THE IMPACT OF PROPERTY RIGHTS FREEDOM ON ECONOMIC GROWTH: EVIDENCE FROM THE OECD NATIONS

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Abstract
This study empirically investigates of the impact on per capita real economic growth of property rights freedom. After controlling for nominal long term interest rates, net exports, a measure of political stability, and other factors, panel least squares as well as panel two stage least squares estimations using a four-year panel data set for the OECD nations as a group reveal that higher levels of property rights freedom lead to an increased rate of per capita real economic growth. Furthermore, it is found that whereas higher nominal long term interest rates lead to diminished economic growth net export growth and greater political stability enhance economic growth.
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1. Introduction

As the global economy manifests a trend toward either recovery or expansion, there is a significant variation across nations in economic performance. For instance, consider the unemployment rate in the OECD nations (OECD, 2010, Table 2). On the one hand, the majority of OECD nations (perhaps most notably Germany) seem to have shown signs of improvement in the unemployment rate, i.e., a pattern of declining unemployment. On the other hand, the unemployment rate in the U.S., although showing an initial downward movement, shows serious signs of stagnation, i.e., that the U.S. recovery has lost its momentum. Furthermore, in several cases, including nations such as the Czech Republic, Finland, Hungary, Ireland, Portugal, the Slovak Republic, Spain, and Greece, either stagnating or even very slowly rising unemployment rates have been observed.

Within the context of the global economic and financial crisis, several distinct policy concerns of the OECD have surfaced. One of these concerns is reflected in the words of the OECD Secretary-General Angel Gurria (OECD, 2009A, p. 1), who has stressed that "We must ensure that today's policies to manage the crisis not be the source of tomorrow's problems…" The OECD has been 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. Interestingly, as a central part of this effort, the OECD (2009A, p. 1, 2009B, p. 1) advocates the position that governments must be cautious not to jeopardize or sacrifice *economic freedoms* as they pursue policies to strengthen and revitalize their economies.

This study begins with the observation that property rights provide individuals and firms legal authority, a "right," to either keep or sell property they "own." Property rights arguably are essential for a market economy to function efficiently and for economies to either prosper or grow because they give people and firms the capacity to purchase and sell goods and services. In the absence of property rights, governments, firms, or people could take (or endeavor to do so) whatever good or service they chose without paying for same. Indeed, people and firms would have to devote both resources and time to the protection not only of their goods and possessions (assets) but also their earnings, savings, and accumulated wealth in other forms. Moreover, an inventor (or his/her employer) would lose the incentive to be creative, to invent, were property

rights to his/her/its invention not protected by property rights. Absent invention, there would be little or no innovation, economic progress, productivity increases, and increased living standards. Indeed, in the absence of property rights, people would not have the incentive to become learned, trained, skilled, or otherwise specialized in a vocation because they would not know that they could in fact reap the benefits of their efforts.

"Property rights" can described as a form of freedom. As the Heritage Foundation (2009, pp. 14-15) observes, the "…ability to accumulate private property is the main motivating factor in a market economy…Secure property rights give citizens the confidence to undertake commercial activities, save their income, and make long-term plans because they know that their income and savings are safe from expropriation or theft. The protection of private property requires an effective and honest judicial system that is available to all, equally and [ideally] without discrimination."

Within this context, the present study empirically investigates the impact of property rights freedom on per capita real economic growth. The context is that of the OECD nations and a panel data set covering the four years from 2004-2007. So as to provide more comprehensive and reliable insights and also in order to avoid omitted variables bias, this study also investigates the impact on per capita real economic growth of economic factors such as long term interest rates and export growth, as well as the impact of political stability. Moreover, a dummy/binary variable to reflect the impact of a G-8 nation status is included in the analysis. The background for the initial basic empirical framework is presented in the following section (Section II) of this study. The empirical model and data are described in Section III of the study. Following that model, in Section IV, the empirical analysis is provided in two sub-sections, one focusing upon the initial model and the other expanding that model in the effort to test and confirm the consistency of the findings. This analysis takes the form of P2SLS (panel two stage least squares) estimates using recent data from the OECD nations, to which of course the U.S. belongs. Conclusions are provided in Section V of the study.

2. Background for the Analysis

Economic growth has been formally studied for decades. During the past 15-20 years, numerous studies have been conducted expressly to investigate the linkage between economic growth and economic freedom. Most of these studies conclude that there exists a strong, positive impact of economic freedom, especially a measure of *overall* 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; Gwartney and Lawson, 2008; Heckelman and Stroup, 2000; Tortensson, 1994). 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."

One of the best known series for measuring economic freedom by nation is the composite measure of economic freedom developed by Gwartney and Lawson (2008). For purposes of the present study, however, this measure of economic freedom is too aggregated and lacks the specificity required to isolate the impacts on real per capita economic growth of property rights freedom *per se*. To achieve this specificity, this study adopts the specific measure of property rights freedom developed by the Heritage Foundation (2009). In any nation, property

rights freedom is measured by an index, one using a scale from 0 to 100. The higher the scale of property rights freedom in a nation, the greater the degree to which the environment in that nation is conducive to property rights freedom. The scaling system is effectively continuous so that property rights freedom scores with decimals are possible (Heritage Foundation, 2009, p. 15).

This empirical study focuses principally on the relationship between economic growth on the one hand and property rights freedom on the other hand. As observed above, the OECD has been working with its own members as well as with non-member governments and other organizations to restore economic stabilization and expansion, with a central part of this effort including the position that governments must be cautious not to reduce economic freedoms 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 while implementing domestic economic policies. Clearly, the concern of the OECD (2009A, p.1; 2009B, p.1) in this context is that a reduction in economic freedoms will result over time in *diminished* economic growth.

The focus on economic growth in OECD nations in this study and on the years 2004 through 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, following conventional procedures that deal with growth rates among different nations, 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 achieving economic growth without compromising economic freedom, the framework for the study consists *solely* of the nations that comprise the OECD.

3. The Empirical Framework

Following most previous studies, economic growth is measured as the natural log of the per capita real GDP over the study period, *log RPCY*. The value of *log RPCY* is 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 in this eclectic model that economic growth depends upon (a) economic freedom (*FREEDOM*) as well as (b) purely economic factors (*ECON*) and (c) political stability (*POLSTAB*), such that:

$$log\ RPCYpppjt = f(FREEDOMjt,\ ECONjt,\ POLSTABjt,\ OTHERjt) \quad (1)$$

where: *log RPCYpppjt* is the natural log of the purchasing-power-parity adjusted per capita real GDP in OECD nation j in year t; *FREEDOMjt* refers to the value of the economic freedom measure considered in this study, namely, property rights freedom (*PROPFREE*), in nation j in year t; *ECONjt* refers to the values of economic factors in nation j in year t; *POLSTABjt* refers to a measure of the degree of political stability manifested in nation j in year t, i.e., it is a measure of good governance; and *OTHERjt* refers to other, i.e., additional factors included in the model for nation j in year t.

As observed earlier, in each nation in each year studied, property rights freedom is measured using a scale ranging from 0 to100, with 100 being the maximum freedom. The higher the numerical value of e economic freedom indices, the greater the degree of that corresponding economic freedom. An index score of 100 indicates an economic environment or set of public policies that is the most conducive to and compatible with economic freedom.

Paralleling the related literature to date, it is hypothesized (*ceteris paribus*) that per capita real economic growth is an increasing function of *PROPFREE*.

Following the *previous* literature, most of which, in contrast to the present study, has used *composite* measures of economic freedom, this eclectic model controls for purely economic determinants of growth by adopting two purely economic variables: (1) net exports, expressed as a percent of GDP, *NETXY*; and (2) the percentage nominal long term interest rate, *INTRATE*.

Presumably, a higher growth in *NETXY* implies a higher rate of growth of real domestic production, *ceteris paribus* (Ogbokor, 2005; Arora, and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009). In addition, a higher *INTRATE*, which has numerous systematic causes, including inflation, international capital flows, and monetary policy (Cebula, 1998), is expected to reduce investment in new plant and equipment (reduces capital formation outlays) and household purchases of new housing and other durables, thereby resulting in less economic growth, *ceteris paribus* (Carlson and Spencer, 1975; Cebula, 1978, 1995; Barro, 1997; Dawson, 1998; Nelson and Singh, 1998; Ogbokor, 2005; Gwartney, Holcombe, and Lawson, 2006; Arora and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009).

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, the greater the likelihood that the private sector investment will occur and that private enterprise will flourish, due in part to the lower risk and uncertainty associated with greater political stability, thereby resulting in greater economic growth, *ceteris paribus* (Ali and Crain, 2001). The potential range of this series goes from a low of -1.00 to a high of +2.00.

One possible concern with the model in equation (1) is whether the presence of the G8 nations in the study dataset might somehow bias the results. To account for this, a binary (dummy) variable, *G8DUMMY*, is introduced into the model. Thus, the variable *G8DUMMYjt* takes the place of *OTHERjt* in equation (1). The value of variable *G8DUMMY* = 1 for each nation G8 nation observation, and the value of *G8DUMMY* = 0 otherwise. *Ceteris paribus*, it is expected that the coefficient on this variable is positive, as a reflection of the infrastructure, educational, technological, and other advantages enjoyed by G8 nations vis-à-vis other OECD nations.

Substituting *PROPFREE* for *FREEDOM* in equation (1), substituting *NETXY* and

INTRATE for *ECON* in equation (1), and substituting G8DUMMY for OTHER in equation (1), yields:

$$\log RPCYpppjt = f(PROPFREEjt, NETXYjt, INTRATEjt, POLSTABjt, G8DUMMYjt)$$

where it is hypothesized that:

$$f_{PROPFREEjt} > 0, \quad f_{NETXYjt} > 0, \quad f_{INTRATEjt} < 0, \quad f_{POLSTABjt} > 0, \quad f_{G8DUMMYjt} > 0 \qquad (3)$$

3. Empirical Analysis: Panel Least Squares Estimation

The estimates in this section of the study follow directly from the framework developed above [equations (1), (2), and (3)], although a trend variable is also included in the results. The first estimate is a panel least squares (PLS) estimate; the second estimate is a panel two stage least squares estimate.

Given the variables identified in equations (1) - (3), initially the following semi-log equation is to be estimated by panel least squares (PLS):

$$log\ RPCYpppjt = a_0 + a_1\ PROPFREEjt + a_2\ NETXYjt + a_3\ INTRATEjt + a_4\ POLSTABjt + a_5\ G8DUMMYjt + a_6\ TREND + u \quad (4)$$

where:

log RPCYpppjt = the natural log of the purchasing-power-parity adjusted real per capita GDP in nation j in year t;

a_0 = constant;

PROPFREEjt= the value of the property rights freedom index in nation j in year t;

NETXYjt = the ratio of net exports to the GDP in nation j in year t, expressed as a percent;

INTRATEjt = the nominal average long term interest rate in nation j in year t, expressed as a percent per annum;

POLSTABjt = the value of the index of political stability in nation j in year t;

G8DUMMYjt = binary variable for a G8 nation: *G8DUMMYjt* = 1 if nation j is a G8 nation and *G8DUMMYjt* =0 otherwise;

TREND = a linear trend variable;

u = stochastic error term; and

where t = 2004, 2005, 2006, 2007 and j =1,…29.

Descriptive statistics for all of the variables considered in this study are provided in Table 1. Data were available across the study period for 29 of the 30 OECD members; only Iceland had an incomplete dataset and therefore had to be excluded from the analysis. In each of the estimates, *n* = 116 (29 nations, a four-year panel). Panel data estimates frequently include a trend variable to help control for the potential impact of trending of variables over time on the estimation outcomes; accordingly, a trend variable (*TREND*) is also included in the model. The data sources for the variables in the analysis are, as follows: for variable *log RPCYppp*, IMF (2008, Table 1); for the freedom index, *PROPFREE*, Heritage Foundation (2009, pp. 13-14); for the explanatory economic variables, *NETXY*, and *INTRATE*, OECD (2008, Table 1); and for the variable *POLSTABjt* (World Bank, 2009).

The PLS estimate of equation (4) is provided in equation (5):

$$log\ RPCYpppjt = 9.44 + 0.014\ PROPFREEjt + 0.401\ NETXYjt - 0.125\ INTRATEjt + 0.302\ POLSTABjt + 0.204\ G8DUMMYjt - 0.045\ TREND$$

(+6.12) (+2.38) (-3.53) (+2.20) (+2.92) (-1.74)

$$R^2 = 0.79,\ adjR^2 = 0.78,\ F = 69.27 \quad (5)$$

where terms in parentheses are t-values.

In PLS estimate (5), all five of the estimated (non-trend) coefficients exhibit the expected signs, with three statistically significant at the one percent level (*PROPFREEjt*, *INTRATEjt*, and *G8DUMMYjt*) and the remaining two statistically significant at the three percent level or beyond (*NETXYjt* and *POLSTABjt*). The R^2 and adjusted R^2 imply that the model explains nearly four-fifths of the variation in the dependent variable (*log RPCYppp*). Finally, the F-statistics is statistically significant at far beyond the one percent level, attesting to the overall strength of the model. For the interested reader, a correlation matrix among the explanatory variables is provided in Table 2. Observe, that in only one case, namely, that involving *PROPFREE* and *POLSTAB*, does the zero-order correlation coefficient exceed 0.500; furthermore, since both of these explanatory variables are statistically significant and furthermore since r = 0.563 as opposed to a high value, this finding is of no serious concern.

Based on these PLS findings, the real per capita economic growth rate in OECD nations (*log RPCYppp*) is an increasing function of the degree of political stability (*POLSTAB*), whose estimated coefficient is significant at the three percent level. Thus, as hypothesized, the more politically stable a nation is, the greater the inducements for and the better the environment for economic

activities that enhance real per capita economic growth.

Next, the higher the nominal long term interest rate, whose coefficient is negative and statistically significant at the one percent level, the slower the economic growth rate, as expected. Thus, based on the results in (5), it appears that a higher *INTRATE* can be expected to reduce investment in new plant and equipment (reduces capital formation outlays) and household purchases of new housing and other durables, thereby resulting in less economic growth, *ceteris paribus* (Carlson and Spencer, 1975; Cebula, 1978, 1995; Barro, 1997; Dawson, 1998; Nelson and Singh, 1998; Ogbokor, 2005; Gwartney, Holcombe, and Lawson, 2006; Arora and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009). According to the findings in (5), the greater the growth in the ratio of net exports to GDP, the greater the rate of real per capita economic growth. As stated above, a higher growth in *NETXY*, whose coefficient is significant at the two percent level, implies a higher rate of growth of real domestic production, *ceteris paribus* (Ogbokor, 2005; Arora, and Vamvakidis, 2006; Contessi, 2008; Chen, 2009; Dube, 2009).

The estimated coefficient on the *G8DUMMY* variable is positive and statistically significant at the one percent level, a result that presumably reflecting the infrastructure, educational, technological, and other advantages enjoyed by G8 nations vis-à-vis other OECD nations. The estimated coefficient on the *TREND* variable is negative and statistically significant at the nine percent level, arguably reflecting the beginnings of the global slowdown/recession toward the latter part of the study period.

Finally, the estimated coefficient on the property rights freedom variable (*PROPFREE*) is positive, as hypothesized, and statistically significant at far beyond the one percent level. Thus, there is strong evidence that higher levels of property rights freedom act to significantly promote increased real per capita income growth. As appealing and reasonable as this conclusion may be, this study treats this finding as preliminary. Further work on the issue at hand may be warranted.

For example, the dependent variable reflecting real economic growth per capita, *log RPCYppp*, is treated thus far as contemporaneous with the nominal long term interest rate, *INTRATE*, as well as *NETXY*. Applying the Hausman (1982) specification test, no evidence whatsoever of a simultaneity issue was found to exist between *log RPCYppp* on the one hand and *NETXY* on the other hand. However, this is not necessarily the case for *log RPCYppp* and *INTRATE*. In particular, between these two variables, at the ten percent significance level, there is evidence, albeit modest evidence, that the possibility of simultaneity bias exists between the latter two variables (Hausman, 1982). Accordingly, within the context of the Random Effects Model, the system is now estimated by P2SLS, with the instrument being the one-year lag of the unemployment rate, *URjt-1* (OECD, 2010, Table 2). *URjt-1* was chosen as the instrument because it was found to be highly correlated with the dependent variable (*log RPCYpppjt*) while not being correlated with the error terms in the system.

The P2SLS estimate of semi-log equation (4) is provided in equation (6):

$$\log RPCYpppjt = 9.43 + 0.013\, PROPFREEjt + 0.414\, NETXYjt - 0.123\, INTRATEjt \quad (+6.20)\ (+2.77)\ (-2.02)$$
$$0.308\, POLSTABjt + 0.206\, G8DUMMYjt - 0.045\, TREND \quad (+2.16)\ (+2.03)\ (-1.70)$$
$$F = 59.7 \quad (6)$$

In this estimation, all five of the estimated coefficients exhibit the expected signs, with the coefficients on two of the explanatory

variables (*PROPFREE* and *NETXY*) statistically significant at the one percent level and the coefficients on the remaining three explanatory variables (*INTRATE*, *POLSTAB*, and *G8DUMMY*) statistically significant at beyond the five percent level. Furthermore, the *F*-statistic of 59.7 is statistically significant at far beyond the one percent level, attesting to the overall strength of the model. Interestingly, the trend variable is found to be statistically significant at the ten percent level.

Finally, the estimated coefficients in the PLS estimate in (5) are of very similar magnitude to those in the P2SLS estimate in (6). Thus, the findings in (6) can be regarded as an affirmation of the robustness of the results in equation (5). As for the influence of property rights freedom on economic growth, a mere one unit increase in the property right freedom index for a nation, *ceteris paribus*, can be expected to lead to a 1.3-1.4 percent increase in the growth rate of real per capita income, measured here in terms of *log RPCYpppjt*. This finding is resilient whether using the PLS or P2SLS estimation technique.

4. **Overview and Conclusion**

As a central part of its economic and political policy efforts in the economic climate of recent years and within the post-9-11 landscape, the OECD (2009A; 2009B) strongly takes the position that governments must be very cautious not to jeopardize economic freedom as they seek ways in which to strengthen and revitalize their economies. In other words, nations must strive to support and promote economic freedom (OECD, 2009A; 2009B). A major concern in this context is that the abandonment of economic freedoms will result over time in *diminished* real economic growth.

To the degree that property rights freedom can be viewed as a proxy for economic freedom, the PLS and P2SLS estimations provided in this study constitute empirical support for this perspective. More specifically, this study investigates the impact of property rights freedom on real per capita income growth. The study adopts a four-year panel data set for the OECD nation for the period 2004-2007. Estimation by both PLS and P2SLS yields consistent results, albeit perhaps preliminary results, indicating that higher levels of property rights freedom promote greater real per capita income growth.

Thus, these PLS and P2SLS findings strongly imply that pursuing a set of policies that promotes or is at least consistent with *greater* property rights freedom appears completely compatible with propelling the economies of the OECD in general (including that of the U.S.) on to the road to a full and sustainable economic recovery.

To the extent that increased income taxation can be regarded as a form of reduced property rights freedom, the results obtained in this study would potentially provide evidence that such a policy should be considered very carefully before implementation. In other words, to the extent that one may view increased property rights freedom as enabling people and firms to devote less in resources and time to the protection not only of their goods and possessions (assets) but also their earnings/income, savings, and accumulated wealth in other forms, the greater the degree to which increased property rights freedom would promote real economic growth.

It would seem that policymakers would be wise to at least consider changing the course of their fiscal policy initiatives and to heed the words of the OECD Secretary-General Angel Gurria (OECD, 2009A, p.1), who stressed that “We must ensure that today’s policies to manage the crisis not be the source of tomorrow’s problems…”

Table 1. Descriptive Statistics

Variable	Mean	Standard Deviation
log PCYpppjt	5.449	0.655
PROPFREE	77.16	15.65
NETXY	10.6	4.771
INTRATE	4.804	2.239
G8DUMMY	0.2414	0.4298
POLSTAB	0.771	0.533
UR	6.664	3.273

Table 2. Correlation Matrix for Basic Model Explanatory Variables

	PROPFREE	***NETXY***	***INTRATE***	***POLSTAB***	***G8DUMMY***
PROPFREE	1.0				
NETXY	0.308	1.0			
INTRATE	-0.347	-0.348	1.0		
POLSTAB	0.563	0.247	-0.400	*1.0*	
G8DUMMY	0.103	-0.014	-0.233	0.153	1.00

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