

VI. Smallness and Policy

The previous two chapters have made a strong case that small and very small countries face seriously inflated business costs. We have earlier adduced a number of structural reasons why this may be so, but there is another possible explanation. Perhaps, because of ignorance, differences in the political economy of different sized economies or the imperatives of funding the fixed costs of government, small economies have worse economic policies than larger ones. We cannot discuss this matter in detail, but this final chapter looks at several traditional indicators of policy stances to see if there are signs of a relationship with size. The methods are those of chapter IV on business costs and our conclusion is that there is no evidence that small economies have worse policy stances.

VI. Smallness and Policy

1. Bank Interest Rates

Data Sources

Data on GDP and Population were obtained from the same sources as before. Information on bank interest rates was taken from the Survey.

Data concerns

For this section we have information on bank lending and bank deposit rates. The survey also asked if there is a special rate for exports. We needed to calculate averages for some countries since they stated a range of values instead of a unique rate. However, these ranges were generally small. We also had to make some decisions concerning the data. Below are three examples of the problems encountered in the dataset.

Table 6.1 Data Decisions for Bank Interest Rates

Country	Question	Remarks	Decision
Palau	Lending Rate	Current US prime rate plus up to 4% per cent	10.9%
Seychelles	Deposit Rate	3 % (Fixed/Long term 4-5 %)	4.0%
Vanuatu	Deposit Rate	2.5 per cent for Saving accounts 5 + per cent for fixed deposit accounts	3.75%

In the case of Palau, we used the US bank lending rate, stated in the respective survey, and added 4 percentage points. We also decided to consider a 4% deposit rate for Seychelles and 3.75% for Vanuatu

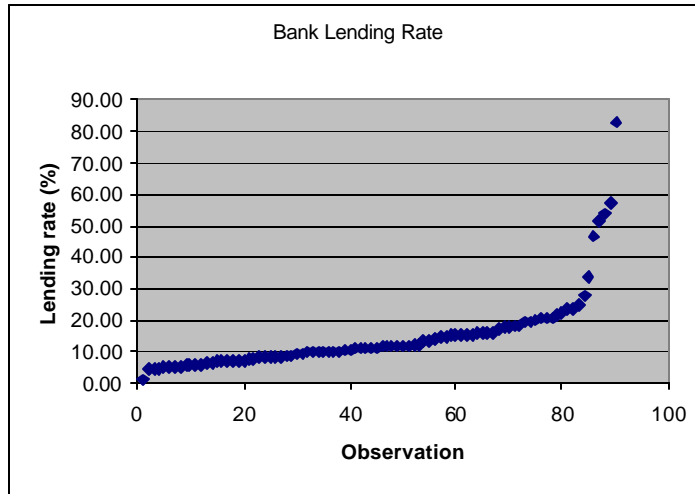
Table 6.2 Missing Observations for Bank Interest Rates

Lending Rate	Deposit Rate
Nauru	Mozambique
Pakistan	Nauru

Descriptives

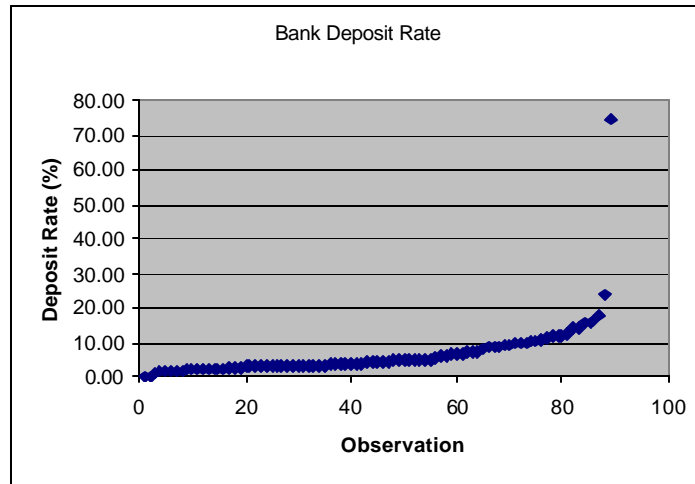
Plotting the data identifies some outliers, which are either high inflation countries (e.g. Turkey) or countries in crisis (e.g. Argentina and Brazil).

Figure 6.1 Bank Lending Rate



The plot below shows Turkey with a bank deposit rate of 74.7%, and Ireland with the same deposit rate as Japan (which is 0.1%). We confirmed all values back in the surveys and also using several Internet resources (e.g. Central Bank of Ireland website).

Figure 6.2 Bank Deposit Rate



We then plotted both rates against population. On the bank lending rate, there may exist a negative trend in the observations, while bank deposit rates (excluding Turkey for observational purposes) seem to have heteroscedastic observations and a possible positive trend (figure 6.4).

Figure 6.3 Bank Lending Rate vs. Population

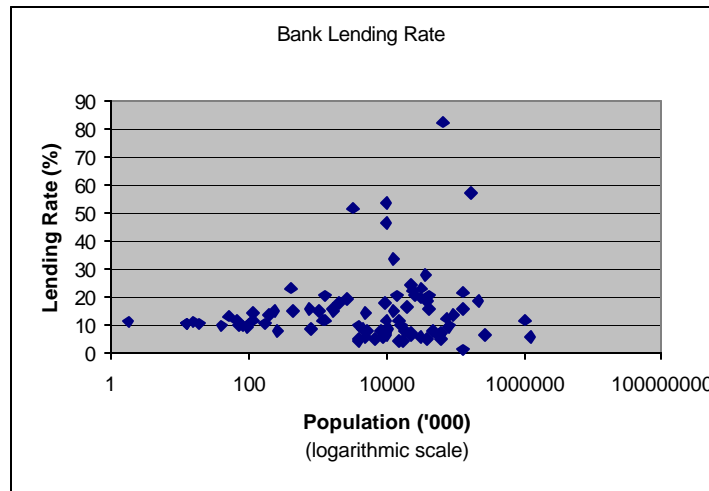
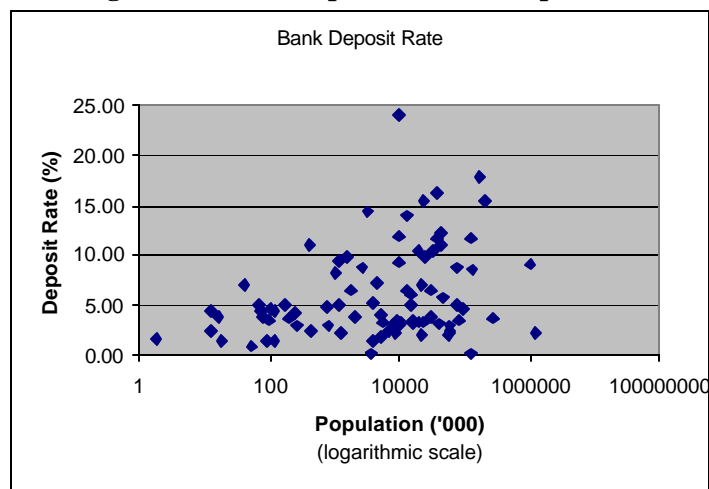


Figure 6.4 Bank Deposit Rate vs. Population



In the above graph we can see Japan and Ireland with very low bank deposit rates.

Analysis of Size

We have used the following specification:

$$\text{Interest Rate} = \alpha_0 + \alpha_1 * \text{Ln}(\text{GDPc}) + \alpha_2 * \text{Ln}(\text{Pop}) + \alpha_3 * [\text{Ln}(\text{Pop})]^2$$

This specification differs from the typical log-log form used until now. We opted to use a linear-log specification since this section will start dealing with percentages, which are, broadly speaking, scale free. The logic is that a one percentage point increase in interest rates imposes the same costs whether it starts from 1% or 20%.

Results

Table 6.3 Results for Bank Interest Rates

	Lending¹		Deposit²
constant	10.742	constant	3.892
	4.969		4.230
LnGDPc	-2.630	LnGDPc	-1.078
	-9.562		-5.123
LnPop	1.561	LnPop	0.322
	2.395		3.893
LnPop2	-0.107	-	
	-2.400		
Wald-test (pop)	5.8128 [.055]	-	
R-squared	0.50	R-squared	0.29
obs.	82	obs.	83

¹ Turkey (+), Brazil (+), Uruguay (+), Malawi (+), Zambia (+), Argentina (+), Zimbabwe (+) and Mozambique (-) were excluded due to normality problems. The t-statistics use the White's adjusted standard errors to overcome heteroscedasticity. We used a Wald test (with the White's adjusted standard errors) to test the joint significance of the coefficients on Pop and Pop2.

² Turkey (+), Malawi (+), Brazil (+), Argentina (+), Venezuela (+) and Uruguay (+) were excluded due to normality problems. The t-statistics use the White's adjusted standard errors to overcome heteroscedasticity.

For the lending rate we have a significant coefficient on population and the squared term (reinforced by the joint significance tested with a F-test). However, the deposit rate seems to have a different functional form, since it does not reject the null hypothesis of a zero coefficient on the squared term (notwithstanding, the F-test indicated a joint significance of Pop). Thus, the linear-log functional form seems to be the best for the bank deposit rate.

Cost of Smallness

The percentage point deviations of the interest rates of our selected countries to the median country are as follows.

Table 6.4 Deviation from the Median Country (% points) for Bank Interest Rates

Size	Pop ('000)	Lending	Deposit
Micro	12.13	-2.07	-2.16
Very Small	197.00	-0.04	-1.27
Small	4,018.00	0.29	-0.29
T point		1,472.02	-
Closest Country		Botswana	

Observe that very small countries appear to have lower bank lending rates than the median, but that the relationship peaks around the boundary traditionally used to define small states. On deposit rates, the advantages of size are clear and strong.

Analysis of the discrete data

We also have a dichotomous variable that corresponds to the question ‘Is there any special rate for exports’. As before, we use cross tabulations to assess this type of data.

Table 6.5 Cross Tabulation for Special Interest Rate for Exports (Population)

Special Rate for Exports	Population					Total
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	
No	18	9	10	22	11	70
Yes	2	1	4	8	7	22
Total	20	10	14	30	18	92

Table 6.6 Cross Tabulation for Special Interest Rate for Exports (GDP)

Special Rate for Exports	GDP					Total
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	
No	15	8	14	12	21	70
Yes	1	2	2	6	11	22
Total	16	10	16	18	32	92

Table 6.7 Chi-Square Statistics for Special Interest Rate for Exports

Table	Pearson's Chi Square		
	Value	df	Asymp. Sig. (2 sided)
Population	5.702	4	0.222
GDP	6.776	4	0.148

In the tables shown above, we can see that the proportion of countries that have special rates for exports is smaller for small countries: only 10% of the less populated countries (categories 1 and 2) enjoy special lending rates for the export sectors. However, this difference is not statistically significant when evaluated by a Pearson's Chi-square statistic.

Conclusion

We have shown that bank deposit rates are much lower in small countries. This may deter savings. On the other hand, lending rates are not lower for all the small states.

VI. Smallness and Policy

2. Corporate Taxes

Data Sources

Data on GDP and Population were obtained from the usual sources. Information on corporate taxes was taken from the Survey.

Data concerns

Averages had to be computed very frequently because a range of rates was given in the survey (depending on the base income to be taxed). However, we decided to eliminate observations where the range was extremely large (e.g. Seychelles). Around a dozen countries distinguish between residents and non-residents. For the others, we use the same rate for both. Table 6.8 presents some of the problems that we had to cope with:

Table 6.8 Data Decisions for Corporate Tax Rates

Country	Question	Remarks	Decision
Kiribati	Residents	\$0-\$13587 @ 20%, \$13588-\$27174 @ 30%, >\$27174 @ 35%	30%
Malawi	Non-Residents	30.0-40.0	35%
Mozambique	Both	10 % for agricultural and 35 % for all other activities	35%
Seychelles	Both	0-40	N/A
South Korea	Non-Residents	29.7 plus branches subject to 25% tax on after-tax income less re-investment capital	29.7%
Tonga	Residents	15% for the first US\$46,500 and 30% over US\$46,500	22.5%
	Non-Residents	37.5% for first US\$23,275 and 42.5% for over US\$23,275	40%

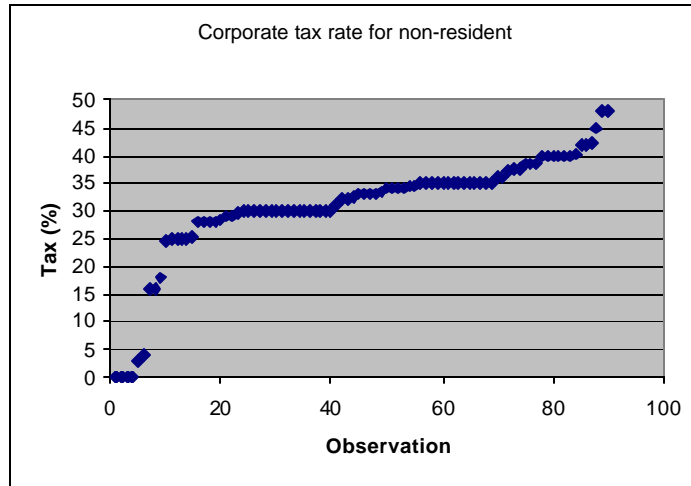
Table 6.9 Missing Observations for Corporate Tax Rates

	Corporate Tax Residents	Corporate Tax Non-Residents
Missing Obs.	Seychelles	Micronesia Seychelles

Descriptives

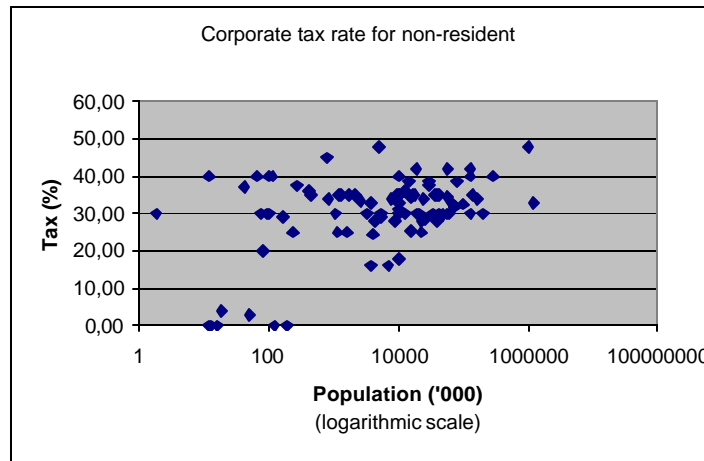
The data are illustrated below.

Figure 6.5 Corporate Tax For Non-Residents



The corporate tax rate series for non-residents contains four zeros (which are Anguilla, Nauru, Cook Islands and Vanuatu), plus two very low values (Palau and Marshall Islands). The graph for residents looks pretty much the same, since only a dozen countries have different rates for residents and non-residents.

Figure 6.6 Corporate Tax For Non-Residents vs. Population



Plotting corporate tax rates against population does not reveal a strong relationship other than the smallness of the countries reporting zero or near-zero rates.

Analysis of Size

We used the following specification,

$$\text{Corporate Tax Rate} = \alpha_0 + \alpha_1 * \text{Ln}(\text{GDPc}) + \alpha_2 * \text{Ln}(\text{Pop}) + \alpha_3 * [\text{Ln}(\text{Pop})]^2$$

and dropped the squared term because it was never significant.

Results

Table 6.10 Results for Corporate Tax Rates

	Residents¹		Non-Residents²
constant	28.753	constant	32.902
	<i>13.260</i>		<i>13.721</i>
LnGDPc	-0.091	LnGDPc	-0.767
	<i>-0.230</i>		<i>-1.811</i>
LnPop	0.373	LnPop	0.113
	<i>1.627</i>		<i>0.445</i>
R-squared	0.03	R-squared	0.04
obs.	84	obs.	84

¹ Vanuatu (-), Micronesia (-), Nauru (-), Anguilla (-), Marshall Islands (-), Palau (-) and Chile (-) were excluded due to normality problems.

² Vanuatu (-), Cook Islands (-), Nauru (-), Anguilla (-), Marshall Islands (-) and Palau (-) were excluded due to normality problems.

We can see that even though only 13 observations are actually different for residents' and non-residents' corporate tax rates, the results are quite contrasting. For residents GDP per capita is not a determinant while population is almost significant at 10%. On the other hand, for non-residents, GDP per capita has a significant effect (at 10%) while population does not. Also notable are the very low R-squares.

Sensitivity Tests

Below we report the results of the regressions with the full sample (that fail normality). They suggest that the inclusion of the excluded observations renders our population coefficients very large and significant (although we restate that the t statistics are not reliable since the normality assumption was strongly rejected). We do not use these results below since they owe so much to the Pacific Islands, but they help to reinforce the conclusion that small countries do not tend to over-tax businesses.

Table 6.11 Results for Corporate Tax Rates (failing the normality assumption)

	Residents		Non-Residents
constant	17.414	constant	19.469
	<i>5.997</i>		<i>6.263</i>
LnGDPc	-0.032	LnGDPc	-0.793
	<i>-0.054</i>		<i>-1.244</i>
LnPop	1.462	LnPop	1.451
	<i>4.679</i>		<i>4.357</i>
R-squared	0.20	R-squared	0.19
obs.	91	obs.	90

Both regressions fail Normality and Heteroscedasticity.

Cost of Smallness

The results that we present in the table 6.12 must be interpreted carefully. It is based on table 6.10, in which there is a little evidence that small countries have lower corporate tax rates for residents' business, but not for non-residents'. We should, however, bear in mind the strong effects identified in the sensitivity tests, which certainly do indicate benefits to size on average.

Table 6.12 Deviation from the Median Country (% points) for Corporate Tax Rates

Size	Pop ('000)	Residents	Non-residents
Micro	12.13	-2.51	-0.76
Very Small	197.00	-1.47	-0.44
Small	4,018.00	-0.34	-0.10

Analysis of the qualitative data

One question in the survey asked 'whether any tax incentives are available for exporters and other businesses'. We analyse these answers using the normal procedure we have been using for discrete data.

Table 6.13 Cross Tabulation for Tax Incentives for Exports (Population)

Tax Incentives for Exports	Population					Total
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	
No	6	2	1	1	-	10
Yes	14	8	13	29	18	82
Total	20	10	14	30	18	92

Table 6.14 Cross Tabulation for Tax Incentives for Exports (GDP)

Tax Incentives for Exports	GDP					Total
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	
No	7	-	2	-	1	10
Yes	9	10	14	18	31	82
Total	16	10	16	18	32	92

Table 6.15 Chi-Square Statistics for Tax Incentives for Exports

Table	Pearson's Chi Square		
	Value	df	Asymp. Sig. (2 sided)
Population	12.570	4	0.014
GDP	22.295	4	0.000

The tests reveal that the distributions in the tables are significantly non-random. Thus, we can assert (with large degree of confidence) that small countries are less likely to have tax incentives for exporters or other businesses that are small.

Conclusion

We conclude that corporate taxes might well be lower in small economies, and that small countries tend not to have tax incentives for exporters. All told, small countries have fewer tax distortions than larger ones.

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3. Import/Export Duties

Data Sources

Data on GDP and Population were obtained from the same sources as before. Information on import and export duties was taken from the Survey. We analyse export duties in the section ‘analysis of the qualitative data’ due to the small number of non-zero observations that we have. Thus we start here with import duties

Data concerns

The 14 European Union countries in our sample (Luxemburg is not in our sample) have the same tariff rates since they have common trade policy. These values are 3.5% for the un-weighted average (nominal) tariff rate and 2.7% for the import weighted (nominal) tariff rate. Since trade policy is a common policy determined jointly within the EU, we aggregate these countries into a single observation (summing population and GDP). Other decisions that need to be taken included:

Table 6.16 Data Decisions for Import Duties

Country	Question	Remarks	Decision
Anguilla	Weighted	Range from 5% to 25%	N/A
Antigua & B.	Weighted	14.5% (19.5%) including the Customs Service Tax)	19.5%
Fiji	Weighted and Un-Weighted	Tariff rates in Fiji are in four bands: Free, 3%, 10%, 20%, 27%	N/A
Guyana	Weighted	10%-128% on selected goods and items, depending on the classification of the good or item.	N/A
Jamaica	Weighted	15-20 per cent on goods excluding motor vehicles. For motor vehicles the range is between 84-280 per cent depending on the cc rating of the vehicle.	20%
Lesotho	Weighted	18.0-24.0	21%
Micronesia	Weighted	Imported food goods, fuel=3%, Imported fresh citrus fruit=25%, Tobacco, Alcohol, & Perfume products=25%, Gasoline & Diesel fuel=5 cents/gallon, Laundry Bar Soap= 100%, All other general merchandise=4%.	N/A
	% Tax revenue	Imported tax receipts from all items except fuel = 23.99%, Import tax receipts from fuel= 2.21%	26.2%
Namibia	% Tax revenue	All indirect taxes as % of total government tax revenue: 54.4 per cent (2001/2002), Trade taxes as % of total government tax revenue: 30 per cent	30%

Solomon Is. Swaziland	Weighted	(2001/2002) 5.0-20.0	N/A
	Weighted	5.0-43.0	N/A
	% Tax revenue	Customs_duties: 54% + Sales tax: 13% = 67% total	67%
Trinidad & T Vanuatu	Weighted	20.0-40.0	N/A
	Weighted and	10.0-25.0	N/A
	Un-Weighted		

As before, we had to take averages because in many cases ranges were reported. However, where the range exceeded 10% averaging seems unsafe and countries were classified as N/A. Most of the European Union countries mentioned above recorded '0' for receipts from import duties as percentage of total government tax revenues. These are considered N/A's, since these revenues do not accrue directly to individual countries but to the EU authorities directly. The exception is Greece, that stated 0.1%, but which we also decided to classify as N/A.

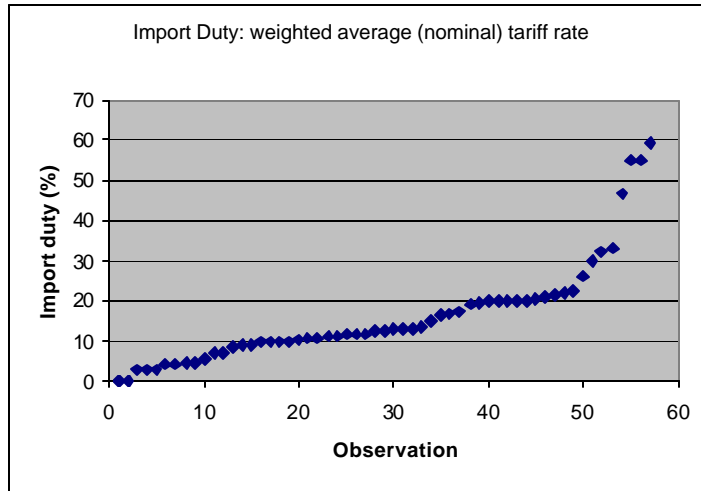
Table 6.17 Missing Observations for Import Duties

	Weighted		Un-Weighted		I. D. as % of Tax Revenue	
Missing Obs.	Anguilla	Solomon Is	Anguilla	Namibia	Austria	Nigeria
	Botswana	S. Africa	Antig. & B	Nauru	Bangladesh	Niue
	Fiji	Suriname	Barbados	Nigeria	Belgium	Palau
	Guyana	Swaziland	Botswana	Samoa	Chile	Portugal
	Hungary	Trinidad	Dominica	Senegal	Cook Is	Senegal
	Kenya	Uganda	Fiji	Seychelles	Denmark	Spain
	Kiribati	Vanuatu	Grenada	Solomon Is.	Finland	Suriname
	Micronesia	Zambia	Guyana	S. Africa	France	Sweden
	Mozambique		Hungary	St Kitts	Germany	Taiwan
	Namibia		Kenya	St Vincent	Greece	Trinidad
	Nauru		Kiribati	Suriname	Hong Kong	UK
	Nigeria		Lesotho	Trinidad	Ireland	Zambia
	Samoa		Mauritius	Vanuatu	Italy	
	Senegal		Micronesia	Zambia	Nauru	
	Seychelles		Mozambiq.		Netherlands	

Descriptives

We plotted each of the variables individually to detect possible outliers. Hong Kong and Singapore reported '0' for both weighted and un-weighted averages, but the latter gave a positive value for import taxes as a proportion of revenue (presumably due to non-tariff charges such as statistical taxes).

Figure 6.7 Import Duty (Weighted Average)



Plotting each of the variables against population, we can see that only the receipts from import duties as percentage of tax revenue seems to be correlated with population.

Figure 6.8 Import Duty (Weighted Average) vs. Population

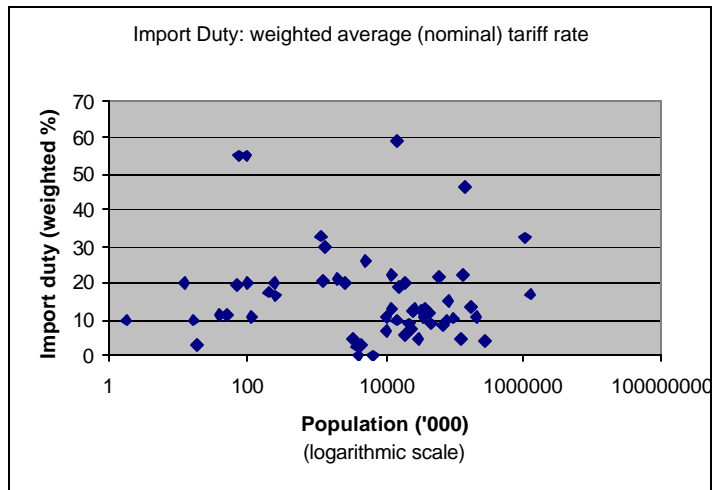


Figure 6.9 Import Duty (Un-Weighted Average) vs. Population

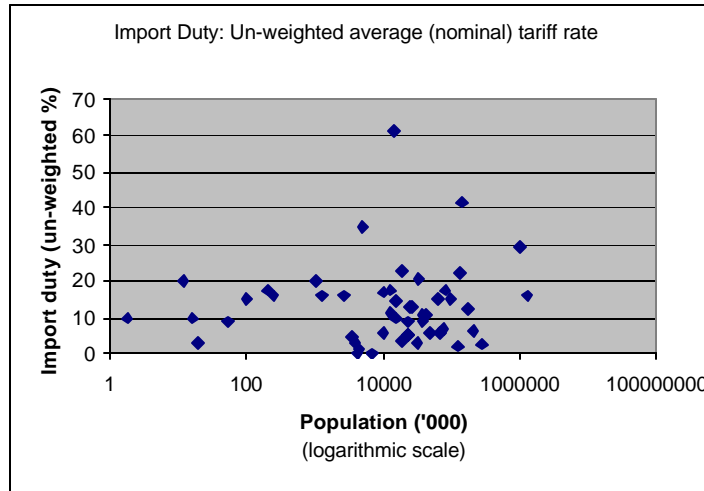
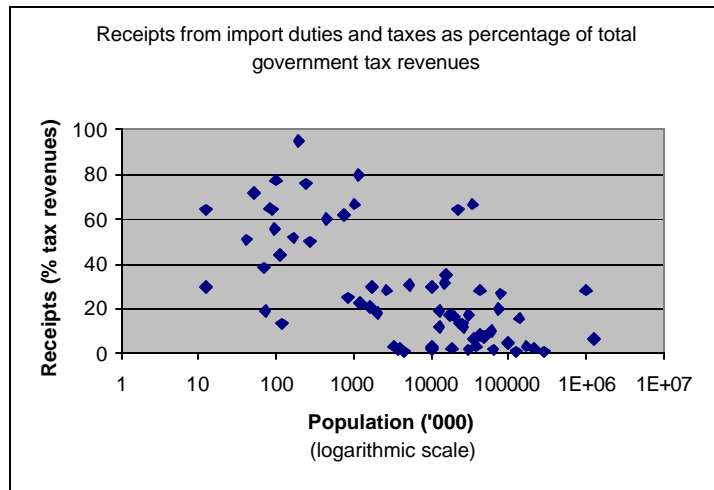


Figure 6.10 Receipts from Import Duties as % of Tax Revenues vs. Population



Analysis of Size

We used the following specification:

$$\text{Import Duties} = \alpha_0 + \alpha_1 * \text{Ln}(\text{GDPc}) + \alpha_2 * \text{Ln}(\text{Pop}) + \alpha_3 * [\text{Ln}(\text{Pop})]^2$$

but dropped the squared term, because it was not significant.

Results

Table 6.18 Results for Import Duties

	Weighted¹		Un-Weighted²		Duties as % of tax revenue³
constant	18.271	constant	15.302	constant	85.484
	8.158		7.624		10.055

LnGDPc	-3.492	LnGDPc	-3.623	LnGDPc	-7.028
	<i>-5.829</i>		<i>-7.672</i>		<i>-4.629</i>
LnPop	-0.193	LnPop	-0.057	LnPop	-6.051
	<i>-0.812</i>		<i>-0.253</i>		<i>-6.051</i>
R-squared	0.47	R-squared	0.58	R-squared	0.55
obs.	51	obs.	47	obs.	65

¹ Grenada (+), Dominica (+), Cameroon (+), Pakistan (+) and Mauritius (+) were excluded due to normality problems. The t-statistics use the White's adjusted standard errors to overcome heteroscedasticity.

² Cameroon (+), Pakistan (+) and Papua New Guinea (+) were excluded due to normality problems. The t-statistics use the White's adjusted standard errors to overcome heteroscedasticity.

³ The t-statistics use the White's adjusted standard errors to overcome heteroscedasticity.

Table 6.18 presents the results for import duties. We can see that both for weighted and un-weighted averages of import duties population is not statistically significant. However, population has a strong and negative impact on duties receipts as percentage of total tax revenue.

Cost of Smallness

As before, we analysed the deviation of the three representative countries' estimates from the median country.

6.19 Deviation from the Median (% points) for Import Duties

Size	Pop ('000)	Weighted	Un-Weighted	Duties as % of tax revenue
Micro	12.13	<i>1.30</i>	<i>0.38</i>	40.64
Very Small	197.00	<i>0.76</i>	<i>0.22</i>	23.78
Small	4,018.00	<i>0.18</i>	<i>0.05</i>	5.53

Analysis of the qualitative data

Finally, we analyse the export duties. Since we just had 13 non-zero observations, the best strategy was to test if there is a size effect on the propensity to use export taxes.

Table 6.20 Missing Observations for Export Duties

	Export duties	
Missing Obs.	Hong Kong Kiribati Marshall Is. Namibia Nauru Nigeria Palau	Samoa Senegal Salomon Is. St. Kitts & Nevis Tanzania Zambia
13 non-zeros	Argentina	Indonesia

	Cameroon	Malaysia
	Cote d'Ivoire	Mozambique
	Fiji	Papua NG
	Gabon	Thailand
	Guyana	Uruguay
	India	

Table 6.21 Cross Tabulation for Export Duties (Population)

Export Duties	Population					Total
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	
No	14	5	10	23	14	66
Yes	-	3	2	5	3	13
Total	14	8	12	28	17	79

Table 6.22 Cross Tabulation for Export Duties (GDP)

Export Duties	GDP					Total
	Cat 1	Cat 2	Cat 3	Cat 4	Cat 5	
No	9	8	7	15	27	66
Yes	-	2	5	2	4	13
Total	9	10	12	17	31	79

Table 6.23 Chi-Square Statistics for Export Duties

Table	Pearson's Chi Square		
	Value	df	Asymp. Sig. (2 sided)
Population	5.393	4	0.249
GDP	7.969	4	0.093

Although the Chi-square test indicates that the table is not significant, we can certainly assert that none of the countries in the lowest population category has export duties.

Conclusion

Weighted and un-weighted import duties show no correlation with country size and none of the smallest countries have export duties. We have very strong evidence that small economies have much higher percentages of receipts of import duties (and related taxes) as percentage of tax revenue. This is presumably a reflection of the fact that in small economies very large shares of consumption and output are traded, both increasing the tax take from import duties and reducing the tax revenue available from purely domestic taxes. Indeed in very small countries input duties are nearly equivalent to consumption taxes if, as is common, they are not applied to business inputs. Moreover, import duties are generally easier to collect being concentrated geographically at the port. Thus while in larger economies a high duties/revenue ration indicates a problem, in very small economies it may just indicate efficiency in the collection of what is actually a fairly broadly based tax.

VI Smallness and Policy
4. General Indirect Taxes

We had hoped to examine VAT and consumption tax rates across countries for signs of size effect. Unfortunately, however, the form of the data proved unsuitable. The question on these taxes elicited ranges of taxes with no indication of the relative importance of the maxima, minima or any point in between. Thus, for example, Brazil reported a VAT range of 0% -350%, so simple averaging would clearly be unhelpful, and many others had ranges of over 20 percentage points. We concluded we could do nothing with these data.

IV. Smallness and Policy
5. Budget Deficit

We had also hoped to assess the impact of the size of countries on their budget deficits, but we faced two major problems. The first is that the budget deficit is a cyclical variable and the results may depend on which year we take for our analysis. We could use the year 2000 (since our macroeconomic data are from 2000), but the results would almost certainly change if we took, for example, 1999. Thus, our results would be very sensitive to timing and the state of the business cycle.

Second, every country was asked about the ‘budget deficit as percentage of GDP’ for each year from 1991 to 2002. However, it was not made clear if a positive number should indicate a budget deficit or a budget surplus. To illustrate the problem, we looked at both the EIU and Business Cost surveys for Zimbabwe. Whilst the EIU survey reported all values with a minus sign (reinforcing deficit?), the Business Cost survey reports values that are very close from those of EIU in terms of magnitude, but without the minus sign. Furthermore, it is not impossible that respondents may have marked budget surpluses with a minus sign, since, in rigor, the original question refers to a negative number. Some surveys explicitly include plus signs, perhaps reinforcing this idea or perhaps indicating a surplus. After considerable exploration we concluded that we could make no sense of these data and therefore regretfully ignored them.

Table 6.24 Summary of Deviations on Policy Variables

Area of Policy	Micro	Very Small	Small	Comment
Bank Interest Rates				
Lending	-2.07	-0.04	0.29	
Deposit	-2.16	-1.27	-0.29	
Corporate Tax Rate				
Residents	-2.51	-1.47	-0.34	Not Significant
Non-Residents	-0.76	-0.44	-0.10	Not Significant
Import/Export Duties				
Weighted	1.30	0.76	0.18	Not Significant
Un-Weighted	0.38	0.22	0.05	Not Significant
Receipts as % of Tax Revenue	40.64	23.78	5.53	

Table 6.25 Summary of the Analysis of the Discrete Data

Area of Policy	Cross Tabulations	Comment
Bank Interest Rates		
Special Rate for Exports	Not Significant	No evidence
Tax		
Tax Incentives for Exporters	Significant	Good evidence
Import/Export Duties		
Export Duties	Not Significant	No evidence