Chapter 1
The World Economy

Objectives/key terms

International real/monetary analysis	General equilibrium approach
Land area	Population
Gross domestic product (GDP)	Gross national product (GNP)
Purchasing power	Tradeable/non-tradeable
International comparison project (ICP)	Income per capita
Exports/imports	Balance of payments
Current account/capital account	Trade balance
Capital inflow/outflow	Globalization

We present basic information on (the development of) the structure of the world economy in terms of land area, population, income, and (the connection between) trade flows and capital flows. This serves as background information for observations to be explained by international economics models discussed in the remainder of this book.

1.1 Introduction

What is international economics? To paraphrase a well-known definition of economics, it is 'what international economists do'. Although this does not seem very helpful at first sight, the underlying message is clear: you will only know what international economics is about once you have studied it yourself. In fact, this probably holds for many fields of study, also outside economics. This does not mean that you have to devote four years of your life to studying international economics before you get an idea why we like this field so much, although I can highly recommend it. After you have studied this book in one course you will roughly know what *half* of international economics entails. 'Half?', you say. Well, yes, because the field is divided into two parts, namely international *monetary* analysis and international *real* analysis. As the name suggests, international monetary analysis investigates the demand for and supply of money and other financial assets, and the interactions between nations in this respect, through the exchange rate and otherwise. This book does *not* cover international monetary analysis. Instead, we focus

attention on international real analysis, investigating trade and investment flows, imperfect competition, trade policy, multinationals, economic integration, etc.

The remainder of this chapter gives a brief empirical overview of the world economy, based on data from the World Bank Development Indicators CD-ROM 2001, covering the forty years from 1960 to 1999.[1] This serves as background information for observations to be explained by international economics models discussed in the rest of this book. More detailed empirical information on specific topics, raising new questions to be answered, will be presented as we go along. A final remark before we get started. I was asked by students what sets international economics apart from other fields of study. After contemplating the question for a while, I think an important distinguishing characteristic is the *general equilibrium* nature of the approach. It is true that many discussions in the chapters to follow are of a *partial equilibrium* nature, for example determining the optimal production level for a producer *given* the demand for its good, or determining the optimal consumption level for a labourer *given* the wage rate she earns and the prices charged for the goods on the market. However, international economists are not truly satisfied with an explanation of empirical observations until the partial equilibrium explanations are put together like a jigsaw puzzle in a consistent general equilibrium framework, providing a miniature world in which the producer's demand for its goods is explained by the consumer's optimization problem and in which the wage rate and the prices are also determined within the model. The main advantage of insisting on a general equilibrium framework is, of course, that it forces us to be precise and complete in our explanations. Essentially, it prevents us from cheating. It is important to keep this in mind as we continue.

1.2 Land area and population

There are many countries in the world. On its CD-ROM the World Bank distinguishes 207 different countries, a fair number of which are so small in terms of land area, population, and economic clout that you may have never heard of them. As a result of political pressure from China, which considers it one of its provinces, Taiwan is the only significant country missing on the World Bank CD-ROM. In the discussions in this chapter, we focus attention on the most important countries. But important in what sense? Clearly, if you are one of the few inhabitants of Vanuatu, this is an important country to you and your family. However, for the world as a whole we will assume that 'large' countries are important. Again, the question is raised: large in what sense? There are, of course, several options available, their suitability depending on the object of study. In general terms, we can look at land area or population. Since this is a book on economics, we can look at various income measures. More specifically, since this is a book on *international* economics, we can look at exports or international capital flows. In the rest

[1] Unless stated otherwise, the source of all data in this chapter is the World Bank Development Indicators CD-ROM 2001. If data for 1999 are reported, the most recent observation in the period 1996–1999 was used, which in most cases is indeed the 1999 observation.

of this chapter we will have a brief look at all these aspects, indicating some of the relationships between them if appropriate.

Land area

As the central piece left over after the break-up of the Soviet Union, the Russian Federation, henceforth Russia for short, is still by far the largest country in the world in terms of land area. With almost 17 million km^2, as indicated in Table 1.1 some 13 per cent of the world total, Russia is more than 80 per cent larger than China, the world's second-largest country. Other non-surprising large countries are Canada, the USA, and Brazil. Perhaps more remarkable countries in the top fifteen list are the ninth place for Kazakhstan, formerly a part of the Soviet Union, and the African countries: Algeria (tenth), Sudan (eleventh), Congo (Zaire[2], twelfth), and Libya (fifteenth). As a result of the most frequently used methods for projecting the world globe on a flat piece of paper, see for example Fig. 1.3 in section 1.4, most people tend to underestimate the size of the African land area. Finally note that, taking into consideration that by far the biggest part of Russia is on the Asian continent, there are no European countries in the top fifteen of Table 1.1, which taken together account for about 63 per cent of the total land area in the world.

Table 1.1 Top fifteen land area (1,000 km^2), 1999

Country	Size	% of world	Sum %
1 Russia	16,889	13.0	13
2 China	9,327	7.2	20
3 Canada	9,221	7.1	27
4 USA	9,159	7.0	34
5 Brazil	8,457	6.5	41
6 Australia	7,682	5.9	47
7 India	2,973	2.3	49
8 Argentina	2,737	2.1	51
9 Kazakhstan	2,671	2.1	53
10 Algeria	2,382	1.8	55
11 Sudan	2,376	1.8	57
12 Zaire	2,267	1.7	59
13 Mexico	1,909	1.5	60
14 Indonesia	1,812	1.4	61
15 Libya	1,760	1.4	63
World	130,079		

[2] There are two 'Congo' countries in Africa, the largest of which in terms of both population and size, a former Belgian colony, is better known under the old name Zaire.

Population

As an indicator of economic importance, a country's land area is of limited use. Many of the countries listed in Table 1.1 incorporate vast stretches of desert, rocks, swamps, or areas frozen solid year round. Such uninhabitable land cannot be used to sustain and feed a population engaged in commerce, production, and trade. In this respect, the total population of a country is a better indicator of its fertility and potential economic viability. Table 1.2 lists the top fifteen countries in terms of population, only seven of which also make it to the top fifteen in terms of land area.

Two Asian countries, China and India, clearly stand out in terms of total population. Together they have 2.25 billion inhabitants, or almost 38 per cent of the world total of 6 billion people. The USA, ranked third with 278 million inhabitants, has less than 28 per cent of the Indian population, which is ranked second. Asian countries dominate the population list. Apart from China and India this includes Indonesia (fourth), Pakistan (seventh), Bangladesh (eighth), Japan (ninth), Vietnam (thirteenth), the Philippines (fourteenth), and Turkey (fifteenth). Note that we do not include Russia in this list of Asian countries, despite the fact that its largest land mass is in the Asian continent, because the largest share of its population is on the European continent. Thus, together with Germany (twelfth), there are two European countries in the top fifteen. With 124 million people Nigeria is the only African country. The top fifteen countries together account for about 66 per cent of the world population.

Table 1.2 Top fifteen population (millions), 1999

Country	Size	% of world	Sum %
1 China	1,254	21.0	21
2 India	998	16.7	38
3 USA	278	4.7	42
4 Indonesia	207	3.5	46
5 Brazil	168	2.8	49
6 Russia	146	2.4	51
7 Pakistan	135	2.3	53
8 Bangladesh	128	2.1	55
9 Japan	127	2.1	58
10 Nigeria	124	2.1	60
11 Mexico	97	1.6	61
12 Germany	82	1.4	63
13 Vietnam	78	1.3	64
14 Philippines	74	1.2	65
15 Turkey	64	1.1	66
World	5,978		

Box 1.1 **Are nations rational?**

Sometimes it is hard for outsiders to understand the disagreements between nations. In July 2001 the government of South Korea became so upset about the 'missing' parts in a Japanese history book for 13–15-year-old students that it decided to break off the (limited) military cooperation with Japan and not to open up its market for Japanese cultural goods, such as computer games. The South Korean government objected to the portrayal of history in the Japanese book on about thirty-five points. Partially, this reflects irritation at the fact that the book does not acknowledge that many cultural innovations, such as Chinese writing, Buddhism, and baking porcelain, reached the Japanese islands through the Korean peninsula. Most irritation, however, is related to the occupation of Korea by Japan in the twentieth century, in particular the fact that the book does not mention the 'comfort girls', a gentle term for (Korean) women forced into prostitution by the Japanese military in the Second World War. The description of the Korean–Japanese history in the book is biased. Whether this is important enough to warrant the Korean excitement and (trade) restrictions is another matter. The costs of trade restrictions are discussed in the sequel.

Information source: NRC (2001*d*).

1.3 Income

The best indicator of the economic power of a nation is, of course, obtained by estimating the total value of the goods and services produced in a certain time period. Actually doing this and comparing the results across nations is a formidable task, which conceptually requires taking three steps. First, a well-functioning statistics office in each nation must gather accurate information on the value of millions of goods and services produced and provided by the firms in the economy. This will be done, of course, in the country's local currency, that is dollars in the USA, pounds in the UK, yen in Japan, etc. Second, we have to decide what to compare between nations: gross domestic product or gross national product. Third, we have to decide *how* to compare the outcome for the different nations. We will elaborate on the second and third steps below.

Domestic or national product?

As mentioned above, we can compare either gross domestic product (GDP) or gross national product (GNP) between nations. GDP is defined as the market value of the goods and services produced by labour and property *located* in a country. GNP is defined as the market value of the goods and services produced by labour and property of *residents* of a country. If, for example, a Mexican worker is providing labour services in the USA, these services are part of American GDP and Mexican GNP. The term 'located in' sometimes has

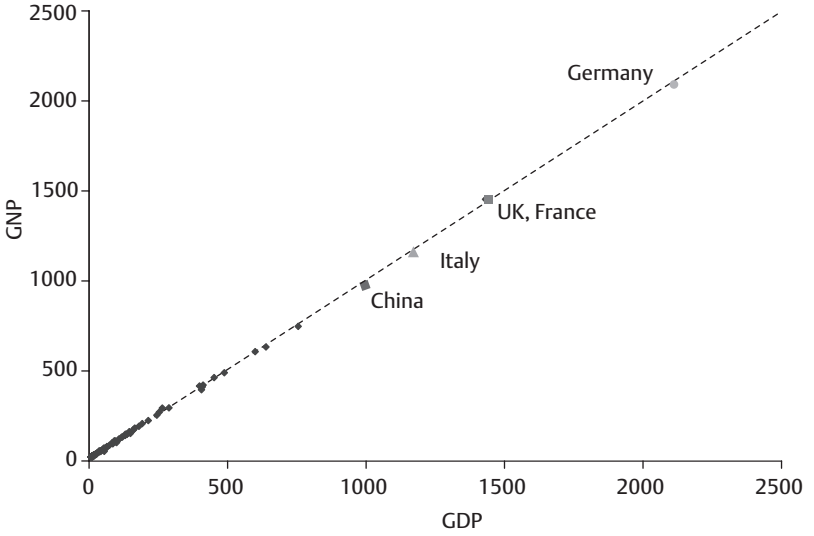

Fig. 1.1 Gross domestic and gross national product. The dotted line is a 45° line. Observations for Japan and the USA are outside the shown range

to be interpreted broadly, for example if a Filipino sailor is providing labour services for a Norwegian shipping company, this is part of Norwegian GDP despite the fact that the ship is not actually located in Norway most of the time. The difference between GNP and GDP does not only hold for labour services, but also for other factors of production, such as capital, that is:

$$\text{GDP} + \text{net receipts of factor income} = \text{GNP} \tag{1.1}$$

So does it really matter whether we compare countries on the basis of GDP or GNP? No. This is illustrated in Figure 1.1 for the GDP and GNP values measured in current US $. Since almost all observations are very close to a straight 45-degree line through the origin, the values of GDP and GNP are usually very close to one another. For example, French GDP was $1,432 bn, about 0.5 per cent below its GNP of $1,440 bn. Note that both values are so close to the UK values that it is not possible to distinguish between the two observations in Figure 1.1. The difference between GDP and GNP is not always small, at least not in relative terms. For example, capital income from abroad for some of the small oil producing nations, Brunei, Kuwait, and Qatar, ensures that the GNP level is some 10 per cent to 20 per cent higher than the GDP level. Similarly, labour income from its many sailors and other workers abroad makes GNP for the Philippines about 4 per cent higher than its GDP.

Comparison

Table 1.3 reports the top fifteen countries in terms of GNP level when the outcome for each nation in local currency is simply converted to the same international

Table 1.3 Top fifteen gross national product (current $bn), 1999

Country	Size	% of world	Sum %
1 USA	9,163	29.8	30
2 Japan	4,395	14.3	44
3 Germany	2,091	6.8	51
4 UK	1,450	4.7	56
5 France	1,440	4.7	60
6 Italy	1,162	3.8	64
7 China	971	3.2	67
8 Brazil	730	2.4	70
9 Canada	615	2.0	72
10 Spain	589	1.9	74
11 Mexico	471	1.5	75
12 India	444	1.4	77
13 South Korea	402	1.3	78
14 The Netherlands	397	1.3	79
15 Australia	392	1.3	80
World	30,723		

standard currency, usually the US $, on the basis of the average exchange rate in the period of observation.[3] These are called current $. The total value of all goods and services produced in the world in 1999 was estimated to be $30,732 bn. Taken together, the top fifteen countries account for about 80 per cent of the world production value.

In terms of current $, the USA is by far the largest economy in the world, producing almost 30 per cent of all goods and services. This is more than twice as much as Japan, which is ranked second, which in turn is more than twice as large as Germany, which is ranked third. All other European countries in the production top fifteen, that is UK (fourth), France (fifth), Italy (sixth), Spain (tenth), and the Netherlands (fourteenth), are not listed in the population top fifteen. In fact, of the fifteen largest countries in terms of population listed in Table 1.2 only seven make it to the top fifteen in terms of income level. Having a large population is therefore not at all synonymous with having a large production value. A striking example is provided by the Netherlands which has a small population of 16 million people (ranked fifty-fifth), but a production value of $397 bn, only 10 per cent below the value produced by the 1 billion inhabitants of India. Australia is another relatively small country in terms of population, but large in terms of production value.

[3] Henceforth the $ sign always refers to the US $.

Purchasing power

The ranking of production value in Table 1.3 is deceptive because it tends to overestimate production in the high-income countries relative to the low-income countries. To understand this we have to distinguish between *tradeable* and *non-tradeable* goods and services. As the name suggests, tradeable goods and services can be transported or provided in another country, perhaps with some difficulty and at some costs. In principle, therefore, the providers of tradeable goods in different countries compete with one another fairly directly, implying that the prices of such goods are related and can be compared effectively on the basis of observed (average) exchange rates. In contrast, non-tradeable goods and services have to be provided locally and do not compete with international providers. Think, for example, of housing services, getting a haircut, or going to the cinema.

Since (i) different sectors in the same country compete for the same labourers, such that (ii) the wage rate in an economy reflects the average productivity of a nation (see also Chapter 3), and (iii) productivity differences between nations in the non-tradeable sectors tend to be smaller than in the tradeable sectors, converting the value of output in the non-tradeable sectors on the basis of observed exchange rates tends to underestimate the value of production in these sectors for the low-income countries. For example, on the basis of observed exchange rates, getting a haircut in the USA may cost you $10 rather than the $1 you pay in Tanzania, while going to the cinema in Sweden may cost you $8 rather than the $2 you pay in Jakarta, Indonesia. In these examples the value of production in the high-income countries relative to the low-income countries is overestimated by a factor of 10 and 4, respectively.

To correct for these differences, the United Nations International Comparison Project (ICP) collects data on the prices of goods and services for virtually all countries in the world and calculates 'purchasing power parity' (ppp) exchange rates, which better reflect the value of goods and services that can be purchased in a country for a given amount of dollars. Reporting ppp GNP levels therefore gives a better estimate of the actual value of production in a country.

Figure 1.2 illustrates the impact on the estimated value of production after correction for purchasing power. Two top income countries from Table 1.3 do not make it to the ppp top fifteen of Figure 1.2, namely the Netherlands (which drops to nineteenth place) and Australia (which drops to sixteenth place). They are replaced by Russia and Indonesia. The USA is still the largest economy, but now 'only' produces 21.6 per cent of world output, rather than 30 per cent. The estimated value of production for the low-income countries is much higher than before. The relative production of China (ranked second) is more than three times as high as before (rising from 3.2 per cent to 10.8 per cent), similarly for India (rising from 1.4 per cent to 5.4 per cent), Russia (rising from 1.2 per cent to 2.5 per cent), and Indonesia (rising from 0.4 per cent to 1.3 per cent).[4] The drop in the estimated value of output is particularly large for Japan (falling from 14.3 per cent to 7.8 per cent), reflecting the high costs of living in Japan.

[4] These percentages are not listed in Figure 1.2. More details are provided on the book's website.

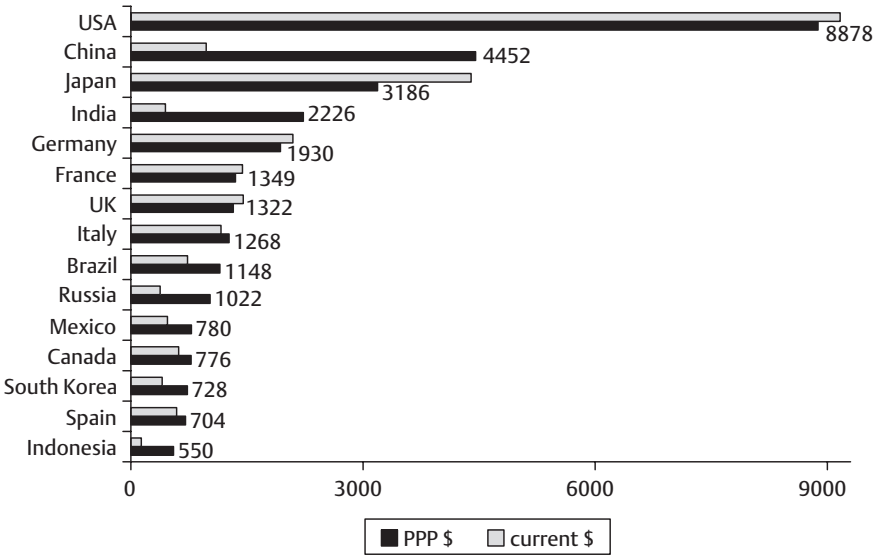

Fig. 1.2 Gross national product; ranked according to ppp

1.4 Income per capita

For an individual inhabitant of a country the total production value of the country is hardly relevant. More important is the production value per person, that is per capita. It should be noted that income per capita gives an idea of the well-being for the 'average' person in the country, but gives no information on the distribution of the income level within the country. If Jack and Jill together earn $100 the average income level is $50, which holds if they both earn $50 *and* if Jack earns $1 while Jill earns $99. The average income level is therefore a poor indicator of the 'representative' situation in a country if the distribution of income is more uneven. In general, the income level is more evenly distributed in Europe and Japan than in the USA, where it is in turn more evenly distributed than in many low-income countries.

Table 1.4 gives the top fifteen countries in terms of income per capita, corrected for purchasing power. The average income level in the world was $6,870 per person. The highest income level, exactly six times the world average, was generated in the tiny country of Luxembourg. The lowest income level ($440 per capita) was measured in Sierra Leone, a small African nation. High income levels per capita are generated in North America (USA and Canada), Japan, and Australia. All other high income per capita countries in Table 1.4 are located in Europe. Figure 1.3 illustrates the ppp per capita income level for all 164 countries for which data are available. It shows clustering of income levels with low values in Africa, intermediate values in Latin America and South-East Asia, and high values in moderate climatic zones, as emphasized by Bloom

Table 1.4 Top fifteen gross national income per capita (ppp $), 1999

Country	Size	% of world average
1 Luxembourg	41,230	600
2 USA	31,910	464
3 Switzerland	28,760	419
4 Norway	28,140	410
5 Iceland	27,210	396
6 Belgium	25,710	374
7 Denmark	25,600	373
8 Canada	25,440	370
9 Japan	25,170	366
10 Austria	24,600	358
11 The Netherlands	24,410	355
12 Australia	23,850	347
13 Germany	23,510	342
14 France	23,020	335
15 Finland	22,600	329
World	6,870	

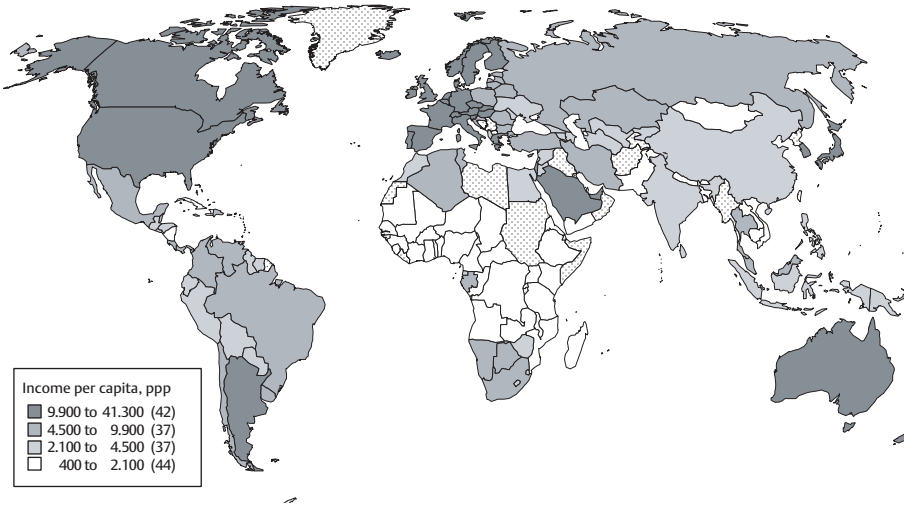

Fig. 1.3 Gross national income per capita

and Sachs (1998). A clear exception to this observation is provided by the oil producing nations in the Middle East (e.g. United Arab Emirates, Bahrain, Saudi Arabia).

1.5 International trade

As the title of this book suggests, the interactions between nations (mainly the international trade flows), their underlying forces, and the implications of (trade) policy are our primary focus of attention. Before we continue it should be noted that the comparison problems between countries discussed in sections 1.3 and 1.4 arising from the distinction between tradeable and non-tradeable goods do not occur when investigating and comparing trade flows, which can readily be compared using the exchange rates. So what are the large trading nations? The left-hand side of Table 1.5 lists the top fifteen countries in terms of export value, while the right-hand side lists the top fifteen countries in terms of import value. The same countries appear on both lists, only in a slightly different order. The total value of world exports is $7,004 bn, more than 23 per cent of the value of world production. Note the small statistical discrepancy between the export and import value.

Although the USA is both the world's largest exporter and the world's largest importer, the gap between it and number 2, Germany, is relatively small. Taking into consideration that the USA's share of world production is 30 per cent (see Table 1.3), the USA's share of

Table 1.5 Top fifteen international trade ($bn), 1999

	Country	Exports	% of world	Country	Imports	% of world
1	USA	956	13.7	USA	1,116	15.9
2	Germany	626	8.9	Germany	593	8.5
3	Japan	465	6.6	UK	396	5.7
4	France	382	5.5	Japan	380	5.4
5	UK	374	5.3	France	338	4.8
6	Italy	292	4.2	Italy	275	3.9
7	Canada	278	4.0	Canada	259	3.7
8	The Netherlands	249	3.6	The Netherlands	220	3.1
9	China	219	3.1	Hong Kong	203	2.9
10	Hong Kong	212	3.0	China	190	2.7
11	Belgium	194	2.8	Belgium	179	2.6
12	South Korea	172	2.5	Spain	169	2.4
13	Spain	164	2.3	Mexico	155	2.2
14	Mexico	148	2.1	South Korea	144	2.0
15	Singapore	139	2.0	Singapore	144	2.0
	World	7,004		World	7,007	

world exports (13.7 per cent, see Table 1.5) is rather modest. Similarly, the share in world exports of Japan and China, both large countries, is below their respective shares in world production. In contrast, all other countries in Table 1.5 have a larger share in world exports than in world production. To some extent this can be explained by the artificiality of drawing borders between nations on the globe. For example, if an American firm in Boston sells goods 5,000 km away in Los Angeles, this is not counted as exports because both cities are located in the USA. Compare this to a Dutch firm in Rotterdam, the world's largest harbour, selling goods to a Belgian consumer in Antwerp less than 100 km away, which of course is part of Dutch exports. Consequently, many countries in Table 1.5 are relatively small, high-income open economies: such as Canada, the Netherlands, Hong Kong, Belgium, and Singapore.

Exports relative to imports

Figure 1.4 illustrates the difference between the export value of goods and services and their import value for 158 countries. It also depicts a 45-degree line where exports are equal to imports and the trade balance is zero (see also the next section). Although a country's export value is generally roughly in line with its import value, the deviations between the two are clearly more substantial than the deviations between GDP and GNP illustrated in Figure 1.1. Japan had the largest trade balance surplus ($85 bn), followed by France ($44 bn) and Germany ($33 bn). The USA had by far the largest trade balance deficit ($160 bn), followed by Brazil ($32 bn) and Russia ($29 bn).

Exports relative to production

The reader may wonder how it is possible that small countries like Singapore, which has only 4 million inhabitants, and Hong Kong, which has only 7 million inhabitants, are able to reach the world's top fifteen in export and import value. The reason is that

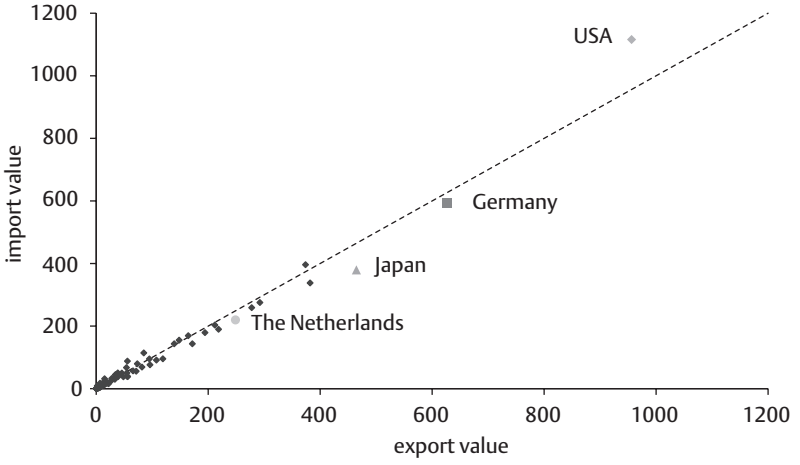

Fig. 1.4 Exports and imports of goods and services

countries may re-export goods and services they import to other countries, with only modest value added in the country itself. This is illustrated in Figure 1.5, which shows the top ten value of exports of goods and services relative to GDP. Note that Singapore, the highest ranked economy, exports a value of goods and services which is 70 per cent higher than the total value of production, which can be explained by re-exports. Six of the other countries in Figure 1.5, which are all small economies, also export more than the total production value.

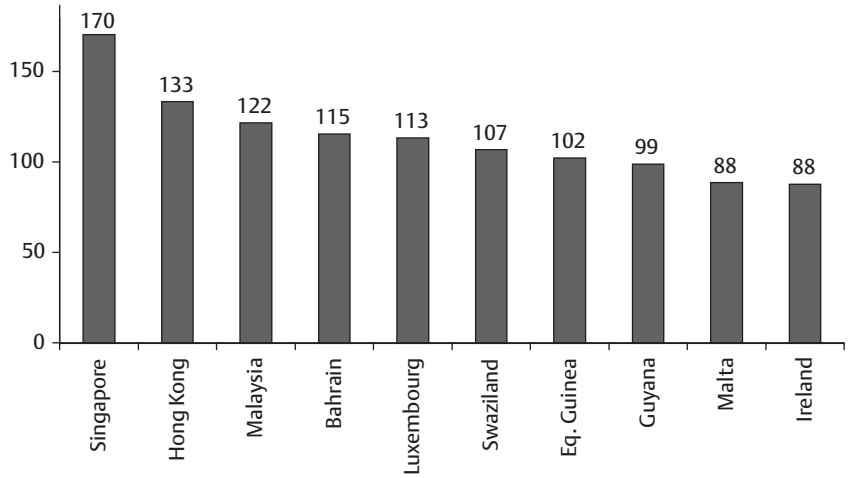

Fig. 1.5 Relative exports of goods and services

Box 1.2 **Tariffs as a source of government income**

In the rest of this book we will analyse the forces underlying international trade flows, their welfare impact for different agents in the economy, and the consequences of policy measures restricting trade flows. In general we will argue not only that international trade flows lead to efficiency gains and welfare improvements for a country as a whole, but also that policy measures restricting trade flows deteriorate welfare and reduce efficiency, sometimes in unexpected and covert ways. In view of these conclusions, supported by almost all international economists, the question arises *why* countries impose (welfare deteriorating) trade restrictions. We will discuss the more complicated distribution effects of trade restrictions, which may help to explain these phenomena, in the sequel. In this box, however, we want to point at the problems facing the governments of many developing nations which do not have an efficient tax collecting system available. After all, this requires detailed information on the inhabitants of the country, their income level, specific circumstances that may be relevant for an individual, and many public servants to gather and process the information. Nonetheless, the government of any nation requires funds to perform its basic duties, such as protecting the country,

providing law, order, and education, etc. In the absence of an efficient tax collecting apparatus it is therefore tempting to collect government revenue by imposing tariffs on the (relatively easily controlled) imports of goods and services into the country. This is illustrated in Figure 1.6 which ranks countries in terms of generated import duties relative to the value of imports and also lists import duties relative to tax revenue. It shows not only that the countries imposing high tariffs are generally developing nations, but also that some countries are highly dependent on import duties for their tax revenue (for example 60 per cent for the Seychelles and 53 per cent for Madagascar).

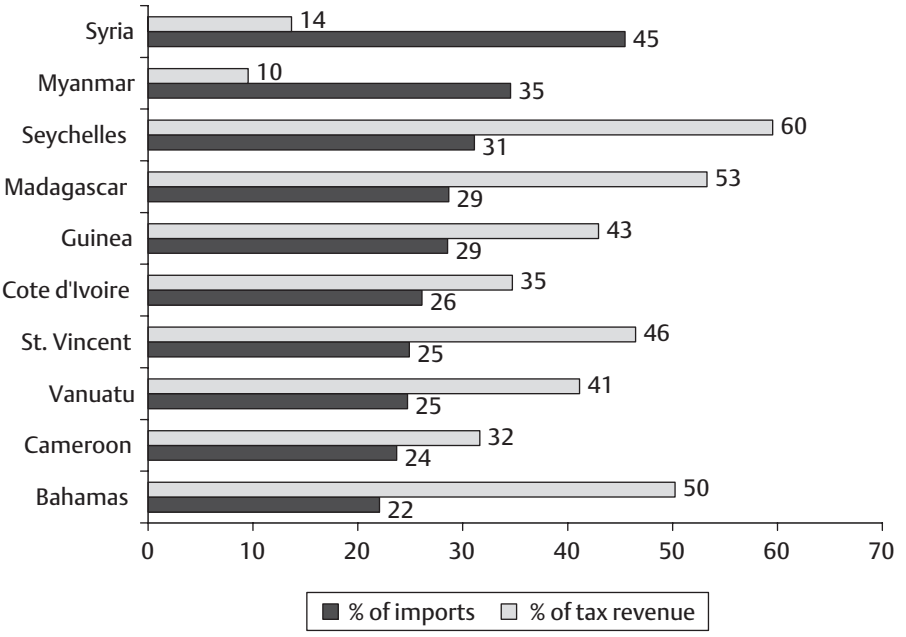

Fig. 1.6 Import duties, ranked as % of imports

1.6 The balance of payments

The balance of payments records a country's transactions with other countries. It is based on the rules of double-entry bookkeeping, with matching credit and debit entries. By definition the balance of payments is therefore equal to zero. We distinguish between two main parts of the balance of payments, namely the current account and the capital account, each with several subdivisions as summarized in Figure 1.7.

The balance of payments

Current account

- Merchandise
- Services

} Trade balance

- Investment income
- Unilateral transfers

Capital account

- Long-term capital
  - Foreign direct investment
  - Portfolio investment
- Short-term capital
  - Private non-monetary
  - Private monetary institutions
- Official reserves

Fig. 1.7 The balance of payments

The transactions on the current account are income related, pertaining to produced merchandise (goods), provided services (also known as invisibles), investment income, and unilateral transfers. Exports are recorded as credit items $(+)$ and imports as debit items $(-)$. The sum of the merchandise and services balance is called the trade balance. It was discussed in section 1.5 and illustrated in Figure 1.4. More important, however, is the current account balance which also includes investment income and unilateral transfers. The reason is that investment income, such as dividend payments, reflects the remuneration for the use of capital, a factor of production, by another country. It is therefore essentially the payment for trade in (capital) services. Unilateral transfers, such as foreign aid to a developing nation, remittances, or military aid, are included as they represent income transfers to another country and not claims on another country. As a result, the current account balance measures the net change in claims on the outside world, which is recorded on the capital account.

The transactions on the capital account are asset related. An increase in claims on foreigners is a *capital outflow* and appears as a debit. An increase in claims by foreigners on our country is a *capital inflow* and appears as a credit. If the claim is longer than one year it is called long-term capital, for example foreign direct investment and long-term portfolio investment, such as securities and loans. Otherwise it is called short-term capital. Sometimes the classification is difficult. Purchasing foreign stocks is a short-term capital flow, unless you buy so much of the company that it becomes a foreign direct investment. Changes in official reserves may refer to changes by the central banking system in gold stocks, IMF credits, Special Drawing Rights, or foreign exchange reserves. As mentioned above, the balance of payments is zero by definition such that:

$$\text{current account balance} + \text{capital account balance} = 0 \tag{1.2}$$

Suppose there is a surplus on the current account. This implies, roughly speaking, that the value of our exports (credit) is higher than the value of our imports (debit), that is the current account represents a net credit item. By the rules of accounting this

must be matched by a net debit item on the capital account, and therefore a net capital outflow.

(1.3) surplus current account ⇔ net capital outflow

The principle underlying the balance of payments is exactly the same as an individual's budget constraint.[5] If the income you earn this month (export of labour services, your only factor of production) is higher than the money you spend on consumption (import of goods and services), this will increase your claims on the outside world (for example by an increase of the balance on your chequing account). If your income is less than your consumption spending this month this will decrease your claims on the outside world.

1.7 Dynamics and globalization

In the previous sections we briefly discussed data on land area, population, income, and international trade using the most recent observation available. In this section we sketch the evolution over time of some of these variables in the recent past.

Capital flows

As is clear from equation (1.3), analysing a country's current account balance over a somewhat longer period of time gives a good idea of the net change in claims on the rest of the world. This is illustrated in Figure 1.8 for a selection of countries, where the current account balance is measured relative to GDP. Note that the scale on the vertical axis is not the same for the various panels in Figure 1.8. The USA, which used to be a net creditor, has accumulated such large current account deficits over the past two decades that it is now the world's largest debtor. Considering the size of the US economy, the recent current account deficit of roughly 4 per cent is rather large.

The current account balance for the UK is of the same order of relative magnitude as for the USA, with a less clear trend. The current account balance tends to be somewhat larger for smaller countries, such as Australia, which has a consistent capital inflow, and the Netherlands, which has a consistent capital outflow (thus building up net claims on the rest of the world). Over the past two decades Japan has had the largest capital outflow in absolute terms. This capital tends to be invested in the South-East Asian region, such as the Philippines. Note the abrupt break in the capital inflow into the Philippines at the end of the twentieth century as a result of the Asian crisis. In terms of relative magnitude, the oil producing nations, such as Kuwait and Saudi Arabia, are in a class of their own, with years in which 60 per cent of GDP was recorded as a capital outflow. In the case of Kuwait the impact of the Gulf War is immediately evident (the current account deficit was 240 per cent of GDP in 1991).

[5] In fact, budget constraints are additive, so we can do this for individuals in a country.

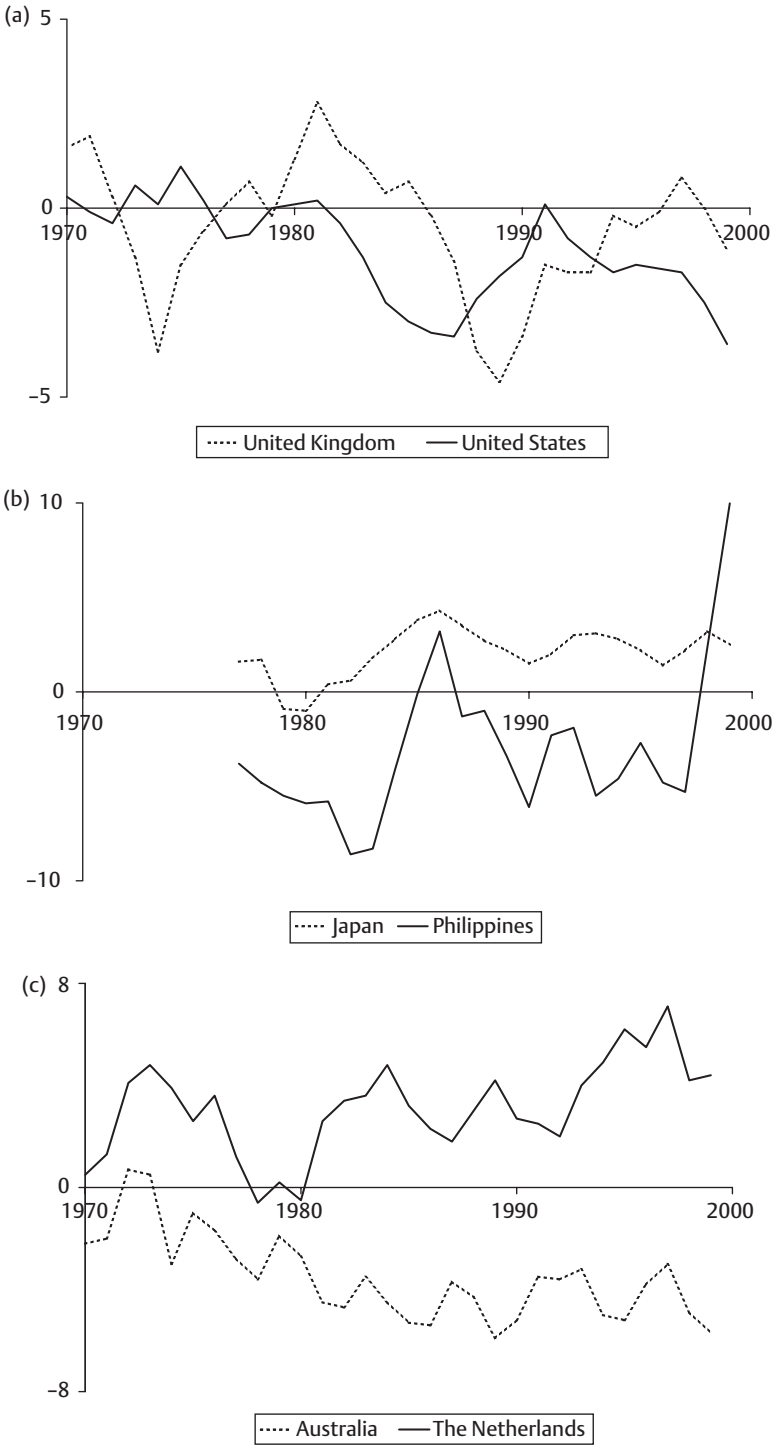

Fig. 1.8 Current account balance, selected countries (% of GDP)

(*continued overleaf*)

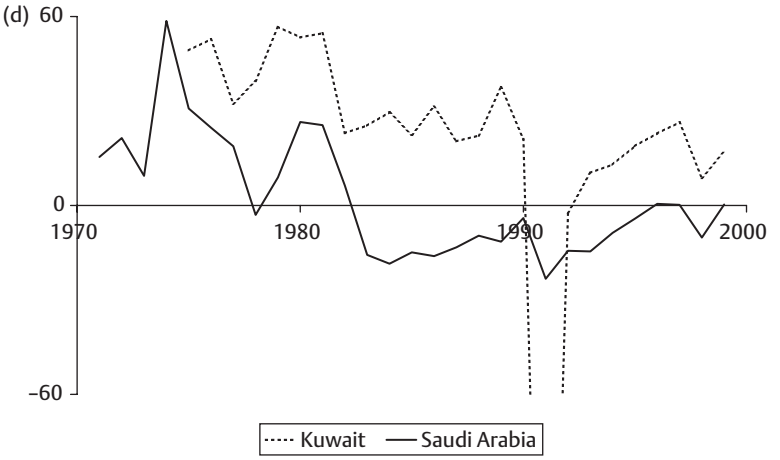

Fig. 1.8 (continued)

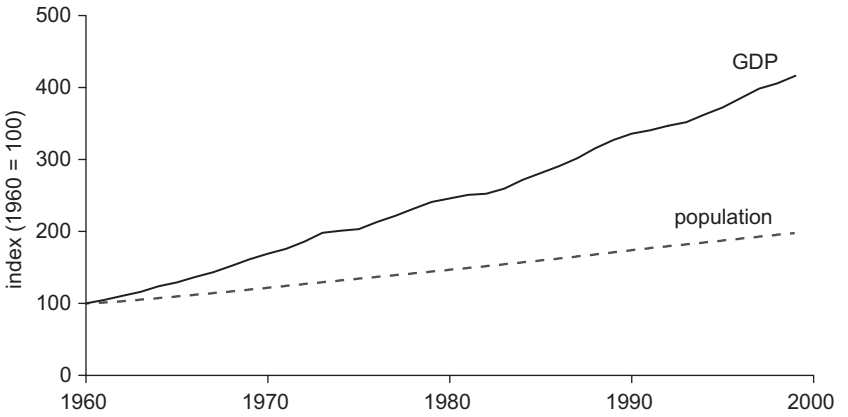

Fig. 1.9 Development over time of world income and population

Income and population

In the period 1960–99 the world population doubled from 3 billion people to 6 billion people. If we want to measure increases in income over time we have to correct for rising prices of goods and services, such that we cannot use current $. The best data available on the World Bank CD-ROM measure world GDP in constant 1995 $. The total value of world production has risen more than fourfold from $7.8 trillion in 1960 to $32.5 trillion in 1999. This is illustrated for both population and income in Figure 1.9 using index numbers (1960 = 100). Clearly, since the world income level has increased more rapidly over the past four decades than world population, GDP per capita (at constant 1995 US $) has more than doubled from $2,587 to $5,439. The average per capita production level has therefore increased at a rate of about 1.9 per cent per year.

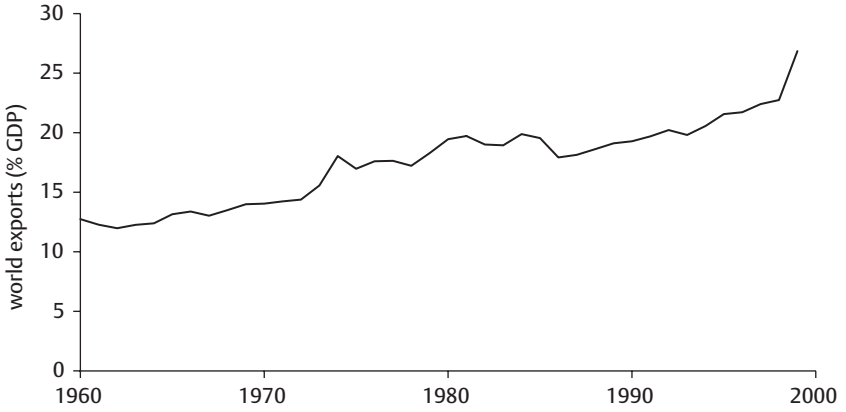

Fig 1.10 World exports relative to world income

International trade

The growing world population, which is becoming richer than ever before, is interacting more intensively than ever before as well. Technology improvements have not only made swift transport of goods and services at low prices available, but also enabled rapid communication with other people around the globe by telephone, fax, and the internet. This, in turn, has made it possible to trade services between nations which could not be traded before. Many airlines, for example, are now using the brainpower of software engineers in India to assist them in providing their services. One way to measure this increased interaction between nations is to look at the development of the exports of goods and services relative to income. As illustrated in Figure 1.10, this has risen from 12.5 per cent of GDP in 1960 to 26.9 per cent of GDP in 1999.

Globalization?

The phenomenon of increased interaction on a global scale is frequently referred to as 'globalization'. Unfortunately, this is not a very practical term because people may use it to refer to a wide range of empirical observations: for example, the tendency illustrated above that a larger share of income is traded internationally, or the fact that more and more firms are producing in different countries, thus becoming multinationals (see Chapter 15). Many people use the term in a derogatory sense when discussing social and cultural developments, for example lamenting the fact that the local restaurants disappear and are replaced by McDonald's, Burger King, and Pizza Hut around the globe. I give some numbers to illustrate that the supposed increased international interaction is not a figment of the imagination. On a global scale the number of fax machines per 1,000 people has risen from 3.8 in 1989 to 12.3 in 1997. The number of internet hosts per 10,000 people has risen from 8.6 in 1994 to 94.4 in 1999. Expenditures on information and communication technology as a percentage of global GDP has risen from 5.7 per cent in 1992 to 6.9 per cent in 1999. International telecommunications per subscriber have

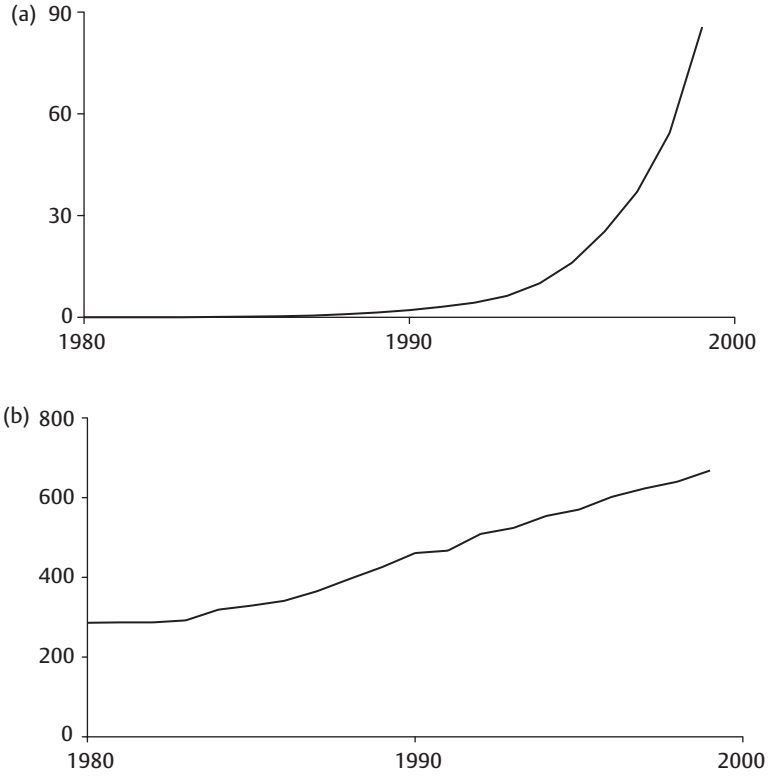

Fig. 1.11 Aspects of globalization (a) mobile phones (per 1000 people) (b) international tourism arrivals (millions)

gone from 52 minutes in 1981 to 129 minutes in 1999. Expenditures on international tourism have risen from $110 bn in 1980 to $416 bn in 1999. The number of internet users has increased from 45,000 in 1990 to 241 million in 1999. Finally, as illustrated in Figure 1.11, the number of international tourism arrivals has risen from 286 million in 1980 to 668 million in 1999, and the number of mobile phones per 1,000 people has increased from 0.1 in 1984 to 86 in 1999.

1.8 Trade connections in the world economy

To conclude the first chapter, we want to give an impression of the most important international trade connections in the world economy. The World Bank identifies seven global regions, namely (i) East Asia and Pacific (EAP; including China and Indonesia), (ii) (East) Europe and Central Asia (ECA; including Russia and Turkey), (iii) Latin America and the Caribbean (LAC; including Brazil and Mexico), (iv) Middle East and North Africa

Table 1.6 Intra- and interregional trade flows, 1997 (% of world total)

From	To									
	EAP	ECA	LAC	MNA	SAS	SSA	NAm	EUR	AAs	Total
EAP	1.36	0.15	0.18	0.11	0.13	0.08	2.19	1.61	4.09	9.90
ECA	0.16	1.38	0.05	0.12	0.03	0.02	0.20	2.37	0.13	4.47
LAC	0.16	0.08	1.06	0.08	0.02	0.03	2.82	0.77	0.27	5.30
MNA	0.20	0.10	0.06	0.07	0.04	0.01	0.28	0.88	0.50	2.13
SAS	0.07	0.04	0.02	0.02	0.02	0.01	0.25	0.33	0.16	0.92
SSA	0.08	0.03	0.04	0.01	0.00	0.05	0.330	0.53	0.11	1.18
NAm	1.29	0.26	2.87	0.32	0.11	0.13	6.07	3.39	2.95	17.38
EUR	1.40	3.07	1.06	1.11	0.35	0.57	3.83	27.68	2.83	41.91
AAs	4.82	0.25	0.60	0.19	0.21	0.14	4.16	2.76	3.67	16.81
Total	9.54	5.34	5.94	2.04	0.90	1.04	20.14	40.33	14.72	100.00

Source: own calculations, based on data provided by Jeroen Hinloopen (University of Amsterdam). EAP = East Asia and Pacific; ECA = Europe and Central Asia; LAC = Latin America and Caribbean; MNA = Middle East and North Africa; SAS = South Asia; SSA = Sub-Saharan Africa; NAm = North America; EUR = Western Europe; AAs = AustralAsia. Totals may not sum due to rounding.

(MNA; including Egypt), (v) South Asia (SAS; including India), (vi) Sub-Saharan Africa (SSA; including Nigeria and South Africa), and (vii) the high-income countries. For the purposes of this section we have subdivided the group of high-income countries into three subgroups, namely North America (NAm), Western Europe (EUR), and AustralAsia (AAs, including Japan and Australia), leading to a total of nine global regions.[6]

Table 1.6 summarizes the international trade connections within and between the nine global regions. It states, for example, that 1.36 per cent of the world export flows are from countries in East Asia and the Pacific (EAP) to other countries in East Asia and the Pacific. Similarly, 3.85 per cent of the world export flows are from Western Europe to North America, etc. Figure 1.12 illustrates the information of Table 1.6 by rounding the numbers to the nearest integer and depicting only the thirty trade flows that are non-zero.

Figure 1.12 leads to several conclusions. First, South Asia scarcely participates in the global economy as none of its bilateral trade flows is large enough to be depicted in the figure. A similar observation holds for Sub-Saharan Africa, which almost only trades with Western Europe. Second, and in contrast to the first observation, Western Europe is a spider in the web of global international trade connections. Not only because it is the only global region with sizeable trade flows to every other region (with the exception of South Asia), but also because no less than 28 per cent of the world trade flows are from countries in Western Europe to other countries in Western Europe (intra-regional trade flows). Third, we note that the other high-income regions (North America and AustralAsia) also have large *intra*-regional trade flows (6 per cent and 4 per cent, respectively). Fourth, the largest *inter*-regional trade flows are from the high-income global

[6] The website of the book specifies exactly to which global region a country belongs.

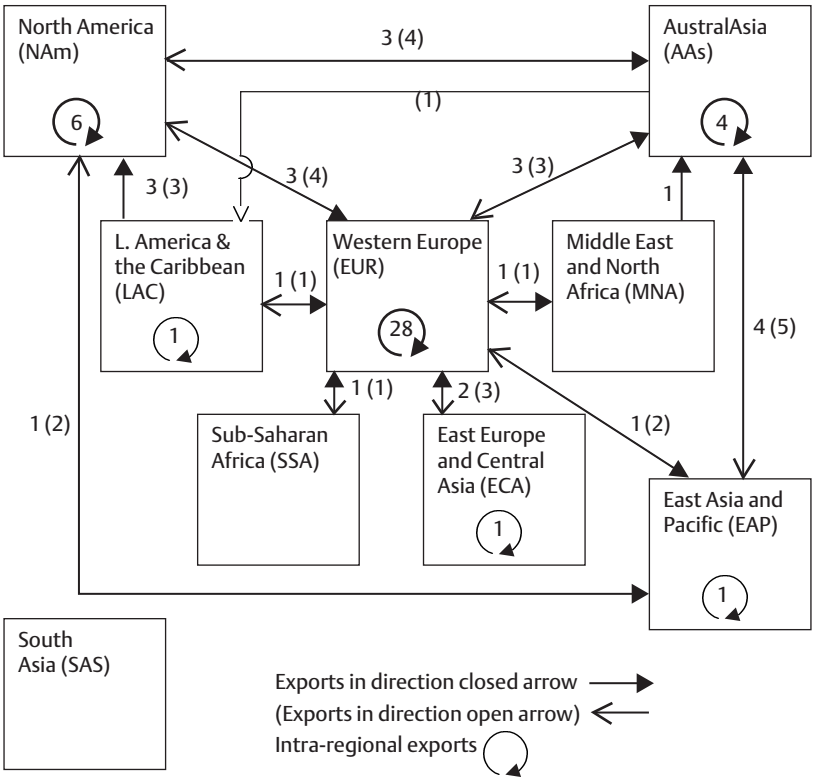

Fig 1.12 Global regions and international trade flows (% of world total)
Source: see Table 1.6.

regions to the other high-income regions joined by East Asia and the Pacific (with a population of 1.75 billion people). Fifth, and finally, Latin America (LAC), the Middle East and North Africa (MNA), and East Europe and Central Asia (ECA) hold an intermediate position, with connections to some other regions in their direct vicinity.

1.9 Conclusions

This chapter presents basic, but essential, information on the structure of the world economy. We give an impression of the importance of various countries using different measures. In terms of land area Russia is the largest country, while some relatively unknown African nations are also important. In terms of population China and India stand out, as do Asian nations in general. In terms of income, using either GDP or GNP, North America, Japan, and many European nations are important. This holds even when

current dollars, which tend to overestimate the importance of high-income countries, are corrected for purchasing power. Japan and nations from North America and Europe also hold top positions with respect to income per capita. The differences in this respect are enormous: the highest ranking country is estimated to have an income per capita more than 100 times that of the lowest ranking country. International trade flows are dominated by relatively small European and South-East Asian countries. In general, the different rankings change the composition of important countries considerably. Only three countries, namely China, the USA, and Mexico, make it to the top fifteen lists in terms of land area, population, total income, *and* export value of goods and services.

When discussing the accounting principles of the balance of payments, we emphasized that a surplus on the current account, which is roughly a higher export than import value of goods, services, and investment income, translates into an outflow of capital, that is an increase in claims on the outside world. The opposite holds if there is a deficit on the current account. In dynamic terms, the world population is growing rapidly, doubling from 3 to 6 billion in four decades, but the world income level is growing even more rapidly. As a consequence, income per capita has also doubled in four decades. In the same time period, international trade flows have increased even more rapidly, such that world exports relative to world income have also doubled, reaching about 27 per cent in 1999. Whether this development should be called 'globalization' is questionable, as the term seems to have different meanings to different people.

With this information in the back of our heads we are ready to embark on our journey into international economics, which values the consistency of a general equilibrium approach. Clearly, we will not be able to 'explain' all empirical observations above, although international economists do work on all these issues. We will concentrate on explanations of international trade flows, and discuss how the insights derived there can be helpful for tackling important policy problems. Many other topics touched upon above will also be explored, such as capital flows, multinationals, geographic concentration, development, and growth. Along the way we will present more detailed empirical information on specific topics to raise new questions and guide us in our search.