

February, 2007

THE EMPIRICAL INSTITUTIONS-GROWTH LITERATURE: IS SOMETHING AMISS AT THE TOP?

*John W. Dawson**

ABSTRACT: The initial publication of the Fraser Institute’s Economic Freedom of the World index prompted an explosion of empirical research on the institutions-growth relationship. To date, little of this research has appeared in the top economics journals. Subsequently, a number of empirical growth studies using alternative sources of data on institutions have appeared in top journals. This paper explores the two tracks of empirical research on the institutions-growth relationship—one track that recognizes all the relevant literature, and one that seems wanting in that respect.

JEL CODES: O47, P5.

KEYWORDS: Institutions, economic freedom, economic growth.

INTRODUCTION

The past two decades have witnessed a resurgence of economic research on the most fundamental question: What causes economic growth? The research has suggested numerous determinants such as geography, physical capital, human capital, technology, population growth, and international trade.¹ More recently, however, empirical growth research has focused on “institutions.” For example, the theme of the World Bank’s 2002 *World Development Report* was “Building Institutions for Markets.”

Although growth theory’s focus on institutions is a more recent phenomenon, economists’ acknowledgment of institutions is nothing new. In 1776, Adam Smith proclaimed that the path to economic prosperity begins with a general presumption of freedom from government intervention, and, ever since, classical liberal economists have continued the

*Department of Economics, Appalachian State University, Boone, NC 28608-2051, USA.

¹See the excellent survey by Temple (1999) for references to the relevant empirical growth studies.

tradition (e.g., Hayek 1954, Friedman and Friedman 1980). Finally, beginning with the work of Douglas North, the link between institutions and economic performance gradually worked its way into the more academic discussions of growth theory (e.g., North and Thomas 1973, North 1990).

One obvious reason for the long-standing lack of attention on institutions in the empirical growth literature is the inherent difficulty in measuring institutions. Although measures of some aspects of institutions have existed for some time, such as the Freedom House indexes of political and civil freedom, measures of a more comprehensive view of institutions and especially economic institutions have been more elusive. This changed, however, with the publication of *Economic Freedom of the World: 1975-1995* by James Gwartney, Robert Lawson, and Walter Block (1996). Their Economic Freedom of the World (EFW) Index was the most extensive measure available in terms of its coverage of countries, time, and attributes of freedom.

Several other indexes of economic freedom are also noteworthy. Wright (1982) extended the Freedom House indexes of political and civil liberties to include a rating of economic freedom, but coverage is limited to a relatively short time period. Another attempt by Freedom House to publish a measure of economic freedom appears in Messick (1996), but publication of this measure has been discontinued. Scully and Slottje (1991) construct an index of economic liberty, but this measure also has a limited time dimension. The Heritage Foundation publishes a measure of economic freedom which is similar in many respects to the EFW index, but is available for a shorter period of time (see Holmes et al 1998). The EFW index has been more widely used than any of these alternatives, most likely because of its coverage of a longer time period. Because of its widespread use, the discussion that follows restricts attention to the EFW index.

The EFW index is based on the classical conception of individual liberty, which emphasizes personal choice, private property, and freedom of exchange. An influential preliminary formulation of the index was Rabushka (1991). The EFW index currently

encompasses five areas of freedom which are aggregated into a single summary index of economic freedom. The five major areas of the index are (1) size of government; (2) legal structure and security of property rights; (3) access to sound money; (4) freedom to trade internationally; and (5) regulation of credit, labor, and business. The underlying components (data) that comprise each area are listed in Table 1. All underlying component data are converted to a scale from 1 (representing the least free) to 10 (most free). Each underlying component is equally weighted to construct an area index for each of the five areas. Then, equal weight is given to each of the five areas in constructing the EFW index (i.e., the five area indexes are averaged).² The index is available for a large number of countries in five-year intervals from 1975-1995, and annually since 1995.³

As might be expected, the publication of the EFW index prompted an explosion of empirical research on the institutions-growth relationship. A recent survey by de Haan, Lundstrom, and Sturm (2006) cites at least 28 empirical studies that use the EFW index in some form to investigate the institutions-growth relationship. They cite another 12 studies that use the EFW index to investigate the determinants of freedom itself. However, these numbers pale in comparison to the overall use of the EFW index in the literature.⁴ A recent check of the Social Sciences Citation Index (SSCI) indicates 194 citations of the EFW index since its inception. Table 2 provides a complete list of the journals in which these citations have appeared. In addition, several journals not included in the SSCI, such as *The Cato Journal*, *Constitutional Political Economy*, and *European Journal of Political Economy*, have published many articles citing the index. A partial count of citations appearing in these journals is provided at the end of Table 2. This partial count, providing a total of 17 additional citations, is taken from references

²Earlier versions of the index experimented with different weighting schemes and data sources.

³The current version of the EFW index is available at <http://www.freetheworld.com>.

⁴Although the opening discussion focuses on the institutions-*growth* relationship, the same general conclusions regarding publication trends apply to the larger body of recent empirical work relating institutions to other aspects of economic performance—such as investment, income levels, volatility, etc. Indeed, much of this literature grew out

in the survey article by de Haan et al (2006).

Despite the healthy number of citations to the EFW index, closer examination of the citation list reveals an interesting phenomenon with respect to the use of the index in the economics literature. Specifically, very few of the citing articles have appeared in top-tier journals. The next section of the paper discusses the large literature that has emerged since the EFW index was developed and the journals in which this literature has appeared. In a separate strand of literature, a number of empirical papers appearing almost exclusively in top-ranked journals have also addressed the relationship between institutions and economic performance. These articles have rarely cited either the EFW index itself or the large body of research which uses the index. This strand of the literature is discussed in the last section of the paper.

ARTICLES CITING THE EFW INDEX

Prior to the publication of the EFW index, a relatively small number of empirical studies had addressed the role of institutions in determining economic outcomes. In his excellent review of the empirical growth literature, Temple (1999) cites only three articles in this area. These include Knack and Keefer (1995) who use indicators of property rights, Mauro (1995) who uses measures of corruption, and Barro (1997) who uses an indicator of political rights. Looking at freedom to include political, civil, and economic aspects, other early studies which include such features include Kormendi and Meguire (1985), Scully (1988), Barro (1991), and Levine and Renelt (1992). Given the small number of studies and the often narrowly-defined measures of institutional characteristics noted here, it would seem that an empirical project constructing a multifaceted measure of economic freedom would represent a significant contribution to the literature.

As noted above, at least 28 articles have been published which cite the EFW index in their analysis of institutions and growth. Numerous other articles use the index to investigate

of the initial interest in relating institutions to growth.

other (non-growth) aspects of institutions. However, very few of these articles appear in top journals. Only eight of the more than 194 articles that cite the EFW index appear in top-20 ranked journals based on the recent journal rankings provided by Kalaitzidakis, Mamuneas, and Stengos (2003). Journal rankings for the articles citing the EFW index are provided in Table 2.

The journals that have published the largest number of articles citing the EFW index are *Public Choice* (17 articles), *European Journal of Political Economy* (13), *Kyklos* (9), *Economic Inquiry* (7), *The Independent Review* (6), and *Contemporary Economic Policy* (5). The highest ranked of these journals is *Economic Inquiry* (ranked 36), followed by *Public Choice* (43), and *Contemporary Economic Policy* (60). Although not included in the Kalaitzidakis et al rankings, *European Journal of Political Economy* would likely be ranked in the same general area as *Economic Inquiry*.

Dawson (1998) was one of several early empirical studies of cross-country growth incorporating a measure of economic freedom to be published after the appearance of the EFW index.⁵ This study was initially submitted to the *Journal of Economic Growth (JEG)*, where the editor declined to publish the paper based primarily on a single referee's report. One of the referee's main comments questioned the use of the EFW index, arguing that the paper "contains absolutely no theory justifying the Gwartney freedoms indicator." A later version of the paper—still using the EFW index—was eventually published in *Economic Inquiry*. Based on the rankings by Kalaitzidakis et al, this article represents the highest ranked journal in which a study of institutions and growth using the EFW index has appeared. The point here is not to question the judgment of the *JEG* editor or referee in their review of this paper. However, the circumstances do suggest a reluctance to use the EFW index even at a time when alternative measures of economic institutions were limited.⁶

⁵Other articles that use the EFW index are equally worthy of discussion and may have appeared even earlier. However, the Dawson (1998) article was selected for discussion here because of the author's specific knowledge of the history of the paper and access to relevant referee reports.

⁶The *Journal of Economic Growth* is not ranked in the Kalaitzidakis et al (2003) study (possibly because it is a

Others have also noted reluctance among many researchers to use the EFW index. In their review of the EFW-based literature, de Haan et al (2006) argue that this hesitancy is likely because researchers “doubt whether the data are reliable, given the strong ideological position of the organizations providing them” (p. 158). de Haan et al conclude, however, “that the index is both reliable and useful” (p. 182). There is no doubt that the EFW measure of economic freedom, as with almost any measure of anything, is not perfect, and that it may not be useful for every possible application involving the analysis of institutions. Potential concerns that may steer researchers toward other measures include the EFW project’s idea of economic freedom, the occasional resort to policy *outcomes* (rather than *rules*) as components of the index, concerns about the subjectivity of the data, the choice of aggregation technique, and the handling of missing data.⁷ Nevertheless, the attempt at measurement of such an elusive aspect of economic reality has made possible new understanding of the role of institutions. As Lawson (2006) describes:

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 hypotheses. (400)

In addition, de Haan et al note the remarkable parallel between the EFW index and the so-called “Washington consensus,” demonstrating how the main elements of reform programs suggested

relatively new journal), but it is arguably one of the top field journals in the area of concern here. Nevertheless, the main point here is not to debate relative journal rankings, but rather to establish a general reluctance regarding the use of the EFW index in empirical work.

⁷An extensive discussion of these potential shortcomings and related analysis is provided by de Haan et al.

by the IMF and World Bank match with components of the index (see de Haan et al, Table 1).⁸

From the body of research of the last decade, a consensus has emerged. The conclusion of a critical assessment of recent evidence using the EFW index by de Haan et al (2006) is that “studies that have applied some kind of sensitivity analysis and sensible specifications generally find support for a positive relationship between changes in [economic freedom] and growth” (p. 182).

ARTICLES APPEARING IN THE TOP JOURNALS

Of the more than 194 articles that cite the EFW project, only eight come from journals ranked in the top 20 by Kalaitzidakis et al (2003).⁹ However, these are not the only articles in top journals that have addressed the institutions issue. In the years following the initial publication of the EFW index, a completely separate strand of literature on institutions emerged—a literature which completely ignores the contributions of the EFW index and the empirical evidence based on it. This new strand of literature appears almost exclusively in the profession’s top journals. The following is a discussion of this literature. For obvious reasons, the discussion will focus on *empirical* studies of the relationship between institutions and economic performance.

Robert Hall and Charles Jones (1999) provide one of the first empirical studies of the relationship between institutions and economic performance to appear in a top-tier journal. Their

⁸Despite the parallel between the EFW index and the Washington consensus, a group of World Bank economists now maintain their own broad measure of institutions—called “governance” indicators—that includes the rule of law, government effectiveness, political instability, and regulatory burden, among other things. Initial work on this project is by Kaufman, Kraay, and Zoido-Lobaton (1999); the EFW index is not cited.

⁹These articles include Acemoglu and Johnson (2005) in the *Journal of Political Economy*; Antras (2003), Djankov, La Porta, Lopez-de-Silanes, and Shleifer (2003), and Glaeser, Johnson, and Shleifer (2001) in the *Quarterly Journal of Economics*; Levine, Loayza, and Beck (2000) in the *Journal of Monetary Economics*; Freeman (2006) and Cutler, Glaeser, and Shapiro (2003) in the *Journal of Economic Perspectives*; and Hodler (2006) in the *European Economic Review*. The citation of Gwartney et al in Acemoglu and Johnson (2005) appears to be a simple error, as they clearly used data from the Heritage Foundation in their study. In an apparent oversight, a paper by Easton and Walker (1997) that cites Gwartney et al appears in the *American Economic Review Papers and Proceedings*, but is not reported in the SSCI. The second author, Walker, is affiliated with the Fraser Institute.

term for institutions is “social infrastructure,” which they define as “the institutions and government policies that determine the economic environment within which individuals accumulate skills, and firms accumulate capital and produce output” (p. 84). They note the relationship between institutions and the protection of private productive units from confiscatory diversion. Conceding that an ideal measure of social infrastructure does not exist in practice, they resort to using a proxy obtained by combining two indexes: (1) an index of government anti-diversion policies; and (2) an index of openness to international trade. Two of the four major areas of the Gwartney et al (1996) EFW index relate directly to “freedom to keep what you earn” and “freedom to exchange with foreigners” (p. 16). Thus, it would seem that the EFW index, or at least two of its underlying areas, might provide direct evidence on precisely the issues addressed by Hall and Jones. Furthermore, by the time the Hall and Jones study was published, a number of studies using the EFW index to investigate the relationship between institutions and economic performance were in print. Hall and Jones did not acknowledge either the EFW index or any of the evidence based on it. Although long editorial and publication lags might explain the lack of acknowledgement in this case, such an explanation does not apply to a number of more recent articles appearing in top journals.

Daron Acemoglu, Simon Johnson, and James A. Robinson published a series of influential articles addressing the role of institutions in macroeconomic outcomes. Indeed, in the announcement of the AEA’s 2005 John Bates Clark Medal award, Acemoglu is credited with “several papers that argue that institutions play a more prominent role in development than was generally accepted.”¹⁰ The articles appear in the *American Economic Review*, *Journal of Political Economy*, *Quarterly Journal of Economics*, and *Journal of Monetary Economics*.¹¹ As an example of this work, Acemoglu et al (2001) use average protection against expropriation risk

¹⁰(http://www.vanderbilt.edu/AEA/JBCMedalist_Bio.htm).

¹¹Articles include Acemoglu et al (2001, 2002, 2003, 2005) and Acemoglu and Johnson (2005). Recall that the

and Acemoglu et al (2003) use a measure of constraint on the executive to estimate the relationship between institutions and economic performance. The EFW index or some of its underlying components might have been tapped for alternative, multifaceted measures of institutions. In addition, despite the extensive discussion in a nearly 100-page treatise on institutions and growth in the *Handbook of Economic Growth*, Acemoglu et al (2005) mention neither the EFW index nor any of the empirical work relating the index to economic performance.

Dani Rodrik, Arvind Subramanian, and Francesco Trebbi (2004) take on the task of determining empirically the relative importance of three potential “deep determinants” of growth: institutions, geography, and trade. Their conclusion, as indicated by the title of their study, is that “institutions rule.” Their measure of institutions is a composite indicator of property rights and the rule of law. Rodrik et al note that an advantage of their measure in comparison to others used in the literature is that it “in principle captures more elements that go toward determining institutional quality” (footnote 6), suggesting a desire for a broad measure of institutions. Although it is impossible to ascertain just how broad a measure was desired, the EFW index is unquestionably more multifaceted than the measure they used and arguably allows for the broadest economic-institutions measure currently available. Despite the fact that the paper attempts to reconcile various strands of the empirical literature relating institutions, geography, trade, and growth, the EFW index was not cited nor was any of the available empirical evidence using the index to relate institutions and growth.¹²

Edward Glaeser, Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer (2004) take the study of the institutions-growth relationship a step further by asking whether institutions *cause* growth. Despite an extensive discussion of the various measures of institutions used in the literature to determine which is most appropriate for addressing causality, neither the

citation of Gwartney et al in Acemoglu and Johnson (2005) appears to be an error (see footnote 9).

¹²Interestingly, in an earlier study focusing on social conflict, Rodrik (1999) cites Gwartney et al (1996).

EFW index nor any of the studies which use the index to relate institutions and growth are cited. Two earlier studies that explore the causality issue specifically are also ignored. Farr, Lord, and Wolfenbarger (1998) use the EFW index in a causality study of institutions and income levels, and Heckelman (2000) uses the Heritage Foundation's measure of economic freedom to study causality between institutions and growth.¹³

These prominent studies were chosen as examples to illustrate the occurrence of top-ranked journal articles that do not acknowledge the contribution of the EFW project and related empirical research. Other examples are available in the literature, such as Dollar and Kraay (2003), Sala-i-Martin et al (2004), and Levine (2005). There is no question that each of these studies has contributed significantly and in an ingenious way to our understanding of the institutions-growth relationship. The point here is not to question the merits of this work. However, these studies are part of a broader effort within the profession to understand the role of institutions in the development process. The authors of the EFW index and the researchers who use it have contributed in their own right to that understanding.

Admittedly, it is impossible to make an indubitable case that certain studies *should* have used the EFW index instead of other alternatives to measure institutions. There are a number of valid reasons why any particular measure might not be suitable in certain circumstances. Availability of the measure for the desired sample period or number of countries, the desired "breadth" of the measure, issues relating to aggregation methodology or subjectivity of the data, and problems involving the selection of underlying components used to construct the index are a few potential reasons. It is more difficult, however, to justify the relevant top-journal literature's widespread lack of acknowledgement of the large body of EFW-based empirical work. Explaining the occurrence of this dichotomous literature may be as simple as conceding that authors who publish only in top journals also cite only top journals. Indeed, a quick check

¹³Two additional studies by Dawson (2003) and Vega-Gordillo and Alvarez-Arce (2003) use the EFW index to address the causality issue, but given the proximity in the timing of publication it is difficult to argue that these

of the citation lists in the articles discussed above suggests that citations from the likes of *Public Choice* or *European Journal of Political Economy* are rare. Nonetheless, especially in an age when the cost of a literature search is minimal, such practices should be discouraged, lest we accept the existence of two distinct classes of discourse. If club elites have compromised scholarship in the case of the empirical institutions literature, one may wonder where else the hubris may express itself. I understand that other contributions to this symposium may speak to the more general syndrome.

REFERENCES

- Acemoglu, Daron and Simon Johnson. 2005. Unbundling Institutions. *Journal of Political Economy* 113(5): 949-995.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2001. The Colonial Origins of Comparative Development: An Empirical Investigation. *American Economic Review* 91: 1369-1401.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2002. Reversal of Fortune: Geography and Institutions in the Making of the Modern World Income Distribution. *Quarterly Journal of Economics* 117: 1231-1294.
- Acemoglu, Daron, Simon Johnson, and James A. Robinson. 2005. Institutions as the Fundamental Cause of Long-Run Growth. In Philippe Aghion and Steve Durlauf, editors, *Handbook of Economic Growth*. Amsterdam: Elsevier.
- Acemoglu, Daron, Simon Johnson, James Robinson, and Yunyon Thaicharoen. 2003. Institutional Causes, Macroeconomic Symptoms: Volatility, Crises and Growth. *Journal of Monetary Economics* 49: 49-123.
- Antràs, Pol. 2003. Firms, Contracts, and Trade Structure. *Quarterly Journal of Economics* 118: 1375-1418.
- Barro, Robert J. 1991. Economic Growth in a Cross Section of Countries. *Quarterly Journal of Economics* 106: 407-443.
- Barro, Robert J. 1997. *Determinants of Economic Growth: A Cross-Country Empirical Study*. Cambridge, MA: MIT Press.

articles should have been cited by Glaeser et al.

- Cutler, David M., Edward L. Glaeser, and Jesse M. Shapiro. 2003. Why Have Americans Become More Obese? *Journal of Economic Perspectives* 17: 93-118.
- Dawson, John W. 1998. Institutions, Investment, and Growth: New Cross-Country and Panel Data Evidence. *Economic Inquiry* 36: 603-619.
- Dawson, John W. 2003. Causality in the Freedom-Growth Relationship. *European Journal of Political Economy* 19: 479-495.
- de Haan, Jakob, Susanna Lundstrom, and Jan-Egbert Sturm. 2006. Market-Oriented Institutions and Policies and Economic Growth: A Critical Survey. *Journal of Economic Surveys* 20: 157-191.
- Djankov, Simeon, Rafael La Porta, Florencio Lopez-de-Silanes, and Andrei Shleifer. 2003. Courts. *Quarterly Journal of Economics* 118: 453-517.
- Dollar, David and Aart Kraay. 2003. Institutions, Trade, and Growth. *Journal of Monetary Economics* 50: 133-162.
- Easton, Stephen T. and Michael A. Walker. 1997. Income, Growth, and Economic Freedom. *AER Papers and Proceedings* 87: 328-332.
- Farr, W. Ken, Richard A. Lord, and J. Larry Wolfenbarger. 1998. Economic Freedom, Political Freedom, and Economic Well-Being. *Cato Journal* 18: 247-262.
- Freeman, Richard B. 2006. People Flows in Globalization. *Journal of Economic Perspectives* 20: 145-170.
- Friedman, Milton and Rose Friedman. 1980. *Free To Choose*. New York: Harcourt, Brace, Jovanovich, Inc.
- Glaeser, Edward L., Simon Johnson, and Andrei Shleifer. 2001. Coase Versus the Coasians. *Quarterly Journal of Economics* 116: 853-899.
- Glaeser, Edward L., Rafael La Porta, Florencio Lopez-De-Silanes, and Andrei Shleifer. 2004. Do Institutions Cause Growth? *Journal of Economic Growth* 9: 271-303.
- Gwartney, James, Robert Lawson, and Walter Block. 1996. *Economic Freedom of the World: 1975-1995*. Vancouver: The Fraser Institute.
- Gwartney, James, Robert Lawson, and William Easterly. 2006. *Economic Freedom of the World: 2006 Annual Report*. Vancouver: The Fraser Institute.

- Hall, Robert E. and Charles I. Jones. 1999. Why Do Some Countries Produce So Much More Output Per Worker Than Others? *Quarterly Journal of Economics* 114: 83-116.
- Hayek, Friedrich A., editor. 1954. *Capitalism and the Historians*. Chicago: University of Chicago Press.
- Heckelman, Jac C. 2000. Economic Freedom and Economic Growth: A Short-Run Causal Investigation. *Journal of Applied Economics* 3: 71-91.
- Hodler, Roland. 2006. The Curse of Natural Resources in Fractionalized Countries. *European Economic Review* 50: 1367-1386.
- Holmes, Kim R., Bryan T. Johnson, and Melanie Kirkpatrick. 1998. *1998 Index of Economic Freedom*. Washington, DC: The Heritage Foundation.
- Kalaitzidakis, Pantelis, Theofanis P. Mamuneas, and Thanasis Stengos. 2003. Rankings of Academic Journals and Institutions in Economics. *Journal of the European Economic Association* 1: 1346-1366.
- Kaufman, Daniel, Aart Kraay, and Pablo Zoido-Lobaton. 1999. Governance Matters. World Bank Working Paper #2196. Washington, DC: The World Bank.
- Keefer, Philip and Stephen Knack. 1995. Institutions and Economic Performance: Cross-Country Tests Using Alternative Institutional Measures. *Economics and Politics* 7: 207-227.
- Kormendi, Roger C. and Philip G. Meguire. 1985. Macroeconomic Determinants of Growth: Cross-Country Evidence. *Journal of Monetary Economics* 16:141-163.
- Lawson, Robert A. 2006. On Testing the Connection between Economic Freedom and Growth. *Econ Journal Watch* 3(3): 398-406.
- Levine, Ross. 2005. Law, Endowments and Property Rights. *Journal of Economic Perspectives* 19(3), Summer: 61-88.
- Levine, Ross, Norman Loayza, and Thorsten Beck. 2000. Financial Intermediation and Growth: Causality and Causes. *Journal of Monetary Economics* 46: 31-77.
- Levine, Ross and David Renelt. 1992. A Sensitivity Analysis of Cross-Country Growth Regressions. *American Economic Review* 82: 942-963.
- Mauro, Paola. 1995. Corruption and Growth. *Quarterly Journal of Economics* 110: 681-712.
- Messick, R.E. 1996. The World Survey of Economic Freedom. *Freedom Review* 27(2): 7-17.

- North, Douglas C. and Robert Paul Thomas. 1973. *The Rise of the Western World: A New Economic History*. New York: Cambridge University Press.
- North, Douglas C. 1990. *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press.
- Rabushka, Alvin. 1991. Preliminary Definition of Economic Freedom. In Walter Block, editor, *Economic Freedom: Toward a Theory of Measurement*. Vancouver: The Fraser Institute.
- Rodrik, Dani. 1999. Where Did All the Growth Go? External Shocks, Social Conflict, and Growth Collapses. *Journal of Economic Growth* 4: 385-412.
- Rodrik, Dani, Arvind Subramanian, and Francesco Trebbi. 2004. Institutions Rule: The Primacy of Institutions Over Geography and Integration in Economic Development. *Journal of Economic Growth* 9: 131-165.
- Sala-i-Martin, Xavier, Gernot Doppelhofer, and Ronald I. Miller. 2004. Determinants of Long-Term Growth: A Bayesian Averaging of Classical Estimates (BACE) Approach. *American Economic Review* 94(4): 813-835.
- Scully, Gerald. 1988. The Institutional Framework and Economic Development. *Journal of Political Economy* 96: 652-662.
- Scully, Gerald and Daniel J. Slottje. 1991. Ranking Economic Liberty Across Countries. *Public Choice* 69: 121-152.
- Temple, Jonathan. 1999. The New Growth Evidence. *Journal of Economic Literature* 37: 112-156.
- Vega-Gordillo, Manuel and José L. Álvarez-Arce. 2003. Economic Growth and Freedom: A Causality Study. *Cato Journal* 23: 199-215.
- Wright, L.M. 1982. A Comparative Survey of Economic Freedoms. In Raymond D. Gastil, editor, *Economic Freedom of the World*. Westport, CT: Greenwood Press.

Table 1
Areas and Components of the EFW Index

1. Size of Government: Expenditures, Taxes, and Enterprises
 - A. General government consumption spending as a percentage of total consumption
 - B. Transfers and subsidies as a percentage of GDP
 - C. Government enterprises and investment as a share of total investment
 - D. Top marginal tax rate (and income threshold at which it applies)
 - i. Top marginal income tax rate (and income threshold at which it applies)
 - ii. Top marginal income and payroll tax rate (and income threshold at which the top marginal income-tax rate applies)

2. Legal Structure and Security of Property Rights
 - A. Judicial independence—the judiciary is independent and not subject to interference by the government or parties in disputes
 - B. Impartial courts—a trusted legal framework exists for private businesses to challenge the legality of government actions or regulation
 - C. Protection of intellectual property
 - D. Military interference in rule of law and the political process
 - E. Integrity of the legal system

3. Access to Sound Money
 - A. Average annual growth of the money supply in the last five years minus average annual growth of real GDP in the last ten years
 - B. Standard inflation variability in the last five years
 - C. Recent inflation rate
 - D. Freedom to own foreign currency bank accounts domestically and abroad

4. Freedom to Trade Internationally
 - A. Taxes on international trade
 - i. Revenue from taxes on international trade as a percentage of exports plus imports
 - ii. Mean tariff rate
 - iii. Standard deviation of tariff rates
 - B. Regulatory trade barriers
 - i. Non-tariff trade barriers
 - ii. Compliance cost of importing and exporting
 - C. Actual size of trade sector compared to expected size
 - D. Difference between official exchange rate and black-market rate
 - E. International capital market controls
 - i. Foreign ownership/investment restrictions
 - ii. Restrictions on the freedom of citizens to engage in capital market exchange with foreigners—index of capital controls among 13 IMF categories

5. Regulation of Credit, Labor, and Business
 - A. Credit market regulations
 - i. Ownership of banks—percentage of deposits held in privately owned banks
 - ii. Competition—domestic banks face competition from foreign banks
 - iii. Extension of credit—percentage of credit extended to private sector
 - iv. Avoidance of interest rate controls and regulations that lead to negative real interest rates
 - v. Interest rate controls—interest rate controls on bank deposits an/or loans are freely determined by the market
 - B. Labor market regulations
 - i. Impact of minimum wage
 - ii. Hiring and firing practices—hiring and firing practices of companies are determined by private contract
 - iii. Share of labor force whose wages are set by centralized collective bargaining
 - iv. Unemployment benefits—the unemployment benefits system preserves the incentive to work
 - v. Use of conscripts to obtain military personnel
 - C. Business regulations
 - i. Price controls—extent to which businesses are free to set their own prices
 - ii. Burden of regulation
 - iii. Time with government bureaucracy—senior management spends a substantial amount of time dealing with government bureaucracy
 - iv. Starting a new business—starting a new business is generally easy
 - v. Irregular payments—irregular, additional payments connected with import and export permits, business licenses, exchange controls, tax assessments, police protection, or loan applications are very rare

Source: Gwartney, Lawson, and Easterly (2006), pp. 8-9.

Table 2
Journals Included in the Social Sciences Citation Index Publishing Articles Citing the EFW Index

<i>Rank*</i>	<i>Journal</i>	<i>Articles</i>	<i>Rank*</i>	<i>Journal</i>	<i>Articles</i>
3	J Political Econ	1	NA	Electoral Stud	1
5	Quarterly J Econ	3	NA	European J Industrial Relations	1
10	J Monetary Econ	1	NA	European J Political Research	1
12	J Econ Perspectives	2	NA	Forest Policy Econ	1
14	European Econ Rev	1	NA	Habitat International	1
25	J Environmental Econ Mgmt	1	NA	Harvard J Law Public Policy	2
32	J Econ Behavior Org	2	NA	Human Rights Quarterly	1
36	Econ Inquiry	7	NA	Independent Review	6
37	World Bank Econ Rev	1	NA	Intelligence	1
39	J Development Econ	3	NA	Internationale Politik	1
41	IMF Staff Papers	2	NA	International Forestry Rev	1
43	Public Choice	17	NA	International Interactions	1
46	J Urban Econ	1	NA	International Org	3
47	International J Industrial Org	1	NA	International Political Science Rev	1
48	J Law Econ Org	1	NA	J Accounting Research	2
49	J Law Econ	2	NA	J African Econ	1
55	World Development	3	NA	J Asian African Stud	1
56	Southern Econ J	2	NA	J Artificial Societies Social Simulatio	1
59	J Banking Fin	1	NA	J Bus Ethics	1
60	Contemporary Econ Policy	5	NA	J Bus Fin Accounting	1
63	J Institutional Theoretical Econ	3	NA	J Bus Research	1
64	Applied Econ	2	NA	J Communication	1
69	Oxford Rev Econ Policy	1	NA	J Consumer Affairs	1
81	Kyklos	9	NA	J Corporate Fin	2
92	Brookings Papers Econ Activity	1	NA	J Democracy	1
93	Econ Development Cultural Change	1	NA	J Econ Growth	1
101	J Productivity Anal	1	NA	J Econ Surveys	2
130	International Rev Law Econ	1	NA	J Fin	2
135	J World Trade	1	NA	J International Bus Stud	3
137	Applied Econ Letters	2	NA	J International Money Fin	1
139	J Developing Areas	1	NA	J Labor Research	1
146	Politicka Ekonomie	1	NA	J Legal Stud	1
148	Betriebswirtschaftliche Forschung	1	NA	J Modern African Stud	1
149	Desarrollo Economico	1	NA	J Money Credit Banking	1
157	South African J Econ	1	NA	J Portfolio Mgmt	1
NA	Academy Mgmt J	1	NA	J Rural Stud	1
NA	American Bus Law J	1	NA	J Science Industrial Research	1
NA	Annals American Academy Political	1	NA	J Sociology	1
NA	Annals Regional Science	1	NA	J Southeast Asian Stud	1
NA	Asian Survey	1	NA	J Southern African Stud	1
NA	Australian Econ Rev	1	NA	J World Bus	2
NA	Canadian Public Policy	1	NA	Korean J Defense Analysis	1
NA	Catholic University Law Rev	1	NA	Labour Econ	1
NA	Communist Post-Communist Stud	1	NA	Latin American Politics Society	2
NA	Community Dentistry Oral Epidemiol	1	NA	Long Range Planning	1
NA	Comparative Political Stud	2	NA	Middle East J	1
NA	Crime Law Social Change	1	NA	Org Stud	1
NA	Dados-Revista De Ciencias Sociais	1	NA	Personality Individual Differences	1
NA	Development Policy Rev	1	NA	Politische Vierteljahresschrift	2
NA	Drustvena Istrazivanja	1	NA	Post-Communist Econ	2
NA	Econ Policy	1	NA	Professional Geographer	1

<i>Rank*</i>	<i>Journal</i>	<i>Articles</i>
NA	Progress in Planning	1
NA	Psychologische Rundschau	1
NA	Publius-J Federalism	1
NA	Quality Progress	1
NA	Regional Stud	1
NA	Research Policy	1
NA	Rev Agricultural Econ	1
NA	Rev Development Econ	1
NA	Rev International Political Econ	1
NA	Social Forces	1
NA	Social Indicators Research	3
NA	Social Philosophy Policy	1
NA	Social Science J	1
NA	Stud Comparative International Dev	2
NA	Telecommunications Policy	2
NA	Terrorism Political Violence	1

<i>Rank*</i>	<i>Journal</i>	<i>Articles</i>
NA	Texas Law Rev	1
NA	Virginia Law Rev	1
NA	Washington Quarterly	1
NA	World Politics	1
<i>Total SSCI Citations</i>		194
NA	Cato J	3
NA	Constitutional Political Econ	1
NA	European J Political Econ	13
<i>Other Citations**</i>		17

Notes: Article count applies only during years the journal has been included in the SSCI.

*Journal rank is from Kalaitzidakis et al (2003), Table 1. NA indicates the journal was not included in the rankings.

**Other citations in journals not included in the SSCI taken from the survey by de Haan et al (2006); represents only a partial count of citing articles appearing in these journals.

ABOUT THE AUTHOR



John W. Dawson is Associate Professor of Economics in the Walker College of Business at Appalachian State University in Boone, North Carolina. He earned his B.S. in economics from East Carolina University and his Ph.D. in economics from North Carolina State University. Dawson has professional publications in *Economic Inquiry*, *Canadian Journal of Economics*, *European Journal of Political Economy*, *Kyklos*, *Economics Letters*, *Applied Economics*, *Empirical Economics*, and *The Cato Journal*. Email: dawsonjw@appstate.edu.