	Gross domestic savings[a]	Consumption of fixed capital	Net domestic savings	Education expenditure	Energy depletion	Mineral depletion	Net forest depletion	Carbon dioxide damage	Genuine domestic savings
	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998
Albania	–6.7	8.5	–15.1	2.9	0.7	0.0	0.0	0.4	–13.4
Algeria	27.2	9.1	18.1	4.3	15.6	0.1	0.0	1.1	5.6
Angola	30.4	8.0	22.4	2.4	13.8	0.0	0.0	0.5	10.4
Argentina	17.4	11.1	6.3	3.3	4.5	0.1	0.0	0.3	4.8
Armenia	–14.2	8.3	–22.5	2.7	0.0	0.0	0.0	1.2	–21.0
Australia	23.4	14.1	9.3	5.3	0.4	1.4	0.0	0.5	12.2
Austria	28.5	12.4	16.1	5.2	0.0	0.0	0.0	0.2	21.1
Azerbaijan	4.8	14.1	–9.2	3.0	17.8	0.0	0.0	5.5	–29.5
Bangladesh	17.1	6.2	10.9	1.8	0.2	0.0	2.1	0.3	10.0
Belarus	20.1	9.5	10.6	5.5	0.0	0.0	0.0	1.8	14.4
Belgium	..	10.0	..	3.1	0.0	0.0	0.0	0.2	..
Benin	8.3	7.5	0.8	2.7	0.0	0.0	0.6	0.2	2.7
Bolivia	10.8	8.7	2.1	5.4	1.4	0.8	0.0	0.7	4.7
Bosnia and Herzegovina	..	..	..	..	0.0	0.0	0.0	..	..
Botswana	21.8	14.3	7.5	7.4	0.0	0.2	0.0	0.3	14.5
Brazil	18.6	10.4	8.2	5.0	0.5	0.6	0.0	0.2	11.9
Bulgaria	13.7	9.1	4.6	3.0	0.2	0.5	0.0	2.4	4.6
Burkina Faso	12.4	6.9	5.5	1.4	0.0	0.0	4.3	0.2	2.3
Burundi	–2.5	6.3	–8.8	3.0	0.0	0.0	8.9	0.1	–14.8
Cambodia	5.5	7.0	–1.5	1.8	0.0	0.0	0.0	0.1	0.2
Cameroon	19.9	8.0	11.9	2.8	3.9	0.0	0.0	0.4	10.4
Canada	22.2	12.1	10.1	6.3	2.6	0.2	0.0	0.4	13.2
Central African Republic	4.4	7.2	–2.8	1.6	0.0	0.0	0.0	0.1	–1.3
Chad	2.6	6.9	–4.3	2.0	0.0	0.0	0.0	0.0	–2.3
Chile	25.2	10.4	14.8	2.8	0.0	3.6	0.0	0.4	13.6
China	42.6	8.1	34.5	2.0	1.5	0.3	0.4	2.3	32.0
Hong Kong, China	30.5	12.4	18.1	2.8	0.0	0.0	0.0	0.1	20.8
Colombia	13.9	9.7	4.3	3.1	2.8	0.1	0.0	0.4	4.1
Congo, Dem. Rep.	..	6.3	..	0.8	0.0	0.2	0.0	0.2	..
Congo, Rep.	26.4	8.2	18.2	5.5	17.1	0.0	0.0	1.2	5.4
Costa Rica	26.8	9.9	17.0	4.9	0.0	0.0	1.0	0.3	20.6
Côte d'Ivoire	24.5	8.3	16.3	4.3	0.0	0.0	0.5	0.7	19.4
Croatia	14.2	10.3	3.9	..	0.3	0.0	0.0	0.5	..
Cuba	..	..	..	..	0.0	0.0	0.0	..	..
Czech Republic	28.5	10.6	17.9	4.7	0.1	0.0	0.0	1.3	21.2
Denmark	24.4	14.2	10.2	7.6	0.0	0.0	0.0	0.2	17.6
Dominican Republic	16.9	5.9	11.0	1.7	0.0	0.2	0.0	0.5	11.9
Ecuador	19.3	9.1	10.2	3.2	6.8	0.0	0.0	0.7	5.9
Egypt, Arab Rep.	15.8	8.9	6.8	4.6	0.6	0.1	0.1	0.7	10.0
El Salvador	4.0	9.3	–5.3	2.2	0.0	0.0	1.1	0.2	–4.5
Eritrea	–29.0	6.5	–35.5	1.6	0.0	0.0	0.0	..	–33.9
Estonia	19.7	10.1	9.6	6.2	1.0	0.0	0.0	2.1	12.8
Ethiopia	6.3	5.9	0.4	2.7	0.0	0.0	11.4	0.3	–8.7
Finland	28.7	15.9	12.8	7.1	0.0	0.0	0.0	0.3	19.6
France	21.8	12.3	9.4	5.5	0.0	0.0	0.0	0.1	14.8
Gabon	43.2	10.4	32.8	1.9	8.9	0.0	0.0	0.4	25.4
Gambia, The	7.4	7.3	0.1	3.4	0.0	0.0	9.3	0.3	–6.1
Georgia	–6.1	7.9	–14.0	4.1	0.0	0.0	0.0	0.6	–10.5
Germany	24.2	12.4	11.8	4.3	0.0	0.0	0.0	0.2	15.8
Ghana	13.2	7.5	5.7	3.0	0.0	0.9	6.1	0.3	1.4
Greece	..	6.5	..	2.3	0.1	0.0	0.0	0.4	..
Guatemala	7.7	9.2	–1.6	1.5	0.4	0.0	1.6	0.2	–2.3
Guinea	19.4	7.8	11.6	1.8	0.0	4.5	0.0	0.2	8.7
Guinea-Bissau	–8.9	6.5	–15.5	2.5	0.0	0.0	0.0	0.5	–13.5
Haiti	–6.9	1.9	–8.8	1.6	0.0	0.0	5.2	0.1	–12.6
Honduras	23.4	6.0	17.4	3.3	0.0	0.2	0.0	0.4	20.1

Toward a measure of genuine savings | 3.15

	Gross domestic savings[a]	Consumption of fixed capital	Net domestic savings	Education expenditure	Energy depletion	Mineral depletion	Net forest depletion	Carbon dioxide damage	Genuine domestic savings
	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**	% of GDP **1998**
Hungary	28.4	10.3	18.1	4.1	0.2	0.0	0.0	0.7	21.3
India	20.9	9.0	11.8	3.3	1.5	0.4	1.6	1.4	10.3
Indonesia	24.1	7.7	16.4	0.6	7.0	1.6	1.2	1.3	5.9
Iran, Islamic Rep.	14.5	8.8	5.7	3.3	15.4	0.2	0.0	1.4	−7.9
Iraq	..	..	..	..	0.0	0.0	0.0	..	..
Ireland	..	9.0	..	4.6	0.0	0.0	0.0	0.3	..
Israel	9.2	14.8	−5.7	6.1	0.0	0.0	0.0	0.3	0.1
Italy	21.7	12.1	9.6	4.6	0.0	0.0	0.0	0.2	13.9
Jamaica	18.4	9.1	9.2	6.7	0.0	2.3	0.0	0.8	12.8
Japan	31.5	16.0	15.6	4.7	0.0	0.0	0.0	0.2	20.1
Jordan	3.8	9.2	−5.3	4.4	0.0	0.9	0.0	..	−1.8
Kazakhstan	12.8	8.9	3.9	4.5	11.2	0.0	0.0	5.0	−7.8
Kenya	6.7	7.5	−0.7	6.0	0.0	0.0	7.6	0.3	−2.7
Korea, Dem. Rep.	..	..	..	..	0.0	0.0	0.0	..	..
Korea, Rep.	33.8	10.9	22.9	3.6	0.0	0.0	0.0	0.7	25.9
Kuwait	12.7	11.6	1.0	5.4	37.6	0.0	0.0	..	−31.2
Kyrgyz Republic	2.2	7.4	−5.2	5.3	0.1	0.0	0.0	2.7	−2.7
Lao PDR	23.7	7.0	16.8	2.1	0.0	0.1	0.0	0.2	18.5
Latvia	9.8	9.7	0.1	6.3	0.0	0.0	0.0	1.0	5.4
Lebanon	−12.8	10.2	−23.1	1.6	0.0	0.0	0.1	0.5	−22.0
Lesotho	−42.7	7.5	−50.1	7.7	0.0	0.0	2.1	..	−44.5
Libya	..	..	..	..	0.0	0.0	0.0	..	..
Lithuania	12.3	9.8	2.4	5.2	0.0	0.0	0.0	0.8	6.8
Macedonia, FYR	7.1	8.8	−1.7	..	0.0	0.0	0.0	2.7	..
Madagascar	5.3	7.0	−1.6	1.7	0.0	0.0	0.0	0.2	−0.2
Malawi	0.4	6.4	−6.1	4.0	0.0	0.0	5.9	0.3	−8.2
Malaysia	48.5	10.0	38.5	4.0	3.0	0.1	1.7	0.9	36.8
Mali	10.1	7.0	3.1	2.2	0.0	0.0	0.0	0.1	5.2
Mauritania	8.0	7.5	0.5	3.5	0.0	20.7	0.0	1.9	−18.5
Mauritius	24.0	10.1	13.9	3.1	0.0	0.0	0.0	0.2	16.8
Mexico	22.4	10.2	12.2	4.3	3.5	0.1	0.0	0.5	12.4
Moldova	−2.8	7.4	−10.2	8.7	0.0	0.0	0.0	3.6	−5.2
Mongolia	20.0	7.5	12.5	..	0.0	6.3	0.0	5.0	..
Morocco	14.7	8.9	5.8	4.9	0.0	0.4	0.0	0.5	9.7
Mozambique	1.7	6.9	−5.2	3.5	0.0	0.0	2.4	0.2	−4.3
Myanmar	..	2.5	..	..	0.0	0.0	0.0	..	..
Namibia	18.8	13.9	4.9	8.6	0.0	0.3	0.0	..	13.2
Nepal	10.5	4.4	6.1	2.1	0.0	0.0	9.8	0.2	−1.8
Netherlands	27.8	12.3	15.4	5.1	0.0	0.0	0.0	0.2	20.3
New Zealand	19.5	9.3	10.2	6.4	0.4	0.1	0.0	0.3	15.9
Nicaragua	1.1	7.5	−6.5	2.2	0.0	0.1	0.0	0.8	−5.2
Niger	3.3	6.7	−3.4	3.0	0.0	0.0	4.2	0.3	−4.9
Nigeria	11.8	7.3	4.5	0.7	16.2	0.0	1.8	1.3	−14.2
Norway	33.2	16.1	17.1	6.8	0.6	0.0	0.0	0.3	23.1
Oman	..	10.6	..	3.4	20.7	0.0	0.0	..	..
Pakistan	12.7	7.4	5.3	2.3	1.5	0.0	1.3	0.8	4.0
Panama	23.5	6.8	16.7	4.3	0.0	0.0	0.0	0.4	20.5
Papua New Guinea	28.3	8.8	19.5	..	4.3	8.6	0.0	0.4	..
Paraguay	16.6	9.2	7.4	3.5	0.0	0.0	0.0	0.2	10.6
Peru	19.5	9.7	9.9	2.5	0.1	0.9	0.0	0.3	11.1
Philippines	16.3	8.4	7.9	2.0	0.0	0.1	1.6	0.5	7.6
Poland	21.3	10.2	11.0	5.5	0.3	0.2	0.0	1.4	14.6
Portugal	14.5	4.3	10.2	5.0	0.0	0.0	0.0	0.3	15.0
Puerto Rico	..	6.9	..	..	0.0	0.0	0.0	..	..
Romania	9.2	9.2	0.0	3.3	1.3	0.0	0.0	1.5	0.4
Russian Federation	21.2	9.3	11.9	3.9	16.0	0.0	0.0	3.0	−3.3

	Gross domestic savings[a]	Consumption of fixed capital	Net domestic savings	Education expenditure	Energy depletion	Mineral depletion	Net forest depletion	Carbon dioxide damage	Genuine domestic savings
	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998	% of GDP 1998
Rwanda	−1.8	7.0	−8.8	3.3	0.0	0.0	4.7	0.2	−10.4
Saudi Arabia	26.2	10.7	15.5	5.5	30.8	0.0	0.0	1.2	−11.0
Senegal	14.9	7.8	7.1	3.4	0.0	0.2	0.0	0.4	9.9
Sierra Leone	−1.3	6.7	−8.0	1.0	0.0	0.1	3.1	0.3	−10.6
Singapore	51.3	12.5	38.9	2.4	0.0	0.0	0.0	0.5	40.7
Slovak Republic	28.2	10.2	18.1	4.3	0.0	0.0	0.0	1.2	21.1
Slovenia	23.7	16.6	7.2	5.2	0.0	0.0	0.0	0.4	12.0
South Africa	16.9	12.0	4.8	6.8	1.0	1.0	0.4	1.3	7.9
Spain	23.5	11.7	11.8	4.5	0.0	0.0	0.0	0.2	16.0
Sri Lanka	18.9	5.0	13.9	2.6	0.0	0.0	1.5	0.2	14.8
Sudan	..	7.4	..	..	0.0	0.0	0.0	0.2	..
Sweden	24.5	12.4	12.0	7.2	0.0	0.1	0.0	0.1	19.0
Switzerland	26.3	13.0	13.3	5.0	0.0	0.0	0.0	0.1	18.2
Syrian Arab Republic	..	3.5	..	2.5	14.2	0.1	0.0	1.5	..
Tajikistan	..	7.3	..	2.0	0.0	0.0	0.0	1.4	..
Tanzania	8.4	6.9	1.5	3.4	0.0	0.0	0.2	0.2	4.5
Thailand	41.8	9.3	32.5	3.2	0.2	0.0	0.9	0.8	33.7
Togo	7.5	7.3	0.2	4.2	0.0	1.0	4.7	0.3	−1.6
Trinidad and Tobago	7.1	10.4	−3.4	3.3	3.7	0.0	0.0	1.9	−5.7
Tunisia	24.3	9.5	14.9	5.5	0.9	0.5	0.4	0.5	18.0
Turkey	21.1	6.5	14.7	3.2	0.2	0.1	0.0	0.6	17.1
Turkmenistan	..	8.4	..	..	32.2	0.0	0.0	7.1	..
Uganda	5.7	7.3	−1.6	2.2	0.0	0.0	2.3	0.1	−1.8
Ukraine	17.7	8.4	9.3	6.0	4.2	0.0	0.0	4.5	6.6
United Arab Emirates	..	12.1	..	1.8	16.6	0.0	0.0	0.9	..
United Kingdom	16.3	12.3	4.0	4.7	0.2	0.0	0.0	0.2	8.2
United States	17.4	12.6	4.8	4.6	0.6	0.0	0.0	0.4	8.4
Uruguay	15.3	10.7	4.5	3.0	0.0	0.0	0.3	0.2	7.1
Uzbekistan	19.0	8.4	10.6	7.7	12.6	0.0	0.0	2.9	2.9
Venezuela, RB	19.6	6.8	12.7	4.9	11.9	0.3	0.0	1.0	4.4
Vietnam	21.3	7.3	13.9	2.2	2.2	0.1	2.7	0.8	10.3
West Bank and Gaza	−14.9	8.9	−23.8	..	0.0	0.0	0.0	..	..
Yemen, Rep.	2.4	7.0	−4.7	5.2	26.8	0.0	0.0	..	−26.3
Yugoslavia, FR (Serb./Mont.)	..	..	..	..	0.0	0.0	0.0	..	..
Zambia	5.3	7.3	−2.0	1.9	0.0	3.0	0.0	0.4	−3.6
Zimbabwe	15.4	7.9	7.5	7.5	0.0	0.6	0.3	1.8	12.3
World	**22.7 w**	**12.2 w**	**10.4 w**	**4.5 w**	**1.1 w**	**0.1 w**	**0.1 w**	**0.5 w**	**13.3 w**
Low income	31.1	8.1	23.0	2.3	2.2	0.4	1.1	1.8	20.0
Excl. China & India	..	..	..	..	..	..	..	..	..
Middle income	21.5	9.8	11.7	4.2	4.2	0.3	0.1	0.9	10.6
Lower middle income	19.1	9.3	9.8	4.1	6.0	0.2	0.2	1.5	5.9
Upper middle income	22.7	10.1	12.6	4.3	3.2	0.3	0.0	0.6	12.9
Low & middle income	24.5	9.3	15.1	3.6	3.6	0.3	0.4	1.1	13.5
East Asia & Pacific	38.6	8.8	29.8	2.4	1.4	0.3	0.6	1.7	28.3
Europe & Central Asia	20.3	9.0	11.3	4.3	5.5	0.1	..	1.9	8.3
Latin America & Carib.	19.0	10.1	8.9	4.2	2.4	0.5	0.0	0.4	9.8
Middle East & N. Africa	18.2	9.5	8.8	4.4	14.6	0.1	0.0	1.0	−2.2
South Asia	19.5	8.5	11.0	3.1	1.3	0.3	1.7	1.2	9.6
Sub-Saharan Africa	14.9	9.5	5.3	4.5	3.1	0.6	1.3	0.9	3.7
High income	22.3	13.0	9.1	4.8	0.4	0.0	0.0	0.3	13.3
Europe EMU	23.4	12.1	11.2	4.7	0.0	0.0	..	0.2	15.8

a. The cutoff date for these data is 14 January 2000; later revisions are not captured in this table.

Toward a measure of genuine savings | 3.15

Genuine domestic savings are derived from standard national accounting measures of gross domestic savings by making four types of adjustments. First, estimates of capital consumption of produced assets are deducted to obtain net domestic savings. Then current expenditures on education are added to net domestic savings as an approximate value of investments in human capital (in standard national accounting these expenditures are treated as consumption). Next, estimates of the depletion of a variety of natural resources are deducted to reflect the decline in asset values associated with their extraction and harvest. Finally, a deduction is made for damage from carbon dioxide emissions.

There are important gaps in the accounting of natural resource depletion and costs of pollution. On the resource side, key estimates that are missing include the value of fossil water extracted from aquifers, depletion and degradation of soils, and net depletion of fish stocks. The most important pollutants affecting human health and economic assets are also excluded, because no internationally comparable data are widely available on damage from particulate emissions, ground-level ozone, or acid rain.

Estimates of resource depletion are based on the calculation of unit resource rents. An economic rent represents an excess return to a given factor of production—that is, in this case, the returns from resource depletion are higher than the normal rate of return on capital. Because natural resources are fixed in extent (at least for a given state of technology), resource rents will persist over time; in contrast, for produced goods and services competitive forces will expand supply until economic profits are driven to zero. For each type of resource and each country, unit resource rents are derived by taking the difference between world prices and the average unit extraction or harvest costs (including a "normal" return on capital). Unit rents are then multiplied by the physical quantity extracted or harvested in order to arrive at a depletion figure. This figure is one of a range of depletion estimates that are possible, depending on the assumptions made about future quantities, prices, and costs, and there is reason to believe that it is at the high end of the range. Some of the largest depletion estimates in the table should therefore be viewed with caution.

A positive depletion figure for forest resources implies that the harvest rate exceeds the rate of natural growth, and a negative figure that growth exceeds harvest. In principle, there should be an addition to savings in countries where growth exceeds harvest, but there is good reason to believe that most of this net growth is in forested areas that cannot be exploited economically at present. The average world prices used to estimate unit rents on timber are probably too high for countries with low-grade timber resources, so caution is required in viewing some of the net forest depletion estimates, especially for Sub-Saharan Africa. In addition, because the depletion estimates reflect only timber values, they ignore all the external benefits associated with standing forests.

Pollution damage is calculated as the marginal social cost associated with a unit of pollution multiplied by the increase in the stock of pollutant in the receiving medium. For carbon dioxide the unit damage figure represents the present value of damage to economic assets and decline in human welfare over the time the unit of pollution remains in the atmosphere.

• **Gross domestic savings** are calculated as the difference between GDP and public and private consumption. • **Consumption of fixed capital** represents the replacement value of capital used up in the process of production. • **Net domestic savings** are equal to gross domestic savings less the value of consumption of fixed capital. • **Education expenditure** refers to the current operating expenditures in education, including wages and salaries and excluding capital investments in buildings and equipment. • **Energy depletion** is equal to the product of unit resource rents and the physical quantities of energy extracted. It covers crude oil, natural gas, and coal. • **Mineral depletion** is equal to the product of unit resource rents and the physical quantities of minerals extracted. It refers to bauxite, copper, iron, lead, nickel, phosphate, tin, gold, and silver. • **Net forest depletion** is calculated as the product of unit resource rents and the excess of roundwood harvest over natural growth. • **Carbon dioxide damage** is estimated to be $20 per ton of carbon (the unit damage) times the number of tons of carbon emitted. • **Genuine domestic savings** are equal to net domestic savings, plus education expenditure and minus energy depletion, mineral depletion, net forest depletion, and carbon dioxide damage.

Gross domestic savings are derived from the World Bank's national accounts data files described in the Economy section. Consumption of fixed capital is from the United Nations Statistics Division's *National Accounts Statistics: Main Aggregates and Detailed Tables, 1997,* extrapolated to 1998. The education expenditure data are from the United Nations Statistics Division's *Statistical Yearbook,* extrapolated to 1998. The wide range of data sources and estimation methods used to arrive at resource depletion estimates are described in a World Bank working paper, "Estimating National Wealth" (Kunte and others 1998). The unit damage figure for carbon dioxide emissions is from Fankhauser (1995).