II. The Conceptual Building Blocks

This chapter sets the scene for our study by defining the conceptual issues that we face. The first section considers briefly the sources of potential economic disadvantage that small countries face, locating them in small-scale, excess trading costs and a lack of competition. It then considers at greater length whether the 'law' of comparative advantage applies to small economies: it does, but nothing in that 'law' guarantees that living standards will be satisfactory.

Section II.2 outlines the approach we adopt to see if small countries do have cost disadvantages in practice. Section II.3 discusses how to define the size of countries, opting for a simple population measure supplemented by aggregate GDP in places. We argue that for most of the phenomena we shall be exploring size should be measured on a logarithmic scale. In the next section we discuss the problem of separating the effects of small size from those of insularity (being an island) and isolation. It is largely insurmountable because the three characteristics are almost always found together. Finally, we note that business costs are not the only determinant of the success of small economies. Higher costs may be off-set by greater flexibility or other non-pecuniary advantages of locating in a small economy.

II. The Conceptual Building Blocks
1. Economic Theory: Comparative Advantage in Nothing?

If one considers a small economy in isolation its most obvious economic constraint is the scale with which it can conduct manufacturing or services functions. With a small market, small-scale would follow, and with it, almost inevitably, inefficiency in the rate at which inputs can be transformed into outputs. In seeking to identify the disadvantages of smallness empirically one would need to look at differences in production functions and their overall efficiency across different sized countries.

The problem addressed in this paper is rather different. We consider a trading economy in which much of the scale problem can be obviated by trading with the rest of the world. In principle, imports can be purchased from the world's most efficient producer (or, at least, at prices dictated by that producer), while exporting to a huge world market allows an economy to reap full economies of scale in export sectors. What now is the problem? It is that trade with the rest of the world is more costly for smaller countries. Because of a mixture of small consignment size, poor infrastructure (when volumes are small it may not pay to build top-class facilities), the lack of competition and weak regulatory arrangements, small countries' costs of trade are inflated. The proportions of the mixture will vary by good and by economy, but the upshot will always be that the resource cost of goods and services in small economies will exceed world minima. (By resource cost we mean the inputs required to deliver a unit of consumption measured in physical terms.) Either consumers need to find the costs of importing in addition to the minimum price of the good in world markets, or the trading cost of importing will be so great that local production is preferable, in which case local scale re-emerges as the issue. Moreover,

delivering a unit of exports is also more costly for a small country. The small country has to find not only the resources necessary for production (even if its is the most efficient of producers), but also those to deliver it to market – i.e. the cost of trading.

In identifying the commercial disadvantages of smallness in these latter circumstances one is interested in (a) the excess cost of international transactions for small countries and (b) the excess costs of non-traded inputs into efficient industries. This is the agenda of the present study.

What are the implications of such excess costs? They imply, first, that *ceteris paribus* incomes will be lower in small economies and, second, that the sets of goods that are traded internationally may be smaller for smaller economies. Nothing in the circumstances suggests that countries will over-trade (and hence benefit from curtailing trade with the rest of the world) or that they will trade in the wrong goods (and hence benefit from policies designed to alter the bundle of traded goods). That is, provided that a country continues to trade internationally, the law of comparative advantage will determine its welfare-maximising trade. But the condition in the previous sentence is important: comparative advantage is hardly an operational term if either you do not trade internationally or if you cannot survive (literally) when you do.

Like most international trade teachers one of us has spent many hours patiently explaining to students that every country has a comparative advantage in *something*; that, by definition, there must be some good in which it is, relatively speaking, least inefficient. This report does not challenge the logic of that proposition, but this section does explore three cases in which "least inefficient" does not translate into effective or operational comparative advantage. None of them is new but the rest of the report advances the argument by clothing them, for the first time, we believe, in real data.

We consider below the hypothesis that very small economies might lack operational comparative advantage – i.e. have no good or service which they can export – because either their transactions costs or their real production costs are too high to permit any trade on a commercial basis. This lack of tradability arises because, taking the world prices of all goods and services as given and subtracting the minimum costs of trading and/or of intermediate inputs leaves nothing over for value added, or, perhaps too little for subsistence. This section presents three small theoretical models in which this can happen. We note that the implication of having comparative advantage in nothing in the sense just defined is not having comparative *dis*advantage in everything. Rather, it is that, in the absence of special treatment or non-trade flows of foreign exchange, the country is just disconnected from the world economy.

Transactions Costs

The analysis of excessive transactions cost can be located quite simply in the Ricardian model with a continuum of goods – Dornbusch, Fisher and Samuelson ( ). Assume that for a given small country we can rank products (i=0.....I) by the country's costs relative to

world prices, which we take as reflecting the costs of the marginal supply. (At this stage we assume that products are produced directly from primary factors of production, entirely ignoring intermediate flows.) Thus in figure 2.1 DD represents the ranking of costs ranging from c_{max}, our country's least efficient sector, to c_{min}, its most efficient.

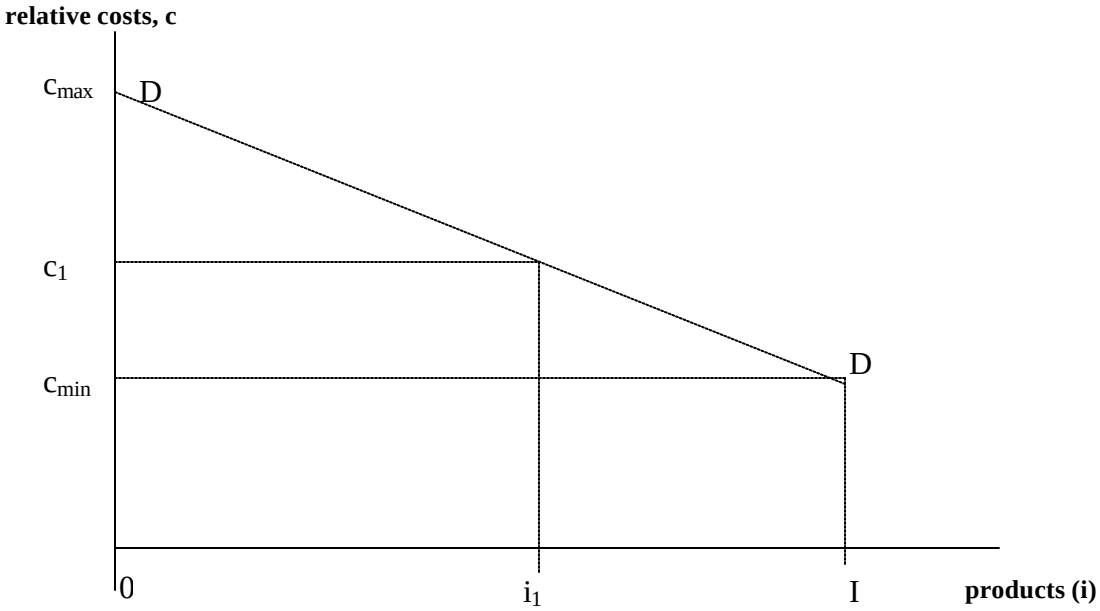

Figure 2.1

In the absence of transactions costs there would be a single relative cost threshold (c_1) that would divide imports ($c>c_1$) from exports ($c<c_1$), where $c=c_1$ occurs with measure zero. The threshold would emerge from a general equilibrium process such that the value of imports of goods and services ($i<i_1$) equalled the value of exports ($i>i_1$) at world prices. Adding transactions costs would create a band of non-traded goods about c_1. If every good cost precisely t units of relative costs to trade (forget, for now, that this is meaningless in operational terms), imports would occur where $c>c_1+t$ and exports where $c<c_1-t$, and they would, again, have to be balanced. It is simplest to think of this band being symmetrically located around c_1, but, of course, there is no need why it should be: the location of the band of width 2t would be determined by the trade balance constraint.

If there are imports for which demand is very strong and highly inelastic – for example, medicines or food – it is plain that some exports must be found if the economy is to find any equilibrium at all. If, however, we add an inflow of foreign exchange from remittances, past asset accumulation or aid, these imports might be financed without any exports. That is, the non-tradable band of width 2t would include c_{min} the relative cost of our country's most competitive export, but not c_{max}, its least competitive import. One could characterise this as an extreme form of "dutch disease", whereby inflows of foreign exchange crowd out the export sector. This situation is not necessarily a problem if the inflow of foreign exchange is assured and reliable, but if ever it dried up, very serious

adjustment strains would be created. In the limit, if local prices did not fall low enough to bring c_{min} back within the band, life would become unsustainable: essential imports could not be financed.

In some cases necessary aid flows are made not directly in cash terms, but via market preferences which allow the small country to export despite having excess costs. The classic case is, perhaps, bananas. Notionally, offering preferences to the target country means that its exports must be available not at the world price (p_w) but at that plus the importer's tariff on non-preferred imports, t_j, say. That is, for preferred exports the criterion is that $\tilde{c} \leq (p_w + t_j)$ lie below the transaction cost band of 2t, where $\tilde{c}$ is the target country's actual costs. Clearly if the preferences are removed or eroded, previously feasible equilibria will become infeasible.

Real Costs of Production

The second example takes up the case that with high trading costs, life might not be sustainable. We locate it again in a simple Ricardian model of trade with constant costs of production, but, for simplicity, now with just two goods – cereals and bananas. Let us assume that survival depends on consuming a given level of cereals but that our country's comparative advantage lies in bananas.

Imagine that the per capita production possibility frontier between cereals and bananas is given by CB in figure 2.2: each person could produce C units of cereals, B units of bananas or any linear combination of the two. Assume also that the minimal consumption of cereals necessary for survival is S. Note that in autarchy, this economy is unviable – its inhabitants would starve. But if we allow international trade at the price ratio implied by AB, the inhabitants can survive by selling bananas and buying cereals; they would choose some point above S according to their tastes. Suppose AB is the ratio at which a large country can trade, but that a small country, which faces excess trading costs can realise fewer units of cereal per banana – say A'B. It does not matter whether the excess costs reside in selling bananas or buying cereal, or both. The important thing is that fewer units of cereal may be consumed per banana produced. Clearly the small country is unviable – even with the advantages of trade, incomes are just too low.

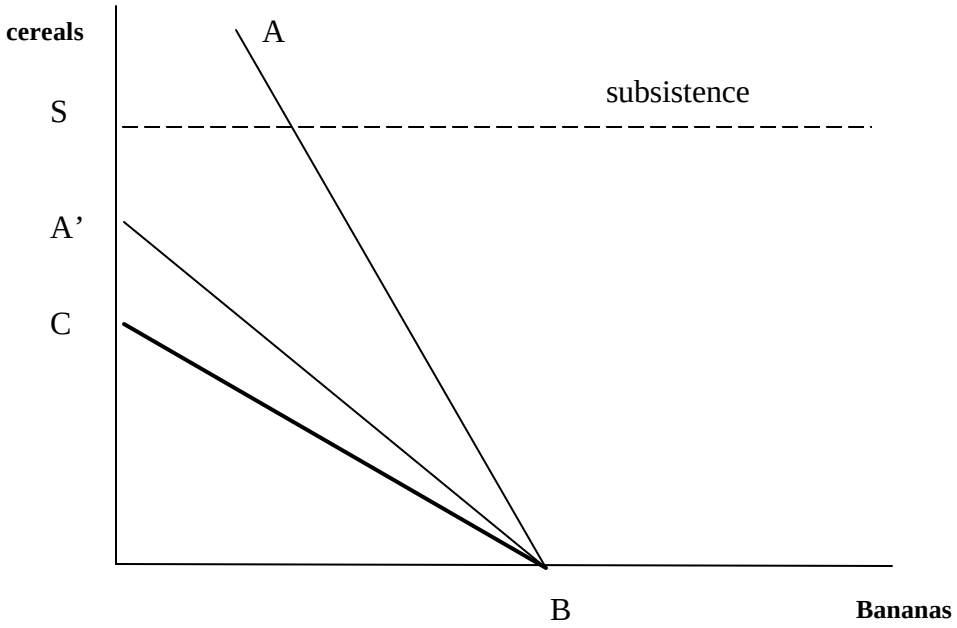

Figure 2.2

Note that the small country is still better off trading than not, just not sufficiently better off to make up the shortfall. Certainly it has no interest in curtailing trade. Note also that if one wished to boost incomes in the small country improving its productivity would help (i.e. pushing CB out), but that improving its terms of trade would be equally good. One element of this would be reduce transactions costs, so that A'B rotated clockwise towards AB; another would be to offer it higher prices for its exports of bananas by, say, allowing it preferential access to a protected market. Conversely, removing such a preference could push a viable economy below subsistence level.

This example is obviously not realistic, but it conveys clearly the essence of the problem. Countries that face excess transactions costs should still adhere to comparative advantage; but comparative advantage just might not be enough.

Input Costs

The third model we appeal to is of the same basic nature, but takes a step in the direction of reality. It is grounded in the theories of effective rate of protection (ERP) and domestic resource content (DRC), and takes as given that the production of goods for the international market requires material inputs from that market. Taking all international prices and input-output co-efficients as fixed, the value left over from export sales for value added and non-traded inputs $(\tilde{V}_i)$ is

$$\tilde{V}_i = \tilde{p}_i - \sum_{jeT} a_{ij} \tilde{p}_j \qquad (1)$$

$$\tilde{V}_i = p_i(1-t_i) - \sum_{jeT} a_{ij} p_j (1+t_j) \qquad (1')$$

where i, j count over products
$\tilde{p}_i$ are local prices
t_i are transaction costs
a_{ij} are input-output co-efficients, and
T is the set of traded inputs.[1]

The division between traded and non-traded inputs is very important here. Local supplies will be used where they are cheaper than imported ones. For poor countries the set for which this is true is likely to be small because poor technology and quality control frequently rule out local production. Similarly, for small countries, the set will also be small because their scale is so limited. Moreover, some products that have more or less to be non-traded nonetheless have to be produced using traded inputs - e.g. electricity - so that the transactions costs and small-scale compound each other. In short, the genuinely local input into internationally traded goods, and thus the margin that can be squeezed to make exports competitive, is likely to be very small for poor and small countries. It is also plain from equation (1), and from experience with domestic resource content exercises in the past, that local value added can be negative. In the DRC literature such observations lead to (justifiable) calls to correct the policy distortions that cause this situation. Here, our starting point is that many of the excess costs faced by small and poor countries are unavoidable and hence that very low or negative value-added is also unavoidable – it reflects an inability to generate acceptable incomes through trade. At best, all that the economies so afflicted might do is generate autarchic subsistence incomes.

II. The Conceptual Building Blocks
2. The Approach

The approach we adopt to testing the possibility that small economies cannot sustain acceptable incomes is conceptually unsophisticated. We collect data on a wide range of the costs of doing business across a range of differently sized economies and seek regularities in the relationship between cost and size. We recognise that many factors influence any particular cost element and that, at most, size will offer only a partial explanation. Some of these additional factors will be systematic – for example, general levels of affluence and distances from major economic hubs – and we attempt to allow for these in our analysis. Many, however, are unobservable (perhaps unknown or unknowable); they show up in the high variances of our data series and the poor (often

[1] Note that the local returns for exportable production are world prices *less* the transactions cost, not the world price plus the tariff as we are used to from ERP analysis.

very poor) statistical fit of our estimated relationships between cost and size. Even if our relationships fit poorly, however, they do inform us that small countries tend to face exceptionally high costs (or, in some cases, exceptionally low ones) and that *ceteris paribus* this will hinder their competitiveness and reduce the incomes that they can generate from international commerce.

Our data on costs are described in chapter III below. They come in two forms. Some are measured as continuous variables – e.g. the nominal wage for a kitchen porter or the cost of a unit of electricity – while other are categorical – does the power fail once a week, once a month, once a quarter, or never? The former costs are analysed by simple regressions of the cost variable on the country's size and on other variables, which we believe might affect it (and which are reasonably readily available). Since countries' economic sizes vary only very slowly, the variance we exploit to identify the size effect is necessarily across countries – that is, we estimate cross-country regressions. There are reasons to worry about the legitimacy of the assumption that all countries adhere to the same explanatory model with the same parameters. However, in our case there is no practical alternative and in general the reasons why size affects cost are fairly heavily grounded in technical relationships and thus quite likely to be universal. Besides, as explained above, we are seeking general tendencies not precise predictions of, say, Antigua's costs of providing electricity. Once estimated, we use the regression equation to tell us how costs vary with size holding all other factors constant.

For the categorical variables we pursue two approaches. First, we construct two-dimensional contingency tables cross-classifying countries' cost categories against their size categories and testing whether there is any connection. Second, where the cost categories imply a natural ordering, as with the power failure example above, we estimate an ordered logit equation which asks whether a country's chance of falling into any particular cost category depends on its size. If so, we see that size is either an advantage, reducing the chances of falling into a costly category, or a disadvantage, increasing those chances. We cannot easily convert the categories for these cost variables into dollars and cents in the way that we can the continuous variables, but these results help to inform us about the qualitative advantages or disadvantages of size.

II. The Conceptual Building Blocks

3. Defining Economic Size

In the previous section we were rather coy about what we mean by size. Here we come clean. The literature has seen some debate about how to define economic size, and obviously the correct answer will depend on precisely the question being asked. For this preliminary and general work, however, we felt it better to have a consistent definition throughout and have opted for the simplest – population. Thus in all sections below the relationship between costs and population is central.

We also considered using GDP – the volume of economic activity – but it plays a subsidiary role and is not used in our main analytical exercises for two reasons. First,

there is a small danger of simultaneity, whereby, as well as high GDP engendering low business costs as we postulated briefly above, low costs, which boost competitiveness, engender high GDP.[2] Second, in a number of areas there is a strong case for relating costs to a country's level of development for which GDP per capita is the standard variable. In logarithms, which is the main form in which we include the size data, there is a strict linearity between GDP, population and GDP pc – any one is a strict linear combination of the other two and there are only two independent effects to be determined empirically. We felt that the easiest and most natural interpretation lay in capturing size by population and affluence by GDP pc, with aggregate economy effects being derived from these.[3] Thus while we do not use GDP in any of our regressions for explaining the cost factors, we do use it as an alternative measure of size in the contingency tables in which we cross-classify cost factors against size categories.

Table 2.1 introduces the sample of countries used in this report, along with their populations, GDPs, GDP per capitas and regions. Details of the sample and an explanation of the column headed 'sampling organisation' are given in chapter III below. The definition of regions is not entirely uncontroversial. We classify three small continental countries – Belize, Guyana and Suriname – as part of the Caribbean, following the Caribbean Community Secretariat (Caricom) membership and the World Bank's notion of a 'wider' Caribbean region as used in its Caribbean-focussed publications (e.g. 'HIV/Aids in the Caribbean: Issues and Options' (page 9) and 'Trade Policies in the Caribbean Countries: A Look at the Positive Agenda'). Others, however, may prefer to put them in South and Central America and reserve Caribbean wholly for the island economies. Also, following the Asian Development Bank's 'Business Information Guide to the Pacific Islands', we classify Papua New Guinea as Pacific, rather than (South-eastern) Asia as does the CIA Factbook.

[2] Clearly there is ultimately a similar simultaneity with population – high costs reduce living standards and hence the ability or incentives to live in a particular country. But this link operates very slowly and in the short run may be off-set by a reverse relationship between low incomes and high population growth.

[3] Writing P for log(population) and G for log(GDP), our preferred specification expresses the cost variables (x) as

$$x=A+aP+b(G-P)$$

where a and b are the co-efficients for the size and affluence effects and A contains all other determinants of x. Substituting [G-(G-P)] for P and regrouping yields

$$x=A+aG+(b-a)(G-P)$$

in which GDP captures the size effects and GDP pc the affluence effects. Note that the estimate of the size effect is the same as in our preferred equation; only the affluence effect, of secondary importance to us, is estimated differently.

Table 2.1 Summary Statistics of the Sample of Countries

Country	City	Sampling Organisation	Population million	GDP $ million	GDP pc $	Pacific	Caribbean	Sub-S Africa	Latin Amer.	South Asia	Rest Asia	OECD
Anguilla	The Valley	C	0.01	108	8,869		1					
Antigua and Barbuda	St. John's	C	0.07	689	10,125		1					
Argentina	Buenos Aires		37.03	284,960	7,695				1			
Australia	Sydney		19.18	390,110	20,337							1
Austria	Vienna		8.11	189,030	23,308							1
Bangladesh	Dhaka		131.05	47,106	359					1		
Barbados	Bridgetown	C	0.27	2,600	9,736		1					
Belgium	Brussels		10.25	226,650	22,108							1
Belize	Belize City	C	0.24	821	3,419		1					
Botswana	Gaborone	I	1.60	5,285	3,299			1				
Brazil	San Paolo		170.41	595,460	3,494				1			
Cameroon	Douala		14.88	8,879	597			1				
Canada	Toronto		30.75	687,880	22,370							1
Chile	Santiago		15.21	70,545	4,638				1			
China	Shanghai		1262.50	1,079,900	855						1	
Colombia	Bogota		42.30	81,283	1,922				1			
Cook Islands	Rarotonga	P	0.02	85	5,264	1						
Cote d'Ivoire	Abidjan		16.01	9,370	585			1				
Czech Republic	Prague		10.27	50,777	4,943							1
Denmark	Copenhagen		5.34	162,340	30,424							1
Dominica	Roseau	C	0.07	270	3,700		1					
Ecuador	Quito		12.65	13,607	1,076				1			
Fiji	Suva	P	0.81	1,495	1,842	1						
Finland	Helsinki		5.18	121,470	23,463							1
France	Paris		58.89	1,294,200	21,976							1
Gabon	Libreville		1.23	4,932	4,010			1				
Germany	Berlin		82.15	1,873,000	22,800							1
Greece	Athens		10.56	112,650	10,668							1
Grenada	Saint Georges	C	0.10	410	4,187		1					
Guyana	Georgetown	C	0.76	712	936		1					
Hong Kong	Hong Kong		6.80	162,640	23,928						1	
Hungary	Budapest		10.02	45,633	4,553							1
India	Mumbai		1015.90	456,990	450					1		
Indonesia	Jakarta		210.42	153,260	728						1	
Ireland	Dublin		3.79	93,865	24,740							1
Italy	Rome		57.69	1,074,000	18,617							1
Jamaica	Kingston	C	2.63	7,403	2,812		1					
Japan	Tokyo		126.87	4,841,600	38,162							1
Kenya	Nairobi	I/E	30.09	10,357	344			1				
Kiribati	Tarawa	P	0.09	43	475	1						
Lesotho	Maseru	I	2.04	899	442			1				
Malawi	Blantyre	I	10.31	1,697	165			1				
Malaysia	Kuala Lumpur		23.27	89,659	3,853						1	
Marshall Islands	Majuro	P	0.05	96	1,844	1						
Mauritius	Port Louis	I	1.19	4,381	3,694			1				
Mexico	Mexico City		97.97	574,510	5,864							1
Micronesia	Kolonia	P	0.12	228	1,932	1						
Mozambique	Maputo	I	17.69	3,754	212			1				
Namibia	Windhoek	I	1.76	3,479	1,980			1				
Nauru	Yaren	P	0.01	50	4,348	1						
Netherlands	Amsterdam		15.92	364,770	22,914							1
New Zealand	Auckland		3.83	49,903	13,027							1
Nigeria	Lagos		126.91	41,085	324			1				
Niue	Alofi	P	0.00	7	3,763	1						
Norway	Oslo		4.49	161,770	36,021							1
Pakistan	Karachi		138.08	61,638	446					1		
Palau	Koror, Palau	P	0.02	144	7,600	1						
Papua New Guinea	Port Moresby	P	5.13	3,818	744	1						
Peru	Lima		25.66	53,466	2,084				1			

Philippines	Manila		75.58	74,733	989						1		
Poland	Warsaw		38.65	157,740	4,081								1
Portugal	Lisbon		10.01	105,050	10,497								1
Samoa	Apia	P	0.17	236	1,387	1							
Senegal	Dakar		9.53	4,371	459			1					
Seychelles	Victoria	I	0.08	614	7,554			1					
Singapore	Singapore		4.02	92,252	22,960						1		
Solomon Islands	Honiara	P	0.45	275	614	1							
South Africa	Durban	I	42.80	125,890	2,941			1					
South Korea	Seoul		47.28	457,220	9,672								1
Spain	Madrid		39.47	558,560	14,153								1
Sri Lanka	Colombo		19.36	16,305	842					1			
St Kitts and Nevis	Basseterre	C	0.04	314	7,660		1						
St. Vincent & The Grenadines	Kingstown	C	0.12	333	2,895		1						
Suriname	Paramaribo	C	0.42	846	2,029		1						
Swaziland	Mbabane	I	1.05	1,478	1,415			1					
Sweden	Stockholm		8.87	227,320	25,631								1
Taiwan	Taipei		22.40	309,000	13,795						1		
Tanzania	Dar Es Salaam	I	33.70	9,028	268			1					
Thailand	Bangkok		60.73	122,170	2,012						1		
Tonga	Nuku'alofa, Tongatapu	P	0.10	153	1,529	1							
Trinidad & Tobago	Port of Spain	C	1.30	7,312	5,620		1						
Turkey	Istanbul		65.29	199,940	3,062								1
Tuvalu	Fusi, Funafuti	P	0.01	14	1,167	1							
Uganda	Kampala	I	22.21	6,170	278			1					
United Kingdom	London		59.74	1,414,600	23,680								1
United States	New York		281.55	9,837,400	34,940								1
Uruguay	Montevideo		3.34	19,715	5,908				1				
Vanuatu	Port-Vila	P	0.20	212	1,074	1							
Venezuela	Caracas		24.17	120,480	4,985				1				
Vietnam	Ho Chi Minh City		78.52	31,344	399						1		
Zambia	Lusaka	I	10.09	2,911	289			1					
Zimbabwe	Harare	I/E	12.63	7,392	585			1					
mean			52.83	320,534	7,831								
std dev			170.85	1,162,932	9,613								
median			10.06	25,530	3,697								
number		92				14	12	19	8	4	9	26	

Source: EIU, Business Cost Survey, World Development Indicators. Further data are given in Chapter III.

Note: Under Survey Organisation, I denotes Imani Capricom, C Caircom, P Pacific Island Forum, I/E Imani and EIU, and blank denotes Economic Intelligence Unit.

As noted in section II.2, we often need to categorise countries by population class, GDP class, and, occasionally, GDP per capita class. For the last we use World Bank standard definitions for low, lower-middle, upper-middle and high income groups of countries even though they do not follow GDP pc precisely linearly. For the first two we have devised our own classifications into five groups of very roughly equal size. We believe that most economic phenomena are likely to change more systematically with proportional changes in size than with absolute changes.[4] This calls for logarithmic relationships when we treat size as a continuous variable and for size categories that increase roughly proportionately. Table 2.2 defines our size categories, which we use consistently through the report.

Table 2.2 Size Categories for Economies

	Population	GDP
1	Below 400 thousand inhabitants	Below 400 million US$
2	Between 400 thousand and 2 million inhabitants	Between 400 million and 2 billion US$
3	Between 2 and 10 million inhabitants	Between 2 and 10 billion US$
4	Between 10 and 50 million inhabitants	Between 10 and 100 billion US$
5	More than 50 million inhabitants	More than 100 billion US$

The boundary between our second and third population categories (2 million) accords well with the semi-official definition of smallness used by the Commonwealth Secretariat and agreed by the Commonwealth Advisory Group in 1997. The latter proposes 1.5 million as the threshold, but includes within the group Jamaica (which has a population of 2,633 in our data), Lesotho (2,035), Namibia (1,757) and Papua New Guinea (5,130).

II. The Conceptual Building Blocks
4. Size and Location: A Fundamental Dilemma

Size is not the only feature of an economy that potentially affects its performance and business costs. There are good reasons for believing that location also matters in terms of both who are your neighbours and how isolated you are from the main centres of economic activity. Neighbourhood effects influence the extent of economic spillovers, such as of technology, culture, politics, attitudes and expectations, and the propagation of demand shocks. They all lead us to expect similarities among countries of the same region, and have been found to play an important role in growth performance (e.g. Vamvakidis, 1998). Isolation (which also, of course, has a regional dimension) plays an important role in the new economic geography and recent growth theory, with distance from the main centres of demand appearing to influence scale and efficiency (Redding and Venables, 2002a), and

[4] That is, an x% change in size will have the same effect on a phenomenon independent of the base to which it is applied.

excessive communications frictions, such as being land-locked or an island, curtailing incomes.[5]

In our analysis below we consider locational factors in a variety of ways. For transportation and communications costs, where the data refer to links with specific main centres (e.g. London or Tokyo), we include distance to those centres. Moreover, for sea transportation we include land distances to the port of entry/exit and seek qualitative differences for cases where this exceeds a threshold or where it involves crossing an international border. These variables capture the distance and demand aspects of isolation quite effectively.

The isolation effects of being an island are explored in our investigation of internal costs - wages, labour markets and utilities – via three dummy variables. The first is D50, which is set to unity for countries with populations below 10 million and whose centres are at least 50 km by sea from the closest population mass of 10 million or more. (In fact using a much smaller distance threshold would not affect the set) Our definition accords island status to Trinidad and Tobago even though parts of it are closer to the mainland than 50km, because it is over 50km from Cumana – the biggest port in northeast Venezuela. It does not accord that status to Papua New Guinea, which shares an island with the Indonesian Province of Irian Jaya, which has a population of around 2 million and, in principle, links to the rest of Indonesia. Future research may usefully revisit this issue. The remaining island dummies set the distance thresholds at 500km and 1500 km respectively to see if there are qualitative differences between "close" islands and "distant" ones. Quite clearly the degree of spill-over could vary with distances off-shore.

Unfortunately, the characteristics of size, region and insularity are highly collinear. Table 2.3 shows that the Pacific and Caribbean regions are almost wholly comprised of small countries and together comprise nearly the whole of our sample of small countries. These two regions similarly provide nearly all our island economies and contain very few no continental countries – table 2.4, with our distinction between "close" and "distant" islands effectively separating the Caribbean (close) from the Pacific (distant) islands. The table lists the economies that are defined as islands by D50 and then, below, those that are *removed* from the set if we define insularity by D500 and then D1500 respectively. Not surprisingly, small size and insularity also go together strongly, as table 2.5 shows. Nearly all our smallest economies are islands and all the islands fairly small. Finally table 2.6 presents the simple correlation co-efficients between the logarithms of population, GDP and GDP pc and the various regional and island dummies. The collinearity problem is very stark.

[5] See Redding and Venables (2002b) for a general discussion.

Table 2.3 Sample Countries Cross-classified by Size and Region

A) Population by Region

	Population Categories				
Region	1	2	3	4	5
Pacific	11	2	1	-	-
Caribbean	8	3	1	-	-
Sub-Saharan Africa	1	5	2	10	1
Latin America	-	-	1	6	1
South Asia	-	-	-	1	3
Rest Asia	-	-	2	2	5
OECD	-	-	7	11	8

B) GDP by Region

	GDP Categories				
Region	1	2	3	4	5
Pacific	12	1	1	-	-
Caribbean	4	5	3	-	-
Sub-Saharan Africa	-	4	12	2	1
Latin America	-	3		5	3
South Asia	-	-	-	3	1
Rest Asia	-	-	-	4	5
OECD	-	-	-	4	22

These collinearities essentially reflect a lack of information. Because the variables move together we cannot ascertain empirically which of them provides the explanation for the phenomena we observe (e.g. the level of freight costs). Future researchers might try to solve the problem by enlarging the sample to make the series less collinear (i.e. collect data for more islands and small economies outside the Pacific or Caribbean) or by devising different measures of isolation and location that capture more directly the effects postulated to exist. Given the present sample, however, the only palliatives are theory and parsimony - exploiting theory to try to separate the different effects and recognising the fundamental problem by not seeking too fine a degree of explanation. Thus, for example, given that we use distance and size in exploring freight rates, we postulate no additional role for insularity. Given that we look for insularity effects in explaining nominal wages, we do not look at distance from economic centres per se. It will be evident that we have given some preference to size in resolving these collinearities and that consequently some of our results may be at least partly due to the correlations between size and location. It will also be evident that some of the theoretical judgements we make are finely balanced, and that future work may usefully reconsider them later on. We would encourage such work, but would caution that some collinearity seems virtually unavoidable in international datasets[6] and that the data we are explaining are inevitably very noisey. Thus one should never expect a perfect separation of size and location effects.

[6] One promising alternative would be to study islands within countries to ascertain the costs of physical separation.

Table 2.4 Sample Countries Cross-Classified by Region and Insularity

	Pacific	Caribbean	Africa
continental countries	1	3	17
D50	Cook Islands Fiji Marshall Islands Kiribati Micronesia FS Nauru Niue Palau Samoa Solomon Tonga Tuvalu Vanuatu	Anguilla Antigua and Barbuda Barbados Dominica Grenada Jamaica St. Kitts & St. Nevis St. Vincent & The Grenadines Trinidad & Tobago	Mauritius Seychelles
D500 =D50 less		Grenada St. Vincent & Grenada Trinidad & Tobago	
D1500 =D500 less	Palau	Rest of Caribbean Islands	Mauritius

Note: all other regions contain only continental countries

Table 2.5 Sample Countries Cross-Classified by Size and Insularity

A) Population by Insularity

		Population Categories				
Island Dummies		1	2	3	4	5
D50	0	1	6	13	30	18
	1	19	4	1		
D500	0	3	7	13	30	18
	1	17	3	1		
D1500	0	9	8	14	30	18
	1	11	2			

B) GDP by Insularity

		GDP Categories				
Island Dummies		1	2	3	4	5
D50	0	0	6	12	18	32
	1	16	4	4		
D500	0	1	7	13	18	32
	1	15	3	3		
D1500	0	5	8	16	18	32
	1	11	2			

Table 2.6 Correlations between Size, Region and Insularity

	correlation with log (population)	correlation with log (GDP)
Pacific Region	-0.60	-0.63
Caribbean	-0.43	-0.36
Island D50	-0.81	-0.75
Island D500	-0.77	-0.72
Island D1500	-0.61	-0.62

II. The Conceptual Building Blocks
5. About this Report

This paper is not a complete answer to the question of whether economic life is sustainable in small economies. Rather it is a response to one part of the argument that is frequently heard – viz. that, because of their small scale, small countries face exceptionally high costs of doing business. It does not consider whether those costs are balanced by a better quality of life in dimensions beyond the simple pecuniary ones examined here. (We refer deliberately to non-pecuniary rather than non-economic aspects of welfare: quiet, a good environment, and the benefits of knowing your neighbours are all essentially economic in the sense that obtaining them entails costs in terms of other things foregone.) Neither do we consider any benefits stemming from the greater flexibility often imputed to small societies. High business costs may be off-set if a society is less litigious or less bureaucratised and therefore less wasteful, or if flexibility allows it to move more quickly into new activities in which high costs matter less because first-comers have quasi-monopoly positions.

Thus the report should be seen as a narrow but precise attempt to assess one dimension of smallness. Whether smallness confers off-setting advantages is a matter for further research and debate. Similarly, the paper does not seriously discuss the policy implications of its findings. We make a few reflections on the way to think about cost disadvantages in passing, but a complete discussion and the formulation of concrete proposals for small economies (if such are warranted) must depend on balancing our findings against any off-setting benefits, and is the job for a future report. Saying all this, however, does not devalue the work we are describing. To our knowledge, this is the first attempt to answer formally the prior question of all policy analysis: are small economies at a direct cost disadvantage in producing goods for the world market? If they are and if it is not somehow off-set, it could well be that removing various elements of the preferential treatment small countries currently receive will have very serious consequences for their levels of income and welfare.