 13; and undernutrition 75, 77–8, 107, 122, 158; UNPD forecasts 62; WHO definition 13, see also infant mortality
children: health burden from global climate change 105; health spending and outcomes in poorer countries 25; reduction of communicable diseases in epidemiologic transition 3; respiratory infections due to urban air pollution 91, 98, 99, 102; significance of health for future life 120, 126, see also child mortality; childhood undernutrition; infant mortality
China: in IFs integrated scenario analysis 148, 151, 154; impact of turmoil of “Great Leap Forward” 53, 141; improvements in exposure to indoor air pollution 98–9; increase in food demand 76; mortality changes and economic growth 128, 154; rise in tobacco use 83; rising rates of road traffic deaths 87, see also BRICS
cholera 90, 105, 143
chronic diseases: in changing disease burden 58, 126–7, 144, 150, 151; and measuring morbidity 14, 49; possibility of increase 52; reductions in cause-specific mortality 48–9; rise in United States 21; and smoking 41–2; time lag between risk factor, disease, and death 80–1, 158, see also diabetes; respiratory diseases
chronic obstructive lung disease 82, 98
civil society organizations 27
climate change: alternative scenarios for health effects 105–8, 108; as health risk factor 63, 73, 90, 91, 92, 102–5, 111, 158; human-based changes 4, 27; potential health impacts 103–5, 112
Cline, William R. 106
Coca Cola 120
Cohen, Aaron J. 100, 101, 101–2
Cold War, end of 143
Collishaw, Neil E. 83
cultural change 20, 23
dengue 94, 95, 96
demographic transition 3
Commission on Macroeconomics and Health (2001) 132
Commission on Social Determinants of Health (CSDH, 2008) 5–6, 7, 24, 54, 59–60, 137n, 145, 152, 159, 160
common property resources, overuse of 136
communicable diseases: age factor 16, 126, 158; alternative futures 142–3, 149–50; compared with injuries in IFs forecasts 69–70; decline affecting life expectancy forecasts 54; in GBD typology 35, 46; global shift away from deaths due to 56, 58, 60, 149–52, 155; health risks predisposing people to 21; in IFs forecasts 126, 127, 144, 146, 148, 155; impact of HIV/AIDS on burden of 54, 55, 138; importance of new technologies 24; interaction of undernutrition with 75–6; possibility of new or reemerging epidemics 4, 6, 27, 54, 55, 91, 138, 143; and productivity in lower-income countries 131; recession of disease pandemics 3–4; reduction with efforts to reduce environmental risks 111; as significant cause of deaths 2; in theory of epidemiologic transition 3, 10; and time in IFs combined risk analysis 110–11, 158; uncertainties surrounding battle against 23, 26, 27, 159; undernutrition and child mortality from 45, 46–7, 107–8; in WHO classification system 10, 55 communism, fall of 148
diabetes 3, 4, 14, 79, 120, 144; formulations in structural models 34, 35, 36, 39, 47; IFs formulation of mortality rates from 47–8, 81, 143; type 2 and BMI risk factor 35, 53n, 78, 80, 81
diarrheal disease 20, 21, 40, 46, 95; adverse effect on nutrition 75, 95; attributable to unsafe water, sanitation, and hygiene 95, 96; child deaths from 64, 97, 98; in IFs forecasts for deaths by communicable diseases 55; interaction of undernutrition with 76; from pathogens transmitted through food and water 105; reduction with efforts to reduce environmental risks 111
digestive disorders 35
disability: concept of disability weights 15, 16, 109, 120; effects on productivity 119–21, 133, 134; GBD measures and analyses 15–16, 34, 49, 135
disability-adjusted life years (DALYs) 15–16, 34, 48, 62–3, 75; attributable to environmental risk factors 93–5, 95, 98, 100, 105; comparative risk analysis of global scenarios 108–9; and lost years of productivity 120
disadvantaged groups, exclusion from health improvements 160
disease burden: Comparative Risk Assessment (CRA) project 21–2, 35, 73–4; environmental 92, 92–5, 95, 98; in forecasting global health 29–30, 38, 127; IFs base case forecasts 56–8; measuring 14, 16; patterns across alternative health futures 149–52, see also Global Burden of Disease (GBD) project
disease control 2, 4, 26, 142
diseases: categories in GBD model 39, 46; environmental risk factors 27, 91–2, 95; global goals for reduction of 5, 58–9; measures of occurrence 14–15; specialized disease-cause models 36, 38; vector-borne and water-borne 104; WHO classification system 10–11, see also chronic diseases; communicable diseases; morbidity; noncommunicable diseases
disease vectors: chemical spraying of 24, 139, 142; global transmission of 24; influence of climate on 104
education: alternative health futures
Economic systems: and health
economic dislocation, induced by
economic development:
economic crisis: debt in Latin
Eastern Europe 83, 96
Ebi, Kristie L. 104, 106
economic activity, as driver of urban
air quality 100
economic changes: and changing
health patterns 30, 38;
consequences of alternative health
futures 153–4; due to changing
age structures of populations
130; in IFs integrated scenario
analysis 149; role in decline of life
expectancy 24
economic crisis: debt in Latin
America 76; as threat to financial
support for health incentives 143
economic development:
environmental risk factors 111;
expected in South Asia 77; leading
to sedentary lifestyles 79; and
progress in human development
28; in theory of epidemiologic
transition 3
economic dislocation, induced by
climate change 104, 105
economic growth: alternative
scenarios for global life
expectancy 68, 155; as distal
driver of health outcomes 4;
forward linkages from health to
117–26, 128, 129–35, 136, 157,
159; possibility of future slowing
of 148; relationship with health in
different models 115–17, 159
economic systems: and health
modeling 49, 114, 157; model in
extended IFs system 31–2, 70;
time-related influence on health
risks 73
education: alternative health futures
68–9; and better health outcomes
for women 19, 20; as driver of
health outcomes 7, 17, 19–20,
22, 27, 35, 52–3; expenditures
affected by increased spending on
elderly 132; and GDP per capita
68–9; in IFs approach to health
and productivity 119, 121, 122–3;
link with environmental health
risk factors 97; model in extended
IFs system 30, 32; in Sen’s human
capabilities framework 9, 115; in
to theory of epidemiologic transition 3
elderly people: affected by
reductions in noncommunicable
diseases 126, 150; in IFs
integrated scenario analysis 153,
154, 155; increase impacting on
economic growth 129, 132, 133,
154, 155; increasing expenditures
on 124, 132, 159; potential health
impacts of climate change 104;
projected increase in 101
endemic diseases 4
endometrial cancer 80
energy systems 49, 73
environment: empirical evidence of
impact on human health 92–5;
health risks in Gismo forecasting
system 63, 63–4; historical
relationship with human health
90–1; human-based change and
drivers relating to 4, 6, 20, 27,
139, 158; IFs model 32, 39;
MDG for sustainability 5; and
noncommunicable diseases 10,
143; proximate health risk factors
20, 72–3, 74, 108–11, 112; risk
factors now and in future 95–108,
111–12, 144, 159; risk factors and
risk transition 91–2, 102, 111,
see also climate change; social
environment
environmental footprints 136
epidemiologic transition 3–4, 4,
7, 13, 157, 159; health risk
transition within 73, 92, 111,
144, 158, 159–60; post-World War
II era 116, 128, 142; questions
left unaddressed by 9, 22–3
Equatorial Guinea 153
ethical issues, and technological
interventions 23
Ethiopia 76
Europe: diabetes-related mortality
rates 81; effect of mortality
changes on GDP 128; heat wave
in 2003 104; historical studies of
industrial revolution 115; IFs
forecasts in relation to global goals
59, 60; in IFs integrated scenario
analysis 151, 152; levels of
particulate matter concentrations
101; life expectancy rates in former
communist countries 53; mortality
registration coverage 28n, see
also Eastern Europe; Southern
Europe; Western Europe; individual
countries
European Commission (EC) 32
Ezzati, Majid 17, 27, 41, 91, 100,
102, see also Comparative Risk
Assessment (CRA) project
families: financing of education and
old-age support 125; formation
strategies 118
family planning programs 128, 159
famines 76
Fernández-Villaverde, Jesús 125–6
fertility: in IFs approach to health
and economic growth 117–19,
128–9, 129, 132, 135, 158–9; in
population forecasting 33, 69,
158–9
Fevtrell, Lorna 95–6
Filmer, Deon 25–6
Fishman, Steven 46
Fogel, Robert W. 28, 115, 121
foods: factors causing malnutrition
and undernutrition 74–5, 76–7,
105; global impacts of population
increases on 131; impacts of
climate change on production
105, 106–7; importance of calorie
availability 74–5, 76–7; negative
effects of globalization 5; risk
factors in unhealthy diets 10,
143, 144, see also childhood
undernutrition; nutritional
deficiencies; undernutrition
forecasting: global health outcomes
8, 29–30, 37–8, 49; health model
in extended IFs system 31, 31–2;
IFs base case 52–60, 70; purposes
of 6–7, 29–30, 37–8; structural
models 34–9, 49, 66, 70; time
limits 156
foreign aid 132–3, 135
foreign direct investment (FDI)
125, 126
Framework Convention on Tobacco
Control (2003) 5, 143
France 61
Fraser Institute 137n
Frongillo, Edward A. 75
Gabon 153
Gately, Dermot 43, 86
Gates, Bill and Melinda see Bill and
Melinda Gates Foundation
GDP per capita: and education
in alternative health futures
67–9; in Gismo modeling system
36–7; in IFs approach to health
and economic growth 121,
126, 128, 134, 135, 159; in IFs
integrated scenario analysis 154;
in low mortality scenario 135;
relationship with life expectancy
18–19, 147–8; and studies on
public health spending 25–6, see
also income
gender: differences in population
BMI 80; as factor in health
outcomes 19, 20, 25; factors in
smoking rates 84, 84–5, 85; in
Gismo forecasts of mortality rates
63; life expectancy of males in IFs
forecasts 54
genetic technologies 23, 139
Ghana 153
Global Burden of Disease (Gbd)
project (WHO): ambitious goals
13; approach used in IFs model
31, 39–40, 53, 69–70, 70, 145,
155, 157; categories of diseases
39, 46; concern over childhood
underweight 75; distal drivers in
health outcomes model 7, 16,
17, 17–18, 20, 23, 38, 39–40,
69; forecasting aims and analyses
6–7, 11; as landmark structural
model 34, 34–5, 49, 66; limitation
in comparative risk assessments
35–6; measures showing impact of
disability 13, 15–16, 34,
120, 135; mortality forecast
for diabetes 79; program on
environmental burden of disease
121n; regional forecasts of death
and disability 62–3; road traffic
accident forecasts 66–7
Global Fund to Fight AIDS,
Tuberculosis, and Malaria 26
global health: agenda 5; drivers of
health outcomes 4–5; initiatives
26–7, 27, 139, 142; key problems
today 2; positive statements on
improvements 60; questions on
changing patterns 52; “silent
crisis” of climate change 103;
time of epidemiologic transition
3–4
global health futures: all-cause
mortality models 32–3; IFs models
for forecasting 6, 29–30, 70,
146, 152–3, 155, 156; structural
patterns in human development
115–17, 159; key problems
6–7, 29–30, 37–8
Globus, Richard 82
Goodin, Robert 46
Goteva, Ivan 125
Gower, Richard J. 119
Graham, F. 22
Greenwald, chapter 3, p. 49
models 34–9, 49; uncertainty surrounding 27–8, 154–5, see also alternative health futures
global health governance 5, 26, 26–7, 142–3, 155, 159
Global Humanitarian Forum (2009) 104
Global Integrated Sustainability Model (GISMO) (Hilderink and Lucas) 36–7, 63–4, 106
Global Model of Ambient Particulates (GMAPS) 100–1
Global Urban Air quality Model 100–1
governmental 25, 156
Grantham-McGregor, Sally 121b
Graunt, John 1
Great Britain, advances in human health 1; economic effect of great plagues 115; see also United Kingdom
groundwater, overuse of 159

Habicht, Jean-Pierre 75
Hajat, Shakoor 104
Hammer, Jeffrey S. 26
health: fundamental questions 9, see also global health
health expenditure: as factor in health outcomes 19, 24–6, 114, 134; in IFs approach to child mortality 41, 44; in IFs approach to health and economic growth 122, 123, 124, 126, 134; link with environmental health risk factors 97
health futures see alternative health futures; global health futures
health risk factors: combined risk analysis 109–10; comparative risk analysis 108–9; IFs approach to combined risk analysis 110–11, 158; related to noncommunicable diseases 143–4; used in IFs base case forecasts 53, 70, 72–3, 73–4, see also Comparative Risk Assessment (CRA) project
health systems 17, 19, 20, 24–5, 26, 27, 159; disruption in Russian Federation 148; evolution in time 73; human-based changes 5, 6, 39; poor quality in “Anglo-Saxon” societies 25
Henley, Jane 82
high-income/richer countries: better health outcomes over time 22; decline in smoking rates 143; demographics of labor supply 129, 130, 131; IFs adjusted forecasts for noncommunicable diseases 145; IFs forecasts of vehicle ownership and road fatalities 87; IFs life expectancy forecasts 53, 54, 127; impacts of obesity 78, 81; Increase in old-age dependency 159; mortality differences with sub-Saharan Africa 3, 57; potential gains in life expectancy 110; primary causes of deaths 2; rise in portion of retired citizens 52
Hilderink, Henk see Global Integrated Sustainability Model (GISMO)
Hirsch, Gary B. 50n
historical patterns: life expectancy 53–4, 55, 140–1; limited success of disease control 142; smoking 82, 84
HIV/AIDS: adults affected by injuries: in changing disease burden 58, 126, 151; cumulative years of life lost due to 69–70; in GBD typology 35; and new challenges for global initiatives 26; risk reduction in IFs combined risk analysis 111; as significant cause of deaths 2; in WHO classification system 11
Inoue, Mie 83, 84, 85
insecticide, use against mosquitoes 134, 139
Intergovernmental Panel on Climate Change (IPCC) 105, 112n
International Futures (IFs) global modeling system 6, 15; adjustment of base case forecasts 141, 144–6; aims and availability of 156–7; approach to combined risk analysis 110–11; base case forecasts 52–60, 67, 70, 79, 138, 140, 155; extensions to include proximate risk factors 44–8, 70, 73–4, 110–11; GBD model foundation 31, 39–40; health model 30, 31, 31–2, 114; larger model for alternative global futures 30–2; special structural models 41–4, 44; and UNPD life expectancy forecasts 61–2, 70; variables for hybrid and integrated system 39, 158

India 76, 77, 87, 122, 144, 151, see also BRICS
indigenous populations 160
infant mortality: in developing countries 2; drop in world rate 2; and GDP per capita 18; global goals and IFs forecasts for reduction of 5, 58, 59; in IFs approach to health and economic growth 118; IFs forecasts 64, 126–7; in IFs integrated scenario analysis 151; poor showing of United States 24, see also child mortality
infectious diseases see communicable diseases; sexually transmitted infectious diseases
injuries: in changing disease burden 58, 126, 151; cumulative years of life lost due to 69–70; in GBD typology 35; and new challenges for global initiatives 26; risk reduction in IFs combined risk analysis 111; as significant cause of deaths 2; in WHO classification system 11
influenza virus 28n
Iglesias, Ana 106
income: as driver of health outcomes 7, 16, 17, 18–19, 22, 25, 27, 52–3; in IFs approach to health and productivity 122, 125; levels and convergence of mortality rates 144; link with environmental health risk factors 95, 97; link with food availability and undernutrition 74, 76; relationship with health 18–19, 24, 52, 68, 73, 116; relationship with road traffic deaths 43; relationship with vehicle ownership and accidents 85–6, 87; and worldwide increase in tobacco use 83, see also GDP per capita
International Futures (IFs) global modeling system 6, 15; adjustment of base case forecasts 141, 144–6; aims and availability of 156–7; approach to combined risk analysis 110–11; base case forecasts 52–60, 67, 70, 79, 138, 140, 155; extensions to include proximate risk factors 44–8, 70, 73–4, 110–11; GBD model foundation 31, 39–40; health model 30, 31, 31–2, 114; larger model for alternative global futures 30–2; special structural models 41–4, 44; and UNPD life expectancy forecasts 61–2, 70; variables for hybrid and integrated system 39, 158

Index 339
Index

Namibia 13
Nathanson, Constance A. 25
National Intelligence Council (USNIC) projects 32
Nelson, Gerald C. 108b
Netherlands Environmental Assessment Agency, GISMO see Global Integrated Sustainability Model (GISMO)
Nigeria 106–7
noncommunicable diseases: age factor 16; compared with injuries in life expectancy forecasts 69–70; deaths in alternative scenarios 150; falling rates over time 47, 69, 70; futures 143–4; in GBD typology 35, 40; global shift to deaths from 58, 70, 127, 149–52, 155; health risks predisposing people to 21, 72, 143–4; in IFs combined risk analysis 110, 158; in IFs forecasts 56–7, 58, 126, 143, 146, 155, 157–8; and increase in post-retirement populations 134; measuring occurrence of 14; and new challenges for global initiatives 26; as primary cause of disease burden 56; as recent most significant cause of deaths 2, 70; slow progress in figures for 138, 146; in theory of epidemiologic transition 3, 10; in WHO classification system 10 nongovernmental organizations 27, 139, 142
North Africa 53, 59, 87, 101, 154
North America 70, see also Canada; United States of America
Norway 61
nutritional conditions 35, 159
nutritional deficiencies 10, 48, 55, see also childhood undernutrition; undernutrition
nutritional health risks 20, 21, 72, see also foods
nutrition transition 78–9
obesity 7, 16, 21, 78, 139; and chronic diseases 34, 60; in developing societies 38, 143; as disability impacting productivity 120; drivers and forecasts 78–80, 88; as factor in prevalence of noncommunicable diseases 72, 73, 74, 143; as proximate health risk factor 87, 109, 110; varied prevalence across countries 81, see also overweight
Oman, Abdel 3
onchocerciasis 5
oral rehydration therapies (ORTs) 28n
Organisation for Economic Co-operation and Development (OECD) 101–2
osteoarthritis 78, 80
Ostro, Bart 100, 101–2
overweight 34, 81, 109, 110, 158, see also obesity
ozone 90, 92, 100, 102, 111
Pacific countries 59, 63, 80, 84, 87, 98, 101; effect of mortality changes on GDP 128; in IFs integrated scenario analysis 150, 151, 154
pandemics 3–4, 27, 158
parasitic infections 55
particulate matter concentrations 100–1, 102
pathogens 104–5, 139, 147
Patterns of Potential Human Progress series 6, 30, 137n, 156
Patz, Jonathan A. 103
Paxson, Christina H. 125–6
Pelletier, David L. 75
pensions 38, 132, 134
perinatal conditions 10, 35, 55, 56
Peto, Richard 41
pharmaceutical treatments 24, 81, see also drugs
physical activity/inactivity 78, 79, 109
Pihl, Tapani 83
Pitccher, Hugh 106
plagues 115
Ploeg, Martine 83
pneumonia 46, 64
policy: aspects relevant to demographics 33; influencing vehicle ownership 86, 87, see also global health governance; health expenditure polio 26, 142
political changes: and disruption of life in Russian Federation 24, 168; and disruption of support for global health initiatives 143
political disorganization 2, 77
political economy, variables in IFs approach to health 126
political systems 25
pollution 144, see also air pollution poorer countries see low-income/poorer countries
Popkin, Barry M. 78–9
population: changing structure 56; demographic and economic impacts of interventions 128; effects of low mortality scenario 131, 133; as factor in IFs combined risk analysis 111; factors influencing vehicle ownership 86; fertility decline and changing mortality outcomes 158–9; forecasting 32–3; GIZMO projections 4; growth in post-World War II era 116; in health and economic growth models 117, 118, 123, 159; in IFs integrated scenario analysis 148–9; and life expectancy 33, 61; link with environmental health risk factors 97, see also demographics; United Nations Population Division (UNPD) population attributable fraction (PAF) 44–5, 93–4, 100
poverty: and failures in health spending 26; and inequalities 25; MDG health goal for eradication of 5; measured by calories per day 76; narrowing of gap between rich and poor 53; relationship with environment 91
President’s Emergency Plan for AIDS Relief 26
Preston, Samuel 18–19, 22, 23–4, 34
preventability: communicable and noncommunicable diseases 10; and failures in post-World War II disease control 26, 142
Pritchett, Lant 18, 25–6
private donors 26
private-public debates 5
productivity: and GDP per capita 68; in IFs approach to health model 119–23, 134; in models of economic growth 115, 117, 148; in relationship with health and growth 9, 28, 119–23, 130–3
Prüss-Üstün, Annette 93–4, 95, 96
public health insurance programs 124
public sector, health spending 25–6
quality of life 134, 135
Quintana-Domeque, Climent 122
Rawls, John 30
regions: in forecasting life expectancy 53–4, 54–5, 153; in GBD project 34
regulatory mechanisms 5
Rehfuss, Eva 98
relative risk (RR) 44–5, 48
religious beliefs and practices 23, 25
reproductive behavior 74
respiratory diseases 34, 35, 39, 40, 46; due to indoor air pollution 91, 98–9; due to urban outdoor air pollution 91, 100, 101, 102; with efforts to reduce environmental risks 111; in IFs forecasts for deaths by communicable diseases 55; IFs modification of mortality rates from 48; as potential outcome of heat stress 104; and smoking factor 47, 85
richer countries see high-income/richer countries
risks see behavioral risks; Comparative Risk Assessment (CRA) project; health risk factors; nutritional health risks; relative risk (RR)
road traffic accidents 35, 38, 58, 139, 158; global forecasts 66–7, 85, 86; in IFs combined risk analysis 111; IFs special model for 41, 43, 86; patterns of vehicle safety and ownership 85–7, 88
road traffic safety 72, 73–4, 74
Rosenzweig, Cynthia 106
Royal College of Surgeons 82
rural areas 160
Russia/Russian Federation 13, 21, 24, 141, 144, 148, see also BRICS
Rwanda 153
Sala-i-Martin, Xavier 121
sanitation systems 4, 5, 7, 20, 26; as health risk factor 63–4, 72, 73, 91, 92, 94, 95–7; and undernutrition 76, 110
savings 124–5, 125–6, 133–4
schistosomiasis 94, 95, 96
Sen, Amartya 9, 28, 30, 115
Sevilla, Jaypee 115
sexual behaviors 73, 74, 109
sexually transmitted infectious diseases 72
Shibuya, Kenji 83, 84, 85
"sick building syndrome" 98
Sierra Leone 2
Singapore 61
slum areas 92, 160
Smed, R. J. (Smed's Law) 43, 86
Smith, Kirk R. 9, 17, 27, 91, 95, 98, 100, 102
smog 90
smoking 7, 38; in base case and alternative scenarios 87, 88; and chronic diseases 41–2, 47, 60; GBD model for impact of 35, 41, 47; as health risk factor 72, 73, 74, 81, 143, 144, 158; in IFs combined risk analysis 110; IFs special model for 41, 41–2; stages of prevalence and associated mortality 83, see also tobacco use
Snow, Dr. John 90
Soares, Rodrigo 123
social accounting matrix (SAM) 117, 125
social change, time-related influence on health risks 73
social development 3, 28
social environment 4–5, 16, 20, 24–7, 139, 148
social inequalities 23, 25
social systems, as influence on health outcomes 24–5, 25
socio-political changes 30, 38; with changing age structures of populations 130; model in extended IFs system 32, 39; with reduction in domestic conflict 155
solar ultraviolet radiation 91
solid fuel use 73, 90, 99; nutritional shortfalls and undernutrition levels 75, 77; patterns of life expectancy 53; population as vulnerable to noncommunicable diseases 144; working-age demographics 129
Southern Europe 83
Sridhar, Devi 26
stem cell research and treatments 23
stomach cancer 82
“stunting” 120–1, 122–3, 131, 132, 134
sub-Saharan Africa 28n, 70, 83, 87; alternative scenarios for life expectancy 69–71, 123; antiretroviral treatment campaigns 120; child mortality due to diarrheal diseases 97; child mortality related to climate change 108; effect of mortality changes on GDP 128, 129, 135; GISMO forecasts of child mortality 63, 64; health demographics affecting economic growth 127, 129, 130, 131, 159; IFs adjusted base case forecasts for mortality 145; in IFs comparisons of changing disease burden 56–7, 58; IFs forecasts in relation to global goals 59, 60, 126, 127; in IFs integrated scenario analysis 150, 151, 152, 152–3, 153, 154; IFs and UNPD forecasts of child mortality 62; impact of AIDS on life expectancy 2, 53; increases in overweight and obesity 78, 80, 81; levels of solid fuel use 98, 99; mortality differences with high-income countries 3; nutritional shortfalls and undernutrition levels 75, 77, 88; worst figures for life expectancy 4
Summers, Lawrence H. 18
Sweden 12, 140–1
systems dynamics approaches 36
Tajikistan 153
Tamerius, James D. 104
technological advance: and biological limits 23–4, 145, 147; debates over economics and ethics of 23; dimensions in integrated scenario analysis 146, 147, 155; and elders’ consumption of health care resources 124; as function of human activity 4, 6, 20, 23, 139; and increase in food production 76; and reduction in communicable diseases 24, 142; and time as proxy for 7, 16, 20, 22–3, 27, 69–70, 73; varying influences on obesity rates 81
technology transfer 24, 26, 142
technophysio evolution 28, 115, 121
Thun, Michael 82
timber, overuse of resources 136
time: as factor in GBD formulations 7, 16, 23, 145; as factor in savings and capital growth 133; historical increase in longevity 140–1; lag between BMI and cause-specific mortality 80–1; limits in health forecasting 156; period between stages in adult smoking prevalence 8; in Preston’s study of cross-country Income/health relationship 19, 23–4; as variable in drivers of health outcomes 7, 16, 20, 22–3, 27, 35, 69–70; as variable in IFs combined risk analysis 110–11, 158
toilet use 10, 23, 24; alternative scenarios 84–5; drivers and forecasts 82–4; as proximate health risk factor 72, 109, 110, see also smoking
trachoma 94, 95, 96
tropical forests 136
tuberculosis 5, 26, 34, 55, 142
tuna, overuse of resources 136
Turkey 141
UNAIDS see Joint United Nations Programme on HIV/AIDS (UNAIDS)
uncertainties: around global health futures 27–8, 154–5; around human-based factors 6, 23, 27
undernutrition: danger of overuse of fossil groundwater 159; due to climate change affecting crop production 106, 107, 158; due to economic and environmental decline 104, 106; in IFs risk analysis 46–7, 73, 74, 110, 158, see also childhood undernutrition
UN Food and Agricultural Organization (FAO) 63, 77
UNICEF (United Nations Children’s Fund) 96, 137n
United Kingdom 24–5, 61, 82, 83
United Nations 31
United Nations Declaration of Universal Human Rights 5
United Nations Development Programme (UNDP) 137n
United Nations Environment Programme (UNEP), Global Environmental Outlook-4 32
United Nations International Children’s Fund 14
United Nations Population Division (UNPD) 33, 40, 53, 64; and IFs life expectancy forecasts 61–2, 70, 143; World Population Prospects database 10
United States Census Bureau 33
United States Centers for Disease Control (CDC) 36, 38
United States of America 21, 24, 25, 82, 83; rise in levels of obesity and overweight 78, 79, 144; trend in cardiovascular disease mortality rates 23, 144
urban areas 96, 104, see also air pollution (outdoor urban)
urbanization 64, 92
U.S. Agency for International Development 14
U.S. Army 121
U.S. National Institute of Aging
vaccination 4, 16, 23, 24, 26, 28n, 142
vaccines 5
vehicle ownership and fatality rates 66–7, 85–7, 88
violence 69, 70
vulnerable populations 10
Wang, Jia 121
water systems 4; cholera outbreak linked with 90; environmental risk factor 27, 63–4, 72, 73, 91, 94, 95–7, 111; improvement of 7, 16; MDG for environmental sustainability 5, 95; unsafe water in IFs combined risk analysis 110, 158, see also sanitation systems
Weil, David N. 117, 121, 123
welfare 25, 118
Western Europe 83
WHO see World Health Organization
Wilkinson, Richard G. 22
women: affected by diseases related to indoor air pollution 98; education and better health outcomes 19, 20; forecasts for obesity rates 80; gaps between countries in health and life expectancy 4; historical patterns in smoking rates 82, 84; life expectancy of Japanese 4, 56, 143, 145; as often excluded from health improvements 160, see also fertility; maternal conditions; maternal mortality
Woodruff, Rosalie 104
World Bank 18, 19, 63; approach to combined risk analysis 109–10; Disease Control Priorities project 34, 109; estimates of PM concentrations 101; global health initiatives 26; road traffic fatalities forecasts 66–7, 85, 86; study of private savings rates 125
World Commission on Environment and Development, 1987 (Brundtland) 30
World Development Report (World Bank, 1993) 19, 34
World Health Organization (WHO): aims and organization 5; approach to combined risk analysis 109–10; as central in fight against communicable diseases 142, 143; development of structural models 34; estimates of disease from air pollution 98, 100, 102; forecasts for obesity rates 79, 80; importance in post-World War II era 24; International Classification of Diseases (ICD) system 10–11; push for global health governance 26–7; recent figures for underweight children 75; reports on smoking and tobacco use 82, 83; study on cause-of-death data 11; World Health Survey (WHS) 14, see also Commission on Social Determinants of Health (CSDH, 2008); Comparative Risk Assessment (CRA) project; Global Burden of Disease (GBD) project; Global Water Supply and Sanitation Assessment
World War I 83
years lived with disability (YLD) measure 15, 34, 48, 58, 62–3, 122
years of life lost (YLL) 13, 15, 34, 48, 62–3; and changing disease burden 58, 126–7, 149, 151; comparative risk analysis of global scenarios 108–9, 110
Yemen 12, 13
Young, Alwyn 119b
young people 83, 130
Zimbabwe 2, 143