



*Econ Journal Watch,
Volume 3, Number 3,
September 2006, pp 398-406.*

On Testing the Connection between Economic Freedom and Growth

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A COMMENT ON: DE HAAN, JAKOB, SUSANNA LUNDSTRÖM, AND JAN-EGBERT STURM. 2006. MARKET-ORIENTED INSTITUTIONS AND POLICIES AND ECONOMIC GROWTH: A CRITICAL SURVEY. *JOURNAL OF ECONOMIC SURVEYS* 20(2): 157-81.

[Abstract](#)

JAKOB DE HAAN, SUSANNA LUNDSTRÖM, AND JAN-EGBERT Sturm have written a valuable survey of the literature that uses the Gwartney and Lawson economic freedom (EFW) index. Their discussion of the index's theoretical underpinnings and methodological ins and outs itself should be useful to scholars interested in the field.

Also their survey of the empirical economic freedom–economic growth literature is a useful contribution.

It is clear from these studies that EF [economic freedom] seems to have a positive association with growth. None of the studies summarized reports that economic freedom is bad for growth. Even though many studies have serious drawbacks . . . it is a strong result that emerges when

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This paper was supported by the Social Philosophy and Policy Center at Bowling Green State University.

looking at these studies collectively. Furthermore, those studies that deal with the problems of model specification and sensitivity in a more rigorous way also find that there is a positive growth effect from EF. (170)

While De Haan et al. accurately describe the mechanics of the construction of the EFW index and the econometric literature that has found a link between EF and economic growth, I find myself in disagreement with some of their commentary. This comment, in part, will address these issues.

ECONOMIC FREEDOM AND IDEOLOGICAL BIAS

De Haan et al. (158-159) echo Paldam's (2003) claim that the authors of the EFW index are "zealots". But their remarks are not unfriendly, and seem to recognize the virtues of scientific purpose combined with open ideological disclosure.¹ The continued use of the term zealot, however, suggests that the EFW index authors will do or say anything to advance their cause. This is certainly not the case. While it is true that the authors and the publishers are ideologues in the sense that they are motivated by a set of ideas, this is true of all scientists whether they choose to admit it or not.

The desire to define and measure economic freedom is like the desire in the early twentieth century to define and measure GDP. At the time, many scholars were skeptical of the attempt to measure GDP and there were heated debates about methodological questions (like for example the treatment of government spending in GDP). Were the measurers of GDP driven by an ideology? Yes. Were they zealots? I think not. They were scientists who sat down to design, as best they could with the tools at hand, a measure of the current economic activity of the nation. Economic activity exists and their job was to measure it.

Likewise economic freedom exists. It is a thing. We can define and measure it. Although the research literature has shown many desirable consequences associated with economic freedom, there is nothing in the

¹ Klein (2006) explores these virtues in connection with the advice of Gunnar Myrdal.

EFW index project that presumes freedom is a good thing or that we should necessarily have more of it.

A primary purpose for the creation of the EFW index was to inject some much needed scientific fact into the ongoing debate about the merits of free-market economic systems versus interventionist systems. What had characterized this debate for most of its history was a paucity of data and evidence. With the creation of the EFW index we are now in a position to begin to address the problem of economic organization as scientists should by measurement of reality and testing of various hypotheses.

ECONOMIC FREEDOM AND THE ROLE OF GOVERNMENT

De Haan et al. (163-164) mildly criticize the EFW index's treatment of government taxation both in the traditional sense and in the case of the "inflation tax." The EFW index separately treats government spending/taxation and inflation, each inversely affecting the index ratings. That is, larger government spending, higher taxes, and higher inflation result in lower index ratings.

De Haan et al. note, as do the EFW index authors, that there are many arguments for government spending/taxation and inflation from various perspectives: economic growth, macroeconomic stability, efficiency, or income redistribution, to name just a few. But the EFW index is an *economic freedom* index—it is not an index of economic growth policies, efficient government provision of public goods, macroeconomic stabilization policies, or ideal income distribution policies.

The purpose of the EFW index is to measure, no doubt imprecisely, the degree of economic freedom that exists. From the perspective of individual economic freedom, government taxation (whether the traditional form or via inflation) is a substitution of the "collective will" for the individual's, is an expropriation of private resources, and is a violation of individual economic liberty from the very first dollar.

Of course, it may be the case that there is an optimal level of economic freedom, especially when economic freedom conflicts with other goals. Trade-offs between liberty and security or other values may exist, and some countries may have too much economic freedom, like too much air pollution. The EFW index itself is agnostic about whether there is an optimal level of economic freedom or what that level might be. The EFW index simply measures.

Furthermore, if there is a positive role to be played by government with respect to economic freedom, perhaps through the enforcement of private contracts or private property enforcement that requires taxation, then other areas of the EFW index will capture those positive impacts. For example, a country with no government taxation or spending would score very high in the government size area, but could score very low in the property rights area (assuming no private property rights protections were put in place).

DECOMPOSITION OF THE PARTS OF ECONOMIC FREEDOM: WHAT MATTERS MOST?

In recent years a literature has grown up that attempts to address the question of which of the various parts of the EFW index matter the most for economic growth. Although this seems like a worthwhile project, this is like asking what the most important ingredient is in a cherry pie. Is it the cherries? The sugar? The flour? The shortening? If you fail to include any of those ingredients, you will not bake a cherry pie. In reality all the ingredients work together. While there is some room for substitutions and variations (e.g., butter instead of shortening), you have to be careful, as not all substitutions will work (e.g., salt for sugar). You could even substitute apples for cherries, in which case you can still get a tasty pie, even though no longer a cherry pie. The point is that the relationship between EF and economic growth is complex. We can parse EF out into various parts, ingredients if you will, but it is conceptually difficult to say which is most important.

Econometrically, this issue presents itself as a multicollinearity problem. Many of the component parts of the EFW index are highly correlated with other parts. Simply breaking up the index into parts and running growth regressions results in such massive multicollinearity that the coefficient estimates on individual components become meaningless. Dropping out components to reduce this introduces the problem of omitted variables.

The bottom line is that the current measures of EF are too crude, and our econometric methods too imperfect, to answer these questions satisfactorily. Most of the “what matters most” literature has failed to

acknowledge these issues. In stark contrast to the rest of the paper, De Haan et al. (168-170) survey this literature without much criticism.

WHAT MATTERS FOR ECONOMIC GROWTH: ECONOMIC FREEDOM LEVELS OR CHANGES?

De Haan et al. (170, 176-177) criticize a number of studies for including in growth regressions both the *level* of EF and the *change* in EF. They advocate including only the change, going so far as to say that including the level is “wrong” as a matter of statistical methodology. I disagree.

Consider the following specifications:

$$(1) \quad \text{GROWTH} = \alpha_1(\text{EF}_1) + \alpha_z(Z)$$

$$(2) \quad \text{GROWTH} = \beta_0(\text{EF}_0) + \beta_1(\text{EF}_1) + \beta_z(Z)$$

Where GROWTH is the rate of economic growth over some period of time. EF_0 is the economic freedom level at the beginning of the period and EF_1 is the level of economic freedom at the end of the period. Z is a matrix of control variables (including the constant).²

Clearly, Equation (1) is inappropriate as it is logically impossible for the level of economic freedom at the end of the period to affect economic growth in the previous period. Something occurring today cannot determine what happened yesterday.

Equation (2) on the other hand is different. If you include both the level of EF at the beginning of the period and at the end of the period, the coefficient β_1 measures the impact of the level of economic freedom at the end of the period *after controlling for the level at the beginning of the period*. If you hold the initial level of EF constant by including it as a variable, the end level of EF is a result of the *change* during the period. Thus, in Equation (2)

² At a minimum control variables would normally include the level of income at the beginning of the period and measures of the rate of investment in physical and human capital.

the coefficient β_1 , in effect, measures the change in EF since the beginning of the period. And we all agree that the change in EF over the period may impact growth.

I agree that Equation (2) is still a problematic specification because the level of EF at the beginning of the period is likely to be highly collinear with the level of EF at the end of the period. This high degree of collinearity between EF_0 and EF_1 will make the coefficient estimates in Equation (2) difficult to interpret and will bias the standard errors.

An equivalent specification would be to include the EF level at the beginning of the period and the change over the period, as in Equation (2').

$$(2') \text{ GROWTH} = \gamma_0(EF_0) + \gamma_1(\Delta EF) + \gamma_z(Z)$$

Where $\Delta EF = EF_1 - EF_0$. Equations (2) and (2') are functionally equivalent as there is no more statistical information in Equation (2') than in Equation (2).³ Equations (2) and (2') will have identical R^2 's and the β_i and γ_i coefficients will be algebraic functions of each other: Specifically, $\beta_0 = \gamma_0 - \gamma_1$, and $\beta_1 = \gamma_1$. But since there is less of a collinearity problem in Equation (2') between EF_0 and ΔEF , the coefficient estimates are easier to interpret and the test statistics unbiased.

De Haan et al. argue that these specifications are inappropriate and invite "causality and endogeneity issues" (176) because Equation (2) and thus implicitly Equation (2') include the level of EF at the end of the period. I argue here that including the level of EF at the end of the period is not a problem so long as you control for the level of EF at the beginning of the period, thus in effect converting the end of the period variable into a change in EF measure.

In contrast, De Haan et al. advocate a specification in which *only* the change in EF is included as in Equation (3).

$$(3) \text{ GROWTH} = \zeta_1(\Delta EF) + \zeta_z(Z)$$

³ Similarly, Equation (2) is equivalent to a specification that includes the change in economic freedom and the level of economic freedom at the end of the period as in Equation (2'').

$$(2'') \text{ GROWTH} = \theta_0(EF_1) + \theta_1(EF_1 - EF_0) + \theta_z(Z).$$

It should be noted that their preferred specification also includes EF at the end of the period. Recall that $\Delta EF = EF_1 - EF_0$; thus Equation (3) can be rewritten as Equation (3').

$$(3') \text{ GROWTH} = -\zeta_1(EF_0) + \zeta_1(EF_1) + \zeta_z(Z)$$

Equation (3') is nothing more than a *restricted* version of Equation (2) where $\beta_1 = -\beta_0$ in Equation (2)—or equivalently that $\gamma_0 = 0$ in Equation (2'). It is important to note that the validity of this restriction is a testable hypothesis. The standard t-statistic for γ_0 in Equation (2') would tell us whether that coefficient is statistically different from zero. The estimates presented in Table 6 of their article clearly show that γ_0 is statistically significant.⁴ That is, the hypothesis that we should drop the level and include only the change in economic freedom can be rejected statistically.

Alternatively (and perfectly equivalently) we can compare the Sum of Squared Residuals (SSR) of Equations (2) and (3) to test this hypothesis. De Haan et al.'s estimate for the SSR in Equation (2) is 361.38 and the SSR in Equation (3) is 396.64. The calculated F-statistic for the null hypothesis $H_0: \beta_1 = -\beta_0$ is $F_{1,74} = 6.97$ ($p = 0.01$). Thus we statistically reject the null hypothesis and conclude that $\beta_1 \neq -\beta_0$; that is, again, their restriction cannot be justified on statistical grounds.⁵

Furthermore, I would argue that the empirical specification that includes both the EF level and change is more defensible. Hong Kong has been at the top of the EFW index for all years since 1970. But it has shown little or no change in its rating—it is at the top and can not go up. In contrast, countries like Nicaragua have shown large improvements in their index ratings in recent years but still have relatively low ratings. Would we really expect Nicaragua to grow faster than Hong Kong simply because its rating has increased a lot while Hong Kong's has not? By omitting the level of economic freedom from the specification, De Haan et al. fail to acknowledge the possibility that a country with a high degree of economic freedom is likely to outgrow a country with low economic freedom. Countries like Hong Kong would end up being outliers in De Haan et al.'s approach.

Both the EF level and change appear to impact economic growth. There is no statistical reason to omit level in favor of just change.

⁴ See Regression (2) in De Haan et al.'s Table 6.

⁵ See Regression (3) in De Haan et al.'s Table 6. Thanks to Jan-Egbert Sturm for providing the underlying regression statistics from Table 6 of their paper.

A CRITICISM OF SPECIFICATION TESTING

De Haan et al. (177) are highly critical of much of the EF-growth literature for failing to adequately check on the sensitivity of their results. I am in complete agreement with De Haan et al. that specification matters and that it matters a lot. Using both economic and statistical theory as our guide, we need to think carefully about how we specify empirical models. Data mining, the practice of almost randomly including and excluding variables in an empirical model, to get desired results is a serious problem.

De Haan et al. advocate one of the various specification-testing approaches, one in which a large number of possible regressions are run to examine the range of parameter estimates that can result. My criticism is this: what has happened to theory? For example, standard economic theory says that investment is an important factor for growth. We know then that failing to include investment in a regression will result in biased estimates of the remaining parameters. Why should we pay any attention to such an obviously mis-specified model? De Haan et al. sharply criticize others for failing to run the “right” specification, i.e., one that includes changes in economic freedom only but omits the level of economic freedom, and then go on to say researchers should intentionally run hundreds and maybe thousands of “wrong” specifications.

Certainly, we should recognize that ambiguity in economic and statistical theory requires us to run different reasonable versions of our models to explore the sensitivity and robustness of our parameter estimates. I am suspicious of any empirical research that presents the one right model. But I am also suspicious of someone who runs hundreds of meaningless models and then claims the “results” have any meaning. In my view, turning the research process over to a machine is worse than the data mining crime that it is meant to combat.

CONCLUSION

De Haan et al.’s review article is an important contribution to the literature on economic freedom and economic growth, and will become the starting point for future researchers in the field. My comments are intended

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as inviting possible clarifications to an article that remains very valuable regardless of possible shortcomings.

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