Measurement issues in political economy

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Chapter 7

Does economic freedom contribute to growth?*

7.1 Introduction

In this chapter, we examine the relation between economic freedom and economic growth. What connection, if any, is there between economic development and economic liberties? Economic theory indicates that economic freedom affects incentives, productive effort, and the effectiveness of resource use. Indeed, since the time of Adam Smith, if not before, economists and economic historians have argued that the freedom to choose and supply resources, competition in business, trade with others and secure property rights are central ingredients for economic progress. Using various proxies for economic freedom, an increasing number of recent empirical studies suggest that economic freedom may be important in explaining cross-country differences in economic performance (e.g. De Vanssay and Spindler, 1994, De Haan and Siermann, 1998, Dawson, 1998, Nelson and Singh, 1998 and De Haan and Sturm, 2000).[1]

In most of the studies referred to above, a single overall measure of economic freedom based on an aggregation of various underlying components is used. Recently, Heckelman and Stroup (2000) have rightly criticized these procedures as being ad hoc. They argue that aggregated measures of economic freedom also include some components that are not, or even negatively, related to growth and that, therefore, it should be possible to find better aggregated measures if an adequate weighting procedure for the various components can be found.

*This chapter is a revised version of Sturm, Leertouwer and De Haan (2002).

[1]De Haan and Sturm (2000) conclude that the level of economic freedom is not related to economic growth. In contrast, changes in economic freedom are robustly related to growth.

Heckelman and Stroup come up with an alternative aggregation methodology in which aggregation is directly based upon the relevance of each component for growth, as determined by a multivariate regression analysis. On the basis of cross country regressions for 49 countries over the period 1980–1990, they conclude that "given the proper framework, differences in economic freedoms between nations can explain almost half of the variation in growth".

In this chapter, we argue that Heckelman and Stroup criticize the existing aggregation procedures for good reasons. However, their aggregation procedure has serious shortcomings. We propose an alternative indicator using a latent variables approach. We also criticize Heckelman and Stroup's conclusion on the importance of economic freedom, as it is not based on the by now standard robustness analyses as proposed by Levine and Renelt (1992) and Sala-i-Martin (1997a,b). Using these analyses, we find that our index of economic freedom is not robustly related to economic growth, while the index of Heckelman and Stroup is only weakly related to economic growth.

The remainder of this chapter is organized as follows. The next section discusses the aggregation procedure as proposed by Heckelman and Stroup and our suggested alternative. Section 7.3 summarizes the robustness analysis that we employ, while in section 7.4 our results are presented. The final section offers some concluding comments.

7.2 Aggregation of components of economic freedom

Heckelman and Stroup employ the (components of the) economic freedom indicators as constructed by Gwartney et al. (1996). According to the latter, an index of economic freedom should measure the extent to which rightly acquired property is protected and individuals are free to engage in voluntary transactions. In an economically free society, the fundamental function of the government is the protection of private property and the enforcement of contracts. When a government fails to protect private property, takes property itself without full compensation or establishes restrictions that limit voluntary exchange, it violates the economic freedom of its citizens. Institutional arrangements that restrain trade, increase transaction costs, weaken property rights, and create uncertainty will reduce the realization of gains from trade and also the incentive of individuals to engage in productive activities.

Gwartney et al. choose various measures and rate a large number of countries on each of these measures on a scale of 0-10, in which zero means that a country is completely unfree and ten means it is completely free. The mea-

sures are in four broad areas: money and inflation (I), government operations and regulations (II), 'takings' and discriminatory taxation (III) and international exchange (IV). The components in the monetary area reflect the availability of sound money to the citizenry. The components in the economic structure are indicators of reliance on markets rather than the political process to allocate resources. In the takings area, the index is designed to measure the degree to which governments treat individuals equally rather than engage in transfer activities and impose taxes. Finally, the components in the international area are designed to measure the presence of policies consistent with free trade, see also Gwartney et al. (1999).

These components are combined in aggregated rankings in three ways. In the first index (**Ie**) each component is assigned a weight equal to the inverse of its standard deviation, while in the index **Is1** the importance of the components is based on a survey among experts in the field of economic freedom. Finally, in the index **Is2** the weighting is also based on a survey, but this time the survey is held among a number of country experts.

Heckelman and Stroup rightly criticize these aggregation procedures, arguing that they are ad hoc and may lead to misspecification problems. Alternatively, they first run a multivariate regression of growth on all 14 components of economic freedom for which data are available over 1980–1990. Gwartney et al. (1996) distinguish 17 components, but Heckelman and Stroup do not take the following three components into account in their analysis: Price controls, Freedom of private business to compete in markets and Equality of citizens under the law and Access of citizens to a non-discriminatory judiciary, as they are not available for 1980. The weights in Heckelman and Stroup's aggregation procedure are determined by calculating the contribution of each t-statistic to the sum of the absolute values of all the t-statistics. They claim that "in this way, we can construct an overall index for each country based on the components of economic freedom which are weighted stronger toward those freedoms which were found to have a higher significance level for impacting on growth (either positively or negatively)." (p. 537). Consequently, using bivariate regressions this time, they find that, in contrast to the aggregate indices of Gwartney et al. (1996), their index (constructed for 1980) is significantly related to economic growth measured over the period 1980–1990 in a sample of 49 countries.

The aggregation procedure of Heckelman and Stroup can be criticized for a number of reasons. The basic problem is that their procedure is based on circular reasoning. First, the relationship of the various components to economic growth is estimated using a multivariate regression. Then, the weights are de-

termined on the basis of this relationship. Consequently, it is not surprising that, in a bivariate regression, their index is related to growth. The same effect would take place if we decided to regress the measure of conservativeness that has been constructed in the previous chapter using, among others, inflation and the standard deviation of inflation, on inflation itself. The weighting scheme as suggested by Heckelman and Stroup will almost always result in a significant index explaining economic growth. To illustrate this, we have simulated their procedure using random numbers instead of the 14 components provided by Gwartney et al. (1996). We create 14 series of 49 observations with draws from a uniform distribution ranging from 0 to 10. After running an OLS regression using these 14 series and a constant 'explaining' economic growth, we use the resulting t-statistics to construct an aggregated index. The bivariate relationship between this aggregated index and economic growth is then estimated, and the entire procedure is repeated 10,000 times. Only in 0.2% of these regressions the aggregated index based on randomly constructed series turns out to be *insignificant* at a 5% level.

Moreover, the use of t-statistics as weighting factors is rather suspect as t-statistics do not measure the impact of a variable on growth. The index of Heckelman and Stroup leads to some very counterintuitive rankings of countries. For instance, according to their ranking Italy (rank 3) has a substantial higher level of freedom than e.g. the UK (rank 16) and the US (rank 26), see table 7.5 for further details.

A final criticism that can be raised is that Heckelman and Stroup do not examine how sensitive their index is to the selection of countries in the sample. We have analyzed this issue as follows. From the sample of 49 countries, we randomly draw 40 countries and run bivariate regressions of growth on all 14 components of economic freedom to determine the weights of these components using the t-statistics. This is repeated 10,000 times, giving a distribution of the weights of the various components. The results are shown in table 7.1.

The numbering of the indicators in the first column corresponds to the numbering in table 4 of Heckelman and Stroup. It follows that most of the weights are extremely sensitive to the selection of countries. For instance, the standard deviations of the weights are often higher than the absolute value of their averages.

Still, Heckelman and Stroup are right to criticize the existing aggregation procedures as being ad hoc. The basic problem is that various components may provide some information on an unobservable variable called economic freedom. From this perspective, a latent variable approach is therefore preferable.

Table 7.1: Sensitivity of the weighting scheme to the selection of countries

Indicator	Description	mean	stdev	min	max
IA	Money Expansion	−0.034	0.037	−0.137	0.112
IB	Inflation Variability	0.125	0.029	−0.056	0.221
IC	Foreign Currency Accounts	0.018	0.028	−0.133	0.105
ID	Deposits Abroad	−0.032	0.038	−0.168	0.111
IIA	Government Consumption	0.058	0.042	−0.067	0.238
IIB	Government Enterprises	0.047	0.046	−0.146	0.190
IIF	Credit Market	−0.085	0.043	−0.227	0.108
IIIA	Transfers & Subsidies	0.088	0.042	−0.084	0.207
IIIB	Marginal Tax Rates	−0.176	0.037	−0.319	0.008
IIIC	Conscription	−0.024	0.038	−0.123	0.136
IVA	Trade Taxes	0.032	0.049	−0.148	0.205
IVB	Exchange Rate Controls	0.139	0.053	−0.036	0.418
IVC	Exp. Size of Trade Sector	0.009	0.043	−0.147	0.171
IVD	Capital Restraints	−0.011	0.041	−0.179	0.121

We consider the fourteen components of economic freedom as imperfect measures (indicators) of economic freedom. In order to see how the indicators are related to each other, their correlation matrix is shown in table 7.2.

As in the previous chapters, we first perform a factor analysis to construct measures of (the components of) economic freedom. However, this does not result in a specification that is satisfactory. Obviously, the assumptions regarding the structure of the covariance matrix that the FA model imposes are not satisfied in this case. Therefore, we employ principal components analysis instead. As described in chapter 2, this is a method of combining a set of variables into a single variable that best reflects the original data, using all information that is available in the indicators without imposing a specific structure on the covariance matrix. It is neither based on subjective judgements nor on circular reasoning.[2]

The procedure partitions the variance of a set of variables and uses it to determine the linear combination of these variables that maximizes the variation of the newly constructed principal component. In order to see how many components we should include in the analysis, we examine the scree plot in figure 7.1, which plots the number of components against their eigenvalues.

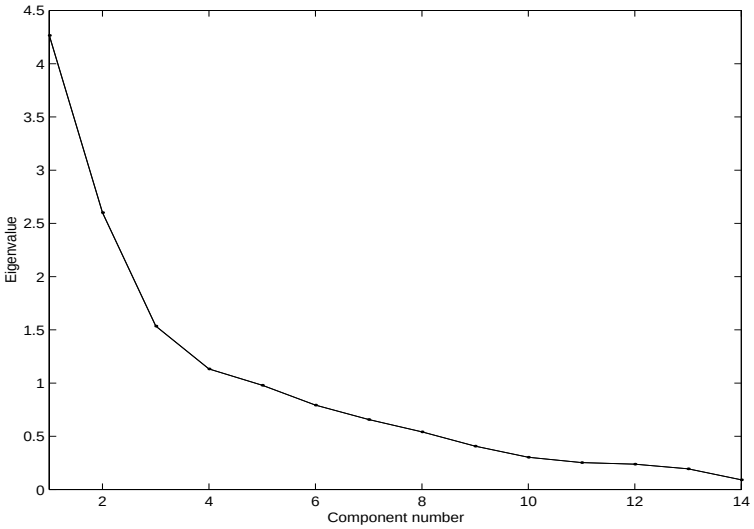
Using the Kaiser rule and examining the kink in the scree plot, we end up

[2]After we had finished the first draft of this chapter, we found out that in the 2001 edition of *Economic Freedom of the World*, PCA is also used to construct an aggregated measure of economic freedom.

Table 7.2: Correlations between the indicators * 100%

	IA	IB	IC	ID	IIA	IIB	IIF	IIIA	IIIB	IIIC	IVA	IVB	IVC	IVD
IA	100													
IB	62	100												
IC	-8	19	100											
ID	-7	4	71	100										
IIA	-31	-25	2	14	100									
IIB	27	29	29	30	12	100								
IIF	58	58	33	20	-11	54	100							
IIIA	-20	-56	-22	6	52	10	-18	100						
IIIB	-14	-20	30	35	23	21	6	39	100					
IIIC	23	-11	-24	-8	-10	5	8	16	-6	100				
IVA	51	70	13	-7	-40	27	46	-60	-27	-25	100			
IVB	28	45	32	28	-7	36	43	-45	-1	4	52	100		
IVC	30	19	-6	6	-11	-5	15	-7	-14	-5	26	18	100	
IVD	45	44	24	35	-11	44	47	-32	11	10	57	65	6	100

Figure 7.1: Scree plot of the components and eigenvalues



with three or four principal components. Since the solution using three components is extremely difficult to interpret, we use four principal components that are labeled PC1 to PC4. The (unrotated) standardized solution of the PCA is given in table 7.3.

Interpretation of the components shown in table 7.3 is still not very straight-

Table 7.3: Unrotated standardized solution of PCA

Indicator	PC1	PC2	PC3	PC4
IA	0.661	−0.282	0.451	−0.002
IB	0.775	−0.250	0.023	0.169
IC	0.373	0.620	−0.468	−0.039
ID	0.661	0.755	−0.195	−0.082
IIA	−0.351	0.511	0.267	0.430
IIB	0.539	0.476	0.295	0.120
IIF	0.756	0.095	0.326	0.161
IIIA	−0.522	0.361	0.578	0.330
IIIB	−0.062	0.767	0.101	−0.101
IIIC	−0.023	−0.101	0.632	−0.661
IVA	0.766	−0.302	−0.166	0.192
IVB	0.721	0.176	−0.105	−0.121
IVC	0.324	−0.267	0.106	0.450
IVD	0.735	0.295	0.125	−0.248

forward. To see if we can obtain a solution that is easier to interpret, we rotate the solution using the rotation methods described in chapter 2. Direct oblimin rotation gives the most satisfying results, and the rotated standardized solution is given in table 7.4.

The loadings of the standardized solution are also the correlations between the indicators and the components, and we use a superindex * to denote correlations that are significant at the 5% level. It follows from the table that the first component displays the highest number of significant correlations with the indicators of economic freedom. We will therefore use this component in our empirical research. The empirical analyses that follow have, however, also been done using each of the other three principal components. This yields the same general conclusion.

Using the standardized loadings in table 7.4, we can calculate scores of the latent variable for the different countries. Table 7.5 shows the scores and ranking of the 49 countries according to our PC1 index and compares it to those of Heckelman and Stroup and Gwartney et al. (1996).[3] The ordering in table 7.5 is based on the index of Heckelman and Stroup. In parentheses the ranking of the other indicators is shown. The indicator of Gwartney et al. is their equal impact

[3]We have corrected the Gwartney et al. coding of Canada as reported in Heckelman and Stroup's table 5 (7.5 instead of 4.7). Although Gwartney et al. do not provide information for all 14 indicators for Malta, Heckelman and Stroup came up with data for all the indicators for this country. As Heckelman kindly provided their data set to us, we are able to report estimates for the same 49 countries as in their study.

Table 7.4: Standardized solution of PCA using Oblimin rotation

Indicator	PC1	PC2	PC3	PC4
IA	0.773^*	-0.079	-0.256	-0.287^*
IB	0.780^*	0.061	-0.452^*	0.118
IC	0.090	0.801^*	-0.133	0.225
ID	0.062	0.825^*	0.115	0.004
IIA	-0.173	0.161	0.772^*	0.112
IIB	0.550^*	0.542^*	0.173	-0.149
IIF	0.815^*	0.285^*	-0.106	-0.114
IIIA	-0.232	-0.091	0.904^*	-0.152
IIIB	-0.149	0.635^*	0.445^*	-0.201
IIIC	0.014	-0.119	0.015	-0.903^*
IVA	0.723^*	0.051	-0.565^*	0.264
IVB	0.553^*	0.490^*	-0.391	-0.047
IVC	0.485^*	-0.207	-0.065	0.282^*
IVD	0.590^*	0.571^*	-0.268	-0.303^*

(Ie) index.

It is clear from the table that our ranking resembles the one by Gwartney et al. (1996) and is at odds with the ranking of Heckelman and Stroup. The correlation coefficients of our index and the indices of Heckelman and Stroup and Gwartney et al. are 0.37 and 0.79, respectively. The correlation coefficient between the latter two indices is 0.13.

Now, we can examine whether our alternative index of economic freedom is related to economic growth by applying it in an empirical model. Before we do so, however, we briefly discuss our modeling strategy.

7.3 Robustness analysis

The empirical analysis of Heckelman and Stroup (2000) is based on simple regressions of the average growth rate of GDP per capita over the period 1980–1990 on (components of) various aggregated indicators of economic freedom. In other words, no control variables are included. Consequently, their conclusion that differences in economic freedoms between nations can explain almost half of the variation in growth is based on biased estimates. Which control variables should be included? A serious problem in this regard is that economic theory does not provide enough guidance for the proper specification of empirical growth models. Sala-i-Martin (1997a,b) identifies, for instance, around 60

Table 7.5: Rankings of economic freedom (1980)

	Country	H-Stroup	PC1	rank	G'ney	rank
1	South Korea	333.4	0.07	(24)	4.0	(31)
2	Philippines	325.9	0.56	(13)	4.7	(19)
3	Italy	313.5	0.00	(26)	3.8	(36)
4	Singapore	301.2	2.04	(1)	7.0	(3)
5	Cyprus	286.7	-0.22	(31)	3.6	(41)
6	Indonesia	284.9	-0.75	(41)	4.9	(18)
7	South Africa	283.3	0.18	(20)	4.4	(25)
8	Spain	263.8	-0.05	(29)	4.0	(32)
9	Japan	262.4	1.33	(5)	6.4	(8)
10	Taiwan	259.2	0.00	(27)	5.4	(13)
11	Finland	250.8	0.78	(11)	5.0	(16)
12	Portugal	247.7	-0.35	(33)	3.3	(45)
13	Austria	229.3	0.88	(10)	5.2	(14)
14	Netherlands	227.9	1.45	(4)	6.4	(9)
15	Malaysia	223.9	0.16	(21)	6.0	(11)
16	United Kingdom	222.1	0.29	(18)	4.7	(20)
17	Sri Lanka	214.8	-0.49	(36)	3.7	(39)
18	Belgium	213.8	1.79	(2)	6.8	(5)
19	Ireland	203.4	0.13	(22)	4.5	(22)
20	Turkey	201.2	-1.85	(47)	2.0	(48)
21	Egypt	199.2	-1.04	(43)	3.5	(42)
22	Switzerland	197.6	1.06	(8)	7.3	(2)
23	Sweden	195.7	0.23	(19)	4.0	(33)
24	Germany	193.9	1.32	(6)	6.6	(6)
25	Denmark	182.8	0.91	(9)	4.3	(26)
26	United States	182.7	1.27	(7)	6.9	(4)
27	Greece	179.5	-0.61	(39)	3.8	(34)
28	New Zealand	177.7	0.69	(12)	5.1	(15)
29	Israel	176.9	-1.75	(46)	2.4	(47)
30	Tunisia	170.0	-0.51	(37)	3.2	(46)
31	Australia	166.9	0.55	(14)	6.0	(10)
32	Bolivia	166.6	-0.95	(42)	4.4	(24)
33	Norway	166.2	0.52	(15)	3.8	(37)
34	Chile	165.2	-0.42	(35)	4.1	(27)
35	France	162.6	0.33	(17)	4.6	(21)
36	India	126.2	-0.59	(38)	3.8	(35)
37	Canada	125.5	1.46	(3)	7.5	(1)
38	Guatemala	125.1	0.10	(23)	6.4	(7)
39	Kenya	118.2	-0.02	(28)	4.0	(30)
40	Malta	117.8	0.05	(25)	4.5	(23)
41	Argentina	116.8	-2.29	(48)	3.3	(44)
42	Mexico	101.8	-1.61	(45)	3.7	(38)
43	Ivory Coast	90.8	-0.67	(40)	4.0	(29)
44	Fiji	89.7	0.34	(16)	4.9	(17)
45	Zambia	86.8	-0.31	(32)	3.4	(43)
46	Ghana	80.3	-2.39	(49)	1.8	(49)
47	Zimbabwe	69.0	-0.15	(30)	3.7	(40)
48	Malawi	34.7	-0.38	(34)	4.1	(28)
49	Uruguay	1.5	-1.11	(44)	6.0	(12)

variables that have been suggested to be correlated with economic growth. The so-called *extreme bounds analysis* of Levine and Renelt (1992) is therefore often used to examine how 'robust' the relation between a certain variable of interest and economic growth is. In this approach, equations of the following general form are estimated:

$$\Delta Y_i = \alpha M_i + \beta F_i + \gamma Z_i + u_i, \tag{7.1}$$

where the subscript refers to country i, ΔY_i is the average growth of per capita GDP of country i, and M_i is a vector of 'standard' economic explanatory variables. F_i is the variable of interest (in this case: an indicator of economic freedom), Z_i is a vector of up to three possible additional economic explanatory variables, which according to the literature may be related to economic growth, and u_i is an error term. The extreme bounds test for the variable F says that if the lower extreme bound for β - i.e. the lowest value for $\hat{\beta}$ minus two standard deviations - is negative, while the upper extreme bound for β - i.e. the highest value for $\hat{\beta}$ plus two standard deviations - is positive, the variable F is not robust.

Sala-i-Martin (1997a,b) argues that the test applied in the extreme bounds analysis is too strong for any variable to really pass it. If the distribution of β has some positive and some negative support, then one is bound to find one regression for which the estimated coefficient changes sign if enough regressions are run. Instead of analyzing the extreme bounds of the estimates of the coefficient of a particular variable, Sala-i-Martin suggests to analyze the entire distribution. He considers the distance of the point estimates for β from zero, averaged over a large set of regression models. Broadly speaking, if the averaged 90 per cent confidence interval of a regression coefficient does not include zero, Sala-i-Martin classifies the corresponding regressor as a variable that is strongly correlated with economic growth. He concludes that a substantial number of variables are strongly related to growth. We use this approach in our empirical analysis.

7.4 Results

First, we present the results of the simple regression model (7.1). Table 7.6 reports the estimated coefficients and corresponding t-values in parentheses. The $M-$vector consists of initial income (Y_{1980}), average investment as share of GDP (I) and the average population growth. The indicators of economic freedom are our PC1 index, the index of Heckelman and Stroup and the **Ie** index of Gwartney et al.

Table 7.6: Estimated coefficients (t-values) for the regression model

Variable	PC1 index		H-Stroup		Gwartney et al	
Constant	16.27	(4.94)	14.56	(5.16)	16.11	(5.37)
Y_{1980}	−2.13	(−5.36)	−1.97	(−5.61)	−2.08	(−5.18)
I	0.27	(6.87)	0.22	(5.54)	0.27	(6.89)
Pop. growth	−1.46	(−6.68)	−1.39	(−6.71)	−1.44	(−6.29)
Econ. freedom	−0.02	(−0.08)	0.01	(1.92)	−0.08	(−0.49)
Adj. R^2	0.68		0.71		0.68	

It follows that in the basic regression, only the indicator by Heckelman and Stroup is significantly related to growth. As explained in the previous section, this does not imply that there is a robust relationship. To examine whether the results are robust, figures 7.2, 7.3 and 7.4 show the distribution of t-statistics of the three indicators of economic freedom if various combinations of up to three additional explanatory variables are included in the model. For a description of the additional variables, see table 7.7 in the appendix. The source for the first 13 variables in the table is the Penn World Table (PWT 5.6a), as discussed most recently in Heston and Summers (1996). The other variables are obtained from the Barro-Lee dataset described in Barro and Sala-i-Martin (1995). The histograms are based on 12,383 regressions.

Figure 7.2: Histogram using the PC1 index

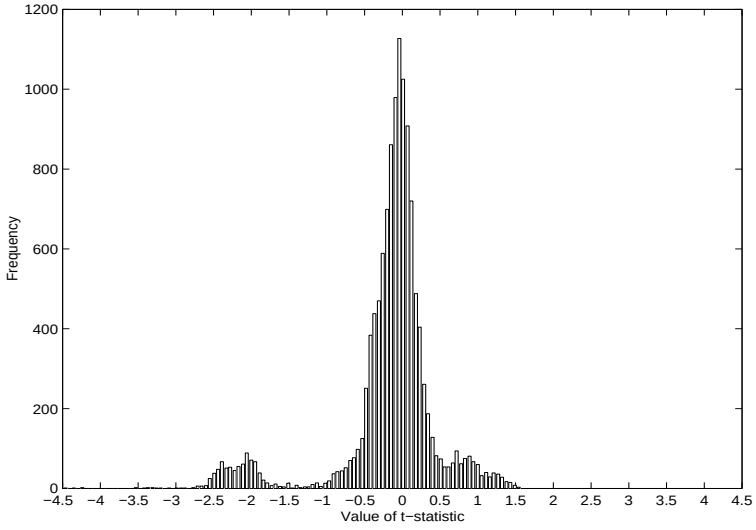


Figure 7.3: Histogram using the Heckelman-Stroup index

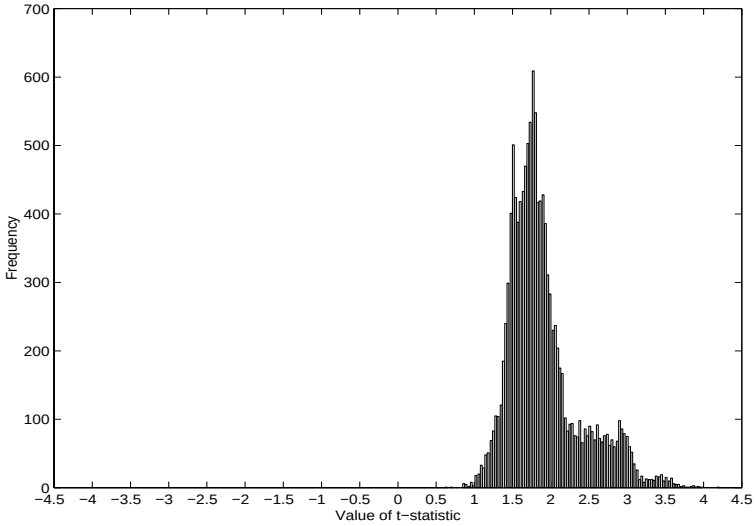
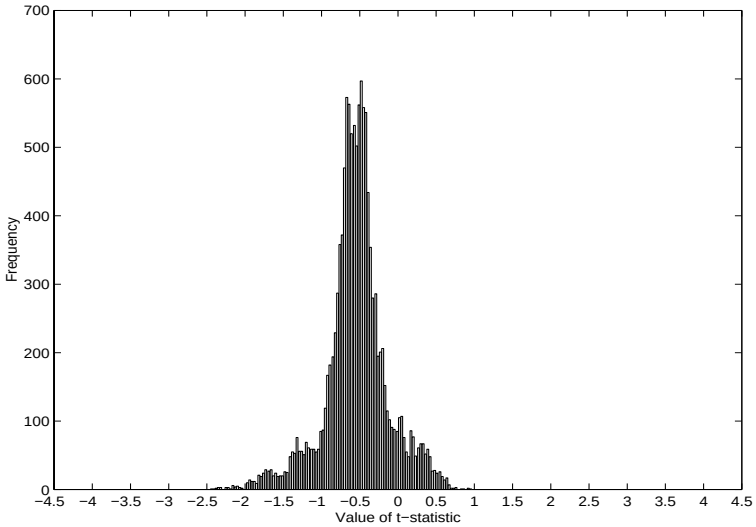


Figure 7.4: Histogram using the equal impact indicator of Gwartney et al.



The figures clearly lead to two conclusions. First, our index of economic freedom and the Gwartney-index are not robustly related to economic growth. This conclusion is fully in line with the results reported in De Haan and Sturm (2000), where the indicators of Gwartney et al. (1996) are used. Second, the indicator of Heckelman and Stroup is weakly related to economic growth. Its coefficient is always positive. However, in only 9% of all regressions the coefficient of their indicator is significantly different from zero at the 1% level. Applying a 5% significance level, the percentage of significant coefficients increases to 26. Based on these results, we conclude that economic freedom does not significantly influence economic growth.

7.5 Conclusions

Most studies on the relationship between economic freedom and growth employ a measure of economic freedom based on an (ad hoc) aggregation of various underlying components. We argue that the alternative aggregation procedure as recently suggested by Heckelman and Stroup (2000) - in which aggregation is directly based upon the relevance of each component for growth, as determined by multivariate regression analysis - has serious shortcomings. We present an alternative index based on latent variable estimation techniques. Using standard robustness analyses we find that the level of economic freedom is not robustly related to economic growth.

7.A Control variables

In table 7.7, the control variables that are used for Z in model (7.1) are described.

Table 7.7: Description of the control variables

Variable	Description
GRGDPTT	Growth rate Real GDP per capita (Terms of Trade)
GDPTT	Real GDP per capita (Terms of Trade)
INVEST	Real Investment (1985 prices)
GRPOP	growth rate Population
C	Real consumption (1985 prices)
G	Real govt (1985 prices)
Y	CGDP relative to US
OPEN	Openness
IPRI	Gross Domestic Private Investment
STLIV	Standard of Living index
INFL	Growth rate Price level GDP
DCPI	Growth rate Price level Consumption
GRXR	Growth rate Exchange rate with US$
HUMAN	Average schooling years in the total population over the age of 25
PYR	Average years of primary schooling in the total population over the age of 25
SYR	Average years of secondary schooling in the total population over the age of 25
HYR	Average years of higher schooling in the total population over the age of 25
PRI	% 'primary school attained' in the total population
PRIC	% 'primary school complete' in the total population
SECC	% 'secondary school complete' in the total population
HIGH	% 'higher school attained' in the total population
HIGHC	% 'higher school complete' in the total population
S	Total gross enrollment ratio for secondary education
H	Total gross enrollment ratio for higher education
POP15	Population Proportion under 15
FERT	Total fertility rate (children per woman)
MORT	Infant Mortality Rate (ages 0-1)
LIFEE0	Life expectancy at age 0
GOVWB	Nominal govt 'consumption' expenditure / Nominal GDP
GEXP	Nominal govt current expenditure (incl. interest payments & transfers) / Nominal GDP
GDE	Nominal govt expenditure on defense / Nominal GDP
GEEREC	Recurring nominal govt expenditure on education / Nominal GDP
GEETOT	Total nominal govt expenditure on education / Nominal GDP
INVPUB	Nominal public domestic investment (fixed capital formation) / Nominal GDP
GGCFD	Real public domestic investment (using HS deflator for investment) / Real GDP (deflated)
GVXDXE5	Real govt 'consumption' expenditure net of spending on defense & education / Real GDP
ASSASSP	Number of assassinations per million population per year
COUP	Number of coups per year
REVOL	Number of revolutions per year
PINSTAB	Measure of political instability
POLRIGHT	Index of political rights (from 1 to 7; 1=most freedom)
CIVLIB	Index of civil liberties, (from 1 to 7; 1=most freedom)
BMP	Black market premium
BMPL	Log (1+BMP)
TOT	Terms of trade shock (export price growth rate minus import price growth rate
LLY	Liquid liabilities / GDP