

The Economy of Small States

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This paper aims at verifying if territorial dimension is an important element for the economic success of a state and, if so, why and through which channels. The work proceeds to a careful assessment of the factors that can influence the economy of small states, in particular insularity, being landlocked, an offshore financial centre or a tax haven.

With respect to the analysis of Easterly and Kraay (2000), controlling for financial specialisation there is no evidence that small states have higher productivity levels. Furthermore, financial openness may reveal to be a decisive factor for the economic success of small states. [JEL Code: F40, O16, O47, O57]

1. - Introduction

From a theoretical point of view there are serious reasons to believe that small states are in a position of disadvantage with respect to the other countries¹. The presence of scale

* <brando2000@libero.it> This work is drawn from the second chapter of my degree thesis. I thank my supervisor, Prof. Luca De Benedictis, for the fundamental role he played in my education and for suggestions on this work. Special thanks to Prof. Alberto Zazzaro for useful discussions and advice. I thank the referees for useful comments, which have improved the quality of this work. Any responsibility for errors is exclusively of the author.

¹ In this work the term "state" has a wide meaning which includes those countries and territories that are not real sovereign states but that are characterised by a high level of autonomy and independence (for example Bermuda). Furthermore, the sample of the small states which was used for the empirical analysis involves only two countries which are not sovereign and their exclusion does not modify the obtained results.

diseconomies in the offer of public goods can lead to an increase of their *per capita* average cost and consequently sub-optimal level of the latter (Alesina and Spolaore, 1997; Alesina and Wacziarg, 1998). Many small states are either islands or are landlocked (i.e. they have no direct access to the sea) and the distance from the main reference markets means higher transportation costs and consequent deterioration of the terms of trade (Armstrong *et Al.*, 1993; Briguglio 1995). The small size of the domestic market and the limited factor endowment reduce the capacity to exploit economies of scale (Romer, 1986; Lucas, 1988) and the concentration of exportations in a few sectors exposes the small countries to a strong risk of external shocks (Streeten, 1993; Armstrong *et Al.*, 1998). The openness to international trade may enable them to overcome some of the negative aspects of the domestic market limited size but can entail a greater income volatility which is negatively correlated with economic growth (Ramey and Ramey, 1995). In a small country the career opportunities and the number of top jobs in companies are limited. This can lead the best "brains" to flee to other countries (Farrugia, 1993) and reduce the capacity to successfully import the technologies which are mainly developed abroad (Tisdell, 1993). Besides for the same reasons private investors can decide that the opportunities for investments are not appealing because they are too risky and/or not very profitable. As a consequence, a difficult access to international capital markets and the higher interest rate paid on loans could strongly limit the economic development of small states (Milner and Westaway, 1993).

Taking these negative aspects into consideration, we can be rather astonished at seeing that among the eleven richest countries in the world, according to the *World Development indicators Database 2003* of the World Bank, only five have a more than one million inhabitant population².

² Besides, the classification, based on the gross *per capita* national income of 2001, excludes some small countries such as Brunei, Andorra and Qatar, though considering them as 'high income' economies.

The few empirical studies which have been carried out on the economic characteristics of small states have often been limited to underline that size does not seem to have a significant impact on economic growth (Milner and Westaway, 1993) or that small states have income levels not dissimilar from larger countries (Armstrong *et Al.*, 1998). Other papers only analyse specific aspects of some small states such as emigration (Sofer, 1993) and tourism (Dieke, 1993; Brau, Lanza and Pigliaru, 2003) or deal with particular issues such as development sustainability (Bertram, 1993; Tisdell, 1993) or the effects of international debt (Kaminarides and Nissan, 1993). With a few exceptions, no studies have been carried out that can offer an overall view and which are able to grasp the particularities of these small economies; when this was done, the results have often supported the increasingly widespread opinion in literature that small size might not be a disadvantage after all or even that *Small is Beautiful* (Shiff, 1999).

The limited attention that empirical literature has given to the problems of small states can have a twofold explanation: 1) there is not only one definition of small states (size is a relative concept and this is an obstacle for dealing with this issue homogeneously); 2) the data available on small states is scarce and often cannot be compared with that of other countries.

This paper investigates if size matters for the economic success of a country and, if so, for which reason and through which channels. For this aim the empirical analysis has a twofold objective. On the one hand it aims at verifying the results reached by Easterly and Kraay (2000). On the other hand, greater attention is given to some aspects (often studied in literature but rarely the object of empirical evaluation) which can help to explain the economic performance of small states. In particular we have tried to understand which economic effects can be attributed to the fact of being an island, an archipelago, a landlocked country or an off-shore financial centre.

The paper is organised as follows. Section 2 illustrates the previous works of Easterly and Kraay (2000) and Brau, Lanza and Pigliaru (2003) and presents the empirical analysis of this

study. Section 3 reports the results and discusses the main criticism to Easterly and Kraay's conclusions. Section 4 sums up the work.

2. - Empirical Evidence and Description of This Work

Through a series of regressions in which they take into consideration the different geographical location of the countries, whether oil exporters or OECD members, Easterly and Kraay (2000) show that small countries have a level of *per capita* income which is significantly higher than that of other countries. Besides, by using Mankiw, Romer and Weil's model (1992) it was found that 2/3 of the greater wealth of small countries is due to an advantage in productivity and only partially due to the higher investment rates. As for the increase in the real *per capita* income Easterly and Kraay show that in small countries the rates are similar to those of other countries. In particular this result is due to the compensation of the negative effects on the development of the initial greater wealth and of the higher income volatility, with the positive effects deriving from the trade openness and the level of education. Moreover, according to the two authors the higher income volatility which is found in small countries is not entirely explained by the variations in the terms of trade (which, on the other hand, are principally influenced by the high volume of commercial exchanges); other possible causes might be found in the location of the areas which are exposed to natural disasters such as hurricanes.

At last, Easterly and Kraay underline that small countries are not fully exploiting the opportunities of risk diversification since they open up to international capital flows only to a limited extent. Therefore the two authors come to the conclusion that small size does not seem to entail any particular disadvantage.

Starting from Easterly and Kraay's dataset Brau, Lanza and Pigliaru (2003) have analysed how economic development is affected by tourism specialisation. The growth rates of 14 countries

specialised in tourism (which can all be classified as small countries according to the Easterly and Kraay's definition) have been compared to those of countries sub-groups (OECD members, oil exporters, small countries and less developed ones) and have shown to be by far the highest. Besides the positive effect of tourism on growth is not influenced by other factors such as an income level lower than the average, a higher investment level, and a wider opening to international trade. Therefore, according to the authors the small size in itself might also be negative for development, though this is not the case in presence of specialisation in tourism.

In this work, the analysis of Easterly and Kraay (2000) is studied in depth by taking into consideration further aspects that often go together with being a small country. Through a series of cross-country regressions we have tried to understand which economic effects can be attributed to the fact of being an island, an archipelago, a landlocked country, an offshore financial centre or a tax haven, and if these factors can contribute to explain the economic performances which are recorded by small states (it is worth noting that OECD (2000) classified as tax havens all the tourism countries which are reported in the study of Brau, Lanza and Pigliaru with the exception of Fiji).

The main source of the data employed in this study is the Easterly and Kraay's dataset. Mainly based on the *Penn World Tables Ver. 5.6* integrated with data from other sources such as the World Bank World Tables and the IMF, this is probably one of the richest collections of data on small states which are available at the moment. Easterly and Kraay take into consideration 157 countries for which at least 10-year data on *per capita* GDP adjusted for differences in the Purchasing Power Parity (PPP) is available, 33 of which are small states, defined as countries with an average population not exceeding one million inhabitants in the period 1960-1995. In this work we have kept both the sampling criterion and the definition of "small state"³. Besides, by ap-

³ For a critical analysis of the reasons that favour the use of a 1,000,000 population threshold see READ R. (2001).

plying the *Global Development Network Growth Database*⁴, it was possible to add other six countries to the original dataset, while for other two (which, on the other hand, were already included in the dataset) it was possible to integrate the data referring to the population growth rate, the real *per capita* income and the standard deviation of the latter. Also the San Marino Republic was added to the sample⁵; in this case the main data sources were the Ufficio della Programmazione Economica e Centro Elaborazione Dati e Statistica (2002) and the *Country Reports* of the IMF (1999), (2001a), (2001b).

Table 1 shows the list of the countries for which it was pos-

TABLE 1

COUNTRIES FOR WHICH IT WAS POSSIBLE TO FIND
OR INTEGRATE THE DATA WITH RESPECT TO EASTERLY
AND KRAAY'S DATASET

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1. Bhutan
 2. Dominica
 3. United Arab Emirates
 4. Equatorial Guinea
 5. Kiribati
 6. Tonga
 7. St. Lucia
 8. St. Vincent and The Grenadines
 9. San Marino Republic
-

⁴The *GDNGD* according to the work of Easterly and Kraay mainly reports the data of the *PWT Ver. 5.6* and integrates the missing data with estimations of the World Bank. Available on the website: www.worldbank.org/research/growth/GDNdata.htm.

⁵To make the data homogeneous with the rest of the database the real *per capita* GDP has been corrected for PPP and expressed in 1985 US\$ using the correction factor of Italy. Even if it is an approximation, the prices of San Marino are aligned with those of Italy (precisely those of Emilia Romagna). Such hypothesis has been reinforced by international bilateral agreement between San Marino and Italy, also with reference to exchanges with other countries.

sible to find or integrate the data with respect to Easterly and Kraay's original dataset.

We must underline that 8 out of the 9 countries included in Table 1 are small states. In fact, except for the UAE (whose average population in the reference period was about 1,399,000 inhabitants) all the other states have an average population lower than 577,000 inhabitants which was recorded in Bhutan.

As it has already been mentioned, many small states consist of islands, archipelagos or are landlocked. Some have tried to find a solution to their problems by specialising in the financial sector. We have tried to highlight these further aspects by introducing the dummies which are indicated in Table 2.

A last consideration concerns the geographical classification of the countries for which we followed that of World Bank (2002, Table 1).

Table 3 shows the small states which are part of the final sample, ordered according to the real *per capita* GDP. Since there are still many small countries for which we have non-comparable or no data at all, caution should be taken to avoid generalising.

TABLE 2

DUMMY VARIABLES FOR FINANCIAL
SYSTEMS AND TOPOGRAPHY*

OFC	(offshore financial centres)
– OOFc	(only countries which are offshore centres)
– TAXHAV	(only countries which are tax havens)
ISLE	(countries which are islands)
– OISLE	(only country which are islands)
– ARC	(only country which are archipelagos)
LANDL	(landlocked countries)

* For the construction of *OFC* and *TAXHAV* see FINANCIAL STABILITY FORUM (2000) and OECD (2000); *OOFc=OFC-TAXHAV*.

TABLE 3

SMALL STATES

no.	cod.	small state	GDP	POP
1	COM	Comoros	631.65	339,913
2	GNB	Guinea-Bissau	643.81	738,790
3	CPV	Cape Verde	746.30	295,418
4	BTN	Bhutan	778.09	577,036
5	GMB	Gambia, The	803.17	628,440
6	GNQ	Equatorial Guinea	898.92	355,872
7	DJI	Djibouti	1478.5	343,809
8	BWA	Botswana	1,515.92	879,780
9	GUY	Guyana	1,629.98	719,327
10	VUT	Vanuatu	1,633.28	144,836
11	KIR	Kiribati	1,644.43	62,597
12	WSM	Samoa	1,843.66	159,741
13	SLB	Solomon Islands	1,845.28	299,209
14	MDV	Maldives	1,908.43	200,683
15	TON	Tonga	1,974.79	95,719
16	SYC	Seychelles	2,213.67	58,943
17	REU	Reunion	2,252.89	495,989
18	SWZ	Swaziland	2,358.21	556,006
19	GRD	Grenada	2,631.77	91,791
20	DMA	Dominica	2,810.72	72,931
21	SUR	Suriname	2,876.53	377,652
22	FJI	Fiji	3,149.05	601,534
23	LCA	St. Lucia	3,264.29	148,022
24	VCT	St. Vincent and the Grenadines	3,311.93	106,590
25	BLZ	Belize	3,548.07	178,119
26	GAB	Gabon	3,853.47	777,085
27	MLT	Malta	4,048.90	340,970
28	MUS	Mauritius	4,092.01	915,763
29	KNA	St. Kitts and Nevis	4,398.99	41,830
30	CYP	Cyprus	5,084.41	637,830
31	ATG	Antigua and Barbuda	5,329.38	63,031
32	BRB	Barbados	5,340.76	247,009
33	ISL	Iceland	9,689.37	223,180
34	BHR	Bahrain	10,341.80	418,762
35	BHS	Bahamas, The	11,135.56	236,699
36	LUX	Luxembourg	11,934.22	358,413
37	BMU	Bermuda	15,356.33	58,094
38	RSM	San Marino	15,792.84	23,515
39	QAT	Qatar	18,278.49	383,579

3. - Empirical Analysis

3.1 *Income Level and the Role of Investments*

As we have previously pointed out, if small states were at any disadvantage because of their size, they should be on average poorer than the others. This aspect has been studied by carrying out the regression of the logarithm of the average real *per capita* GDP adjusted for the PPP in the period 1960-1995 with reference to a series of variables which take into consideration: *a*) the geographical location of the single countries⁶; *b*) whether they are oil exporters (OIL) and *c*) whether they are members of the OECD⁷. The results are illustrated in Table 4. As shown in column (1), the small states do not seem to suffer from any particular disadvantage. The coefficient of the small states dummy (*MICROSTATE*) shows that on average they are 42% ($\exp[0.353]-1$) richer than other countries in the same geographical region. The regression of column (2) takes into account the full set of dummy variables indicated in Table 2 and the small states dummy as well. *MICROSTATE*, *OISLE*, *ARC* and *LANDL* are not significant, while *OOF* and *TAXHAV* show interesting values. The correlation matrix shows that *MICROSTATE* attracts above all tax havens and archipelagos. In order to avoid any problems of collinearity, in column (3) *MICROSTATE* has been replaced with the other dummies. See how *TAXHAV* enters the regression with a positive and statistically highly significant coefficient. In particular these countries result to be on average 68% ($\exp[0.517]-1$) richer than other countries in the same geographical area. On the contrary *LANDL* has a negative coefficient, but at a confidence level of only 8.6%. Column (4) shows that tourism specialisation does not seem to affect the income level once controlled for financial specialisation.

⁶ Each regression includes the five geographical dummies: Sub-Saharan Africa, Asia, Europe and Central Asia, Middle East and North Africa, Americas. These are always significant and have not been indicated in the tables in order to make the argumentation clearer.

⁷ All the regressions have been repeated controlling for *OECD* as an endogenous function of the income, but its exclusion does not modify the obtained results.

TABLE 4

INCOME LEVEL IN SMALL STATES*

	$LN(QAV6095)$ (1)	$LN(QAV6095)$ (2)	$LN(QAV6095)$ (3)	$LN(QAV6095)$ (4)	$LN(QAV6095)$ (5)
<i>OECD</i>	1.101 (0.000)	1.045 (0.000)	1.068 (0.000)	1.108 (0.000)	1.116 (0.000)
<i>OIL</i>	0.932 (0.000)	0.931 (0.000)	0.930 (0.000)	0.975 (0.000)	0.963 (0.000)
<i>MICROSTATE</i>	0.353 (0.001)	0.123 (0.361)			
<i>OOFC</i>		0.743 (0.003)	0.754 (0.003)	0.682 (0.007)	
<i>TAXHAV</i>		0.350 (0.044)	0.517 (0.000)	0.469 (0.004)	
<i>OISLE</i>		0.145 (0.329)			
<i>ARC</i>		0.102 (0.554)			
<i>LANDL</i>		-0.174 (0.148)	-0.201 (0.086)		
<i>OFC</i>					0.572 (0.000)
<i>TOURISM</i>				0.130 (0.480)	
R^2	0.698	0.729	0.724	0.720	0.718
<i>Obs.</i>	164	164	164	164	164

Legend:

$LNQAV(6095)$ = logarithm of the average real *per capita* GDP at PPP in the period 1960-1995; *OECD* = OECD members; *OIL* = OIL exporters; *MICROSTATE* = small states; *OOFC* = *OFC* - *TAXHAV*; *TAXHAV* = tax havens; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked; *OFC* = offshore financial centres; *TOURISM* = tourism countries as reported by BRAU R. - LANZA A. - PIGLIARU F. (2003).

* *t* statistics in parentheses (*p*-values).

Finally, the last column of Table 4 shows that merely replacing *MICROSTATE* with *OFC* we obtain a better regression model. Therefore the differences in the economic performance of the various countries seem to be better explained by being a financial centre or a tax haven rather than size. If financial specialisation is considered as a particular form of opening to international markets, this result could point out an important mechanism through

which the small states have managed to overcome the problems related to size. With international openness market size no longer corresponds to the state size and therefore, it makes the existence of small autonomous communities economically viable (Alesina and Spolaore, 1997; Alesina, Spolaore, and Wacziarg, 2000). In particular, the income of a country would be positively related to its size as well as its level of commercial openness (Frankel and Romer, 1999; Alcalà and Ciccone, 2004) and the more the economic integration increases the more irrelevant its size (Alesina, Spolaore and Wacziarg, 2003). However, the specialization in the financial sector might affect the income level also through the positive influence of the “quality” of the institutions (Hall and Jones, 1999; Acemoglu, Johnson and Robinson, 2001). In fact, if the success of an offshore centre (or a tax haven) on a macro-economic level also depends on the willingness to integrate with the nearby regions, on a micro-economic level the most important factors refer to the perceived stability of the political and economic institutions of the country (Bowe, Briguglio and Dean, 1998). Referring back to other in-depth works of such issues (for example Rodrik, Subramanian and Trebbi, 2002), it is worth noting at this point that the encouragement to specialize in the financial sector might be greater for the small states as long as it is a sector with high added value mainly based on the human capital in which the economies of scale do not depend on the national market size (Kaufman, 2000; Suss, Williams and Mendis, 2002). Therefore, for many small states becoming a tax haven would represent an important opportunity for economic development.

Following the Mankiw, Romer and Weil (1992) formulation of the neoclassical Solow growth model, we have tried to understand if the *per capita* income advantage of small states can be explained by the higher investment rates or the higher productivity levels. To do this, let's consider a Cobb-Douglas production function:

$$(1) \quad Y = K^\alpha [AL]^{1-\alpha}$$

in which Y is the income, K the capital, L the labour and A the

level of technology. According to Solow's model, the steady state capital-labour ratio is given by the expression:

$$(2) \quad k = \left(\frac{s}{n + g + \delta} \right)^{\frac{\alpha}{1-\alpha}}$$

By replacing (2) in (1) and calculating the logarithm of the *per capita* output, we obtain:

$$(3) \quad \ln\left(\frac{Y}{L}\right) = \ln A + \frac{\alpha}{1-\alpha} [\ln s - \ln(n + g + \delta)]$$

The first term in equation (3) represents the real *per capita* GDP adjusted for PPP, $\ln A$ is nothing else but Solow's residue, s is the investment/GDP ratio and n the population growth rate (*DPOPAV*), g (the productivity growth rate) and δ (the amortisation rate) have been attributed the values given by Easterly and Kraay, i.e. 2% and 7%. Once we have calculated the second term in equation (3) indicated with the *MRW* variable, we regress the real *per capita* GDP on the same dummies mentioned above as well as the *MRW* variable. The results appear in Table 5.

In column (1) it is possible to see how the *MICROSTATE* variable is not greatly significant, unlike *MRW*. In particular the *MICROSTATE* coefficient is about one-half (0,174/0,353) the value assumed in column (1) of Table 4.

In the light of such results Easterly and Kraay come to the conclusion that this one-half of the income advantage is to be attributed to the greater productivity of the small states, but the results which are obtained do not eliminate all doubts from this conclusion. In fact, looking at column (2), in which the dependent variable *RESID* is the distribution of the Solow residue, it is noticed how small dimension implies diseconomies of scale, but do not seemed to be a problem when the small states are tax havens or offshore financial centres (indicated with the dummy *MICROOFC*). Some mechanisms that could explain how the small

TABLE 5

THE ROLE OF INVESTMENTS*

	<i>LN(QAV6095)</i> (1)	<i>RESID</i> (2)	<i>LN(IQPPP)</i> (3)	<i>LN(IQPPP)</i> (4)	<i>DPOPAV</i> (5)
<i>OECD</i>	1.053 (0.000)	0.977 (0.000)	0.150 (0.291)	0.138 (0.348)	-0.003 (0.158)
<i>OIL</i>	0.776 (0.000)	0.724 (0.000)	0.164 (0.322)	0.155 (0.359)	0.006 (0.008)
<i>MICROSTATE</i>	0.174 (0.118)	-0.265 (0.094)	0.404 (0.000)	0.370 (0.010)	-0.004 (0.011)
<i>MICROOFC</i>		0.438 (0.042)			
<i>OOFC</i>				0.213 (0.383)	
<i>TAXHAV</i>				0.028 (0.882)	
<i>OISLE</i>				0.100 (0.494)	
<i>ARC</i>				0.086 (0.628)	
<i>LANDL</i>				-0.059 (0.627)	
<i>MRW</i>	0.396 (0.000)				
<i>R²</i>	0.756	0.445	0.453	0.460	0.643
<i>Obs.</i>	151	151	151	151	151

Legend:

LNQAV(6095) = logarithm of the average real *per capita* GDP at PPP in the period 1960-1995; *RESID* = distribution of the Solow's residue, calculated for each country as $LNQAV(6095) - [\alpha/(1-\alpha)]MRW$; *LN(IQPPP)* = logarithm of the Investment/GDP ratio; *DPOPAV* = population average growth rate in the period 1960-1995; *OECD* = OECD members; *OIL* = OIL exporters; *MICROSTATE* = small states; *MICROOFC* = *MICROSTATE***OFC*; *OOFC* = *OFC* - *TAXHAV*; *OFC* = offshore financial centres; *TAXHAV* = tax havens; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked; $MRW = [\ln(s) - \ln(n+g+\delta)]$ see equation (3) of Paragraph 3.1. for details.

* *t* statistics in parentheses (*p*-values).

states have manage to overcome diseconomies of scale are analysed in-depth in section 3.2, what is worth noting at this point is the great relevance of investments in the small states.

Since for (2) and (1) we have:

$$(4) \quad \frac{Y}{L} = A \left(\frac{s}{n+g+\delta} \right)^{\frac{\alpha}{1-\alpha}}$$

it is possible to factorise *MRW* according to the numerator and denominator of (4) and the results are shown in the remaining columns of Table 5.

As it can be seen from column (3), where the dependent variable is the logarithm of the investment to GDP ratio, *MICROSTATE* has a positive and highly significant coefficient equal to 0.404. The same regression has been repeated by adding the other dummies (column (4)). *MICROSTATE* remains positive and significant, while the other dummies do not, even when *MICROSTATE* is eliminated from the regression in order to avoid any possible problem of collinearity. The factors which can explain the high level of investments should therefore be found in other features that characterise small economies. One explanation could be found in the fact that the close personal relationships of a small community make it possible to implement, adopt and modify the most rapid and accurate decisions which can also obtain the highest social consensus. The greater ease in reaching optimum choices, especially in the bottom-up decision making process, might result in better institutions and stimulate investment decisions. It is worth noting that this conclusion would be aligned with the results of Alcalà and Ciccone (2004), according to which the quality of institutions would affect the capital accumulation process and trade the productivity level. Finally, the last column of Table 5, shows that small states do not have population growth rates significantly lower than the other countries. Therefore they would not have any special advantages in terms of capital extension.

3.2 *Economic Growth: International Trade and Income Volatility*

The endogenous growth theory acknowledges that the size of a country has a beneficial effect on the economic growth rate. In

fact, if size decreases it is more difficult to exploit economies of scale. Although some models which are based on the endogenous growth theory (as the one put forward by Lanza and Pigliaru, 2000) have shown that this does not always entail low growth rate, this aspect has been studied by carrying out regressions in which the real *per capita* GDP growth rate is the dependent variable. Table 6 reports the results. As it can be seen from column (1), *MI-*

TABLE 6

ECONOMIC GROWTH*

	<i>DQAV6095</i> (1)	<i>DQAV6095</i> (2)	<i>DQAV6095</i> (3)
<i>OECD</i>	0.005 (0.353)	0.005 (0.351)	0.010 (0.088)
<i>OIL</i>	-0.016 (0.015)	-0.016 (0.016)	-0.001 (0.909)
<i>MICROSTATE</i>	0.006 (0.154)		
<i>LN(QIN)</i>			-0.017 (0.000)
<i>SECENRAV</i>			0.000 (0.000)
<i>OPENTAV</i>			0.012 (0.000)
<i>DQSD6095</i>			-0.182 (0.020)
<i>OISLE</i>		0.004 (0.435)	
<i>ARC</i>		-0.007 (0.248)	
<i>LANDL</i>		-0.004 (0.381)	
<i>OFC</i>		0.015 (0.004)	
R^2	0.184	0.235	0.555
<i>Obs.</i>	163	163	132

Legend:

DQAV6095 = real *per capita* GDP average growth rate in the period 1960-1995; *OECD* = OECD members; *OIL* = OIL exporters; *MICROSTATE* = small states; *LN(QIN)* = logarithm of the real *per capita* GDP in the first available year; *SECENRAV* = secondary school enrolment rate; *OPENTAV* = trade openness measured as (imports + exports)/GDP; *DQSD6095* = standard deviation of the real *per capita* GDP growth rate; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked; *OFC* = offshore financial centres.
t statistics in parentheses (*p*-values).

CROSTATE is not significant. It would therefore seem that size cannot explain the difference in the economic growth rates. In column (2), by replacing *MICROSTATE* with the usual dummy variables, we can see how only *OFC* is significant; this indicates that the countries which it characterises could have a small advantage in the race to development.

In the literature several studies agree with the commonly held idea that trade openness is positively correlated to economic growth (Sachs and Warner, 1995; Ades and Glaeser, 1999; Frankel and Romer, 1999; Alesina, Spolaore and Wacziarg, 2003; Alcalà and Ciccone, 2004).⁸ Trade openness indeed, would affect the national income by increasing productivity. However, trade openness can expose to a higher income volatility which, according to what has been shown by Ramey and Ramey (1995), would negatively influence the economic development. In column (3) the logarithm of the real *per capita* GDP in the first available year captures possible convergence effects. In fact, the richest countries grow less rapidly than the poorer ones because of the convergence effect towards the steady state. The secondary school enrolment rates, indicated as *SECENRAV*, become zero. On the contrary, the degree of trade openness measured as the share of imports and exports on GDP (*OPENTAV*), and the standard deviation of the income growth rates (*DQSD6095*) show the expected signs (respectively '+' and '-'). Since the small countries are very open to international trade, the scarce significance of *MICROSTATE* in column (1) could be due to the capacity some of them have of grasping above all the positive aspects of this situation (for example by diversifying the risks through the opening to international financial flows) and to the excessive exposure of the others to the negative aspects only. Thus, there might be a compensation effect within the sample. In particular we have tried to understand whether the small states which have specialised in the financial sector are more open to international trade and whether they are actually in a position to keep at bay the volatility of their income. As we can observe in column (1) of Table 7, *MICROSTATE* is very significant, unlike *OECD* and *OIL*, thus con-

⁸ Yet, more critical opinion exists. See for example: RODRIK D. - RODRIGUEZ F. (2000); WACZIARG R. - WELCH K.H. (2003).

TABLE 7

TRADE OPENNESS*

	<i>OPENTAV</i> (1)	<i>OPENTAV</i> (2)	<i>OPENTAV</i> (3)	<i>OPENTAV</i> (4)
<i>OECD</i>	-0.130 (0.252)	-0.183 (0.059)	-1.999 (0.048)	-0.120 (0.239)
<i>OIL</i>	0.151 (0.230)	0.175 (0.099)	0.179 (0.104)	0.194 (0.088)
<i>MICROSTATE</i>	0.536 (0.000)	0.302 (0.000)		
<i>OOFC</i>		1.068 (0.000)	1.109 (0.000)	
<i>TAXHAV</i>		0.348 (0.001)	0.523 (0.000)	
<i>OISLE</i>		0.212 (0.020)	0.258 (0.006)	
<i>ARC</i>		-0.100 (0.342)	0.226 (0.028)	
<i>LANDL</i>		-0.010 (0.891)	0.006 (0.939)	
<i>OFC</i>				0.765 (0.000)
R^2	0.286	0.521	0.479	0.422
<i>Obs.</i>	152	152	152	152

t statistics in parentheses (*p*-values).

Legend:

OPENTAV = trade openness measured as (imports + exports)/GDP; *OECD* = OECD members; *OIL* = OIL exporters; *MICROSTATE* = small states; *OOFC* = *OFC* - *TAXHAV*; *TAXHAV* = tax havens; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked; *OFC* = offshore financial centres.

t statistics in parentheses (*p*-values).

firming the importance that small states have in terms of international trade. In column (2) on the contrary, we can observe how the countries which are identified as *OOFC* and *TAXHAV* have higher trade ratios than the average of small states. As usual the same regression has been repeated by eliminating *MICROSTATE* and all the remaining dummy variables have assumed a positive and significant coefficient with the exception of *LANDL*. At last, column (4) shows how replacing *MICROSTATE* with *OFC* improves the

model. In conclusion we seem to have a confirmation to the hypothesis that offshore financial centres and tax havens are, with respect to others, more open to international trade. Obviously the cause/effect relation could also be twofold: *OFCs* are richer and therefore they have higher trade to GDP ratios; *OFCs* have higher trade to GDP ratios and therefore they are richer. Because of the high levels of trade, column (1) of Table 8 illustrates how small

TABLE 8

TOURISM AND TAX HAVENS*

	<i>DQSD6095</i> (1)	<i>DQAV6095</i> (2)	<i>DQAV6095</i> (3)	<i>SECENRAV</i> (4)
<i>OECD</i>	-0.026 (0.000)	0.006 (0.294)	0.007 (0.248)	27.826 (0.000)
<i>OIL</i>	0.018 (0.002)	-0.015 (0.027)	-0.015 (0.019)	7.204 (0.186)
<i>MICROSTATE</i>	0.014 (0.000)			-2.403 (0.594)
<i>OOFC</i>				-2.754 (0.721)
<i>TAXHAV</i>			0.013 (0.013)	19.497 (0.004)
<i>OISLE</i>				6.639 (0.185)
<i>ARC</i>				6.648 (0.259)
<i>LANDL</i>				-3.206 (0.410)
<i>TOURISM</i>		0.012 (0.038)		
R^2	0.394	0.196	0.205	0.726
<i>Obs.</i>	163	163	163	138

Legend:

DQSD6095 = standard deviation of the real *per capita* GDP growth rate in the period 1960-1995; *DQAV6095* = real *per capita* GDP average growth rate; *SECENRAV* = secondary school enrolment rate; *OECD* = OECD members; *OIL* = OIL exporters; *MICROSTATE* = small states; *OOFC* = *OFC* - *TAXHAV*; *OFC* = offshore financial centres; *TAXHAV* = tax havens; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked; *TOURISM* = tourism countries as reported by BRAU R., LANZA A. and PIGLIARU F. (2003).
t statistics in parentheses (*p*-values).

states have an income volatility which is 1.4% higher than larger countries. However, before analysing this issue into greater depth, we must consider other factors which can have an influence on the economic growth of small states.

3.3 *Tourism*

Brau, Lanza and Pigliaru (2003), have studied the role played by tourism specialisation in the economic development of a country and, as a starting point, they use Easterly and Kraay's dataset (with a sample limited to 143 states). The growth rates of 14 tourism countries, which can all be classified as small states since having a population lower than a million inhabitants in the period 1960-1995, have been compared with those of other sub-groups (OECD members, OIL exporters, less developed countries) and have demonstrated to be the highest. It is interesting to notice that, with the exception of Fiji, all the tourism countries analysed by Brau, Lanza e Pigliaru are tax havens. These countries have been labelled with the *TOURISM* dummy and a regression has been carried out in order to compare them with *TAXHAV*. Columns (2) and (3) of Table 8, show that both dummies are significant at a level below 5% and have practically identical coefficients. Actually, the two dummy variables could grasp the same explanation factor given that their correlation coefficient is 0.63. Furthermore, when the variables are introduced in the regression at the same time, they both lose their significance (column (4)). It is difficult to give a final answer when other data is absent, however it is clear that tourism is a very important development opportunity for small states, for which it might be really difficult to fight on equal terms with the larger, industrialised countries. According to Suss, Williams and Mendis (2002) the small countries which have decided to become tax havens needed skilled workers, infrastructures, and the publicity which has followed the financial sector's promotion has had beneficial effects also on other sectors, such as tourism. It might not be by chance, therefore, that the small countries which have been able to specialise on tourism are all

tax havens. In this case an important role might have been played by the human capital accumulated in the meantime, which might have given these small communities the ability to make better investment decisions and exploit trade opportunities as well as those offered by tourism (as it can be noticed in the last column of Table 8 the tax havens have high secondary school enrolment rates).

3.4 *Terms of Trade Volatility*

If we go back to the negative aspects of international trade, it is interesting to wonder if income variability in small countries can be mainly attributed to the high share of trade on GDP or to the excessive reliance on a few export products. These factors could influence the GDP volatility through the variations in the terms of trade, which are often considered to be one of the most important causes of fluctuations in the economic growth rates. To investigate these aspects Easterly and Kraay compare the results of two regressions in which, in one case the dependent variable is the standard deviation of the terms of trade growth weighted by the share of imports and exports on GDP; in the other case the standard deviation of the unweighted terms of trade growth. According to the authors, if the *MICROSTATE* dummy was significant only in the former case, this would give a clear signal that the terms of trade in small states is more influenced by volumes than by trade specialisation. The results of these controls are indicated in Table 9, where the dependent variables *DTTSD* and *DTTUSD* represent respectively the volatility of the terms of trade with and without the share of trade and *COMMOD* indicates the non-OIL commodity exporters. According to the findings of Easterly and Kraay, *MICROSTATE* is significant in column (1) but not in column (3), while columns (2) and (4) show the role played by specialisation in the financial sector. In column (2) neither *OOFC* nor *TAXHAV* are statistically significant. In column (4), instead, (even though *OOFC* is significant at 6%) both variables have the negative sign. The results could show a situation in which the

TABLE 9

TERMS OF TRADE VOLATILITY*

	<i>DTTSD</i> (1)	<i>DTTSD</i> (2)	<i>DTTUSD</i> (3)	<i>DTTUSD</i> (4)	<i>DQSD6095</i> (5)	<i>DQSD6095</i> (6)
<i>COMMOD</i>	0.008 (0.058)	0.008 (0.050)	0.024 (0.086)	0.017 (0.205)	0.007 (0.066)	0.007 (0.068)
<i>OIL</i>	0.024 (0.000)	0.024 (0.000)	0.079 (0.000)	0.072 (0.001)	0.013 (0.038)	0.014 (0.032)
<i>MICROSTATE</i>	0.011 (0.018)		-0.019 (0.256)		0.019 (0.000)	0.020 (0.000)
<i>DTTSD</i>					0.272 (0.004)	0.270 (0.004)
<i>OOFC</i>		0.001 (0.921)		-0.048 (0.061)		-0.007 (0.340)
<i>TAXHAV</i>		0.003 (0.722)		-0.056 (0.029)		0.006 (0.477)
<i>OISLE</i>						-0.007 (0.134)
<i>ARC</i>						-0.014 (0.027)
<i>LANDL</i>						-0.003 (0.510)
<i>R</i> ²	0.492	0.465	0.463	0.496	0.519	0.552
<i>Obs.</i>	114	114	114	114	114	114

Legend:

DTTSD = standard deviation of the terms of trade; *DTTUSD* = standard deviation of the unweighted terms of trade; *DQSD6095* = standard deviation of the real *per capita* GDP growth rate; *COMMOD* = non-OIL commodity exporters; *OIL* = OIL exporters; *MICROSTATE* = small states; *OOFC* = *OFC* - *TAXHAV*; *OFC* = offshore financial centres; *TAXHAV* = tax havens; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked.

t statistics in parentheses (*p*-values).

small states specialised in the financial sector are more able than the others to reduce their terms of trade volatility. In column (5) we regress the real *per capita* GDP volatility on the standard deviation of the terms of trade. Although appearing in the regression of this last variable, *MICROSTATE* has a positive and statistically high significant coefficient. The result seems to suggest that in small states, besides the possible variations in the terms of trade, the higher income volatility is linked also to other factors.

Easterly and Kraay identify one of these factors in the fact that many small states are often located in areas prone to natural disasters such as hurricanes and floods, which would have a negative impact on income. The results of column (6) do not seem to support this consideration. Intuitively, the regions which are usually hit by such natural disasters would lead us to think that most of the relevant small countries consist principally of islands and archipelagos, but the former dummy variable is not significant, while the latter has a sign opposite to the expected one. As we have already said, every regression takes into consideration the geographical location of the countries by dividing them into five main areas. If we classify them according to their coefficient magnitude we notice that the greatest contribution to income volatility is given by the countries situated in Africa and in the Middle East, i.e. countries which are hit more by political, religious and racial conflicts than by natural disasters. In the study by Atkins and Mazzi (1999) for the construction of the *Commonwealth Composite Vulnerability Index*, the volatility of the real *per capita* GDP at PPP is used as a proxy of the economic vulnerability for a sample of 32 small countries (defined as countries with less than 1.5 million inhabitants) and put into relation to three variables: susceptibility to natural disasters; export dependence and lack of diversification. The results show that the degree of incidence of natural disasters on the GDP volatility in small countries is only 0.007, i.e. a very modest value. By underlining that small countries are more exposed to natural disasters, Briguglio (1995) stresses the absence of statistical correlation between these events and the *per capita* GDP of a country. Therefore, the data seems to suggest a different picture from that drawn by the two authors. The inability of the particular environmental conditions to influence the income volatility in small states might once more be an indirect proof of the success of these countries to cope with difficult situations through a greater financial openness, or, more simply, the acknowledgement of the importance of international aids. Thus the causes of a greater volatility could be found in other aspects such as political instability. Farrugia (1993, p. 223) underlines that, if small communities reach high levels of social cohe-

sion, once this deteriorates, the divisions that ensue run deep and even minor issues «assume national dimensions in small states». In small countries, however, it is likely that real situations of instability (i.e. accompanied by social conflicts, strikes, governmental crises - which are all easily noticed and evaluated) are more likely replaced by situations of “political uncertainty” which are much more difficult to grasp. So, instability could only consist in a deterioration or a temporary paralysis of all decision making activities whose efficiency, as we have seen when discussing the role of investments, could be a very important factor for the economy of a small state.

3.5 *Financial Openness*

In conclusion, Easterly and Kraay (2000), suggest that small states can take advantage by further opening up their financial markets in order to diversify their risks. The validity of their suggestion has been verified and the results are shown in Table 10.

The way through which the financial openness could help a country to diversify the risk of undergoing shocks is that of making investments in foreign activities whose returns are not perfectly correlated with returns to domestic assets. Obviously the benefits which this creates depends on the magnitude and the degree of specificity of the shock. In column (1) of Table 10, the dependent variable, indicated as *DQCOR*, represents the degree of correlation of the real *per capita* GDP growth rate with the real *per capita* GDP average growth rate of the OECD countries. On the contrary, the independent variables include the logarithm of the average real *per capita* GDP so as to capture the fact documented by Kraay and Ventura (1998). As it can be noticed *MI-CROSTATE* is not statistically significant, which makes it impossible to draw any conclusion on the link between the economic cycle of the countries which have been identified by the dummy and that of the OECD countries. Therefore, to verify whether small states are capable of diversifying the risks, two different measures of financial openness have been considered in the other columns.

TABLE 10

FINANCIAL OPENNESS*

	<i>DQCOR</i> (1)	<i>KARESTAV</i> (2)	<i>KARESTAV</i> (3)	<i>OPENFAV</i> (4)	<i>OPENFAV</i> (5)
<i>OECD</i>		-0.381 (0.000)	-0.440 (0.000)	0.051 (0.004)	0.052 (0.002)
<i>OIL</i>	-0.089 (0.229)	-0.227 (0.021)	-0.249 (0.009)	-0.004 (0.804)	-0.001 (0.937)
<i>MICROSTATE</i>	0.018 (0.703)	0.012 (0.845)		0.035 (0.002)	
<i>LNQAV</i>	0.133 (0.000)				
<i>OOFC</i>			-0.533 (0.003)		0.125 (0.000)
<i>TAXHAV</i>			-0.197 (0.013)		0.051 (0.000)
<i>OISLE</i>			0.171 (0.038)		
<i>ARC</i>					
<i>LANDL</i>					
<i>R</i> ²	0.356	0.276	0.286	0.196	0.332
<i>Obs.</i>	155	143	143	135	135

Legend:

DQCOR = correlation of the real *per capita* GDP growth rate with the real *per capita* GDP average growth rate in OECD countries; *KARESTAV* = capital controls as defined in EASTERLY W. - KRAAY A. (2000); *OPENFAV* = (financial account inflows + financial account outflows)/GDP; *OECD* = OECD members; *OIL* = OIL exporters; *MICROSTATE* = small states; *LNQAV* = logarithm of the average real *per capita* GDP; *OOFC* = *OFC* - *TAXHAV*; *OFC* = offshore financial centres; *TAXHAV* = tax havens; *OISLE* = islands; *ARC* = archipelagos; *LANDL* = landlocked. *t* statistics in parentheses (*p*-values).

The first, *KARESTAV*, reflects the fraction of years in which the IMF has recorded the presence of restrictions on capital account transactions. In column (2) *MICROSTATE* is not significant, unlike *OOFC* and *TAXHAV* in column (3). Therefore the fact that *MICROSTATE* is not significant in column (1) might be due to the circumstance that only some small states (i.e. the ones specialised in the financial sector) are able to diversify their risks. Following this interpretation, it must be noticed that *OISLE* assumes a posi-

tive coefficient and this result might reflect the greater difficulty that non-*OFC* islands encounter in diversifying their risks. Finally *ARC* does not enter the regression because of the strong correlation with *TAXHAV*, while *LANDL* is never significant.

The second measure of financial openness, indicated as *OPENFAV* (columns (4) and (5)), is given by (capital inflows + outflows)/GDP. In this case *MICROSTATE* has a positive and significant coefficient and so do *OOFC* and *TAXHAV* (column (5)). The data seem to show that capital flows are so high in *OFCs* as to make even *MICROSTATE* significant.

When combining these data with those of Table 9, we obtain a more complex picture than those drawn by Easterly and Kraay. According to the two authors, small states are not fully exploiting the opportunities for risk diversification by opening up to international capital movements. In particular, small states are not as financially open as they might be given the high volatility they face. Though this situation may be true for some of them, it would be better not to draw general conclusions. Many small states have specialised exactly in the financial sector, thus becoming off-shore centres or tax havens, putting themselves in the most favourable condition to succeed in moderating the impact of "country specific" shocks. Support to this evidence is given by the OECD's recent action on counteracting harmful tax competition. The OECD (2000) identified the tax haven countries and, with the exception of Liberia, these are all small states.

4. - Conclusions

This work has stressed the importance of the role that investments, tourism and trade openness have for small states. These factors are not influenced by being an island, an archipelago or by being landlocked. On the contrary being a tax haven or an off-shore financial centre has revealed to be a winning move for many small states. Though specialising in the financial sector is no sufficient condition for economic development, still it could have indirect effects on other important aspects leading to growth, such

as risk diversification, the capacity to make better decisions as far as investments are concerned and the capacity to develop other sectors such as tourism.

In contrast with the findings of Easterly and Kraay (2000), there is no final evidence for a higher productivity of small states. The hypothesis of the two authors, according to which the high income volatility of small states might be partially due to the risk of natural disasters, is denied both by empirical analysis and by other authors. At last there are no elements to support Easterly and Kraay's thesis according to which small states are not taking full advantage of the opening to the international flow of capitals. Though this could be true for some of them many others have specialised exactly in the financial sector and have become tax havens. The concern about this issue is shown by the OECD's recent action on counteracting harmful tax competition. The OECD (2000) identified the tax haven countries and, with the exception of Liberia, these are all small states. The relevance of having good international relationships to ensure economic integration has led to a great reduction in the number of tax haven countries (from a number of 35 in 2000 to a number of 5 in 2004, data source OECD). Therefore, it would be interesting to analyse, in further research, the effects of counteracting tax competition on the international openness and the economy of small states, especially in area such as the EU, which are characterized by a deep economic integration process.

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