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Very Small Countries: Economic Success Against All Odds

To Edi, Elfi, Natalie and Stephanie.
Without them, this would not have been possible.

Preface

Very small countries are a fascinating field of research, due both to the variety of existing small countries in the world and if to theoretical ambiguity concerning the economic consequences of smallness. It was furthermore amazing to see that some of the lessons we learn from very small countries and their economic peculiarities can also be applied to larger countries and to federal and/or autonomous regions of larger countries. This is especially true of cases in which larger countries give up effective sovereignty rights to supranational and international organizations. Hence, the study of very small countries is far from being the exotic field of economics it is sometimes considered to be.

This study is not intended to be mainly a theoretical one, although it offers some promising opportunities to bring in new theoretical ideas concerning the economics of very small countries. The focus here, however, is on empirics, with the explicit aim to obtain more stylized facts and information on small economies as a basis for a broader understanding of the peculiarities, the problems and the obvious success of very small countries.

Unfortunately, the analysis of very small countries is strongly constrained by the availability and quality of data, and this study is no exception to this general rule. Indeed, the chosen empirical approaches more than once changed dramatically in the course of this study, although the original question remained, of course, the same. This is nothing special for empirical work in less developed fields, but it always comes with uncomfortable side effects, such as the obligation to search for new data and more suitable methods. The data problems became especially severe in those parts of the study where disaggregated and harmonized data on government expenditure and revenues were required for a sufficiently large set of very small countries. Our results nevertheless appear to be of interest for economics as well as for the economic

policy of very small countries, and they might, furthermore, open some new avenues for future economic research.

Many people have been directly or indirectly involved in this project, and it would not have been possible to start and to finish this work successfully without two important prerequisites. First, the support of Prof. Manfried Gantner was excellent throughout the whole time, and it was and is a pleasure to work with him also apart from this study. Our discussions on the subject were always fruitful, and I could also draw heavily on some ideas of his prior work, which were laid out in Gantner and Eibl (1999). Second, I gratefully acknowledge the financial support of the Gedächtnisstiftung Peter Kaiser (1793–1864). Without it, this study would not have been possible.

There are, however, a lot of other people who have contributed to this work and to whom I owe many thanks. The comments of and discussions with Prof. Gottfried Tappeiner and Matthias Sutter enhanced this study significantly. Matthias is also responsible for winning me over to some interesting research projects besides this book. Although the progress of this study suffered slightly from these projects, I am grateful for the experience I gained, the resulting list of publications, and the pleasure of working together with him. I also thank the participants of the Economics Research Seminar at the University of Innsbruck and the participants of a lecture at the Liechtentstein-Institut, where I presented parts of this work and received lots of interesting comments, especially for Chapters 3 and 5. Natalie Saringer and Lee Anne Oberhofer contributed a lot during the last stage of this work by considerably improving my English style. Norbert Jansen, my editor at the Verlag der Liechtensteinischen Akademischen Gesellschaft, provided entthusiasm and just the right amount of pressure.

I also owe a great debt of gratitude to my family, Natalie, my friends and my colleagues at the university, who made the experience of writing a dissertation an enjoyable one and who have been a constant source of inspiration and encouragement for me.

Martin Kocher
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Contents

1. Introduction

The main aim of this study is to learn more about public sector organizations and problems in very small countries. Very small countries, as a unit of observation and analysis, have largely been neglected in economics during the last decades. Standard economic theory is even biased towards considering very small countries as «inferior» to larger ones, especially due to a small home market and diseconomies of scale in the production of private goods and in the provision of public goods. Furthermore, empirical assessments of very small countries have been rare because of severe data constraints and problems associated with comparability in a highly diverse world of very small countries. It is therefore not astonishing that economic theory and empirical investigations hardly can account for the surprising economic prosperity in some of the very small countries and for the steadily growing number of small and very small countries in the world. Both phenomena cannot be explained by economic concepts alone, but we will argue and show that there is no doubt that economics and economic policy may help to achieve a better understanding of these developments. Note further that the theoretical «inferiority» of very small countries and the growing number of them are clearly contradictory, and some of the questions concerning this contradiction have to be raised and will be analyzed in the course of this study.

Our focus is on the public sector peculiarities of very small countries, but we do not neglect the interactions between the public and the private sector, which seem to be one of the promising sources for explaining some very small country peculiarities.

A first starting point for this study was the fact that public economics has largely ignored the very small country issue. Most theoretical approaches in public economics do not account for size, and the (implicit) analytic basis in public economics is, at least, an middle-sized coun-

try with a differentiated system of participation, administration, providing the full range of public goods. Many countries, especially smaller ones (and those with an under-developed public sector like «failed» states) do not comply with that view. Hence, this study is designed to provide some stylized facts, some theoretical considerations and empirical results on the public sectors of very small countries. We are very much convinced that major of the results of this study may – *mutatis mutandis* – be applied to larger countries and may yield some new insights for the economic theory of integration and the theory of federalism, in addition to its apparent relevance for very small countries.

It must be borne in mind that small countries often provide an excellent framework for analyzing general questions in economics, because the effects of various measures are much more apparent in small countries and the economic system is less complex than in larger ones. Hence, the scientific questions raised within the theory of small countries also apply to larger countries or, even more interestingly, to regions of larger countries. In the light of that fact, the examination of small countries may be viewed as applied economics, designed to highlight special impacts of size (in economics, politics and humanities). Those impacts are of interest for all countries, regions and jurisdictions, but they are of the utmost importance and of eminent relevance for small countries, which explains why they are more apparent in small countries and can be studied more properly in this setting.

The second starting point for this study was a comprehensive contribution on the public sector and, especially, on public expenditure of Liechtenstein by Gantner and Eibl (1999). They detected some remarkable peculiarities of Liechtenstein as compared to adjacent regions as well as to Austria and Switzerland. Furthermore, Gantner and Eibl developed the concept of «international outsourcing», which will also proove useful and relevant for this study. There are of course several other contributions which focus on the public sector of very small countries, at least to a certain extent. Olafsson (1998) is a recent example of a comprehensive study on Iceland, and the World Bank (1998) deals with the problems of governance of very small countries in the Pacific. Two notable exceptions of contributions which analyze more than a few very small countries, are Armstrong and Read (1995) and Armstrong et al. (1999), but they concentrate on macroeconomic variables, rather than on the public sectors.

To the best of our knowledge, a general assessment of public sector peculiarities of very small countries does not yet exist. Although it is a rather daunting task due to the great heterogeneity among very small countries, it is the aim of this contribution to find some common features or patterns of public sectors across very small countries around the world. However, we sometimes have to restrict our analysis to those very small countries with a sufficiently high national income in order to avoid blurring the effects of size with the effects of development status.

We start by reviewing those concepts of size in Chapter 2 which we deem important for our further analysis. Chapter 2 is designed to single out an appropriate definition of size for our purpose, and, hence, arrives at a workable starting point for the empirical analysis of very small countries. It should furthermore briefly clarify some general concepts and some terminology.

In Chapter 3 we focus on the size of the public sector and its relationship to country size. Strictly speaking, we check empirically whether small countries actually have relatively larger public sectors in comparison to larger countries. Thus, they would have to bear relatively higher costs. The main idea here stems from Gantner and Eibl (1999), who found astounding differences of relative government expenditure between Liechtenstein and adjacent countries and/or regions on a highly disaggregated level of expenditure. In order to be able to perform an econometric analysis, we have to restrict ourselves to a far more aggregated level. We test for the influence of country size on public sector size by estimating multiple regressions for a set of more than 100 countries and obtain a relatively clear result, irrespective of the control variables in the regressions. There is a statistically significant negative size effect, in the sense that smaller countries have larger public sectors. Hence, small countries have to bear a cost disadvantage, which may be traced back theoretically to diseconomies of scale in the provision of public goods. Contrary to our expectations, the magnitude and significance of this – from the view of very small countries – negative size effect has been growing since 1960. The resulting puzzling question of, why secessions seem to have become more feasible in the same time is reconsidered in Chapter 5.

Chapter 4 focuses on a set of 21 very small countries, all of them with less than 500,000 inhabitants. Based on a theoretical framework and given the evidence of Chapter 3, we investigate how they organize the

production and provision of public goods that are associated with high costs or high levels of diseconomies of scale («organizational choice»). We are mainly interested in the possibilities and constraints of international outsourcing, where public good provision is sourced out to a public agency of another sovereign country. We speak of international outsourcing, for instance, in the case of the public good «external security» in Iceland, which is mainly provided by the U.S.A., because Iceland itself does not operate a defense force. The analysis of the organizational choice for a set of publicly provided goods in very small countries shows that international outsourcing is widespread; that there are some public goods which are simply not provided in very small countries (without leaving citizens apparently worse off), and some which are «tailored» to the needs and the size of the country. Nevertheless, we know from our results that international outsourcing, which is in most cases the least expensive alternative for very small countries, can only partly level out the negative size effect. The cost advantages of international outsourcing have already been implicitly considered in the empirical analysis of Chapter 3.

Chapter 5 dwells upon the central question raised above, which has hardly been assessed economically so far: Why is there a growing number of very small countries in the world and why do some of them exhibit a very high living standard, when they have a clear disadvantage in the public sector? It is not difficult to conclude intuitively that the private sector and the legislative framework for the private sector must be driving forces which leave very small countries better off today than a few decades ago. Again, standard economic theory provides a lot of arguments against the existence of very small countries; we test on a highly aggregated level whether small countries have lower levels of welfare than larger countries. Given that the theoretical expectation clearly arrives at an «inferiority» result for very small countries, it is comforting to find that welfare does not seem to depend on country size. In a next step, we build a set of eight high-income very small countries and try to find similar determinants of welfare in those countries. In order to obtain a better impression of the necessary extent of sovereignty and its interactions with the economy in small territories, we then compare very small countries to small autonomous regions with limited sovereignty. The striking result of Chapter 5 is that sovereignty is an important economic concept, which means that its impact on economics is enormous.

Very small countries and autonomous regions rely heavily on the benefits of sovereignty, and it seems that a small part of full sovereignty suffices to succeed economically. Finally, we focus on the important question of, why advantages of very small countries and their niche strategies are stable in the international economy. To our knowledge, there are only very few economic analyses of sovereignty and/or law-making authority. We strongly believe that in this field, avenues for future research are numerous, and we hope that our study provides a basis for advancements on the economics of sovereignty.

Chapter 6 summarizes the most important findings of the study and asks what very small countries can learn from the results. It also speculates on which lessons larger countries (which also give up sovereignty) and regions of larger countries can learn from very small countries. Additionally, we provide a brief discussion of the effects of our results for public economic theory.

2. Smallness of countries: concepts and definitions

In order to assess the public sector peculiarities of small countries, it is necessary to take a look at different definitions of smallness or size. The term «small» has a long history in economic theory and politics, but its precise meaning is not always clear, and a blurred comprehension of the term seems to exist even among economists. Of course, there are a few obvious indicators upon which the definition of smallness of countries (or, generally, jurisdictions) can be based, such as inhabitants, area or GDP (or any other aggregate of national income), but there is no commonly accepted definition (Olafsson, 1998). Section 2.1 provides an overview and a discussion of traditional indicators of smallness. Usually, it hinges on the question at hand: which choice of definition is meaningful. We will argue later on that a workable definition from a theoretical viewpoint depends especially on the kind of goods considered. Section 2.2 is dedicated to reviewing three possible views of size in the context of economic models. In Section 2.3 an approach for the definition that is most fruitful for the purpose of this study is elaborated in detail. Finally, Section 2.4 briefly dwells upon the differences between small countries with full sovereignty and small autonomous territories which are part of larger countries and have limited sovereignty.

2.1 Traditional concepts of size

Generally, small states (or jurisdictions) are defined as being at the lower end of a chosen scale variable or a combination of chosen scale variables. Table A.1 in the Appendix provides an overview of existing (traditional) definitions of smallness, revealing the fact that the selection of a cut-off point for widely used scale variables is more or less arbitrary. We distinguish between size variables, which directly determine size like the num-

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ber of inhabitants or area, and structural variables with either conse-
quences for or connections with size.[1]

As can easily be seen in Table A.1, possible definitions of country
size are manifold. Furthermore, the concepts in use are often not very
precise, and there is no consensus on the appropriate definition of small-
ness. The most common characteristic used to define the size of juris-
dictions is the number of inhabitants.[2]

> It is probably not possible to find a definition of size that is funda-
> mental in explaining all characteristics of small states in general.
> This situation might lead to doubt that the small state can become a
> useful unit of analysis in international relations. An exact definition
> is, however, not necessary to study various aspects of states and to
> compare them in terms of size. (Olafsson, 1998, p. 8)

It is not only a daunting task to collect all hitherto used definitions; it is
also not meaningful to dedicate too much time to the process of defini-
tion. Small countries differ in terms of population (e.g., Nauru with
11,000 inhabitants, Luxembourg with 416,000 inhabitants and Bangla-
desh, a country which about 122 million inhabitants which is still consi-
dered small in comparison to its giant neighbors), in terms of area (com-
pare, e.g., Monaco and Iceland), and in geographic characteristics (com-
pare Liechtenstein and Kiribati) and economic welfare (compare Liech-
tenstein and Western Samoa). They also differ in many other cultural,
economic, political and social characteristics (only some of which are
mentioned in Table A.1 as structural variables). Nevertheless, small
countries share some important similarities, like problems connected
with the provision of public goods or the problem of representation in
and/or influence on international politics. Furthermore, the most im-
portant common feature is, of course, that they are all internationally re-
cognized, sovereign countries.

To assess certain problems or properties of small countries theore-
tically, it is often not necessary to refer to an absolute definition of
smallness. Most of the problems or questions implicitly offer a natural

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[1]   E.g., cultural heterogeneity is assumed to be more important in larger countries than
      in very small countries.
[2]   Note that the list of definitions in Table A.1 is by no means exhaustive.

cut-off point or cutting interval for any scale variable.[3] As mentioned above, the dedication of too much effort to the quest for a comprehensive definition of smallness may not be very useful, especially when traditional concepts are at stake. We, therefore, provide only a short overview of the most important characteristics for possible definitions and demonstrate that traditional indicators are not very helpful in a theoretical context, before turning to a more promising approach to defining smallness of countries.

Nonetheless, for empirical studies, it often suffices to employ trivial definitions of smallness or size. The use of simple one-dimensional measures like population, area or GDP as proxies for size is often adequate. It will, however, be shown in Chapter 3 that in some cases the results are not independent of the choice of size proxy.

2.1.1 Size and population

There is more to the definition of smallness than population, but it is clear that population is the most important proxy for country size. According to Olafsson (1998, p. 8) the number of inhabitants determines two eminent characteristics of an economy:
– the size of the internal market
– the possible degree of specialization within a country

Clearly, international trade and the extent of international division of labor are two other important factors in determining a country's «real» or «effective» (economic) size, but there are some important economic characteristics which are mainly determined by the number of inhabitants, like the degree of international representation or the structure of the political system. Table A.1 shows different arbitrarily chosen cutting points for the formation of a set of small countries (based on population); none of them has a theoretical rationale, but all are underpinned by intuitive considerations. Table 2.1 gives an overview of the smallest countries in the world judged by the number of inhabitants.

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[3]   Note that in the empirical parts of this study we sometimes rely on large country samples which include countries of all sizes, in order to assess the effects of size more generally. These parts of the study do not require a cutting point at all.

Table 2.1: Smallest countries in the world (population < 5,000,000)

Country	Population (in 1000)	Country	Population (in 1000)	Country	Population (in 1000)
Vatican City	0.455	Salomon Island	403	United Arab Emir.	2580
Tuvalu	10	Suriname	412	Congo, Republic	2708
Nauru	11	Equatorial Guinea	420	Panama	2719
Palau	17	Luxembourg	422	Liberia	2886
San Marino	26	Comoros	518	Singapore	3104
Liechtenstein	31	Bahrain	620	Uruguay	3266
Monaco	32	Djibouti	636	Albania	3324
St. Kitts a. Nevis	41	Qatar	721	Central African Rep.	3418
Marshall Islands	60	Bhutan	737	Costa Rica	3464
Andorra	64	Cyprus	747	Ireland	3661
Antigua and Barbuda	66	Fiji	815	Lithuania	3706
Dominica	74	Guyana	848	New Zealand	3761
Seychelles	78	Swaziland	958	Eritrea	3773
Kiribati	83	Trinidad a. Tobago	1307	Armenia	3787
Grenada	96	Guinea-Bissau	1137	Lebanon	4146
Tonga	98	Mauritius	1148	Moldavia	4312
Micronesia	111	Gabon	1153	Togo	4345
St. Vincent a. t. Gren.	112	Gambia	1181	Norway	4404
Sao Tome a. Principe	138	Estonia	1458	Jordan	4437
St. Lucia	159	Botswana	1533	Papua-New Guinea	4501
Samoa	174	Namibia	1623	Kyrgyz Republic	4635
Vanuatu	177	Kuwait	1809	Turkmenistan	4658
Belize	230	Slovenia	1986	Nicaragua	4677
Sahara	252	Macedonia	1997	Sierra Leone	4748
Maldives	256	Lesotho	2014	Croatia	4768
Barbados	265	Oman	2256	Laos	4849
Iceland	271	Bosnia-Herzegovina	2346		
Bahamas	289	Mauritania	2461		
Brunei	308	Latvia	2465		
Malta	375	Mongolia	2542		
Cap Verde	401	Jamaica	2554		

Source: Baratta (1999); figures for 1997.

There is an amazing number of small countries, when smallness is judged by population figures. Eighty-eight countries out of 193 have fewer than five million inhabitants; 35 have populations of under 500,000, which is about the size of the least populous US state, Wyoming, or, equivalently, slightly smaller than Boston. Nevertheless, if one takes the 30 least populous countries in the world (in the left-hand column of Table 2.1), it is easily discernable that there is no clear-cut picture concerning apparent similarities between them, except, of course, their size.

Some of the smallest countries in the world are highly developed and prosperous; some clearly are not. Some of them have a long history as a sovereign country, like Armenia (interrupted by periods of occupation) and San Marino; others have only recently attained the status of independence. Some are landlocked, some have access to the sea, and some are remote island countries, island groups or archipelagos. There is no continent without small countries, except Australia and Antarctica of course, although most of the small countries are situated in the Pacific, the Caribbean and in Europe. Even these brief considerations show that the heterogeneity among small countries is enormous, perhaps almost too big for meaningful comparisons between them.[4]

Note that the number of inhabitants is intimately related to the cost-side of public good production and provision. Therefore, from a theoretical point of view in public economics, the number of inhabitants is the most apparent proxy for country size in the context of this book.[5]

2.1.2 Size and geographic characteristics

Table 2.2 gives an overview of the smallest countries in the world, when area is taken as a proxy for country size. The correspondence between the countries in Table 2.1 and Table 2.2 is quite high. Nearly 70% of the countries appearing in Table 2.1 are also listed in Table 2.2 (although Table 2.2 comprises only 67 countries in comparison to the 88 countries

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[4]   We will nevertheless show in this study that comparisons are both possible and meaningful.

[5]   Section 2.3 dwells upon this subject in detail.

of Table 2.1).[6] Therefore, the two characteristics population and area are, not surprisingly, highly correlated. The Spearman rank correlation coefficient between the ranks of the countries listed in both tables is 0.786 and highly significant.[7]

Area is not as easy to measure as it seems at first sight. There are also problems in quantifying population, which have been neglected in Section 2.1.1, but those are, by and large, not so serious in our context that they have to be considered here. The problems associated with area as a measure of country size, however, deserve some attention.

First, the qualitative aspect of land may play a vital role in determining a country's capacity to produce goods and services. Take, for instance, Iceland, which is generally considered a very small country due to its population. Judging by its area, this classification cannot be confirmed, since Iceland, with its 103,000 km², ranks number 105 among all countries in the world. Still, parts of the country are not inhabited or are even uninhabitable. An objective measure of area for assessing country size from an economic viewpoint should exclude at least uninhabitable regions if not also land that cannot be cultivated.[8]

Second, land is not the only factor that determines an appropriate area measure of a country. Especially small island countries or countries with many archipelagos or atolls may, admittedly, have the disadvantage of smallness in terms of land and fragmentation concerning the settlement structure, but they often have the possibility to establish a 200-mile Exclusive Economic Zone (EEZ)[9] or a Fisheries Zone of 200 miles. Such a zone obviously increases the radius of influence of a country, although the economic impact of declaring an EEZ depends on the biological pro-

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[6]   Bosnia-Herzegovina, Botswana, Central African Rep., Congo Republic, Costa Rica, Croatia, Eritrea, Gabon, Guyana, Iceland, Ireland, Jordan, Kyrgyz Republic, Laos, Latvia, Liberia, Lithuania, Mauritania, Mongolia, Namibia, New Zealand, Nicaragua, Norway, Oman, Panama, Papua-New Guinea, Sahara, Sierra Leone, Suriname, Togo, Turkmenistan, United Arab Emir. and Uruguay have fewer than five million inhabitants, but an area larger than 50,000 km², whereas Burundi, El Salvador, Haiti, Israel, Rwanda, Belgium, China Republic (Taiwan), Denmark, Dominican Republic, Netherlands, Switzerland and Slovak Republic display reverse characteristics and appear, therefore, only in Table 2.2.

[7]   Simple correlation between population and area yields a correlation coefficient of 0.517.

[8]   See Lloyd and Sundrum (1982).

[9]   United Nations Convention on the Law of the Sea (UNCLOS), Part V, Article 55–75; 1982 (1994).

Table 2.2: Smallest countries in the world (area < 50,000 km²)

Country	km²	Country	km²	Country	km²
Vatican City	0,44	*Kiribati*	811	*Macedonia*	25713
Monaco	1,95	*Sao Tome a. Principe*	1001	Rwanda	26338
Nauru	21	*Comoros*	1862	*Salomon Island*	27556
Tuvalu	26	*Mauritius*	2040	Haiti	27750
San Marino	61	*Luxembourg*	2586	Burundi	27834
Liechtenstein	160	*Samoa*	2831	*Equatorial Guinea*	28051
Marshall Islands	181	*Cap Verde*	4033	*Albania*	28748
St. Kitts a. Nevis	262	*Trinidad a. Tobago*	5128	*Armenia*	29800
Maldives	298	*Brunei*	5765	*Lesotho*	30355
Malta	316	*Cyprus*	9251	Belgium	30528
Grenada	345	*Lebanon*	10452	*Moldavia*	33800
St. Vincent a. t. Gren.	389	*Jamaica*	10991	China, Rep. (Taiwan)	36006
Barbados	430	*Gambia*	11295	*Guinea-Bissau*	36125
Antigua and Barbuda	442	*Qatar*	11437	Switzerland	41285
Seychelles	454	*Vanuatu*	12190	Netherlands	41526
Andorra	468	*Bahamas*	13939	Denmark	43094
Palau	508	*Swaziland*	17363	*Estonia*	45227
St. Lucia	616	*Kuwait*	17818	*Bhutan*	46500
Singapore	648	*Fiji*	18376	Dominican Republic	48422
Micronesia	700	*Slovenia*	20253	Slovak Republic	49034
Bahrain	707	El Salvador	21041		
Tonga	748	Israel	22145		
Domenica	751	*Belize*	22965		
		Djibouti	23200		

Source: Baratta (1999); figures for 1997. Countries that appear in both tables (2.1 and 2.2) are in italics.

ductiveness of the waters within the zone. Many small island countries have, indeed, announced the establishment of an EEZ even though, EEZ have often been the subjects of disputes between countries.

> The rights of a state over its EEZ, although not equivalent to territorial rights in international law, are so extensive that the EEZ may be considered a part of the state that has sovereignty over it. (Olafsson, 1998, p. 38)

Third, it cannot be denied that the regional distribution of the population plays an important role in the determination of what we might call

«effective size».[10] The private and social costs of a highly fragmented settlement structure are worth considering. Actually, problems of regional distribution would need to be considered independent of considerations concerning area as a proxy for country size. Still, they are no less a problem for large countries, so they are not comprehensively analyzed here. One should, however, bear in mind that issues concerning the regional distribution of population are of the utmost importance for some small, remote island economies, especially for island groups or archipelagos (e.g., Kiribati), since they doubtlessly raise transaction costs and costs in connection with the provision of public goods.

Fourth, and closely related to the former, the «effective size» is dependent on the geographic status of a small country. E.g., Andorra, Monaco or San Marino may almost be viewed as a region of larger countries, namely Spain, France or Italy, with special autonomy rights. The judgment from an economic viewpoint would certainly support this notion. In contrast, Iceland does not exhibit characteristics which are normally ascribed to a region. Generally, small landlocked countries are much more often and more intensely involved in cooperation with regions of adjacent larger countries due to lower transaction costs.

Analogous to the list of small countries according to the number of inhabitants, the list according to area measures is characterized by an astounding diversity of the countries listed.

2.1.3 Size and national income

National income may also be a proxy for country size because it can, on the one hand, give an impression of the size of a country's internal market and, on the other hand, provide a broad-stroke picture of a country's economic impact. To our mind, it is important to note that it would be insufficient to judge economic impact only by national income, since especially small countries' economies heavily rely on specialization and,

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10   Note that the regional distribution, or the dispersion of the population, is an important determinant of the public good provision process and of costs. We will refer to it in the empirical parts of this study in greater detail. Interestingly, countries which are generally considered very small differ profoundly with regard to the regional distribution of their population, ranging from city states (e.g., Monaco) to island groups (e.g., Kiribati).

*Table 2.3: Smallest countries in the world (national income < US $ 10
billion (real, in PPP))*

Country	bill. US $	Country	bill. US $	Country	bill. US $
Dominica	0.30	*Congo. Rep.*	3.49	*Albania*	7.21
St. Kitts and Nevis	0.32	*Swaziland*	3.54	Benin	7.30
St. Vincent a. t. Gren.	0.45	Mongolia	3.79	Mali	7.41
Grenada	0.46	Eritrea	3.92	*Estonia*	7.42
Antigua and Barbuda	0.57	Burundi	3.99	Gabon	7.56
Vanuatu	0.57	Mauritania	4.06	Niger	8.13
Samoa	0.62	Central African Rep.	4.48	Namibia	8.28
Comoros	0.79	*Lesotho*	5.01	*Trinidad and Tobago*	8.44
St. Lucia	0.80	*Malta*	5.02	*Jamaica*	8.50
Maldives	0.86	Rwanda	5.13	Nicaragua	8.51
Salomon Islands	0.91	*Moldavia*	6.25	Zambia	8.59
Belize	0.94	Laos	6.30	Tajikistan	8.82
Cap Verde	1.18	Togo	6.34	Haiti	9.44
Gambia	1.70	*Macedonia*	6.35	Angola	9.56
Sierra Leone	1.95	Turkmenistan	6.57	*Armenia*	9.62
Guyana	2.37	Chad	6.80	Latvia	9.79
Fiji	3.15	Malawi	7.19		

Source: Baratta (1999); figures for 1997, some are estimates. Countries that appear in all three tables

(2.1, 2.2 and 2.3) are in italics.

generally, fewer sources of income. Take Luxembourg, for instance,
which is internationally negligible when judged by its national income
but which has a very important impact when it comes to financial servi-
ces. The same arguments apply to Liechtenstein and its trust compa-
nies.[11]

Bearing in mind those caveats, Table 2.3 should be viewed as a des-
criptive approach to highlight possible correspondences with Tables 2.1
and 2.2. It contains real GNP figures for 50 countries (in purchasing po-
wer parity (PPP) $ US).

It is not very helpful to directly compare the countries listed
in Table 2.3 with those in Tables 2.1 and 2.2, because data on GNP are

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[11]   See Chapter 5 for details on the issue of specialization in small countries and the be-
nefits of law-making authority.

missing for a lot of small countries, as can readily be discerned from Table 2.3.[12]

2.1.4 Composite measures of size

Various statistical methods are adopted to generate a measure of size, which comprises more than one characteristic. «Principal component analyses», «discriminant function analyses» as well as «cluster analyses» have been applied in various studies.[13] In order to distinguish between groups of countries with respect to their (effective) size these methods can be quite helpful, because they are able to partly overcome one principle caveat of all single-dimensional measures of size: the inherent arbitrariness of cut-off points. Hence, sophisticated methods can rule out parts of the arbitrariness inherently associated with one-dimensional approaches. In a discriminant analysis, for instance, one identifies a linear combination of predictor variables that best characterize differences among certain groups. The discriminant function thereby resembles a multiple regression. Besides grouping or organizing data, one can also identify outliers, or those variables which are most useful for discriminating. In contrast to the discriminant analysis, the cluster analysis, which is strongly related to factor analysis, does not require a prior knowledge of group membership.[14]

Similar arguments apply to simple composite measures, which have been used widely in the analysis of small countries. Simple composite measures are characterized by the simultaneous application of more than one criterion. The combination of the characteristics may be additive, multiplicative or exclusive in the sense that a jurisdiction has to have all

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[12] Specifically, data are lacking for Afghanistan, Andorra, Bahamas, Bahrain, Barbados, Bhutan, Bosnia-Herzegovina, Brunei, Republic of China (Taiwan), Cuba, Cyprus, Djibouti, Equatorial Guinea, Guinea-Bissau, Iraq, Iceland, Kiribati, North Korea, Kuwait, Liberia, Libya, Liechtenstein, Luxembourg, Marshall Islands, Micronesia, Monaco, Myanmar, Nauru, Oman, Palau, Papua-New Guinea, Qatar, Sahara, San Marino, Sao Tome and Principe, Seychelles, Somalia, Suriname, Tonga, Tuvalu, United Arab Emirates, Uzbekistan, Vatican City and Yugoslavia. Most of these countries, though not all, would have to be included in Table 2.3. Some countries provide GDP and GNP data, but there are no comparable PPP data.

[13] See, e.g., Gstöhl (1989), Rapaport et al. (1971) and Waschkuhn (1991).

[14] Not requiring these methods for our empirical analysis, we do not go into detail here.

the chosen characteristics to belong to the subset of very small countries. Again, simple composite measure may be useful to build clusters of countries with regard to several characteristics.

2.2 Size and smallness in model contexts

2.2.1 Small countries in international economics

The examination of small countries has a long tradition in international economics, and the concept has been extensively used in theoretical modeling. Note that the precise meaning of smallness in international economics and in this study differs profoundly. Conventionally, countries are denoted as small when they cannot affect world prices or interest rates (see, e.g., Mankiw, 1997). According to this definition, most countries in the world have to be considered as small. In this book we will employ a different definition of smallness, which is to be elaborated in Section 2.3.

To distinguish between different notions of smallness of countries, we like to refer to small countries or states according to our definition as «very small countries», henceforth abbreviated VSC. In view of other possible expressions (diminutive state, micro state, miniature state, dwarfish state, state fragment; see Erhardt, 1977, or Seiler, 1995) the expression «very small country» has the advantage – contrary to some of the above mentioned – of not having a pejorative overtone.

2.2.2 Smallness due to the utility gain

The definitions in this section have not been developed to define country size, but they may analogously be applied to country size.

2.2.2.1 Size in absolute terms

We commonly refer to the adjectives *small* and *large* in *absolute terms;* a notion that implies an idea about what to regard as small and what as large. Olson (1965, p. 35), who employs this notion, concludes that

there is a tendency for the «exploitation» of the great or large by the small in groups with common interests, because the small often have clear incentives to free-ride, when the probability is high that a certain «public» good or service is provided by the larger ones.[15] The proposition of Olson holds true for countries, for groups and for individuals. In the latter case, an operationalization of size seems difficult, although there are some workable economic proxies for the «size» of an individual, such as wealth, influence or weights in a political body in the context of voting.

2.2.2.2 Size in relative terms

An alternative way of defining size, and therefore smallness, is available for the individual level, since Olson's notion does not appear very suitable in the individual context. Again, it is possible to analogously apply this definition, which we will refer to as size in relative terms, on the group or country level. According to Xu (1999) size is defined with the aid of the benefit one gains from something. The smaller individual, accordingly, benefits less from something, say, the consumption of a good or service, than the larger. Formalizing this definition, we get

$$\alpha_i S > \alpha_j S, \text{ whenever } \alpha_i > \alpha_j \tag{1}$$

where S is the benefit and $\alpha_i S$ is the share of the benefit of individual i. Xu denotes i as the larger individual and j as the smaller, strictly according to their share of the benefit or utility. Note that, contrary to the definition of size in international economics, the small is always non-negligible here. A proper example of the definition of size in relative terms applied to countries might be the provision of a global public good. Size, then, can be measured according to the benefits of different countries derived from the public good. Vanuatu, e.g., is generally assumed to benefit much more from international cooperation against global warming (a global public good) than Austria; hence, Vanuatu would be larger than Austria in this respect.

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[15]   Tietzel and Müller (1998), building on Olson and Zeckhauser (1966) as well as on Rapoport et al. (1976), show the game theoretical rationale of Olson's findings.

2.2.3 Smallness due to economies of scale considerations

In the above-mentioned definitions, economies of scale considerations are absent. Clearly, this poses no problem in the case of individual size. However, when the size of a country or state is at stake, as it is in this study, a definition of size regarding economies of scales seems intuitively most fruitful. We will show that a concept of costs employing scale economies considerations in the production and provision of public goods and relying primarily on the number of consumers or users of public goods may be very helpful in addressing the problems of VSC. Arguing along the lines of costs, optimal jurisdiction size has two determinants. First, optimal jurisdiction size depends on the goods which are publicly provided for the population of this jurisdiction. Second, optimal jurisdiction size hinges critically on the openness of the jurisdiction.

2.3 Applied definition of country smallness

2.3.1 Jurisdiction size and publicly provided goods

The cost of producing a *private* good generally depends on the number of units produced, hence on the number of consumers. There are very few goods for which the proposition holds that the first unit produced costs the same as, say, the ten-thousandth.

> *Definition 1:* When the input quantities of all input factors are increased/decreased according to a given multiplication factor $\lambda \in R^+$ (level variation) and the output is increased/decreased by the factor λ^r, where r > 1, then this is denoted as «increasing returns to scale» or, equivalently, just «economies of scale» or «scale economies».

For most goods, scale economies do not prevail over the whole range of production. As the number of produced units increases, scale economies typically decrease to the point where (cost-)optimal production is reached.

The concept of scale economies generally plays a prominent role in the determination of market structures and trade patterns of private goods. However, it is also applicable and usable for an analysis of *pu-*

blicly provided goods. Specifically, the theory of federalism applies economies of scale to public economics in order to address the question of (cost-)optimal jurisdiction size. Again the number of consumers or potential users is crucial. The major difference between private and public goods is that in the case of public goods, the focus is now on provision costs instead of *production costs.* Furthermore, we do not start from a level variation of inputs, but from a *level variation of the number of potential consumers.* Thus, the question is how a variation of the number of consumers or users affects provision costs.

> *Definition 2:* Let c(n) denote the unit-costs of providing a public good to n potential consumers or users, while g is the quantity-quality of the publicly provided good, t is the tax rate (0 < t < 1) and B is the tax base of the jurisdiction.[16] A balanced budget requires

> $$tB = c(n)g \qquad\qquad (2)$$

> Economies of scale in the provision are present when the following inequality holds:

> $$\frac{dc(n)}{dn} \leq \frac{c(n)g}{n} \qquad\qquad (3)$$

Note that pure public goods in the Samuelsonian sense per definition imply economies of scale, since marginal costs of an additional consumer – on the left-hand side of inequality (3) – are zero, and, therefore, always less than average costs on the right-hand side. By specifying a cost function for the provision of a public good, one can easily calculate optimal jurisdiction size through minimizing average costs of provision.

In view of possible differences between provision costs and production costs of public goods – especially when you think of the possibility of international cooperation and outsourcing to private enterprises – we refer to the costs of providing a public good by a governmental agency as «provision costs» rather than production costs. In passing, note that there is no difference between the two alternative ways of de-

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[16]   For similar models see, e.g., Miceli (1993) and Brasington (1999).

signation (production and provision costs) when the public good in consideration is produced in-house. The provision costs of a public good are, however, relevant for political decisions.[17]

Modern jurisdictions, be they federal or local governments or even municipalities, provide a wide range of goods for their inhabitants. Some of them are more or less private, some exhibit a considerable degree of publicness, and some of them are pure public goods. Theoretically, every provided good, apart from the private ones, requires its appropriate or optimal jurisdiction size in order to minimize production costs.[18] Frey (1997) attempts to operationalize the concept of (flexible) jurisdiction size, depending on, among other factors, cost-optimality for different public functions, with his conception of so-called FOCJ.[19]

2.3.2 An appropriate definition of size

Governments have to cope with problems arising from diseconomies of scale.[20] It is obvious that the larger a jurisdiction, the less diseconomies of scale pose a problem, since the jurisdiction will reach or exceed optimal scale of production for most of the goods provided.[21]

Hence, it goes without saying that diseconomies of scale seem to be an existential problem for VSC from a theoretical viewpoint. Due to problems associated with economies of scale, the provision of public goods is one of the most important challenges for VSC, at least when we define public goods broadly by including intangible public goods like, e.g., security, sovereignty and representation in international politics and economics.

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[17] The economic consequences of a differentiation between provision and production costs for VSC have been laid out in detail in Gantner and Eibl (1999).

[18] Note that there are a lot of local public goods which do not show considerable degrees of publicness according to empirical studies. For an overview see Reiter and Weichenrieder (1997); the classic papers are Borcherding and Deacon (1972) as well as Bergstrom and Goodman (1973).

[19] FOCJ = functional, overlapping, competing jurisdictions.

[20] Marshall (1922) introduced this term to the literature. It means that one is providing goods on an inefficient scale, thus $q_{actual} < q_{efficient}$.

[21] Note that in the case of a larger jurisdiction, e.g., over-usage, congestion and heterogeneity, costs pose considerable problems. However, we do not consider these phenomena for the moment and assume that it is possible for larger countries to simply establish more than one provision agency in the case of $q_{actual} > q_{efficient}$.

Contingent on the results in the following empirical chapter – where we try to answer the question of whether diseconomies of scale really play a role in the public sector – the extent of diseconomies of scale might be a good starting point for an appropriate definition of VSC. Specifically, we are interested in the extent of diseconomies of scale in the production and provision of public goods, or, in other words, in the deviation from cost-optimal production. Note that publicly provided goods are one of the main characteristics of countries from a public economics viewpoint. Assuming that our theoretical considerations are empirically confirmed, a workable definition of country size should consist of three major features:

– (a) A VSC is a country with full sovereignty and international recognition.
   Feature (a) is necessary, since the aim here is to investigate public sector peculiarities of small *countries*.[22] Concepts of sovereignty (in economics as well as in international law and political science) have been developing over the last decades because of the process of internationalization. One possible traditional definition of full sovereignty is associated with constitutional independence, which means that countries are fully sovereign if their constitution is not part of a larger constitutional arrangement. A sovereign country is not subordinate to another country, but necessarily equal to it by international law. The country's legal, executive and judicial powers are the supreme authority within its jurisdiction, which is what we would call in economic terms a territorial monopoly (James, 1986; Jackson, 1990). Of course, recent developments especially within the European Union do not comply with this traditional view of sovereignty. International courts also considerably restrict sovereignty for many countries in the world. One either can conclude that countries like Germany or France are not sovereign any more, which does not make much sense, or accept the fact that a generally valid distinction between fully sovereign and not fully sovereign countries is difficult and that there is a continuum for a possible cut-off

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22 We will however also have a look at the differences between independent VSC and autonomous regions later on.

point. Note that subordination of sovereign countries under supranational and international organizations and courts is still voluntary to a certain extent.

A distinction between four different notions of sovereignty by Krasner (1999) is very helpful here. He distinguishes between *interdependence sovereignty* (the ability of a government to control activities within and across its borders), *domestic sovereignty* (refers to the organization of authority within the country), *Westphalian sovereignty* (refers to the independence of external authority structures) and *international legal sovereignty* (the recognition of one country by another/others). The only notion which provides for a clear cut-off point between countries with full sovereignty and other territories, is the last one. International legal sovereignty implies the right to sign treaties with other countries and to join international organizations. Our term «full sovereignty» is thus equivalent to international legal sovereignty, although there are some jurisdictions like the Taliban regime in Afghanistan, where it is difficult to decide whether they are fully sovereign according to this standard.[23] Such rare borderline cases do not pose a problem for our analyses in the following chapters and there is no need to go into greater detail here.

Note further that many of our results can be applied, *mutatis mutandis*, to other small jurisdictions, be they federal units (*Bundesländer, Länder or Kantone*[24]) or – as mentioned above – small territories with an extraordinary degree of autonomy, like, e.g., the Channel Islands, Gibraltar and Niue. To generalize, jurisdictions without full sovereignty (thus not fulfilling (a), but complying with the two following features), asymptotically obey our approach to a possible definition of VSC with monotonically increasing degree of sovereignty. Nevertheless, international legal sovereignty is a prerequisite to be considered as a VSC in this study.

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[23]   Especially countries or authorities which are only recognized by some other countries are difficult to assign. Fortunately, there are not many such cases.

[24]   These are the names of the federal units in Austria, Germany and Switzerland, respectively.

–   (b) The set of public goods provided by the VSC is comparable to the set of public goods provided by other sovereign countries.
Feature (b) assures that we only deal with jurisdictions which provide a broad set of public goods.[25] Note that this feature does not require that a certain share of the provided public goods be produced in-house. There are of course differences in the perception of what the core of a country's activity and the minimum requirement in terms of publicly provided goods of a sovereign country are. These differences are partly due to distinct ideological and historical backgrounds of continental European countries on the one hand and Anglo-Saxon countries on the other hand. However, it is easy to list a few goods which are provided by any federal government. Note that we again do not say anything about the provision arrangement, especially whether those few goods should be provided in-house or whether their production should be sourced out either to other jurisdictions (internal or foreign) or to private enterprises. A country's government is supposed to at least guarantee their provision.
The following list of important public goods, though probably not exhaustive, would be widely agreed upon: internal security, external security, an executive branch (government and administration), a legislative branch (some kind of parliament), a judicial system (courts and prisons), international representation, financial and monetary systems, education, a health system, a system of social security as well as infrastructure building and maintenance.

–   (c) A considerable part of the publicly provided goods exhibit *diseconomies of scale* in their production if they are produced in-house.
The definition power of this feature is contingent on the results in the following chapter. A country is theoretically expected to exhibit diseconomies of scale in the production of many publicly provided goods in order to be labeled a VSC. In other words, a VSC should not be able to reach optimal scales of production for most (or all) of the above-mentioned public goods and/or the deviation from the

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[25]   Note that we only require the goods to be provided, not to be produced in-house.

cost-optimal number of consumers, i.e. inhabitants, should be large. Thus, the VSC should have a cost disadvantage, which we have been referring to as «diseconomies of scale». The number of inhabitants is strongly correlated with feature (c). The fewer inhabitants a country has, the more public goods will exhibit diseconomies of scale if they are produced in-house. Hence, feature (c) of our approach to define country size considers the number of inhabitants implicitly, but the focus is on the related problem of public good provision.

Our definition approach is – not surprisingly – inappropriate for arriving at a set of VSC without imposing some restrictions on (b) and on (c). Those would clearly have to be arbitrary, since there is no natural cut-off point. However, features (a) – (c) neatly attest to the fact that the problem of diseconomies of scale is prevalent in all jurisdictions (at least for some publicly provided goods) and that the study of VSC is only one promising approach to studying the extent of diseconomies of scale, its effects and the possible ways to diminish its adverse effects.

Note that our approach also justifies, as briefly mentioned above, definitions relying on the number of inhabitants due to the clear correspondence between the extent of diseconomies of scale and the population of a country (see Definition 2).

After testing in Chapter 3 for the empirical content of our approach, where the focus is on the critical feature (c), we will come back to our analysis at the end of Chapter 3. We then can conclude whether our approach to defining VSC here is helpful and valid.

2.4 Autonomous regions with limited sovereignty

Autonomous regions with less than full sovereignty are not at the heart of this study. They can, however, serve as a benchmark to compare fully sovereign VSC and regions with limited sovereignty in order to assess the economic consequences of sovereignty. We will come back to this issue in Chapter 5 and give only a short introduction here.

The spectrum between independence and dependence, integration or complete assimilation resembles much more a continuum than a dichotomy (see also Section 2.3.2). This proposition holds true in any case for economic assessments but is, to a certain extent, also true in the

context of political science and international law. Many countries encompass territories with special autonomy rights or special status which go beyond the normal extent of federalism, although these areas or territories are not independent according to international law.[26] Conversely, there are many countries, especially smaller countries, which give up parts of their sovereignty voluntarily and entrust several public tasks or government functions to other states or to a supranational or international organization. All these arrangements, wether they be to gain sovereignty or to assign public functions to agencies outside the country, exhibit a great variety.

For our purpose, those territories which are not fully sovereign but have achieved a considerable degree of sovereignty and a non-negligible degree of autonomous rights, irrespective of the reason, are of special interest, because they allow us to fully analyze the benefits of law-making authority and the advantages of sovereignty. This is due to the fact that their great diversity can give additional information on the degree of sovereignty necessary to exploit possible advantages. It would go beyond the scope of this study to dwell upon this subject in detail, but we will come back to it in Section 5.3.

Some examples of autonomous territories which are in some cases monitored more closely internationally than their size would suggest due to their status as tax havens, are (countries in parentheses): Anguilla (UK), Aruba (Netherlands), British Virgin Islands (UK), Gibraltar (UK), Guernsey/Sark/Alderney (UK), Isle of Man (UK), Jersey (UK), Montserrat (UK), Netherlands Antilles (UK), Niue (New Zealand), Turks and Caicos (UK) and the US Virgin Islands (USA). Obviously, those are only a few of the existing autonomous territories. Additionally, there are a lot of territories in the world which try to obtain greater autonomy like, e.g., Southern Ossetia, Palestine, Corsica or Quebec. Note that almost all of those territories or special status areas are small judging by their size and therefore exhibit astounding similarities with small sovereign countries.[27]

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[26]   For an appropriate definition of «full sovereignty» see Section 2.3.2.

[27]   From an economic or economic policy point of view there seems to be no general distinction or, at best, minor differences between very small countries and small autonomous regions with limited legal sovereignty, although the latter display a great variety of characteristics with regard to government functions, constitutions and politics.

3. Does country size matter for public sector size?

It has been shown in the previous theoretical chapter that country size should play a role in determining public sector size. In the presence of diseconomies of scale for at least a few publicly provided goods, smaller countries should exhibit larger public sectors than larger countries. Chapter 3 is designed to test whether this theoretical expectation is met empirically. We employ multiple regressions for a large set of countries, different proxies for country size, and also test for the dynamics of the relationship between country size and public sector size or government size.[28]

Even though the list of possible determinants of government size appears quite comprehensive[29], a major and intuitive one has long been neglected, maybe just because of its obviousness. Only recently, the importance of public goods and its effects on government size was re-considered and analyzed by Alesina and Spolaore (1997) in a theoretical model of optimal country size and by Alesina and Wacziarg (1997, 1998) in an econometric model. All these contributions suggest that country size and government size should be negatively related, and they provide a straightforward rationale for such a relationship. Small countries face

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[28]   The two terms «public sector size» and «government size» are interchangeable. We decided to use the shorter and more common term «government size» henceforth, but we refer to the whole public sector, excluding only state-owned enterprises.

[29]   Considerable efforts have been devoted to detecting and analyzing economic as well as political determinants of public sector size or government size. Some of the important arguments appeared under the heading of «determinants of budget deficits», but they can – *mutatis mutandis* – also be applied to the question of government size. De Haan and Sturm (1994) summarize the early literature on political and institutional determinants of fiscal policy and government size. They distinguish between four different strands of the literature, which is devoted to detecting and analyzing these determinants. Volkerink (1999) adds a few more possible determinants. Table A.2 in the Appendix provides an overview of these classes of models and lists the main contributions.

higher per capita costs in supplying public goods than large countries. In the terms of this study, they are simply not able to reach the optimal scale of production or provision for numerous publicly provided goods and, therefore, have to bear the burden of diseconomies of scale in the provision of public goods.

Implicitly, this proposition assumes that public goods are generally provided on the national level and that there is no kind of federal or decentralized organization prevalent in the provision of public goods, which is a good working hypothesis. Of course, it does not fully comply with reality due to an increasing number of public goods provided on the international and a lot of public goods provided on a sub-national or county level.[30]

Although large countries might be confronted with higher costs due to ethnic and cultural heterogeneity than smaller countries, diseconomies of scale seem to be, by and large, more influential in determining government size.

A word should be said about on the distinction between public provision and public production of publicly provided goods. Public agencies are basically viewed as guarantors of the provision of a set of public goods like security, health care or education. There is extensive literature on how this public guarantee *is* translated into action and how it *should be.* The government or any other public agency can produce the public good in-house and then provide it; it also can outsource only production or both production and provision to non-governmental organizations, to private enterprises or to foreign public agencies. Individuals may also be forced to produce and provide public goods (like clearing snow in front of one's house). The actual organizational choice can, of course, be a combination of the above-mentioned possibilities; public agencies can, furthermore, subsidize certain provisions, and so on.

It would not be tractable to distinguish between these many organizational possibilities on the aggregated level of investigation, which is the basis of our analysis in this chapter. We will go into the details of organizational choice in Chapter 4. For the moment it is sufficient to speak of production and provision equivalently in a simplified manner.

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30 It is a notable characteristic of some VSC that they do not have a federal structure, which means that there are only two administrical levels, the national level and a municipal level. See Section 4.3.6 for details.

Note that with an increasing degree of publicness, the costs of in-house production and outsourced production combined with public provision should converge for most provision arrangements, because the burden of the diseconomies of scale effect has to be borne by somebody, which is the public in most cases.[31] We therefore refrain from distinguishing between different organizational possibilities in connection with the provision of goods and will simply refer to «production» or to «provision» in Chapter 3.

In this chapter, the empirical results of Alesina and Wacziarg, which are primarily based on data for the first half of the 80ies, can be confirmed, in principal, also for the 90ies. Smaller countries have higher public expenditure[32] relative to GDP than larger ones. Notwithstanding, a closer inspection in this study shows that the connection between government size and country size is somewhat murky and it hinges on the choice of proxy for country size. When GDP or GNP is used instead of the number of inhabitants, country size seems unrelated to public expenditure. This finding is not in line with that of Alesina and Wacziarg, because they assign significance to both measures of country size.

Furthermore, this chapter is designed to examine the dynamics of the relationship between government size and country size. Considering the development of international and regional organizations (like the European Union) in providing international, global or regional public goods during the last decades, the influence of country size on public expenditure should have decreased significantly. This should especially hold true for countries with good bilateral relationships to their neighbors because of the many public goods that can be provided across borders.

Section 3.1 provides a simple theoretical model displaying the relationship between government size and country size. It also summarizes the impact of other important determinants which are not part of the model. In Section 3.2, the data base is described and empirical evidence is presented. Finally, Section 3.3 briefly concludes by trying to explain the results and by discussing a few shortcomings.

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[31] A notable exception is the production and provision by a foreign public agency. Chapter 4 is mainly dedicated to a detailed analysis of this provision arrangement.

[32] We will measure «government size» by «public expenditure» and use both terms interchangeably, henceforth. See more on public sector size proxies in Section 3.2.1.

3.1 Public sector size and country size in theory

3.1.1 A simple model

The argument that smaller countries have considerably higher public expenditure relative to GDP than larger countries due to diseconomies of scale is rather convincing at first. A lot of publicly provided goods exhibit high fixed costs and/or diseconomies of scale; in other words, the optimal scale of production is far beyond the number of inhabitants of small countries.[33] Think of a monetary system, a legal system or an army in Dominica, St. Lucia, Belize, Liechtenstein and Luxembourg, respectively.

Note that the definition of non-rival public goods implies diseconomies of scale.[34] Assume a lump-sum tax T and a set of public goods G provided by the government, and let N be the number of identical tax payers, then $T = G/N$. The higher N is, the lower per capita public expenditure and individual taxes are, under the assumption of a balanced budget and a fixed amount of G. If all publicly provided goods were non-rival, the optimal country size, irrespective of anything but economies of scale effects, would be of course infinite. As the degree of non-rivalness in publicly provided goods decreases, the effect of diseconomies of scale caused by the division of costs on many tax payers also decreases. A simple example will demonstrate the concept more explicitly.

All individuals in our simple economy are assumed to share the following CES utility function:

$$U(C, G) = C^{\theta} + G^{\theta} \qquad\qquad (1)$$

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[33] We stick to the term «diseconomies of scale» in the remainder. The widely used term «increasing returns to scale» does not convey the exact economic notion, since it normally refers to the production of a good and not to its provision. Additionally, it is generally used for variations of all factors of production. Starret (1977) investigates welfare variations in an economy with public goods, when the endowment of all natural resources is altered. This is not the meaning of «diseconomies of scale» in this paper. To be precise, non-rival and partly rival public goods are considered here to have cost functions with under-proportionally increasing provision costs in respect to the number of consumers, thus exhibiting falling per capita provision costs. The simple theoretical example in this section will entirely clarify the meaning.

[34] The case of non-rival public goods is, of course, a borderline case. Assuming this borderline case makes the theoretical discussion much easier, and one simply has to bear in mind that our results also hold true for partly rival public goods, but to a lesser extent. In other words, our theoretical results in this section are a special case in the sense that they are approached with a rising degree of publicness.

where C is the consumption of a bundle of private goods and θ (< 1) is the elasticity of substitution. The budget constraint is:

$$C = Y - \frac{G}{N} \qquad\qquad (2)$$

with Y as the exogenous level of individual income.
It can easily be shown that the maximization of (1) subject to (2) yields the following optimal supply of the public good:

$$G = \frac{Y N}{N^{\frac{\theta}{\theta-1}} + 1} \qquad\qquad (3)$$

What we are interested in is the ratio of public expenditure to GDP, G/YN. If the first derivative of G/YN with respect to N,

$$\frac{\partial \frac{G}{Y N}}{\partial N} = \frac{\theta}{\theta-1} \frac{N^{\frac{1}{\theta-1}}}{(N^{\frac{\theta}{\theta-1}} + 1)^2} \qquad\qquad (4)$$

is negative, then the ratio of public expenditure to GDP declines with a growing number of tax payers or inhabitants, respectively.

Needless to say, the actual sign of equation (4) depends on the range of θ. The less substitutable C and G (the smaller θ), the greater the effect of population on government size. At the limit (where $\theta = -\infty$) one can easily see, though, that an increase of N runs in the opposite direction, but the right-hand side of equation (4) remains negative in any case, with the notable exception of $\theta = -\infty$ and $N = \infty$, where there is no influence of country size (population) on government size (public expenditure to GDP ratio). It is also fairly easy to show that there are no size effects by using a Cobb-Douglas utility function, which is approached by a unit elasticity of substitution here ($\theta = 0$). For the interval $\theta = [0;1[$ we obtain a positive sign for the right-hand side of equation (4), which would be contrary to the conjecture developed above. If $\theta = 1$, the utility function is linear, but equation (4) is not defined in that case.

According to Alesina and Wacziarg (1998) the resemblance to two well-known effects in economics provides a proper intuition. First, an increase in N of course reduces the per capita costs of provision of G and allows more income to be allocated to private consumption. This may be

viewed as something similar to an «income effect». Second, if per capita costs of provision go down, the demand and the optimal level of provision will increase (similar to a «substitution effect»). Note that this last argument does not contradict the definition of a non-rival public good, since it touches upon quantity of provision (e.g., more soldiers, more parks) and not on the quantity of consumers (which of course may be infinite for non-rival public goods without altering costs per definition).

In the case of a dominating «substitution effect», the right-hand side of equation (4) should be positive. The more intuitive notion of a dominating «income effect» complies with a negative sign on the right-hand side of equation (4). Thus, smaller countries should have relatively higher public expenditure or larger governmental and/or public sectors than larger countries. This is exactly what is meant by diseconomies of scale in the provision of public goods. The empirical examination in Section 3.2 is, moreover, a test whether the right-hand side of (4) is actually negative.

3.1.2 Further important determinants and theoretical predictions

The simple model in the previous subsection is naturally insufficient to grasp further determinants of government size aside from economies of scale that seem of importance. Specifically, it is only valid when we consider economies of scale in the provision of public goods as the sole source for the level and structure of public expenditure. There are many arguments that may question that proposition. Although we have mentioned a lot of other determinants of government size in Table A.2, there are some determinants which are more closely related to country size and population. They will be discussed qualitatively in the following and taken up again in subsequent chapters of this study. Some of them, for which we conjecture a significant effect on public sector size, reappear as control variables in the regressions in Section 3.2:

–   A lot of publicly provided goods are clearly rival or partially rival. In fact, they display optimal scales of production that are significantly smaller than the number of inhabitants of even a small coun-

try. Elementary schools, transfer payments, police, etc. are generally provided on the lowest or – if existent – an intermediate jurisdictional level in large as well as in small countries. Concerning economies of scale per capita, expenditure for those goods should not be systematically dependent on country size. Moreover, these goods may be even more costly in larger countries with large agglomerations because of negative external effects associated with congestion phenomena.[35] Therefore, the argument has to be restricted to non-rival public goods, such as for example legal systems, external security, governments or monetary systems.

It is astonishing that a lot of these almost or entirely non-rival public goods are not produced by small countries, which does not mean that they are not provided. Take Liechtenstein, for example, a very small but nevertheless prosperous country. Liechtenstein does not «produce» an army or a monetary system and does not provide universities of its own. Important parts of its fiscal, social and legal system do not originate in the country. Liechtenstein leaves the production of public goods to its neighbors and restricts itself to guaranteeing provision through mostly advantageous contracts and treaties or simply free rides. The former is sometimes referred to as «international outsourcing», which elegantly grasps the main idea (see Gantner and Eibl, 1999); we will henceforth stick to this terminology and analyze international outsourcing thoroughly in Chapter 4. The negative connotations the term «free ride» do often not apply to VSC, since the marginal costs caused by the population of the VSC are close to zero in many cases and therefore negligible for large countries.[36] It is possible that marginal costs are even negative in special cases. The similarity between certain laws concerning the financial sector in Switzerland and Liechtenstein, which is the result of Liechtenstein adopting Swiss legislation, might be viewed as providing some advantages for Switzerland or Swiss citizens without extra costs.

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[35] Alesina and Wacziarg (1998) control for congestions in their regressions through population density, which seems to be a very rough measure on the country level, because the impact of congestions, intuitively, depends more on the existence of conurbations or big centers.

[36] The marginal costs of providing security to the Monegasque by the French army seems to be sufficiently close to zero (at least in peacetimes) to be neglected by the latter.

To summarize this first argument, non-rival public goods clearly exhibit diseconomies of scale in their production, which obviously leads to disadvantages for smaller countries, caused by higher public expenditure than in larger countries relative to GDP. Nevertheless, the cost disadvantage should decline, when we take into consideration that many public goods can be provided by means of «international outsourcing». Regarding the development of regional and international cooperation and integration within the last decades, a steady decline of the disadvantages of smaller countries due to diseconomies of scale should be observable.

– The above-mentioned possibility of a free ride can easily be underpinned by game theory. The argument may be traced back to Olson (1965) and has already been mentioned in Section 2.2.2.1. The group member with the largest portion of the group gain in a non-unitary group will probably provide the public good (depending of course on benefits and costs for him) and cannot exclude smaller members from its consumption.[37] Thus, in the language of game theory, the strategy-pair defection by small countries and cooperation by larger ones may be a Nash equilibrium.

– Another argument in favor of a greater feasibility of being small is that the evidence simply suggests it. There are currently 193 countries in the world, of which 54 have under two million inhabitants; 34 countries have fewer than 500,000 residents. The dynamics of the process are even more impressive. In 1914 there were only 62 sovereign states on the entire globe; at the end of the second world war the number increased to 74.[38] Thus, within less than a hundred years the number of independent countries more than tripled, a development which has surely not reached its limit yet. There are separation movements almost everywhere in the world. Think of Scotland, the Kosovo, Quebec, Chechnya and East Timor, to name

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[37] Think, for instance, of measures against global warming. If the United States had decided to significantly reduce carbon dioxide emissions, all other countries could not have been excluded from the advantages, even if they had not decided to contribute. In a similar vein, the small countries in NATO were able to exploit the U.S.A. by contributing relatively little for their security during the cold war.

[38] See *The Economist,* Jan. 3rd, 1998, p. 63f.

only a few. This development can, of course, be attributed to political changes and political determinants (the collapse of the Soviet Union[39] or the end of colonial rule). But judging by the evidence, the conclusion that split ups have become more feasible also from an economic viewpoint has to be taken into consideration.[40]

Note that there are, of course, some convincing arguments in favor of smaller units along the line of the well-known phrase that «small is beautiful». They however go beyond traditional economic analysis in general, and we will account for them in detail in Chapter 5. One nevertheless has to be careful not to over-interpret the dynamics within the last century, because many regions or nations simply did not have the option to choose independence after World War 1. Moreover, there have also been phases in history where there were more sovereign entities in the world than now, although the international economic environment then was totally different.

–   One might also argue that the size of the public sector may be constrained by a government's power to tax. Especially failed states are sometimes unable to collect taxes due to administrational inefficiency, corruption or widespread illegal economic activities. It is however not unreasonable to assume that country size and the actual power to tax are unrelated, so that we can leave revenue potentials aside.[41]

Obviously, country size is not only a question of economics. Ethnic heterogeneity, the political system, religion, security considerations, geographic conditions, the extent of federalism and the relationship with adjacent countries play a prominent role in the determination of the opti-

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[39]   It might be argued that the end of the Soviet Union is associated with centrifugal political forces mainly based on nationalism in the former Soviet Republics. There doubtlessly are many political explanations for the collapse of the super power. As an economist, one would nonetheless ask: Would the collapse have happened if split ups had not been so feasible from an economic point of view?

[40]   For special treatment of the economic rationales for secessions see, e.g., Alesina and Spolaore (1997), Bolton and Roland (1997), Friedman (1977), Tietzel (1997) or Wittman (1991).

[41]   We tested for the influence of corruption, which should be strongly related with the power to tax, on public sector size in Section 3.2 but did not arrive at significant results, although we applied more than one possible index for corruption and bureaucratic (in)efficiency.

mal country size.[42] Note, for instance, that many of the VSC in the world and all of the prosperous ones are located in a relatively stable political environment.

Summarizing all arguments of this section and condensing them for the empirical examination in Section 3.2, we obtain three main theoretical predictions from our discussion:

Hypothesis 1: The evidence should show a negative relationship between country size and government size in line with Alesina and Wacziarg (1998) even in the nineties.[43]

Hypothesis 2: The extent and significance of that relationship should have, nevertheless, declined substantially due to the deepening and widening of regional as well as global integration and a higher overall degree of trade openness over the last three decades.

Hypothesis 3: We should detect that the relationship of country size and public expenditure differs between groups of countries. Specifically, OECD members should only display an insignificant difference between larger countries and smaller ones with respect to their public expenditure because of trade openness and more or less peaceful adjacent countries. Geographically remote countries should show large differences with regard to relative government size, because they have fewer options to organize public good provision and, hence, the diseconomies of scale effect should be more severe.

3.2 Empirical evidence

Table 3.1 arranges 120 countries for which data of government consumption[44] in 1995 or 1996 are available in a matrix, grouped by quintiles, computed for government consumption and population. If there is

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[42]   Some of these factors are controlled for in the regressions in Section 3.2.
[43]   The data base of Alesina and Wacziarg (1998) ends in 1989. Some of their results are
       even based on data for the first half of the 80ies.
[44]   The arguments for the choice of government consumption as a proxy for government
       size are laid out in Section 3.2.1.

a negative relationship between government consumption (as a proxy for government size) and population (as a proxy for country size), most of the countries should lie on or near the diagonal. As can be easily seen, 83 countries (69% of all countries) are situated in the squares of the diagonal and in the vicinity of it (directly below or above the diagonal).[45] The simple correlation coefficient between the two variables displayed is – 0.345 and significant at the 0.1% level.[46] Nineteen countries exhibiting low government consumption and few inhabitants (southwest of the diagonal) do not show any obvious pattern.

Conversely, there may be an apparent rationale for those 18 countries northeast of the diagonal, which display relatively high government consumption expenditure. Ten of those 18 are members of the OECD; namely Sweden, Australia, Canada, Poland, the U.K., Spain, Italy, France, Germany and the U.S.A. Moreover, 86% of the OECD members can be found on the diagonal or northeast of it. This suggests that OECD members have significantly higher relative levels of government consumption expenditure and therefore larger governments than other countries of similar size. A non-parametric test reveals that government consumption is indeed higher in OECD countries than in the rest (Mann-Whitney-U-Test; two-sided; $p = 0.003$). The distributions are also significantly different from each other (Kolmogorov-Smirnov-Test; two-sided; $p = 0.011$). We will control for this difference in the regressions by means of a dummy for OECD membership.

It has to be mentioned that we do not intend to address the relationship between trade openness and country size here in greater detail.[47] Clearly, countries which are more open to trade can more easily «afford» to be small (or to split up) than countries with little trade and bad relations with adjacent countries. The explanation for this is straightforward. The more open a country is, the more it can exploit economies of scale effects and effects due to specialization in the production of private goods. It simply follows the rule of comparative advantage and produces whatever it can sell on world markets.[48]

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[45] Countries outside of this area are printed in capital letters.
[46] Because of the right-skewedness of the distribution of «population», its logarithm is used.
[47] See, for instance, Rodrik (1996).
[48] See Section 3.2.4 for a short discussion on openness.

However, public goods can be regarded in a similar vein, and we focus on this proposition in the following chapters. Why should the concepts of division of labor and specialization be restricted to private goods? When a country has open borders, it can gain from public goods which are provided by other countries, because its citizens cannot be excluded from the consumption of the public good. Sometimes small countries can act like free riders, as many European members of NATO did and still do. They have been enjoying highest possible external security, but did not contribute the same relative resources as the U.S.A. Take, for instance, Austria as another example. It «imports» many of its laws from Germany and only modifies them slightly, and it has fully adopted German monetary policies for the Austrian National Bank since the mid 70ies. Additionally, citizens of one country can often use the infrastructure of adjacent countries. Although these facilities cannot be consumed for free, only one government or public agency bears the costs of building and operation. Think of Munich Airport from which many Austrians living in the western part of the country depart for their long-distance flights, the opera house in Salzburg visited by many Bavarians or big hospitals near a country's border.

All these publicly provided goods have to be sufficiently near the border – with the exception of public services, information and global public goods, which have all been gradually gaining more importance in recent years – to offer the opportunity of consumption to foreigners. Consuming publicly provided goods of foreign countries for free or by paying a price near the marginal costs of operation only (which is in general much less than average costs for production and operation) seems to be common in landlocked VSC due to small distances to the country border from any place within the VSC (under the assumption that its area as well as its number of inhabitants is small).

3.2.1 Proxies for government size and country size

We choose government consumption as a proxy for government size in the regressions, even though there are some other aggregates which would also be of interest, like public expenditure or public investment. The trivial reason for our choice is the lack of comparable data for other aggregates, again especially for smaller countries. The data problem ex-

Table 3.1: «Matrix» for government consumption and population

		population →	
		5th quintile	4th quintile
	1st quintile	Iceland Antigua & Barbuda Seychelles St. Vincent & Gren. Suriname Bahrain Guyana Trinidad & Tobago Estonia Namibia Macedonia Slovenia	Eritrea Norway Kyrgyz Rep. Croatia Finland Denmark
govern- ment con- sumption ↑	2nd quintile	Mauritius Grenada St. Lucia Cyprus	Latvia Costa Rica Lithuania Moldova
increasing (as % of GDP)	3rd quintile	KUWAIT BELIZE BARBADOS EQUATORIAL GUINEA GAMBIA	Panama Uruguay Albania Central Afr. Rep. Ireland New Zealand Armenia
	4th quintile	GABON	CONGO TOGO PAPUA N. GUINEA SIERRA LEONE
	5th quintile	SWAZILAND GUINEA-BISSAU	MAURITANIA JAMAICA SINGAPORE

Empirical evidence

increasing

3rd quintile	2nd quintile	1st quintile
ISRAEL	SOUTH AFRICA	U.K.
SWEDEN		
BELARUS		
ANGOLA		
Slovak Republic		SPAIN
Austria		ITALY
Tunisia	AUSTRALIA	FRANCE
Portugal	CANADA	GERMANY
Malawi	POLAND	BRAZIL
Czech Republic		U.S.A.
Greece		
Honduras	Netherlands	
Switzerland	Kazakhstan	EGYPT
Bulgaria	Morocco	BANGLADESH
Belgium	Kenya	RUSSIAN FED.
	Algeria	
	Ivory Coast	Korean Rep.
Tajikistan	Ghana	Ethiopia
Burundi	Sri Lanka	Philippines
Mali	Malaysia	Pakistan
Hungary	Romania	India
Ecuador	Sudan	China
	Tanzania	Iran
	Cameroon	Mexico
	Madagascar	Thailand
EL SALVADOR	Chile	Turkey
GUINEA	Uganda	Vietnam
DOMINICAN REP.	Nepal	Nigeria
ZAMBIA	Venezuela	Japan
	Peru	Indonesia
	Colombia	

plains why Alesina and Wacziarg (1998!) rely on data for the 1980–1984 period to examine the effect of country size on different national account aggregates.[49]

Their results with regard to other national account aggregates as government consumption are more or less in line with theoretical predictions. There is no significant relationship between log population and public investment, but comparability of data on investment across countries may be doubted. They find a weak negative effect of country size on public expenditure on education (which is quite surprising, since education is generally regarded as a local public good exhibiting small or no economies of scale, with the notable exception of tertiary education) and on the broadest available measure of government expenditure, including transfers and interest payments. Transfers, for instance, are expected to rise proportionally with country size (population) and their inclusion in the proxy for government size results in less significant estimates.

Alesina and Wacziarg, furthermore, find no relationship between log population and public expenditure on defense, which is a bit surprising at first but can be explained quite easily. Generally, public goods provided in connection with defense and national security are expected to display considerable economies of scale, but many smaller countries (like Costa Rica) do not even have military forces or only employ a small police-like frontier guard.[50] Therefore, we have two offsetting effects, since small countries, which are supposed to have the highest per capita costs for defense, sometimes simply avoid establishing a defense force. Furthermore, there might be a non-negligible part of defense expenditure which does not appear under this heading in budgets or national accounts.

All in all, the strongest effects are associated with public consumption, which includes all current expenditure for purchase of goods and

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[49]   Note that there are serious principal problems in precisely measuring the size of the public sector in international comparisons. One has to keep in mind that public expenditure in international compilations is contingent on the extent of outsourcing to private enterprises and on to what extent privatized or «private» firms are run by the government. The result of different definitions is non-negligible, which has also been shown by the long discussions and detailed regulations in the EU Treaty of Maastricht and the Growth and Stability Pact. It is however impossible to check for all possible caveats in our data on public sector size, and one has to rely on and trust in the IMF, the source most of the data on public sector size, to have sufficiently harmonized the data.

[50]   See Section 4.3.2 for details.

services by all levels of government, excluding most governmental en-
terprises (IMF International Financial Statistics). We therefore decided
to rely on public consumption in the regressions as a proxy for govern-
ment size throughout this study.

The choice of an adequate proxy for country size seems trivial.
Naturally, one would expect that it should matter little whether, for in-
stance, the number of inhabitants or GDP and/or GNP is selected, but
empirical evidence in Section 3.2.5 shows the opposite. Generally, three
criteria can be brought into play when country size is assessed: the num-
ber of inhabitants, the area and economic size (GDP and/or GDP), and,
of course, combinations of these criteria. In connection with economies
of scale, where the number of consumers of public goods plays a crucial
role, it is intuitively justified that the proper proxy for country size is the
number of inhabitants. We will stick to this operationalization through-
out this chapter, with the exception of Section 3.2.5, where two proxies,
the number of inhabitants and GNP, are compared.

3.2.2 Description of data and basic statistics

The availability of reliable data plays a crucial role in examining the re-
lationship between government size and country size as insofar availabi-
lity is biased towards larger and developed countries. Only a few VSC
provide statistics comparable to, say, OECD members, and very few are
considered in international data compilations like the Penn World Tables
of the National Bureau of Economic Research or the Barro-Lee data set.
Table A.3 in the Appendix gives an overview of the data used in the re-
gressions and their origin. In Table A.4 in the Appendix, pairwise corre-
lation coefficients are displayed.

Initially, it is helpful to give a visual sense of the relationship be-
tween government size and country size, represented by government
consumption as a percentage of GDP and the number of inhabitants, re-
spectively. Data are derived from the IMF International Financial
Statistics and averaged over the period 1993–1997.[51] Figure 3.1 shows a

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[51]   This is the most recent five-year period for which a sufficiently large sample of coun-
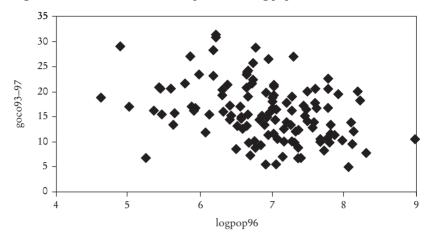   tries is available.

Figure 3.1: Government consumption and log population

scatterplot for the relationship between government consumption as a percentage of GDP and log population. Table A.5 in the Appendix lists those countries for which data on government consumption from 1993 to 1997 are available. As can be detected fairly easily, more than 60 countries are missing, and the data situation is – as expected – especially poor for smaller countries. After all, there are 17 countries with fewer than one million inhabitants, of which twelve provide data on government consumption for the whole period from 1993 to 1997.

As to government consumption and population, a statistically significant negative relationship can be detected. Not surprisingly, the intuition of Table 3.1 is herewith confirmed. The univariate OLS regression between government size and country size in Table A.6 in the Appendix is significant at the 1% level for the 90ies. We find that a doubling of population corresponds to a 0.76% decrease of government consumption relative to GDP (2.532*log2). Therefore, government consumption relative to GDP is expected to be 4% higher in the U.K. than in the U.S.A., for instance, solely due to the size effect. This result can,

however, only be regarded as a guideline for a possible size effect.[52] Note that the associated R^2 is relatively low (0.119) and therefore one has to exercise caution in interpreting the results. The first step one can take is to test for robustness of the size effect by running multiple regressions, where some important control variables are introduced (in Section 3.2.4).

3.2.3 Multiple regressions as the proper empirical tool

To address the relationship between government size and country size more comprehensively, it is necessary to include several variables – like, for instance, geographic dummies – which have been considered to be worth controlling for in Section 3.1 from a theoretical viewpoint. A multiple regression analysis is an appropriate tool to analyze the question at hand, because it allows us to obtain a quantitative assessment of the relation ship between country size and government size without neglecting other important determinants of government size (like per capita GDP, dummy variables for groups of countries, population density, etc.).

It has to be mentioned here that the analysis is designed to shed light on the overall picture of the issue and that it can only investigate the cost (supply) side of the provision of public goods. The possible and expected result that small countries have to bear higher costs for the provision of public goods cannot be the sole argument to declare them economically inferior (from an efficiency perspective) to larger countries. The results of this chapter have to be supplemented by a thorough investigation of the demand side effects of smallness (preference adequacy), other, hardly-quantifiable effects of smallness («distance» to politicians and bureaucrats, advantages/disadvantages of sovereignty, advantages/disadvantages of homogeneity, etc.) and the sources of the possible cost disadvantage (diseconomies of scale, lack of competition, etc.). Moreover, there are, of course, other sources of inefficiency prevalent in any country which are much easier to adjust than country size, if the latter is adjustable at all. Most of the important determinants, especially on the

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52   Nevertheless, it can be shown by sensitivity analyses that the general picture does not change if UNDP data its used instead of IMF data for the 90ies.

demand side, can only be analyzed by means of case studies and by an investigation of the institutional arrangements. Chapters 4 and 5 will provide more evidence on these important supplements to the multiple regression analysis.

Data scarcity and reliability are, of course, a problem for studies like this one. It has already been mentioned that there may be a slight bias due to the unequal distribution of missing data with regard to country size. Clearly, data for smaller countries are more difficult to obtain, and many VSC do not even provide national accounts. Nevertheless, our sample includes data for twelve countries which have fewer than a million inhabitants (see Table A.5). VSC are hence underrepresented in comparison to larger countries, but they are sufficiently represented to allow us to draw conclusions from the results.

Data scarcity (especially for VSC) and reliability are related problems, and there are two approaches to coping with them. First, the approach followed in this study: One can be aware of the shortcomings and the limitations of the results, but, nonetheless, stick to the empirical analysis to get a broad-stroke picture of the structure of the question at hand. Second, one can stress the caveats and abstain from a quantitative assessment, which, as a consequence, means that it is not possible to answer the question concerning the relationship between country size and government size generally.

As is well known in econometrics, when cross-section data of countries are in use, there is often a problem of heteroscedasticity involved.[53] Heteroscedasticity is a violation of one of the central assumptions of the classical linear regression model, which states that the variance of each disturbance term u_i should be constant. Symbolically, $E(u_i^2) = \sigma_i^2$ (heteroscedasticity) instead of the assumption $E(u_i^2) = \sigma^2$ (homoscedasticity). The consequence of heteroscedasticity is that the estimated coefficients no longer comply with the criterion of minimum variance in the class of linear unbiased estimators; hence they are no longer BLUE (best linear unbiased estimator). It is hazardous or misleading to make inferences based on OLS (ordinary least squares) estimations in the presence of heteroscedasticitiy.

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[53] Details on heteroscedasticity, detection methods and remedial measures can be found in almost any standard textbook on econometrics.

There are several possible ways to cope with heteroscedasticity. First, methods of detecting heteroscedasticity are numerous. Take, e.g., the Park test, the Glejser test, Spearman's rank correlation test, the Goldfeld-Quandt test or the Breusch-Pagan-Godfrey test. Second, another possibility is to avoid OLS estimations and employ a related method, known under the label GLS (generalized least squares) that provides BLUE estimators. A special case of the GLS estimation, WLS (weighted least squares) is widely used in regression analysis. Third, a further possibility is to simply correct OLS estimations. Since many standard statistical packages allow us to calculate these corrections easily, it is not necessary to test for heteroscedasticity first, and then to think about remedial measures. We can simply compare OLS and the corrected ones. This correction method is named after White, and the technique is denoted HCCME (heteroscedasticity-consistent covariance matrix estimators) (White, 1980). Needless to say, the HCCME leave the coefficient estimations unchanged, but influence standard errors and significances.

We chose this last possibility of assessing the problems arising from heteroscedasticity. The estimation method employed is OLS, but the standard errors are heteroscedasticity-consistent or, equivalently, «White-corrected». Surprisingly, the difference between corrected and uncorrected standard errors is very small for almost all model specifications in the following sections. Heteroscedasticity is, contrary to our expectation, not much of a problem with the data in use.

3.2.4 Regression results

The results of the regressions are displayed in Tables A.6 and Table 3.2. The negative relationship between government consumption and population is significant on the 1% level in all model specifications (with the exception of model (6), where it is significant only on the 5% level), even when controlling for population density, which, apparently, cannot balance out the effect of size.[54] The coefficients of the size variable in the

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[54]   The negative sign of the coefficient for population density was not expected. Intuitively, we would expect countries with high population density to have higher government consumption, but some advantages for densely populated countries (at least for the extent of government consumption) seem to exist.

multiple regressions are astonishingly similar to the one in the univariate regression. Contrary to the theoretical predictions, Table 3.2 shows a steady rise over time of the explanatory power of the multiple regression model *and* the magnitude of the size effect.

It is important to classify the results properly. By comparing model (1) and (5) one can easily see that R^2 rises from 0.119 to 0.305, which means that simple geographic location can explain by far more variation than size alone. The size effect is clearly robust, but one should not run the risk of over-interpreting its consequences.[55]

As mentioned above, we do not intend to measure the relationship of openness and country size in this study. There is, however, an important theoretical expectation which relates openness to public sector size. One might presume that more open countries are more prone to external economic shocks (there is indeed a very high correlation between a vulnerability index from Briguglio (1995) and openness, which is however partly due to the definition of that index) and, hence, they should have larger public sectors in order to be able to cope with those external shocks. We checked for such a rationale and did not find any of the models in Table A.6, where an openness proxy (we applied several) came out significantly. Of course, government consumption is not the appropriate dependent variable in connection with openness (public expenditure would be more suitable), but given that the coefficients for openness are always far from being significant, we are very convinced that our result would also be valid for other aggregates of public sector size. Note further that external shocks should alter public expenditure only temporarily, although there might be some inertia or lock-in effects. One would hence have to test for higher variances in yearly public expenditure in very small countries.[56]

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[55]   Calculating confidence intervals, we obtain $-3.668 \leq \beta_2 \leq -1.396$ for the univariate regression. Taking a very small country with 250,000 inhabitants would yield a range of government consumption in % of GDP of 13.62 and 25.88 within the interval. For a middle-sized country with 10 million inhabitants we arrive at 7.74 and 23.65, and for a large country with 250 million inhabitants we have 2.61 and 21.69.

[56]   We refrain from going into detail with regard to this question, because it would require other variables and a different methodological approach, and we doubt whether it is possible to single out the size effect in such a setting.

Table 3.2: OLS regressions for government consumption and log population with control variables (development)

Dependent variable: government consumption in percent of GDP	Period/year	Logpop	Adj. R²	Number of observations
	1960–64	–0.311	0.16	118
		(–0.86)		
	1965–69	–0.158	0.17	119
		(–0.44)		
	1970–74	–0.407	0.22	124
t statistics in parentheses		(–1.02)		
Results for 1960–1989 from Alesina	1975–79	–0.875*	0.26	125
and Wacziarg (1998, p. 313).		(-1.90)		
	1980–84	–1.235**	0.35	130
		(–3.46)		
	1985–89	–1.121**	0.34	134
		(–3.39)		
	1993–97	–2.847**	0.39	103
		(–2.870)		

Other control variables (which are not shown) are the same as in Table A.6, column (7).

** significant at the 1% level; * significant at the 5% level; t statistics based on White heteroscedasti-city-consistent standard errors in parentheses

Alesina and Wacziarg (1998, p. 312–313) offer two possible explanations for the counterintuitive result from Table 3.2 that the explanatory power as well as the size of the effect has increased over time:

–   Newly de-colonized countries in the 60ies may have had a lot to catch up on on their way to establishing their public sectors, which could have covered up the effect of country size on government size.

–   The figures for the 60ies and partly for the 70ies are estimations for some countries and could, therefore, lack precision.

Both explanations are not entirely convincing, especially when data for the 90ies are considered. A further intuitive explanation would be that the size effect has actually become more important over time, but one has to distinguish between the public and the private sector. Suppose the following development within, say, the last two or three decades: The provision prices of public goods have increased due to higher demands

on sovereign states. Think of, e.g., the rising importance of international organizations, the rising costs in public administration, etc. One can hardly argue that VSC could avoid these developments, which all countries have experienced. If this is the case, VSC will be hit relatively harder by the costs of these new challenges for the public sector, because they are not able to distribute the burden to a huge number of tax payers. Judging from this, however, the number of VSC might have declined or increased more slowly, and secessions should have become less feasible – an apparent paradox, given the growing number of countries and, particularly, of VSC in the world.

The puzzle can possibly be solved by taking the private sector into account. If we assume that the rising trade volume, open borders and the globalization of former mainly national-oriented economies have improved the relative cost-situation of VSC, which is a fairly intuitive notion, then the paradox vanishes, since the increase of the positive effects of openness for private firms may possibly outweigh the increasingly negative size effect in the public sector, hence leaving VSC relatively better off. In other words, the net balance of an increasing advantage for VSC in the private sector and an increasing disadvantage in the public sector is positive. Thus, we might be able to explain the growing number of secessions and small countries in the world from an economic viewpoint.[57]

One might possibly question our regression model specifications. There is no theoretical rationale that the relationship of the variables is linear, but there is also no clear expectation, which would imply another functional form. Some theories of bureaucracy would perhaps point out that a power law is at work, but they would rather suggest that larger countries have more bureaucrats and, hence, larger public sectors, which is definitely not the case here. Without having a clear theoretical idea of another specification, we like to argue that one should start with the most intuitive and straightforward model, and this is a linear model. Our intuition is confirmed by some stability statistics. A Ramsey Regression Specification Error Test (Ramsey 1969), which is designed to test for specification errors like omitted variables or an incorrect functional

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[57]   We are, of course, aware of the fact that there are a lot of other – more important – determinants of secessions, some of which will be analyzed in Chapter 5 in greater detail.

form, does not confirm the notion of an incorrect specification ($p > 0.05$ for all F-Tests with different numbers of fitted terms). Furthermore, a plot of the recursive residuals shows proof that the parameters of the regression equation are rather stable. Note that stability tests have been performed for model specification (7).[58]

A similar argument is also valid for the dummy variables. Other functional forms (like multiplicative relationships between certain dummies and other independent variables) are imaginable and may be possible, but there is no clear theoretical prediction behind these alternative specification possibilities. One would surely run the risk of something approaching data mining when testing for a lot of such alternative specifications. We therefore apply the linear regression model and, given the evidence of stability tests, are rather sure that it is a reasonable specification, although we of course do not want to give the impression that improvements to our model by adding and/or removing variables or trying different functional forms are impossible.

3.2.5 Per capita income and government size

The influence of per capita income on government size in Table A.6 is especially striking. In contrast to Alesina and Wacziarg (1998) per capita income enters positively and is significant on the 1% level in model specifications (2), (3) and (4). Take column (2) for instance. A doubling of per capita income leads to a 0.92% increase of government consumption according to the regression[59]; in contrast to the period 1985–89, in which according to Alesina and Wacziarg a doubling of per capita income would have been associated with a 0.66 (marginally significant) decrease of government consumption. A univariate regression between per capita income and government consumption yields an adjusted R^2 of 0.093 according to our data and is significant on the 1% level.

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[58]   Note further that the Durbin-Watson statistics of all model specifications are satisfactory.

[59]   One has to exercise caution in implying strict causality. There is a good theoretical basis for supposing that per capita income influences government consumption, but one has to bear in mind that government consumption also influences national income through national accounts.

In brief, wealthier countries have significantly larger governments (relative to GDP) than poorer ones. This result is more appealing from an intuitive as well as from a theoretical viewpoint than that of Alesina and Wacziarg. Developed countries with high GDP per capitaratios are supposed to have a differentiated system of political participation, administration, and political bargaining They provide a wide range of public goods and therefore display higher public consumption expenditure than similar sized developing countries. Public consumption relative to GDP has steadily been rising since World War II in those countries[60], and some theories create a direct link between economic and/or political development and public expenditure growth.[61] Nevertheless, it is striking at first sight that the OECD dummy is not significant in any of the model specifications. An explanation for this result may lie in the recent enlargements of the OECD, to which countries with average sized public sectors like Mexico or Korea have been admitted, or in the high correlation between the OECD dummy and per capita GDP (see Table A.4).

The evidence of a positive relationship between per capita GDP and government size brings up an interesting presumption. Does per capita GDP affect not only public consumption, but also country size? The theoretical rationale behind such a relationship would be the conjecture that split ups are more feasible for regions in wealthy countries due to the fact that highly developed countries are generally more open than poorer ones. Is the significant correlation between government consumption and government size influenced by the variable welfare, represented by per capita GDP?

The appropriate method to answer this question is to run a partial correlation. It basically tests whether there is a correlation between variable A (government size) and variable B (country size) by removing the linear effects of a variable C (per capita GDP), which possibly affects both variables A and B. Variable C is often called «control variable» in the context of partial correlations. Technically, the partial correlation is estimated by regressing A on C and B on C. For the residuals for each of the two regression equations, the Pearson correlation is then computed. The result is a correlation of variables A and B, in which the line-

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[60]   See, for instance, Blankart (1998) or Cusack (1997).
[61]   Baumol (1967), Cusack (1997), Timm (1961), Wagner (1892) etc.

ar effect of variable C is removed. Running a partial correlation between government consumption and the number of inhabitants and controlling for GDP per capita shows that the relationship remains more or less unchanged, which clearly contradicts the above-mentioned notion. GDP per capita is not a control variable.

The inconsistency with Alesina and Wacziarg concerning per capita income is, nevertheless, astonishing, not only because of the difference in direction, but also because of the magnitude. As they report a mean of 7.871 for log per capita income[62], which would be more than 74 million $ US per capita, one is forced to be skeptical about the results. This skepticism also applies to the means of log population and log of total GDP in 1980 reported in the summary statistics[63], which are both much too high as well. It cannot be fully verified if the problem reappears in the regressions, but a replication of their statistics with Penn World Table data yields qualitatively similar results concerning the sign of the coefficients, but leads to obvious differences in the magnitude of the effects.

3.2.6 Country size represented by GNP

Alesina and Wacziarg state that their findings are not sensitive to the choice of representation for country size. Strictly speaking, they conclude that it makes no difference if log population or log GDP and/or GNP is employed in the regressions as independent variable:

> All of the results in this paper are, in fact, qualitatively unchanged if we use the log of total GDP rather than the log of population as a measure of size.[64]

Here contrasting evidence is provided, because the relationship between public expenditure and population and the relationship between public

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[62]   See Alesina and Wacziarg (1998, p. 310).
[63]   The reported means are: for log population 1980: 8.785 corresponding to about 61 million inhabitants (our calculation: 6.631 or 4.3 million inhabitants, respectively), for log total GDP 1980: 16.649 corresponding to about US $ 44.6*10^{15} (10,000 or US $ 10 billion, respectively) and for log per capita income 1980: 7.871 corresponding to US $ 74.3 million ($ 3,220 or 1,660, respectively).
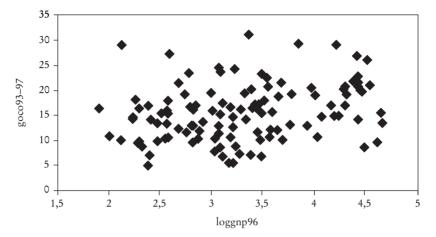[64]   Alesina and Wacziarg (1998, p. 311), footnote 5.

Figure 3.2: Government consumption and log GNP

expenditure and GDP, obviously, differ. The scatterplot in Figure 3.2 gives a first clue of the differences and Table 3.3 presents univariate regressions for various years.

It can easily be seen that the variable population cannot be replaced by GDP or GNP, at least for the 90ies. This is an interesting result, since it establishes that the detected negative relationship between country size and government size is conditional upon the selected operationalization of the variable country size and does not even prevail in the two most widely used definitions. Why does GNP or GDP work contrary to our expectations as a proxy for country size? One promising explanation might be the fact that many smaller countries, especially in Europe, are performing extremely well from an economic viewpoint. In other words, they «grow» when GNP or GDP is applied as a proxy for country size relative to the application of the number of inhabitants. But the explanation is not entirely convincing, because there are also quite a few VSC located in the Pacific and in the Caribbean, and some of them are not among the wealthier countries in the world.

Table 3.3: OLS regressions for government consumption and log GDP/ GNP in comparison to government consumption and log population

Dependent variable: government consumption in percent of GDP	Period/ year	Logpop	Loggdp (Loggnp)	Adj. R²	Number of observations
PWT 5.6	1980–84	−2.727** (−2.860)		0.052	147
PWT 5.6	1980–84		−4.261** (−6.047)	0.179	142
PWT 5.6	1990	−2.258* (−1.984)		0.034	115
PWT 5.6	1990		−3.985** (−5.195)	0.190	110
PWT 5.6	1992	−1.401 (−1.088)		0.002	92
PWT 5.6	1992		−3.481** (−3.862)	0.110	85
IMF	1993–97	−2.531** (−4.372)		0.119	125
IMF	1993–97		−0.159 (−0.297)	−0.008	115

Sources: Penn World Tables (PWT) 5.6, UNDP and IMF (national accounts).

** significant at 1% level; * significant at 5% level; t statistics based on White heteroscedasticity-consistent standard errors in parentheses.

The result of the dependence on the right proxy for country size can, however, be interpreted in another way. Since from a theoretical viewpoint it is rather obvious that the number of inhabitants is a better proxy for country size than GDP, especially when the provision of public goods is at stake, the results may simply be considered as empirical evidence for the superiority of one of the two proxies.

3.2.7 Multiple regressions with politics and geography

The preceding sections did not leave scope for political and geographic variables in the regressions. A lot of them have been proposed in related studies, from which we decided to choose only three: political stability,

level of personal freedom and remoteness of a country. Among the many others which were considered are the number or length of wars in which a country was or is involved, the number or length of revolutions, an index for bureaucratic efficiency as well as an index for ethnolinguistic fractionalization. Given the high correlation coefficients between some of these measures, we decided to rely on only one indicator for politics (political stability), one for social live (freedom index) and one for geography (remoteness dummy). Table A.7 in the Appendix presents the results.

The findings in Table A.7 clearly meet expectations. It is worth mentioning that coefficients for log population remain significant at least at the 5% level in all model specifications (with the exception of model (2)), which is an indication that country size, at least with respect to population, matters.[65] In passing note that some of the regressions contain few observations, which diminish their explanatory power, especially due to the omission of many VSC, for which data are not available. In spite of this limitation it is really noteworthy that the remoteness dummy, which differentiates between islands and landlocked countries, is also significant in all regressions. This clearly corroborates the conjecture that «international outsourcing» or the transnational provision of public goods play a crucial role in determining the costs of publicly provided goods, although we could not exemplify decreasing coefficients or decreasing statistical significance of the size variables.[66] If a country is sufficiently small and has no chance to source out parts of the production and/or provision of necessary public goods because distances are considerable and/or transportation costs are unbearably high, then public goods have to be produced and provided at inefficient scales at home, and we will observe a larger government sector leading to higher public expenditure. The effect of remoteness would probably be even more severe if many small island economies of the Pacific and Caribbean did not have to be neglected in the regressions due to the lack of data.

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[65]   In model (2) the effect of population density is strong enough to lead to the insignificance of the size variable.

[66]   See Section 3.2.4.

3.3 Summary of empirical results on country size and public sector size

Chapter 3 assesses the relationship between country size and government size. Major findings are the following:

–   The negative relationship between country size and government size prevails even in the 90ies. No matter which control variables are included, the coefficient for the number of inhabitants is almost always significant. However, it is noteworthy that the results hinge critically on the definition of country size. When GDP or GNP is used as a proxy for country size instead of the number of inhabitants, the picture is not clear-cut anymore. This means an economies of scale effect is more closely associated with population than with a country's economic size, confirming prior theoretical considerations and our model. Furthermore, we have to emphasize that this result cannot serve as a basis for political advise, in the sense that larger entities would more or less automatically lead to lower per capita costs in the public sector. There are doubtlessly a lot of other, more effective organizational possibilities to lower costs in VSC, apart from size considerations.

–   Our basic results are in line with Alesina and Wacziarg, with two notable exceptions. Their result concerning the irrelevance of proxy for country size cannot be confirmed, as explained above. Additionally, one has to be skeptical concerning the sign of the coefficient for the control variable per capita income. According to Alesina and Wacziarg, wealthier countries should have smaller governments, which is counterintuitive and contradicts theoretical reasoning. It can be shown that the summary statistics of the data used by them displays means which are far from being realistic, but it is not entirely clear whether their regressions are also based on questionable data.

–   The hypothesis of a decreasing size effect over time concerning significance as well as magnitude due to more open countries and global and/or transnational public goods has to be rejected. Some possible explanations for this result have been presented above, but the

result may also be a consequence of the lack of data for some VSC and should be investigated more thoroughly in future work.

– Remote island economies have to bear considerable disadvantages, which become the more severe, the fewer inhabitants they have. In short, small countries surrounded by peaceful neighbors can compensate for the disadvantage of size that arises from diseconomies of scale; small countries surrounded by villainous neighbors or by the sea with long distances to other countries cannot.

– The size effect is predominantly assigned to economies of scale in the provision of public goods, albeit there are a few other good explanations for the phenomenon. A case study of Liechtenstein (Gantner and Eibl, 1999), however, has shown that a small country's disadvantage appears in areas where local public goods are widespread and public monopoly is prevalent (e.g., education, garbage disposal, sewage). The method applied here is not designed to address this question adequately, which leaves opportunities for further research to clarify this point. The problem of a thorough study on the determinants of the size effect is that it would require highly disaggregated data.

At this point it is necessary to draw attention to a few caveats, some of which have already been discussed above. The lack of data for certain groups of countries, especially for VSC, may bias the results considerably. Additionally, it must be borne in mind that two different data sources, the Penn World Tables and IMF data, are used for inter-temporal comparisons. The correlation coefficient of the government consumption data of these two compilations is not convincingly high, but at least significant. A data compilation with fully comparable data is, however, not available.

Furthermore, it is not entirely convincing that econometric estimations seem to point in another direction than reality at first sight. If smaller countries bear clear disadvantages, why are country secessions so numerous nowadays? As an economist, one has to be convinced that there are not only political but also at least a few economic arguments in play when split ups are at stake. Perhaps the public sector is, indeed, a burden for every region planning to split up, and other economic factors (espe-

cially in the private sector) outweigh this disadvantage. Nevertheless, the development of split ups suggests a decreasing importance of country size, which cannot be detected in the regressions.[67] Finally, the extent of federalism in different countries may play a crucial role. If regional governments produced and/or provided public goods on an inefficient scale, this would influence the results. The approach applied in this study implicitly assumes that there is no federal structure.

Recalling our discussion on the appropriate definition of a VSC in Section 2.3.2, we can now confirm our presumption. VSC have relatively larger public sectors than larger countries, and the prime suspects of this result from a theoretical viewpoint are diseconomies of scale. We therefore propose to define VSC in terms of the costs associated with publicly provided goods in accordance with the discussion in Section 2.3.2. Note that the number of inhabitants is implicitly accounted for in feature (c), and therefore only countries with a small population fulfill Definition 3:

> *Definition 3:* A VSC is a country with the following characteristics:
> (a) full sovereignty and international recognition
> (b) the set of public goods provided by the VSC is comparable to the set of public goods provided by other sovereign countries.
> (c) a considerable part of the publicly provided goods exhibit *diseconomies* of scale in their production if they are produced in-house.

Note finally that there are three apparent possibilities for VSC to cope with those diseconomies of scale:

– They can simply accept their cost disadvantage. This would imply, from an economic viewpoint, that there have to be considerable advantages in other respects (advantage of sovereignty, more happiness in VSC), because otherwise the formation of VSC would not be stable in the long run, and there would hardly be so many of them in the world.

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[67] We will come back to this question in Chapter 5.

–   They try to avoid or minimize diseconomies of scale by special arrangements of public good provision (outsourcing, free riding etc.), thus diminishing the cost disadvantage. In the outsourcing case, VSC can be examples for larger countries with regard to their public goods provision.

–   They do not provide or, if possible, only partially provide certain public goods. They may also provide certain public goods on inferior quality levels compared to other countries.[68]

Most likely, all three analytically distinguished possibilities may play a role in explaining the existence of VSC. In the following Chapters 4 and 5, we study the extent to which those possibilities actually apply.

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[68]   Note that the effect to which such solutions diminish citizens' happiness is a very difficult question to answer.

4. Very small countries: organizational choice and international outsourcing

The analysis in Chapter 3 was naturally inadequate to grasp organizational issues and the details of public good production and provision in VSC. What we know from Chapter 3 is that there is a statistically significant and robust negative relationship between country size and public sector size in the sense that smaller countries have larger public sectors. Although we do not have a proper yardstick of evaluation, we consider the actual public sector size disadvantage of VSC as relatively small, given theoretical expectations. To learn more about the extent of the negative size effect and some strategies of VSC to cope with the problems arising from diseconomies of scale, Chapter 4 is now designed to restrict the analysis to VSC only. We will especially concentrate on international outsourcing, which is one important possibility for VSC to limit production and provision costs for public goods.

In order to assess the question of organizational choice in a case study manner, we develop a theoretical grid for the analysis of the public good provision in VSC and then take a closer look at the provision of those public goods, which are associated with high levels of diseconomies of scale. Chapter 4 is, hence, designed to study how VSC cope with their apparent public sector disadvantage.

Section 4.1 gives an overview of some features of public goods, which will be of importance in subsequent sections. In Section 4.2 we develop the theoretical background and our main hypothesis with regard to the provision of public goods in VSC. Section 4.3 is then designed to test for our hypothesis by analyzing public good provision in 21 VSC, and Section 4.4 draws conclusions from our results.

4.1 Organizational forms of public good provision: a positive approach

Many goods that we consume are actually publicly provided. Some of them are tangible like, e.g., parks, money and federal police; some of them are intangible like, for instance, security or good governance. The conventional wisdom that certain goods have to be provided by public agencies has been challenged from two approaches with one central question each:

–   What is the *optimal organizational form and unit* of provision and production *in general?* Specifically, which goods should be provided by the public sector and which by the private sector?

–   What is the *optimal institutional and organizational form and unit within the public sector* to provide those goods, which are typically considered to be public?

A grid analysis similar to ours was developed by Gantner and Eibl (1999), who distinguish between three central terms in connection with the provision of public goods: *priority of tasks, mode of provision* and *expenditure intensity.*
        Our analysis is intimately related to the question of the provision mode. In other words, which goods should be provided publicly, and which should be provided privately or, more generally, non-publicly? What seems to be a dichotomous question in fact much more resembles a continuum. Figure 4.1 shows some possible degrees of publicness.
        We deliberately chose six possible positions on the continuum between public and private production and provision in Figure 4.1. Henceforth, we will stick to the term «public» for the three positions on the left-hand side of the scale and to the term «private» for the three positions on the right.
        In contrast to Chapter 3 we now have to be stricter concerning the distinction between provision and production. Although it is not very difficult to distinguish in theory, reality provides a whole spectrum of different arrangements. It is therefore helpful to clarify our understanding of the distinction with a simple example in the field of education. In order to be as clear as possible, we restrict ourselves to university edu-
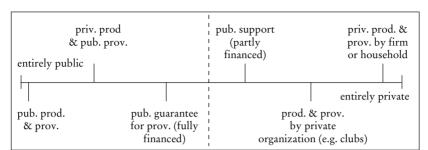
Figure 4.1: Degrees of publicness

priv. prod & pub. prov.	pub. support (partly financed)	priv. prod. & prov. by firm or household

entirely public

entirely private

pub. prod. & prov.	pub. guarantee for prov. (fully financed)	prod. & prov. by private organization (e.g. clubs)

Abbreviations: pub. = public; priv. = private; prod. = production; prov. = provision.

cation. A country – imagine a VSC – might choose to run a public university, where the employees are paid by the government to a sufficient extent. This case would be termed *public production and public provision.* The country might alternatively decide not to run its own university, but provide scholarships enabling young people to go to an adjacent country in order to attend a university there. This latter case would be an example of *public provision.* Of course, it would furthermore be possible to fully subsidize a private educational institution with public funds. Although there are many possible organizational arrangements in connection with public funding, we would also call such an arrangement *public provision,* because a more precise distinction is not necessary for our purpose. The country in question might also decide not to engage in tertiary education directly and have only private, non-funded institutions, which is a rather unlikely case of course and would be called *private provision.*[69]

   The benchmark case in this chapter is the case underlying traditional public economic theory, where a public agency produces and provides a good itself. The higher economies of scale in this provision arrangement, the more severe is the disadvantage of VSC. It is the aim of this chapter to compare actual provision arrangements in VSC with this benchmark case (especially for public goods with high economies of

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[69]   Note that the given examples constitute only a few arbitrarily chosen locations on the continuous scale of publicness between entirely publicly and entirely privately provided goods.

scale), and we will concentrate on international outsourcing as an alternative provision arrangement, since it is largely unstudied and a very promising way for VSC to keep costs low. Note that international outsourcing can be viewed as a special case of public provision, since the VSC government usually guarantees provision by means of treaties or similar agreements.

Our analysis is further complicated by the fact that some of the goods which are generally assigned to the public sector (at the left hand side of Figure 4.1) are also provided by the private sector, like hospitals or education. It seems impossible to adhere to a clear and general distinction between publicly and privately provided goods, but there are, nevertheless, a set of goods which are considered to be mostly public, although cultural differences between European-oriented and Anglo-Saxon-oriented countries have to be taken into account.

For those goods, which we decided to label «publicly provided» (which are generally provided by a public agency), numerous organizational and institutional forms of production and provision exist, as has been exposed above. Table 4.1 provides a list of important characteristics or dimensions which may be helpful in classifying or grouping publicly provided goods. These classifications are not absolutely necessary for the following sections, but they help in explaining important terminology and some basic concepts.

The enumeration in Table 4.1 should be viewed as positive and not as normative. It displays to what extent publicly provided goods differ with regard to several dimensions. The characteristics therein, then, have to be connected with a theory to obtain an optimal organizational form of production and provision, assuming that such an optimum exists. Such a task, when it aims to provide a general framework for a sufficiently large set of publicly provided goods, is beyond the scope of this work.

We will concentrate on a few important characteristics and develop a theory-based analysis grid in Section 4.2. Although the framework, which is developed below, is more general, the main focus of the interpretations will be on the public good provision in VSC. Nevertheless, it is convenient to have a broader framework for examining VSC public sectors comparatively. First of all, though, the characteristics in Table 4.1 need some explanations.

Table 4.1: Characteristics of organizational and institutional forms for the production and provision of public goods

Characteristics	Range and explanation
1. spatial characteristics	global/regional (e.g. cross-border)/local production and provision
2. national characteristics	own/common/foreign production and provision
3. degree and kind of competition	degree: competition within state agencies and between state(-dependent) agencies and/or private institutions kind: inter-organizational competition (between organizations regardless whether private or public) or intra-organizational competition (see 4.)
4. participation rights	voting rights; terms of office; continuous vs. discrete participation
5. binding nature	obligatory vs. voluntary «consumption»

4.1.1 Spatial and national characteristics

Characteristics 1 and 2 dwell upon the subject of geographic or spatial organization for the production and provision of public goods. The first characteristic or dimension aims at the area where a publicly provided good is (can be) consumed or at the number of people who (can) consume a publicly provided good regardless of national borders. Contrary or supplementary to that, Characteristic 2 deals with the jurisdiction of provision.

Global public goods are provided at a global scale, whereas on the other end of the continuum, local public goods are provided at the lowest administrative level. It is obvious that global public goods have become increasingly important during the last decades due to the process of internationalization. Kaul et al. (1999, p. 16) define global public goods as «*outcomes (or intermediate products) that tend towards universality in the sense that they benefit all countries, population groups and generations*». They therefore exhibit considerable external effects, and the problems of provision resemble those of all pure public goods. Furthermore, there is no single responsible institution, like a government on the national level, which is designed to ensure provision and which is elected to define political priorities in the provision process.

These problems, however, have not been daunting enough to prevent approaches and some success in the provision of public goods on a global scale. Kaul et al. (1999) distinguish between six fields where attempts to provide global public goods have been numerous. Some of these attempts have been successful: equity and justice (e.g., international courts), market efficiency and stability (e.g., WTO, IMF), environment and cultural heritage (e.g., ozone depletion, CO_2 reduction), health (WHO, epidemiological surveillance), knowledge and information (internet, scientific research) as well as peace and security (peace keeping, UN, Interpol).

Increasing efforts in regional integration led to the provision of more and more public goods at a scale between the global and the national level. Some of them, clearly, are similar to the public goods, which are provided on the national and on the global level and, therefore, constitute substitutes. There is, however, an expanding set of public goods provided on the regional level which are complements to existing public goods on the national and global levels. Moreover, the European Union is an example of the exclusive provision of public goods on the regional level, the most prominent of which is the euro, the common currency of 12 EU countries.

It is noteworthy that a national view of public good provision would not reach far enough. The process of increasing integration between countries is not only relevant for international trade of private goods and foreign investment. Actually, the traditional view of publicly provided goods which cannot be consumed across a country's border is somehow outdated for adjacent countries with good relationships. It seems that the importance of jurisdictional borders for the consumption of public goods is gradually declining.

In passing note further that we dwell upon the subject from a positive point of view, since we only state that there are public goods which are provided on different jurisdictional levels, without discussing for the moment the more important question, the level on which these public goods should be provided. Of course, we will come back to this question in the next sections, where we also analyze spatial and jurisdictional characteristics of publicly provided goods in greater detail, especially in connection with international outsourcing.

4.1.2 Competition and participation rights

The degree of competition which is existent in the provision of public goods is a very important characteristic of the institutional frame. Many public goods are provided in an environment where competition is more or less nonexistent. Nevertheless, especially in recent years the exposure of the public sector to competition has been considerably widened, particularly due to some influential concepts of public sector reform like the New Public Management approach. De Spindler (1998) distinguishes between competition among public agencies and/or private institutions and competition within public agencies. We will refer to the latter category as participation rights.

4.1.2.1 Participation rights

The existing range of participation rights in connection with the provision of public goods is considerable. The most common form of influence on the provision of public goods is indirect democracy, the election of candidates or parties responsible for the provision and/or production of public goods for discrete periods of time. Note that elected representatives are not only obliged to provide or produce public goods; they also decide on whether goods are provided publicly or privately and on the institutional frame of the provision process. Hence, politicians of the executive and legislative branches define provision arrangements and shape the precise amount of publicly provided goods on all federal levels.

Additionally, in terms of participation, there are a lot of other institutional possibilities associated with the provision of public goods. Some consumers of public goods may not be allowed to participate in elections (citizens of foreign countries, prisoners, children). Some public goods may be provided by institutions, where representatives are appointed and not elected (EU, international organizations, district administration) and some public goods may originate from other (adjacent) countries.

In contrast, there are countries like Switzerland and the United States where direct democratic rights are widespread, and citizens who are entitled to vote can directly shape the public good provision process in many areas. Participation in direct democratic countries approaches

the extreme of continuous participation, where all publicly relevant is-
sues would have to be voted on by the electorate.

We can conclude that the more citizens can influence decisions
through direct democratic decision making procedures (elections, refe-
renda, assemblies etc.), the more competition exists.

4.1.2.2 Inter-organizational competition

The existence and degree of inter-organizational competition is another
very important feature of publicly provided goods. «Classic» public
goods are generally non-competitive in this sense, since they are provi-
ded only by a single public agency, like, e.g., foreign policy. Internation-
alization, nevertheless, has been challenging this more or less territorial
monopoly through the creation of institutions which are, normally, de-
signed to complement national institutions but sometimes go so far as to
compete with national institutions. Institutions of the European Union
are a treasure trove of examples of this kind of «competition»: Think, for
example, of the recently established High Representative for the
Common Foreign and Security Policy as a complement to the national
foreign policy. There are other European institutions which resemble the
competition analogy even more closely than the example of foreign
policy, since they are enabled to overrule national institutions, like, e.g.,
the European Court of Human Rights.[70]

It is obvious that the competition in the examples mentioned above
seems – at best – weak, but when some other commonly consumed, pub-
licly provided goods are at stake, like health care, social security and
education, one may be astonished by the rapid increase of competition.

4.1.2.3 Competition and VSC

Generally, there is a relatively clear correspondence between the degree
of publicness and the degree of competition. Given the definition of
public goods and the definition of publicness, competition and public-

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[70]   One may also consider every public good not separately, but as a set of public goods
        and apply the concept of competition to jurisdictions.

ness should be negatively related. Specifically, a decreasing publicness should tend to increase competition and vice versa. Consequently, it is difficult to implement an environment of workable competition for global public goods. Competition, therefore, is often replaced by transparency, political control or evaluation measures. The possible difference between VSC and larger countries diminishes in theory, when local public goods are under consideration. They, however, always exhibit a certain degree of regional monopolistic characteristics.

A lack of workable competition for local public goods and public goods with a limited degree of economies of scale may nevertheless be possible in VSC, where often very few suppliers of one good are to be found. Note that not only publicly provided goods may be affected (there are, e.g., often only few institutions offering higher education), but also government procurement. Hence, the price of some private goods may also be higher in VSC. Think, for instance, of infrastructure and structural and civil engineering enterprises, which may gain a monopolistic or, at least, oligopolistic position, especially for huge public orders.[71]

Since we concentrate on public goods with a considerable degree of economies of scale, the competition concept laid out above will not reappear in the case studies in Section 4.3 directly. However, it has to be borne in mind that the extent of competition plays an important role in international outsourcing. Adverse effects may be associated with international outsourcing if it rules out competition for the provision of a public good completely. In any case a VSC, which decides to source out the production and/or provision of a public good, often has to accept a temporary monopoly. One should however not forget that the producing and/or providing agency itself might be exposed to considerable competition in its own country. Additionally, the VSC may have the possibility to choose between different public agencies in different adjacent countries, which is a substitute for competition. Liechtenstein, e.g., could decide to introduce the euro instead of the Swiss franc without major problems if it were convinced that a change would better suit its needs.

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[71]   Since most VSC are members of the WTO, a certain degree of competition is guaranteed by WTO regulations for larger public orders.

4.2 Very small countries and organizational choice: a normative theory

This section is designed to shed light on the important question of whether a VSC is a good organizational unit to provide and produce public goods from a normative point of view. It is, therefore, necessary to develop a framework for the institutional comparison which results in a set of criteria in order to evaluate the effects of different provision institutions.[72]

To analyze the possible advantages and disadvantages of VSC, we take a list of goods which are typically considered to be publicly provided or for which one typically assumes that the provision is guaranteed by some kind of governmental or public agency, be it on the local, the state, the federal or the international level. The list is, of course, far from being conclusive, but most of the goods listed may be taken as examples of possible unlisted ones.

4.2.1 Criteria of evaluation for organizational choice

The criteria to compare different institutional forms of public good provision are the following: the extent of economies of scale (ES) and the extent of preference adequacy (PA). There are of course other important criteria of institutional choice, but ES and PA are two very important ones in connection with international outsourcing, on which we will focus in Section 4.3. Furthermore, the underlying theoretical concepts of ES and PA are proper starting points for an international comparison. Other concepts, which are briefly exposed in Section 4.2.1.3, are not very helpful for international comparisons because they very much depend on the institutional framework, and one often needs a lot of institutional background knowledge to be able to assess them thoroughly. Hence, they cannot be properly analyzed across a larger set of countries.

For our theoretical framework we draw heavily on prior work on institutional choice by Bolter (1998), who focuses on outsourcing in ge-

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[72]   The analysis is a first approach and suffers from not being built on one consistent theoretical framework. Nevertheless, it is able to provide valuable results for a better understanding of the net advantages or disadvantages of VSC.

neral, and Gantner and Eibl (1999), who analyze public good provision in Liechtenstein and apply their central concepts to VSC and, especially, to international outsourcing.

4.2.1.1 Costs and economies of scale

So far, the cost-side has been discussed extensively with regard to economies of scale arguments, which are, without a doubt, the most important ones. But there are other cost disadvantages of smaller countries, two of which are however, on a closer inspection, associated with diseconomies of scale:[73]

–   Easterly and Rebelo (1993) find that country size and the structure of tax systems are interrelated. Smaller countries seem to rely more heavily on inefficient taxes (e.g., custom taxes) than larger countries, which normally rely mainly on income taxes. They explain this heterogeneity by the high bureaucratic and setup cost of an income tax scheme. Hence, we have again a consequence or special case of the economies of scale argument in the context of tax levy.

–   It is more difficult and more costly to provide external security in small countries than in larger ones, according to Alesina and Spolaore (1997). Again, if we simply consider «security» as a public good, we have an economies of scale problem. Conversely, one might argue that small countries are often too small or, more precisely, too unimportant to constitute a target in a war or conflict.

–   Demand or supply shocks may hurt a smaller country more seriously, because it is often not able to compensate the affected region or sector with redistribution from the rest of the country or from other sectors, respectively (Sachs and Sala-i-Martin, 1992). Therefore, «insurance» against shocks may be more costly for small countries, and exposure to uninsurable shocks has more serious consequences.

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[73]   See also Alesina and Spolaore (1997).

4.2.1.2 Preference adequacy

The extent of preference adequacy is a central idea in economics, especially in the economic theory of federalism. It depicts the hitherto neglected demand side in our concept. Figure 4.2 gives an overview of its meaning by displaying per-capita provision costs of public goods (CO) and the marginal costs of not being able to comply with individual preferences, which we denote non-PA, because it can be viewed as the inverse of preference adequacy. It is obvious and intuitive that cost optimality and preference adequacy point in different directions. Figure 4.2 displays a pure public good, where the theoretically optimal number of consumers with regard to costs is infinite. In contrast, compliance with the preferences of the consumers decreases with an increasing number of consumers. Hence, non-PA is an increasing function of the number of consumers. The point of intersection of the two functions displays optimal jurisdiction size. Note that we assume in Figure 4.2 that the two functions are monotone and differentiable, which does not have to be the case in reality.

On the demand side, smaller countries have the benefit of being able to avoid a set of problems typical of larger countries (especially congestion[74], heterogeneity costs and costs of coordination). Additionally, political decisions are expected to be generally more in line with the electorate's preferences in smaller countries. Assuming that every inhabitant of a country has an individually optimal quantity-quality point on a continuous scale for any public good provided (for any policy pursued by the government), the sum of distances between those optimal points of all inhabitants and the point depicting the political decision(s) made is supposed to be smaller in small countries than in larger ones. To put it differently, *«the average cultural or preference distance between individuals is likely to be positively correlated with the size of the country»* (Alesina and Spolaore, 1997, p. 1029). This fact is generally attributed to the lack of cross-cutting cleavages and ethnic fractionalization as well as due to the cultural homogeneity of VSC.[75]

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[74]   City states are a notable exception.
[75]   Note that Chapter 5 provides contrasting evidence with regard to this proposition. We, therefore, conjecture in Chapter 5 that the stronger identification with one's own country in a VSC may be a promising explanation for the smaller distance that is described by Alesina and Spolaore (1997).
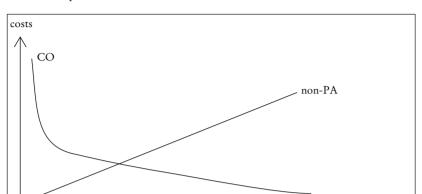
Figure 4.2: Per capita costs and non-preference adequacy of public good provision

Besides these indicators pointing to a higher preference adequacy in VSC, it has to be taken into account that people in smaller units seem to be more happy, perhaps due to perception of an easy access to public positions, knowing politicians personally or having the impression of being able to personally influence government policies.[76] To our knowledge, there are no comprehensive comparative studies of happiness across countries, because of severe methodological caveats when comparing happiness indicators across cultural and national borders. The proposition that people are happier in smaller countries can be inferred from results that people are happier in more federalist countries, where the distance between individual preferences and chosen public policies and/or public goods provided is supposed to be shorter as well (Frey and Stutzer, 2000a, b).

The advantage of federalism and/or smaller units like VSC in terms of preference adequacy can – supplementary to Figure 4.2 – be displayed in Figure 4.3. Think of MU_a and MU_b as the marginal utility of two individuals A and B (or regions A and B, equivalently). The optimal provision quantity for A and B would be q_a and q_b, respectively. In autarky

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[76]   See Jonsson and Olafsson (1991) and Kristinsson (2000) on the happiness of Icelanders.
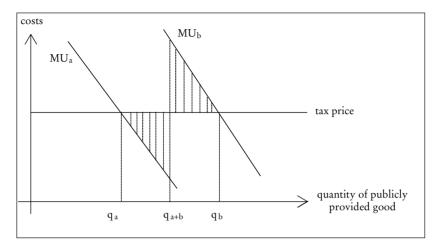
Figure 4.3: Federalism and preference adequacy

they would clearly provide these optimal quantities. In the case of a central decision-making authority, where it is only possible to provide a certain quantity of the good, A and B will arrive at a quantity between q_a and q_b, say q_{a+b}. q_{a+b} is a «compromise» which leaves both individual A and B, with a welfare loss indicated by the lined area. Note that economies of scale are not existent in the model underlying Figure 4.3. As a consequence, federalism is one possible way for larger countries to comply with different non-PA curves within the population and, hence, to diminish preference distances.

4.2.1.3 Other possible criteria

Besides competition, which has already been analyzed in detail in Section 4.1.2, there are two other noteworthy concepts that should be enumerated and explained in brief:

– The extent of institutional congruence is an institutional yardstick with which different organizational units of public good provision are compared. It is intimately related to the concept of fiscal equivalence. Speaking of institutional congruence means that decision

makers, tax payers or financiers and beneficiaries of a public good are congruent. If the provision process of a public good or a jurisdiction as a whole is organized according to the principle of institutional congruence, then it also complies with the criterion of fiscal equivalence, which postulates that in any regional or local unit of a country there should be equivalence between the tax payments of the inhabitants and the value of public goods and services provided (Olson, 1969; Blankart, 1998). The degree or extent of institutional congruence is a good indicator of institutional efficiency. If full congruence is achievable, problems associated with negative incentives can be avoided. It is, e.g., often argued, especially in federal countries, that the central government passes laws which impose implementation costs on regional governments.

–   Different institutional arrangements lead to different administrative and indirect costs in the production and provision process of public goods. Private production of public goods may be either less costly or more costly than public production, depending on the task.

We do not assess these two additional criteria, because there is no apparent reason to believe that there is a systematic difference between VSC and larger countries with regard to them. Furthermore, one would require a case study approach of single countries to be able to draw conclusions from an analysis of those criteria.

4.2.2 Comparison of institutional or organizational forms

The different institutional or organizational forms to produce and provide public goods, which are compared in Table 4.2, are the VSC *(under the assumption of self-production and -provision)* and a foreign public agency (FPUBL) as producer and provider, which is equivalent to international outsourcing. We apply the concepts of economies of scale and preference adequacy as laid out in Section 4.2.1.[77] In Section 4.3 we then compare the theoretical predictions, which follow from Table 4.2 below, with the public good provision in 21 selected VSC.

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[77]   See Gantner and Eibl (1999) for a similar approach.

To clarify how Table 4.2 should be read, an example may be helpful. Take, e.g., the public good «security» and in particular the provision of «police» as part of this public good. Reiter and Weichenrieder (1997) find that the public good «police» does not exhibit economies of scale and can therefore be classified as a local public good. Hence, costs of providing police in a VSC should generally not be lower or higher than in any other public organizational form (federalism, centralism, etc.). Note that the benchmark case is the production and provision of a public good in a considerably large country (any federal structure is ignored for the moment). We also neglect possible congestion and coordination costs. Therefore, a «0» appears in the column «ES» for police.

Preference adequacy is considered to be generally high in a VSC due to the short «distance» between the provision unit and the «consumers» of the public good. For police we rate PA as high and a «+» appears in the according field.[78]

The term «implausible» means that the relevant organizational unit is, generally, not appropriate to provide the public good in question. As for police, it is indeed difficult to imagine a foreign public agency providing police in another country in peacetime. Basically, it would be possible, but to our knowledge, such a general arrangement is very rare. Nevertheless, it seems possible, e.g., for adjacent countries to take responsibilityes for specialized security objectives in other (generally, smaller) countries. Think of customs authorities (e.g., Switzerland for Liechtenstein) or the NATO mission in Macedonia, to name but only two.

Other public goods in Table 4.2 are assessed analogously to the police example. There are apparent differences between non-rival and local public goods. This can easily be seen for the more or less pure public good «defense», where the picture that emerges differs entirely from the one of the good «police».

Note that our estimations are arbitrary in the sense that one could argue that other rationales might yield slightly adjusted results. It is, of course, open to discussion whether, e.g., «general administration» in VSC is expected to have relatively «high» costs (as in Table 4.2) or «very

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[78] Note that «+» and «++» for economies of scale mean higher costs than in the benchmark case, which is a disadvantage. Conversely, «+» and «++» stand for higher preference adequacy, which is a clear advantage from an economic viewpoint.

high» costs. Nevertheless, for the purpose at hand it suffices to establish an overall picture of the two provision arrangements to get a framework for the empirical analysis in Section 4.3. Some details in Table 4.2 could also be adjusted slightly without altering the central results.

FPUBL reflects the organizational form of «international outsourcing», which seems to be of great importance for VSC. In an FPUBL organization public goods are normally provided by a public agency of an adjacent country. Basically, not only adjacent countries can be the partners in international outsourcing, but also regional or global organizations and sometimes non-adjacent countries.[79]

In comparison to «traditional» outsourcing, international outsourcing exhibits some peculiarities and special features worth analyzing. Since international outsourcing is of vital interest for VSC, it can be best studied in this environment. We will therefore take a closer look at the possibilities and constraints of international outsourcing in the empirical examination in Section 4.3. Moreover, we especially want to analyze the extent to which international outsourcing actually plays a role in VSC as an organizational choice of producing and providing public goods.

4.2.3 Theoretical predictions for the organizational choice

Based on the results of Table 4.2, we take a closer look at those public goods which are associated with especially high costs and economies of scale, because they pose serious financial problems for VSC when they are produced and provided in-house. Table 4.3 presents a list of these «critical» public goods, which have been assigned the label «very high» and «high» costs in Table 4.2.

Note that international outsourcing is not possible for all the public goods in Table 4.3, but assuming that the outsourcing option is feasible, costs for providing a certain good are almost always lower than with in-house production in the VSC.

Note that the VSC still has to bear some costs when the production of a public good is sourced out to another country or to a regional or interna-

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[79]   Naturally, the global or regional provision of public goods can, in most cases, only complement nationally provided public goods. A full substitution is very difficult to imagine for some of the public goods in Table 4.2.

Table 4.2: Institutional forms of public good provision

Public Good	Institutional or organizational forms			
	VSC		FPUBL	
	ES	PA	ES	PA
Core functions				
general administration	+	+	implausible	
legislative branch	++	++	implausible	
executive branch	++	++	implausible	
courts and judicial branch	++	+	implausible	
foreign policy	++	++	--	-
legal system	++	++	--	-
Security				
police	0	+	implausible	
fire brigade	0	+	implausible	
defense	++	+	--	-
Educational system				
nursery school (ISCED 0)	0	++	implausible	
primary education (ISCED 1)	0	++	implausible	
second. education (ISCED 2/3)	+	++	-	-
higher education (ISCED 6/7)	+	++	-	-

ES: costs (economies of scale); PA: preference adequacy.

++ = very high; + = high; 0 = neutral; - = low; -- = very low.

VSC: very small country; FPUBL: foreign public agency.

tional organization. The two most important kinds of costs are the following:

–   *Ensuring costs:* The government of a VSC has to ensure provision even if provision and production is sourced out completely. There are, of course, costs associated with the ensuring of provision, like transaction costs or costs of planning.

–   In most cases the VSC does not simply get a free ride: there are *charges.* Take, e.g., higher education, where a VSC without a university normally has to pay for VSC-based students when they attend a public university in a foreign country. In contrast, many VSC get a more or less free ride with regard to defense issues.

Public Good	Institutional or organizational forms			
	VSC		FPUBL	
	ES	PA	ES	PA
Health care/Social security				
general health care	+	+	implausible	
hospitals	+	+	-	-
social security	+	++	-	-
parks and recreation	0	+	0	-
Infrastructure				
roads	0	++	partially	
highways	+	+	-	-
railway infrastructure	+	+	-	-
ports and airports	+	+	-	-
Financial/Monet. system				
tax levy	+	+	-	-
revenue sharing	0	+	implausible	
monetary system	++	+	--	-
customs authorities	0	+	-	-

ES: costs (economies of scale); PA: preference adequacy.

++ = very high; + = high; 0 = neutral; - = low; -- = very low.

VSC: very small country; FPUBL: foreign public agency.

The cost advantage of the FPUBL regime may come with disadvantages in preference adequacy and maybe in competition. The competition issue is less important, because in-house production should normally not be able to result in stronger competition. The degree of preference adequacy hinges critically on the preference heterogeneity between the country where the public good is produced and the country where it is consumed, viz. the VSC. Congestion may also play a role, but only for rival publicly provided goods, and it is difficult to imagine that usage by foreigners would be allowed in such a case.

What would one expect with regard to the organizational choice for public good provision in VSC, bearing in mind the results exposed above? We will concentrate on international outsourcing, where the

Table 4.3: Public goods with high costs and high economies of scale, when produced in-house in VSC

Public good	Costs in	Public good FPUBL	Costs in FPUBL
«very high» costs:		«high» costs:	
legislative branch	implausible	general administration	implausible
executive branch	implausible	secondary education	low
courts and judicial branch	implausible	higher education	low
foreign policy	very low	general health care	implausible
legal system	very low	hospitals	low
defense	very low	social security	low
monetary system	very low	highways	low
		railway infrastructure	low
		ports and airports	low
		tax levy	low

differences between VSC and larger countries are expected to be most pronounced. Hypothesis 1 states the theoretical expectation based on Table 4.3:

> *Hypothesis 1:* Given very high or high costs of in-house production of a public good in a VSC, the government is expected to outsource production under conditions (1) and (2).
>   Condition 1: The cost difference between in-house production or provision and international outsourcing is high, and international outsourcing is the less expensive option.
>   Condition 2: Preference homogeneity between the VSC and, if the characteristics of the public good requires that, at least one adjacent country is sufficiently high.[80]

Hypothesis 1 is tested for a set of public goods in 21 selected VSC. Strictly speaking, we test whether the production or provision of those goods which exhibit high economies of scale and therefore high costs is

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[80]   For some public goods, adjacency is irrelevant, as in the case of currencies. A VSC can introduce any currency it wants without relying on the currencies of adjacent countries.

actually sourced out (given a certain degree of preference homogeneity between the VSC and adjacent countries if necessary). One could also imagine testing whether goods with a very limited level of economies of scale are produced in-house in VSC, but this is not the question we are interested in, because we aim to explain how VSC cope with their size disadvantage and the according higher costs of public good production. Note that a comprehensive assessment of all the goods listed in Table 4.3 is not possible due to serious operationalization problems for some of them and problems with assembling the necessary data. We therefore choose at least one publicly provided good from each category in Table 4.2.

4.3 Organizational choice: theoretical expectations versus reality

In this section Hypothesis 1 is tested for a set of public goods in order to learn more about the possibilities of international outsourcing in VSC. We present one table for each of the selected public goods. Due to constraints on data availability, data harmonization and operationalization problems, it is not possible to test for all the public goods mentioned in Table 4.3. Nevertheless, the analysis is quite comprehensive and an overall picture of public good provision and organizational choice in VSC emerges.

The empirical analysis in this sections builds on public goods in 21 VSC which fulfill the following criteria:
–   The number of inhabitants is smaller than 500,000.
–   Per capita GDP or GNP is higher than $ US 2,000.
–   We consider only fully sovereign and internationally recognized countries.

The criteria employed are rather restrictive in order to avoid arriving at unclear results, which may be the consequences of too heterogeneous a set of countries. Note that nevertheless VSC in five continents are represented in our set. Our country set comprises Caribbean islands and Oceanic archipelagos as well as landlocked European VSC and the only VSC – according to the above-mentioned definition – in Asia and Africa, Brunei and the Seychelles, respectively.

The second criterion of a minimum per capita GDP is designed to provide us with a selection of countries with a certain development status. Otherwise, size effects and effects associated with the economic development status might easily be confused. We are mainly interested in highly developed VSC, because they generally have a fully developed public sector which can be properly compared with larger countries. Since some of the selected countries are near this arbitrary margin, the results for them should be treated with caution.[81] They do not, however, blur the overall picture. Table A.8 in the Appendix presents some basic facts on the 21 countries selected. The countries in Table 4.4 with a population of less than 500,000 inhabitants have not been considered due to a too low per capita GNP (in $ US).

4.3.1 Theoretical expectations versus reality – monetary system

The first public good under examination is the monetary system of the 21 VSC. The structure of the table presented here and of the tables in the following sections is similar. Some of the tables , however, have to be displayed in an Appendix due to their length. The important characteristics and our theoretical predictions according to Hypothesis 1 are repeated in the upper part of the table. Table A.9 in the Appendix on the monetary system in VSC displays the costs of in-house production and provision of the public good in a VSC («very high»), the cost difference between the two provision arrangements VSC and FPUBL in ordinal units (maximum: 5 units; minimum: 0 units) and our theoretical expectation.

The lower part of Table A.9 (and of the tables in the following sections) confronts this theoretical expectation with the actual organizational choice in each of the 21 selected VSC in order to test Hypothesis 1.

As to the provision of a monetary system, our test concentrates on the existence of an own currency, which is one of the most important features of a country's monetary system. We presume in line with the ar-

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[81] These countries are namely: Belize (GNP/capita: $ US 2700), Dominica ($ 3090), Grenada ($ 2880), Micronesia ($ 2070), St. Lucia ($ 3500) and St. Vincent and the Grenadines ($ 2370) (based on data from Baratta ($ 1999) as of 1996).

Table 4.4: Not selected countries

Country	Pop.	Area (km²)	GNP/ capita	Location	Capital	Ind. Date
Equatorial Guinea	410000	28052	530	Africa	Malabo	1968
Cap Verde	389000	4033	1010	Africa	Praia	1975
Kiribati	82000	811	920	Pacific	Bairiki	1979
Maldives	256000	298	1080	Asia	Male	1965
Marshall Islands	57000	181	1890	Pacific	Dalap-Uliga-Darrit	1986
Sahara	252000	252120	n.a.	Africa	El Aaiun	1976
Salomon Islands	389000	27556	900	Pacific	Honiara	1978
Samoa	172000	2831	1170	Pacific	Apia	1962
Sao Tomé and Principe	135000	1001	330	Africa	Sao Tome	1975
Suriname	432000	163265	1000	America	Paramaribo	1975
Tonga	97000	748	1790	Pacific	Nukualofa	1970
Tuvalu	10000	26	n.a.	Pacific	Vaiaku	1978
Vanuatu	173000	12190	1290	Pacific	Port Vila	1980
Vatican City	455	0.44	n.a.	Europe		1929

Abbreviations: Pop. = Population; Ind. = Independence; n.a. = not available.

Sources: Baratta (1999), figures mainly for 1996.

GNP/capita figures in $ US.

guments in Section 4.2 and Hypothesis 1 that VSC do not have their own currency.

In Table A.9 we also present estimations on preference homogeneity (based on the relationship between the relevant VSC and adjacent countries and, especially, on current conflicts between them), our theoretical expectation for each VSC by taking into account our judgment on preference homogeneity, the actual organizational choice or provision arrangement, some further important information on the monetary system and an overview of the correspondence between theoretical predictions and empirical facts. Note that preference homogeneity should play a minor role for currencies (in contrast to, say, defense issues), because VSC can easily introduce currencies from other countries which are geographically far away and avoid introducing currencies of an adjacent country, if they want.

Given the worldwide trend of forming monetary unions and monetarily integrated areas with pegged exchange rates, it is not difficult to

presume that few VSC have their own independent currency. The provision of the public good «currency» and the maintenance of an own monetary policy are associated with high fixed costs and therefore exhibit considerable economies of scale. VSC are hence not expected to have a currency of their own from a cost view. Additionally, it is difficult to imagine that a VSC constitutes an optimal currency area (OCA) according to the OCA theory [82], where other factors besides costs also play an important role.

Table A.9 shows 7 out of 21 VSC with their own currency despite the cost argument against it. Besides Belize and Brunei, where we conjectured that preference homogeneity between them and their adjacent countries is relatively low and an own currency, therefore, is slightly more likely, these are the Bahamas, Barbados, Iceland, Malta and the Seychelles. The Caribbean states created a currency union, and the main currency is the East Caribbean dollar, which is pegged to the US dollar. Luxembourg is also part of a currency union, and in the remaining seven VSC, currencies of larger adjacent countries or main traditional trading partners circulate.

Depending on the judgment of a currency union, the picture is more or less clear. When the possession of an own currency is strictly interpreted, then 14 out of 21 VSC do not have their own currency and therefore comply with our theoretical expectation. Hence, Hypothesis 1 is confirmed for the public good «currency». Note furthermore that the Bahamas, Barbados, Belize and Brunei have a pegged exchange rate with the US dollar and therefore give up much of the flexibility of their monetary policy for the advantage of lower costs. Still, they have to bear the costs of printing and distributing money as well as all the administrative costs associated with a monetary system.

The optimal exchange rate system for those VSC which have an own currency is an interesting question. There are many arguments for a pegged or a fixed exchange rate system (see, e.g., Olafsson, 1998), but there may be conditions which justify other systems (see, e.g., Krugman, 1991, for the special case of Iceland, and Fairbairn, 1994, as well as Jayaraman, 2000, for Oceania). Note that – without being able to go into

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[82]   See, e.g., De Grauwe (1994), Eichengreen (1990), Kenen (1969), McKinnon (1963), Mundell (1961) and Tavlas (1993).

the details of VSC macroeconomics here – the empirical overview teaches us that there are very few VSC with their own currency and an independent monetary policy. This proposition also holds for those VSC that have been disregarded in Table A.9 due to their low per capita GDP. An own monetary system, therefore, does not seem to be indispensable, although not having it, of course, imposes costs as well. Besides losing an important macroeconomic policy instrument, the *«loss of some significant value in terms of pride, usually attached to having an independent currency as a symbol of nationhood»* (Jayaraman, 2000, p. 2) cannot be disregarded.

Additionally, international economics clearly tells us that under a fixed exchange rate system and perfect capital mobility, the scope for fiscal policy is also very limited, so that the actual degree of independence of economic policy might be very limited. Note that economic shocks tend to be more severe the smaller the country which is struck by the shock, and, therefore, a certain freedom in fiscal policy is a *conditio sine qua non* for VSC. Leaving aside the mostly strong specialization of VSC economies in certain branches or services, there are quite a few VSC which are exposed to natural hazards.[83] The latter fact seems to be one of the explanations for the economic slack in Oceanic VSC. It is evident that vulnerability and frequent natural hazards require certain flexibility in public finances.

In a monetary union, an unsound fiscal policy generally has external effects on other members. VSC have the obvious advantage that they can more easily free ride, because their impact on the currency area is, at best, negligible. To overcome this possibility, rules on deficits are often imposed on the members of currency unions, as is also the case for the currency union of the Eastern Caribbean countries. It is, nevertheless, interesting to note that the inflation rates of almost all VSC are under the world's average and near the average of the high income economies.[84]

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[83] The most common natural hazards are hurricanes in the Caribbean and typhoons in the Pacific. Several VSC also suffer from droughts (e.g. Palau) and volcanic activity (e.g., St. Lucia and St. Vincent and the Grenadines).

[84] Consult Olafsson (1998) for details and a short discussion.

4.3.2 Theoretical expectations versus reality – defense

Table A.10 in the Appendix provides evidence of the defense and external security of VSC. Defense-related issues are considered to be a prime example for a public good. We, therefore, expect VSC to avoid setting up their own army whenever possible.

The evidence for defense is not as clear as for the monetary system. seven of the selected VSC do not operate an army. Their external security is mostly guaranteed by a larger neighbor or regionally important country. The VSC without military forces are namely: Andorra (France and Spain guarantee security), Iceland (USA), Liechtenstein (Switzerland), Micronesia (USA), Monaco (France), Nauru (Australia) and Palau (USA). There is no VSC with neither an army *nor* any kind of security guarantee, although the latter may be more or less formal. Nauru, e.g., has only an informal agreement with Australia.

Since most of the VSC mentioned above are of strategic interest for the defense policy of the security-guaranteeing countries, they can quite easily free ride on defense issues. Even if formal treaties exist, the «charge» for providing external security is supposed to be low or zero. Especially the marginal costs of providing security for VSC are approximately zero. When you think of Liechtenstein for instance, it is obvious that the additional burden on the Swiss army for providing security is negligible, at least in times of peace.

There is, of course, a disadvantage for islands with regard to defense provision, because they generally do not lie as close to a larger country's immediate strategic interest sphere as landlocked countries. Therefore, they are expected to have a higher probability of operating their own army. With the exception of Iceland, Micronesia, Nauru and Palau, indeed, all island VSC corroborate this conjecture. The only two countries where an army was to be expected, are Belize and Brunei. For both, the preference homogeneity with adjacent countries is – as also expounded above – relatively low.

In general, theoretical expectations are not met in Table A.10. Twelve out of 21 VSC were wrongly presumed to not have their own army. The result seems more in line with Hypothesis 1 when we account for several additional features. With the exception of Brunei, which has very high relative expenditure for its army, all other VSC for which data were available, do not spend more than an average larger country in per-

cent of GDP. In other word, VSC «tailor» their armies to their special needs, and armed forces are relatively small in comparison to larger countries. Hence, their armed forces are obviously not supposed to participate in wars against larger countries, but to fulfill, more or less, police-like functions. Most island VSC operate, e.g., coast guards under the heading «army». Since some Caribbean countries are said to be trade centers of illegal drugs, they operate special forces to combat drug dealing.

Note that there are only two NATO members among the selected countries, namely Iceland and Luxembourg. Their contributions to the organization are, though, low, and their gain from the increased security is very high. Note further, as already mentioned above, that no VSC is currently involved in a war or an open conflict.

4.3.3 Theoretical expectations versus reality – universities

Table A.11 in the Appendix provides a closer look at the educational systems of VSC. Since the highest degree of economies of scale, i.e. disadvantage, for VSC in education is generally associated with universities, we concentrate on them in the following. In passing, note that there should not be any difference between VSC and larger countries with regard to primary and secondary education, because both are assumed to be private or local public goods, without considerable economies of scale.

The operation of a university is another prime example of VSC coping with the provision of public goods, which exhibit considerable economies of scale. As can be seen from Table A.11, most VSC have their own university, but, generally, VSC universities are «tailored» to the size of the operating country. Thus, there are only a few of the selected VSC which operate an institution of tertiary education with a full spectrum of studies and fields, a so-called «full university». Five out of 21 of our VSC have a full university on their territory. Only two of them are of comparable size to universities in larger countries, namely the University of Iceland and the University of Malta. The Cave Hill Campus of the University of the West Indies in Barbados and the University of Brunei Darussalam are smaller universities, but they offer a relatively wide range of subjects. The University of the West Indies is a special case and

a good example of international outsourcing and/or cooperation among smaller countries, since there are three campuses: one at Mona in Jamaica, one at St. Augustine in Trinidad and one – as mentioned above – at St. Michael in Barbados. Finally, the University of Belize is designed to offer a relatively broad range of subjects, but the university was only established recently so that it is difficult to judge its status as a «full university», since development is ongoing.[85]

With regard to statistics, 18 out of 21 countries comply with theoretical expectations. With the exception of Belize and Brunei, we expected all VSC not to have their own full university. Hence, our hypothesis of VSC not operating their own full university is confirmed. The establishment of full universities seems to pose serious problems for VSC due to the large number of possible «consumers» which are required to operate the university on efficient scales.

There is, again, a clear disadvantage for islands concerning higher education, since distances naturally play an important role. On the contrary, it is not very difficult for young Luxembourg or Liechtenstein citizens to attend universities in Switzerland, Austria, Germany or France. The same argument applies to Andorra, with its relatively small distances to French and Spanish universities, as well as to San Marino, which is near large Italian universities, and Monaco, not far from French universities. A language problem rarely arises, because there is often no difference between the language spoken in the VSC and the one spoken in an adjacent country where at least some full universities are based.

Nonetheless, institutions of tertiary education are rare in small island economies, which is another indicator of the existence of considerable economies of scale. Note that – to our knowledge – none of the small island economies which we did not select due to a too low per capita GDP operates a full university. Kiribati, the Marshall Islands, Samoa, the Salomon Islands, Tonga, Tuvalu and Vanuatu are, like Nauru, served by the University of the South Pacific at Suva, Fiji. Since the Fiji Islands are also a small country, the University of the South Pacific is,

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85   Almost every VSC has at least one institution of tertiary education, such as institutions for educating teachers, health care workers or similar professions. Not all of them are listed in Table A.11, because it is, generally, difficult to obtain information on smaller institutions, and it is sometimes difficult to assign education institutions to the right category, because they appear under different terms like «school», «college», «vocational college» *(Fachhochschule)* or «university».

like the University of the West Indies, an example of an international cooperation among VSC.

To sum up, young citizens of island economies have the clear disadvantage that they normally cannot attend a university at home. Although it could not be verified, we suppose that most VSC have support schemes for their students abroad to cover tuition fees and other expenses. Hence, tertiary education is at least partially sourced out. If universities are viewed as public institutions, VSC only bear a fraction of the costs of operating an own university when they support young citizens completing their higher education abroad. In the case of university education being considered a private good, students do, of course, not differ with regard to the size of their country of origin. Note that due to their size, it is very difficult to imagine a small island economy supporting even a private university, with the possible exception of small, very specialized institutions.

4.3.4 Theoretical expectations versus reality – airports

Table 4.5 provides evidence of the existence of airports in VSC. Airports should be viewed as important infrastructure with high establishing and maintenance costs. One naturally expects island economies to have their own airports despite the cost argument, because they are indispensable for the transport of people and goods. On the contrary, one presupposes that landlocked VSC switch to airports of adjacent countries.

It is not surprising that our hypothesis turns out be confirmed. Given the large number of islands and archipelagos among VSC, the result in Table 4.5 is highly dependent on geographic circumstances. A reliable source for testing our hypothesis are, nevertheless, landlocked VSC. With the exception of Luxembourg, they actually exhibit the expected characteristic of not operating their own airport, which is a result that clearly proves the importance of international outsourcing for smaller countries.

Specifically, Andorra, Liechtenstein, Monaco and San Marino do not operate an airport; not even airports with unpaved runways or airports with runways shorter than 914 meters, both of which we neglected for Table 4.5. The citizens of these VSC, though, have relatively easy access to airports in adjacent countries. A contrasting example of an

Table 4.5: Theoretical expectations versus reality – airports

Airports	Costs VSC high	Cost diff. between VSC and FPUBL 3 units[a]		Theoretical expect. int. outs. in landlocked countries	
Country	Pref. homogen.	Theoret. expect.	Actual provision	Remarks	Exp. fulf.
Andorra	high	no airports	no airports		+
Antigua a. Barbuda	high	airports	1 airport	3 islands	+
Bahamas	high	airports	31 airports	690 islands	+
Barbados	high	airports	1 airport	1 island	+
Belize	relatively low	airports	1 airport		+
Brunei	relatively low	airports	1 airport		+
Dominica	high	airports	2 airports	1 island	+
Grenada	high	airports	2 airports	2 islands	+
Iceland	high	airports	10 airports	1 island	+
Liechtenstein	high	no airports	no airports		+
Luxembourg	high	no airports	1 airport		-
Malta	high	airports	1 airport	1 island	+
Micronesia	high	airports	5 airports	many islands	+
Monaco	high	no airport	no airports	linked to Nice Airport with helicopter service	+
Nauru	relatively high	airports	1 airport	1 island	+
Palau	relatively high	airports	1 airport	241 islands	+
San Marino	high	no airports	no airports		+
Seychelles	relatively high	airports	4 airports	115 islands	+
St. Kitts a. Nevis	high	airports	2 airports	2 islands	+
St. Lucia	high	airports	2 airports	1 island	+
St. Vincent a. t. Grenadines	high	airports	2 airports	2 islands	+

[a] *maximum: 5 units; minimum: 0 units.*

Abbreviations: diff. = difference; Exp., expect. = E(e)xpectation; homo. = homogeneity; Theoret. = Theoretical; fulf. = fulfilled; n.a. = not available; int. = international; outs. = outsourcing. +: expectation fulfilled; -: expectation not fulfilled.

Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00.

autonomous region where the operation of an airport and an airline is an important sign of nationality – comparable to the circulation of an own currency – is provided by the Palestinian Authority and their airport at Gaza, which is often the subject of disputes between Israelis and Palestinians and, therefore, well known. Sure enough, the Palestinian airport is an excellent example for the importance of high preference homogeneity between VSC and the adjacent country as a prerequisite for international outsourcing.

Luxembourg is, as mentioned above, the only landlocked VSC with an airport. Given its relatively large size – Luxembourg is the largest VSC in our selection when judged by the number of inhabitants – and its political importance as a consequence of the Luxembourg-based EU institutions, the existence of an airport is not very surprising. Note that many smaller cities in larger countries have a nearby airport as well.

It is not very interesting to dwell on the possible international outsourcing of airports, when we consider island and archipelago VSC, since the existence of an airport is a mere necessity for their economic, social and political life. Needless to say, the number of airports is correlated with the number of islands which make up a country. Belize and Brunei, for which we assume low preference homogeneity with their neighbors, operate their own airports. Table 4.5 omits 163 airports with unpaved and mostly short runways and 10 airports with paved runways under 914 meters length. To sum up, 20 out of 21 countries comply with our theoretical expectation.

4.3.5 Theoretical expectations versus reality – railways

The following table, Table 4.6, assesses another infrastructure indicator for the feasibility of international outsourcing for VSC. Building and maintaining railways is expected to be too expensive for small countries, aside from the fact that it sometimes makes no sense from a geographic point of view. Again, landlocked VSC in Europe are the most interesting objects under consideration.

The general picture of Table 4.6 resembles that of Table 4.5, which indicates that infrastructure issues in VSC follow the same explanatory paths. First, they are, of course, very much dependent on geographic and natural circumstances. Second, important infrastructure with high esta-

blishing and maintenance costs (set-up, fixed or sunk costs) is likely to be internationally sourced out to adjacent countries if preference homogeneity is sufficiently high and natural factors allow outsourcing. This finding is obviously in line with Hypothesis 1 and the theoretical basis of international outsourcing.

Railways or railway infrastructure is a very good example of the feasibility of international outsourcing and a possible renunciation of a public good which is not indispensable. VSC, therefore, can choose to source out production and provision or to simply substitute other means of transport for it.

As can be seen in Table 4.6, with the notable exception of Luxembourg, there is no VSC with a railway network of considerable size. Fourteen of the 21 VSC do not operate railways; hence their public transport systems rely heavily on air transport, water transport and buses. In Antigua and Barbuda, Nauru and St. Kitts and Nevis, railways are more or less exclusively operated for the transport of agricultural products or mineral resources. Since these businesses are conducted by enterprises which are partly or fully owned by the public, it is difficult to assign them to one of the sectors. We decided to consider them as part of the public sector.

The remaining four countries operate railways, but they differ with regard to several characteristics. Luxembourg is, again, an exception due to its size, its political position, its geographic location in the center of Europe, and its integration in international railway networks. Liechtenstein is another exception, because the principality has a railway network of importance, but the network is owned, established and maintained by the Austrian Federal Railway. This is a very interesting arrangement, since economies of scale disadvantages are ruled out. We therefore count Liechtenstein's railway system as another prime example of meaningful international outsourcing. Monaco operates a very short railway, which we nevertheless classify as not in line with our theoretical expectation, and Brunei operates a private line, which is not counted as part of the public sector. Sixteen out of 21 VSC comply with theoretical expectations, which is, again, a significant result. Finally note that it is rather obvious that a railway seems to be an inappropriate means of public transport for small island economies, since no island VSC operates one.

Table 4.6: Theoretical expectations versus reality – railway infrastructure

Railways	Costs VSC high	Cost diff. between VSC and FPUBL 3 units[a]		Theoretical expect. int. outs. in landlocked countries	
Country	Pref. homogen.	Theoret. expect.	Actual provision	Remarks	Exp. fulf.
Andorra	high	no railway	0 km		+
Antigua a. Barbuda	high	no railway	77 km (industry!)	used almost exclusively for sugarcane	-
Bahamas	high	no railway	0 km		+
Barbados	high	no railway	0 km		+
Belize	relatively low	no railway	0 km		+
Brunei	relatively low	no railway	13 km	private line	+
Dominica	high	no railway	0 km		+
Grenada	high	no railway	0 km		+
Iceland	high	no railway	0 km		+
Liechtenstein	high	no railway	18.5 km	owned and operated by Austrian Federal Railways	+
Luxembourg	high	no railway	275 km		-
Malta	high	no railway	0 km		+
Micronesia	high	no railway	0 km		+
Monaco	high	no railway	1.7 km		-
Nauru	relatively high	no railway	3.9 km (industry!)	for hauling phosphates	-
Palau	relatively high	no railway	0 km		+
San Marino	high	no railway	0 km		+
Seychelles	relatively high	no railway	0 km		+
St. Kitts a. Nevis	high	no railway (industry!)	58 km	to serve sugarcane plantations	-
St. Lucia	high	no railway	0 km		+
St. Vincent a. t. Grenadines	high	no railway	0 km		+

[a] *maximum: 5 units; minimum: 0 units.*
Abbreviations: diff. = difference; Exp., expect. = E(e)xpectation; homo. = homogeneity; Theoret. = heoretical; fulf. = fulfilled. +: expectation fulfilled; -: expectation not fulfilled.
Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00.

4.3.6 Theoretical expectations versus reality – government levels

Table 4.7 analyzes an important feature of the general administration, namely the number of government levels[86]; hence, we take a closer look at the *de jure* degree of federalism. In Chapter 3 we decided to neglect the extent of federalism, because it is difficult to assess empirically, since the really important characteristic would be the *de facto* federalism. The necessary disaggregated expenditure data are unfortunately not available for a sufficiently large country sample, including smaller countries.

Table 4.7 is a very crude approach to assessing the impact of federalism and the differences between VSC with regard to federalism. Note that there is no clear-cut theoretical expectation, because the impact of federalism on government expenditure is ambiguous. On the one hand, a higher number of government levels are supposed to raise costs of administration and coordination. However, on the other hand, decisions of smaller, decentralized units are supposed to comply more often with citizens' preferences.

Interestingly, results of empirical studies contradict conventional wisdom and show that the sum of government wages is smaller in federal countries than in more centralized countries. Take, e.g., Austria, with a public wage sum of about 10 percent of GDP in comparison with the much more decentralized countries Germany and Switzerland, with 8.7 and 8.5 percent, respectively.[87] Given the theoretical imponderability, Table 4.7 should mainly be viewed as descriptive evidence.

Although it seems difficult to build theoretical expectations due to contradicting evidence, the argument for an intuitive notion runs along the following lines: The finding that federalism or decentralized government results in lower costs might be restricted to countries above a certain size threshold. We suppose that this result cannot be applied to VSC without modification and therefore expect VSC to have fewer levels of government than larger countries, also because more than one federal level is rarely required from an economic point of view in small countries.

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[86]   It would be ideal to have the number of employees in the public sector in order to compare it with larger countries. Unfortunately, harmonized data are not available.

[87]   Data based on a WIFO-study, see:
        http://www.orf.at/orfon/ticker/12373.html?tmp=834 as of 09/08/00.

Table 4.7: Theoretical expectations versus reality – general administration (government levels)

Govern-ment levels	Costs VSC very high	Cost diff. between VSC and FPUBL -		Theoretical expect. only 1 government level	
Country	Pref. homogen.	Theoret. expect.	Actual provision	Remarks	Exp. fulf.
Andorra	high	not clear	2 levels	7 parishes	-
Antigua a. Barbuda	high	not clear	2 levels	7 parishes and 2 dependencies	-
Bahamas	high	not clear	2 levels	21 districts	-
Barbados	high	not clear	2 levels	11 parishes	-
Belize	relatively low	not clear	2 levels	6 districts	-
Brunei	relatively low	not clear	2 levels	4 districts	-
Dominica	high	not clear	2 levels	10 parishes	-
Grenada	high	not clear	2 levels	6 parishes and 1 dependency	-
Iceland	high	not clear	2 levels	23 counties and 14 independent towns	-
Liechtenstein	high	not clear	2 levels	11 communes	-
Luxembourg	high	not clear	2 levels	3 districts	-
Malta	high	not clear	1 level		+
Micronesia	high	not clear	2 levels	4 states	-
Monaco	high	not clear	1 level	(4 quarters)	-
Nauru	relatively high	not clear	2 levels	14 districts	-
Palau	relatively high	not clear	2 levels	18 states	-
San Marino	high	not clear	2 levels	9 municipalities	-
Seychelles	relatively high	not clear	2 levels	23 administrative districts	-
St. Kitts a. Nevis	high	not clear	2 levels	14 parishes	-
St. Lucia	high	not clear	2 levels	11 quarters	-
St. Vincent a. t. Grenadines	high	not clear	2 levels	6 parishes	-

Abbreviations: diff. = difference; Exp., expect. = E(e)xpectation; homo. = homogeneity;

Theoret. = Theoretical; fulf. = fulfilled. +: expectation fulfilled; -: expectation not fulfilled.

Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00.

In brief, VSC are so small that an additional administrative or jurisdictional level is simply not necessary. This last argument does not apply to island VSC which consist only of a few islands that constitute a natural division in counties or parishes.

Contrary to the theoretical notion, many VSC have the same number of governmental or administrative levels as most larger countries. The evidence from Table 4.7 is, however, not absolutely clear, because sometimes communes or municipalities are counted as a separate level in the statistics and sometimes not. Nevertheless, it can easily be verified from Table 4.7 that most of the selected VSC have two governmental or administrative levels, even if communes and municipalities are left aside. Thus, most of the countries listed have three administrative levels: the federal level, parishes (districts, counties, states etc.) and communes or municipalities.

Again, European, landlocked VSC differ from others, also with regard to the extent of their federalism. Liechtenstein, Malta and San Marino restrict themselves to a national level and a communal or municipality level. Luxembourg does exhibit three administrative levels, but the medium level is constituted by only three districts. Andorra is not very different from other VSC with regard to federalism.

Note finally that the number of administrative levels in VSC seems to be too high in general, but this topic can only be analyzed thoroughly when tasks, financing and expenditure of the levels are considered in greater detail. The latter is however not possible due to severe data constraints.

4.3.7 Theoretical expectations versus reality – foreign policy

The next important part of the public sector that we consider is foreign policy and representation in international organizations. Given the efforts of EU member countries to close their embassies and create common EU representations, it is obvious that foreign policy and representation is an expensive task, especially for VSC, associated with considerable economies of scale. Note further that membership in international organizations often means not only having permanent representation, but sometimes also implementing legislative decisions of the organization and providing data, reports etc. The deeper the integration and the

more objectives the international or supranational organization has, the higher the costs associated with the latter argument.

International outsourcing of foreign policy is, however, only partly possible. The political issues of importance for a VSC have to be promoted by its own foreign policy and by its lobbying in international organizations. For our examination we build no theoretical expectations, with the exception of the obvious statement that VSC have fewer external relations, fewer representations and fewer memberships in international organizations than larger countries.

Note that there is, of course, a partial congruence between the interests of larger adjacent countries and VSC, but there are also differences in vital interests. These differences are mainly due to the differentiation and niche strategies of many small countries, of which tax policy is a prominent example. Therefore, VSC seem to try to obtain membership in important international and regional organizations almost regardless of the costs in order to be able to influence decisions which concern them to a considerable extent.

Some aspects of foreign policy can, however, be sourced out internationally. Many smaller countries do not have embassies or other representations in relatively less important countries. They are either represented by a larger neighbor, or they entirely abstain from being represented.

The evidence in Table 4.8 is mainly in line with intuition. All VSC, with the exception of Nauru, are UN members, and many are members of the IMF and of Interpol. WTO membership is not that widespread, but, at any rate, 15 VSC are WTO members. Nauru is the only country with only one membership in the selected quartet of important institutions; Andorra, Micronesia, Monaco, Palau and San Marino exhibit two memberships. It can therefore be concluded that there are relatively strong incentives for VSC to be part of international politics by means of organizational membership.

The majority of VSC also belonges to regional economic organizations. Foreign economic policy, hence, also seems to play an important role for VSC. This might be due to the above-mentioned importance of niche strategies, which are mostly related to economic issue and, therefore, have to be defended in regional economic organizations. The fact that Micronesia, Nauru, Palau and the Seychelles are not part of any regional integration scheme is due to the inexistence of such a scheme

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Table 4.8: Theoretical expectations versus reality – foreign policy (memberships and diplomatic representations)

Foreign policy	Costs VSC very high		Cost diff. between VSC and FPUBL: –	
Country	Membership in international organizations			
	IMF	Interp.	UN	WTO
Andorra	-	x	x	-
Antigua a. Barbuda	x	x	x	x
Bahamas	x	x	x	x
Barbados	x	x	x	x
Belize	x	x	x	x
Brunei	x	x	x	x
Dominica	x	x	x	x
Grenada	x	x	x	x
Iceland	x	x	x	x
Liechtenstein	-	x	x	x
Luxembourg	x	x	x	x
Malta	x	x	x	x
Micronesia	x	-	x	-
Monaco	-	x	x	-
Nauru	-	x	-	-
Palau	x	-	x	-
San Marino	x	-	x	-
Seychelles	x	x	x	x
St. Kitts a. Nevis	x	x	x	x
St. Lucia	x	x	x	x
St. Vincent a. t. Grenadines	x	x	x	x

Abbreviations: diff. = difference; Exp., expect. = expectation; Theoret. = Theoretical; extern. = external; Switzerl. = Switzerland; IMF = International Monetary Fund; Interp. = Interpol; UN = United Nations; WTO = World Trade Organization; reg. org. = regional organization; Caricom = Caribbean Community and Common Market; ASEAN = Association of South East Asian Nations; EFTA = European Free Trade Association; EU = European Union; appl. = applicant; OSCE = Organization for Security and Cooperation in Europe; ACP = African, Caribbean and Pacific Group of States; NATO = North Atlantic Treaty Organization; OECD = Organization for Economic Cooperation and Development; OAU = Organization of African Unity.

Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00.

reg. org.	selected others	Theoretical expect. not clear; fewer extern. relations	
		total	Embassy in US
-	OSCE	13	yes (with UN)
Caricom	ACP	35	yes
Caricom	ACP	36	yes
Caricom	ACP	37	yes
Caricom	ACP	37	yes
ASEAN	-	29	yes
Caricom	ACP	35	yes
Caricom	ACP	36	yes
EFTA	NATO, OECD, OSCE	49	yes
EFTA	OSCE	20	no (Switzerl.)
EU	NATO, OECD, OSCE	51	yes
EU (appl.)	OSCE	40	yes
-	-	18	yes
-	OSCE	22	no
-	-	14	no
-	-	14	yes
-	OSCE	21	no
-	OAU	35	yes
Caricom	ACP	31	yes
Caricom	ACP	40	yes
Caricom	ACP	35	yes

of sufficient importance in the Pacific and in Africa. Note that Andorra and Monaco are quasi members of the European Union; Malta applied for membership several years ago and will be part of the next EU enlargement. Only Iceland and Luxembourg are members of two other very important international organizations, namely the OECD and NATO.

It is obvious at first sight that the number of memberships is highly correlated with size. Thus, VSC with fewer inhabitants seem to be less represented in international organizations. A simple correlation between population and the number of memberships in international organizations of the selected VSC yields a correlation coefficient of 0.719 and confirms this intuition. Note that the relationship would be less pronounced if larger countries were included, because the increase in memberships dependent on population is expected to flatten. Put differently, larger countries do not have many more memberships in international organizations than Iceland or Luxembourg.

Maintaining embassies is particularly expensive for VSC. A look at their formal foreign representations is in line with our expectations. Almost all VSC have embassies in very important countries. We take, as an example, the U.S.A., which is considered to be of importance for all VSC. Indeed, only four VSC are not represented in the United States. The number of represented VSC declines, as expected, with the declining importance of countries. Eleven VSC are represented in France, perhaps the second most important country for our country set[88]; 8 have embassies in Austria.[89]

It is, though, quite surprising that the number of representations in Austria – as an example of an internationally less important larger country – is relatively high. Almost half of the selected VSC have a permanent mission in Austria. Among them, unexpectedly, are Barbados, Grenada and Saint Vincent and the Grenadines.

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[88]   See http://www.expatries.diplomatie.fr/repdipfr.asp as of 02/08/01.
[89]   See http://www.bmaa.gv.at/botschaften/mission-info/layout0.html as of 02/08/01.

4.3.8 Theoretical expectations versus reality – health systems

Modern health systems are complex, and there is a whole industry of economists specialized in analyzing health related topics, which fall in the range of economics. Going into details of VSC health systems would be, on the one hand, too daunting a task to perform here and, on the other hand, nearly impossible due to data problems.

With regard to the good characteristics of health goods, which are provided by the public sector, we have a lot of rival or private goods, but there are also goods which display considerable economies of scale. Recall Table 4.3, where we rated «general health care» and «hospitals» as high-cost public goods.[90] VSC should, therefore, exhibit higher costs in the health sector or provide inferior quality in comparison to larger countries. Given the ongoing discussion in almost all countries on financial problems in the health sector and exploding costs due to various factors, VSC are expected to experience these general problems more severely because of their economies of scale disadvantage.

A first clue of the situation of health systems in VSC can be given by an assessment of the quality of the systems in VSC. «The World Health Report 2000» of the WHO (WHO, 2000) provides a surprising result. The best health system, where the judgment is based on a set of important variables, is the French system. Italy emerges as the runner-up of the 191 members of the WHO, followed by San Marino, Andorra and Malta. Hence, three VSC occupy positions in the «top 5». Given the assumption that at least some parts of the health system exhibit considerable economies of scale, this is rather astonishing and requires a thorough analysis for clarification. The minimum efficient scale for specialized hospitals or medical research in technology-intensive areas is, obviously, beyond the number of inhabitants of San Marino or Andorra. To test whether the rankings of Andorra, Malta or San Marino are not dependent on their VSC status, we run a few regressions to detect possible empirical relations between country size and health system performance. Note that there is a clear theoretical prediction:

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[90] Note that parts of the social security system may also be closely connected with the health sector.

Hypothesis 2: Given the existence of considerable economies of scale, health system performance and country size should either be positively related or relative health expenditure and country size should be negatively related.

We start by testing the first part of Hypothesis 2. The assessment of health system performance is based on two comprehensive indicators of the WHO. One indicator (henceforth «on level of health») measures how efficiently health systems translate expenditure into health. Health in this context is measured by the so-called disability-adjusted life expectancy. Specifically, by applying a frontier production model, which displays the relationship between achieved levels of health and health expenditure, the ratio between maximum attainable and actual goal achievement can be computed.[91] A similar procedure is applied to arrive at the second indicator (henceforth, «overall health system performance»), where the relationship of overall health system achievement to health expenditure is assessed.

Some of the important determinants of health system achievements are disability-adjusted life expectancy, health equality in terms of child survival, responsiveness level, responsiveness distribution and fairness of financial contribution (WHO, 2000, p. 144f). The results for the two indicators in terms of size dependency are, however, very similar. It is therefore not necessary to go into details of indicator composition here.

The overall picture that emerges from the empirical analysis is clear. As expected, a univariate regression with a performance indicator as dependent variable and the logarithm of population as a proxy for country size do not yield any significant results, irrespective of the choice of performance indicator. It is obvious that such a regression suffers from an omitting variable bias because of the exclusion of the most important explanatory variable, namely country welfare. We assess country welfare, as in Chapter 3, by per capita GNP, based on figures for 1997 drawn from Baratta (1999). The relevant results, which are displayed in Table 4.9, are much more interesting.

Table 4.9 reveals the expected significant relationship for per capita GDP and health system performance. Note that the coefficients are ne-

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[91]   For details see WHO (2000) and Tandon et al. (2000).

Table 4.9: OLS regressions for health system performance and size

Dependent variable	Constant	Logpop	Logper capgdp	Adj. R²	Number of observations
overall health system performance – ranking (1–191)	353.475** (17.427)	−4.422 (−1.745)	−69.699** (−26.788)	0.680	186
on level of health – ranking (1–191)	324.880** (12.323)	−5.089 (−1.570)	−59.637** (−17.650)	0.500	186

Sources: WHO (2000), Baratta (1999)

** significant at 1% level; * significant at 5% level; t statistics based on White heteroscedasticity-consi-

   stent standard errors in parentheses.

gative, because we take ranks as dependent variables. The coefficients of the proxy for country size, population, are insignificant for both performance indicators on a standard significance level. It is, nevertheless, noteworthy that the coefficients miss significance on the 5% level by very little in both cases.

Contrary to the first picture, where VSC fare very well, there seems to be a slight tendency of smaller countries to exhibit worse health system performance. From a strict statistical point of view, however, there is no relationship between country size measured by population and health system performance. Two notes are in order. First, we take the logarithms of population and of per capita GDP due to the skewedness of their distributions. Second, the *t* statistics in parentheses are based on White heteroscedasticity-consistent standard errors due to reasons expounded in Chapter 3.

To obtain a more detailed picture, Table 4.10 takes a look at important health system features and data for our set of VSC.

Again, the picture is not clear-cut, mainly due to the heterogeneity of VSC. Health system performance and public expenditure on health differ widely across the selected countries, even across countries with similar characteristics and similar per capita GNP. European VSC fare extremely well with regard to their health systems. The «poorest» performance of the sextet Andorra, Iceland, Luxemburg, Malta, Monaco and San Marino (there are no figures available for Liechtenstein) is rank 16 in the overall health system performance ranking, which is really astounding. The performance of other VSC lacks a clear pattern. Ranks are dis-

Very small countries: organizational choice and international outsourcing

Table 4.10: Theoretical expectations versus reality – overall health system

Health system	Costs VSC neutral - high	Cost diff. between VSC and FPUBL –	
Country	H. lev. (DALE)	GNP/capita[a]	H. exp./capita
Andorra	10	> 9656	23
Antigua a. Barbuda	48	7380	43
Bahamas	109	> 9656	22
Barbados	53	> 3126	36
Belize	94	2670	88
Brunei	59	> 9656	32
Domenica	26	3040	70
Grenada	49	3140	67
Iceland	19	> 9656	14
Liechtenstein	n.a.	> 9656	n.a.
Luxembourg	18	> 9656	5
Malta	21	9330	37
Micronesia	104	1920	81
Monaco	9	> 9656	12
Nauru	136	n.a.	42
Palau	112	> 3126	47
San Marino	11	n.a.	21
Seychelles	108	6910	52
St. Kitts a. Nevis	86	6260	51
St. Lucia	54	3510	86
St. Vincent a. t. Grenadines	43	2420	90

[a] *in $ US (1997). Note that PPP figures would raise GNP/capita for nearly all VSC. H. lev., H. exp./capita and Ohs. perfor. figures are ranks!*

Abbreviations: diff. = difference; expect. = expectation; n.a. = not available; H. lev. = Health level; DALE = disabil-ity-adjusted life expectancy; H. exp. = Health expenditure; Ohs. perfor. = Overall health performance; T. h. exp. in % o. GDP = Total health expenditure in % of GDP; Pub. h. exp. in % o. the. = Public health expenditure in % of total health expenditure; Pub. exp. on h. in % of tpe. = Public expenditure on health in % of total public expen-diture. For the definition of variables see WHO (2000).

Sources: Baratta (1999), WHO (2000).

| | **Theoretical expect.** | | |
| | **higher expenditure or inferior performance/quality** | | |
Ohs. perfor.	**T. h. exp. in % o. GDP**	**Pub. h. exp. in % o. the.**	**Pub. exp. on h. in % o. tpe.**
4	7.5	86.7	38.5
86	6.4	57.3	16.0
94	5.9	49.9	13.7
46	7.3	62.5	13.7
69	4.7	51.6	8.2
40	5.4	40.6	4.5
35	6.0	65.0	10.3
85	6.3	46.6	10.2
15	7.9	83.8	18.9
n.a.	n.a.	n.a.	n.a.
16	6.6	91.4	13.0
5	6.3	58.9	8.9
123	7.4	92.3	46.3
13	8.0	62.5	n.a.
98	5.0	99.0	9.1
82	6.0	90.0	15.0
3	7.5	73.5	15.0
56	5.9	76.2	8.4
100	6.0	51.5	10.4
68	4.0	65.1	9.0
74	5.9	66.5	9.5

tributed from 35 (Dominica) to 100 (St. Kitts and Nevis), with the notable exception of Micronesia (ranked 123rd).

The slight tendency of smaller countries to have weaker health system performance emerging from Table 4.9 seems to be due to small countries above our threshold of 500,000 inhabitants and not due to the relatively strong performing VSC in Table 4.10. The average rank of the 20 countries (with the exception of Liechtenstein) – 55.6 – corroborates this notion, although lower income VSC are disregarded. VSC clearly do not have worse performing health systems in comparison to larger countries when we control for per capita income. But does this astonishing performance mean higher costs for VSC?

The central question is whether there is a negative relationship between health expenditure and country size; or stated differently: Do smaller countries have higher expenditure on health? Recall Hypothesis 2, where we formulated the theoretical expectation. Given the fact that there is no influence of country size on health system performance, we should have higher costs and, therefore, higher health expenditure for smaller countries due to economies of scale effects, according to Hypothesis 2. There are various measures for health expenditure which are of interest in our context, like total health expenditure in % of GDP, public health expenditure in % of total health expenditure or public health expenditure in % of total public expenditure. Table 4.11 displays the results for the according regressions.

Table 4.11 reveals that there is no statistically significant relationship between country size and health expenditure as a percentage of GDP, even if we control for per capita GDP. Therefore, size does not determine health expenditure in any direction, and smaller countries do not have higher health expenditure, which is a finding that clearly contradicts our expectations. Size, furthermore, does not play a role in explaining the fraction of total public expenditure spent on health. Hence, two important measures of health expenditure are not related to country size.

We only find a significant and unambiguous influence of country size on a structural variable of health expenditure. The fraction of public expenditure on health of the total health expenditure decreases with country size. Larger countries seem to prefer to rely on private financing at least of parts of the health system. In smaller countries, most of the overall health expenditure is financed publicly.

Table 4.11: OLS regressions for health expenditure and size

Dependent variable	Constant	Logpop	Logper capgdp	Adj. R^2	Number of observations
total expenditure on health in % of GDP	7.091** (6.613)	−0.235 (−1.416)	–	0.006	189
	0.419 (0.267)	−0.064 (-0.387)	1.691** (7.742)	0.274	186
public health expenditure in % of total health expenditure	111.115** (12.029)	−7.830** (−5.561)	–	0.125	189
	68.528** (5.431)	−6.304** (-4.275)	9.854** (4.719)	0.188	186
public health expenditure in % of total public expenditure	17.502** (4.325)	−1.010 (−1.736)	–	0.010	182
	10.863* (2.081)	−0.916 (−1.432)	1.840** (2.558)	0.047	179

Sources: WHO (2000), Baratta (1999)

** significant at 1% level; * significant at 5% level; t statistics based on White heteroscedasticity-consis-

tent standard errors in parentheses.

The picture that emerges from the regressions, where data for nearly all countries in the world are used, is confirmed by the evidence arising from Table 4.10. There is not a single VSC in our selection that exhibits higher total health expenditure in % of GDP than 8.0. Even 8.0 (Monaco) is a rather moderate figure in comparison to other highly developed OECD member countries (e.g., Austria: 9.0, Belgium: 8.0, Denmark: 8.0, Finland: 7.6, France: 9.8, Germany: 10.5, Sweden: 9.2 or U.S.A.: 13.7).

As expected, the Pearson correlation coefficient between the performance rank and health expenditure in % of GDP for the selected VSC is negative (−0.44) but on the edge of being significant on the 5% level. Total health expenditure is on average 6.3% of GDP with a relatively small standard deviation (1.07), suggesting that the level of expenditure of VSC on health is quite uniform across countries.

Data in Table 4.10 also confirm the regression results with regard to the proportion of public health expenditure to total health expenditure. With the exception of Antigua and Barbuda, the Bahamas, Belize, Brunei, Grenada, Malta and St. Kitts and Nevis, no VSC listed here has

a ratio below 60%. The significant regression result might be driven by some very large countries with very low public expenditure on health like Brazil (48.7), China (24.9), India (13.0), Mexico (41.0) and the U.S.A. (44.1). The average percentage of VSC is, however, well in line with the figures for many European OECD members.

It is a common fact that public expenditure on health constitutes a gradually increasing proportion of total public expenditure mainly due to technological progress. The figures for VSC are all in the range of comparable larger countries with two very notable exceptions. Andorra with 38.5% and Micronesia with an enormous 46.3% are very astonishing outliers, for which we do not have an explanation. One promising approach might be to simply question these figures.[92]

To sum up, health systems in VSC are comparable to health systems in larger countries. Size effects neither health system performance nor relative health expenditure significantly. This surprising result might be either due to the fact that the overall health system does not, contrary to our expectations, exhibit considerable economies of scale and, therefore, publicness. However, if we assume the existence of scale economies, the provision of health care, as a consequence, must be organized better in many VSC than in larger countries.

4.3.9 Theoretical expectations versus reality – political system

It is beyond the scope of this work to go into the details of the political systems of VSC. This chapter is designed to give a brief overview of important political variables. Not unexpectedly, the political systems of VSC differ from political systems of larger countries. Nevertheless, differences between larger countries and VSC are sometimes less significant than differences among VSC, which can easily be seen in Table A.12 in the Appendix. Hence, difficulties arise when the political peculiarities of

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[92] Indeed, World Bank (1998) indicates totally different figures for Micronesia. The average government current expenditure on health is 10.8% of current government expenditure (1990–1995) and 10.6% (1995), based on World Bank and IMF data. The large difference cannot be due to different definitions (e.g., current vs. total expenditure). Unfortunately, the figure for Andorra could not be checked.

VSC are to be assessed. The issue gains additional complexity when the impact of the political system on the economy of VSC is investigated.

Despite these problems, there are certain common features of the political systems in VSC:[93]

– The «distance» between politicians or bureaucrats and citizens is supposed to be very short, which means that the close net of social relationships ensures that nearly everyone knows at least one member of a relevant authority personally. Note that this fact may bring about advantages as well as disadvantages for the economy.

– As a result of this close net of social relationships, VSC are said to have political systems which tend to favor concordance or compromise over conflict, as is also common in federal units. An indicator corroborating this proposition might be the slightly smaller number of parties in VSC in comparison to larger countries.

– Formal structures of control are often replaced by informal social control because of the close social relationships. It is a philosophical question whether this informal social control curtails personal freedom.

– Resulting from the small number of possible candidates, the social and political system is characterized by a high degree of elite connectivity with ambiguous effects. E.g., there is a high risk of having (and perhaps promoting) personal interests in public policies due to the high degree of elite connectivity.

Dahl and Tufte (1973) conclude that open conflicts pose a severe threat to VSC and that their political systems are therefore designed to avoid conflict, whereas political systems of larger countries have more options to handle and moderate conflicts. If there is an open conflict, VSC are normally not prepared and equipped with adequate strategies to handle it.

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[93] See, e.g., Dahl and Tufte (1973), Geser (1991) and Geser (1993).

When analyzing Table A.12, one comes across the expected feature of many VSC having a small number of political parties. Only one third of the chosen VSC have three or more political parties of significance. In six VSC, two parties dominate the political scene, either by distributing all the votes between them or by obtaining an overwhelming majority of votes. Some of the VSC, as can be seen in Table A.12, have only one party of significant size or only a single party. Four countries, namely, Brunei, Micronesia, Nauru and Palau have no parties at all. There is a ban on parties in Brunei, and in the case of the Pacific VSC, their cultural heritage seems to make formal parties unnecessary in the political system. Note that we do not indicate royal houses in Tables A.12 and A.13.

As to the number of parliament chambers and the number of parliament members, it was clearly expected that VSC would normally have only one chamber and, of course, fewer members compared to larger countries. Nevertheless, we could detect seven countries with two chambers of parliament, and the number of members ranges from 15 (St. Kitts and Nevis) to 65 (Malta). In most of the countries, membership in parliament is honorary, and members have full time employment elsewhere.

An astonishing diversity appears in the number of cabinet members in the selected VSC. Monaco and San Marino get by with four cabinet members; Barbados needs 17, including three secretaries of state. On average, the selected countries, notwithstanding, have smaller cabinets than larger countries. The difference is, though, surprisingly small, especially when we consider the ministerial level exclusively. Disregarding countries with traditionally huge cabinets like France, many national cabinets consist of 10 – 15 ministers.

Note that the Commonwealth countries listed in Table A.13 in the Appendix have a Governor General in addition to the Prime Minister. Most other countries have a president, with the exception of Palau, where the President is also Prime Minister. The number of cabinet ministers excludes Attorney Generals when they not have their own minister portfolio.

Looking beyond mere numbers of ministers, there are some notable peculiarities of VSC. Naturally, in those countries with only a few cabinet ministers, there are normally a lot of ministers with more than one assigned department. Furthermore, the Prime Minister sometimes has

his or her own portfolio, which is rather unusual in larger countries. More surprising than this fact is the sometimes very high concentration of power in one or two ministers. It is not an exception that, e.g., the Prime Minister is also the Minister of Finance and/or Minister of Foreign Affairs. A good example is St. Kitts and Nevis, where the Prime Minister is also the Minister of Finance, Development, Planning and National Security. Hence, there seems to be a tendency of combining, on the one hand, central or high-priority departments with other central departments in one ministry and, on the other hand, peripheral with other peripheral ones. One reason for this tendency may lie in the limited number of highly qualified and experienced politicians. Another reason could be the strategy of VSC of assigning important issues to two or three ministers who are *the* representatives of the country abroad in order to be actually recognized by other, larger countries

The fact that some VSC have a Minister of Local Government suggests that, despite the smallness of the countries, a considerable degree of federalism exists. This is especially true for island VSC consisting of only a few islands. A prominent example is Micronesia with its four states, which play an important role in the political system of the country.

4.4 The extent and structure of international outsourcing in very small countries

It has been shown in Chapter 3 that there is a relatively solid and non-negligible disadvantage for smaller and very small countries with regard to the size of the public sector, in the sense that smaller countries on average exhibit larger public sectors. In brief, we detected a negative size effect, i.e. a negative relationship between country size and public sector size (measured in public expenditure), which has become even more aggravated in the course of the last decades. Theoretically, a large part of this negative size effect must be attributed to diseconomies of scale in the provision of publicly provided goods.

Chapter 4 builds on this important result and is designed to shed some light on the public good provision process in VSC, given the findings of Chapter 3. Contrary to the empirical part of Chapter 3, which is an overall assessment on a highly aggregated level, Chapter 4 follows a case study approach. Based on the presumption that diseconomies of

scale are a major determinant of the size disadvantage, a theoretical framework of organizational choice of the provision of public goods is developed. The main idea is to take borderline cases with regard to two characteristics in order to be able to learn more about how the provision of public goods is organized in a difficult environment. These two characteristics are country size – we take only very small countries, where the negative size effect is expected to be most pronounced – and the extent of diseconomies of scale – we analyze the provision of public goods, which are associated with (very) high levels of economies of scale. We hence would expect VSC to have considerable problems in providing these public goods, and we are, therefore, interested in how they provide these goods. Of course, the basic question is whether VSC provide these goods at all.

A comprehensive theory of organizational choice in the provision of public goods is beyond the scope of this study. Such a theory is, moreover, not really necessary for the question underlying Chapter 4. Since we focus on publicly provided goods with a considerable level of economies of scale, hence a high degree of publicness, outsourcing to private agents as organizational choice is, e.g., very unlikely. Strictly speaking, there are only three main possibilities for VSC to cope with the size disadvantage in the provision of those goods: VSC can, first, simply abstain from providing such goods (which theoretically might result in lower happiness or utility of citizens); second, provide them irrespective of the high costs (and bear these higher costs); or third, try to source out production internationally. The empirical part of Chapter 4 is designed to analyze the organizational choice for several public goods in 21 VSC. Our focus is especially on the extent and constraints of international outsourcing, a hitherto widely neglected organizational choice in public economics, which is particularly advantageous for VSC. We speak of international outsourcing when a foreign country provides a public good that is «consumed» by the citizens of the VSC, where one can distinguish between two possibilities: First, the VSC has to pay a certain amount for the provision; second, the VSC acts as free-rider, and the providing country accepts this arrangement. In both cases there may be a formal contract or treaty, or only an informal agreement or tacit unterstanding.

There are a few results of Chapter 4 worth repeating and summarizing here. First of all, it is astonishing that there are a lot of public goods

which are simply not provided or which are internationally sourced out in VSC. It is even more puzzling that especially the non-provision option does not seem to reduce happiness or welfare in VSC, although hard facts or comparable data on this issue are very scarce. Although international outsourcing has been largely neglected in economics, it doubtlessly plays an important role for VSC. Note that the economics of international outsourcing is intimately related with the economics of integration, but the point of view is different, since the economics of integration focuses on the private sector and generally deals with countries of equal size. On the contrary, the concept of international outsourcing in this chapter concentrates on the public sector and analyzes the possibilities and constraints of international outsourcing from a VSC to one or more larger (adjacent) countries.

Based on the selection of public goods with (very) high economies of scale in Table 4.3, Section 4.3 investigates the organizational choice of the 21 VSC for those publicly provided goods for which data were available for all countries. Table 4.12 presents the results of the case studies at a glance. Note that for every group of publicly provided goods in Table 4.3 we have at least one empirical example in Table 4.12. Seven public goods could not be analyzed due to lack of data, but there is no sign that the results for them would not comply with the overall picture in Table 4.12.[94]

One can conclude that international outsourcing in VSC is widespread. It is also an organizational option for publicly provided goods with a high emotional value for a country's citizens, like having an own currency or running a full university. Note that it seems that VSC citizens do not perceive those public goods, which are generally ascribed a high emotional value, as indispensable. Infrastructure is highly dependent on geographic circumstance, which makes it less useful for an analysis of organizational choice. One can however easily discern from the analysis that VSC try to avoid costs associated with expensive infrastructure whenever possible. International outsourcing approaches its constraints when the security of the VSC is at stake. More VSC than expected maintain their own army, although many of these armies are not

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[94]   These «missing» publicly provided goods are namely: courts and judicial branch, legal system, secondary education, hospitals, social security, highways, tax levy.

Table 4.12: Summary of results of Chapter 4 with regard to international outsourcing

Public good	Costs in FPUBL	Operationalization
«very high» costs:		
monetary system	very low	money
defense	very low	army
foreign policy	very low	international organizations
		embassies
legislative branch	implausible	parliament: no. of chambers
		parliament: no. of members
executive branch	implausible	ministers
«high» costs:		
higher education	low	full universities
rail infrastructure	low	railway infrastructure
ports and airports	very low	airports
general health care	implausible	performance
		costs
general administration	implausible	federal levels

Abbreviations: FPBUL = foreign public agency; no. = number; intern. = international; outs. = outsourcing
Sources: Tables in this Chapter and in the Appendix.

really designed to fight in a war with a larger adjacent country. Foreign policy is another example for the constraints of international outsourcing. Nearly all VSC are members of the most important international organizations, most of which give preference to VSC in relying on the «one country one vote»-principle for many decisions. Although these memberships are relatively expensive (permanent missions, data provision obligations, etc.), VSC bear the costs, as they also do for embassies in, for them, important countries.

Organizational Choice	Remarks
in-house: 7 intern. outs.: 14	some of the 14 are part of a monetary union
in-house: 14 intern. outs.: 7	some of the 14 armies are more like police forces
	fewer memberships, but nearly all VSC are members of the most important intern. organizations
partly outsourced to larger adjacent countries	fewer foreign embassies; only in important countries
	14 out of 21 have only one chamber
	significantly fewer members than in larger countries
party system	no apparent difference between VSC and larger countries
	4 to 14 ministers VSC; on average fewer than in larger countries
in-house: 5 intern. outs.: 16	
in-house: 7 no: 14	result is also dependent on geographic circumstances
in-house: 17 no: 4	only 1 airport in a landlocked European VSC; result is of course also dependent on geographic circumstances
	no difference between VSC and larger countries
	no difference between VSC and larger countries
financing	more public provision
	mostly two levels, which means that there is no difference between VSC and larger countries

We did not find comprehensive outsourcing for those public goods, for which we presupposed that international outsourcing is implausible. It is however noteworthy that one general impression also holds for these public goods. Whenever possible, VSC «tailor» the public goods provided to the size of the country. There are fewer members of parliament or fewer ministers on average in VSC than in larger countries. The only exception to that result is the number of federal levels, which seems to be quite similar to larger countries.

One can therefore draw the overall conclusion that VSC use all three possibilities to keep costs low in the public sector. On the one hand, they try to source out the provision of public goods internationally whenever feasible. On the other hand, they simply do not provide public goods or «tailor» them to the country size. It is fact that the public sector of VSC are examples of integration measures within deeply integrated areas, although this finding has hardly been recognized hitherto in the scientific discussion. Take the EU integration, where – with the exception of Luxembourg – only larger countries are involved, as proof. The idea of a common currency, of common embassies in less important countries outside the EU or of a common defense and external policy are not qualitatively different from international outsourcing performed by VSC. On a larger scale, one can more easily understand the differences between public goods with different levels of publicness. Whereas there are no attempts to create common universities (all countries – with the possible exception of Luxembourg – are large enough to operate full universities nationally), the efforts to create and introduce a common currency were serious. Contrary to the monetary system, universities are far from being a pure public good; a fact which explains the different treatment in EU integration.

Finally note that there are of course further criteria involved in organizational choice, some of which are mentioned in Section 4.2. We do not go into detail here with regard to these criteria, because we wanted to focus on international outsourcing.

Is a VSC an optimal unit to provide public goods? Although Chapter 4 has shown that there are several widely used options to reduce the negative size effect, the more general result of Chapter 3 prevails of course. One therefore has to conclude that VSC are not optimal units for the provision of public goods from a cost point of view. Higher preference adequacy and other intangible advantages of VSC may level out this disadvantage, but it is very difficult to quantify the according arguments. VSC can however lower costs by organizational options. These options, the associated costs and their constraints have been analyzed in Chapter 4 in detail.

To date we still do not know why the number of VSC has been increasing during the last decades despite the obvious public sector disadvantage. The growing number of secessions of countries cannot be explained by the results in the previous chapters. Even more significant-

ly, if we regard only the public sector, we would have had to predict a fall in the number of countries. In the following chapter, the concept of sovereignty and its benefits will be offered as one promising explanation for this puzzling development. Furthermore, we will analyze the effects of international outsourcing on sovereignty and on the perception of sovereignty.

5. The economics of sovereignty: «secrets of success» of very small countries

Recalling our analysis in Chapter 3, we know that VSC have a disadvantage due to their size. This is true for the private sector, where the size of the internal market is supposed to limit economic activity and growth[95], as well as for the public sector, where we detected a negative relationship between public sector size and country size. As to the private sector, it is obvious that openness and international can trade reduce this disadvantage. The high risk of exposure to economic shocks and/or natural hazards, which poses a threat to the whole economy of a VSC and not only to parts of it like in larger countries, still remains as a theoretical disadvantage.[96] Regarding the public sector, we had to conclude from Chapters 3 and 4 that there is higher public expenditure in smaller countries which may mainly be due to diseconomies of scale, but the difference between VSC and larger countries with regard to the ratio of public expenditure to GDP is surprisingly small. Chapter 4 offers some promising explanations for this latter fact, among which internationalization and international outsourcing seem to be the most important. Especially landlocked countries surrounded by peaceful neighbors are able to keep the costs of the negative size effect low.

Nevertheless, we have clear theoretical presumptions that when considering the economic system of VSC – including the private sector and the public sector – very small countries should, in theory, have a disadvantage and should not be able to reach similar welfare status or growth rates as larger countries.[97] Although this disadvantage may be

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[95]   See Section 5.1 for theoretical rationales of this disadvantage.
[96]   Larger countries may also suffer from high dependencies on certain branches in the case of economic shocks, but, on average, VSC are more vulnerable.
[97]   See Section 5.1.2 and Table 5.1 for a rather comprehensive list of theoretical arguments of VSC advantages and disadvantages.

quite small for single years, it might result in different growth paths. Why do we, then, observe countries like Liechtenstein, Luxembourg, Monaco and some more, which have a high degree of welfare and an outstanding standard of living? Without a doubt, they are among the richest countries of Europe without exhibiting traditional sources of wealth like, e.g., natural resources. Why has the number of sovereign VSC been growing during the last decades, and why do secessions seem to be more feasible now than a few decades ago, when theory provides an «inferiority» result for VSC?

We conclude from our results in the previous chapters and the remaining questions that there must be other factors driving wealth and welfare in countries apart from the «usual suspects» in economics. It is possible that the economic impact of sovereignty plays an important role for VSC, and we will lay out our understanding of the sovereignty-induced sources of wealth in this chapter. We will argue that it is the legislative framework for the private sector and the citizens of VSC which levels out the disadvantages of small size and can even turn smallness into an advantage.

Our main focus in this chapter is on whether and on how VSC are able to better exploit the advantages of sovereignty than larger countries. Furthermore, we are interested in the prerequisites for a successful economic policy of VSC and in the conditions of a favorable international environment for them.

It is not easy to analyze the questions raised above and their economic implications for VSC. To the best of our knowledge, there is no comprehensive theory of the economic implications and consequences of sovereignty.

> For one thing, the discipline of economics is of little help. It has scarcely considered the question. […] Even recent, more sophisticated economic theory that has turned to softer, more complex, and more elusive ideas such as the role of «trust», «democracy», or «the rule of law» in economic fortune has not taken up the idea. It is little better in legal theory. One searches in vain for an examination of the economics of full or partial sovereignty (or law-making authority), nor for that matter, of the economic implications of practices and conventions. (Baldacchino and Milne, 2000, p. 3).

Unfortunately, Baldacchino and Milne (2000) are not able to arrive at a comprehensive analysis of the economics of sovereignty themselves, which is not surprising, given the problems associated with this daunting task. They do, however, present an anecdotal assessment of the issue by examining the effects of sovereignty for several North Atlantic territories with different degrees of sovereignty. The problem of their analysis is also its strength. As a result of choosing island economies in the North Atlantic as objects of examination, the results are very limited due to the special problems of islands in this region, ranging from the high dependency of their economies on natural resources and fishery to their relative remoteness. The VSC or autonomous territories examined, therefore, can hardly be compared to, e.g., Liechtenstein or Luxembourg. On the contrary: the strengths of their analysis lie in the homogeneity of the territories examined, which allows them to single out the impact and benefit of jurisdictional power, since the territories exhibit different degrees of autonomy. Nevertheless, Baldacchino and Milne (2000) are not able to go beyond the more or less trivial result that sovereignty has enormous economic consequences. The important questions on the driving forces and the necessary degree of sovereignty remain largely unanswered.

Of course, we are not able to arrive at a comprehensive economic theory of sovereignty either. The advantage of our analysis is the comparison of more than 20 VSC with regard to the impact of sovereignty on economic success, which allows us to detect similarities and possible transmission sources from sovereignty or law-making authority to economic impact, viz. wealth and living standard.

We proceed along the following lines: Section 5.1 presents an overview of the economic situations in VSC by supplementing results of prior chapters. In Section 5.2 we then analyze the sources of welfare in the wealthy VSC and try to estimate which role sovereignty plays as a determinant of wealth. If, e.g., a country's wealth is mainly based on industrial production, sovereignty should play a minor role (although location factors like tax policy, political stability etc. are sometimes results of decisions, which require a certain degree of law-making authority). On the contrary, there are a few economic activities which are often directly linked to the level of autonomy, like, e.g., a tax haven policy. Section 5.3 is devoted to a comparison of sovereign VSC with small territories with a considerable degree of autonomy in order to get an impression of

the level of autonomy which is necessary to ensure that the potential be-
nefits of sovereignty can be exploited properly. Note that a comparison
between VSC and larger countries is not that appropriate to answer this
question, because the differences in the economic and political systems
between VSC and larger countries may be too huge to single out the im-
pact of sovereignty. Finally, Section 5.4 is designed to draw conclusions
from the analysis and to arrive at a perception of sovereignty from an
economic viewpoint.

5.1 Economic characteristics of very small countries

Economic characteristics of VSC have already been provided in prior
chapters. Though we have so far concentrated on the public sectors of
VSC, Section 5.1 is, in contrast to that, designed to give some interesting
data on macroeconomic and private sector characteristics in order to get
an overview of the economic situations in VSC. The picture that emerges
from the relevant Tables A.14 and A.15 in the Appendix is rather
diverse at first sight, and it seems to be best characterized by a lack of a
common pattern.[98] E.g., GDP per capita ranges from US $ 1755 (Micro-
nesia) to US $ 32,063 (Luxembourg). Note that we even excluded some
VSC from being listed here, either because their low GDP per capita
would have made comparisons like in Chapter 4 impossible (e.g., Salomon
Islands, Cap Verde) or because of general problems associated with com-
parability (e.g., Vatican City). It is easy to conclude that small countries
exhibit a great variety of characteristics. A closer inspection of both tables,
however, reveals some tentative evidence on common peculiarities.

5.1.1 Some stylized facts

Although there are some obvious caveats associated with the data (diffe-
rent reported years, some comparability problems, etc.), it is clear that
there are several countries with a very high GDP per capita. In five VSC,

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[98]   Note that data on public sectors of VSC in Table A.14 have not been used to run the
        regressions in Chapter 3, because they are not harmonized. Table A.14 should there-
        fore only be viewed as a broad-brush picture of VSC economies.

namely Iceland, Liechtenstein, Luxembourg, Monaco and San Marino, GDP per capita exceeds US $ 20,000, which is quite remarkable, given that it approximately equals the EU 15 average[99] (= $ 20,546) for 1997. As already mentioned, the common feature of these highly developed VSC is their geographic location in continental Europe, with the obvious exception of Iceland. There are only three other VSC with a comparable level of wealth, namely Andorra, the Bahamas and Brunei.

When we take these eight countries as examples of highly successful VSC, it is not possible to detect a single common determinant of their wealth. We observe that there are four countries with direct access to the sea (Bahamas, Brunei, Iceland and Monaco), two countries which rely heavily on their natural resources (Brunei: crude oil and natural gas; Iceland: fishing and aluminum), four countries with a considerable proportion of tourism contributing to GNP (Andorra, Bahamas, Monaco and San Marino), five countries specializing in financial services or banking (Andorra, Bahamas, Liechtenstein, Luxembourg and San Marino) and, finally, one country with an obvious position in the very narrow economic niche of hosting athletes, celebrities and other rich from all over the world by virtue of being a designated tax haven, especially for personal income tax (Monaco).

One common denominator might be the existence of a considerably large service sector in successful VSC (see Table A.15), where the provision of the service may be either restricted to VSC territories (tourism) or may be international in the sense that clients and/or customers need not visit the VSC physically (financial services and banking). It is a fact that the provision of services exhibits fewer economies of scale than industrial production. We therefore should not be surprised by that specialization from a (narrow) point of view concentrating on production technologies. Hence, the picture that emerges, although not easy to explain, is rather coherent, and size clearly plays a role in shaping not only the public sectors of VSC, but also their private sectors.

It is however somehow surprising that many of the remaining 13 low-income VSC seem to have specialized in economic activities very similar (see Table A.15) to those of the high-income VSC, and the group of 13 also exhibits a high proportion of economic activity in the tertiary

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[99]   OECD figures for PPP current prices.

sector.[100] This fact might be an indication that the simple advice to specialize in financial services and tourism is by far not enough to guarantee a high living standard. Note further that Liechtenstein, for example, which is often associated with its specialization in financial services, to our surprise has a smaller service sector than its neighbor countries Austria and Switzerland (see Section 5.2). It has to be admitted, however, that in Liechtenstein, the financial services branch constitutes a considerable proportion of the comparatively small service sector. We will come back to these important questions later on.

Not unexpectedly, we observe high import ratios and export dependency ratios for virtually all VSC in our sample which comply with international economic theory and evidence. Furthermore, there seems to be a relationship between openness, as measured by imports as a percentage of GDP, and per capita GDP, which would, again, be no surprise (see, also, Section 5.2). Openness as a substitute to tiny national markets has already been mentioned as a strategy to overcome constrained growth paths. The export dependency ratio in Table A.14 rests crucially on the definition of neighbor countries, since that question is not a trivial one for island economies. Unfortunately, data are not available for all the VSC, but continental European VSC display an extremely high export dependency. Without having accurate data on Liechtenstein, Monaco and San Marino, we are convinced that we are on the safe side in expecting their export dependency ratio as calculated in Table A.14 to be clearly above the figure of Luxembourg (61%). Such a high dependency reflects the political and economic stability in Western Europe and is – within a stable political and economic environment – not detrimental to VSC economies. On the contrary, it is supposed to be a prerequisite for a flourishing VSC economy.

Unemployment, growth and inflation rates displayed in Table A.15 should be treated with caution, since data sources may not be consistent, base years may differ and figures refer to a single year without taking business cycles, natural hazards etc. into account. Bearing these caveats in mind, it is however interesting to note that besides the enormous range of unemployment rates in VSC, growth rates (with the exception

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100   A correlation between per capita GDP and the proportion of the tertiary sector confirms the notion of different consequences of specializing in services. The Pearson correlation coefficient is low (0.161) and insignificant.

of Palau) and inflation rates are within a range that complies with OECD member averages. Especially inflation rates are surprisingly low compared to world averages. In three cases we even observe negative inflation rates, which generally indicate periods of recessions either due to business cycles, to natural hazards or to structural economic problems.

5.1.2 The predictions of economic theory

As outlined above, the economic consequences of size have not been a major field of research in economics. Especially with regard to publications in core economic journals, the economic problems and (dis-)advantages of nation's size and economic peculiarities of VSCs' private and public sectors as well as their macroeconomic performance have not even been a recognized issue. Although VSC have been ignored in core economics, there have always been quite a few economists, often affiliated with international organizations or located in small countries, working on this subject.

When the benefits of jurisdictional power are not taken into account in an assessment of VSC, then the economic consequences of small size in economic theory are straightforward. It is therefore not surprising that

> the papers collected in Robinson (1960) remain the principal substantive contribution to the theoretical analysis of micro-states. More recent analyses have generally failed to develop further many of the ideas originally contained therein (Armstrong and Read, 1995, p. 1230).

If we are to assess the impact of jurisdictional power properly, it is necessary to present the most important theoretical arguments concerning the economic consequences of a small country size in order to have an appropriate benchmark for comparisons. Most of the relevant theories clearly emphasize the disadvantages of a small country size, and it is much more difficult to assess the advantages of small size with the help of theoretical arguments in economics. As already stated in Chapter 3, given the evidence of an ever-increasing number of small and very small countries in the world, it would be desirable to have some economic

arguments concerning the possible advantages of small size. We will discuss these advantages after having presented the traditional theoretical arguments, which establish a quasi «inferiority» axiom for VSC. Table 5.1 gives an overview on the most popular arguments in favor of or against VSC.

Obviously, this is a huge list of disadvantages[101] with a lot of common arguments and based on well-known and empirically tested general economic concepts. It is far beyond the scope of this work to go into the details of the arguments on VSC economic «inferiority». As one can easily detect, the list in Table 5.1 is not much more than an enumeration of the most often quoted arguments against the existence of VSC[102], and we are not able to dwell upon interesting interactions and causalities between some of the arguments in Table 5.1.[103] Note further that there are, of course, ideas, which can appear on both sides of the table depending on institutional frameworks and constitutions. Take for instance social homogeneity, which may either lead to a swifter decision-making process due to less diverse preferences and opinions or create a system of personal relationships – sometimes called elite connectivity – that may result in clan-like structures, corrupt practices and other adverse behavior.

In the previous chapters of this work we concentrated on one of the «inferiority» arguments, i.e. the problems associated with the public good provision in VSC, where public goods are defined in a relatively broad sense. It is important to note that this issue – although only one of many in Table 5.1 – is one of the most pressing for VSC, and many of the theoretical «inferiority» results in Table 5.1 may be traced back to public sector-related or diseconomies of scale-related questions. To recapitulate our main result, we found that a negative size effect clearly exists, but VSC are more adaptive and innovative than economic theory has been

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[101]   We have the clear impression – given the results of this study – that some of the «inferiority» arguments concerning VSC are invalid to a certain extent, because they do not seem to be empirically confirmed. Note that most disadvantage arguments are strongly related to the private sector. The important exception is the diseconomies of scaleargument in the provision of public goods.

[102]   These arguments were the basis of a rather widelyheld scientific opinion that denied the chance of survival of VSC between the two world wars and, especially, after the second.

[103]   For the interested reader we provide some references in Table 5.1. Good overviews can be found in Armstrong et al. (1998), Robinson (1960) and Waschkuhn (1993).

Table 5.1: Disadvantages and advantages of VSC

Disadvantages

- diseconomies of scale in public good provision (Alesina and Wacziarg, 1998; Kocher, 2000; Robinson, 1960)

- small size of the domestic market (diseconomies of scale in private production) (Armstrong et al., 1993; Briguglio, 1995; Kuznets, 1960)
- diseconomies of scale in research, development and technology (Briguglio, 1995; Jewkes, 1960; Vakil and Brahmananda, 1960)
- less competition on internal markets (Armstrong et al. 1993; Gantner and Eibl, 1999)
- not a large enough home market of considerable size to back export strategies

- poor domestic resource base, both raw materials and knowledge (limited and undiversified) (Bhaduri et al., 1982; Kuznets, 1960; Waschkuhn, 1990)

- narrow range of domestic output (Selwyn, 1975)

- limited possibility of import-substitution (Selwyn, 1975)

- export and import dependency (Kuznets, 1960)
- unstable export prices may harm VSC economies considerably (MacBean and Nguyen, 1978)
- high proportion of imports in domestic consumption
- geographic export specialization (Kuznets, 1960)

- vulnerability with regard to exogenous shocks (internal balancing mechanisms of shock consequences are limited) (Amstrong et al., 1998)

- internationally «neglected» (little power to pursue (economic) interests internationally)

- special problems (depending on geographic variables): high transport costs, limited access to international transport networks (highways, railways, harbors), geographic fractionalization etc. (Baldacchino and Milne, 2000)

- elite connectivity (Gantner and Eibl, 1999; Geser, 1993)

suggesting in finding ways to reduce the resulting disadvantages (provision of only selected public goods, international outsourcing etc.).

Some of the disadvantages listed in Table 5.1 have also been discussed under the label «vulnerability» (e.g., Briguglio, 1995; Hintjens and Newitt, 1992). Table 5.1 aims to prove that the economic assessment

Advantages

- greater social homogeneity, cohesion and closer coherence (Kohr, 1995)
- less ethnic and linguistic fractionalization

- greater flexibility

- higher decision making efficiency

- necessity of public outsourcing increases efficiency (Gantner and Eibl, 1999)

- greater openness to change

- large gains from international trade (Marcy, 1960; Scitovsky, 1960)

- internationally «neglected» (ability to maintain niche policies)
- possibility to create and protect narrow niche markets

- law-making authority is very effective (economic benefits of sovereignty); legal differences between VSC and adjacent countries (Gantner and Eibl, 1999)

- smaller «distance» between politics/administration and citizens

- less congestion costs
- less costs from agglomerations and conurbations

of VSC has been dictated by a rather narrow understanding of economics and therefore resulted in a long list of disadvantages. Most studies briefly refer to a number of advantages[104] but do not analyze them adequately. An explanation for this fact is straightforward. There is a widely held belief among economists that *«the few advantages derived from small size identified in the micro-state literature are generally intangible and therefore impossible to quantify»* (Armstrong and Read, 1995, p. 1230). While this statement contains, of course, a bit of an explanation, it is nevertheless disappointing. A concentration on negative arguments clearly fails to explain why some VSC are overwhelmingly successful. In

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[104] This is the reason why we abstain from giving more than a few references for arguments concerning the advantages.

the following sections we will, therefore, simply take the disadvantages as given without analyzing them in greater detail – bearing in mind that their extent and impact may have been exaggerated sometimes, especially for land-locked, peaceful and open VSC – and take a closer look at the advantages, which are largely intangible and very difficult to quantify. However, some of the advantages must enable certain VSC to achieve high levels of living standard; hence, for those VSC the advantages must exceed or at least level out the disadvantages of small size. One of the promising starting points for an analysis of the important determinants of high living standards in VSC is law-making authority, which will be at the heart of our considerations in the following sections.

Before analyzing the sources of welfare in VSC, it is helpful to clarify our understanding of sovereignty again. Possible definitions of sovereignty have been expounded in Section 2.3.2, but we did not assess the term from an economic view. Apart from legal considerations like international recognition, which will be still useful in distinguishing between very small countries and small autonomous regions, we want to analyze the influence of «effective» sovereignty on economic success. To be specific, we are interested in the degree of «effective» sovereignty that is necessary to ensure that very small countries – which generally exhibit a very low degree of «effective» sovereignty – can pursue niche strategies and can be successful economically?

Law-making authority, which we often refer to, is part of sovereignty in a broader sense. Sovereignty might also include the perceptions of the citizens of a country or intangible assets, like a national anthem or national colors. The latter are apparent signs of sovereignty, but we are rather interested in the transmission mechanisms at work between «effective» sovereignty and economic strategies (sovereignty put to actual use or economically «useful» sovereignty), and have to leave these emotional and symbolic manifestations of sovereignty aside in order to make the analysis as straightforward as possible.[105] Henceforth, we will therefore not strictly distinguish between law-making authority and sovereignty, because the possibility to pass and enforce laws within a limited territory is the most important part of sovereignty for our analysis. Note

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[105]   We know of course that emotional manifestations of sovereignty may have economic consequences or induce economic behavior.

that law-making can be viewed as a public good with a consumption obligation, since nobody can be excluded from its consequences and all citizens have to obey the law. The «producers» of laws normally have a territorial monopoly on passing and enforcing laws or similar legal regulations.

5.2 Sources of welfare in VSC

It goes without saying that there are a lot of factors, which play a role in influencing a country's welfare. One might conjecture that a country's endowment in terms of natural resources, its climate and its disaster proneness, the growth and demographical composition of its population, its important institutions, its geographic location, its laws, its religious and ethnic background, its ethnic and linguistic fractionalization, its knowledge base, its political system, and its relationship to adjacent countries, to name but a few, may affect growth and welfare or the living standard of a country. It is, furthermore, obvious that there are a lot of interrelations between the determining factors of welfare. Since we are looking at the welfare issue through the lens of VSC, we are especially interested in the effect of size on welfare, although it seems to be obvious that

> so many diverse factors affect the economic well-being of different countries that it is extremely difficult to isolate the factor of size to ascertain its impact upon the dynamic course and prospects of an economy (Vakil, 1960, p. 135).

It has been made clear in the previous section that economic theory deduces an «inferiority» result for VSC, which would imply a negative relationship between country size and welfare, meaning that smaller countries should have lower levels of welfare in general. This section is designed to test for that hypothesis by means of a multiple regression analysis. Note that given the clear theoretical prediction, everything apart from a relatively stable negative relationship between country size and welfare would be a surprise, whereas the stylized facts in the previous section would us lead to conjecture that size and welfare are not interrelated.

5.2.1 Country size and welfare

We consider a set of independent variables similar to the set in Chapter 3, where we analyzed the determinants of government size (government consumption) to assess the influence of country size on welfare in multiple regressions based on OLS, where standard errors are White heteroscedasticity-consistent.[106] The results are summarized in Table 5.2, and there is a reasonable case for rejecting the central theoretical predictions. There does not seem to be any relationship between country size and welfare, even when we include a set of control variables which might help in explaining the sources of welfare. Again, analogously to Chapter 3, country size is measured by population figures and welfare by per capita GDP. We are, of course, aware of the shortcomings of these measures but have to stick to them, because they are available and harmonized for a sufficiently large sample of countries. Similar to Chapter 3, we use logs when distributions are very skewed. Descriptive statistics and the correlation matrix of all variables can be found in Tables 5.3 and A.16 in the Appendix.

The results in Table 5.2 are clearly not in line with theoretical predictions. The log of population is not significant in any of the seven models chosen. Furthermore, with the exception of model (2) the coefficients are far from being significant, and we therefore clearly do not obtain a result that supports theoretical expectations. The univariate regression with a comprehensive set of 158 countries under consideration fares poorly with regard to explaining welfare. Due to the high number of observations, this is a remarkable result. In model (2) we arrive at the expected result that trade openness plays an important role in determining welfare. This is the only model where the log of population is not far from being significant, but one has to bear in mind that we have fewer observations than in model (1), and the fit of the model is rather poor, which is somehow surprising, because we expected the variable openness to exhibit considerable explanatory power. Note that the bivariate correlation between openness and welfare is surprisingly low[107], but there is – as expected and in line with theories in international economics – a

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[106]   For details on the method and on Whitecorrection see Section 3.2.3.
[107]   Pearson correlation coefficient: 0.220 (p = 0.029; two-sided).

high and significant (negative) correlation between the log of population and openness.[108] Even though correlation between the log of population and the log of per capita GNP is low (even negative, but not significantly), it is correct to rule out the linear influence of size on the correlation between welfare and openness by running a partial correlation. Irrespective of the openness measure chosen, the magnitude and the significance of the correlation remains, nevertheless, almost unchanged.

Models (3) – (7) show relatively high adjusted R^2, and most of the coefficients have the expected sign. Trade openness and the freedom index are always significant. Note that higher figures mean lower freedom and that the negative sign of the coefficient is therefore perfectly in line with theoretical notions. The indices for vulnerability and transport costs are also significant, and their magnitude is not negligible, especially when we regard the vulnerability index. In other words, the remoteness and vulnerability of an economy or a region are important determinants of welfare. Given the fact that at least all VSC in the Pacific region have to be considered remote, having to bear high transport costs for imports and exports, and that most of island VSC in the Pacific and the Caribbean exhibit high ratings of vulnerability due to natural hazards and environmental problems, the disadvantage of those countries becomes obvious. Although vulnerability indices also incorporate size as a source of vulnerability [109], it is not difficult to conclude that the countries in the Pacific and in the Caribbean would have lower growth rates, higher unemployment and a lower living standard even if they were not so small. Hence, it is difficult to compare their economic performance to that of European VSC due to the remarkable effects of transport costs and vulnerability. Note that because of the high correlation of the two variables resulting from their definition, their magnitude and significance decrease when both are incorporated in one model (see model (4) versus models (3) and (5)).

Geographic dummies do not pop up with surprising news. The OECD dummy is, as expected, always positive and significant, the Sub-Saharan Africa dummy is negative and significant. The only slightly sur-

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[108] Pearson correlation coefficient: -0.636 ($p < 0.001$; two-sided).
[109] Note that vulnerability indices also take the level of transport costs into account. It is therefore not surprising that the correlation between those two independent variables is very high (Pearson correlation coefficient: 0.630) and highly significant.

Table 5.2: OLS regressions for log per capita GDP and log population with control variables

Dependent variable: log per capita GDP 1996	(1)	(2)	(3)
Constant	3.423	2.068	4.751
	(9.815)	(3.538)	(7.452)
Log population 1996	−0.030	0.137	−0.047
	(−0.560)	(1.718)	(−0.637)
Trade openness	–	0.975**	1.548**
		(4.390)	(8.956)
Freedom index	–	–	−0.091*
			(−2.393)
Vulnerability index	–	–	−2.769**
			(−6.813)
Transport costs	–	–	–
Population density	–	–	–
Urbanization ratio	–	–	–
War time	–	–	–
Revolutions per year	–	–	–
War dummy	–	–	−0.026
			(−0.375)
Latin America dummy	–	–	−0.246
			(−1.663)
Sub-Saharan Africa dummy	–	–	−0.615**
			(−5.819)
South East Asia dummy	–	–	−0.363*
			(−2.204)
OECD dummy	–	–	0.485*
			(2.440)
Adj. R^2	−0.005	0.057	0.871
Number of observations	158	98	84

Sources: logarithm of GNP, per capita income and population density from Baratta (1999); urbaniza-tion rate from World Bank; vulnerability, transport costs and trade openness from Briguglio (1995) based on IMF and UNCTAD statistics from 1991; freedom index from Freedom House; war dummy, war time and revolutions per year from Barro-Lee.

(4)	(5)	(6)	(7)
4.259	2.997	2.959	2.193
(6.942)	(7.448)	(8.329)	(4.406)
−0.003	−0.017	−0.028	0.057
(−0.035)	(0.757)	(−0.576)	(0.831)
1.168**	0.484**	–	0.003**
(3.291)	(4.688)		(2.513)[a]
−0.097**	−0.064**	−0.084**	−0.072**
(−2.864)	(−2.843)	(−3.813)	(−2.968)
−1.618**	–	–	–
(−3.061)			
−1.063**	−1.166**	–	–
(−2.855)	(−4.738)		
0.000	–	0.2E−03**	0.000
(0.250)		(6.243)	(0.350)
–	0.011**	0.012**	0.012**
	(6.758)	(7.808)	(7.046)
0.161	–	–	–
(0.779)			
−0.141	–	–	–
(−1.100)			
–	–	–	–
−0.270*	−0.107	–	–
(−1.984)	(−1.409)		
−0.572**	−0.304**	−0.219**	−0.281**
(−5.566)	(−3.794)	(−2.800)	(−3.195)
−0.394*	–	–	–
(−2.371)			
0.454*	0.606**	0.741**	0.697**
(2.421)	(5.956)	(9.480)	(7.501)
0.881	0.924	0.823	0.860
84	80	130	105

[a] *other source for trade openness: Penn World Tables (from 1985)*

** *significant at the 1% level; * significant at the 5% level; t statistics based on White heteroscedasticity-consistent standard errors in parentheses*

Table 5.3: Variables, abbreviations, sources and standard statistics

Variable	Abbr.
Trade openness 1991	open
Population density (pop/area)	popdens
Log of population 1996	logpop
Urbanization ratio 1997 (in %)	urbrat
Dummy for Latin American countries	laamd
Dummy for OECD countries	oecdd
Dummy for Sub-Saharan African countries	africad
Dummy for Asian countries	asiad
War dummy	ward
War time	wart
Revolutions per year	revo
Index of freedom (1-7)	freedom
Vulnerability index	vul
Log per capita income 1996	lognpc
Transport cost index 1991	trans

Abbreviations: Abbr. = Abbreviations; Obs. = Number of Observations; St. dev. = Standard deviation.

prising result is the significant sign of the South East Asia dummy. More confounding is the insignificance of the three variables concerning war and revolutions. They are far from being significant, although we expected them to have clear negative impact on welfare. There are several explanations for the insignificance of the three variables. The most promising line of arguments is that many countries currently involved in an armed conflict with adjacent countries or in state of revolution fail to provide data, which means that they are ruled out *a priori.* The small number of observations in models (3) and (4) also points in this direction. Another intuitive explanation is the fact that the variables might not be able to measure the central effects properly, because they cover a relatively long time period. Contrary to that, we would assume that only those conflicts, which have been taken place in recent years, determine welfare (with the exception of long-lasting conflicts, of course).

The effect of population density is rather ambiguous, since it is only significant in one out of three models. Contrary to that, the urbanization ratio seems to be a stable determinant of wealth. The magnitude of its effect and its significance is very similar across different specifications. A higher urbanization ratio is associated with a higher per capita GNP.

Source	Obs.	Mean	St. dev.
Briguglio based on IMF	114	0.39	0.27
Baratta (1999)	191	229.63	1234.71
Baratta (1999)	191	6.63	1.00
World Bank	147	54.17	23.02
Barro-Lee, own	195		
Barro-Lee, own	195		
Barro-Lee, own	195		
Barro-Lee, own	195		
Barro-Lee	118		
Barro-Lee	118	0.08	0.18
Barro-Lee	133	0.18	0.28
Freedom House	189	3.53	2.01
Briguglio	114	0.45	0.14
Baratta (1999)	159	3.22	0.67
Briguglio based on UNCTAD	114	0.19	0.24

Note that one has to exercise caution in interpreting this result causationally, since it is at least as plausible that welfare is a determinant of urbanization.

The main purpose of model (6) is to test for the effect of country size by having as many observations in the regression as possible. We therefore had to exclude some variables which were only available for less than 100 countries, but the goodness of fit of the model is still remarkable. All variables in model (6) are highly significant with the exception of the logarithm of population, although trade openness does not appear in the model. We take this result as a further confirmation of our argument concerning the irrelevance of size. The effect of trade openness may be replaced by two variables which are highly correlated with openness, i.e. population density and vulnerability.[110] Whereas the high correlation between vulnerability and trade openness is not surprising due to the definition of the vulnerability index, there is no apparent

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[110]   Pearson correlation coefficients: 0.582 ($p < 0.001$; two-sided) for openness and popdens; 0.690 ($p < 0.001$; two-sided) for openness and vulnerability.

rationale – at least as far as we know – for the correlation between openness and population density. The only straightforward argument would run along the following lines: Smaller countries are more open and, generally, have higher population densities, so that there is a high correlation between openness and population density. A partial correlation controlling for country size (logpop) does, however, not convincingly support this notion, and the bivariate correlation between the logarithm of population and population density is rather low. The reason for the high correlation is therefore not clear.

In model (7) we rely on another data source for trade openness in order to have more observations. It should not matter that data from the Penn World Tables for openness stem from 1985, because countries' openness indices should not change dramatically over time, and if they do change, the developments should, on average, be rather parallel across countries (with the notable exception of former Eastern European countries). Indeed, results change only slightly, which indicates that the effects described above are sufficiently stable. With regard to country size, we can conclude that it does not determine welfare.[111]

5.2.2 Determinants of welfare in VSC

We know from Chapter 3 that smaller countries bear a disadvantage in providing and producing public goods mainly due to diseconomies of scale effects. Having additionally obtained relatively solid empirical results in the previous section that country size is not a determinant of welfare, it would be desirable to get a more thorough knowledge of the sources of welfare in smaller countries. It is of great interest in a further step to analyze whether these welfare-inducing sources, be they specialization or other possible advantages of smaller countries, crucially rest on national sovereignty or whether they have little to do with the economic consequences of law-making and sovereignty.

To be able to investigate these questions, we proceed along the following lines: The first step is designed to single out a set of VSC, where

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[111] Note that the same result holds for a dynamic view. Armstrong et al. (1998) and Milner and Westaway (1993) find that country size does not have a significant influence on a country's growth rate.

the effects should be in general most pronounced, viz. VSC with high levels of wealth or a high living standards. We continue to rely on our set of 21 VSC which was selected for Chapter 4, but we concentrate on high-income VSC. This section is, hence, designed to focus on the sources of welfare in wealthy VSC. The following section will analyze the second step in detail, which is the importance of autonomy or law-making authority to pursue certain strategies, which have been identified to lead to high levels of wealth or a high living standard. We sometimes have to rely on descriptive statistics, tentative evidence and case studies in the following sections, since we have too few observations in most cases for strict statistical testing.

Recalling Table A.14, it can easily be seen that there are eight VSC with a remarkably high per capita GDP. Note again that GDP/capita of four VSC, namely Iceland, Liechtenstein, Luxembourg and Monaco, exceeds the EU 15 average, and four other VSC, i.e. Andorra, the Bahamas, Brunei and San Marino, are not far behind. We try to concentrate in the following on the sources of welfare of these eight countries in order to get a better impression of possible welfare-enhancing strategies for other VSC. Due to the small number of observations we cannot rely on regression analysis. Even by using a larger sample of about 15 countries, significance results would most likely be unsatisfying. Hence, we start with a short characterization of the eight countries in question[112], where we consider socio-economic, political and historical factors as well as economic structure and specialization for each of the countries. The results of this comparison have to be treated with caution, because the number of analyzed countries is low, and we are not able to go into a detailed analysis of the eight countries. Hence, the comparison is designed to give a first impression of possible determinants of VSC welfare and success. Further case studies, which provide a finer-grained picture for each of the eight VSC, are clearly required for drawing definitive conclusions.

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[112]   Sources: Armstrong and Read (1995), Baratta (1999) and several webpages.

5.2.2.1 Andorra

Andorra is one of the VSC with the longest history of independence. It gained independence in September 1278, but is nevertheless often judged as having limited economic autonomy. This fact is mainly due to the lack of an own currency and the relatively high dependence on the adjacent countries France and Spain. Andorra is however not part of the EU, but it signed a customs union agreement in 1991 which contains some important exclusions from free trade, especially in the agricultural sector.

Unemployment is inexistent and economic growth rates are remarkably high. Economic pillars are summer and especially winter tourism (skiing) with about eight million visitors a year (some sources speak of 13 million) and duty-free sales. Recently, banking and financial services have gained importance. Furthermore, timber and the energy sector constitute a considerable proportion of the Andorran economy. Seventy-eight percent of the workforce is employed in the tertiary sector; unfortunately, there are no data on contributions of single sectors to GDP. Roughly 80% of GDP is related to the tourism sector. Due to the scarcity of arable land, the agricultural sector is negligible and most food has to be imported.

The Andorran population mainly consists of Catalans, Spanish, Portuguese and French, and Catalan, Spanish and French are the main languages spoken.

5.2.2.2 Bahamas

The Commonwealth of the Bahamas – the only country in our high-income sample located in the Caribbean – is, in contrast to Andorra, a very «young» independent country with its independence from Britain dating back to July 1973. Its own currency, the Bahama dollar is pegged to the US dollar, and dependency on adjacent countries is not that high as in the case of Andorra.

Unemployment, growth and inflation rates are moderate and comparable to European averages. The economy is primarily dependent on tourism and off-shore banking. Tourism alone accounts for approximately one half of Bahamian GDP. Main exports are pharmaceuticals, cement, rum and refined petroleum products, with export partners spread

more or less around the world. Imports consist of food and manufactured goods. The U.S.A. is the most important trading partner. The tertiary sector accounts for more than 80% of GDP and of the total workforce.

The majority of the Bahamian population is Black Americans; dominant languages are English and Creole.

5.2.2.3 Brunei

A former British protectorate, Brunei gained independence at the beginning of 1984. In contrast to all other high-income VSC, it is an Islamic monarchy; it is part of the Asian continent and does not maintain very good relationships with adjacent countries. The latter fact is due to a difficult low-intensity conflict on the Spratly Islands, in which nearly all regional parties, namely China, Malaysia, the Philippines, Taiwan and Vietnam, are involved. Owing to the inexistence of particularly good relationships with adjacent countries, Brunei seems to be rather independent; this is also manifested by the operation of an own monetary system and an own army of considerable size.

Unemployment is very low in terms of international standards, and inflation seems to be more or less inexistent. The economic structure is diverse (private and public enterprises as well as village tradition), but the main source of welfare is without a doubt the export of crude oil and natural gas, with the revenues from this sector accounting for more than 40% of GDP. Government influence on the economy seems to be strong, which is confirmed by comparatively high government expenditure as a percentage of GDP (see Table A.14). The list of export partners reflects the problems associated with the Spratly Islands conflict; none of the involved parties is among the major export partners of Brunei. Hence it mainly sells its oil, gas and petroleum products to Japan and to South Korea (together more than 50%), UK, Thailand and Singapore (less than 10% each). The agricultural sector is small so that more than two-thirds of the food needed has to be imported. The tertiary sector accounts for more than 50% of GDP and is therefore larger than the secondary sector (more than 40%), but the difference is much less pronounced than in other VSC.

The population of Brunei consists of a large and diverse set of nationalities, among which Malayans and Chinese are the most important. Two-thirds of the population is Muslim; most of the remaining people are either Christian or belong to a Buddhist religion. It is not surprising that quite a few languages are spoken in Brunei, given the fractionalized structure of the population. The most important are Malayan and the trade languages English and Chinese.

5.2.2.4 Iceland

Iceland is – like Brunei – a very special VSC for several reasons. Firstly, it is the island VSC with the highest level of welfare despite a not very favorable geographic location. Secondly, Iceland has attained a very high level of political and cultural autonomy, although it became independent only about 80 years ago, at the beginning of 1918. In spite of its independence, Iceland does not operate its own army, but is, due to the US-manned Icelandic Defense Force, a founding member of NATO. Unlike most of the VSC – with the exception of Luxembourg – Iceland is a member of nearly all important regional and international organizations. Note that Iceland is part of the EFTA and therefore also of the EEA, as well as a member of the OECD, OSCE, the Western European Union and the Schengen group, which is rather surprising for a country with fewer than 300,000 inhabitants. It is however not member of the EU mainly due to fears concerning open markets in several sectors and especially due to possible problems associated with the fishing industry. Membership in the EU is furthermore not a political aim for Iceland at least within the next decade. Despite the unfavorable climate and the remote geographic location, Icelanders claim to be happier and more satisfied with their lives than people of many other nations, although such comparisons suffer from methodological caveats (Jonsson and Olafsson, 1991; Kristinsson, 2000).

Unemployment and inflation rates are amazingly low by European standards. The exclusive control over its territorial fishing grounds and the abundance of fish are vital to the Icelandic economy. It is not astounding that about two-thirds of Iceland's exports are fish and processed fish; main trading partners are EU countries and the USA. The second important export commodity is aluminum, which is produced in

Iceland because of abundant energy sources mainly constituted by hydroelectric and geothermal power. Iceland imports a wide range of manufactured goods, raw materials and foodstuffs. Iceland has a remarkably large primary sector for its income level, which accounts for about 10% of the GDP. The secondary sector is also relatively large in comparison to other VSC – with the exception of Brunei – and is dominated by power-intensive industries. About two-thirds of the Icelandic GDP is attributed to the tertiary sector.

The population of Iceland is very homogeneous, with more than 93% being Icelanders, and the only language of importance is Icelandic. Iceland is therefore one of the few VSC with its own language and a considerable cultural heritage.

5.2.2.5 Liechtenstein

The Principality of Liechtenstein is – after Monaco and San Marino – the smallest high-income VSC with about 30,000 inhabitants. It is a typical landlocked European VSC and comparable to Andorra, Luxembourg, Monaco and San Marino with regard to several economic and socio-economic characteristics. Although it is sometimes classified as a sovereign state with limited economic autonomy, its effective autonomy far exceeds that of Andorra, Monaco and San Marino. Liechtenstein achieved formal independence in 1806, but its economy is, in fact, highly dependent upon Switzerland, with which Liechtenstein forms a monetary, customs and defense union, and Austria. Its recent accession to the EFTA despite the Swiss opting not to join demonstrates the growing political sovereignty of Liechtenstein. The discussion about accession to the EU without Switzerland is, however, more or less academic. Note that many laws are harmonized with Switzerland.

With regard to unemployment and inflation, Liechtenstein does not differ much from other high-income VSC. Unemployment has oscillated between one and two percent in the last years and inflation is near zero. The figure for the per capita GDP of Liechtenstein in Table A.14, by the way, seems much too low. Other sources arrive at figures well above US $ 30,000, some even say more than $ 40,000. Contrary to the common perception, Liechtenstein is not a distinct offshore financial market. Only one-half of the GDP is obtained through the service

sector. The industrial sector accounts for the remaining half of GDP, whereas agriculture and natural resource exploitation is negligible. Even though the financial service sector accounts for about 28% of GDP, the economy of Liechtenstein is – all in all – highly diversified and comparable those of larger European countries. Comparatively low business taxes and easy incorporation rules have induced many holding or so-called letter box companies to establish nominal offices in Liechtenstein. These are an important source of public revenues. Note that Liechtenstein is more dependent on daily commuters from abroad (Austria and Switzerland) than any other VSC. About one-third of its workforce does not live in Liechtenstein. Liechtenstein exports machinery, dental products and a wide variety of other commodities mainly to EEA countries and Switzerland. Important imports include foodstuffs and manufactured goods as well as a variety of other products. Liechtenstein imports from and exports to the same partners.

The population of Liechtenstein is rather homogeneous, although the proportion of foreigners formally is very high. Most of them are, however Austrians and Swiss as well as a few Germans. German is the official language.

5.2.2.6 Luxembourg

Luxembourg is a special VSC in several respects. Perhaps due to its size (more than 400,000 inhabitants) it is sometimes not classified as a VSC at all. Though, we suppose that this (mis-)classification is mainly a consequence of Luxembourg's full integration in the international political and economic system by being a member of the EU, NATO, the OECD and the OSCE. Furthermore, Luxembourg is non-negligible at least in the European context, because many important EU decisions require unanimity of member states, and Luxembourg's voting power is therefore far beyond its size. The Grand-Duchy of Luxembourg achieved independence in 1815 and is hence one of the «older» VSC.

Unemployment rate is the lowest or among the lowest in the EU 15; inflation is not a problem either. Luxembourg's currency, the Luxembourg franc, vanished at the end of 2001 due to the introduction of the euro. With regard to the economic structure, Luxembourg does not differ very much from other EU member countries. The proportion of the

agricultural sector is a little smaller than the average; the proportion of the service sector is higher than 70% of GDP and of the total workforce. The industrial sector has traditionally been dominated by steel, but has become more diversified within the last decades. Banking and financial services are an important pillar of the Luxembourg economy. Imports and exports as well as trading partners are highly diversified although there still are relatively intensive trade relations with Belgium and the Netherlands, the other two countries of the BENELUX group.

The population of Luxembourg is rather homogeneous in European terms. Taking nationality, there are about 25% foreigners, most of whom are citizens of an EU member country. Official languages are Lëtzebuergesch (a Moselle-Frankish dialect), German and French.

5.2.2.7 Monaco

The Principality of Monaco is one of the most famous VSC, since it is considered to be a refuge for celebrities and top athletes. The attraction of Monaco is its tax-free personal income status. Although costs of living and especially housing are extremely high, the net benefit of moving to Monaco from a high-tax European country is mostly positive for the rich. Monaco is also well known for a series of big events, among which sport events are the most prominent, and for casino activities. It is not surprising that tourism, therefore, is an important source of income. Independent since 1489, Monaco is a traditional VSC. Its economic and political independence is however rather limited due to its high integration with France (currency and customs union).

Unemployment and inflation rates are comparable to Liechtenstein or Luxembourg. An extremely high proportion (nearly 90%) of the Monegasque are employed in the service sector. The rest is accounted for by the industrial sector; the primary sector is negligible and natural resources do not exist. An important source of income for the public sector are monopolies operated by the government, including telecommunication, tobacco industries, etc. The only industrial activities of considerable size, also as exports, are the pharmaceutical and cosmetic industries. Although data on the Monegasque economy are very scarce, which is especially true of foreign trade, it is not difficult to conclude that Monaco imports a large variety of goods and services.

The Monegasque are, actually, a minority in Monaco; the population is truly international with many French (nearly 50%) and Italians (17%). Official languages are Monegasque and French, but Italian and English are nearly as important.

5.2.2.8 San Marino

San Marino, one of the smallest countries in the world, is similar to other European VSC. It is in an economic and monetary union with Italy, but – analogous to Monaco – not member of the EU. Its effective sovereignty is limited due to the tight ties with the Italian economy and Italian politics. Economic indicators are therefore also very similar to the Italian ones, where unemployment figures are a bit below the Italian benchmark. San Marino was first mentioned 885, and it has been independent since then, which makes it the oldest VSC in our sample.

Although data on the economy of San Marino are scarce, we know that about 40% of the labor force is employed in the industrial sector. This rather high value is due to the processing of wool, wearing apparel and ceramics. The agricultural sector is not very large, but well-known for its wine and cheese. Nearly 60% of the work force is accounted for by the tertiary sector, where tourism, which contributes over 50% to GDP, and banking are the most important. The main trading partner is Italy; exports consist largely of the above-mentioned industrial products; imports are of course far more diverse.

80 % of the population are Sanmarinese; a further considerable percentage are Italians. Italian is, besides a romagnolic dialect, the only language spoken in San Marino.

5.2.2.9 The common denominator of high-income VSC and common misperceptions revisited

Table 5.4 arranges the most important facts of the country descriptions in order to get an impression of possible similarities among the eight VSC at a glance as a starting point for the discussion on welfare sources in VSC.

The results of Table 5.4 are not easy to interpret at first sight. Analogous to our discussion on the whole set of VSC, we obtain a highly diversified picture when we only consider the high-income VSC. This section is designed to highlight some common patterns and to reveal a few astonishing results which contradict conventional wisdom or theoretical expectations and prejudices concerning VSC. Contrary to the widely held belief, we have VSC with a high living standard which have a large and profitable industrial sector – despite the small home market and the associated diseconomies of scale –, we have VSC which are clearly not dependent on financial services or off-shore banking, and we have quite some high-income VSC with a rather fractionalized, inhomogeneous population with regard to ethnicity and languages spoken – despite the common understanding that homogeneity is one of the major advantages of VSC.

5.2.2.9.1 History and socio-economic factors

Starting with the assessment of the duration of independence, it is noteworthy that five of our eight VSC in Table 5.4 have been independent at least since 1815, which is a remarkably long time given the small political and military potential of VSC and the frequent map-changing wars in Europe. Comparing the time of independence with those of low-income VSC, a significant difference emerges. High-income VSC exhibit on average a longer period of independence than low-income VSC (Mann-Whitney-U-Test; two-sided, $p = 0.005$, N=21).[113]

We do not believe that traditional VSC are more capable of exploiting the benefits of sovereignty per se due to longer experience. It is therefore more likely that a concomitant variable exists which influences both welfare levels and the date of independence. The latter argument seems to offer a good guess, given the fact that many VSC which achieved the status of independence since 1960 were former colonies. The

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[113] Note further that a univariate regression with per capita GDP as dependent and the duration of independence as independent variables yields a significant result on the 5% significance level. We did not enclose this variable in the multiple regressions above because of the lack of a theoretical rationale. Besides, there are some difficulties when verifying exact dates of independence, for instance, due to rules of country succession. We would however conjecture that the effect is much less pronounced, if significant at all, when all countries and not only VSC are under consideration.

Table 5.4: High-income VSC characteristics

Country	natural resources	tourism	financial services
Andorra	no	very important	important
Bahamas	few	very important	very important
Brunei	oil, natural gas	unimportant	unimportant
Iceland	water, fish	important	unimportant
Liechtenstein	no	important	important
Luxembourg	no	unimportant	important
Monaco	no	very important	very important
San Marino	no	very important	important

Sources: Baratta (1999), OECD (2000), FATF-GAFI (2001), own collection.

Country	independent since	linguistic fractio- nalization	ethnic fractio- nalization
Andorra	1278	high	high
Bahamas	1973	low	low
Brunei	1984	very high	high
Iceland	1918	very low	very low
Liechtenstein	1719	very low	low
Luxembourg	1815	high	low
Monaco	1489	high	very high
San Marino	885	low	low

Sources: Baratta (1999), own collection.

Country	transport costs	openness	vulnerability index (rank)
Andorra	n.a.	n.a.	n.a.
Bahamas	32.21	73.60	0.633 (11)
Brunei	n.a.	n.a.	n.a.
Iceland	1.74	34.85	0.292 (99)
Liechtenstein	n.a.	n.a.	n.a.
Luxembourg	n.a.	n.a.	n.a.
Monaco	n.a.	n.a.	n.a.
San Marino	n.a.	n.a.	n.a.

Sources: Briguglio (1995); transport costs (= transport and freight costs as a percentage of merchandise exports) based on UNCTAD data; openness (= (Imports + Exports)/(2•GDP)) based on IMF data; vulnerability index by Briguglio (1995), 114 countries ranked.

workforce in sec. sector (%)	workforce in tert. sector (%)	fiscal paradises
21	78	OECD-list
12.9	81.1	OECD-list
40.8	56.5	no
25.5	65.9	no
46	52.5	OECD-list
25.9	71.6	partially
13	87	OECD-list
40.9	57.6	no

religious fraction-alization	urbanization ratio (%)
very low	95
high	87
high	70
very low	92
very low	19
very low	90
very low	100
very low	96

geographic location
Europe; landlocked
Caribbean; islands
Asia; on coast
Europe; island
Europe; landlocked
Europe; landlocked
Europe; on coast
Europe; landlocked

status of having been a colony of European countries, especially of the British Empire, might have strongly influenced welfare levels and growth paths by creating an initial disadvantage (no history of independence, an economy tailored to the needs of the colonial country, too little investment, a misadjusted economic structure with high dependence on resources, few niche strategies). Note further that geographic location or other geographic variables might play a role, since all traditional VSC are located in Europe. The advantages of the larger European market may, however, be offset by the very high risk of being annexed in one of the many European wars during the last centuries. In more or less peaceful times (since 1945) and with the ever-increasing openness of European countries, the advantages of VSC can fully be exploited and the disadvantages are diminished.

Table 5.4 also reveals – as briefly mentioned above – that social homogeneity does not seem to be an important factor for the success of VSC, contrary to our expectations and contrary to arguments raised in many studies of very small countries. Ethnic and linguistic fractionalization in the chosen VSC is sometimes relatively high, especially bearing in mind the small number of inhabitants and/or the small area. It might simply be the case that it is unimportant or more or less unimportant in economic terms to have a homogeneous population with regard to ethnicity and language. A successful VSC is «forced» to be international due to its high dependency on export and imports and due to the lack of possibilities at home, especially in education. Moreover, VSC are often dependent on workers from abroad, like, e.g., Liechtenstein. It is therefore not correct to speak of a VSC's population homogeneity as one of the major advantages of VSC. On the contrary, in most cases its international orientation and its heterogeneity in population seem to be a factor of success.[114]

5.2.2.9.2 Economic structure and specialization

It is rather astonishing that the distribution of the workforce among the three main sectors is not uniform across the high-income VSC and does

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[114] Unfortunately, we can say nothing about the identification of citizens with VSC. A possibly strong identification might play an important role in the perception of «homogeneity».

not differ on average from larger countries. However, it is nevertheless possible to detect three main sources of welfare in VSC: natural resources, tourism and financial services. Leaving aside Brunei and Iceland, which are very dependent on natural resources, the other six VSC are often dependent on both financial services and tourism.[115]

It is furthermore noteworthy that the specialization in financial services does not go hand in hand with illegal practices in those six high-income VSC with a considerable dependency on financial services and banking. Four of them are in fact on the OECD list of harmful tax practices (OECD, 2000), but they are not on the FATF-GAFI list (FATF-GAFI, 2001) for money laundering. Contrary to that, some low-income VSC which became famous for being tax havens are on both lists. An interpretation of this fact is a little speculative. It might be the case that a serious financial service sector which enjoys a high level of confidence and is highly reputed in other countries – such as Liechtenstein or Luxembourg – with a favorable institutional environment like low tax rates or a strictly interpreted confidentiality in banking is much more profitable than an approach based on nearly illegal or illegal practices. Due to the long time it takes to build reputation this finding is however of limited use as advice for less developed VSC which have been specializing in financial services.

Although openness and transport cost data in Table 5.4 are very scarce, we know from Table A.14 for example that openness is of considerable importance for VSC as a prerequisite of development. It has also been noted briefly in the theoretical discussion on the «inferiority» arguments concerning very small countries' private sectors that a high level of openness comes with higher dependency on neighboring countries and a higher risk of external shocks, on the one hand, but on the other hand, it offers the opportunity to overcome the limitations of the small home market, in terms of scale economies in production, research and development. In a stable international and especially regional political environment and in the absence of severe conflicts with adjacent coun-

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[115]   Prerequisites for a successful economic strategy in these two branches are a liberalization of capital movements (which has been taking place since the 1970ies) and, besides the required conditions with regard to nature and landscape, good accessibility. The lack of the latter is one of the biggest disadvantages of Pacific VSC, of which most can be viewed as less developed. Remoteness seems to be one of the most important growth-hindering factors for them.

tries, the disadvantage of openness diminishes and the advantages can be fully exploited. It is therefore obvious that the high level of welfare of European VSC could only be achieved in the comparatively very stable European post-war era, in which the degree of openness has gradually been increasing, although initial levels of openness between VSC and their most important adjacent countries (Andorra – France/Spain; Liechtenstein – Switzerland; Monaco – France; San Marino – Italy) have traditionally been high. Note that for all European VSC with the exception of Iceland, transport costs should be very low and not different from larger countries.[116]

5.2.2.9.3 Political systems

It should not be disregarded that the stability issue is not an exclusively external one, because it is a fact that stable political conditions within a country can boost growth unless the political system is petrified in the sense that progress is obstructed. We refrain from assessing internal political situations because of difficulties in judgment. It is not enough to evaluate the frequency of government changes or the frequency of elections. One would have to go into the details of political fractionalization with regard to the total number of parties and, much more importantly, with regard to the ideological differences between consecutively ruling parties or coalitions.

At first glance, the political systems of the eight high-income VSC do not differ from other VSC or from larger countries. With the exception of Brunei, where a party ban exists, all high-income VSC have at least one (Monaco) or more competing parties, as can easily be verified from Table 4.11. The distribution of votes among parties displays a few peculiarities: There are slightly fewer parties with a considerable proportion of the votes in all VSC and in the set of high-income VSC, compared to larger countries. Given the small number of possible candidates for political positions and the small electorate in VSC, there is a good

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[116] High levels of openness have been found to be of considerable importance for VSC on their path to very high levels of welfare. They however may contradict niche strategies of VSC if a too high degree of openness is aimed at. The balance between a level of openness which is as high as possible and the preserving of niche strategies by means of protectionist measures is of the utmost importance for VSC. This highly relevant tightrope walk of VSC will be dwelled upon in detail in Section 5.4.

deal in favor of political agreement among most of the parties or politicians, especially when issues of vital national interests or of external politics are concerned.[117]

5.2.2.9.4 Other determinants of welfare

As can be seen from Table 5.4, vulnerability indices are not available for most of the high-income VSC. It is not difficult to suppose that they are highly correlated with geographic location and that European VSC have clear advantages over Caribbean and Pacific VSC. Leaving aside the higher vulnerability of VSC due to their size, it should be more difficult to attain high levels of welfare for countries with high vulnerability indices than for less vulnerable countries. The successful economic strategy of the Bahamas is, in this respect, a bit surprising, but shows that problems associated with vulnerability like, e.g., disaster proneness can be partially overcome.

There is another possible explanation for the success stories of some VSC, although it is also a bit surprising at first sight. In any case, it is one of the standard arguments in economic geography which can easily be applied to VSC (see, for instance, Krugman 1996, p. 205ff).[118] Think of the development of a village or a small city (which can be compared to nearly all VSC with the very notable exception of Iceland). A successful village or city has, of course, a famous commodity that it produces or a well-known sight tourists can visit; in a word, it specializes in something. It is however typical for the development of a local economic unit that when the unit reaches high levels of welfare, the original product for which the unit may still be famous only contributes a relatively small

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[117] The extent of membership in regional, international and supranational organizations do not seem to play a role in determining welfare in VSC. Especially VSC have to bear high per capita costs to be represented in these organizations, and the countries chosen exhibit very diverse characteristics with regard to membership. On the one end of the possible scale we have Luxembourg, which is a full member in all relevant international and regional organizations; on the other end there are Monaco and San Marino, which are only minimally represented on the international level.

[118] Note that we can only dwell very briefly upon the subject of economic development here. Actually, it would fill another book if we applied growth theories and theories of economic geography on VSC. The few sentences on economic development should therefore be viewed as another argument concerning the determinants of wealth without being underpinned by theoretical considerations and without being tested rigorously in empirical terms.

share to the economic performance of the unit. Jobs do typically not grow in these areas where a unit does excellently (a fact which is due to productivity gains); they grow in branches where things are done rather «badly». Those things which are done relatively «badly» are not designed to be exported; they are rather services or other «non-tradables» for the citizens of the economic unit, be it a small city or a VSC. Furthermore, we often observe a reinforcing effect. If an economic unit is developing quickly, more and more enterprises emerge because consumption is growing in the economic unit and its vicinity, and more and more enterprises are founded because skilled and trained people are easily available.

The result of a development as described above is an economic unit with a high welfare level and a highly diversified economic structure. Taking a look at VSC and applying these few arguments from economic geography to them, one can easily see that they are in line with empirical findings. Liechtenstein and Luxembourg seem to be perfect examples of a development process which results in a highly diversified economy. The only major difference between a village and a VSC might be the limited growth potential, especially for VSC at the lower scale of population records, due to limited natural resources and habitable land, but larger cities may also be constrained in this respect.

5.3 VSC versus autonomous regions of larger countries

In order to obtain a finer-grained picture of the effects of autonomy and its benefits, we require a comparison across regions with different levels of autonomy or sovereignty. The central question concerns the degree or the kind of autonomy of a region necessary to achieve prosperity and the necessary degree of law-making authority to successfully pursue niche strategies. Fortunately, there are a lot of regions in the world with different levels of autonomy, and this allows us to investigate this issue of sovereignty in greater detail.

Actually, we would be interested in «effective» autonomy or «effective» sovereignty. Using such a concept we would find for example that the U.S.A. has greater autonomy or sovereignty than Switzerland that Switzerland has more autonomous scope of action than Belgium, a member of the EU; that Belgium clearly has greater autonomy than the

Bahamas; and finally, that the Bahamas are able to solve more issues autonomously than Liechtenstein or San Marino. We are not aware of such an international index of effective autonomy. Therefore, we refrain from distinguishing between different levels of effective autonomy of countries, which are fully recognized internationally.

Besides the fully sovereign VSC there are a lot of territories or regions of similar size which are part of larger countries but exhibit various degrees of autonomy, from almost full sovereignty to constrained levels of autonomy like the *Länder* or *Kantone* in Germany and Switzerland, respectively. Examples of regions within the EU territory with significant economic autonomy but not full sovereignty would be the Canary Islands (Spain), the Isle of Man (U.K.), which even has its own currency, though at par with the British Pound Sterling, and the Channel Islands (Jersey and Guernsey; U.K.). EU regions with a little less economic autonomy would be, for instance, Gibraltar (U.K.), the Azores (Portugal), the Faroe Islands (Denmark) or South Tyrol (Italy).

5.3.1 Theoretical expectations

What should one expect, theoretically, when autonomous regions and VSC are compared? On the one hand, we conjecture that integration in the larger economic structure of the country to which the autonomous region belongs (equivalent to a very high degree of openness) reduces the disadvantages of small size, especially all the disadvantages associated with a small home market. If, however, the degree of trade integration does not differ qualitatively between VSC and their adjacent countries and autonomous regions and the country they belong to, this argument would be of limited validity. At least for the European high-income VSC, we suppose that the difference should be minor.

On the other hand, the limited sovereignty of autonomous regions might constrain them in pursuing strategies to occupy economic niches or to implement policies to promote growth (Armstrong and Read, 1995). We are especially interested in this latter argument in order to obtain a more clear-cut picture of the degree of sovereignty or autonomy necessary as a prerequisite for high levels of welfare.

5.3.2 Data and first results

Fortunately, we do not have to gather data for an investigation of these arising issues – given the fact that data are very scarce for such examinations, this is a considerable advantage – because we can follow the lines of the studies of Armstrong and Read (1995) and Armstrong et al. (1998). The first step is to examine how VSC and small autonomous regions (henceforth, SAR) fare in comparison to other regions. It is then possible to compare VSC and SAR in a further step. As a consequence of the diversity of VSC and SAR with regard to remoteness, geographic location and so on, it is not meaningful to compare, e.g. Andorran figures with the average of EU figures on the NUTS 2 level.[119] Armstrong and Read (1995) therefore decided to compare economic indicators of VSC and SAR with the average for adjacent regions, although this approach comes with the problem of choosing appropriate adjacent regions, which is especially problematic for islands.[120]

The results of the comparison are striking and not very difficult to interpret. They rely on data from 15 European VSC and SAR[121] and compare their per capita GDP and unemployment rates with those of adjacent regions. We supplement the qualitative results of Armstrong and Read (1995) by applying non-parametric statistics. With regard to per capita GDP, the majority of the 15 VSC and SAR clearly outperform adjacent regions. The difference is especially pronounced for Andorra and Liechtenstein. Note that there are however several VSC and SAR with lower per capita GDP than in the adjacent regions, namely the Azores, the Isle of Man, Madeira, Malta and San Marino. The Faroes are a special case, since their GDP is higher when per capita GDP is converted to the former European currency unit ECU, but smaller when purchasing power parity is applied. Although per capita GDP is, on average, higher in VSC and SAR than in adjacent regions, a Wilcoxon-

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[119] NUTS 2 is a level of geographic aggregation of regional statistics issued by Eurostat and part of the Eurostat REGIO database. There are about 170 NUTS 2 regions in the EU.

[120] See Armstrong and Read (1995) for their choice of adjacent regions. Note that their choice is rather arbitrary in the case of island VSC and SAR, but it is difficult to imagine how to arrive at a «correct» choice.

[121] Note that the choice of SAR is also arbitrary, and there are numerous other candidates, which Armstrong and Read omitted (1995).

signed rank test and a simple sign test do not yield significant results for both per capita GDP measures, especially due to the much higher standard deviation of the VSC and SAR group.

The picture changes when we take a look at unemployment figures. With the exception of Ceuta and Melilla (Spain) all VSC and SAR have lower unemployment rates than the chosen adjacent regions. Not surprisingly, the results of a Wilcoxon-signed rank test (p = 0.002; two-sided; N=15) and a sign test (p = 0.001; two-sided; N=15) are highly significant. This means that unemployment rates in VSC and SAR are significantly lower than in adjacent regions. Moreover, nine out of 15 VSC and SAR fare better with regard to per capita GDP and unemployment ratios than their adjacent regions, which can be viewed as a clear result.

It is moreover very likely that the advantages of VSC and SAR are the result of the economic consequences of sovereignty and/or autonomy. Based on a discriminant analysis, Armstrong and Read (1995) find that the advantages of VSC and SAR are primarily based on a well developed financial service sector, abundant natural resources and on tourism activity (in this order of importance). Especially for the first source of welfare, the financial service sector, which is the single most important variable, a considerable degree of law-making authority is a prerequisite. Our conclusion above concerning the benefits of jurisdictional power therefore seems to be corroborated.

5.3.3 Very small countries versus small autonomous regions

The next step is to distinguish between VSC and SAR in order to get a better impression of the effects of autonomy. It is not surprising that we did not find statistically significant differences between the two sets. This is firstly due to the small number of observations, but it seems to be the case that it would also be true for a larger sample size. VSC characteristics and performance measures are very diverse, and it would therefore be astonishing to find a clear statistical difference. Note that we are less interested in actual economic figures than in the potential of VSC versus SAR in exploiting autonomous rights in order to promote their economies.

Ranking VSC and SAR results in VSC leading the list, which is a slight indicator for a higher potential of economic performance. With re-

gard to per capita GDP (purchasing power parity; based on Armstrong-Read data) Liechtenstein fares best, followed by Jersey, Andorra and Iceland. Taking unemployment figures, again Liechtenstein takes the lead together with Andorra, slightly in front of Guernsey and Jersey. Another reason for this result, which makes it impossible to discriminate between VSC and SAR, might be the relatively high level of autonomy which all of the selected SAR enjoy. Although they have a less pronounced political autonomy in comparison to VSC, the autonomous scope of action of VSC and SAR in economic issues seems to be very similar. Note that indeed many formally sovereign VSC do not rely on their political sovereignty, but give up rights to adjacent countries. Recall that such an abandonment of sovereignty has been labeled «international outsourcing» in Chapter 4.[122]

It is, however, important to have a considerable extent of law-making authority in economic decisions in order to promote niche strategies. Both VSC and SAR seem to be very active in defending these parts of sovereignty.[123] A good indicator for the VSC's and SAR's policy of protecting special parts of sovereignty is the fact that their economic niches are a major hindrance to EU accession. Think for instance of Iceland, where the most prominent argument against EU membership is the loss of sovereignty in fishing. This conclusion might also be an explanation for the fact that nearly all VSC and SAR have treaties with the EU, but these treaties do not encompass all relevant issues. They always exclude small parts of the economy, especially in those areas where the economic niches of VSC and SAR are concerned.

Armstrong et al. (1998) extend the European view of Armstrong and Read (1995) to a much larger set of VSC and SAR worldwide.[124] Although data restrictions become more severe with such an approach and harmonized data are often unavailable, they are able to compare the economic performances of VSC and SAR with regional averages. The results are, as anybody who has read so far would expect, very diverse. On a highly aggregated level (their Table 2) they find that VSC and SAR do

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[122]   Take the inexistence of military defense in most European VSC as an example.
[123]   We will come back to that issue in the following sections.
[124]   Again, we have to note that the choice of SAR is somehow arbitrary, and one could discuss the inclusion of further SAR. Note that most of the highly autonomous regions are, however, included.

even better than larger countries in economic terms, but it goes without saying that this result has to be interpreted with great caution for several reasons, data availability and harmonization being only two. Remember that we were unable to find a significant negative relationship between country size and GDP per capita in the much more reliable multiple regression approach in Section 5.2.

In Table A.17 in the Appendix we display those VSC with fewer than 500,000 inhabitants and all the SAR listed in Armstrong et al. (1998) and evaluate them again with regard to our focus of comparing VSC and SAR. The regional classification, which is also the basis for regional averages, follows World Bank standards.

The compilation in Table A.17 confirms our regression results. There does not seem to be a disadvantage for VSC, but overall, there is also no advantage with regard to per capita GDP. We obtain 16 VSC which have lower GDP per capita than the regional average, and 11 VSC which have higher GDP per capita than regional average (the difference is not significant). Exactly the same number of SAR's GDP per capita figures are above regional averages as are below (11 versus 11). All in all, 27 VSC and SAR are below regional averages and 22 are above. Needless to say, there is no statistical difference between VSC and SAR in terms of relative per capita GDP.

5.3.4 Regional differences

As can easily be verified from Table A.17, there are some noteworthy regional differences. The Sub-Saharan African VSC and SAR as well as the South Asian and the VSC and SAR in the Middle East and North Africa fare quite well. The picture is also relatively satisfying for the Latin American and Caribbean, Western European and North American VSC and SAR, although the results are characterized by a certain degree of diversity. The region with most of the VSC and SAR, the Pacific region, comes out very badly, with nearly all territories having a lower per capita GDP than regional average. Of course, it is not fair to compare Pacific island economies with some of the Asian «tiger» economies, but the performance of Pacific VSC and SAR is poor in any case. Remoteness and disaster proneness play a vital role in determining the results for this region, but there are several «home-made» problems, like

bad governance, which are at least as responsible for the outcome as the natural ones.[125]

Our results change when we exclude East Asian and Pacific VSC and SAR, but the difference between VSC and SAR is again insignificant. Now 20 out of 31 VSC and SAR beat regional average GDP per capita figures. The disaggregated results are: ten versus seven for VSC and ten versus four for SAR. We can conclude that – excluding East Asia and the Pacific region – VSC and SAR tend to have higher GDP per capita than the regional average figures, where SAR seem to fare even a little bit better than VSC. Finally note that the results remain qualitatively unchanged if VSC and SAR are compared to adjacent countries instead of regional averages (see Armstrong et al., 1998). We do not go into the details of the relevant findings, because they seem to be based on much more arbitrary decisions than in the European case.[126]

5.4 A summarizing evaluation of law-making authority and sovereignty

The previous sections allow several interesting conclusions with regard to the economic effects of law-making authority and sovereignty. It has to be borne in mind that our results are not only relevant for VSC and SAR. The issue of giving up sovereignty combined with deeper integration, especially in Europe, but to a lesser extent also in Asia and America, is also an important one for larger countries. When the division of tasks between different levels of decision-making and law-making in Europe is discussed, one implicitly dwells upon the subject of national

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[125] See World Bank (1998) for a comprehensive study on the problems of Pacific VSC and possible therapies.

[126] Armstrong et al. (1998) perform a discriminant analysis similar to that of Armstrong and Read (1995), but the results are – not surprisingly – analogous. The existence of natural resources, a financial service sector and a tourism industry are strongly associated with high welfare. A large agricultural sector is negatively related to welfare. It is somewhat astonishing that they do not find support for the hypothesis that there are welfare differences between islands and non-islands VSC and SAR. Contrary to that, the results of this study suggest a disadvantage for island VSC and SAR, sometimes called «islandness», especially when they are remote, which is by the way in line with other empirical studies and theoretical expectations on the issue.

sovereignty. Which parts of national sovereignty should be kept, which can be handed over to the EU level but should be guarded by a right to veto, and which parts should be given up in order to decide relevant issues by majority vote on the supranational level? Of course, VSC differ from larger countries with regard to several aspects, but one can learn a lot from their decisions, because the underlying rationales are similar regardless of country size, and the effects of changes in «effective» national sovereignty are much easier observed in the relatively smaller VSC economies. Moreover, many VSC have already given up a lot of national sovereignty to other countries, and one can conjecture that what remains might be the most important part, the core of sovereignty. Hence, VSC can indicate the future path of international integration and its possible limits.

5.4.1 Pillars of very small economies

Contrary to the widely held belief that VSC economies mainly rely on financial services and even on illegal activities like money laundering, we found that the economic sources of success are much more diverse in reality. Especially the high-income VSC are much more on-shore than off-shore economies. Due to this diversity, it is not easy to find a common denominator for the success stories. Judging from the case studies in Section 5.2, we are however able to obtain some hints as to the best economic strategies for a VSC, bearing in mind a few caveats already mentioned above.

Needless to say, the first advice would be to exploit natural resources if any are existent. It also goes without saying that VSC have to take a closer look at sustainability than larger countries due to their limited size and the vulnerability of their ecosystems. Brunei and Iceland are two excellent examples of VSC with valuable natural resources. Their economic structure clearly reflects the existence of these resources, and they are well adapted to their specific economic situation, which is, of course, a key to economic success. Other resource-abundant VSC are less successful, like, e.g., Nauru, where phosphates are mined. Note however that Nauru is one of the high-income VSC in the Pacific region and its disadvantage may be, to a considerable extent, driven by its remoteness.

In connection with natural resources, we have to consider natural resources that are not quarried and not mined. Many VSC and especially island VSC have beautiful landscapes and, therefore, a flourishing tourism industry. Again, a word on sustainability is in order. Given its dependence on tourism, island VSC in the Caribbean run the risk of destroying their natural heritage if the number of tourists continues to inercase. Tourism is a perfect source of welfare for VSC because it complies with the specific advantages of many VSC and it also creates jobs for less-educated citizens. Almost all VSC have a tourism sector of considerable size; some are even highly dependent on tourists. The Bahamas are a good example of this. Note however that there is no apparent difference with regard to the size of the tourism sector between high income and low-income VSC. Not unexpectedly, Pacific VSC seem to do worse despite of almost paradise-like landscapes. The problem of attracting enough tourists may, again, be attributed to their remoteness.

The service sector, and especially the financial service sector, has proven to be the single most important source of welfare for most VSC. In contrast to the exploitation of natural resources and to tourism – neither of require a great degree of autonomy – law-making authority and a considerable scope of sovereign action are prerequisites for a specialization in financial services. Hence, the promotion of the financial services sector seems to concern the core of relevant sovereignty for VSC. The interaction of size and specialization in financial services should make it possible to some conclusions on the necessary kind and extent of law-making authority, which will be at the heart of our examination in the following sections. In any case, financial services, banking and related services are a major source of revenue for almost all VSC. It cannot be a coincidence that so many VSC have specialized in these branches.

One reason for this fact might be that VSC can overcome disadvantages of remoteness and high transportation cost by specializing in services, which often only require data networks and means of telecommunication. No other possible economic activity is more independent of geographic distance than distinct services and, above all, financial services. Note that the internet has been opening up new possibilities for remote VSC by establishing quite a few branches which are also associated with low transport costs: internet services, internet retailing or software development are examples. There are some signs that VSC are aware of these new possibilities, but they have not proceeded far in terms of

establishing such enterprises to a large extent. The lack of an appropriate infrastructure and well-trained computer experts, especially when remote island VSC are concerned, may be two promising explanations for the slow development in these areas.

It is however astonishing that the existence of a strong financial service sector is a bad device to distinguish between high-income and low-income VSC. In other words, many VSC try to specialize in financial services, but only a few are truly successful. This means that a specialization in financial services and banking may result in high levels of welfare, but it is far from guaranteeing high income. One therefore has to be cautious in advising less developed VSC to promote only the financial service sector and to follow strategies which are solely tailored to the needs of this sector.

It is even more surprising that those countries which are on the above-mentioned FATF-GAFI list and therefore suspected of not combating money laundering adequately are far from being the ones with the highest per capita GDP. Seven of the 17 countries listed by FATF-GAFI (2001) are VSC or SAR, none of them are among the selected eight high-income VSC, and some have even been disregarded in our set of 21 due to their low GDP per capita.[127] The removal of the Bahamas, the Cayman Islands and Liechtenstein in June 2000 is a clear indication that these countries put in a lot of political effort in addressing the deficiencies identified by the FATF through the enactment of legal reforms. This proves that high-income VSC are very much concerned about their international reputation. A listing by the FATF would not comply with their image of a safe and reputable place for financial services, based on a rather long tradition and on credibility. Advising a low-income VSC to develop the financial service sector would, if done at all, include a remark on the importance of confidentiality and compliance with international rules. Note however that there are a remarkable number of VSC on the OECD list of harmful tax practices. This list reads like the «Who's who» of VSC and clearly shows the specialization of many VSC.[128]

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[127]   Listed are the following VSC and SAR: Cook Islands, Dominica, Marshall Islands, Nauru, Niue, St. Kitts and Nevis, St. Vincent and the Grenadines. In June 2000 the Bahamas, the Cayman Islands and Liechtenstein were removed.

[128]   33 of 37 countries listed are VSC or SAR according to the definition used in this study.

Trade openness and individual freedom as well as democracy have proven to be a condition for VSC success. The only high-income VSC without a democratic system is Brunei[129], where the lack of democracy is not so important in economic terms, because the extraction and refinement of oil and natural gas may also be organized and/or strictly controlled by the government or by government agencies. The climate of personal freedom is much more important when the service sector is concerned. High vulnerability and high transport costs are obviously detrimental to economic success in VSC. This finding is not surprising and establishes a natural disadvantage result for small island economies, especially in the Pacific region.

Another word on openness is in order. When we apply the term generally, it implies not only trade openness, but also compliance with the rules of international and regional organizations. It is obvious that VSC policies with regard to openness are ambiguous, meandering between a high level of trade openness to overcome the disadvantages of the small home market and some protectionist measures to support their niche strategies as firmly as possible. It is a revealing fact that very few VSC are full members of supranational organizations. Even though there are often comprehensive treaties with these organizations, full membership would probably endanger the VSC strategies to promote niche activities.

It is therefore a common misunderstanding that high-income VSC are very open. They try to abolish trade restrictions with adjacent countries, as long as their core industries are not concerned. With regard to this strategy they do not differ from many larger countries. As soon as a VSC's economic niches are concerned, protectionist measures are widely used and the necessary sovereignty is defended vigorously. Free movement of people and the right to establish enterprises without being a citizen is therefore often a problem for VSC.

Liechtenstein, e.g., had major objections to these freedoms in the EEA because the heart of its service sector was concerned, but exemptions and interim regulations led to the accession of Liechtenstein. Note that it has been shown meanwhile that the effects of the freedom of movement have not been detrimental to the Liechtenstein economy.

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[129]   In Liechtenstein there is an ongoing constitutional debate on the political influence of the prince.

Another example would be the reluctance of Luxembourg to give up its strict confidentiality rules in banking in order to enable other EU member countries to tax citizens who shift their money to Luxembourg. VSC obviously follow a two-fold strategy:

– They defend those parts of sovereignty which are a prerequisite for promoting and protecting their niche strategies.
– They try to protect their key industries and services by many measures, which may be restrictions in trade, but may also be the reluctance to comply with rules of international organizations if they endanger their economic niches.

Note that the extent of the necessary sovereignty is rather small. It first and foremost includes an independent law-making authority which might even be restricted to areas where niche strategies are located. The next two sections are designed to shed more light on the question of the necessary sovereignty.

5.4.2 Which kind of sovereignty?

The comparison of VSC and SAR shows that the differences between the two groups of countries are small with regard to economic performance. One might conclude that this is an indication of autonomous rights and autonomous scope of action not being qualitatively different in VSC and in SAR. The previous section also points in this direction, but one has to exercise caution in interpreting the results.

Summarizing the evidence from Section 5.3, it is difficult to detect differences between VSC and SAR. Many of the SAR have almost the same level of «effective» sovereignty as most VSC. The only major difference is constituted by the lack of international recognition as a sovereign country. Furthermore, SAR normally are not responsible for defense issues, they generally do not have their own currency, they are not represented in international politics and international organizations, and they often lack some infrastructure like universities. This list of missing signs of sovereignty in SAR obviously complies with the list of public goods which are very often (internationally) sourced out by VSC. Hence, VSC voluntarily give up those parts of their sovereignty which SAR do often not have at all. With regard to these governmental tasks

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and their consequences, there should be no difference between VSC and SAR. In passing note that both VSC and SAR try to protect their symbolic and emotional signs of sovereignty (which are, by the way, often not very expensive) like their own flag, this own anthem, the delegation of athletes to Olympic games, or football teams.

In contrast, SAR try to obtain sovereign rights and law-making authority in those areas which have been shown to be of importance in pursuing niche strategies and, hence, in reaching high levels of welfare. Most of the SAR, for example, have the right to set tax rates and to decide on corporate laws and similar issues. This is an important difference between SAR and «regular» regions of federal countries. The latter often have limited scope of action in determining business laws and tax rates.

Judging with caution from the evidence, one can conclude that a rather limited part of full «effective» sovereignty is sufficient to ensure the pursuit of niche strategies in economics. This result is independent of a territory's political sovereignty, international recognition or membership in international and regional organizations. It depends heavily however on a high level of trade openness and geographic factors.

Social homogeneity does not seem to be of great importance. It may even be a possible source of problems when it results in protectionist nationalism. The economic and political conditions inherent to VSC require a certain degree of internationalism and open-mindedness. A thorough identification with the VSC and SAR may, however, play a role in success.

Note finally that a lot of autonomous regions have been disregarded in the previous sections, but case studies for some of them (see, e.g., Milne and Baldacchino, 2000, who additionally study Prince Edward Island, Newfoundland and the Åland archipelago) provide evidence that confirms our results.

5.4.3 Another economic look at sovereignty

Our results suggest that a certain degree of sovereignty – though a rather limited one is necessary – in order to be able to pursue successful economic strategies, but there is by no means an automatism that leads to higher levels of welfare in sovereign (very small) countries. As noted

above, the structure of the current international economic system (free capital movements, less protectionism etc.) has it made easier to survive economically as a VSC. This conclusion, which is in marked contrast to economic theory, is the only one that is able to explain the recent surge in secessions from an economic point of view. It must have generally become more feasible to succeed as a small country or territory (even if the economic impact on this greater feasibility may be rather small), although public sector disadvantages seem to have risen, according to Chapter 3. The actual level of wealth in VSC, however, mainly depends on the ability of exploiting opportunities and adapt to the international economic environment. There are good opportunities for VSC to succeed, but there are no *sine qua non* prerequisites for success if trade openness is pursuable and geographic location is not remote. Further evidence for this conclusion is provided by the 13 low-income VSC, which have been specializing in sectors very similar to those of the eight high-income VSC, with many of them having had economic starting positions similar to those of the high-income countries.

Sovereignty may be simply viewed as a territorial law-making monopoly. It allows the favoring of certain groups of people, certain branches or certain individuals. A country which is internationally recognized can exert full law-making authority, but it is limited by a lot of external constraints. These constraints might be inherent to the economic and political system (it would be rather silly, for example, to forbid imports). They might also be the consequence of international treaties and regulations. The latter are however mostly general enough to leave some space for preferential strategies and some scope for tailored law-making in VSC.[130] It would be very costly to change these treaties and regulations, because it often requires a high quorum of consent, which is sometimes difficult to achieve. Some larger countries also profit from these loopholes of treaties and international regulations, which is an incentive for them to protect the *status quo.* Note that it is often much more feasible to install a system of monitoring against unfair competition between countries, tax haven policies and races to the bottom. In many cases, monitoring activities do not lead to serious consequences, but the

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[130]   A notable exception is the EU, where we have very detailed regulations in some areas. When we take tax policies as an example, there is however quite a lot of space left for national policies.

negative publicity alone may be a very effective tool in eliminating adverse behavior.

It is nevertheless astonishing that the tax policies of certain VSC, which have often been criticized by larger countries as unfair, have not been tackled seriously. The problem with the modification of international treaties is only one explanation for this phenomenon, because there are always possibilities to challenge adverse practices. Think, for instance, of the endless discussions and retaliation policies between the EU and the USA in the WTO framework, when certain protectionist measures or «unfair» subventions are at stake.

Two arguments can provide good explanations. First, VSC and SAR are sometimes simply negligible, and what is important for them is practically a non-issue for larger countries. Given the ongoing discussion on tax havens and harmful tax practices, which are a serious concern for larger countries, this first argument can only be a partial explanation, and the argument is not supposed to hold in the case of tax policy. The second argument is assumed to have much more explanatory power. It states that influential groups in larger countries have an incentive to maintain loopholes in international treaties and regulations which allow VSC and SAR to pursue niche strategies. This argument might also explain why countries allow some of their territories to have a higher level of effective sovereignty than other parts of the country. These autonomous regions, of course, often originate from secession endeavors, but many countries have the possibility and power to cut back autonomous rights just as the international community could constrain VSC policy options, especially in the field of tax competition if it wanted to.

Which groups in larger countries might have an interest in maintaining the *status quo*? There are several groups that benefit from the *status quo* of VSC's and SAR's law-making authority. From a public choice point of view, (tax) competition between larger countries and VSC and/or SAR limits the effects of the territorial monopoly that one's own country can exert. In an environment of capital flow liberalization, the existence of VSC and SAR, combined with their tax haven policies, clearly limits the scope of action of a leviathan government in a larger country. Protecting VSC and SAR is therefore a kind of self-protection against the monopoly power of one's own government. Federalists, liberals, enterprises, rich individuals, advocates of subsidiarity and the relevant lobbies might have an interest in protecting the law-making au-

thority of VSC and SAR in those areas where they thereby can constrain their own country's policy options. It is questionable if the niche strategies of VSC and SAR would still be possible without this external support.

The benefits of sovereignty hence do not depend on country size, but the negligibility of VSC and SAR makes it much easier to pursue niche strategies. In principle, however, larger countries would be able to follow similar strategies, though they would have to face serious opposition from other countries. Negligibility therefore is a necessary but not sufficient condition.

5.4.4 A summary of the «secrets of success» of VSC

It is not easy to enumerate the «secrets of success» of VSC which play an important role from an economic viewpoint. A considerably large strand of empirical literature on the determinants of wealth has arrived at a great variety of welfare enhancing factors. These factors range from political ones – democratic systems have been found to be more successful economically than undemocratic ones – to socio-economic ones – think of the impact of religion or education on economic activity – to economic ones, like the consequences of the economic system or of the design of important economic institutions. All these determinants of wealth also apply to VSC, and we have mentioned some of them in our analysis. Our mission was, however, to single out those determinants which are especially important for VSC; more important than one would expect at first.

First and foremost, we found that sovereignty or law-making authority in certain key areas is economically important for VSC. By means of tailored law-making, important branches can be promoted and niche strategies can be pursued. Contrary to a widely held belief, successful VSC exhibit a differentiated economic structure, and it would be a bad strategy for a VSC to put all its eggs into one basket, thus concentrating on a single branch or a single sector.

Second, trade openness, a liberal global economic system and a good relationship to adjacent countries are prerequisites for the economic success of VSC, because their home markets are too small for economic development. Openness should, however, not proceed as far as to

put the economic niches of VSC at risk, and our study shows that VSC act in a rather protectionist manner when they have to defend their economic niches. Note that the relevant measures are often only possible if a territory has a certain degree of effective sovereignty. As expected, remoteness and disaster proneness have proven to be detrimental to the economic development and economic success of VSC.

Third, membership in international organizations does not seem to be important for VSC, although our results are rather ambiguous. On the one hand, we found that VSC are very much dependent on support from outside the country in maintaining their niche activities and on lobbying activities for their internationally neglected matters of concern. On the other hand, international representation is very costly for VSC, and we were not able to detect a relationship between economic success and the extent of international representation.

Fourth, social and socio-economic factors seem to play an important role for VSC. Among the many determinants, we mentioned the higher flexibility and adaptability of VSC as well as peculiarities of the political process. For the latter, we were not able to draw a coherent picture which would link political system characteristics and economic success. To our surprise, ethnic, linguistic and religious heterogeneity is considerable in some very successful VSC. One can, therefore, conclude that heterogeneity might even be a determinant of VSC success rather than a negative factor, as it is sometimes regarded to be.

6. A new view on very small countries

This study is designed to provide a better understanding of the public sector organization and its inherent problems in VSC. It dwells upon public expenditure as well as upon institutional choice for the provision of public goods. Based on theoretical predictions and existing empirical analyses of single VSC, we aim at a thorough overview of the constitutive characteristics and peculiarities which are relevant and/or existent in most or all VSC. Furthermore, we study the important impact of public policy on economics in the special context of VSC.

It has been mentioned in the course of the study that economists have not shown a lot of interest in the peculiarities of VSC and their public sectors, although we were able to demonstrate here that VSC are a meaningful unit for economic research. What is even more seriuous is that many existing theories on VSC and the economic consequences of being small are inconclusive or counter-intuitive. Empirical work on very small countries mainly suffers from data problems, in the sense that a lot of VSC do not provide all necessary data or that data are hard to compare across countries. The situation has been improving gradually, thereby creating more and more possibilities for empirical assessments of VSC problems and peculiarities.

In this study, we nevertheless mainly follow an empirical approach. Although our analysis was also limited by data problems, we arrived at empirical findings that are important for VSC and that challenge the conventional economic wisdom. Before going into the details of the implications of this study on public economic theory and on economic policy of VSC, we briefly summarize the main results:

–   We detect a statistically significant size effect, in the sense that smaller countries have larger public sectors. Thus, small countries have to bear a cost disadvantage which may theoretically be traced back

to diseconomies of scale in the provision of public goods. Contrary to our expectations, the magnitude and significance of this negative size effect has been growing since the 1960ies.

– Given the cost disadvantage of very small countries (theoretically and empirically), the organization of the public good provision process is especially interesting. The main question is how VSC cope with the problems arising from the diseconomies of scale effect. We can show for a set of publicly provided goods in 21 very small countries that international outsourcing (which is the least expensive alternative in most cases) is widely used in VSC. Furthermore, there are some public goods which are normally provided in larger countries that VSC simply do not provide (without leaving citizens apparently worse off), and some which are «tailored» to the needs and the size of the country.

– Although international outsourcing may reduce the cost of public good provision in some cases, the result of larger public sectors (and hence, higher costs) in VSC still remains valid. Even more significantly, economic theory provides evidence that VSC are not optimal economic units because of some arguments that touch upon their private sector constraints. In face of these facts, one is forced to ask why the number of VSC in the world is growing and why some of the VSC have a very high living standard. We find, contrary to standard economic theory, that VSC do not have lower welfare levels than larger countries. General sources of welfare in VSC are not easy to detect, but size should not be a hindrance *per se.* Interestingly, sovereignty and/or law-making authority seem to play an important role in enabling VSC to achieve high levels of wealth and in leveling out the negative size effect from the public sector. It is however noteworthy that a very limited kind of sovereignty, which ensures the possibility to shape the legislative framework for the private sector, seems to be sufficient.

As mentioned above, theoretical assessments of VSC are scarce in economics. Moreover, the impact of size on economic activity is ambiguous or little explored in public economic theory. Economists nevertheless share a few presumptions on the economic possibilities of VSC, some of

which have proven to be wrong in the course of this study. Basic economic theory simply considers VSC as not optimal units, which is theoretically true for the private sector as well as for the public sector.

Starting with the public sector, we can by and large confirm theoretical predictions and existing empirical evidence (Alesina and Wacziarg, 1998). As noted above, smaller countries have larger public sectors than larger countries. The size effect is, however, moderate with respect to magnitude and explanatory power. On the aggregate level of government consumption or public expenditure, we therefore also confirm the results of Gantner and Eibl (1999), who find higher total public expenditure per capita in Liechtenstein than in Switzerland. It was not possible to perform such a differentiated analysis (with regard to single public functions) as Gantner and Eibl for a larger set of VSC due to serious data constraints and problems with comparability, but we can derive from our organizational approach in Chapter 4 that the picture that emerges from the Gantner-Eibl study is a general one and at least valid for many landlocked VSC.

In contrast to the public sector, we find a clear divergence between economic theory (e.g., Robinson, 1960) and empirical evidence with regard to VSC private sectors and welfare. Studies by Armstrong and Read (1995) and Armstrong et al. (1998) have already started to challenge the conventional wisdom that VSC have a general disadvantage owing to their small size by showing that very small countries do not have lower per capita GDP than adjacent regions (on NUTS 2 level) of larger countries. It is furthermore astonishing that many European VSC have even higher per capita GDP than the surrounding regions. Armstrong and Read and Armstrong et al., however, do not distinguish between VSC with full sovereignty and small autonomous regions with limited sovereignty, and their results hinge critically on the definition of adjacent regions (which seems easy for landlocked countries but is rather difficult for island regions).

We extend their results by means of a much more general approach and are able to show that there is no systematic influence of size on welfare measured by per capita GDP. What seems more like a trivial result is in effect a very strong indication that some economic theories are not valid for VSC and therefore cannot be applied. Given our results, it is especially misleading to concentrate on the supply or cost side of the economy, where VSC clearly have disadvantages, and to neglect demand

side effects, socio-economic factors and the advantages of small size (see Table 5.1). Small domestic markets, very limited basic research on the national level, vulnerability and high dependency on other countries as well as poor domestic resource bases, to name but a few of the general arguments against small size, seem to have no or a very limited and therefore negligible influence on the welfare of quite a few VSC. The most important lesson from our results is that standard economic theories on the impact of size on costs and economic activity can only explain some features of VSC. Economists should have exercised greater caution in deriving general results from these theories, which view VSC as not optimal, and they should have devoted greater attention to the many neglected factors that determine wealth in VSC.

In light of these facts, one might argue that VSC are a special case, that they exert only a small impact on the world economy, and that the general relevance of our results is, therefore, limited. We are of course convinced that – contrary to these arguments – the relevance of our results is much broader, in the sense that our findings also raise some important questions for larger countries: Should a middle-sized country – like Denmark or Norway – finance a broad range of different basic research areas, or should it specialize in a few very important ones and rely on larger countries' research output in other fields? Should defense issues be handled by the EU and, thus, the public good «external security» be provided on the EU level? Does a country – like Austria or Belgium – need to be represented in all international organizations and have embassies in many foreign countries? These and related questions cannot be answered *ad hoc,* but the answer clearly depends on country size and the possible extent of international outsourcing (or integration). In the course of this study we were able to highlight possible ways of analyzing them comparatively. Nevertheless future research on international outsourcing and its relevance is clearly required.

Furthermore, it is not a coincidence that many of the public goods like military security, foreign policy or research policy, the provision of which is outsourced by VSC, are in the course of being centralized in the European Union. We can conclude from our results that the concept of international outsourcing is intimately related to the concept of economic integration. It is, therefore, evident that the theory of integration should keep an eye on VSC to learn more about the indispensability and the integration suitability of single publicly provided goods. Hence,

VSC can be viewed as examples of deeply integrated areas, and many consequences of deep economic integration which can be studied in some European VSC are clearly positive. We are convinced that the lessons larger countries can learn from VSC for integration issues are a promising avenue for further research which touches upon the similarities between international outsourcing and economic integration in greater detail.

In order to assess public sector and economic system peculiarities of VSC comprehensively, it is necessary to analyze the economic implications of sovereignty and the perception of sovereignty. This requires US to leave the safe path of standard economic theory and to dwell upon a subject which has clear and major economic implications, but so far has only been analyzed rudimentarily from an economic viewpoint.

First of all, the populations of VSC do not seem to be less happy than people living in larger countries or do not seem to perceive smallness as a handicap at all. We cannot support this notion with hard facts – at least for a sufficiently large sample of VSC – and even if we could, methodological caveats of happiness comparisons across countries would be huge, and one would have to exercise caution in interpreting such comparisons. Nevertheless, our impression is that smallness is not perceived as negative, especially not, of course, in VSC with very high living standards.

We were, furthermore, surprised to find that the limited extent of real or effective sovereignty of VSC is sufficient to make high levels of wealth possible. As mentioned above, the economic implications of sovereignty have widely been neglected so far, but our results suggest that sovereignty is an important economic concept. However, we can argue in light of our findings that the traditional legal view of sovereignty is not of much help when studying VSC. It is obvious from VSC practice that a very limited extent of law-making authority is the core of economically relevant sovereignty. The shape of the legislative framework (or of parts of it) for the private sector seems to be one decisive factor for enabling VSC to pursue niche strategies which lead to high welfare levels. Our results with regard to this issue do not proceed far enough to arrive at comprehensive and general conclusions, but again we are convinced that we have opened some roads for further research in a field which we deem very important for economics. At the least, we were able to show that an economic theory of sovereignty would be clearly de-

sirable and that VSC are a good starting point for assembling stylized facts on the implications of sovereignty for economic success.

Finally, a word is in order on the practical lessons VSC can draw from this study. We cannot go into detail at this point because it was not the aim of this study to provide VSC with economic policy advice. The private sector has come into play because it is one promising economic explanation for the apparent paradox of a VSC cost disadvantage in the public sector and an ever-increasing number of VSC and small countries in the world. Note that we are of course aware of the fact that there are other, perhaps more weighty arguments besides economic ones that can explain the growing number of small countries. Economic arguments should, however, be important at (least at the margin) in cases of, say, secessions.

Our analysis of the public sector of VSC and our comprehensive comparison of many VSC allow us to draw a few conclusions which may be helpful for VSC (economic) policy. First of all it would be misleading to give the impression that there might be general advice for VSC on how to pursue niche strategies and which of them are the most successful ones.

Even though VSC bear a cost disadvantage arising from small size in the public sector, it would, furthermore, be rather odd not to treat the size variable as exogenous for economic policy. Apart from an unrealistic size variation there are, of course, many traditional organizational options to reduce public sector costs. All in all, the size disadvantage should not be exaggerated.

Chapter 4 and especially Section 5.4.4, however, provide some practical advice for VSC which is worth restating here. First, VSC should try to concentrate on those public tasks which are eminent for them. This is clearly a small fraction of the tasks that are generally and wrongly considered to be required for a sovereign country. Second, if possible, international outsourcing and international integration should be used to keep public sector costs low in those areas where diseconomies of scale are considerable. We have shown that international outsourcing is not only a theoretical concept, but also a realistic option for VSC and small countries can use to organize the provision of public goods. The economic principle of the division of labor holds true not only for private production, but also for the organization of the public sectors. Note that international outsourcing is also possible and advantageous for VSC, when

rival public goods are at stake. Gantner and Eibl (1999) point out that international outsourcing, e.g., in the health system, may be a good way to profit from stronger competition and existing knowledge in an adjacent country. In this study we concentrated on those public goods which display high diseconomies of scale, but the concept of international outsourcing can also be applied to other publicly provided goods. Third, VSC should pursue high levels of openness to benefit from international trade and integration without giving up protection of their economic niches and defense of the economically relevant core of sovereignty. Fourth, cultural heterogeneity and an international orientation have been found to be two sides of the same principle. VSC have to be sufficiently international, e.g. in education, to be economically successful, and VSC that are heterogeneous with regard to ethnicity, religion and language seem to be no less successfull.

Appendix

I. Tables A.1 – A.17

Appendix

Table A.1: Common definitions of smallness of countries

1. Size variables

Indicator	Exact definition (cut-off point)	Source
– number of inhabitants	– 100,000 inhabitants	Hutchins et. al (1948); printed in Erhardt (1970)
	– 150,000 inhabitants	De Smith (1970)
	– 300,000 inhabitants	Blair (1968), Erhardt (1970), Plischke (1977)
	– 1,000,000 inhabitants	Rapaport et al. (1971), Mendelson (1972), Gunter (1977)
– area	– total area	
	– habitable or cultivated land	Lloyd and Sundrum (1982)
– economic size or development status	– GDP or GNP – per capita GDP	
– different kinds of independence	legal, cultural and economic «independence»	Olafsson (1998)
– multi-dimensional approaches (composite indices of size)	– coefficients (mostly inhabitants, area and GNP)	Jalan (1982), Waschkuhn (1991)
	– Cluster analyses	Rapaport et al. (1971), Gstöhl (1989)
– international recognition (official and de facto)	degree of participation in international politics (and economics)	Erhardt (1970) – in combination with the number of inhabitants; Riklin (1993)

2. Structural variables (with consequences for or connections with size)

Indicator	Exact definition (cut-off point)	Source
– cultural heterogeneity and ethnic (ethnolinguistic) fractionalization	e.g., certain threshold of ethnic or ethnolinguistic fractionalization	Abt and Deutsch (1993)
– adjacent countries, relationship with adjacent and other countries, number of conflicts	e.g., number of adjacent countries	Gantner and Eibl (1999), Kocher (2000)
– geographic characteristics	– landlocked country, mainland country, island country, island group – different definitions of remoteness – distribution of population	Gantner and Eibl (1999), Kocher (2000)
– development of systems of participation and judicial system	number of levels of participations, extent of federalism, degree of elite connectivity	Abt and Deutsch (1993)
– endowment with resources, infrastructure	e.g., certain thresholds of infrastructure (existence of airports, highways,…)	Niedermann (1973), Riklin (1993)

Sources: Seiler (1995), Gantner and Eibl (1999), own compilation.

Table A.2: Determinants of government size

Class of models	Main contributions
«political system effects» (strategic debt accumulation)	• Alesina and Tabellini, 1990 • Grilli et al., 1991
«conflict models»	• Roubini and Sachs, 1989a,b • Alesina and Drazen, 1991 • Edin and Ohlson, 1991
«ideological models» (antedate conflict models)	• Frey and Schneider, 1978 • Roubini and Sachs, 1989b
«budgetary institutions models»	• Von Hagen, 1991, 1992 • De Haan and Sturm, 1994 • Poterba, 1996 • Feld and Kirchgässner, 1999
«spatial models»	• Velasco, 1999

Main determinants	Evidence
• political instability (chance of replacement of government) • polarization (ideological distance between subsequent governments)	originally relatively clear, but challenged lately
• number of parties in coalition • ideological distance between coalition members (lack of cohesion) • government form due to constitution (majority vote system versus proportional representation) • composition of parliament	relatively clear (contrasting evidence by Alesina and Roubini, 1992)
• left-wing governments are more prone to government spending and accept budget deficits	mixed
• commitment to budgetary rules • position of spending ministers versus the finance minister • amendment power of parliament • budgetary process: top down versus bottom up; centralization versus decentralization • budget transparency • direct versus indirect democracy	institutions are clearly important; direct democracy leads to lower debts
• decentralized spending and transfers out of a central budget	relatively clear

Table A.3: Variables, abbreviations, sources and standard statistics

Variable	Abbr.
Ratio of real government consumption expenditure to real GDP 1993–1997 (in % of GDP)	goco9397
Population density (pop/area)	popdens
Log of population 1996	logpop96
Urbanization ratio 1997 (in %)	urbratio
Dummy for Latin American countries	laamd
Dummy for OECD countries	oecdd
Dummy for Sub-Saharan African countries	africad
Dummy for Asian countries	asiad
Dummy for remoteness	remoted
Index of freedom (1–7)	freedom
Index of political stability	polstab
Log per capita income 1996	lognpc96
Log income 1996	lognp96

Abbreviations: Abbr. = Abbreviations; No. = Number; Obs. = Observations;

St. dev. = Standard deviation.

Table A.4: Pairwise correlations (Pearson)

	GOCO−9397	LOG-POP96	FREE-DOM	RE-MOTED	LAAM
GOCO9397	1.000				
LOGPOP96	−.311	1.000			
FREEDOM	−.496	.336	1.000		
REMOTED	−.155	−.404	−.154	1.000	
LAAM	−.308	−.221	−.007	.203	1.000
OECD	.488	−.129	−.661	−.025	−.436
SSAFR	−.110	.091	.431	−.128	−.213
ASIA	−.367	.376	.234	−.008	−.263
URBRATIO	.322	−.321	−.496	−.063	.247
POPDENS	−.170	−.130	.128	−.022	−.126
POLSTAB	.248	−.274	−.370	.035	−.219
LOGNPC96	.487	−.305	−.750	−.034	−.155

Source	No. of Obs.	Mean	St. dev.
IMF International Financial Statistics, UNDP	126	15.86	5.76
Baratta (1999)	191	229.63	1234.71
Baratta (1999)	191	6.63	1.00
World Bank	147	54.17	23.02
Barro-Lee, own	195		
Barro-Lee, own	195		
Barro-Lee, own	195		
Barro-Lee, own	195		
own	195		
Freedom House	189	3.53	2.01
Mauro (1995), Business Int.	68	7.51	1.38
Baratta (1999)	159	3.22	0.67
Baratta (1999)	158	10.00	1.09

OECD	SSAFR	ASIA	URB-RATIO	POP-DENS	POL-STAB	LOGNP-C96
1.000						
−.286	1.000					
−.352	−.173	1.000				
.392	−.451	−.389	1.000			
−.096	−.092	.388	.194	1.000		
.584	−.338	−.185	.501	.258	1.000	
.759	−.508	−.260	.736	.157	.700	1.000

Table A.5: List of countries with available data, grouped by population

Country	Population 1996	Government Consumption in % of GDP 1993	1994	1995
population < 1,000,000				
ST.KITTS AND NEVIS	40738	17.22	18.56	20.31
SEYCHELLES	77625	29.39	29.59	29.34
GRENADA	100000	18.32	17.86	16.58
VANUATU	173780	8.54	7.23	7.12
BELIZE	223872	16.16	16.92	15.93
BARBADOS	263027	22.18	20.35	19.9
ICELAND	269153	20.62	20.56	20.83
BAHAMAS	281838	14.31	16.74	15.77
MALTA	371535	20.1	20.37	20.53
LUXEMBOURG	416869	12.59	12.03	14.21
SURINAME	436516	15.76	n.a.	n.a.
BAHRAIN	602560	23.17	22.01	22.23
BHUTAN	707946	24.77	27.36	29.41
CYPRUS	741310	16.87	16.66	16.42
FIJI	794328	18.18	16.84	16.32
GUYANA	831764	14.43	15.67	15.96
SWAZILAND	933254	24.21	23.18	20.69
population < 5,000,000				
MAURITIUS	1122018	12.06	12.47	12.08
BOTSWANA	1479108	28.44	28.61	28.76
ESTONIA	1479108	20.7	22.9	25.43
NAMIBIA	1584893	33.96	30.03	29.66
KUWAIT	1584893	35.44	33.92	32.96
MACEDONIA	1995262	21.08	17.94	n.a.
SLOVENIA	1995262	21.09	20.2	20.18
LESOTHO	2041738	17.6	17.13	17.01
MAURITANIA	2344229	21.66	20.85	21.9
U. ARAB EMIRATES	2511886	17.94	17.98	17.28
JAMAICA	2570396	13.59	12.49	13.52
PANAMA	2691535	15.14	14.8	15.1
LIBERIA	2818383	n.a.	n.a.	n.a.
SINGAPORE	3019952	8.65	8.27	8.17
URUGUAY	3235937	13.21	12.62	12.66
COSTA RICA	3467369	16.69	17.12	17.59
IRELAND	3630781	16.06	15.81	14.93
NEW ZEALAND	3630781	15.56	14.48	14.45
ARMENIA	3801894	17.67	11.27	11.17
TOGO	4265795	15.33	14.15	12.14

1996	1997	1998	93−97	GNP[a] 1996	GNP/capita[a] 1996
20	n.a.	n.a.		2.41E+08	5888
29.12	28.72	n.a.	29.23	5.27E+08	6918
16.4	16	n.a.	17.03	2.85E+08	2884
5.01	6.44	7.55	6.87	2.23E+08	1288
16.28	17.01	17.37	16.46	5.99E+08	2692
21.49	21.37	n.a.	21.06	n.a.	n.a.
20.63	20.43	21.03	20.61	7.18E+09	26303
n.a.	n.a.	n.a.		n.a.	n.a.
22.46	20.5	20.32	20.79	n.a.	n.a.
14.33	13.97	n.a.	13.43	1.89E+10	45709
n.a.	n.a.	n.a.		4.32E+08	1000
21.26	20.29	n.a.	21.79	n.a.	n.a.
n.a.	n.a.	n.a.		2.79E+08	389
18.02	n.a.	n.a.		n.a.	n.a.
15.53	15.04	n.a.	16.38	1.98E+09	2455
17.5	20.54	n.a.	16.82	5.79E+08	692
22.62	27.11	n.a.	23.56	1.12E+09	1202
12.12	11.92	11.86	12.13	4.21E+09	3715
28.54	27.34	28.75	28.34	n.a.	n.a.
24.09	n.a.	n.a.		4.52E+09	3090
29.86	n.a.	n.a.		3.56E+09	2239
27.62	27.64	n.a.	31.52	n.a.	n.a.
n.a.	n.a.	n.a.		1.96E+09	1000
20.28	20.38	n.a.	20.43	1.84E+10	9333
12.9	n.a.	n.a.		1.34E+09	661
n.a.	n.a.	n.a.		1.10E+09	468
16	n.a.	n.a.		n.a.	n.a.
15.67	18.02	17.78	14.66	4.08E+09	1585
15.41	16	n.a.	15.29	8.24E+09	3090
n.a.	n.a.	n.a.		n.a.	n.a.
8.74	9.5	n.a.	8.67	9.30E+10	30903
13.74	13.66	13.71	13.18	1.84E+10	5754
17.14	16.66	n.a.	17.04	9.09E+09	2630
14.26	13.82	n.a.	14.98	6.20E+10	16982
14.45	15.19	n.a.	14.83	5.71E+10	15849
12.37	11.85	n.a.	12.87	2.38E+09	631
13.44	11.23	n.a.	13.26	1.27E+09	302

Country	Population	Government Consumption in % of GDP		
	1996	1993	1994	1995
JORDAN	4265795	22.57	23.37	24.06
NORWAY	4365158	21.85	21.51	20.95
PAPUA NEW GUINEA	4365158	24.36	n.a.	n.a.
MOLDOVA	4365158	15.52	22.49	25.9
NICARAGUA	4466836	17.11	15.99	15.24
KYRGYZ REPUBLIC	4570882	20.28	18.9	19.54
SIERRA LEONE	4677351	10.09	10.74	8.85

population < 20,000,000

Country	Population	1993	1994	1995
PARAGUAY	5011872	6.68	6.77	7.21
FINLAND	5128614	22.75	21.86	21.34
DENMARK	5248075	26.76	25.92	25.69
SLOVAK REPUBLIC	5370318	25.01	21.32	20.92
BENIN	5623413	11.66	10.84	9.98
EL SALVADOR	5754399	8.61	8.4	8.64
ISRAEL	5754399	28.51	27.86	29.51
BURUNDI	6456542	19.85	11.24	9.36
RWANDA	6760830	11.57	8.24	8.89
SWITZERLAND	7079458	15.29	15.33	15.14
DOMINICA	7943282	4.43	4.86	5.13
AUSTRIA	8128305	20.21	20.33	20.16
BULGARIA	8317638	18.73	17.11	15.23
SENEGAL	8511380	12.84	12.28	11.38
SWEDEN	8912509	28.07	27.17	25.8
TUNISIA	9120108	16.27	16.33	16.29
ZAMBIA	9120108	18.43	13.1	15.48
NIGER	9332543	15.79	16.78	16.68
MALAWI	10000000	16.05	31.55	17.83
MALI	10000000	17.36	18.93	17.22
PORTUGAL	10000000	18.81	18.49	18.58
BELGIUM	10232930	21.5	21.44	21.42
HUNGARY	10232930	13.85	12.08	11.32
BELARUS	10232930	17.75	20.1	19.33
CZECH REPUBLIC	10232930	22.11	22.24	20.87
GREECE	10471285	14.49	13.95	15.54
GUATEMALA	10964782	6.46	5.98	5.51
ZIMBABWE	11220185	14.95	16.81	18.08
ECUADOR	11748976	7.71	9.39	12.58
MADAGASCAR	13803843	7.85	6.89	6.71
IVORY COAST	14454398	16.53	14.08	12.15
CHILE	14454398	10.03	9.95	9.83

	1996	1997	1998	93–97	GNP[a] 1996	GNP/capita[a] 1996
	25.29	25	n.a.	24.06	7.11E+09	1660
	20.28	20.17	21.51	20.95	1.51E+11	34674
	n.a.	n.a.	n.a.		5.06E+09	1148
	25.95	27.14	n.a.	23.4	2.55E+09	589
	14.4	14.61	n.a.	15.47	1.71E+09	380
	19.29	17.3	19.61	19.06	2.52E+09	550
	n.a.	n.a.	n.a.		9.26E+08	200
	7.72	8.09	8.29	7.29	9.17E+09	1862
	21.52	20.62	n.a.	21.62	1.19E+11	23442
	25.7	25.34	25.52	25.88	1.69E+11	32359
	22.95	22.36	21.56	22.51	1.82E+10	3388
	9.59	9.11	n.a.	10.24	1.97E+09	347
	9.35	9.08	9.47	8.82	9.88E+09	1698
	29.72	29.26	29.52	28.97	9.03E+10	15849
	17.39	15.24	14.91	14.62	1.09E+09	170
	9.95	8.89	8.57	9.51	1.28E+09	191
	15.47	15.12	14.71	15.27	3.14E+11	44668
	5.21	8.18	8.16	5.56	1.27E+10	1585
	19.89	19.02	18.81	19.92	2.27E+11	28184
	11.84	12.37	n.a.	15.06	9.94E+09	1202
	10.85	10.19	n.a.	11.51	4.86E+09	575
	26.25	25.84	25.9	26.63	2.27E+11	25704
	15.61	15.66	15.78	16.03	1.76E+10	1950
	17.04	15.37	n.a.	15.88	3.32E+09	363
	16.69	16.04	n.a.	16.4	1.87E+09	200
	13.04	12.61	14.17	18.22	1.80E+09	182
	15.95	15.14	n.a.	16.92	2.40E+09	240
	19.05	19.44	n.a.	18.87	1.01E+11	10233
	21.65	21.12	21.07	21.43	2.69E+11	26303
	10.15	n.a.	n.a.		4.42E+10	4365
	19.89	20.34	19.46	19.48	2.13E+10	2089
	21.11	20.25	20.06	21.32	4.89E+10	4786
	14.59	14.77	14.61	14.67	1.20E+11	11482
	5.08	4.93	6.22	5.59	1.61E+10	1479
	17.09	n.a.	n.a.		6.86E+09	617
	11.77	11.57	n.a.	10.6	1.75E+10	1514
	6.08	7.64	7.45	7.03	3.43E+09	251
	11.02	10.26	n.a.	12.81	9.47E+09	661
	10.32	10.45	11.01	10.12	7.01E+10	4898

Country	Population	Government Consumption in % of GDP		
	1996	1993	1994	1995
SYRIA	14454398	13.59	13.44	13.43
NETHERLANDS	15488166	14.63	14.22	13.93
YEMEN	15848932	20.65	21.42	16.53
GHANA	17378008	15.23	14.21	12.43
MOZAMBIQUE	18197009	16.75	20.11	12.48
SRI LANKA	18197009	9.17	9.67	11.47
AUSTRALIA	18197009	19.47	20.22	18.79
SAUDI ARABIA	19498446	28.79	26.57	25.67
UGANDA	19952623	10.56	9.22	9.66

population < 50,000,000

Country	Population	1993	1994	1995
MALAYSIA	20417379	13.08	12.58	12.64
NEPAL	21877616	8.69	8.02	9.25
VENEZUELA	22387211	8.54	7.23	7.12
ROMANIA	22387211	12.34	13.77	13.69
PERU	24547089	6.75	6.62	4.72
MOROCCO	26915348	18.08	17.13	17.39
KENYA	27542287	14.48	15.15	14.83
ALGERIA	28840315	17.11	16.8	15.8
TANZANIA	30199517	19.39	17.12	15.31
CANADA	30199517	20.99	19.62	19.94
ARGENTINA	35481339	13.51	13.19	13.35
SOUTH AFRICA	38018940	20.88	20.96	19.97
POLAND	38904514	19.52	17.82	17.6
SPAIN	38904514	17.56	16.92	16.7
ZAIRE (CONGO)	45708819	15.43	4.91	n.a.
KOREA (SOUTH)	45708819	10.76	10.6	10.25

population > 50,000,000

Country	Population	1993	1994	1995
UKRAINE	51286138	7.33	9.05	8.18
ITALY	57543994	17.88	17.36	16.3
EGYPT	58884366	10.17	10.29	10.49
ETHIOPIA	58884366	10.57	11.14	10.85
FRANCE	58884366	20.08	19.72	24.47
U.K.	58884366	21.83	21.53	21.19
THAILAND	60255959	9.94	9.75	9.57
IRAN	63095734	14.58	12.6	12.89
TURKEY	63095734	12.51	11.2	10.61
PHILIPPINES	72443596	10.11	10.8	11.39
GERMANY	81283052	20.02	19.46	19.52

				GNP[a]	GNP/capita[a]
1996	**1997**	**1998**	**93–97**	**1996**	**1996**
12.02	11.66	n.a.	12.83	1.68E+10	1148
13.96	13.85	13.62	14.12	4.03E+11	25704
14.87	16.22	n.a.	17.94	6.00E+09	380
12.95	12.36	n.a.	13.44	6.31E+09	363
n.a.	n.a.	n.a.		1.44E+09	79
10.55	10.36	n.a.	10.24	1.35E+10	741
18.58	18.51	18.24	19.11	3.68E+11	19953
26.51	27.64	32.46	27.04	n.a.	n.a.
9.95	n.a.	n.a.		5.92E+09	302
11.46	11.14	n.a.	12.18	8.99E+10	4365
9.25	9.11	n.a.	8.86	4.63E+09	209
5.01	6.44	7.55	6.87	6.74E+10	3020
13.17	9.73	14.7	12.54	3.62E+10	1585
8.31	8.52	8.85	6.98	5.88E+10	2399
16.67	17.92	18.11	17.44	3.49E+10	1288
15.52	16.89	n.a.	15.37	8.76E+09	324
n.a.	n.a.	n.a.		4.37E+10	1514
11.55	8.79	n.a.	14.43	5.18E+09	170
20.32	19.82	19.76	20.14	5.70E+11	19055
12.5	12.06	11.9	12.92	2.95E+11	8318
20.36	21.34	21.77	20.7	1.33E+11	3548
17.48	17.27	n.a.	17.94	1.25E+11	3236
16.62	16.16	15.76	16.79	5.63E+11	14454
n.a.	n.a.	n.a.		5.88E+09	129
10.7	11.14	10.89	10.69	4.83E+11	10715
8.76	9.1	n.a.	8.48	6.09E+10	1202
16.58	16.56	16.52	16.94	1.14E+12	19953
10.34	10.17	10.08	10.29	6.40E+10	1072
10.96	11.06	11.3	10.92	5.82E+09	100
24.79	24.64	24.18	22.74	1.53E+12	26303
20.94	18.37	18.19	20.77	1.15E+12	19498
10.08	10.71	n.a.	10.01	1.78E+11	2951
13.56	14.09	n.a.	13.54	n.a.	n.a.
11.91	12.3	n.a.	11.71	1.77E+11	2818
11.95	13.01	13.33	11.45	8.34E+10	1148
19.81	19.34	17.09	19.63	2.36E+12	28840

Country	Population	Government Consumption in % of GDP		
	1996	1993	1994	1995
MEXICO	93325430	11.03	11.56	10.45
NIGERIA	114815362	2.85	7.15	n.a.
BANGLADESH	123026877	14.17	13.74	13.65
JAPAN	125892541	9.42	9.54	9.81
PAKISTAN	134896288	13.02	12.02	11.64
RUSSIAN FED.	147910839	17.44	22.42	18.86
INDONESIA	194984460	9.02	8.11	7.83
INDIA	954992586	10.97	10.33	10.43
CHINA	1230268771	13.03	12.71	11.26

[a] *GNP and GNP/capita figures are in $ US. Abbreviations: n.a. = not available.*

Sources: IMF International Financial Statistics and Baratta (1999). We do not consider the U.S.A.,

because data in the IMF International Financial Statistics on the U.S.A. do not decompose government

consumption and government investment.

				GNP[a]	GNP/capita[a]
1996	1997	1998	93–97	1996	1996
9.73	9.9	9.42	10.53	3.42E+11	3631
n.a.	n.a.	n.a.		2.74E+10	240
14.13	14.77	n.a.	14.09	3.16E+10	257
9.67	9.64	10.03	9.62	5.15E+12	40738
12.38	12.01	11.55	12.21	6.41E+10	479
20.27	21.57	17.43	20.11	3.56E+11	2399
7.57	6.87	4.93	7.88	2.13E+11	1072
10.22	11.12	n.a.	10.61	3.59E+11	380
11.32	11.37	n.a.	11.94	9.16E+11	759

Table A.6: OLS regressions for government consumption and log population with control variables

Dependent variable: government consumption in % of GDP 1993–97

	(1)	(2)	(3)
Constant	33.417	22.638	24.370
	(8.095)	(4.196)	(3.872)
Log population 1996	−2.531**	−2.080**	−2.500**
	(−4.372)	(−3.264)	(−3.080)
Log per capita income 1996	–	2.210**	2.872**
		(3.445)	(2.835)
Urbanization rate 1997	–	–	−0.016
			(−0.442)
Population density 1996	–	–	–
Latin America dummy	–	–	–
Sub–Saharan Africa dummy	–	–	–
South East Asia dummy	–	–	–
OECD dummy	–	–	–
Adj. R^2	0.119	0.172	0.177
Number of observations	125	115	103

Sources: IMF (national accounts); logarithm of GNP, per capita income and population density from Baratta (1999); urbanization rate from World Bank; t statistics based on White heteroscedasticity-consistent standard errors in parentheses

** *significant at the 1% level*

* *significant at the 5% level*

(4)	(5)	(6)	(7)
24.658	38.451	26.517)	27.584
(4.010)	(7.785)	(2.922)	(3.140)
−2.617**	−2.858**	−2.284*	−2.847**
(−3.317)	(−4.005)	(−2.177)	(−2.870)
3.088**	–	2.324	2.747
(3.092)	–	(1.322)	(1.592)
−0.011	–	−0.002	0.027
(−0.324)		(−0.052)	(0.747)
−0.003**	–	–	−0.003**
(−6.326)			(−4.042)
–	−6.575**	−6.560**	−6.752**
	(−5.464)	(−5.073)	(−5.346)
–	−3.219*	−2.098	−0.937
	(−2.355)	(−1.177)	(−0.549)
–	−4.545**	−4.164	−1.478
	(−2.552)	(−1.907)	(−0.713)
–	0.044	−1.485	−2.046
	(0.033)	(−0.708)	(−1.001)
0.224	0.305	0.335	0.386
103	125	103	103

Table A.7: OLS regressions with political and geographic control variables

Dependent variable: government consumption in % of GDP 1993–97	(1)	(2)
Constant	54.868	44.817
	(4.705)	(3.137)
Log population 1996	−3.054*	−2.317
	(−2.191)	(−1.599)
Log per capita income 1996	−	0.758
		(0.469)
Population density 1996	−	−0.001
		(−1.265)
Political stability	−0.688	−0.557
	(−1.499)	(−0.936)
Freedom index	−1.131**	−1.508**
	(−2.666)	(−3.429)
Remoteness dummy	−4.355**	−3.867*
	(−2.905)	(−2.417)
Latin America dummy	−12.016**	−9.718**
	(−5.219)	(−4.861)
Sub–Saharan Africa dummy	−8.737**	−5.221**
	(−3.560)	(−2.624)
South East Asia dummy	−10.514**	−7.955**
	(−4.359)	(−3.720)
OECD dummy	−6.592**	−5.675**
	(−2.779)	(−2.620)
Adj. R²	0.537	0.538
Number of observations	60	57

Sources: IMF (national accounts); logarithm of GNP and per capita income from Baratta (1999);
urbanization rate from World Bank; Freedom index from Freedom House; political stability from
Mauro (1995); remoteness dummy based on differentiation between islands and landlocked countries;
t statistics based on White heteroscedasticity-consistent standard errors in parentheses.
*** significant at the 1% level*
** significant at the 5% level*

(3)	(4)	(5)	(6)
45.930	35.276	40.479	43.994
(3.703)	(3.124)	(7.859)	(7.229)
−4.173**	−2.653*	−3.287**	−3.476**
(−2.721)	(−2.108)	(−4.577)	(−3.944)
−	1.486		
	(0.712)		
0.345	−0.356		
(0.537)	(−0.398)		
−0.628	−1.039	−0.371	−0.286
(−1.128)	(−1.577)	(−1.328)	(−0.821)
−6.974**	−5.408**	−4.261**	−3.128*
(−3.880)	(−3.285)	(−2.687)	(−2.022)
			−6.539**
			(−5.192)
			−2.961*
			(−2.172)
			−3.608
			(−1.933)
			−0.332
			(−0.214)
0.236	0.317	0.161	0.320
60	57	125	125

Table A.8: Basic data on selected VSC

Country	Pop.	Area (km²)	GNP/ capita	Locat.
Andorra	71000	468	> 9635	Europe
Antigua a. Barbuda	66000	441	7330	Caribbean
Bahamas	284000	13939	> 9635	Caribbean
Barbados	264000	430	2000 > GDP < 9635	Caribbean
Belize	222000	22965	2700	America
Brunei	290000	5765	> 9635	Asia
Domenica	74000	751	3090	Caribbean
Grenada	99000	345	2880	Caribbean
Iceland	270000	103000	26580	Europe
Liechtenstein	31000	160	> 9635[a]	Europe
Luxembourg	416000	2586	45360	Europe
Malta	373000	316	< 9635	Europe
Micronesia	109000	700	2070	Oceania
Monaco	32000	2	> 9635	Europe
Nauru	11000	221	13000	Oceania
Palau	17000	508	< 9635	Oceania
San Marino	25000	61	n.a.	Europe
Seychelles	77000	454	6850	Africa
St. Kitts a. Nevis	41000	262	5870	Caribbean
St. Lucia	158000	616	3500	Caribbean
St. Vincent a. t. Grenadines	112000	389	2370	Caribbean

[a] *Liechtenstein publishes national accounts in the meanwhile, but there is no comparable official figure for per capita GNP. Estimated per capita GNP, however, is significantly higher than in Luxembourg. GNP/capita figures in $ US.*

Capital	Government type	OfficialName	Ind. Date
Andorra la Vella	principality	Principality of Andorra	1278
St. John's	parliamentary monarchy (Commonwealth)	Antigua and Barbuda	1981
Nassau	parliamentary monarchy (Commonwealth)	Commonwealth of The Bahamas	1973
Bridgetown	parliamentary monarchy (Commonwealth)	Barbados	1966
Belmopan	parliamentary monarchy (Commonwealth)	Belize	1981
Bandar Seri Begawan	Islamic monarchy (Commonwealth)	Brunei Darussalam	1984
Roseau	republic (Commonwealth)	Commonwealth of Dominica	1978
St. George's	parliamentary monarchy (Commonwealth)	State of Grenada	1974
Reykjavik	republic	Republic of Iceland	1944
Vaduz	principality	Principality of Liechtenstein	1806
Luxembourg	parliamentary monarchy (grand duchy)	Grand Duchy of Luxembourg	1839
Valletta	republic (Commonwealth)	Republic of Malta	1964
Palikir	federal republic	Federated States of Micronesia	1986
Monaco	principality	Principality of Monaco	1419
no capital	republic (Commonwealth)	Republic of Nauru	1968
Koror	presidential republic	Republic of Palau	1994
San Marino	republic	Republic of San Marino	301
Victoria	presidential republic (Commonwealth)	Republic of Seychelles	1976
Basseterre	parliamentary monarchy (Commonwealth)	Federation of Saint Kitts and Nevis	1983
Castries	parliamentary monarchy (Commonwealth)	Saint Lucia	1979
Kingstown	parliamentary monarchy (Commonwealth)	Saint Vincent and the Grenadines	1979

Table A.9: Theoretical expectations versus reality – monetary system

Monetary system	Costs VSC: very high	Cost diff. between
Country	Pref. homogen.	Theoret. expect.
Andorra	high	no own currency
Antigua a. Barbuda	high	no own currency
Bahamas	high	no own currency
Barbados	high	no own currency
Belize	relatively low	own currency
Brunei	relatively low	own currency
Dominica	high	no own currency
Grenada	high	no own currency
Iceland	high	no own currency
Liechtenstein	high	no own currency
Luxembourg	high	no own currency
Malta	high	no own currency
Micronesia	high	no own currency
Monaco	high	no own currency
Nauru	relatively high	no own currency
Palau	relatively high	no own currency
San Marino	high	no own currency
Seychelles	relatively high	no own currency
St. Kitts a. Nevis	high	no own currency
St. Lucia	high	no own currency
St. Vincent a. t. Grenadines	high	no own currency

[a] maximum: 5 units; minimum: 0 units.

Abbreviations: diff. = difference; Exp., expect. = E(e)xpectation; homogen. = homogeneity;

Theoret. = Theoretical; fulf. = fulfilled.

+: expectation fulfilled; –: expectation not fulfilled; +/–: unclear.

Source: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00.

VSC and FPUBL: 5 units[a]	Theoretical expect.: int. outsourcing	
Actual provision	**Remarks**	**Exp. fulf.**
currency union	Euro	+
currency union	East Caribbean dollar (US dollar peg)	+/−
own currency	Bahamian dollar (US dollar peg)	−
own currency	Barbadian dollar (US dollar peg)	−
own currency	Belizean dollar (US dollar peg)	+/−
own currency	Bruneian dollar (US dollar peg)	+/−
currency union	East Caribbean dollar (US dollar peg)	+/−
currency union	East Caribbean dollar (US dollar peg)	+/−
own currency	Icelandic krona	−
no own currency	Swiss franc	+
currency union	Euro	+/−
own currency	Maltese lira	−
no own currency	US dollar	+
currency union	Euro	+
no own currency	Australian dollar	+
no own currency	US dollar	+
no own currency	Italian lira	+
own currency	Seychelles rupee	−
currency union	East Caribbean dollar (US dollar peg)	+/−
currency union	East Caribbean dollar (US dollar peg)	+/−
currency union	East Caribbean dollar (US dollar peg)	+/−

Table A.10: Theoretical expectations versus reality – defense

Defense	Costs VSC: very high	Cost diff. between
Country	Pref. homogen.	Theoret. expect.
Andorra	high (E, F)	no army
Antigua a. Barbuda	high (islands)	no army
Bahamas	high (archipelago)	no army
Barbados	high (island)	no army
Belize	low (border conflict with Guatemala)	own army
Brunei	low (Spratly Islands conflict with China, Malaysia, Philippines, Taiwan a. Vietnam)	own army
Dominica	high (island)	no army
Grenada	high (island)	no army
Iceland	relatively high (conflict on Rockall continental shelf with Denm., Irel. and UK)	no army
Liechtenstein	high (claims of territory in Czech Rep. by the royal family) (A, CH)	no army
Luxembourg	high (D, F)	no army
Malta	relatively high (discussion on continental shelf with Tun.)	no army
Micronesia	high (archipelago)	no army
Monaco	high (F)	no army
Nauru	relatively high (island)	no army
Palau	relatively high (archipelago)	no army
San Marino	high (I)	no army
Seychelles	relatively high (claims Chagos Arch.)	no army
St. Kitts a. N.	high (island)	no army
St. Lucia	high (island)	no army
St. Vincent a. t. Grenadines	high (island)	no army

[a] *maximum: 5 units; minimum: 0 units.*

Abbreviations: diff. = difference; Exp., expect. = E(e)xpectation; homogen. = homogeneity;

Theoret. = Theoretical; fulf. = fulfilled; Denm. = Denmark; Irel. = Ireland; sec. = security;

Arch. = Archipelago; Tun. = Tunesia; N. = Nevis; FY = Financial Year.

+: expectation fulfilled; –: expectation not fulfilled.

Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00;

www.nato.org as of 02/02/01.

VSC and FPUBL: 5 units[a]	Theoretical expect.: int. outsourcing	
Actual provision	**Remarks**	**Exp. fulf.**
no army	France and Spain guarantee security	+
own army		−
own army	$ US 20 Mill. ≈ (FY 95/96)	−
own army		−
own army	$ US 15 Mill. ≈ 2% of GDP (FY 97/98)	+
own army	$ US 343 Mill. ≈ 6 % of GDP (FY 97)	+
own army		−
own army		−
no army	defense is provided by the US-manned Icelandic Defense Force (IDF); head-quarter: Keflavik	+
no army	security guaranteed by Switzerland	+
own army	$ US 124 Mill. ≈ 0.8% of GDP (FY 97)	−
own army	$ US 65.5 Mill. ≈ 2.7 % of GDP (FY 96/97)	−
no army	USA guarantees sec.	+
no army	F guarantees sec.	+
no army	informal security agreement with AUS	+
no army	military treaty with USA	+
own army	$ US 3.7 Mill. ≈ 1 % of GDP (FY 95)	−
own army	$ US 13.7 Mill	−
own army		−
own army	$ US 5 Mill ≈ 2% of GDP (FY 91)	−
own army		−

Table A.11: Theoretical expectations versus reality – higher education (universities)

Universities	Costs VSC: very high	Cost diff. between
Country	**Pref. homogen.**	**Theoret. expect.**
Andorra	high	no university
Antigua a. Barbuda	high	no university
Bahamas	high	no university
Barbados	high	no university
Belize	relatively low	university
Brunei	relatively low	university
Dominica	high	no university
Grenada	high	no university
Iceland	high	no university
Liechtenstein	high	no university
Luxembourg	high	no university
Malta	high	no university
Micronesia	high	no university
Monaco	high	no university
Nauru	relatively high	no university
Palau	relatively high	no university
San Marino	high	no university
Seychelles	relatively high	no university
St. Kitts a. Nevis	high	no university
St. Lucia	high	no university
St. Vincent a. t. Grenadines	high	no university

[a] maximum: 5 units; minimum: 0 units.

Abbreviations: diff. = difference; Exp., expect. = E(e)xpectation; homo. = homogeneity;

Theoret. = Theoretical; fulf. = fulfilled; est. = established.

+: expectation fulfilled; –: expectation not fulfilled.

Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00;

VSC and FPUBL: 3 units[a]	Theoretical expect.: int. outsourcing	
Actual provision	Remarks	Exp. fulf.
Universitat d'Andorra	no full university; mainly served by France a. Spain	+
no university		+
no university		+
University of the West Indies – Cave Hill Campus at St. Michael (est. 1963)	other locations: Mona, Jamaica, and St. Augustine, Trinidad; 5 faculties	–
University of Belize (est. 2000)	two campuses; amalgamation of existing tertiary education institutions	+
University of Brunei Darussalam (est. 1985)	6 faculties, 1200 students	+
Ross University	no full university; only medicine	+
St. George's University	no full university; second campus in St. Vincent a. t. Grenadines	+
University of Iceland (est. 1911)	9 faculties, 6000 students	-
no university	mainly served by Austria, Germany and Switzerland	+
Sacred Heart University	mainly MBA program; not a full university	+
University of Malta (est. 1592)	10 faculties, 7000 students	–
no university		+
University of Southern Europe	private university	+
no university	served by the University of South Pacific, Fiji	+
no university		+
L'Università degli Studi della Repubblica di San Marino	no full university	+
no university		+
Berne University	no full university	+
no university		+
St. George's University	no full university; second campus in Grenada	+

http://www.andorra.ad/uda (Andorra), http://www.uwichill.edu.bb (Barbados),
http://www.ucb.edu.bz (Belize), http://www.ubd.edu.bn (Brunei), http://www.rossmed.edu
(Dominica), http://www.sgu.edu (Grenada, St. Vincent a. t. Grenadines), http://www.hi.is (Iceland),
http://www.shu.lu (Luxembourg), http://www.um.edu.mt (Malta), http://www.unirsm.sm (San
Marino), http://www.berne.edu (St. Kitts a. Nevis).

Table A.12: Theoretical expectations versus reality – party system

Party system	Costs VSC: not clear	Cost diff. between
Country	Party system	No. o. par. ch.
Andorra	> 3 parties	1
Antigua a. Barbuda	2 big parties	2
Bahamas	2 parties	2
Barbados	2 big parties	2
Belize	2 parties	2
Brunei	Sultan; party ban	1
Dominica	3 parties	1
Grenada	> 3 parties	2
Iceland	> 3 parties	1
Liechtenstein	2 big parties	1
Luxembourg	> 3 parties	1
Malta	2 parties	1
Micronesia	no parties	1
Monaco	1 party	1
Nauru	no parties	1
Palau	no parties	2
San Marino	> 3 parties	1
Seychelles	1 big party	1
St. Kitts a. Nevis	> 3 parties	1
St. Lucia	1 big party	2
St. Vincent a. t. Grenadines	2 big parties	1

Abbreviations: diff. = difference; expect. = expectation; N. o. par. ch. = Number of parliament

chambers; Memb. = Members; chamb. = chamber; p. = party; o. = of.

Sources: http://www.emulateme.com/content/[COUNTRYNAME].htm as of 02/09/00;

http://www.agora.stm.it/elections/[COUNTRYNAME].htm as of 02/09/00

Note that data in Table A.13 is subject to frequent changes and should, therefore, be viewed as

tentative evidence. Current data is available at the web-sites listed here.

Members of 1st chamber	Memb. of 2nd chamb.	% o. votes of		
28 (General Council)		42.2	28.3	17.6
19 (House of Representatives)	17 (Senate)	52.9	44.4	1.3
40 (House of Assembly)	16 (Senate)	35 (seats)	5 (seats)	
28 (House of Assembly)	21 (Senate)	65.4	34.6	
29 (House of Representatives)	9 (Senate)	59.4	39.1	
20 (Legislative Council)				
32 (House of Assembly)		43.3	43.1	13.6
15 (House of Representatives)	13 (Senate)	62.4	24.9	12.1
63 (Great Diet)		40.7	26.8	18.4
25 (Diet)		49.2	39.2	11.6
60 (Chamber of Deputies)		30.2	24.2	22
65 (House of Representatives)		51.8	47	1.2
28 (Congress)				
18 (National Council)		18 (seats)	0	
18 (Parliament)				
16 (National Congress)	16 (Senate)			
60 (Great General Council)		40.9	23.2	18.6
34 (National Assembly)		61.7	26.1	12.7
15 (National Assembly)		7 (seats)	2 (seats)	1 (seat)
17 (House of Assembly)	11 (Senate)	61.3	36.6	
21 (House of Assembly)		54.2	45.8	

Table A.13: Theoretical expectations versus reality – executive branch

Executive branch	Costs VSC very high	Cost diff. between VSC and FPUBL –	Theoretical expect. relatively higher costs in VSC
Country	N. o. cab. min.[a]	N. o. Secr. o. State	Cabinet Departments
Andorra	9	2	Agriculture a. the Environment; Culture a. Tourism; Economy; Education, Youth a. Sports; Finance a. Interior; Foreign Affairs; Health a. Welfare; Territorial Planning
Antigua a. Barbuda	11	0	Justice a. Legal Affairs; Finance, Agriculture, Lands a. Fisheries; Education, Youth, Sports a. Community Development; Health a. Civil Service Affairs; Labor a. Home Affairs; Planning, Implementation a. the Environment; Public Works, Utilities a. Energy; State; Tourism a. Culture; Trade, Industry a. Consumer Affairs
Bahamas	13	0	National Security; Agriculture, Commerce a. Industry; Economic Development; Education a. Youth; Finance, Planning, Housing a. Social Development; Foreign Affairs; Health, the Environment, Public Works a. Transport; Labor a. Maritime Affairs; Local Government; Public Service, Immigration a. National Insurance; Tourism a. Civil Aviation
Barbados	14	3	Finance, Economic Affairs a. Civil Service; Foreign Affairs a. Trade; Home Affairs; Labor, Sports a. Public Sector Reform; Commerce, Consumer Affairs a. Business Development; Housing a. Lands; Education, Youth Affairs a. Culture; Public Works a. Transport; Agriculture a. Rural Development; Tourism a. International Transport; Health; Industry a. International Business; Social Transformation; Environment, Energy a. Natural Resources

Country	N. o. cab. min.[a]	N. o. Secr. o. State	Cabinet Departments
Belize	13	2	Finance a. Foreign Affairs; Natural Resources, the Environment a. Industry; Public Utilities, Energy a. Communications; National Security, Immigration, Tourism a. Youth; Budget Planning, Economic Development, Investment a. Trade; Health a. Public Service; Agriculture, Fisheries a. Cooperatives; Works, Transport, Citrus a. Banana Industries; Education a. Sports; Housing, Urban Renewal a. Home Affairs; Sugar Industry, Local Government a. Labor; Rural Development a. Culture; Information
Brunei	11	0	Foreign Affairs; Home Affairs; Finance; Defense; Education; Industry a. Primary Resources; Development a. Communications; Culture, Youth a. Sports; Health; Religious Affairs
Dominica	12	3	Legal Affairs, Foreign Affairs, Labor a. Caribbean Affairs; Agriculture a. the Environment; Communications a. Works; Community Development; Education; Finance; Health a. Social Security; Housing; Planning a. the Environment; Trade, Industry a. Marketing; Tourism; Youth, Sports a. Culture
Grenada	11	0	National Security a. Information; Finance, Trade, Industry a. Planning; Works, Communication a. Public Utilities; Agriculture, Forestry, Land a. Fisheries; Tourism, Civil Aviation, Gender, Family Affairs a. Social Security; Foreign Affairs; Education; Culture, Housing, Social Services a. Cooperatives; Youth, Sports a. Community Development; Health a. the Environment; Legal Affairs, Labor, Local Government a. Carriacou a. Petit Martinique Affairs
Iceland	12	0	Agriculture; Communications; Education, Science a. Culture; Environment; Finance; Fisheries; Foreign Affairs; Health a. Social Security; Industry a. Commerce; Justice a. Ecclesiastical Affairs; Social Affairs
Liechtenstein	5	0	Finance, Construction, Family a. Equal Rights; Education, Transport, Communications a. Justice; Foreign Affairs; Internal Affairs, Culture, Sports, the Environment, Territorial Planning, Agriculture a. Forestry; Health, Social Affairs a. Economy

Country	N. o. cab. min.[a]	N. o. Secr. o. State	Cabinet Departments
Luxembourg	12	2	Finance; Foreign Affairs, Trade, Public Service a. Public Sector Reform; Agriculture, Viticulture, Rural Development, Middle Classes, Tourism a. Housing; Family, Social Solidarity, Youth a. Female Promotion; Culture, Higher Education, Science a. Public Works; Internal Affairs; Justice; Education, Vocational Training a. Sports; Economy a. Transport; Cooperation, Humanitarian Actions a. Defense; Health a. Social Security; Labor, Employees, Relations with the Parliament, Culture a. Communications
Malta	11	0	Agriculture a. Fisheries; Economic Services; Education; Environment; Finance; Foreign Affairs; Health; Home Affairs; Social Policy; Tourism; Transport a. Communications
Micronesia	7	0	Foreign Affairs; Economic Affairs; Transportation, Communication a. Infrastructure; Finance a. Administration; Health, Education a. Social Services; Justice
Monaco	4	0	Finance a. Economics; Internal Affairs; Public Works a. Social Affairs
Nauru	6	0	Business Development, Consumer Affairs, Civil Aviation, Transporting, Industry, Economic Development a. Tourism; Education a. Vocational Training; Finance, Economic Reforms, Foreign Affairs, Public Service and Telecommunications; Home Affairs and Culture; Justice; Sports, Works, Planning, Housing Development a. Assisting the President
Palau	9	0	Administration; Commerce a. Trade; Community a. Cultural Affairs; Education; Health; Justice; Resources a. Development; State (President is Head of Government)
San Marino	4	0	Finance, Welfare a. Information; Foreign a. Political Affairs; Internal Affairs
Seychelles	13	0	Administration; Agriculture a. Marine Resources; Culture a. Information; Education; Foreign Affairs, Planning a. the Environment; Health; Housing a. Land Use; Industries a. International Business; Internal Affairs, Defense a. Legal Affairs; Local Government a. Sports; Social Affairs a. Manpower Development; Tourism a. Civil Aviation

Country	N. o. cab. min.ᵃ	N. o. Secr. o. State	Cabinet Departments
St. Kitts a. Nevis	8	0	Finance, Development, Planning a. National Security, Foreign a. CARICOM Affairs, International Trade, Community a. Social Development; Tourism, Information, Telecommunications, Commerce a. Consumer Affairs; Health a. the Environment; Agriculture, Fisheries, Co-operatives, Lands and Housing; Culture, Youth a. Sports; Communications, Works a. Public Utilities; Education, Labor a. Social Security
St. Vincent a. t. Grenadines	9	0	Agriculture a. Labor; Communications a. Works; Education, Culture, Women's a. Ecclesiastical Affairs; Finance, Public Service, Home Affairs a. National Security; Foreign Affairs, Tourism a. Information; Health a. the Environment; Housing, Local Government, Youth, Sports a. Community Development; Justice; Trade, Industry a. Commerce

a including Head of Government

Abbreviations: diff. = difference; expect. = expectation; N. o. cab. min. = Number of cabinet ministers;

N. o. secr. o. state = Number of secretaries of state; a. = and.

Sources: http://www.Andorra.ad/govern/compouk.html;

http://www.Brunei.gov.bn/min_dept/index.html;

http://brunnur.stjr.is/interpro/stjr/stjr.nsf/pages/english-index;

http://www.firstlink.li/regierung/regierungsraete.htm;

http://www.gouvernement.lu/gouv/fr/gouv/membgouv/index.html;

http://www.magnet.mt/ministries/index.html;

http://www.fsmgov.org/ngovt.html;

http://www.gouv.mc/dataweb/gouvmc.nsf;

http://www.polisci.com/world/nation/PS.htm;

http://www.stkittsnevis.net/directory.html as of 03/17/01;

http://www.cia.gov/cia/publications/chiefs/chiefs[3,5,12,15,18,52,70,79,103,105,112,117,119,124,135,147,149,151,155].html as of 03/17/01;

http://www.georgetown.edu/pdba/Executive/[COUNTRY-NAME]/heads.html as of 03/17/01.

Note that data in Table A.13 is subject to frequent changes and should, therefore, be viewed as tentative evidence. Current data are available at the web-sites listed here.

Table A.14: Economic characteristics of VSC – Part I

Country	GDP (10^6 $)*	GDP/ capita ($)*
Andorra	1200 (95)	18543 (95)
Antigua a. Barbuda	470 (97)	7374 (97)
Bahamas	5400 (97)	19424 (97)
Barbados	2800 (97)	10821 (97)
Belize	680 (97)	3027 (97)
Brunei	5400 (97)	17554 (97)
Dominica	208 (96)	2508 (96)
Grenada	300 (96)	3159 (96)
Iceland	5700 (97)	21172 (97)
Liechtenstein	713 (96)	22910 (96)
Luxembourg	13500 (97)	32063 (97)
Malta	4900 (97)	12991 (97)
Micronesia	220 (96)	1755 (96)
Monaco	800 (96)	25221 (96)
Nauru	100 (93)	9523 (93)
Palau	160 (97)	9281 (97)
San Marino	500 (97)	20231 (97)
Seychelles	550 (97)	7042 (97)
St. Kitts a. Nevis	235 (96)	5681 (96)
St. Lucia	600 (96)	3801 (96)
St. Vincent a. t. Gren.	259 (96)	2189 (96)

Abbreviations: gov. = government; rev. = revenues; exp. = expenditure; dep. = dependency; n.a. = not available; Carib. = Caribbean; Scand. = Scandinavia.

* Years in parentheses; «(95)» means that the according figure stems from 1995.

Export dep.: Exports in neighbor countries as a percentage of total exports.

[a] 86% with USA and UK; [b] 73% with USA and UK; [c] 74% with USA and UK.

Sources: http://www.polisci.com/almanac/world/nation/[COUNTRY ABBREVIATION].htm as of 3/22/01.

Total gov. rev. (10^6 $ US)*	Total gov. exp. (10^6 $ US)*	Imports (% of GDP)	Export dep.
138 (93)	177 (93)	76.66	96%
107 (95)	132 (95)	94.47	43% (Carib.)
688 (97)	827 (97)	20.00	24% (USA)
600 (97)	645 (97)	27.25	15% (USA)
140 (98)	142 (98)	41.32	0%[a]
2500 (95)	2600 (95)	33.33	31% (ASEAN)
77 (96)	78 (96)	47.50	47% (Carib.)
76 (96)	127 (96)	54.00	32% (Carib.)
1900 (96)	2100 (96)	26.32	30% (Scand.)
455 (96)	435 (96)	119.50	n.a.
5500 (97)	5400 (97)	55.55	61%
1300 (97)	1500 (97)	51.02	32% (Italy)
58 (96)	52 (96)	64.09	n.a.
623 (95)	639 (95)	n.a.	n.a.
23 (96)	65 (96)	21.10	n.a.
53 (97)	60 (97)	15.38	n.a.
320 (95)	320 (95)	n.a.	n.a.
220 (94)	241 (94)	47.45	n.a.
100 (96)	100 (96)	47.66	10% (Carib.)[b]
155 (97)	169 (97)	46.00	16% (Carib.)[c]
80 (96)	118 (96)	52.12	49% (Carib.)

Table A.15: Economic characteristics of VSC – Part II

Country	Unemp. rate	Growth rate	Inflation rate
Andorra	0	4.0	n.a.
Antigua a. Barbuda	7.0	3.3	2.5
Bahamas	9.0	3.5	0.4
Barbados	12.0	3.0	2.4
Belize	14.3	2.9	1.0
Brunei	4.9	3.5	2.0
Dominica	20.0	3.7	1.7
Grenada	15.0	3.1	3.2
Iceland	2.4	4.9	2.3
Liechtenstein	1.8	2.2	0.5
Luxembourg	2.7	3.6	2.3
Malta	5.5	2.8	2.3
Micronesia	27.0	1.0	4.0
Monaco	3.1	1.5	n.a.
Nauru	0	n.a.	-3.6
Palau	7.0	10.0	n.a.
San Marino	3.6	4.8	5.3
Seychelles	n.a.	1.1	-0.3
St. Kitts a. Nevis	4.5	5.8	3.1
St. Lucia	15.0	0.8	-2.3
St. Vincent a. t. Grenadines	22.0	1.0	3.6

Abbreviations: Unemp. = unemployment; Prim. = Primary; Secon. = Secondary; Tert. = Tertiery;

se. = sector; n. a. = not available.

* Years in parentheses; «(95)» means that the according figure stems from 1995.

Export dep.: Exports in neighbor countries as a percentage of total exports.

[a] 86% with USA and UK; [b] 73% with USA and UK; [c] 74% with USA and UK.

Sources: http://www.polisci.com/almanac/world/nation/[COUNTRY ABBREVIATION].htm as of

3/22/01.

Main products	Prim. se. (%)	Secon. se. (%)	Tert. se. (%)
tourism, timber, banking	n.a.	n.a.	n.a
tourism	4	12.5	83.5
tourism, banking	3	5	92
sugarcane cultivation, tourism, banking	6	15	79
agriculture (bananas, sugar), food processing	22	22	56
crude oil, natural gas	5	46	49
agriculture (bananas), soap production	20	16	64
tourism	9.7	15	75.3
fishing, aluminum	13	24	63
financial services, industrial sector	n.a.	n.a.	n.a.
banking, iron, steel, industrial sector	1	22	77
tourism, electronics, ship building	3	26	71
phosphate, subsistence	n.a.	n.a.	n.a.
tourism, tax haven	n.a.	n.a.	n.a.
phosphates	n.a.	n.a.	n.a.
tourism, subsistence	n.a.	n.a.	n.a.
tourism, banking, ceramics, wine	n.a.	n.a.	n.a.
tourism	4	15	81
sugarcane, tourism, banking	5.5	22.5	72
bananas, tourism	10.7	32.3	57
bananas, tourism	10.6	17.5	71.9

Table A.16: Pairwise correlations (Pearson)

	OPEN	LOG-POP	FREE DOM	WARD	LAAM	OECD	S-SAFR
OPEN	1.000						
LOGPOP	−.636	1.000					
FREEDOM	−.104	.321	1.000				
WARD	−.268	.361	.315	1.000			
LAAM	.090	−.106	−.216	.080	1.000		
OECD	−.141	.189	−.419	−.267	−.169	1.000	
SSAFR	−.037	.028	.231	−.042	−.247	−.205	1.000
ASIA	.117	.173	.164	.125	−.192	−.160	−.234
URBRAT	.230	−.040	−.377	−.223	.199	.379	−.545
POPDENS	.582	−.184	−.084	−.068	−.043	−.034	−.072
WART	−163	.176	.239	.588	−.024	−.177	.123
LOGNPC	.220	−.039	−.636	−.304	.084	.701	−.517
REVO	−.220	.060	.234	.363	.013	−.206	.254
VUL	.690	−.755	.003	−.039	.098	−.412	.214
TRANS	.161	−.427	.065	.244	−.036	−.284	.246

	ASIA	URB-RAT	POP-DENS	WART	LOG GNPC	REVO	VUL	TRA-NS
	1.000							
	−.211	1.000						
	.031	.160	1.000					
	−.067	−.170	−.082	1.000				
	−.138	.772	.066	−.274	1.000			
	−.060	−.351	−.071	.462	−.398	1.000		
	.097	−.400	.195	.082	−.298	.051	1.000	
	.088	−.606	−.027	.381	−.302	.236	.630	1.000

Table A.17: VSC and SAR worldwide

Country	Comparison with regional average		
	$ US	$ PPP	PPP-UN
1. Sub-Saharan Africa			
Cape Verde Islands	higher	n.a.	higher
Equatorial Guinea	lower	n.a.	n.a.
Sao Tomé and Principe	lower	n.a.	n.a.
Seychelles	higher	n.a.	higher
Mayotte (France)		(higher)	
Reunion (France)		(higher)	
St. Helena (U.K)		(same)	
2. South Asia			
British Indian Ocean Terr. (U.K)		(higher)	
Maldives	higher	n.a.	n.a.
3. Middle East and North Africa			
Canary Islands (Spain)		(higher)	
Ceuta and Melilla (Spain)		(higher)	
Madeira (Portugal)		(higher)	
4. Eastern Europe			
5. Latin America and Caribbean			
Antigua and Barbuda	higher	n.a.	n.a.
Bahamas	higher	n.a.	higher
Barbados	higher	n.a.	higher
Belize	lower	n.a.	lower
Dominica	lower	n.a.	lower
Grenada	lower	n.a.	lower
St. Kitts and Nevis	higher	higher	n.a.
St. Lucia	higher	n.a.	lower
St. Vincent and the Grenadines	lower	n.a.	lower
Anguilla (U.K.)	n.a.	n.a.	n.a.
Aruba (Netherlands)		(same)	
British Virgin Islands (U.K.)		(higher)	
Cayman Islands (U.K.)		(higher)	
Falkland Islands (U.K.)		(same)	
French Guyana (France)		(same)	
Guadeloupe (France)		(same)	
Martinique (France)		(same)	
Montserrat (U.K.)		(same)	
Netherlands Antilles (Netherlands)		(same)	

Country	Comparison with regional average		
	$ US	$ PPP	PPP-UN
US Virgin Islands (USA)		(higher)	
Turks/Caicos (U.K.)		(higher)	

6. East Asia and Pacific

Brunei	(higher)	(higher)	(higher)
Kiribati	lower	n.a.	n.a.
Marshall Islands		(lower)	
Micronesia		(lower)	
Nauru		(same)	
Palau		(lower)	
Solomon Islands	lower	n.a.	lower
Tonga	lower	n.a.	lower
Tuvalu		(lower)	
Vanuatu	lower	n.a.	lower
Western Samoa	lower	n.a.	lower
American Samoa (USA)		(same)	
Christmas Islands (Australia)		(lower)	
Cocos Islands (Australia)		(lower)	
Cook Islands (New Zealand)		(same)	
French Polynesia (France)		(higher)	
Guam (USA)		(same)	
Macao (Portugal)		(same)	
New Caledonia (France)		(same)	
Niue (New Zealand)		(lower)	
Norfolk Islands (Australia)		(lower)	
North Marianas (USA)		(lower)	
Tokelau (New Zealand)		(lower)	
Wallis and Futuna (France)		(lower)	

7. Western Europe

Andorra		(same)	
Iceland	higher	n.a.	higher
Liechtenstein	(higher)	(higher)	(higher)
Luxembourg	higher	n.a.	higher
Malta	lower	n.a.	lower
Monaco		(same)	
San Marino		(lower)	
Azores (Portugal)		(lower)	
Faroe Islands (Denmark)		(same)	
Gibraltar (U.K.)		(lower)	

Country	Comparison with regional average		
	$ US	$ PPP	PPP-UN
Guernsey (U.K.)		(same)	
Isle of Man (U.K.)		(lower)	
Jersey (U.K.)		(same)	
8. North America			
Bermuda (U.K.)		(same)	
Greenland (Denmark)		(same)	
St. Pierre/Miquelon (France)		(lower)	

Abbreviations: n.a. = not available.

Sources: Armstrong et al. (1998), few own supplements; $ US and $ PPP are based on World Bank data from 1993; PPP-UN are based on UN data from 1991.

Parentheses indicate estimations, which however appear relatively reliable. Regional averages are based on UN data from 1991 and regional classifications of the World Bank are used (eight regions worldwide).

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Deutsche Zusammenfassung

Einleitung und Motivation

Obwohl die Grösse von Staaten einer hohen Varianz unterliegt, wird im Rahmen der Wirtschaftswissenschaft nur begrenzt auf diese Vielfalt eingegangen. Insbesondere in der modernen Finanzwissenschaft spielt die Variable Staatsgrösse, zumindest in den theoretischen Grundlagen, fast keine Rolle. In der Regel wird ein mittelgrosser, wirtschaftlich entwickelter Staat mit einer ausdifferenzierten Bürokratie unterstellt, der eine breite Palette von öffentlichen Gütern bereitstellt.

Tatsächlich spielt aber die Grösse eines Staates für die Wahl des Produktions- und Bereitstellungssystems von öffentlichen Gütern eine sehr wichtige Rolle. Es ist das Hauptziel dieser Arbeit, die Organisation des öffentlichen Sektors und die damit verbundenen Probleme in sehr kleinen Staaten, im Weiteren als Kleinstaaten bezeichnet, zu beleuchten. Einerseits versuchen wir damit eine wissenschaftliche Lücke zu schliessen, welche die Folge einer etwas stiefmütterlichen Behandlung von Kleinstaaten in der Ökonomik und insbesondere in der Finanzwissenschaft ist. Andererseits sind wir der festen Überzeugung, dass die Analyse der Organisation des öffentlichen Sektors in Kleinstaaten interessante und weitreichende Rückschlüsse auf allgemeine Fragen der Bereitstellung und Finanzierung von öffentlichen Gütern zulässt. Kleinstaaten sind auch deshalb ein gutes Untersuchungsobjekt, weil die Wirkungen verschiedener Bereitstellungsarrangements gut beobachtbar sind.

Wenn vorhin von einer nahezu stiefmütterlichen Behandlung von Kleinstaaten in der Ökonomik gesprochen wurde, so ist dies nur die eine Seite der Medaille. Vielmehr besteht in der ökonomischen Theorie, allerdings vor allem basierend auf Beiträgen zur Mitte des letzten Jahrhunderts, die weit verbreitete Auffassung, dass Kleinstaaten grösseren Staaten ökonomisch unterlegen wären.

Diese These spiegelt zum einen die damals vorherrschende politische Meinung wider, dass Kleinstaaten nur begrenzt überlebensfähig wären. Zum anderen ist sie nichts Anderes als das Resultat einer konsequenten Anwendung des Standardrepertoires der ökonomischen Produktionstheorie auf kleine Einheiten. Ein kleiner nationaler Markt und die Nachteile der Kleinheit bei der Existenz steigender Skalenerträge im privaten als auch im öffentlichen Sektor führen zwangsläufig zu Nachteilen aus Sicht der ökonomischen Theorie. Allerdings werden dabei die grossen Vorteile übersehen, die sich aus der Kleinheit ergeben können. Diese Ausgangslage bietet den Ansatzpunkt für viele unserer Überlegungen.

Eine weitere Motivation für die vorliegende Arbeit ist die Tatsache, dass es bisher äusserst wenig allgemeine empirische Evidenz zu den theoretischen Überlegungen über Kleinstaaten gibt. Dieses Faktum lässt sich unter anderem auf die schlechte Datenlage und auf Probleme bei der Vergleichbarkeit der insgesamt sehr heterogenen Kleinstaaten zurückführen.

Wissenschaftlicher Beitrag

Aus dieser ersten Bestandsaufnahme ergibt sich eine Reihe von interessanten und wissenschaftlich relevanten Anknüpfungspunkten für die vorliegende Arbeit. Erstens bedarf es aus ökonomischer Sicht einer empirischen Analyse des öffentlichen Sektors von Kleinstaaten. Dabei interessiert vor allem, ob tatsächlich ein Skalennachteil bei der Produktion von öffentlichen Gütern besteht. Nach Beantwortung dieser Frage widmen wir uns einer fallstudienartigen Untersuchung der Organisation der Produktion und Bereitstellung von öffentlichen Gütern in Kleinstaaten. Zweitens scheint ein Blick auf den privaten Sektor von Kleinstaaten unerlässlich, obwohl der Focus der Arbeit auf dem öffentlichen Sektor liegt. Mit einer Analyse des öffentlichen Sektors alleine kann allerdings nicht erklärt werden, warum die ökonomische Vorhersage, dass Kleinstaaten im Durchschnitt ein geringeres Wohlstandsniveau aufweisen sollten, nicht mit der Realität in Einklang zu bringen scheint. Einerseits könnte dies auf einen verzerrten Eindruck zurückzuführen sein, der vor allem reiche Kleinstaaten im Auge hat und arme vernachlässigt. Andererseits könnte die starke Konzentration der ökonomischen Theorie auf

die Produktionsseite zu einer Vernachlässigung der Nachfrageseite geführt haben, was eine Überschätzung der Nachteile und eine Unterschätzung der Vorteile aus staatlicher Kleinheit zur Folge haben kann.

Ausgangssituation

Die vorliegende Arbeit baut auf zwei verschiedene Literaturstränge auf. In einem ist der Kleinstaat oder eine homogene Gruppe von Kleinstaaten unter ökonomischen Gesichtspunkten Objekt der Analyse. Dazu zählt unter anderem die detaillierte Analyse des liechtensteinischen öffentlichen Sektors von Gantner und Eibl (1999). Gantner und Eibl fanden bemerkenswerte Unterschiede zwischen den Bereitstellungsarrangements und den -kosten von öffentlichen Gütern in Liechtenstein und benachbarten Regionen in der Schweiz und Österreich. Ausserdem wurde das Konzept des internationalen Outsourcing von ihnen entwickelt, das sich auch im Rahmen dieser Studie als hilfreich und relevant herausstellte. Andere Beispiele für diesen Literaturstrang sind Olafsson (1998), der sich mit der isländischen Wirtschaft als typische Kleinstaatenökonomie auseinandersetzt, und World Bank (1998), die sich mit den politischen und ökonomischen Problemen von Kleinstaaten im Pazifik beschäftigt. Die vorliegende Arbeit entwickelt diesen Ansatz insofern weiter, als sie versucht über eine grössere Anzahl von Kleinstaaten Regelmässigkeiten bzw. Besonderheiten zu finden. Dabei muss die Analyse in der Regel auf einem höheren Aggregationsniveau empirischer Daten ansetzen.

Der zweite Literaturstrang, der eigentlich nur sehr wenige Beiträge umfasst, hat sich zwar mit einer grösseren Anzahl von Kleinstaaten beschäftigt, dafür aber vor allem mit makroökonomischen Variablen (Armstrong und Read, 1995; Armstrong et al., 1999). Unser Hauptaugenmerk liegt hingegen auf dem öffentlichen Sektor, obwohl wir – wie schon erwähnt – die Interdependenzen zwischen den beiden Sektoren nicht ausser Acht lassen, weil gerade im Zusammenspiel von privatem und öffentlichem Sektor Ansatzpunkte liegen, die erlauben es, die ökonomischen Erfolgsfaktoren von Kleinstaaten zu analysieren. An dieser Stelle sei noch der für unsere Fragestellung wichtige Beitrag von Alesina und Wacziarg (1998) erwähnt, in dem unseres Wissens zum ersten Mal empirisch der negative Zusammenhang zwischen Staatsgrösse und Grösse des öffentlichen Sektors hergestellt und auf Skaleneffekte in der

Produktion zurückgeführt wird. Allerdings wird von den Autoren nicht auf Kleinstaaten eingegangen und im den ökonometrischen Modellen zugrunde liegenden Sample tauchen nur wenige sehr kleine Staaten auf.

Aufbauend auf die Literatur beschäftigt sich die vorliegende Arbeit mit drei zentralen Fragestellungen sowohl empirisch als auch theoretisch. Erstens, hängt die Höhe der Staatsausgaben tatsächlich von der Grösse eines Staates ab und inwieweit hat sich dieser Zusammenhang über die letzten Jahrzehnte verändert? Zweitens, wie gehen Kleinstaaten gegebenenfalls mit ihrem Grössennachteil im öffentlichen Sektor am besten um bzw. wie sollten sie damit umgehen? Drittens, wie bzw. inwieweit trägt der öffentliche Sektor zum hohen Wohlstand der europäischen Kleinstaaten bei? Oder anders gefragt: Gibt es eine ökonomische Erklärung für die steigende Anzahl von Kleinstaaten in der Welt?

Das Untersuchungsobjekt

Nur kurz wird im Rahmen der vorliegenden Arbeit auf die verschiedenen Abgrenzungen eingegangen, die zur Diskriminierung zwischen Kleinstaaten und grösseren Staaten herangezogen wurden und werden. Da es uns um generelle Muster und Konzepte geht, ist eine klare Abgrenzung nicht von allzu grosser Beutung. Würden einige Staaten mehr oder weniger unter dem Begriff ‚Kleinstaat' subsumiert werden, würden sich die von uns präsentierten Ergebnisse in keinem anderen Licht darstellen.

Staatsgrösse und die Grösse des öffentlichen Sektors

Ein Teil der vom Staat bereitgestellten Güter unterscheidet sich nicht prinzipiell von privaten Gütern. Sie werden aus politischen Gründen vom Staat oder einer anderen Gebietskörperschaft bereitgestellt (z. B. Grundschulen). Andere Güter zeichnen sich besonders durch zwei Eigenschaften aus: Es gibt keine Rivalität im Konsum (die Grenzkosten eines zusätzlichen «Konsumenten» sind gleich null), und es ist technisch schwer, unmöglich oder sehr kostspielig jemanden vom Konsum auszuschliessen. Güter mit diesen beiden Eigenschaften werden als «(reine) öffentliche Güter» bezeichnet.

Reine öffentliche Güter werden fast immer vom Staat bereitgestellt. Ein privates Unternehmen hat von sich aus keine Anreize ein öffentliches Gut bereitzustellen, weil niemand vom Konsum ausgeschlossen werden kann und daher auch kein Preis dafür verlangt werden kann (Trittbrettfahrerverhalten). Auch der Staat kann für die Bereitstellung eines reinen öffentlichen Gutes in der Regel keine Gebühren (Benützungsgebühren) verlangen (aufgrund der Eigenschaft der Nicht-Ausschliessbarkeit). Bei der hypothetischen Finanzierungsfrage vor Bereitstellung eines reinen öffentlichen Gutes werden die späteren Konsumenten ihre Präferenzen verhüllen, um so weniger oder gar nichts beitragen zu müssen und dann als Trittbrettfahrer das Gut konsumieren zu können. Daher werden reine öffentliche Güter ausschliesslich aus Steuermitteln finanziert.

Aus diesen Eigenschaften geht hervor, dass es für reine öffentliche Güter theoretisch keine minimalen Durchschnittskosten gibt. Je grösser das Bereitstellungskollektiv, desto billiger ist die Bereitstellung für jeden einzelnen Steuerzahler. Andere öffentlich bereitgestellte Güter haben – wie private Güter – minimale Durchschnittskosten. Allerdings werden diese manchmal nur bei relativ grossen Benutzerkollektiven erreicht (z.B. Universitäten). Viele Kleinstaaten erreichen für sich genommen diese effiziente Grösse zur Bereitstellung einiger öffentlicher Güter nicht und leiden mithin unter Nachteilen aufgrund von Skaleneffekten.

Wenn man nun annimmt, dass jeder Staat ein Bündel an Gütern bereitstellt, das zumindest teilweise aus reinen öffentlichen Gütern und Mischgütern besteht, dann folgt daraus, dass kleinere Staaten tendenziell höhere öffentliche Ausgaben haben müssen als grössere Staaten. D.h., dass die Höhe der auf das Bruttoinlandsprodukt (BIP) oder Bruttosozialprodukt (BSP) bezogenen Staatsausgaben mit sinkender Staatsgrösse theoretisch steigen müsste.

Im Rahmen der vorliegenden Arbeit konnten wir diese These mit einer sehr grossen und zuverlässigen Datenbasis testen. Dabei wird mithilfe multipler Regressionsmodelle der Einfluss der Variable Staatsgrösse, abgebildet als die Einwohnerzahl oder als das BIP bzw. BSP, auf die Variable Grösse des öffentlichen Sektors, angenähert durch die Konsumausgaben des Staates, untersucht. Natürlich gibt es noch eine ganze Menge anderer Variablen, die theoretisch zur Erklärung der relativen Höhe der öffentlichen Konsumausgaben beitragen sollten und daher in verschiedenen Modellspezifikationen berücksichtigt werden. Dazu

zählen v. a. das Pro-Kopf-Einkommen, die Urbanisierungsrate, die Bevölkerungsdichte, regionale Dummies sowie politische und geographische Kontrollvariablen.

Es zeigt sich in allen Modellvarianten entsprechend der theoretischen Vorhersage, dass kleinere Staaten höhere Konsumausgaben aufweisen als grössere Staaten. Es existiert also ein nicht zu vernachlässigender negativer Skaleneffekt für Kleinstaaten im öffentlichen Bereich. Entgegen unseren Erwartungen aufgrund zunehmender Internationalisierung und einer steigenden Anzahl von Kleinstaaten in der Welt hat sich der negative Grösseneffekt seit den 60er Jahren des letzten Jahrhunderts sogar verschärft anstatt verringert.

Bereitstellungsarrangements – Fallstudien

In unserer Arbeit beschäftigen wir uns eingehend damit, wie einzelne Kleinstaaten mit dem entdeckten Grössennachteil im öffentlichen Bereich umgehen. In einer Reihe von Fallstudien wird untersucht, wie in Kleinstaaten jene öffentliche Güter produziert und bereitgestellt werden, mit denen besonders hohe Kosten einhergehen und mit denen mithin ein besonders grosser Nachteil verbunden ist.

Es zeigt sich, dass der Kostennachteil im öffentlichen Sektor um ein Vielfaches grösser wäre, würden Kleinstaaten nicht auf innovative Methoden der Produktion und Bereitstellung von öffentlichen Gütern (z. B. Landesverteidigung, monetäres System, Infrastruktur) zurückgreifen. Als Fallbeispiele dienen wichtige öffentliche Güter in 21 souveränen Kleinstaaten weltweit, die weniger als 500 000 Einwohner haben und vom Niveau der wirtschaftlichen Entwicklung her annähernd vergleichbar sind.

Wie erwartet ist internationales Outsourcing als Mittel zur Verringerung der Bereitstellungskosten von öffentlichen Gütern in Kleinstaaten weit verbreitet. Darunter verstehen wir, dass der Kleinstaat zwar in der Regel die Bereitstellung des öffentlichen Gutes gewährleistet (durch Eigenbereitstellung oder Verträge), es aber im Ausland, meist vom ausländischen öffentlichen Sektor, zumindest produziert, manchmal auch bereitgestellt wird. Mit der einzigen Ausnahme der militärischen Landesverteidigung, die den Kern der Souveränität berührt, spielen die nationale Identität bzw. Souveränität bei der Garantie der Bereitstellung

der öffentlichen Güter eine untergeordnete Rolle. Begünstigt sind vor allem Festlandkleinstaaten, die offene Grenzen zu den anderen Staaten in der Region haben. D.h., alle europäischen Kleinstaaten, mit Ausnahme von Island und Malta können als begünstigt betrachtet werden. Ihr Grössennachteil ist relativ gering. Demgegenüber sind abgelegene Kleinstaaten, insbesondere Inselkleinstaaten, und Kleinstaaten in weniger stabilen Regionen benachteiligt. Sie bekommen den Grössennachteil im öffentlichen Sektor (und auch im privaten Sektor) besonders stark zu spüren.

Neben dem internationalen Outsourcing beobachten wir, dass es Kleinstaaten in gewissen Fällen vorziehen, bestimmte Güter überhaupt nicht bereitzustellen, ohne dass die Bürger davon negativ betroffen wären, weil es sich meist um Güter handelt, die auch privat bereitgestellt werden können. Ausserdem gibt es in allen Kleinstaaten das Bestreben, öffentliche Güter an die Grösse des Staates anzupassen. In diesem Sinne gibt es z.B. in der Mehrheit der Kleinstaaten eine Armee, aber meist handelt es sich dabei um eine kleine Grenztruppe, die nicht in der Lage wäre, das Land gegen einen grösseren Nachbarn im Falle eines Angriffs zu verteidigen. Da solche Angriffe für die meisten Kleinstaaten als sehr unwahrscheinlich gelten, ist diese Strategie der nur teilweisen militärischen Sicherung der Souveränität durchaus rational, vor allem auch, weil die meisten Kleinstaaten explizite oder implizite Abkommen mit wichtigen regionalen Staaten haben, die ihre Unabhängigkeit garantieren. Die Grenztruppen dienen dann auch in den meisten Fällen anderen Aufgaben, wie z.B. der Bekämpfung des Drogenschmuggels.

Die Bereitstellungsarrangements der Kleinstaaten bei öffentlichen Gütern sind nicht nur aus Sicht der Kosteneffizienz der Kleinstaaten von grossem Interesse, sondern auch als Beispiele für tiefe Integration. Dabei geht es um die Organisation der Bereitstellung öffentlicher Güter, um die Verteilung auf die verschiedenen Ebenen (Gemeinde, Länder, Staat, regionale Integrationszone (EU), Welt) und die Möglichkeiten grenzüberschreitender Zusammenarbeit zwischen regionalen Einheiten grösserer Staaten. Der Beispielcharakter einiger, insbesondere europäischer Kleinstaaten in diesem Zusammenhang wurde bisher in der ökonomischen Literatur viel zuwenig beachtet.

Erfolgsfaktoren von Kleinstaaten

Wie schon eingangs erwähnt, ist die Betrachtung von Kleinstaaten in der ökonomischen Theorie sehr einseitig. Aus einer Reihe von Gründen wird gefolgert, dass Kleinstaaten einen erheblichen ökonomischen Nachteil zu tragen haben. Zu den am häufigsten genannten Argumenten zählen die Nachteile aus Skaleneffekten im öffentlichen als auch im privaten Bereich, der zu kleine nationale Markt, der zusätzlich in der Regel geringen Wettbewerb zwischen Anbietern aufweist, die hohe Abhängigkeit vom Ausland bzw. von ausländischen Märkten sowie die kleine selbst erzeugte Produktpalette, die zur Anfälligkeit gegenüber so genannten exogenen Schocks führt, und das Fehlen von internen Ausgleichsmechanismen im Falle des Eintretens solcher exogener ökonomischer Schocks.

Tatsächlich sind diese Argumente überzeugend und sollten, der ökonomischen Theorie folgend, zu einem geringeren Wohlstand in Kleinstaaten im Vergleich zu grösseren Staaten führen, auch wenn es einige Entwicklungen in den letzten Jahrzehnten gegeben hat, welche die Nachteile für Kleinstaaten vermindert haben. Zu diesen Entwicklungen zählen vor allem die Internationalisierung und die zunehmende Offenheit der Grenzen für den Güter-, Dienstleistungs- und Personenverkehr, die es den Kleinstaaten zu einem gewissen Grad erlaubt, die geschilderten Nachteile, die alle empirisch recht zuverlässig untermauert sind, zu verringern.

Auf einen ersten Blick scheint jedoch die empirische Evidenz bezüglich des Wohlstands von Kleinstaaten nicht der theoretischen Vorhersage zu entsprechen, vor allem wenn man hoch entwickelte Kleinstaaten wie Liechtenstein oder Luxemburg als Beispiele heranzieht. Tatsächlich zeigt eine empirische Überprüfung des Zusammenhangs zwischen Wohlstand, abgebildet durch das BSP pro Kopf, und der Staatsgrösse, mithilfe multipler Regressionen, dass der Wohlstand mit grosser Wahrscheinlichkeit unabhängig von der Grösse eines Staates ist, auch wenn man andere den ökonomischen Wohlstand determinierende Faktoren mitberücksichtigt. Daraus ist zu schliessen, dass die ökonomische Theorie nur einen Teil der Argumente beleuchtet, welche die Wohlfahrt des Kleinstaates bestimmt. Konkret wird viel zu sehr auf die Kostenseite abgezielt und die Nachfrageseite, auf der die Vorteile der Kleinheit zum Tragen kommen, vernachlässigt.

Immer wieder genannte Vorteile von Kleinstaaten sind die grössere sprachliche, religiöse und ethnische Homogenität, die grössere Flexibilität der Bürgerinnen und Bürger sowie die höhere Entscheidungseffizienz, die internationale Vernachlässigung, die es erlaubt ökonomische Nischen teilweise auf Kosten anderer Staaten zu besetzen und zu schützen, die hohe Effektivität der Gesetzgebung, wobei oft ein «Gesetzgebungsgefälle» (Gantner und Eibl, 1999) zwischen dem Kleinstaat und benachbarten Staaten angestrebt wird, der direkte und einfache Zugang zur Bürokratie und Politik, weil oft persönliche Bekanntschaften bestehen, und die geringe Präferenzheterogenität.

Allerdings ist ein Grossteil dieser Argumente schwer quantifizierbar und daher nicht empirisch untermauert. In einer fallstudienartigen Untersuchung besonders erfolgreicher Kleinstaaten haben wir versucht, den Erklärungsgehalt der oftmals genannten Argumente einzeln zu beleuchten.

Dabei zeigt sich, dass z.B. das Homogenitätsargument einer empirischen Überprüfung nicht standhält, wenn man es auf die sprachliche und ethnische Zusammensetzung von Kleinstaaten bezieht. Viele, auch wirtschaftlich erfolgreiche Kleinstaaten weisen diesbezüglich eine hohe Heterogenität auf, die umgekehrt wahrscheinlich sogar dazu beiträgt, die für Kleinstaaten so wichtige internationale Orientierung zu erleichtern.

Die souveräne Gesetzgebungshoheit scheint einer der ganz wichtigen Hebel des Kleinstaats zu sein, der ökonomischen Erfolg ermöglicht. Gesetzgebung kann ökonomisch als territoriales Monopol zum Beschluss und zur Durchsetzung von Gesetzen betrachtet werden. Kleinstaaten nutzen diesen souveränen Spielraum, um ökonomische Nischen zu besetzen und ein Gesetzgebungsgefälle zu Nachbarstaaten herzustellen. Eine notwendige Bedingung für diese Strategie ist die Tatsache, dass die meisten Kleinstaaten international unbeachtet agieren können, weil ihre Strategie teilweise auf Kosten grösserer Länder geht.

Dies ist insbesondere der Fall im Bereich der Finanzdienstleistungen, die neben den gegebenenfalls vorhandenen natürlichen Ressourcen und dem Tourismus die Haupteinnahmequelle der reichen Kleinstaaten darstellt. Tatsächlich stützt sich aber die Wirtschaft in den reichen Kleinstaaten nur zu einem relativ geringen Prozentsatz auf diese Haupteinnahmequellen. Zweifelsohne sind sie ein Motor der wirtschaftlichen Entwicklung, die kleinen Volkswirtschaften sind aber in Wirklichkeit relativ differenziert, d.h., sie sind von den Volkswirtschaften grösserer

OECD-Staaten bzw. von reichen Regionen dieser Staaten strukturell nur geringfügig unterschiedlich. Nischenstrategien, die auf der Gesetzgebungshoheit und der internationalen Vernachlässigbarkeit beruhen, scheinen also letztlich im Zeitablauf zu einer recht differenzierten Wirtschaft zu führen. Ein guter Beweis für die Wichtigkeit der internationalen Unauffälligkeit ist übrigens die Tatsache, dass keiner der reichen Kleinstaaten in den einschlägigen OECD-Listen der Geldwäsche-Staaten aufscheint.

Der sehr ausführliche Vergleich von Kleinstaaten mit kleinen Regionen grösserer Staaten, die ein hohes Mass an Autonomie geniessen, im Rahmen dieser Arbeit zeigt uns, dass das zur Realisierung von ökonomischen Nischenstrategien notwendige Mass an Gesetzgebungshoheit nicht allzu gross ist. In der Tat scheint eine relativ beschränkte Souveränität, wie sie die autonomen Regionen geniessen, völlig ausreichend, um eine erfolgreiche wirtschaftliche Entwicklung zu gewährleisten. Im Rahmen der Arbeit können wir auch neben der schon genannten Kleinheit und Vernachlässigbarkeit der Kleinstaaten einige weitere Gründe dafür angeben, warum die Möglichkeit, ein Gesetzgebungsgefälle zu grösseren Nachbarn herzustellen, auf internationaler Ebene nicht stärker eingeschränkt wird.

Wie schon erwähnt, halten wir die Offenheit der Grenzen von Kleinstaaten für einen wichtigen, die Wohlfahrt bestimmenden Faktor. Allerdings zeigt sich sehr gut, dass Kleinstaaten grossen Wert darauf legen, die Offenheit und internationale Integration dort zu begrenzen, wo ihre ökonomische Nischenpolitik negativ betroffen wäre. Kein Kleinstaat in Europa, mit Ausnahme von Luxemburg, ist Mitglied der Europäischen Union, weil die Mitgliedschaft in für die Kleinstaaten zentrale Bereiche der Gesetzgebung eingreifen und ihren Vorteil möglicherweise verringern würde. Gleichwohl haben praktisch alle Kleinstaaten bevorzugten Zugang zum europäischen Binnenmarkt bzw. bilden mit Europa eine Zollunion, von der nur einzelne Bereiche ausgenommen sind. Interessant ist auch die Tatsache, dass gerade im Finanzdienstleistungssektor der «trade off» zwischen Offenheit und Protektion im Kleinstaat am geringsten scheint, weil weltweit liberalisierte Kapitalmärkte die beste Versicherung für die Finanzdienstleistungsbranche in den Kleinstaaten darstellt.

Andere Argumente, die als Vorteile für Kleinstaaten genannt werden, sind nicht so leicht zu analysieren. Wir können daher nur feststel-

len, dass unseres Wissens aus ökonomischer Sicht keine klare Evidenz bezüglich der höheren Entscheidungseffizienz, der grösseren Flexibilität der Bürgerinnen und Bürger sowie des einfacheren Zugangs zu Bürokratie und Politik existiert.

Es besteht kein Zweifel, dass die Kleinheit Vorteile mit sich bringt, die dazu angetan sind, die Nachteile auszugleichen bzw. sogar zu übersteigen. Dafür gibt es eine Reihe von Beispielen, und die ökonomische Profession wäre gut beraten, Kleinheit von Staaten nicht mehr grundsätzlich als Defizit zu betrachten. Einiges deutet darauf hin, dass diesbezüglich ein gewisses Umdenken stattfindet, wenn auch das Thema Kleinstaaten im ökonomischen Bereich auch in Zukunft nicht im Zentrum des Interesses stehen wird. Die steigende Anzahl von Kleinstaaten in der Welt ist ein wichtiges Indiz für die Attraktivität der Kleinheit bzw. dafür, dass Kleinstaaten nicht grundsätzlich ökonomisch benachteiligt sind. Zudem führt diese Entwicklung mit Sicherheit auch zu einer etwas grösseren Aufmerksamkeit für die Variable Staatsgrösse in der Finanzwissenschaft.

Falsch wäre es allerdings an dieser Stelle zu behaupten, es gäbe einfache Rezepte für jene Kleinstaaten, die wirtschaftlich in der Vergangenheit nicht so erfolgreich waren. Die für die reichen Kleinstaaten gefundenen Regelmässigkeiten sind allenfalls Anhaltspunkte für mögliche wirtschaftspolitische Strategien. Eine darüber hinausgehende Gültigkeit und Relevanz unserer diesbezüglichen Ergebnisse zu reklamieren, wäre aufgrund der Heterogenität der Kleinstaaten und der verschiedenen Ausgangspositionen sowie der unterschiedlichen Geschichte der Kleinstaaten vermessen.

The Author

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