Economic Freedom and Growth in the European Economic Area:

A Panel Analysis for the Period 2000-2019

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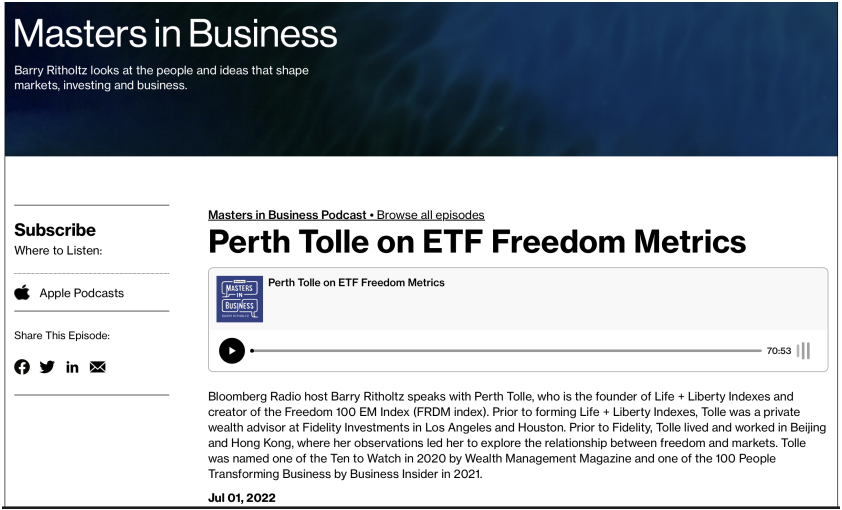
Inspiration and Motivation



Inspiration and Motivation

INVESTMENT PROCESS

Starting Universe = 24 Emerging Market Countries

Country Level Market Capitalization Screen

Freedom Weighted Country Allocation

Security Selection ex-SOEs

FRDM

Inspiration and Motivation

- Bloomberg Masters in Business
- *FRDM* ETF
- Economic Freedom measures the 'institutional success' of a country

Very cool! But does it make sense? $\rightarrow$ Yes! for the most part.

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> *Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction. In consequence they structure incentives in human exchange, whether political, social, or economic.*

Douglas North [1]

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For our purposes, we will focus on **political** and **economic institutions**.

What is an Institution? II

- **Economic institutions** like **property rights** and **markets** are key to economic outcomes.
- These institutions shape **economic incentives** in society.
- Without **property rights**, people lack incentives to invest in capital or adopt efficient technologies.
- **Economic institutions allocate resources** to their most efficient uses.
- They determine the **distribution of profits** and control.
- When markets are absent (e.g., Soviet Union), resources are **misallocated** and trade gains are lost.
- Societies with institutions that foster **resource allocation**, **innovation**, and **factor accumulation** thrive.

Darren Acemoglu [2], [3]

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Acemoglu's Conceptual Framework

$$\left.\begin{array}{r} \text{political} \\ \text{institutions}_t \end{array}\right\} \Longrightarrow \left.\begin{array}{c} \text{de jure} \\ \text{political} \\ \text{power}_t \end{array}\right\} \Longrightarrow \text{economic institutions}_t \Longrightarrow \left\{\begin{array}{c} \text{economic} \\ \text{performance}_t \\ \& \\ \text{distribution} \\ \text{of resources}_{t+1} \end{array}\right.$$

$$\left.\begin{array}{r} \text{distribution} \\ \text{of resources}_t \end{array}\right\} \Longrightarrow \left.\begin{array}{c} \text{de facto} \\ \text{political} \\ \text{power}_t \end{array}\right\} \Longrightarrow \begin{array}{c} \text{political} \\ \text{institutions}_{t+1} \end{array}$$

The Concept of Freedom Arising from Institutions

It is important to distinguish between:

- **Economic** Freedom: The ability to make personal economic choices, freely trade, and compete in markets with minimal government intervention, while ensuring legal protection of individuals and property.
- **Political** Freedom: Citizens' right to participate in the political process through voting, lobbying, and electing candidates in fair and competitive elections, with freedom for alternative parties.
- **Civil** Freedom: The protection of individual rights, including freedom of the press, assembly, religious expression, fair trials, and free speech without fear of retaliation.

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Literature Review Insights

Widespread agreement that EF has an overall positive effect on growth...with caveats:

- Measurement
- Econometric issues
- Specification
- Channels
- Potential for publication bias

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Theoretical Framework

Endogenous Growth Model

$$Y = AK^{\alpha}L^{1-\alpha} \quad \text{where} \quad A(L)$$

Y	is the output of the economy
A	is the total-factor productivity
K	is the stock of capital
L	is the stock of labor
α	is the output elasticity

[8]

Formulating the Econometric Model

Formulating an econometric model:

- Econometric approach:
  - Functional form
  - Number and type of variables
- Estimation technique
- Tests
- Quality measures

[9]

Data Sources

- The Heritage Foundation's Index of Economic Freedom: The Index covers 12 freedoms—from property rights to financial freedom—in 184 countries. "Washington's No. 1 think tank."
- The Penn World Table 10.01: PWT version 10.01 is a database with information on relative levels of income, output, input and productivity, covering 183 countries between 1950 and 2019.

[10], [11]

Econometric Model I

Pooled OLS Model

$$\ln(GDP)_{i,t} = \mu + \beta_1 \ln(L)_{i,t} + \beta_2 \ln(K)_{i,t} + \beta_3 RL_{i,t} + \beta_4 GS_{i,t} + \beta_5 RE_{i,t} + \beta_6 MO_{i,t} + \epsilon_{i,t}$$

i, t	refer to country i and time period t
GDP	is the output-side real GDP at chained PPPs
K	is the total stock of capital with the annual depreciation rate
L	is the total stock of labor ($\texttt{emp} \cdot \texttt{avh} \cdot \texttt{hc}$)
RL	is Rule of Law
GS	is Government Size
RE	is Regulatory Efficiency
MO	is Market Openness

Tests and Estimation Method

OLS is preferred due to its ease of use over IV or GMM. OLS assumptions were checked:

1. Linearity: holds ☺
2. Strict exogeneity: holds ☺
3. Homoskedasticity: Breusch-Pagan test → heteroskedasticity ☹
4. No autocorrelation: Breusch-Godfrey/Wooldridge test → autocorrelation ☹
5. Normality of the residuals: holds ☺
6. Stationarity: Cross-sectionally augmented Im, Pesaran, and Shin test (CIPS) → non-stationary ☹
7. Cross-sectional independence: Cross-sectionally Augmented Dickey-Fuller test (CADF) → cross-sectional dependence ☹

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↓

Two-Way Differenced Fixed-Effects Model

$$\Delta \ln(GDP)_{i,t} = \mu_i + \lambda_t + \beta_1 \Delta \ln(L)_{i,t} + \beta_2 \Delta \ln(K)_{i,t} + \beta_3 \Delta RL_{i,t} + \beta_4 \Delta GS_{i,t} + \beta_5 \Delta RE_{i,t} + \beta_6 \Delta MO_{i,t} + \epsilon_{i,t}$$

Differenced Common Correlated Effects Mean Groups Model

CCEMG

$$\Delta \ln(GDP)_{i,t} = \mu_i + \lambda_t + \beta_{1,i}\Delta \ln(L)_{i,t} + \beta_{2,i}\Delta \ln(K)_{i,t} + \beta_{3,i}\Delta RL_{i,t} + \beta_{4,i}\Delta GS_{i,t} + \beta_{5,i}\Delta RE_{i,t} + \beta_{6,i}\Delta MO_{i,t} + \gamma_i f_t + \epsilon_{i,t}$$

where $\gamma_i f_t = \gamma_{1,i}\overline{\Delta \ln(GDP)_t} + \gamma_{2,i}\overline{\Delta \ln(L)_t} + \gamma_{3,i}\overline{\Delta \ln(K)_t} + \gamma_{4,i}\overline{\Delta RL_t} + \gamma_{5,i}\overline{\Delta GS_t} + \gamma_{6,i}\overline{\Delta RE_t} + \gamma_{7,i}\overline{\Delta MO_t}$

then, average the coefficients across all cross-sections: $\beta_j = \frac{1}{N}\sum_{i=1}^{N}\beta_{j,i}$ for $j = 1, 2, \ldots, 6$

[12]

Estimation Results - CCEMG with Driscoll-Kraay Standard Errors

	Estimate	Std. Error	z-value	p-value
(Intercept)	-	-	-	-
ΔLnlabor_stock	0.16797182	0.03567114	4.7089	2.491e-06 ***
ΔLncapital_stock	0.34195022	0.14286339	2.3935	0.0166863 *
ΔRL	-0.00217232	0.00022638	-9.5958	< 2.2e-16 ***
ΔGS	0.00062688	0.00017441	3.5942	0.0003253 ***
ΔRE	-0.00230020	0.00030615	-7.5134	5.760e-14 ***
ΔMO	0.00136401	0.00030951	4.4070	1.048e-05 ***

Signif. codes: '***' 0.001 , '**' 0.01 , '*' 0.05 , '.' 0.1

Balanced Panel: n = 30, T = 19, N = 570
Residuals:
Min: -0.0668383 1st Qu.: -0.0075896 Median: 0.0003037 3rd Qu.: 0.0074157 Max: 0.0728149

Total Sum of Squares: 1.374
Residual Sum of Squares: 0.13567
Heterogenous Panel Yield R-squared: 0.61902

Interpretation of Results I

Estimation results line up with empirical research (e.g. [13]–[15]). Taking Derbel, Abdelkafi, and Chkir's threshold model as an example [13], the vast majority of the EEA countries in the study fall in the 'higher end' of the enrollment ratio and GDP figures, pointing to the EF-growth effect having reached its marginal region.

Note the negative effects of $\Delta\mathtt{RL}$ and $\Delta\mathtt{RE}$.

Interpretation of Results II

- Regarding RL: Overly strict enforcement may increase rigidity and reduce business flexibility or risk-taking, which could stifle innovation and economic dynamism
- Regarding RE: Deregulation, beyond a certain point, may harm growth by exacerbating market failures, reducing institutional trust, and weakening critical safeguards that stabilize the economy

Summarizing What We Have Learned

- Besides capital and labor stock accumulation, EF has a statistically significant effect on growth, however its effects are mixed and likely nonlinear
- In general, most EEA nations seem to have surpassed their 'threshold' EF values as suggested by Altman [16] and as modeled by Derbel, Abdelkafi, and Chkir [13]

Further Lines of Research I

Recalling Duocoliagos' points:

- Measurement of EF remains a contentious issue
- Challenge of econometrically isolating the effects of EF on growth
- Functional specification of EF
- EF has multichannel effects on growth (what are the effects of political and civil institutions on growth?)
- Publication bias in the published literature
- Sensitivity analysis often lacking

Further Lines of Research II

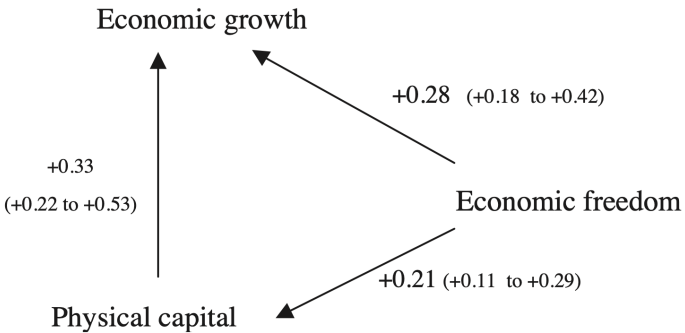

Fig. 1. Economic freedom and growth, direct and indirect channels.

[7]

A Dummy's Guide to Policy-Making

- Global **fragmentation** is here to stay
- EEA nations need to position themselves in this evolving landscape correctly by adopting **new growth models**
- EEA nations are uniquely positioned to absorb shocks if **deeper integration** amongst member states occurs
- The empirical results could suggest that EEA nations have already optimized their regulatory frameworks, and further deregulation (i.e., increasing regulatory efficiency) leads to negative economic consequences. In other words, these economies may benefit more from **smart regulation** than from **deregulation**

The End

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