

How do economic freedom and investment affect economic growth?

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This paper studies whether and how capital investment and economic freedom jointly endogenize economic growth. The results produced by White's heteroscedasticity-consistent matrix tests on a panel data of 50 countries over 1981-2000 support the crucial role of both domestic and foreign capital investment and economic freedom for rapid growth. Countries that improve economic freedom and that bolster capital investment tend to experience faster growth. The domestic investment rate _the breakdown of public and private investment_ and foreign direct investment are positively associated with economic growth, while the initial real per capita GDP is negatively correlated with subsequent growth rate.

I. INTRODUCTION

Do physical capital investment and economic freedom enhance growth? If so, how do these mechanisms contribute to growth? The interplays between these predictors on growth should be a subject of empirical study. Theoretically, institutions or economic freedom complements investment to accelerate growth. Glaeser *et al* (2004) claimed that institutions have a secondary effect on growth, while human capital has a primary impact. The latter improves the former. While investment is expected to generate growth, the extent to which the effects of economic freedom

have on economic growth is not clear-cut. Empirical studies including Carlsson and Lundstrom (2002) and Minier (1998) confirmed that economic freedom, including democracy and political freedom, promotes growth, while de Haan and Siermann (1998) found that it lies with the measures of economic freedom index that the economic freedom has a strong direct association with growth. Sala-i-Martin *et al* (2004), using a novel Bayesian approach to study the growth determinants in 88 countries over 1960-1996, found that political rights, the degree of capitalism, and the socialism dummy are not robustly growth-correlated.

Booming privatization and private ownerships coincide with economic reforms and transformations. Growth-enhancing effects of trade and investment, government policies, institutions, and freedom, is inextricable of foreign and indigenous technologies to be adopted by human capital and profit-seeking sectors. The author hypothesizes that institutional upgrading, protection of property rights, and erosion of capital control will boost investment growth, technological improvements, export expansion, and cumulative growth. The uniqueness of improved economic freedom interacting with investment forms the foundation for absorptive capacities and sets the stage for good governance and preconditions for growth and development.

This paper develops an empirical investigation into the link between economic freedom, investment and growth, using two-decadal panel data on 50 economies and the economic freedom index constructed by Gwartney and Lawson (2004). The paper is structured as follows. Section II deals with literature review; Section III explains the model; section IV analyzes the results; and Section V concludes.

II. LITERATURE REVIEW

With limited empirical literature, yet a substantial arduous controversy over the growth-reinforcing effects of economic freedom, it is quite hard to reach a policy. Recent studies highlight the important contribution of economic freedom, domestic investment, and foreign direct investment to gaining improved revitalization for technological upgrading, competition capacity, and per capita GDP growth. Growth is accompanied by capital accumulation, channeled to productive equipment investment (De Long and Summers, 1991), and freer economic structure. Persistent changes in government's fiscal policy, financing choices, and government expenditure influence the ability to boost exports, specialization and productive innovations, capital accumulation, and economic growth.

Gwartney and Lawson (2004) documented that economic freedom exerts positive effects on economic growth. Using cross-section data analysis, Islam (1996) indicated that economic freedom has a direct link with per capita income and growth rate in all 98 low-, middle-, and high-income countries. Barro (1996) argued that economic freedoms in the form of the free markets, maintenance of property rights, small government encourage growth. Arguably, the promotion of financial and capital flows embodied in high-tech tradable goods, and the establishment of strong institutions and social infrastructure invite an arrival of technological improvements. Changes in government policies and the magnitude of economic freedom affect the rate of human and physical capital accumulation, labor, and investment choices. As such, these non-random systematic mechanisms have substantial impacts on per capita income growth. The political economy of distributive politics, fiscal policy,

trade regime, legal system, regulations, and the protection of property rights, hence, influence the factors of accumulation by private economic agents.

Heckelman (2000) found that economic freedom components such as capital flows, foreign investment, wage and price controls, property rights, and regulations enhance growth and that there is evidence of weak reverse causality in some of the components during 1994-1997.¹ Sturm and de Haan (2001) and de Haan and Sturm (2000) asserted that greater economic freedom enhances growth, while the its is not growth-correlated. Dawson (2003) found that the overall levels of *EF* index such as free markets and property rights foster long-run growth. The changes in the *EF* index such as government size, international finance, and money and price stability are jointly fueled by growth. The economic freedom improvements related to international finance affect investment and long-run economic growth.

Countries with better-established institutions tend to trade more, so these economies grow faster (Dollar and Kraay, 2003). Economists also look at the roles of democracy and political institutions for growth. For instance, in the 100-country analysis over 1960-1990, Barro (1996) found that growth result from maintenance of the rule of law, free-markets structure, low government consumption, and improved human capital. Minier (1998) argued that more democratic countries grow faster. Tavares and Wacziarg (2001) found that democracy promotes growth via human capital accumulation and income inequality reduction. In contrast, democracy hinders growth reducing physical capital and raising government consumption.

¹ Heckelman used the economic freedom index constructed by the Heritage Foundation.

III. THE MODEL

All the variables are averaged over five-year growth experiences. This averaging method provides three major advantages as follows: (i) it avoids short-term cyclical fluctuations; (ii) it minimizes growth distortions since the effects of investment, public expenditure, and other variables on growth are not instantaneous; and (iii) this method deals with the joint endogeneity and reverse causality.

The paper employs the White's heteroscedasticity-consistent tests to investigate the dynamic relationship between economic freedom, investment, and economic growth in the following empirical growth model:²

$$\begin{aligned} Growth_i = & \alpha_0 + \beta_1 LogGDPI_i + \beta_2 EF_i + \beta_3 IGDP_i + \beta_4 PubEGDP_i + \beta_5 DmLDCs \\ & + \beta_6 DmDeveloping + \beta_7 (EF \times IGDP) + \beta_8 FDIGDP + \varepsilon_i \end{aligned}$$

- (i) *Growth* = the growth rate of real per capita GDP, calculated in five-year averages; ^a (The subscript *i* denotes each country among 50 countries in the sample.)
- (ii) *Log (GDPI)* = the initial real per capita GDP in logarithms at each starting period of the five-year intervals; ^a
- (iii) *IGDP* = the real domestic investment ratio (public and private) to real GDP; ^a
- (iv) *PubEGDP* = the real government expenditure to real GDP ratio; ^a
- (v) *EF* = the economic freedom index, capturing political and economic institutions ^b
- (vi) *EF×IGDP* = the interaction term, detecting the joint role of the two variables;
- (vii) *DmLDCs* = the dummy for LDCs; *DmLDCs* = 1 if LDCs; 0 otherwise;
- (viii) *DmDeveloping* = the dummy for developing countries; *DmDeveloping* = 1 if developing countries; 0 otherwise (The benchmark OECD dummy is dropped)

² This method reduces heteroscedasticity and heterogeneity among the panel data; therefore, the prediction of the correlation between the tested variables provides more accurate coefficients.

(iv) $FDIGDP$ = the ratio of foreign direct investment inflows to real GDP; ^c and

(x) ε = the stochastic error term.

The paper uses three data sources in the growth regression models.

(i) The data with subscript ^a are taken from Summer and Heston dataset (2002).

(ii) The data with subscript ^b are taken from The Fraser Institute (2004).

(iii) The data with subscript ^c are taken from the World Development Indicator CD-ROM (2004).

IV. EMPIRICAL FINDINGS

Growth Regression Results for a Panel of 50 Countries over 1981-2000

Per Capita GDP Growth ($PGDP$): Investment ($IGDP$) and Economic Freedom (EF)							
<i>Dependent Variable PGDP</i>		Coefficient					
Estimation Equation	(1.1)	(1.2)	(1.3)	(1.4)	(1.5)	(1.6)	(1.7)
<i>Independent Variables</i>							
<i>Log(Initial GDP)</i>	-1.2047 (4.68)***	-2.1885 (5.49)***	-2.3313 (5.57)***	-2.2167 (5.18)***	-2.3229 (5.35)***	-2.2207 (5.30)***	-2.3313 (5.41)***
Domestic Investment ($IGDP$)	0.1580 (4.93)***	0.1666 (5.99)***	0.1699 (6.25)***	0.0370 (0.57)	(---)	0.4737 (3.53)***	0.5286 (3.77)***
Economic Freedom (EF) (1 Worst, 10 Best)	0.7124 (4.08)***	0.7282 (4.14)***	0.7087 (4.09)***	(---)	0.2589 (1.18)	1.6564 (3.70)***	1.6483 (3.69)***
<i>Dummy LDCs</i>		-4.0537 (3.73)***	-3.6263 (3.36)***	-4.0871 (3.62)***	-4.0890 (3.62)***	-2.6314 (2.24)**	-3.1095 (2.54)**
<i>Dummy Developing</i>		-1.3137 (2.34)**	-1.1276 (2.00)**	-1.1666 (2.42)**	-1.4299 (2.43)**	-0.5269 (0.82)	-0.7194 (1.09)
<i>PubEGDP</i>			-0.0437 (2.11)**	-0.0370 (1.79)*	-0.0341 (1.65)*	-0.0613 (2.94)***	-0.0607 (2.89)***
<i>EF*IGDP</i>				0.0219 (2.75)***	0.0237 (5.65)***	-0.0471 (2.38)**	-0.0558 (2.71)***
<i>Foreign Investment (FDIGDP)</i>							0.0978 (2.12)**
Constant	5.1413 (2.86)***	14.5733 (4.22)***	16.4924 (4.41)***	19.7822 (4.87)***	19.5471 (4.78)***	9.5697 (1.92)*	10.4222 (2.07)**
Number of Observations	200	200	200	200	200	200	200
R-squared	0.2742	0.3378	0.3556	0.3242	0.3286	0.3757	0.3923

Note: t -values in the parentheses are based on the White's heteroscedasticity-consistent tests. The dummies are incorporated to detect the countries' specific fixed effects. Asterisks *, **, and *** denote the significance level at 10%, 5%, and 1%, respectively.

According to the panel data results, economic freedom does matter for growth. It reinforces the possibilities for growth, bolsters the foundation for absorptive capacities, investment efficiency, technological innovations, and enhances income growth through various channels. Freedom to hold money provides a full access to mobilize resource. It accounts for an inextricable process of capital accumulation and innovations. Trade allows countries associated in it benefits from comparative advantages, indirect productivity gains, and augmented specialization via increased trade transactions and accumulated domestic and foreign capital investment. Hence, improved economic freedom enhances investment efficiency and accelerates growth.

Better-developed institutions improve economic freedom, which in turn provides incentives for productive investment in human capital accumulation, R&D innovations, and technological advancements. The process invites foreign capital inflows, channels and accumulates physical capital and human capital resources towards optimal productive investments, boosts exports growth, and finally enhances per capita income growth. Due to the assurance of property rights, good legal system, the security of property, and the free markets, physical and capital investment will accumulate and growth will follow.

Domestic investment rate ($IGDP$) and FDI are positively correlated with growth. The interaction term $EF \times IGDP$ between economic freedom (EF) and investment rate ($IGDP$) validates the joint role of the two engines of growth. Economic freedom (EF) also interacts positively and closely with FDI to produce positive effects on growth.³ Due to the inclusion of the interaction term $EF * IGDP$ and FDI, the

³ The interaction term between economic freedom (EF) and FDI is also studied, yet the result on the robustness is not reported.

coefficients of *EF* increase from 0.70 to an approximate 1.65. And the coefficients of *IGDP* increase from 0.16 to 0.52. Therefore, the problem of the omitted variables is solved. The initial stock of the real per capita GDP in logarithms is correlated with subsequent growth rate. The sign of *Log (InitialGDP)* is negative in all model specifications of the growth regression models. The empirical evidence is consistent with the theory of conditional convergence. Consistent with Barro (1991), the coefficient of *PubEGDP* is negative, which means that expenditure on unproductive sectors or excessive expenditure reduces growth. Excessive expenditure is equivalent to expenditure to unproductive sectors; therefore, it reduces the ability to save and invest in productive sectors.

V. CONCLUSION

The results produced by White's heteroscedasticity-consistent tests lend support to the prominent role of economic freedom on economic growth. Economic freedom (*EF*), domestic investment rate (*IGDP*), and FDI have a robust association with per capita GDP growth in all the 50 countries over the period. All types of capital investment interact positively and closely with economic freedom to generate growth-enhancing externalities. To attain growth, it requires investment and favorable economic freedom, fostered by government policies and institutions. Government share or public expenditure (*PubEGDP*) is negatively correlated with growth. The phenomenon can be expectedly predicted if the excessive expenditure goes to unproductive sectors. Finally, the initial per capita GDP in logarithms is negatively correlated with subsequent growth rate.

APPENDICES

A. The Measures of Economic Freedom Index of the World

(i) Size of Government: Consumption Expenditures, Taxes, Subsidies, and Enterprises
(ii) Legal Structure and Security of Property Rights: Impartiality, Integrity, and Independence
(iii) Access to Sound Money: Money Growth, Inflation Viability, and Freedom to Hold Bank Account
(iv) Freedom to Trade Internationally: Tariffs, Regulatory Trade Barriers, Trade Size, Disparity between Official Exchange Rate and Black Market Premium Rate, and International Capital Market Controls
(v) Regulation of Credit, Labor, and Business: Credit Market, Labor Market, and Business Regulations

Source: *The Fraser Institute, 2004*

B. All the 50 countries are classified into three categories ⁴

- (i) **Least Developed Countries:** Bangladesh, Lesotho, Republic of Congo, and Togo.
- (ii) **Developing Countries:** Argentina, Bolivia, Brazil, Chile, China, Colombia, Costa Rica, Dominican Republic, Ecuador, Egypt, India, Indonesia, Jordan, Kenya, Malaysia, Mexico, Pakistan, Paraguay, Peru, the Philippines, Singapore, Thailand, Tunisia, Uruguay, and Venezuela.
- (iii) **OECD Countries:** Austria, Australia, Canada, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Japan, South Korea, Netherlands, New Zealand, Norway, Spain, Sweden, Switzerland, UK, and the USA.

⁴ This classification is according to the United Nations, UNDP: Human Development Report 2004, which based the categorization criteria on the economies' developmental levels.

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