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Economic Growth, Ten Forms of Economic Freedom, and Political Stability: An Empirical Study Using Panel Data, 2003–2007

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Abstract
This study investigates the impact of the ten forms of economic freedom developed by the Heritage Foundation (2008), as well as a measure of political stability developed by the World Bank (2009), on economic growth in OECD nations. Both panel least squares estimations and panel two-stage least squares estimations find that the natural log of purchasing-power-parity adjusted per capita real GDP in OECD nations was positively impacted by monetary freedom, business freedom, investment freedom, labor freedom, fiscal freedom, property rights freedom, and freedom from corruption. Economic growth was also found to be positively impacted by political stability. Furthermore, economic growth was negatively impacted by higher long-term nominal interest rates. Thus, policies consistent with maintaining these economic freedoms and political stability should help promote economic expansion, especially when coupled with government policies that do not elevate long-term nominal interest rates. Interestingly, in estimating the model using the composite index of the level of economic freedom developed by Gwartney and Lawson (2008), it is shown that the latter results parallel those derived using the Heritage Foundation data, implying that both sets of economic freedom measures are potentially useful substitutes in demonstrating the role of economic freedom in real economic growth.

JEL Codes: O43, O47, O50, P14
Keywords: Economic growth; Ten economic freedoms; Political stability

I. Introduction

The process of economic growth has been formally studied for decades. During the past 15 years, numerous studies have been conducted to investigate the linkage between economic growth and economic freedom. Most of these studies conclude that there exists a positive impact of various measures of economic freedom on the rate

of economic growth (Ali, 1997; Ali and Crain, 2001, 2002; Barro, 1997; Clark and Lawson, 2008; Dawson, 1998; De Haan and Siermann, 1998; De Haan and Sturm, 2000; Gwartney, Holcombe, and Lawson, 2006; Heckelman and Stroup, 2000). Indeed, the study by Cole (2003, p.196) concludes that "…economic freedom is a significant factor in economic growth, regardless of the basic theoretical framework." Other studies have found that governance is significant to the process of economic growth (Lui, 1996; Zhao, Kim, and Du, 2003; Akcay, 2006; Brito-Bigott et al., 2008).

This empirical study focuses principally on the relationship between economic growth on the one hand and both (1) various forms of economic freedom and (2) political stability on the other hand. Interestingly, in light of the global recession currently being experienced, the OECD is working with its own members and, to a degree, with non-member governments and other organizations to get economies back on the path of economic stabilization and expansion. As a central part of this effort, the OECD very strongly advocates the position that governments must be cautious not to jeopardize/sacrifice economic freedom or domestic political stability as they seek ways in which to strengthen and revitalize their economies. In other words, nations are strongly encouraged to continue to support and promote economic freedom and political stability, especially in this post-9/11 era (OECD, 2009). The concern of the OECD in this context is that either the abandonment of economic freedoms or the loss of political stability will result over time in *diminished* economic growth and lead to a deeper and/or longer global economic slowdown.

Accordingly, the purpose of this study is to investigate the impact of the ten specific forms of economic freedom developed by the Heritage Foundation (2008), as opposed to a composite measure of economic freedom, as well as a measure of political stability developed by the World Bank (2009), on the economic growth rate in OECD nations in recent years, i.e., 2003–2007. The study focus on OECD nations and on the years 2003–2007 reflects the fact that the above concerns were expressed by the OECD *per se* and also were very recently conveyed (in 2009).

In this study, economic growth is measured by the natural log of the purchasing-power-parity adjusted per capita real GDP. Given that the OECD is expressly concerned with economic growth, the framework for the study consists *solely* of the nations that comprise

the OECD. In the interest of thoroughness and in deference to the existing related literature, this study begins by considering *all ten* of the measures of economic freedom developed by the Heritage Foundation (2008). To supplement these economic freedom measures, this study adopts a measure of political stability developed by the World Bank (2009). In order to investigate and confirm the resilience of the economic freedom indices as well as political stability in promoting economic growth, strictly economic variables are also integrated into the model (as *de facto* control variables). The PLS (panel least squares) and P2SLS (two-stage panel least squares) estimations apply for the period 2003 through 2007.

II. The Basic Framework

This study focuses on economic growth among the OECD member countries for the period 2003–2007. Economic growth is measured as the natural log of per capita real GDP over the study period; log RPCY, made comparable across nations by PPP (purchasing power parity) adjustments. In turn, following a number of studies focused upon economic growth (Tortensson, 1994; Cebula, 1978, 1995; Goldsmith, 1995; Ali, 1997; Barro, 1997; Nelson and Singh, 1998; Norton, 1998; Dawson, 1998, 2003; Cole, 2003; Gwartney, Holcombe, and Lawson, 2006), it is hypothesized that economic growth depends upon (a) various forms of economic freedom (FREEDOM), as well as (b) political stability (POLSTAB), and (c) purely economic factors (ECON), such that:

$$\log \text{RPCYppp}_j = f(\text{FREEDOM}_j, \text{POLSTAB}_j, \text{ECON}_j) \qquad (1)$$

where $\log\text{RPCYppp}_j$ is the natural log of the purchasing-power-parity adjusted per capita real GDP in OECD nation j; FREEDOM_j refers to the values of economic freedom measures (indices) in nation j; POLSTAB_j refers to the value of a measure of political stability in nation j; and ECON_j refers to the values of economic factors in nation j.

As developed by the Heritage Foundation (2008), there are ten forms of economic freedom expressly considered in this analysis. The first studied here is *fiscal freedom* (*FF*). Fiscal freedom is a measure of freedom from the burden of government from the revenue side. Technically, *FF* includes freedom from both the tax burden in terms of the top income tax rate (on corporations and individuals, taken

separately) and the overall amount of tax revenue as a percentage of a nation's GDP. The second economic freedom considered in this study is *business freedom* (BF), which reflects the individual's right and ability to freely conduct entrepreneurial activities, e.g., starting and operating a business firm without government interference. The third economic freedom studied here is *monetary freedom* (MF), which is illustrated by a stable currency and a system of market-determined pricing. In order to embark on entrepreneurial endeavors and efficaciously conduct business, citizens need a stable and reliable monetary system (currency) to serve as both a reliable medium of exchange and as a store of value (wealth). *Property rights freedom* (PR), which is another form of economic freedom, supports the accumulation of private property in a market-driven environment. Secure property rights provide people the confidence and incentive to undertake entrepreneurial activities, to save, and to invest (Tortensson, 1994; Goldsmith, 1995; Heckelman, 2000; Dawson, 2003). The fifth economic freedom measure considered here is *labor freedom* (*LF*). Labor freedom is a composite index reflecting freedom from government wage and price controls and measures the ability of workers and firms to interact freely without restrictions imposed by the state. The sixth measure of economic freedom is *investment freedom* (*IF*). Investment freedom is an index reflecting an assessment of freedom of the flow of capital, especially foreign capital; this index reflects the absence of restrictions on foreign ownership and investment and *legal* equality between foreign and domestic firms. The seventh measure of economic freedom is *trade freedom* (*TF*). Trade freedom reflects the openness of an economy to imports of goods and services from other nations and the ability of the citizens of that economy to freely interact as sellers and/or purchasers of goods and services in the international marketplace. The eighth category of economic freedom is *freedom from excessive government size* (*GS*). This index of economic freedom reflects the degree of *freedom* in an economy *from* the *burden of excessive government in terms of expenditures*. Alternatively stated, it reflects the degree of freedom from excessive government on the expenditure (as opposed to revenue or tax) side. Government outlays necessarily compete with private agents and interfere with natural market processes and prices by overstimulating demand, potentially diverting resources through a "crowding out" effect (Carlson and Spencer, 1975; Cebula, 1978, 1995; Gusek, 1997). The ninth form of economic freedom is *financial*

freedom (*FINF*). Nearly all nations provide oversight of banks and financial market, including the markets for equities and insurance. The *financial freedom index* is an indicator of the degree to which the financial sector of the economy is free from *excessive* banking and financial regulation by the government. Finally, the tenth form of economic freedom is *freedom from corruption* (*FREECORR*). Political corruption by public officials (whether elected or not) can assume many forms, including bribery, embezzlement, extortion, nepotism, and "graft" (where public officials either directly steal public funds or illegitimately benefit from public funds). This freedom index is an indicator of the degree to which an economy is free of such forms of corruption.

The higher the numerical value of each of these economic freedom indices, the greater the degree of economic freedom. The potential range of each of these indices is 0.0 to 100.0. Following the related literature to date, it is expected (*ceteris paribus*) that economic growth is an increasing function of each one of these economic freedom measures.

To supplement the economic freedom indices, this study focuses also on political stability and the absence of violence/terrorism (POLSTAB). Clearly, an environment with greater prospects of governmental destabilization by unconstitutional means, violence, or terrorism, would create risk and uncertainty that would discourage entrepreneurship and the manifestation of legitimate private enterprise. The POLSTAB dimension of governance is an index indicating the likelihood that government will *not* be destabilized by unconstitutional or violent means, including acts of terrorism. The higher the value of this index (World Bank, 2009), the greater the likelihood that private sector investment will occur and that private enterprise will flourish, thereby resulting in greater economic efficiency, greater economic stability, and higher economic growth, *ceteris paribus*. The potential range of this series goes from -1.00 to +2.00.

Finally, this analysis controls for purely economic determinants of growth by adopting two strictly economic variables: net exports, expressed as a percent of GDP, NXY; and the nominal long term interest rate, LONGINT (Cebula, 1995; Barro, 1997; Nelson and Singh, 1998; Ogbokor, 2005; Arora and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009). Presumably, *ceteris paribus*, a higher NXY implies a higher rate of growth of real domestic production,

ceteris paribus. In addition, a higher LONGINT implies a lower rate of investment and capital formation, resulting in less economic growth, *ceteris paribus*.

III. Empirical Analysis: Panel Least Squares Estimates

Given the variables identified above, a semi-log estimate of the following equation is to be initially estimated by panel least squares (PLS):

$$\log RPCYppp_j = f(FF_j, BF_j, MF_j, PR_j, LF_j, IF_j, TF_j, GS_j, FINF_j, FREECORR_j, POLSTAB_j, NXY_j, LONGINT_j) \quad (2)$$

where:

$\log RPCYppp_{jt}$ = the natural log of the purchasing-power-parity adjusted real per capita GDP in nation j, year t;
a_0 = constant;
FF_{jt-1} = the value of the fiscal freedom index in nation j, year t-1;
BF_{jt-1} = the value of the business freedom index in nation j, year t-1;
MF_{jt-1} = the value of the monetary freedom index in nation j, year t-1;
PR_{jt-1} = the value of the property rights freedom index in nation j, year t-1;
LF_{jt-1} = the value of the labor freedom index in nation j, year t-1;
IF_{jt-1} = the value of the investment freedom index in nation j, year t-1;
TF_{jt-1} = the value of the trade freedom index in nation j, year t-1;
GS_{jt-1} = the value of the freedom from excessive government size index in nation j, year t-1;
$FINF_{jt-1}$ = the value of the financial freedom index in nation j, year t-1;
$FREECORR_{jt-1}$ = the value of the freedom from corruption index in nation j, year t-1;
$POLSTAB_{jt-1}$ = the value of the index of political stability in nation j, year t-1;
NXY_{jt-1} = the ratio of net exports to the GDP in nation j, year t-1, expressed as a percent;
$LONGINT_{jt-1}$ = the nominal long term interest rate in nation j, year t-1, expressed as a percent; and
u = stochastic error term;
where t = 2003, 2004, 2005, 2006, 2007 and j =1,…30.

Descriptive statistics for all of the variables considered in this study are provided in Table 1. The data sources for the variables in the analysis are, as follows: log RPCYppp, IMF (2008); the freedom indices, FF, BF, MF, PR, LF, IF, TF, GS, FINF, and FREECORR, Heritage Foundation (2008); the political stability index, POLSTAB, World Bank (2009); and the explanatory economic variables, NXY and LONGINT, OECD (2008). Heteroskedasticity was present in all of the estimates in this study. To correct for this, the procedure by Newey and West (1987) was adopted, although the results were essentially the same using the White (1980) correction.

Table 1. Descriptive Statistics

Variable	Mean	Standard Deviation
Economic Growth	2.685	1.182
Fiscal Freedom	61.41	12.43
Business Freedom	79.11	11.14
Monetary Freedom	83.17	6.2
Property Rights	77.155	15.648
Labor Freedom	66.41	16.26
Investment Freedom	80.6	4.795
Government Size	41.2	19.5
Financial Freedom	70.0	17.14
Freedom from Corruption	70.48	21.57
Political Stability	0.771	0.533
Net Exports/GDP	0.077	0.0406
Long Term Interest Rate	4.804	2.239
Unemployment Rate	6.453	3.057
Composite Economic Freedom	7.476	0.482

The PLS estimate of semi-log equation (2), using the White (1980) heteroskedasticity correction, is provided by column (a) of Table 2. In this estimation, the coefficients on 10 of the 13 explanatory variables exhibit the expected signs, with six being statistically significant at the 1 percent level and three being statistically significant at the 5 percent level. In addition, the R^2 is 0.83, so that the model explains five-sixths of the variation in the economic growth rate. Finally, the F-statistic is statistically significant at far beyond the 1 percent level, attesting to the overall strength of the model.

Table 2. Panel Least Squares Estimates of Economic Growth

Variable\Estimation	(a)	(b)	(c)
Constant	3.49	3.11	4.23
Fiscal Freedom	0.0112**	0.0101**	0.005
	(2.59)	(2.65)	(1.29)
Business Freedom	0.0125**	0.0109**	0.017**
	(3.21)	(2.65)	(3.84)
Monetary Freedom	0.0147*	0.0158*	0.0155*
	(2.33)	(2.48)	(2.24)
Property Rights	0.0101**	0.0105**	0.0124**
	(3.60)	(3.65)	(4.38)
Labor Freedom	0.0036*	0.0042**	0.0019
	(2.02)	(2.71)	(1.20)
Investment Freedom	0.0072**	0.008**	0.008**
	(3.02)	(3.55)	(3.00)
Trade Freedom	-0.005	—	-0.0086
	(-0.80)		(-0.99)
Government Size	-0.002	—	-0.0037
	(-1.02)		(-1.43)
Financial Freedom	0.0002	—	-0.0004
	(0.24)		(-0.39)
Freedom from Corruption	0.007*	0.008*	0.004
	(2.20)	(2.27)	(1.05)
Political Stability	0.368**	0.389**	—
	(2.75)	(2.64)	
Net Exports/GDP	-0.319	-0.24	-0.70
	(-1.00)	(-0.77)	(-1.18)
Long Term Interest Rate	-0.117**	-0.120**	-0.128*
	(-2.98)	(-2.89)	(-2.45)
R^2	0.83	0.82	0.79
adjR^2	0.79	0.79	0.76
F	25.69	33.41	22.56

Terms in parentheses are t-values. **Indicates statistically significant at the 1 percent level; * indicates statistically significant at the 5 percent level.

Based on these initial PLS results, the economic growth rate (as measured) in OECD nations over the 2003 through 2007 study period is an increasing function of seven of the ten forms of economic freedom studied, FF (fiscal freedom), BF (business freedom), MF (monetary freedom), PR (property rights freedom), LF

(labor freedom), IF (investment freedom), and FREECORR (freedom from corruption), as might be expected in light of previous studies (Ali, 1997; Ali and Crain, 2001, 2002; Barro, 1997; Dawson, 1998; De Haan and Siermann, 1998; De Haan and Sturm, 2000; Heckelman and Stroup, 2000), although the latter generally used different, i.e., more aggregated, economic freedom measures. By contrast, the estimated coefficients on three of the economic freedom indices were statistically insignificant, namely, those for the variables GS (freedom from the burden of excessive government in terms of expenditures), TF (trade freedom), and FINF (financial freedom). Economic growth also is an increasing function of POLSTAB, the political stability measure (Liu, 1996). Furthermore, economic growth is a decreasing function of the nominal long-term interest rate (Cebula, 1995; Barro, 1997; Nelson and Singh, 1998; Ogbokor, 2005; Arora and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009).

Regarding the specific impacts of the variables in estimate (b), a one-unit increase in the fiscal freedom index (FF) raises the economic growth rate by 1.12 percent. A one-unit increase in the business freedom index (BF) raises the economic growth rate by 1.25 percent. A one-unit elevation in the monetary freedom index (MF) elevates economic growth by 1.47 percent. Increasing the property rights freedom index (PR) by one unit raises economic growth by 1.01 percent. An increase in the labor freedom index (LF) of one unit leads to an increase of 0.36 percent in economic growth. Increasing the investment freedom index (IF) by one unit leads to a 0.72 percent rise in economic growth. Last for the economic freedom indices, a one-unit increase in the freedom from corruption (FREECORR) index leads to a 0.7 percent increase in the economic growth rate. Clearly, the results imply that monetary freedom exercises the greatest impact of the economic freedom variables, followed by business freedom and then by fiscal freedom. As for the remaining variables, a one unit increase in the political stability index (POLSTAB) raises economic growth by 0.368 percent, and a 1 percent (100 basis points) increase in the nominal long-term interest rate reduces economic growth by 0.46 percent.

For the interested reader, a correlation matrix for the explanatory variables in the model is provided in Table 3. Despite a limited number of cases in which the correlation coefficients exceed 0.50 (7 out of 72), 9 of the 13 explanatory variables are nevertheless

statistically significant, with most of these nine significant at beyond the 1 percent level. However, as already observed, the estimated coefficients on three of the economic freedom indices were statistically insignificant, those for the variables GS (freedom from the burden of excessive government in terms of expenditures), TF (trade freedom), and FINF (financial freedom). As suggested in the correlation matrix in Table 3, to some extent, this statistical insignificance *may* be attributable to multicollinearity introduced by these variables. For example, GS is highly correlated with the fiscal freedom variable: R = 0.70. In addition, TF is rather highly correlated with the freedom from corruption variable: R = 0.57. Furthermore, FINF is somewhat highly correlated with labor freedom: R = 0.51. These circumstances suggest that there may be potential benefits/insights to be gained from re-estimating the model with these three seemingly poorly performing variables omitted.

Re-estimating the thus modified version of equation (2) by PLS yields estimation (b) in Table 2. In this estimate, nine of the ten estimated coefficients exhibit the expected signs, with seven statistically significant at the 1 percent level and two statistically significant at the 5 percent level. Once again, the findings imply that economic growth (as defined) is an increasing function of each of the seven economic freedoms identified as significant in column (a): FF (fiscal freedom), BF (business freedom), MF (monetary freedom), PR (property rights freedom), LF (labor freedom), IF (investment freedom), and FREECORR (freedom from corruption). These findings, like their counterparts in column (a), are consistent in spirit with nearly all of the existing literature on the relationship between economic growth and economic freedom (Ali, 1997; Ali and Crain, 2001, 2002; Barro, 1997; Dawson, 1998; De Haan and Siermann, 1998; De Haan and Sturm, 2000; Heckelman and Stroup, 2000).

In addition, economic growth is positively impacted by political stability, as reflected in the POLSTAB variable. This result, like its counterpart in column (a), is consistent with Liu (1996), as well as with other studies (Zhao, Kim, and Du, 2003; Akcay, 2006; Brito-Bigott et al., 2008). Finally, economic growth is also negatively impacted by the nominal long-term interest rate, LONGINT. The latter is compatible with previous research (Cebula, 1995; Barro, 1997; Nelson and Singh, 1998; Ogbokor, 2005; Arora and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009).

Table 3. Correlation Matrix

	FF	BF	MF	PR	LF	IF	TF	GS	FINF	FREECORR	POLSTAB	NXY	LONGINT
FF	1.00												
BF	-.23	1.00											
MF	-.22	.43	1.00										
PR	-.39	.43	.47	1.00									
LF	-.01	.43	.29	.30	1.00								
IF	.46	.23	.28	.53	.13	1.00							
TF	-.22	.16	.11	.31	.05	.16	1.00						
GS	.70	-.10	-.26	-.31	.10	-.32	-.32	1.00					
FINF	-.03	.31	.30	.45	.51	.47	.08	-.11	1.00				
FREECORR	-.44	.71	.40	.62	.31	.43	.57	-.35	.41	1.00			
POLSTAB	-.14	.38	.61	.45	.16	.32	.34	-.40	.30	.70	1.00		
NXY	-.29	.06	.22	.29	-.12	.18	.18	-.17	-.10	.24	.22	1.00	
LONGIN	.25	-.12	-.46	-.31	-.16	-.32	-.16	.32	-.13	-.33	-.46	-.35	1.00

As for the specific impacts of the variables in estimate (b), a one-unit increase in the fiscal freedom index (FF) raises the economic growth rate by 1.01 percent. A one-unit rise in the business freedom index (BF) raises the economic growth rate by 1.09 percent. A one-unit elevation in the monetary freedom index (MF) elevates economic growth by 1.58 percent. Increasing the property rights freedom index (PR) by one unit raises economic growth by 1.05 percent. An increase in the labor freedom index (LF) of one unit leads to a boost of 0.42 percent in economic growth. An increase in the investment freedom index (IF) of one unit leads to a 0.8 percent rise in economic growth. Finally, a one-unit increase in the freedom from corruption (FREECORR) index leads to a 0.8 percent increase in the economic growth rate. Thus, FREECORR and IF exercise roughly the same effects on economic growth. Of these seven measures of economic freedom, monetary freedom exercises the largest impact on the rate of economic growth, followed next by business freedom; furthermore, labor freedom appears to exercise the weakest impact of the group. Interestingly, a similar overall pattern is found in the results provided in column (a) of Table 2, although in the present estimate property rights freedom replaces fiscal freedom as the third strongest economic freedom influence on economic growth. As for the remaining variables, a one unit increase in the political stability index (POLSTAB) raises economic growth by 0.389 percent, and a 1 percent (100 basis points) increase in the nominal long-term interest rate reduces economic growth by 0.47 percent.

Although the results in column (b) of Table 2 confirm (are consistent with) those in column (a), the reader may wish to consider the estimation shown in column (c) of Table 2. In this estimation, the POLSTAB variable is omitted from the otherwise unchanged model in column (a). Observe that when this variable is omitted from the estimation, the estimated coefficients on three of the previously statistically significant economic freedoms, LF (labor freedom), FF (fiscal freedom), and FREECORR (freedom from corruption), become statistically insignificant. In addition, the adjusted R^2 declines, as does the F-statistic. Whereas the latter two results may be of limited interest, the former results are of greater interest and relevance. Indeed, on the basis of the loss of significance for LF, FF, and FREECORR, a case could be made that the political stability variable is potentially an "omitted variable" and thus it (or a good substitute for it) should be included when modeling economic

growth as a function of economic freedom, or at the very least, when doing so using the economic freedom measures developed by the Heritage Foundation (2008).

IV. Further Empirical Analysis: Panel Two Stage Least Squares Estimations

In this section of the study, the analysis provides P2SLS (panel two stage least squares) estimations to test (attempt to confirm) the substance and robustness of the principal empirical results obtained thus far. In these P2SLS estimates, the dependent variable reflecting real economic growth per capita, log RPCYppp, is treated as contemporaneous with the nominal long-term interest rate, LONGINT. Since these two variables are thusly treated, the possibility of simultaneity bias arises. Accordingly, the system is estimated by P2SLS, with the instrument being the two-year lag of the unemployment rate, UR_{jt-2} (OECD, 2008). UR_{jt-2} was chosen as the instrument because it was found to be highly correlated with the dependent variable (log $RPCYppp_{jt}$) while not being correlated with the error terms in the system.

The P2SLS estimate of the complete model, including all ten economic freedoms and the political stability variable, is provided in column (a) of Table 4. Of the 13 estimated coefficients, ten exhibit the expected signs, with four statistically significant at the 1 percent level and five statistically significant at the 5 percent level. The findings imply that economic growth is once again positively a function of seven of the ten forms of economic freedom, namely, FF (fiscal freedom), BF (business freedom), MF (monetary freedom), PR (property rights freedom), LF (labor freedom), IF (investment freedom), and FREECORR (freedom from corruption). These are the very same seven economic freedoms found to be statistically significant in the PLS estimates in columns (a) and (b) of Table 2. In Table 4, column (a), economic growth also is an increasing function of POLSTAB (political stability) and a decreasing function of the nominal long-term interest rate.

Overall, these empirical results strongly resemble those in the parallel PLS estimate in column (a) of Table 2. Indeed, most of the coefficients are fairly similar in size. For example, a one-unit increase in the fiscal freedom index raises economic growth by 1.08 percent. A one-unit increase in the business freedom index (BF) raises the economic growth rate by 1.26 percent. A one-unit elevation in the

monetary freedom index (MF) elevates economic growth by 1.55 percent. Increasing the property rights freedom index (PR) by one unit raises economic growth by 1.00 percent. An increase in the labor freedom index (LF) of one unit leads to an increase of 0.36 percent in economic growth. An increase in the investment freedom index (IF) of one unit leads to a 0.71 percent rise in economic growth. Lastly, a one-unit increase in the freedom from corruption (FREECORR)

Table 4. Panel Two Stage Least Squares of Economic Growth

Variable\Estimation	(a)	(b)	(c)
Constant	3.55	3.17	4.44
Fiscal Freedom	0.0108*	0.0106*	0.0032
	(2.42)	(2.56)	(0.62)
Business Freedom	0.0126**	0.0106**	0.018**
	(3.18)	(2.59)	(3.70)
Monetary Freedom	0.0155*	0.0145*	0.018*
	(2.30)	(2.13)	(2.35)
Property Rights	0.010**	0.0108**	0.0122**
	(3.41)	(3.73)	(3.86)
Labor Freedom	0.0036*	0.0041**	0.0021
	(2.10)	(2.69)	(1.30)
Investment Freedom	0.0071**	0.0081**	0.0082**
	(3.11)	(3.50)	(2.93)
Trade Freedom	-0.0066	—	-0.011
	(-0.79)		(-1.04)
Government Size	-0.002	—	-0.0036
	(-0.98)		(-1.30)
Financial Freedom	0.00025	—	-0.00037
	(0.25)		(-0.38)
Freedom from Corruption	0.007*	0.0081*	0.0038
	(2.19)	(2.33)	(0.95)
Political Stability	0.375**	0.375*	—
	(2.77)	(2.27)	
Net Exports/GDP	-0.35	-0.19	-0.82
	(-0.94)	(-0.61)	(-1.62)
Long Term Interest Rate	-0.108*	-0.135*	-0.101
	(-2.03)	(-2.24)	(-1.96)
F	22.98	29.10	19.02

Terms in parentheses are t-values. **Indicates statistically significant at the 1 percent level; * indicates statistically significant at the 5 percent level.

index leads to a 0.7 percent increase in the economic growth rate. Clearly, the results imply that monetary freedom exercises the greatest impact of the economic freedom variables, followed by business freedom and then by fiscal freedom. As for the remaining variables, a one unit increase in the political stability index (POLSTAB) raises economic growth by 0.375 percent, and a 1 percent increase in the nominal long-term interest rate reduces economic growth by 0.44 percent.

To test the robustness of these results, we follow the same procedure as in the previous section of this study, i.e., we estimate the basic model by P2SLS after omitting the three statistically insignificant economic freedoms, TF, GS, and FINF. This estimate is provided in column (b) of Table 4. In this case, nine of the ten estimated coefficients exhibit the expected signs, with four significant at the 1 percent level and five significant at the 5 percent level. Once again, monetary freedom has the largest coefficient among the economic freedoms, and labor freedom has the smallest coefficient. Overall, the results in this estimation are consistent with those in columns (a) and (b) of Table 2 and with column (a) of Table 4.

Finally, what happens to the results if the full model is estimated by P2SLS but with the political stability variable omitted? In terms of the economic freedom variables, as was the case in the PLS results in Table 2, the three economic freedoms FF, LF, and FREECORR become statistically insignificant. Thus, once again, inclusion of the POLSTAB variable, or at least a close suitable substitute for POLSTAB, may be necessary to avoid omitted variable bias.

V. An Alternative Perspective

The analysis thus far has considered only the ten measures of economic freedom developed by the Heritage Foundation (2008). There of course is an arguably better-known series on measuring economic freedom, namely, the composite measure of economic freedom by Gwartney and Lawson (2008). Use of such an index in estimating economic growth models has been objected to by De Hann and Sturm (2007) and De Haan, Lundstrom, and Sturm (2006), while being vehemently advocated by Cole and Lawson (2007), among others. The present study would fall clearly on the side of Cole and Lawson (2007) in this debate insofar as it finds consistent evidence that economic freedom measures positively impact real per capita economic growth.

Table 5. Alternative Economic Growth Results

Variable\Column	(a) PLS	(b) P2SLS
Constant	3.07	1.61
Composite Economic Freedom	0.406**	0.469**
	(4.11)	(3.73)
Political Stability	0.16#	0.417**
	(1.83)	(3.64)
Net Exports/GDP	0.791#	1.537
	(1.75)	(0.04)
Long Term Interest Rate	-0.172**	-0.22**
	(-7.12)	(-4.42)
R^2	0.78	—
adjR^2	0.77	—
F	71.04	37.59

Terms in parentheses are t-values. **Indicates statistically significant at the 1 percent level; * indicates statistically significant at the 5 percent level; # indicates statistically significant at the 10 percent level.

Given that the findings in this study play a potential role in the aforementioned debate, it would seem reasonable to investigate the basic model studied here with the Gwartney and Lawson (2008) composite freedom index ($FRINDEX_{jt}$) adopted in place of the Heritage Foundation (2008) economic freedom measures. The results of PLS and P2SLS of the model are provided in columns (a) and (b), respectively, of Table 5. In both estimates, the estimated coefficient on the FRINDEX variable is positive and statistically significant at far beyond the 1 percent level; furthermore, the other findings effectively parallel those in Tables 2 and 4. Clearly, this is evidence supportive of the positive impact of the composite freedom index on real per capita economic growth. Indeed, because the economic freedom indices derived by the Heritage Foundation (2008) as well as the composite economic freedom index from Gwartney and Lawson (2008) are useful in explaining real economic growth, it would appear that their omission from estimating equations raises serious specification issues. In addition, given the results in Tables 2 and 4 on the one hand and in Table 5 on the other hand, it can reasonably be argued that these two different sets of economic freedom indices are viable substitutes for one another in empirical studies of economic growth (while reinforcing the key role of economic freedom in economic growth).

VI. Conclusion

As a central part of its economic and political policy efforts in the current economic climate and the post-9/11 landscape, the OECD (2009) strongly takes the position that governments must be cautious not to jeopardize economic freedom or political stability as they seek ways in which to strengthen and revitalize their economies. In other words, nations must strive to support and promote economic freedom and political stability (OECD, 2009). The concern in this context is that the abandonment of economic freedoms and/or policies consistent with political stability will result over time in *diminished* economic growth and a deeper and/or longer world economic slowdown.

The PLS and P2SLS estimations provided in this study provide strong empirical support for this perspective. These PLS and P2SLS findings strongly imply that pursuing a set of policies that promotes or is at least consistent with fiscal freedom, business freedom, monetary freedom, property rights protection, labor freedom, freedom from corruption, and investment freedom within an environment of political stability appears completely compatible with propelling the economies of the OECD onto the road to a full and sustainable economic recovery. An interesting final observation is that governments must be wary of incurring large, prolonged budget deficits that lead to higher long-term nominal interest rates; the results obtained in this study provide evidence that such an outcome would exercise a deleterious impact on economic growth. Arguably, given the size of the U.S. economy and its concomitant influence on other economies, it must be cautious in the current economic climate of expanding the role of the federal government and the size of the national debt at unprecedented peacetime rates.

In closing, it may be worth observing that the ten measures of economic freedom as derived by the Heritage Foundation (2008) appear to be, in principle, reasonable substitutes for the composite index of economic freedom as developed by Gwartney and Lawson (2008). The Gwartney and Lawson (2008) index, while complex in its computation, has the virtue of being a simple, i.e., a single, composite index; however, it does not reveal whether certain forms of economic freedom contribute more to economic growth than others. By contrast, the ten economic freedom measures from the Heritage Foundation (2008) have the potential advantage of identifying which economic freedoms are the most important contributors to economic

growth; however, the virtue of these measures can also be regarded as a potential shortcoming because certain of these measures overlap, i.e., are highly correlated with, others. Thus, it is not altogether clear how accurately empirical findings reflect the respective roles of the various indices. Given that both the Heritage Foundation (2008) and Gwartney and Lawson (2008) indices underscore the critically important role played by economic freedom in economic growth, both data sets should be respected as useful in explaining as well as predicting real economic growth. Ideally, when the data are available, it might be worthwhile to do empirical growth estimates first with one economic freedom measure and then with the other. In circumstances where both sets of empirical results are parallel, it would seem that more robust and more credible findings have been obtained.

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