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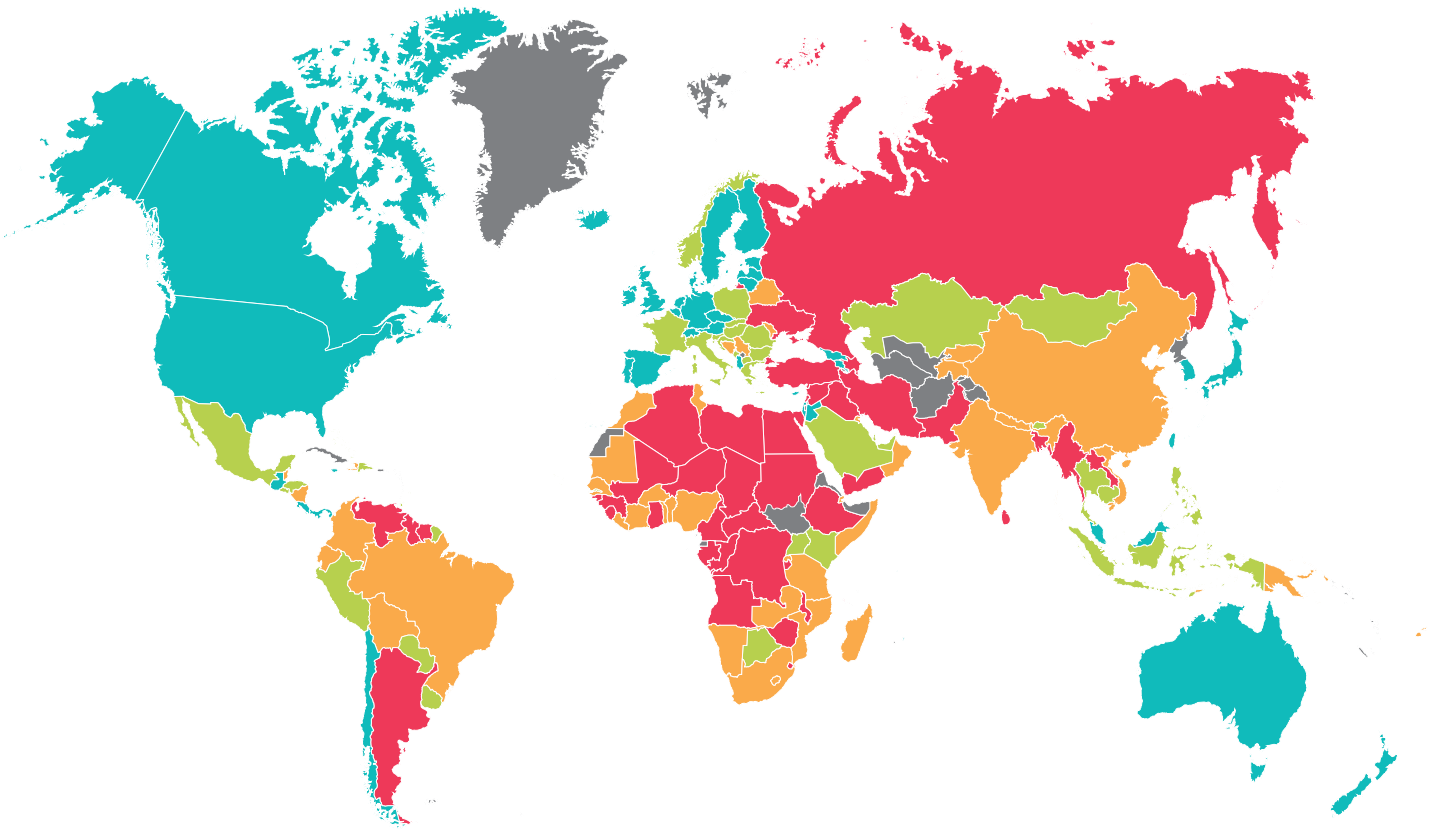
Economic Freedom of the World

2025 ANNUAL REPORT



MOST FREE 2ND QUARTILE 3RD QUARTILE LEAST FREE

Economic Freedom of the World

2025 Annual Report

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2025

[†]James Gwartney was the lead author of the index for nearly three decades and was instrumental in establishing its methodology. He passed away on January 7, 2024.

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Data available to researchers The full data set, including all of the data published in this report as well as data omitted because of limited space, can be downloaded for free at <www.fraserinstitute.org/economic-freedom/dataset>. The data file available there contains the most up-to-date and accurate data for the *Economic Freedom of the World* index. Some variable names and data sources have evolved over the years since the first publication in 1996; users should consult earlier editions of *Economic Freedom of the World* for details about sources and descriptions for those years. All editions of the report are available in PDF and can be downloaded for free from <https://www.fraserinstitute.org/studies/economic-freedom>. However, users are always strongly encouraged to use the data from this most recent data file as updates and corrections, even to earlier years' data, do occur. Users doing long-term or longitudinal studies are encouraged to use the EFW Panel Dataset as it is the most consistent through time.

Technical help If you have difficulty downloading the data, please contact Matthew Mitchell via e-mail to <freetheworld@fraserinstitute.org>. If you have technical questions about the data itself, please contact Ryan Murphy <rhmurphy@smu.edu> or Robert Lawson <rlawson@smu.edu>.

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Published work using ratings from *Economic Freedom of the World.* A list of published papers that have used the economic-freedom ratings from *Economic Freedom of the World* is available on line at <https://efotw.org/economic-freedom/citations>. In most cases, a brief abstract of the article is provided. If you know of other papers current or forthcoming that should be included on this page, or have further information about any of these papers or authors, please write to <freetheworld@fraserinstitute.org>.

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Table of Contents

Executive Summary

The index published in *Economic Freedom of the World* (EFW) measures economic freedom in up to 165 jurisdictions as far back as 1970. Economic freedoms are a subset of human freedoms and concern economic activity such as working, transacting, contracting, and owning and using productive property.

Individuals are more economically free when they are allowed to make more of their own economic choices, with others imposing fewer and less severe constraints on those choices. They must, however, respect the rights of others.

The index measures economic freedom using 45 components and subcomponents grouped into five areas: [1] Size of Government, [2] Legal System and Property Rights, [3] Sound Money, [4] Freedom to Trade Internationally, and [5] Regulation. Each component and subcomponent is placed on a scale from zero to 10, reflecting the distribution of the underlying data.

In 2023—the latest year for which data are available—the 10 highest scoring nations were Hong Kong, Singapore, New Zealand, Switzerland, the United States, Ireland, Australia and Taiwan (tied for 7th), Denmark, and the Netherlands.

The rankings of other major world economies include Canada (11th), the United Kingdom (13th), Germany (15th), Japan (17th), Korea (38th), France (44th), Italy (46th), Indonesia (65th), Mexico (70th), India (86th), Brazil (87th), China (108th), and Russia (148th).

The 10 lowest-ranked countries were Chad, Libya, Syria, Argentina, Myanmar, Iran, Algeria, Sudan, Zimbabwe, and Venezuela.

Overall, the index shows that economic freedom has increased since 2000, but fell precipitously following the coronavirus pandemic, erasing nearly a decade of progress.

Standards of living in the most economically free societies are significantly greater than in the least free:

- Those in the freest 25% of countries earn, on average, about 6.2 times as much as those in the least free.
- Though the share of income earned by the poorest 10% of the population is unrelated to economic freedom, the level of income earned by the poorest 10% of the population is much higher in countries with greater economic freedom. The bottom 10% threshold is 7.8 times higher in the freest quartile than it is in the least free.

- The rate of poverty in the least-free quartile is about 25 times greater than it is in the freest.
- People in the least-free quartile work about 20% more than those in the freest.
- People in the freest quartile live about 17 years longer than those in the least-free quartile.
- In the least free countries, infants die at nearly 10 times the rate as they do in the freest countries.
- Economic freedom is positively correlated with personal freedom, with life satisfaction, with non-corrupt government, and with a cleaner environment.

This year's report includes four chapters.

In chapter 1, Robert Lawson, Ryan Murphy, and Matthew D. Mitchell provide an overview of the report and its findings. They explain the concept of economic freedom and how it is measured. They also explore recent trends in the data. The complete dataset can be downloaded at https://www.freetheworld.com/ or by scanning the following QR code:

In chapter 2, Robert Lawson and Matthew Mitchell estimate the effect of President Trump's tariffs on US economic freedom in 2025. They estimate that Trump's tariffs drop the US from 56th to 76th place in the world in terms of freedom to trade and nearly knock the US out of the top 10 in terms of total economic freedom.

In Chapter 3, Walker Wright of the American Enterprise Institute examines the relationship between economic freedom and peace. The empirical evidence suggests that economic freedom can mitigate military conflict and cool tensions that arise from ethnic, political, or religious disagreements. Wright argues that markets cultivate a culture of peace through a process that is inherently non-violent.

In chapter 4, Dr. Horst Feldmann of the University of Bath (UK) examines the relationship between economic freedom and the quality of education. Using PISA scores from 47 countries and the World Bank's harmonized test scores from 132 countries, he finds that higher levels of economic freedom are associated with higher quality education. The magnitude of the effect is large and grows larger once one accounts for the fact that economic freedom raises GDP per capita, further increasing the returns to education.

CHAPTER 1

Economic Freedom of the World in 2023

Robert Lawson, Ryan Murphy, and Matthew D. Mitchell

The index published in the *Economic Freedom of the World 2025 Annual Report* (EFW index) measures economic freedom in up to 165 jurisdictions as far back as 1970. Economic freedoms are a subset of human freedoms and concern economic activity such as working, transacting, contracting, and owning and using productive property.[1] Though it is possible to define economic freedom in absolute terms, it is more useful to think of it as a spectrum. Individuals are more economically free when they are allowed to make more of their own economic choices, with others imposing fewer and less-severe constraints on these choices. Their choices, however, must respect the rights of others.

Like human freedom more broadly, economic freedom is based on the concept of self-ownership. If individuals own themselves then they have a right to choose how to use their time, talents, and resources to shape their own lives. And if all individuals own themselves, then no one has a right to the time, talents, and resources of anyone else. Threats to economic freedom may arise from the government or from individuals using fraud or force to limit the economic choices of others.

The EFW index is designed to measure the degree to which the institutions and policies of countries permit people to make their own economic choices. To achieve a high EFW rating, a country's government must do some things, but refrain from others. Governments protect economic freedom when their laws safeguard voluntary exchange and defend individuals and their property from aggressors who might use fraud or force. To this end, the legal system is a particularly important guarantor of economic freedom. In more economically free places, legal institutions protect the person and property of all individuals from the aggressive acts of others and enforce contracts in an even-handed manner. These governments also permit people to access sound money and do not expropriate property through unexpected inflation or deflation. In economically free places, governments do not impose high taxation, barriers to trade, or excessive regulations that restrict personal choice, interfere with voluntary exchange, and limit entry into markets.

1 The *Human Freedom Index* (Vásquez, Mitchell, Murphy, and Schneider, 2024) co-published by the Fraser Institute and the Cato Institute measures human freedom more broadly by adding indicators of personal freedom to the EFW index's measure of economic freedom.

The EFW index might be thought of as an effort to identify how closely the institutions and policies of a country correspond with the classical liberal ideal of a limited government, where the government protects people and property rights from aggressors but otherwise allows them to make their own economic choices.

Before discussing the structure of the index, it may be useful to say a few words about what the EFW index is *not.* First, the only outcome that the EFW index measures is economic freedom. It does not attempt to measure the standard of living, the extent of corruption, the protection of personal freedoms such as speech, or any other indicator of wellbeing. These factors are important for human flourishing. And researchers using the index have found that economic freedom does correlate with many of them. But the index is not itself a measure of these things. Nor should it be. Since the EFW index is used to see if economic freedom relates to these markers of wellbeing, it would be tautological to include them in the index itself.

Second, the EFW index should not be taken as a *net* measure of good policy. It does not weigh the costs of infringements on economic freedom against the hoped-for benefits of these infringements. A tax or a regulation may well produce some good outcome. It might address a negative environmental externality, fund a valuable public good, or correct some social injustice. But the authors of the EFW index make no effort to account for these potential benefits. Instead, they offer the index as a measure of one side of the ledger, believing that this is the first step toward such a full net accounting. They leave it to other scholars to take the next step and assess whether these infringements on economic freedom are in some sense worth it.

Finally, the EFW index should be seen as a measure of "what is" rather than as a judgement about "what ought to be." The authors, like most social scientists, do have their own opinions about economic freedom (on the margin, they would prefer to see most countries become more economically free). But that should not keep skeptics of economic freedom from using the index to study their own hypotheses. Indeed, in recent years, it has become more common for these skeptics to employ the index in their own studies and the authors welcome this development.

The Economic Freedom of the World index—an overview

The EFW index measures the degree to which a jurisdiction's institutions and policies permit people to make their own economic choices. It is an outgrowth of a series of six conferences hosted by Milton and Rose Friedman and Michael Walker from 1986 to 1994, which resulted in three books (Walker, 1988; Easton and Walker, 1992; Block, 1993) documenting the discussion and various prototype indices that culminated with the initial publication, *Economic Freedom of the World: 1975–1995* (Gwartney,

Lawson, and Block, 1996). In addition to the Friedmans, several of the world's leading economists, including Douglass North, Gary Becker, Peter Bauer, William Niskanen, and Gordon Tullock, participated in the discussions leading to the EFW index. The index is published by a network of institutions spearheaded by the Fraser Institute in Canada. Members of the network and other interested parties meet annually to review the structure of the index and consider ideas for its improvement.

Most of the data in the EFW index are drawn from external sources such as the International Monetary Fund, the World Bank, or the Economist Intelligence Unit. The authors rarely use data provided directly from a source within a country. Whenever possible, components are taken from objective data sources rather than surveys. And scores are never altered based on the value judgments of the authors or others in the Economic Freedom Network. The authors strive for transparency throughout. The report provides information about the data sources, the methodology used to transform raw data into the ratings of the components and subcomponents and how these ratings are used to construct both the area and summary ratings. Methodological details can be found in the Appendix: Explanatory Notes and Data Sources of this report (pp. 79–95). The index is freely available at <www.fraserinstitute.org/economic-freedom/dataset>.

The current edition of the EFW index rates up to 165 jurisdictions from 1970 through 2023. Data are available in five-year increments from 1970 through 2000 and then annually to the present.

Structure of the EFW index

Table 1.1 describes the structure of the EFW index. Five major areas comprise the index: [1] Size of Government, [2] Legal System and Property Rights, [3] Sound Money, [4] Freedom to Trade Internationally, and [5] Regulation.

Each of the five areas is constructed from several components, and many of these are constructed from subcomponents and underlying variables. In total, the index incorporates 45 distinct components and subcomponents.[2] Each component and subcomponent is placed on a scale from zero to 10, reflecting the distribution of the underlying data. When there are subcomponents, they are averaged to derive the component rating. The component ratings within each area are then averaged to derive ratings for each of the five areas. And the five area ratings are averaged to derive the overall EFW rating for each country.

2 Sometimes we use multiple data sources for a single indicator or sub-indicator. We do this when one data source is discontinued and replaced by a different source or when there is more than one source for the same concept, and we think it prudent to average multiple sources.

Table 1.1. Economic Freedom of the World Index

1. Size of Government

A. Government consumption
   i. Government consumption without interest payments
   ii. Government consumption with interest payments

B. Transfers and subsidies

C. Government investment

D. Top marginal tax rate
   i. Top marginal income tax rate
   ii. Top marginal income and payroll tax rate

E. State ownership of assets

2. Legal System and Property Rights*

A. Judicial independence

B. Impartial courts

C. Property rights

D. Military interference

E. Integrity of the legal system

F. Contracts

G. Real property

H. Police and crime

* Area 2 ratings calculated both with and without adjustments for inequalities in the legal treatment of women using a Gender Disparity Index produced by Rosemarie Fike. The adjusted Area 2 rating is used to compute the summary rating.

3. Sound Money

A. Money growth

B. Standard deviation of inflation

C. Inflation in the most recent year

D. Foreign currency bank accounts

4. Freedom to Trade Internationally

A. Tariffs
   i. Trade tax revenue
   ii. Mean tariff rate
   iii. Standard deviation of tariff rates

B. Regulatory trade barriers
   i. Non-tariff trade barriers
   ii. Costs of importing and importing

C. Black market exchange rates

D. Controls on the movement of people and capital
   i. Financial openness
   ii. Capital controls
   iii. Freedom of foreigners to visit
   iv. Protection of foreign assets

5. Regulation

A. Credit market regulation
   i. Ownership of banks
   ii. Private sector credit
   iii. Interest rate controls/negative interest rates

B. Labor market regulation
   i. Labor regulations and minimum wage
   ii. Hiring and firing regulations
   iii. Flexible wage determination
   iv. Hours regulation
   v. Costs of worker dismissal
   vi. Conscription
   vii. Foreign labor

C. Business regulation
   i. Regulatory burden
   ii. Bureaucracy costs
   iii. Impartial public administration
   iv. Tax compliance

D. Freedom to compete
   i. Market openness
   ii. Business permits
   iii. Distortion of business environment

Area 1. Size of Government measures the effect of government expenditures and tax rates on economic freedom. Taken together, the five components of Area 1 measure the degree to which a country's fiscal policies limit the scope of individual economic choice. Since almost all government spending is financed through either current taxation, future taxation, or inflation, almost all government spending necessarily expropriates money from citizens, limiting their economic choices. Countries with lower levels of government consumption, lower transfers and subsidies, less government investment, lower marginal tax rates, and less state ownership of assets earn the highest ratings in this area.

Area 2. Legal System and Property Rights measures the degree to which each jurisdiction's legal system protects economic freedom. When a person and his or her rightfully acquired property are not secure, others (both private individuals and the state) may limit his or her economic choices. The key ingredients of a legal system consistent with economic freedom are rule of law, security of property rights, an independent and unbiased judiciary, and impartial and effective enforcement of the law. The eight components of Area 2 are indicators of how effectively the protective functions of government are performed. The rating for Area 2 is adjusted based on a gender-disparity index that reflects cross-country differences in legal rights based on gender.

Area 3. Sound Money measures the degree to which a jurisdiction's monetary policies permit economic freedom. Money is involved in nearly every transaction in an economy so unexpected changes in its value have a profound effect on peoples' ability to make their own economic choices. If a government's monetary authority creates significant unexpected inflation, it makes money less valuable, expropriating property from savers. Conversely, if the government creates significant unexpected deflation, it makes money more valuable and expropriates property from borrowers. High and volatile inflation or deflation therefore interfere with individuals' ability to make their own economic choices. The four components of this area measure the extent to which people have access to sound money—i.e., currencies that maintain their value over time. To earn a high rating in Area 3, a country must permit its citizens to access a currency with low (and stable) rates of inflation and avoid regulations that limit the ability to use alternative currencies.

Area 4. Freedom to Trade Internationally measures the degree to which governments interfere with exchange across national boundaries. When governments impose taxes or regulations at the border, they limit their citizen's ability to exchange with people from other countries. The components in Area 4 measure a wide variety of trade restrictions: tariffs, quotas, hidden administrative restraints, and controls on exchange rates and the movement of capital. To get a high rating in this area, a country must have low tariffs,

easy clearance and efficient administration of customs, a freely convertible currency, and few controls on the movement of physical and human capital.

Area 5. Regulation measures the extent to which regulations that restrict entry into markets and interfere with the freedom to voluntarily exchange reduce economic freedom. The components of Area 5 focus on regulatory restraints that limit the freedom of exchange in credit, labor, and product markets.

Key changes and challenges in the EFW index in recent years

The last few years have presented a huge challenge for the EFW index as two of our most important data sources became unavailable. The World Bank's *Doing Business* (DB) report was abruptly canceled, and likewise the World Economic Forum's *Global Competitiveness Report* (GCR) has been discontinued. These two sources had been used in whole, or in part, in about 40 percent of components or subcomponents in the EFW index.

Readers may recall that we began using new (but costly) data from the Economist Intelligence Unit (EIU) in many components/subcomponents a couple of years ago. This helped us greatly in dealing with the loss of the DB and GCR data. Because of the expense, we did not purchase the EIU data for 2023, so we did not update the EIU data for this report. We will have updated EIU data for the data years 2024, 2025, and 2026, so these components/subcomponents will be updated in the next few cycles.

There are still a few components and subcomponents that remain wholly reliant on the DB or GCR data that have not been updated. We are beginning to evaluate the quality of the data coming from the World Bank's new B-Ready project, which released its first batch of data for 50 countries last year. While not a perfect substitute for the DB data, it does appear that some B-Ready data might be useful for the EFW index project in a couple of years, once all the countries have been added.

We discovered two new datasets that cover labor regulations. First, the IMF's Structural Reform Database provides data on labor regulations. Second, the Centre for Business Research in Cambridge, UK, has good labor regulation data. We have now integrated these data into the 5Bi-5Bv subcomponents. These two new data sources allow us to continue updating these subcomponents (along with the EIU data) and have allowed us to fill in a lot of early years' data for many countries. These new data have resulted in significant changes to the ratings for 5Bi through 5Bv from the 2024 report to the 2025 report.

Finally, we have added a new subcomponent 1Aii, which is government consumption expenditures plus government interest payments as a share of total (private plus

government) consumption plus government interest payments. Thus, component 1A is now based on the average of 1Ai and 1Aii, where 1Ai is the traditional government consumption as a share of total consumption (without interest payments). This is a relatively small change for most countries, but we believe explicitly accounting for interest on the debt as a size of government indicator was necessary, as government indebtedness continues to grow, at least in some nations.

Construction of Area and Summary ratings

Theory provides us with some direction about elements that should be included in the five areas and the summary index, but it does not indicate what weights should be attached to the components within the areas or among the areas in the construction of the overall index. It would be convenient if these factors were independent, and a weight could be attached to each of them. In the past, we investigated several methods of weighting the various components, including principal component analysis and a survey of economists. We have also invited others to use their own weighting structure if they believe that it is preferable. Our experience indicates that the overall index is not very sensitive to alternative weighting methods.

Furthermore, there is reason to question whether the areas (and components) are independent of one another, or if instead, they work together like the wheels, motor, transmission, drive shaft, and frame of a car. Just as these interconnected parts allow an automobile to move forward, it may be that a combination of interrelated factors allows people to benefit from economic freedom. Which is more important for the mobility of an automobile: the motor, wheels, or transmission? The question cannot be easily answered because the parts work together.[3] If any of these key parts break down, the car is immobile. Institutional quality may be much the same. If any of the key parts are absent, the overall effectiveness may be undermined.

As a result of these two considerations, we organize the elements of the index in a manner that seems sensible, but we make no attempt to weight the components in any special way when deriving either area or overall ratings. Of course, the component and subcomponent data are available to researchers who would like to consider alternative weighting schemes, and we encourage them to do so.

3 See, for example, Bolen and Sobel (2020).

Summary Economic Freedom ratings in 2023

Figures 1.1a and 1.1b (pp. 11–12) present the summary economic freedom ratings, sorted from highest to lowest, for the 165 jurisdictions of this year's report. These ratings are for 2023, the most recent year for which reasonably comprehensive data are available. The 10 highest scoring nations are Hong Kong, Singapore, New Zealand, Switzerland, the United States, Ireland, Australia and Taiwan (tied for 7th), Denmark, and the Netherlands.

The rankings of some of the other major world economies are Canada (11th), the United Kingdom (13th), Germany (15th), Japan (17th), Korea (38th), France (44th), Italy (46th), Indonesia (65th), Mexico (70th), India (86th), Brazil (87th), China (108th), and Russia (148th). The 10 lowest-rated countries are: Chad, Libya, Syria, Argentina, Myanmar, Iran, Algeria, Sudan, Zimbabwe, and Venezuela.

Ratings and rankings in 2023 for the five Areas of the index

Table 1.2 (pp. 13-17) presents the ratings (and rankings) for each of the five areas of the index. Several interesting patterns emerge from an analysis of these data. High-income industrial economies generally rank quite high for Legal System and Property Rights (Area 2), Sound Money (Area 3), and Freedom to Trade Internationally (Area 4). Their ratings are lower, however, for Size of Government (Area 1) and Regulation (Area 5). This is particularly true for the high-income countries of Western Europe.

On the other hand, many developing nations have a small fiscal size of government but rate low in other areas, and as a result, have a low overall rating. The lesson from this is clear: a small fiscal size of government is insufficient to ensure prosperity. The other areas of economic freedom—the rule of law and property rights, sound money, trade openness, and limited regulations—are also required.

As the area ratings show, weakness in the rule of law and property rights is particularly pronounced in Sub-Saharan Africa, among Islamic nations, and for some nations that were formerly part of the Soviet bloc, though several countries in the latter group have made impressive strides toward improvement. Many nations in Latin America and Southeast Asia also score poorly for rule of law and property rights. The nations that rank poorly in this category also tend to score poorly in the trade and regulation areas, even though several have reasonably sized governments and sound money.

Figure 1.1a: Summary Economic Freedom Ratings for 2023, First and Second Quartiles

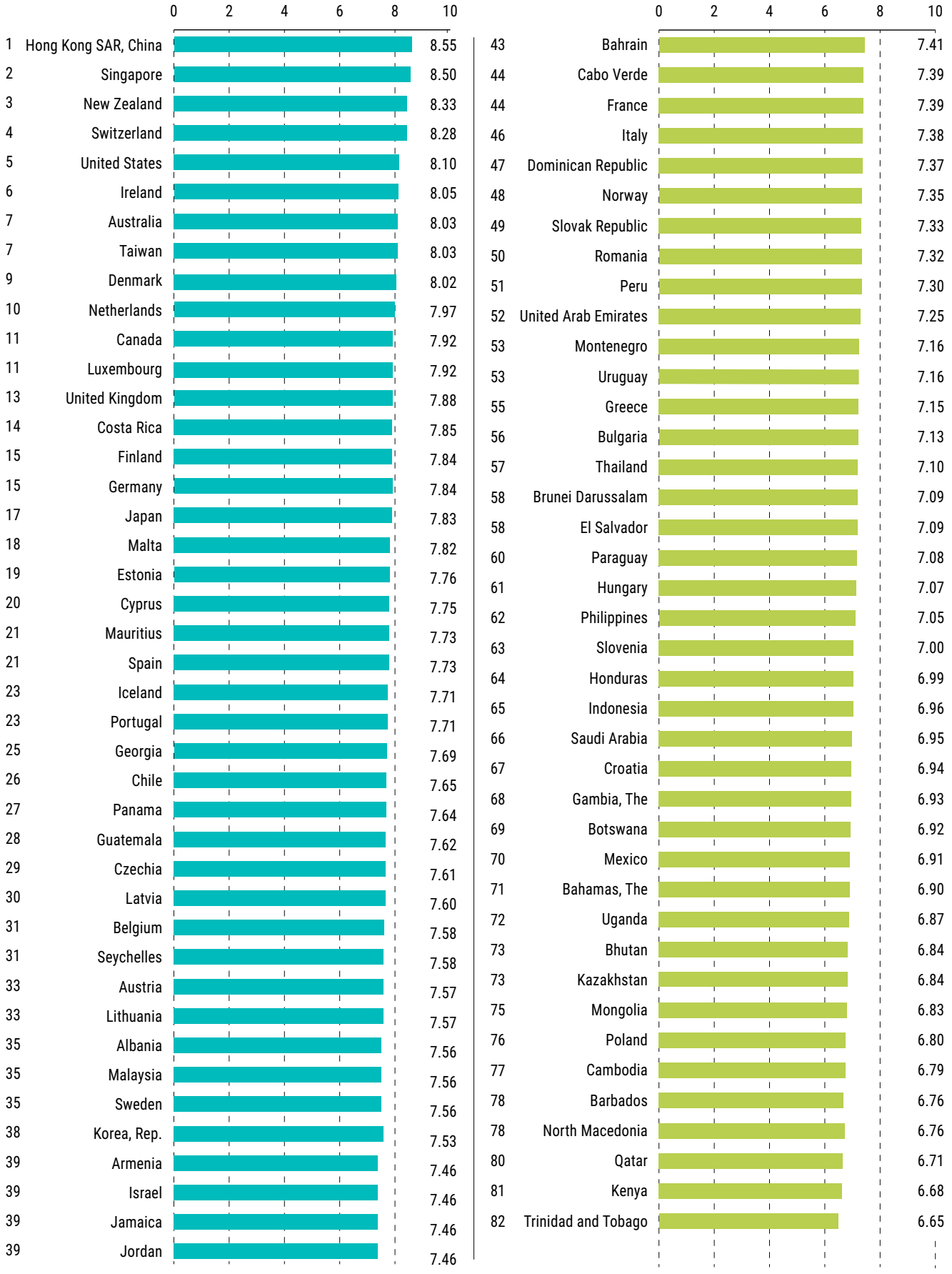


Figure 1.1b: Summary Economic Freedom Ratings for 2023, Third and Fourth Quartiles

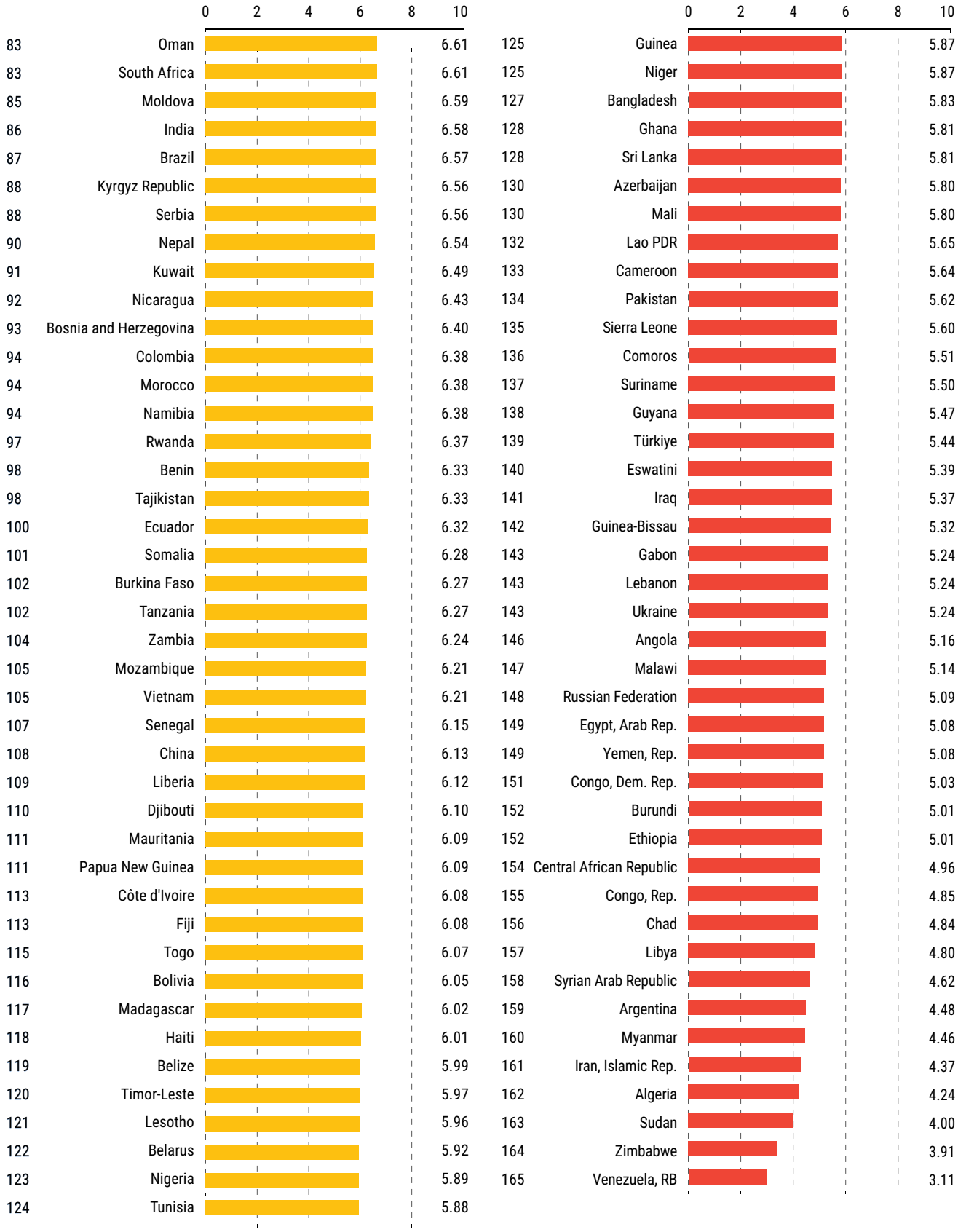


Table 1.2: Economic Freedom by Area and Ranking in 2023

Countries	1 Size of Government	Rank	2 Legal System & Property Rights	Rank	3 Sound Money	Rank	4 Freedom to trade internationally	Rank	5 Regulation	Rank
Albania	7.64	30	5.55	68	8.95	39	8.54	33	7.11	35
Algeria	4.30	163	3.79	131	6.38	125	2.59	164	4.12	160
Angola	7.83	22	3.48	138	4.38	153	4.97	154	5.14	145
Argentina	6.18	112	5.54	69	1.25	162	3.62	161	5.79	121
Armenia	8.03	18	5.69	63	9.06	24	8.13	55	6.39	88
Australia	6.21	111	8.68	6	8.87	44	8.15	52	8.22	4
Austria	5.29	144	8.50	10	8.44	65	8.69	26	6.92	44
Azerbaijan	4.67	158	4.64	103	6.48	123	7.21	83	5.98	111
Bahamas, The	8.81	6	6.25	46	6.31	129	5.65	142	7.45	19
Bahrain	7.29	52	4.70	101	9.10	22	8.35	45	7.59	18
Bangladesh	8.37	10	3.45	139	6.24	132	5.64	143	5.43	136
Barbados	7.33	50	6.13	50	7.42	95	6.74	105	6.20	98
Belarus	6.13	114	3.59	135	8.77	49	6.46	119	4.67	147
Belgium	4.57	161	7.94	15	9.27	12	8.86	16	7.25	26
Belize	6.24	109	3.98	128	6.29	131	6.57	116	6.89	48
Benin	8.04	17	4.32	121	6.74	113	6.07	130	6.47	82
Bhutan	6.87	71	6.81	34	6.52	122	6.91	98	7.07	37
Bolivia	5.94	122	4.13	124	9.29	11	6.46	120	4.42	154
Bosnia and Herzegovina	6.71	80	4.55	112	6.18	135	7.72	67	6.85	53
Botswana	6.43	99	6.04	51	8.73	51	7.36	77	6.06	105
Brazil	6.54	90	5.07	87	8.60	56	7.49	73	5.14	144
Brunei Darussalam	6.67	81	5.80	58	8.21	75	7.56	71	7.20	32
Bulgaria	6.74	78	5.56	67	8.19	76	8.41	43	6.74	59
Burkina Faso	7.02	61	4.27	122	6.88	108	6.63	109	6.56	72
Burundi	6.48	96	3.41	143	5.74	140	3.61	162	5.79	122
Cabo Verde	7.48	38	6.19	47	9.20	19	7.61	69	6.49	77
Cambodia	8.87	4	3.27	147	9.15	20	7.40	76	5.28	141
Cameroon	7.55	35	3.26	148	6.13	137	5.47	146	5.81	119
Canada	6.39	102	7.91	17	8.85	46	8.53	34	7.93	7
Central African Republic	6.64	83	2.20	162	6.43	124	5.13	151	4.41	155
Chad	7.55	33	2.73	157	4.56	149	5.23	149	4.11	161
Chile	7.45	41	6.77	36	8.58	59	8.56	32	6.90	46
China	4.70	157	4.94	91	8.34	70	7.08	91	5.57	131
Colombia	6.94	65	4.78	96	6.74	114	6.80	103	6.65	65

Table 1.2: Economic Freedom by Area and Ranking in 2023 (continued)

Countries	1 Size of Government	Rank	2 Legal System & Property Rights	Rank	3 Sound Money	Rank	4 Freedom to trade internationally	Rank	5 Regulation	Rank
Comoros	6.38	103	2.92	153	5.87	139	6.47	118	5.93	114
Congo, Dem. Rep.	7.44	42	2.62	158	5.16	145	5.27	147	4.66	148
Congo, Rep.	5.92	124	3.44	141	4.87	147	5.67	141	4.37	156
Costa Rica	7.46	39	6.76	37	9.53	4	8.50	36	6.98	42
Côte d'Ivoire	6.59	86	5.27	80	6.69	116	5.88	135	5.97	113
Croatia	5.56	137	6.18	48	8.31	72	8.47	39	6.16	100
Cyprus	6.76	76	6.93	31	9.26	13	8.92	13	6.87	51
Czechia	6.03	119	7.68	21	8.36	69	8.87	14	7.09	36
Denmark	5.41	142	8.88	2	9.05	26	8.95	10	7.82	8
Djibouti	5.15	147	3.70	133	9.23	16	5.76	138	6.66	63
Dominican Republic	8.34	11	5.40	73	8.75	50	8.14	54	6.24	96
Ecuador	6.62	85	4.51	114	7.87	82	6.84	101	5.76	124
Egypt, Arab Rep.	5.32	143	3.49	137	5.96	138	6.12	129	4.50	152
El Salvador	7.77	25	4.43	117	9.03	29	7.97	61	6.25	93
Estonia	6.29	107	7.68	20	8.05	78	8.97	8	7.82	9
Eswatini	5.19	146	3.02	152	7.76	85	5.64	144	5.35	139
Ethiopia	6.77	75	4.33	120	4.47	150	4.32	156	5.14	143
Fiji	5.58	135	4.82	95	6.85	109	6.22	127	6.93	43
Finland	4.92	151	8.86	3	9.14	21	8.69	27	7.60	16
France	4.77	156	7.31	26	9.01	33	8.96	9	6.91	45
Gabon	6.48	95	3.87	129	5.65	141	5.57	145	4.65	149
Gambia, The	7.89	20	5.41	72	7.23	100	7.28	81	6.80	56
Georgia	7.35	48	5.82	56	8.90	40	8.77	19	7.62	14
Germany	5.81	127	8.24	13	9.01	32	8.74	23	7.40	21
Ghana	8.13	14	5.31	78	2.70	161	6.66	107	6.27	92
Greece	4.88	152	6.46	43	9.02	30	8.51	35	6.89	47
Guatemala	9.18	2	4.61	106	8.87	43	8.34	46	7.07	38
Guinea	7.44	43	3.36	145	7.07	105	5.93	134	5.53	133
Guinea-Bissau	6.45	97	2.76	155	6.14	136	6.32	124	4.90	146
Guyana	3.87	164	4.27	123	6.52	121	6.23	126	6.48	78
Haiti	8.78	7	2.56	159	4.93	146	7.77	65	6.02	106
Honduras	8.84	5	4.00	126	8.60	57	7.06	92	6.45	84
Hong Kong SAR, China	7.49	37	7.60	22	9.53	3	9.66	1	8.49	3
Hungary	6.05	118	6.62	41	7.36	99	8.72	25	6.61	66

Table 1.2: Economic Freedom by Area and Ranking in 2023 (continued)

Countries	1 Size of Government	Rank	2 Legal System & Property Rights	Rank	3 Sound Money	Rank	4 Freedom to trade internationally	Rank	5 Regulation	Rank
Iceland	5.95	121	8.54	9	8.65	53	8.43	42	7.00	40
India	7.68	29	5.43	71	7.59	90	6.21	128	5.99	109
Indonesia	8.40	9	4.71	100	8.99	37	7.04	93	5.65	128
Iran, Islamic Rep.	6.97	64	3.20	149	5.20	144	2.48	165	4.02	162
Iraq	4.79	155	2.49	160	6.65	118	7.13	88	5.80	120
Ireland	6.42	100	7.93	16	8.87	45	9.00	5	8.06	6
Israel	5.93	123	6.32	45	9.03	28	8.81	17	7.21	31
Italy	5.49	140	6.78	35	9.04	27	8.99	6	6.58	69
Jamaica	8.12	15	5.81	57	8.40	68	7.28	79	7.72	10
Japan	5.83	126	7.78	19	9.39	8	8.56	31	7.59	17
Jordan	7.38	47	4.93	92	9.55	2	8.18	50	7.25	27
Kazakhstan	7.83	23	5.67	65	7.42	96	7.03	94	6.24	94
Kenya	6.54	88	5.10	86	8.88	42	6.41	121	6.48	79
Korea, Rep.	6.18	113	7.15	28	9.24	14	8.00	59	7.07	39
Kuwait	5.80	129	5.34	76	7.76	84	7.35	78	6.20	97
Kyrgyz Republic	7.42	44	4.34	119	7.37	97	7.50	72	6.19	99
Lao PDR	7.33	51	4.45	116	4.11	154	6.60	111	5.76	123
Latvia	6.34	106	7.11	29	8.32	71	8.79	18	7.43	20
Lebanon	8.67	8	3.54	136	4.39	152	3.63	160	5.98	112
Lesotho	5.51	139	4.43	118	7.54	92	6.58	113	5.74	126
Liberia	7.10	58	3.83	130	8.46	64	5.82	136	5.37	138
Libya	3.60	165	3.36	146	7.06	106	5.70	140	4.27	158
Lithuania	6.91	68	7.10	30	7.92	81	8.77	20	7.16	33
Luxembourg	5.05	148	8.58	8	9.38	9	8.99	7	7.62	15
Madagascar	6.89	69	3.20	150	7.23	101	7.02	96	5.75	125
Malawi	6.22	110	4.82	94	4.42	151	4.18	158	6.07	104
Malaysia	7.22	54	5.71	62	9.33	10	7.89	63	7.66	13
Mali	6.99	62	3.38	144	6.74	112	6.38	122	5.50	135
Malta	6.51	94	7.18	27	9.06	25	9.03	4	7.31	23
Mauritania	6.39	101	3.45	140	7.75	86	6.79	104	6.08	103
Mauritius	7.40	46	6.67	39	8.61	55	8.76	21	7.24	29
Mexico	8.09	16	4.63	104	7.66	88	8.11	57	6.09	102
Moldova	7.59	32	5.79	59	6.30	130	7.63	68	5.64	129
Mongolia	6.75	77	5.77	60	7.78	83	7.28	80	6.57	71

Table 1.2: Economic Freedom by Area and Ranking in 2023 (continued)

Countries	1 Size of Government	Rank	2 Legal System & Property Rights	Rank	3 Sound Money	Rank	4 Freedom to trade internationally	Rank	5 Regulation	Rank
Montenegro	6.65	82	5.67	64	8.28	74	8.29	49	6.88	49
Morocco	6.88	70	5.36	75	6.35	128	7.09	89	6.24	95
Mozambique	7.12	57	4.52	113	7.51	93	6.57	114	5.32	140
Myanmar	6.84	73	2.81	154	3.89	155	4.26	157	4.52	151
Namibia	7.34	49	6.16	49	6.37	126	6.51	117	5.52	134
Nepal	7.16	55	4.98	88	7.37	98	6.05	131	7.14	34
Netherlands	5.25	145	8.93	1	9.23	17	9.16	3	7.25	28
New Zealand	6.36	105	8.73	5	8.99	36	8.94	11	8.65	1
Nicaragua	6.54	89	3.43	142	8.43	66	7.90	62	5.86	117
Niger	7.81	24	3.19	151	6.72	115	5.75	139	5.90	115
Nigeria	8.87	3	4.00	127	6.66	117	3.52	163	6.39	89
North Macedonia	6.85	72	4.76	97	7.18	103	7.72	66	7.29	24
Norway	4.99	149	8.86	4	7.58	91	8.33	47	7.00	41
Oman	4.85	154	5.57	66	8.29	73	7.46	74	6.87	50
Pakistan	8.27	13	4.03	125	3.83	156	5.97	133	6.01	108
Panama	7.55	34	5.74	61	9.21	18	8.87	15	6.83	54
Papua New Guinea	5.65	134	4.73	98	6.37	127	7.26	82	6.46	83
Paraguay	7.97	19	4.51	115	8.90	41	7.41	75	6.59	68
Peru	7.63	31	5.12	85	8.53	62	8.48	38	6.73	61
Philippines	7.88	21	4.57	109	9.01	34	7.15	86	6.65	64
Poland	5.58	136	6.47	42	6.93	107	8.48	37	6.54	74
Portugal	6.02	120	7.81	18	9.07	23	8.93	12	6.74	60
Qatar	5.67	133	5.47	70	7.61	89	8.39	44	6.41	87
Romania	6.72	79	6.85	33	8.18	77	8.44	41	6.43	86
Russian Federation	5.78	130	4.68	102	5.44	142	5.13	150	4.44	153
Rwanda	4.98	150	5.99	52	6.77	111	7.56	70	6.54	73
Saudi Arabia	6.55	87	5.86	55	8.58	60	7.13	87	6.66	62
Senegal	7.10	59	4.60	107	6.22	134	6.85	99	5.98	110
Serbia	6.36	104	5.40	74	6.54	120	8.06	58	6.44	85
Seychelles	7.40	45	5.99	53	9.42	7	8.30	48	6.80	58
Sierra Leone	7.15	56	4.97	89	3.83	157	6.63	110	5.42	137
Singapore	7.54	36	8.58	7	8.59	58	9.56	2	8.20	5
Slovak Republic	6.25	108	6.62	40	8.40	67	8.60	29	6.80	57
Slovenia	4.88	153	6.76	38	8.61	54	8.47	40	6.31	90

Table 1.2: Economic Freedom by Area and Ranking in 2023 (continued)

Countries	1 Size of Government	Rank	2 Legal System & Property Rights	Rank	3 Sound Money	Rank	4 Freedom to trade internationally	Rank	5 Regulation	Rank
Somalia	9.53	1	2.15	164	9.00	35	6.38	123	4.33	157
South Africa	6.05	117	5.88	54	7.68	87	6.97	97	6.47	81
Spain	6.08	116	7.41	25	9.24	15	8.68	28	7.26	25
Sri Lanka	7.45	40	5.19	83	3.29	159	6.84	102	6.27	91
Sudan	7.72	27	1.66	165	1.25	162	5.24	148	4.14	159
Suriname	6.53	91	4.86	93	3.61	158	6.63	108	5.90	116
Sweden	4.62	160	8.41	11	8.69	52	8.73	24	7.35	22
Switzerland	7.69	28	8.31	12	9.58	1	8.14	53	7.69	11
Syrian Arab Republic	7.04	60	2.74	156	4.70	148	5.03	153	3.58	163
Taiwan	7.76	26	7.53	24	9.49	6	8.16	51	7.23	30
Tajikistan	5.78	131	3.76	132	8.80	48	7.20	84	6.09	101
Tanzania	5.87	125	5.22	82	7.92	80	5.76	137	6.60	67
Thailand	6.98	63	5.12	84	9.50	5	7.08	90	6.83	55
Timor-Leste	4.35	162	4.55	111	6.23	133	7.84	64	6.86	52
Togo	6.94	67	4.56	110	6.58	119	6.26	125	6.01	107
Trinidad and Tobago	6.62	84	5.32	77	7.95	79	6.85	100	6.53	75
Tunisia	5.41	141	4.62	105	7.14	104	6.59	112	5.61	130
Türkiye	6.79	74	4.72	99	2.79	160	7.18	85	5.72	127
Uganda	6.94	66	4.96	90	8.97	38	7.03	95	6.48	80
Ukraine	5.80	128	4.57	108	5.26	143	5.99	132	4.58	150
United Arab Emirates	5.73	132	6.89	32	8.48	63	8.57	30	6.57	70
United Kingdom	6.10	115	8.06	14	8.83	47	8.74	22	7.68	12
United States	7.25	53	7.59	23	9.02	31	8.11	56	8.51	2
Uruguay	6.45	98	6.32	44	8.55	61	7.99	60	6.51	76
Venezuela, RB	4.62	159	2.48	161	0.74	165	5.03	152	2.67	165
Vietnam	6.52	92	5.30	79	6.81	110	6.57	115	5.85	118
Yemen, Rep.	8.30	12	2.17	163	7.47	94	4.61	155	2.85	164
Zambia	6.52	93	5.27	81	7.19	102	6.67	106	5.53	132
Zimbabwe	5.53	138	3.61	134	1.25	162	3.98	159	5.19	142

THE EFW PANEL DATASET

Over the years, the EFW index has become more comprehensive and the available data more complete. As a result, the number and composition of the components and subcomponents for many countries vary across time. This makes it difficult to directly compare index values from earlier periods with those of later periods. To assist researchers who are interested in a consistent time-series for a particular country and/or longitudinal data for a panel of countries, we have developed the EFW Panel Dataset.

The EFW Panel Dataset is a chain-linked version of the index. It uses the most recent year as the base year, and changes in a country's scores backward in time are based only on changes in components that were present in adjoining years. See p. 16 of the 2023 report for additional details on this process. Note that the EFW Panel Dataset contains area and summary ratings only for those years in which the country received a regular EFW index rating. Because some data for earlier years may have been updated or corrected, we always encourage researchers to use the data from the most recent annual report to ensure the most reliable figures.

Figure 1.2 presents the global average for all nations with complete data since 2000 using the EFW Panel Dataset. It also shows the population-weighted global average, which indicates how the average global citizen fares. Because it gives greater weight to large, relatively unfree countries like India, China, and Brazil, the population-weighted average is lower than the simple average. Overall, the index shows that economic

Figure 1.2: Global Economic Freedom (2000–2023)

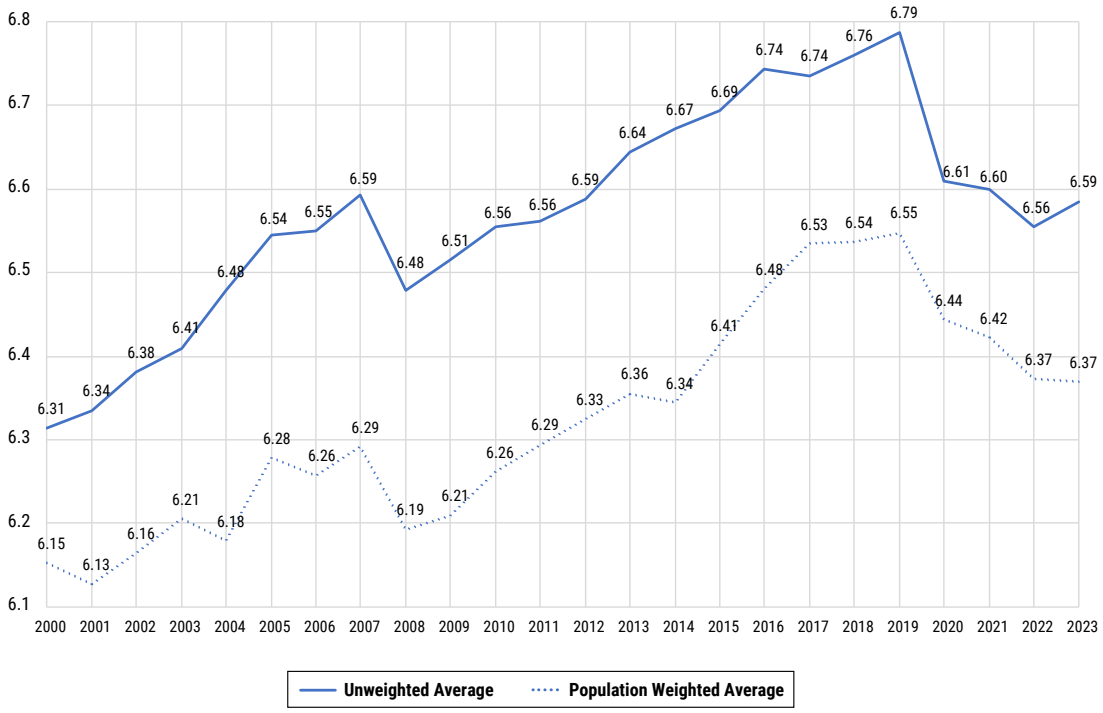
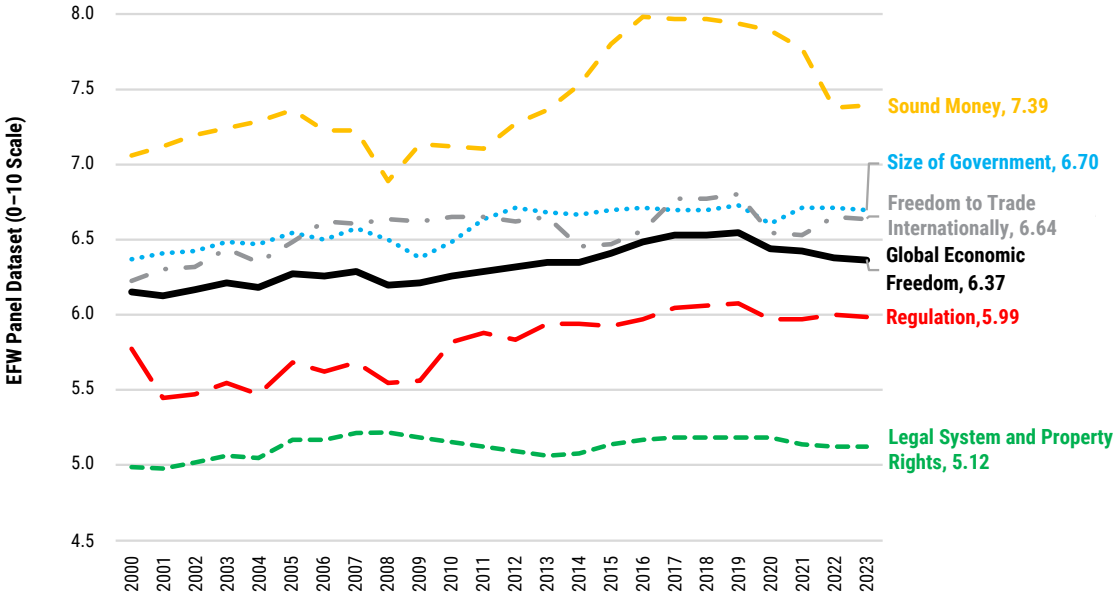


Figure 1.3: Global Economic Freedom and Its Areas, Weighted by Population (2000–2023)



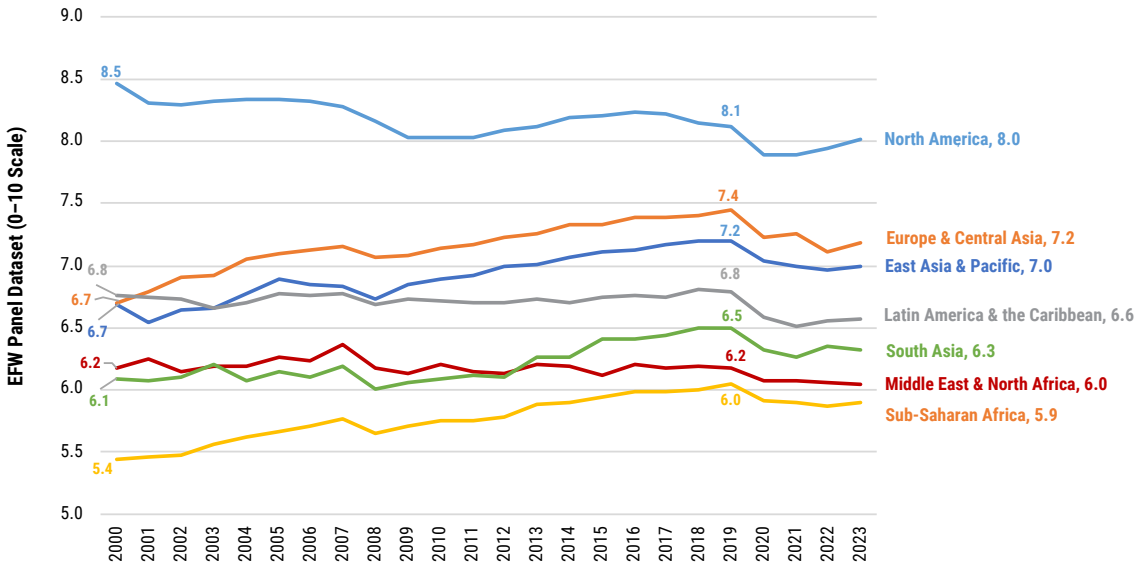
freedom has increased since 2000, but fell precipitously following the coronavirus pandemic, erasing nearly a decade of progress.

We take no position on the efficacy of the various public-health policies designed to deal with the coronavirus pandemic; they very well may have saved millions of lives, or they may have been completely ineffectual. That is a question for epidemiologists and health economists to work out. Our concern is economic freedom, and on that margin, there is no question that government policies responding to the coronavirus pandemic have reduced economic freedom.

Figure 1.3 shows population-weighted global economic freedom by each of the five areas of the index. A few patterns are evident. First, throughout this period, countries have tended to score relatively well in sound money and relatively poorly in legal systems and property rights. Second, the area with the greatest improvement over this period is freedom to trade internationally (see Chapter 2 for a preview of how President Trump's trade wars are likely to affect US economic freedom). Finally, each of the index's five areas declined since 2019, with the sound money area experiencing the largest drop.

Figure 1.4 shows economic freedom by global region. Overall, the figure suggests some degree of global convergence. North America experienced the largest decline over this period, followed by Latin America and the Caribbean, and the Middle East and North Africa. The latter region's decline is especially tragic given its low starting point. The regions with the greatest gains from 2000 to 2023 were Europe and Central Asia, and Sub-Saharan Africa. While every region is now lower than it was in 2019, Europe and Central Asia experienced the largest declines.

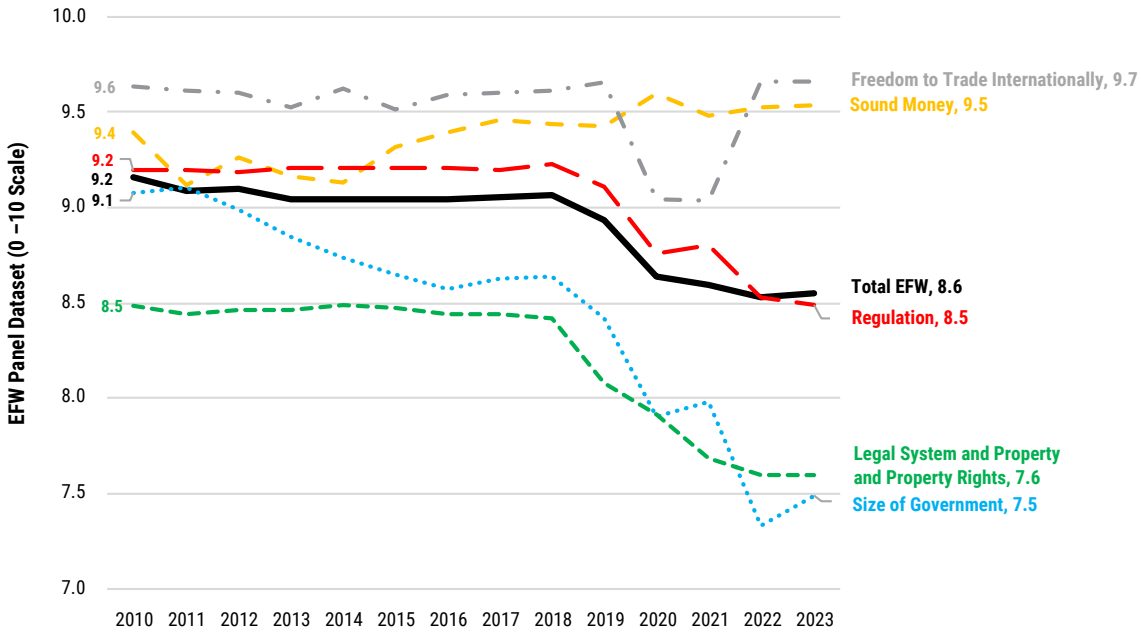
Figure 1.4: Economic Freedom by Region (2000–2023)



Economic freedom in Hong Kong

Hong Kong continues to top the list as the world's most economically free jurisdiction. But there is more to the story than the top-line rankings. Figure 1.5 shows the special administrative region's overall economic freedom as well as each of its five components from 2010 through 2023. Hong Kong's overall score has declined by 0.52 points since 2018, led by significant declines in three of the five areas. The deterioration in the territory's regulation and legal system and property rights areas is no doubt due to a

Figure 1.5: Economic Freedom in Hong Kong (2010–2023)



notorious 2020 security law that seems to have ended China's promise of "one country, two systems." The literature suggests that such a decline is associated with a 0.28 to 0.75 percentage point decrease in the average annual growth of real GDP per capita. Since 2010, Hong Kong's real GDP per capita has, on average, grown by one percent annually, so such a decline would have a significant effect on the territory's growth prospects.[4]

Economic freedom and human wellbeing

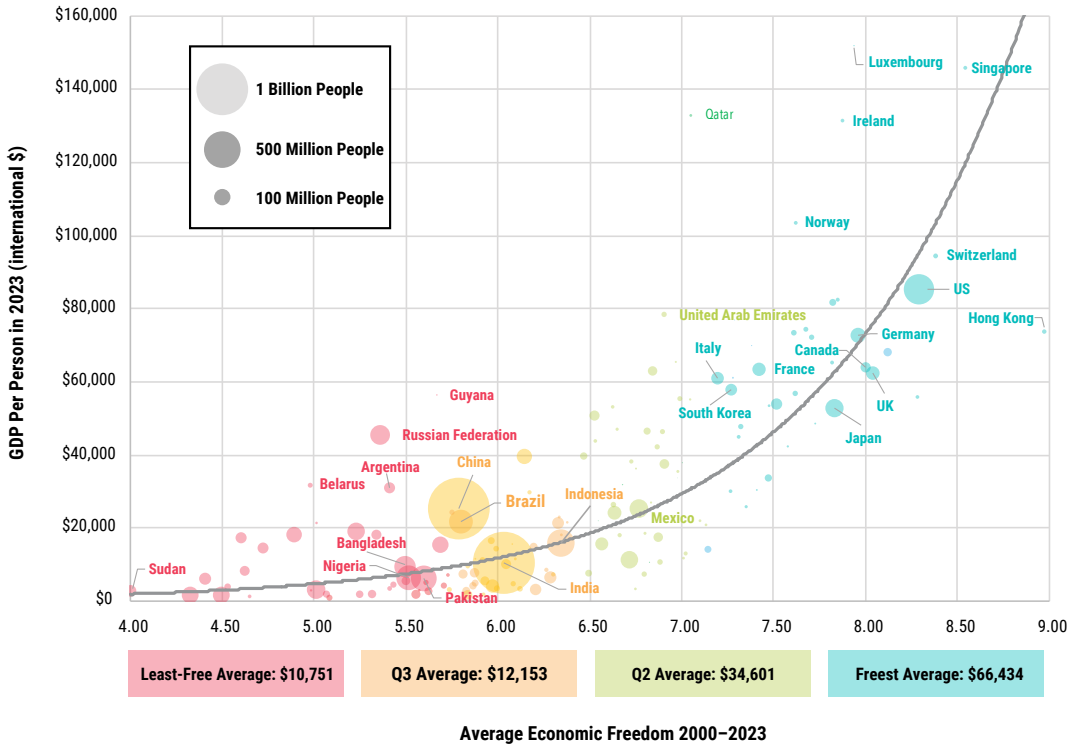
As is customary, this chapter concludes with some simple graphs illustrating relationships between economic freedom and various other indicators of human wellbeing (figures 1.6–1.15). The graphs use the average of the EFW panel dataset from 2000 to 2023. Because persistence is important and the impact of economic freedom will be felt over a lengthy period, it is better to use the average rating over a long period rather than the current rating to observe the impact of economic freedom on performance.

The graphs begin with the data on the relationship between economic freedom and the level of GDP per capita and then go on to examine the correlation with other economic and social outcomes. We are not necessarily arguing that there is a direct causal relation between economic freedom and the variables considered below. These graphs only establish how economic freedom correlates with other socio-economic outcomes over their respective time periods. To argue for a causal relationship between economic freedom and these outcomes would require econometric modelling with appropriate strategies for identifying causal effects.[5] For instance, many of the relationships illustrated in the graphs below likely reflect the impact of economic freedom as it works through increasing per capita income. At the very least, these graphs suggest fruitful areas for future research.

4 See Gwartney, Holcombe, and Lawson (2006). According to the Human Freedom Index, Hong Kong fell from third place in 2010 to 50th in 2022 (Vásquez, Mitchell, Murphy, and Schneider, 2024).

5 For recent reviews of the literature, see Lawson (2022), Lawson, Miozzi, and Tuszynski (2024), Mitchell (2024), and Berggren (2024).

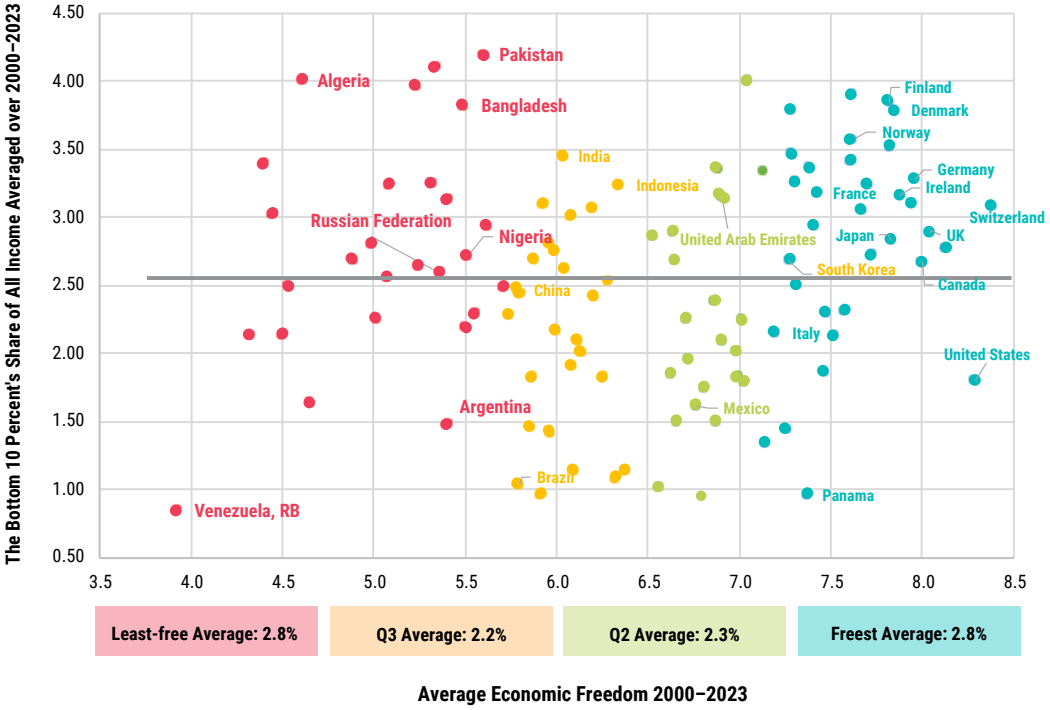
Figure 1.6: Economic Freedom, GDP Per Person, and Country Size



In countries with greater economic freedom, citizens enjoy substantially higher incomes. Those in the freest 25% of countries earn, on average, about 6.2 times as much as those in the least free.

Sources: Economic freedom: Authors' calculations. GDP Per Capita: World Bank, World Development Indicators (2025a).
Note: GDP per capita is in 2023 US dollars, adjusted for purchasing power parity.

Figure 1.7: Economic Freedom and the Bottom 10 Percent's Share of All Income

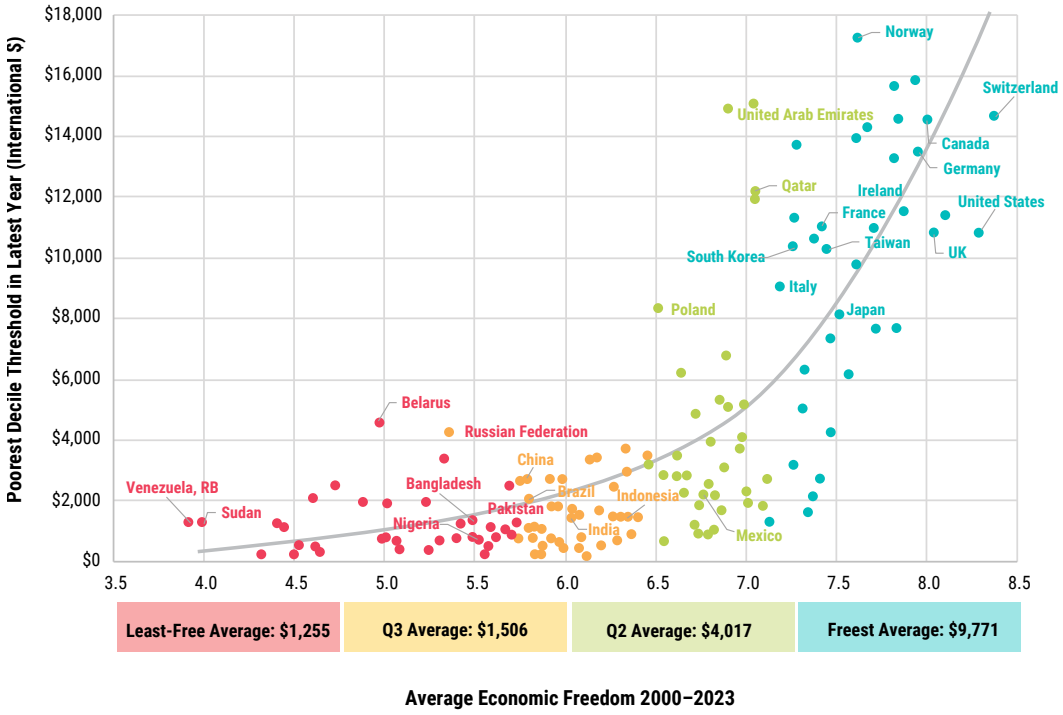


The share of income earned by the poorest 10% of the population is unrelated to economic freedom.

Sources: Economic freedom: Authors' calculations. Bottom 10 percent's share of income: World Bank, World Development Indicators (2025a).

Figure 1.8: Economic Freedom and Bottom 10% Income Threshold

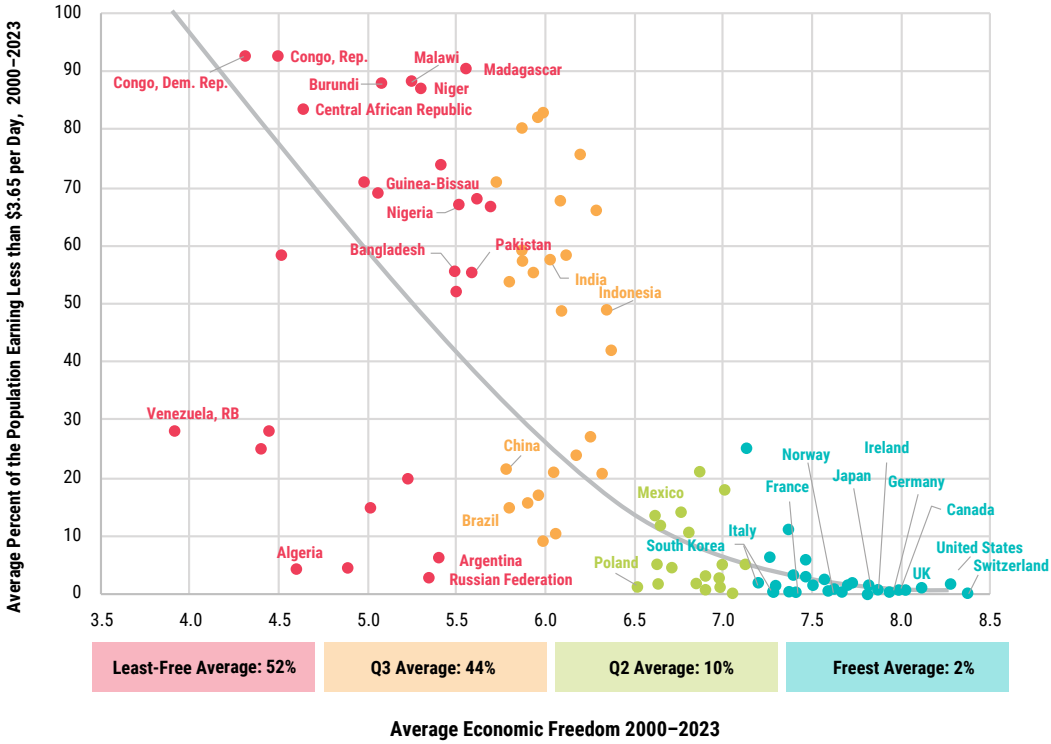
While the share of income earned by the poorest 10% is unrelated to economic freedom, the level of income earned by the poorest 10% of the population is much higher in countries with greater economic freedom. The bottom 10% threshold is 7.8 times higher in the freest quartile than it is in the least free.



Sources: Economic freedom: Authors' calculations. Bottom 10 percent threshold: World Bank, World Development Indicators (2025a)
Note: Bottom 10% income threshold is in in 2021 US dollars, adjusted for purchasing power parity

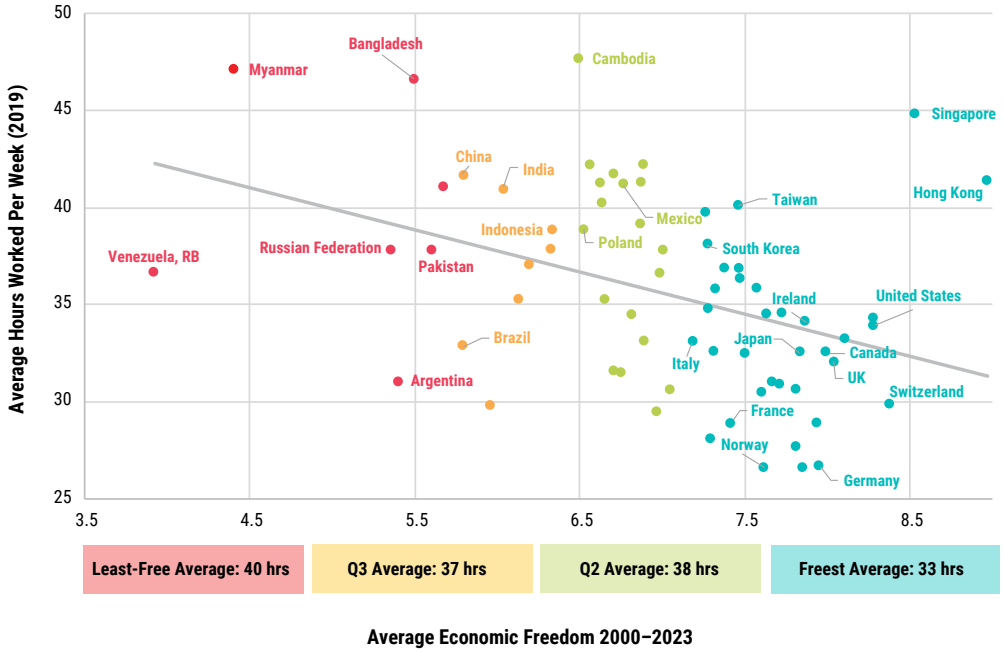
Figure 1.9: Economic Freedom and Poverty

The rate of poverty in the least free quartile is about 25 times greater than it is in the freest.



Sources: Economic freedom: Authors' calculations. Poverty: World Bank, Poverty and Inequality Platform (2025b).

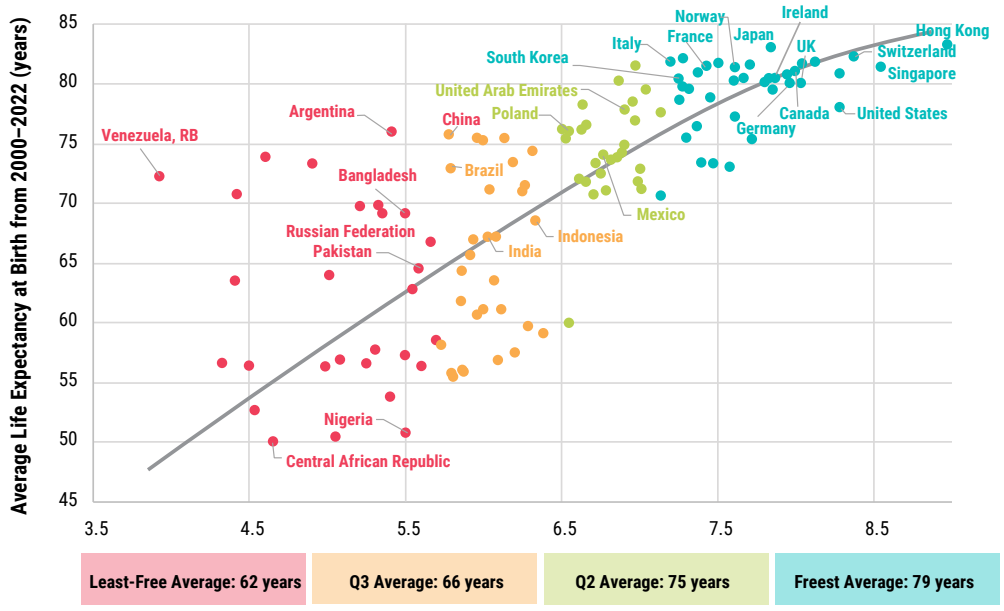
Figure 1.10: Economic Freedom and Average Hours Worked Per Week



People in the least-free quartile work about 20% more than those in the freest.

Sources: Economic freedom: Authors' calculations. Hours Worked: Feenstra et al. (2023).

Figure 1.11: Economic Freedom and Life Expectancy

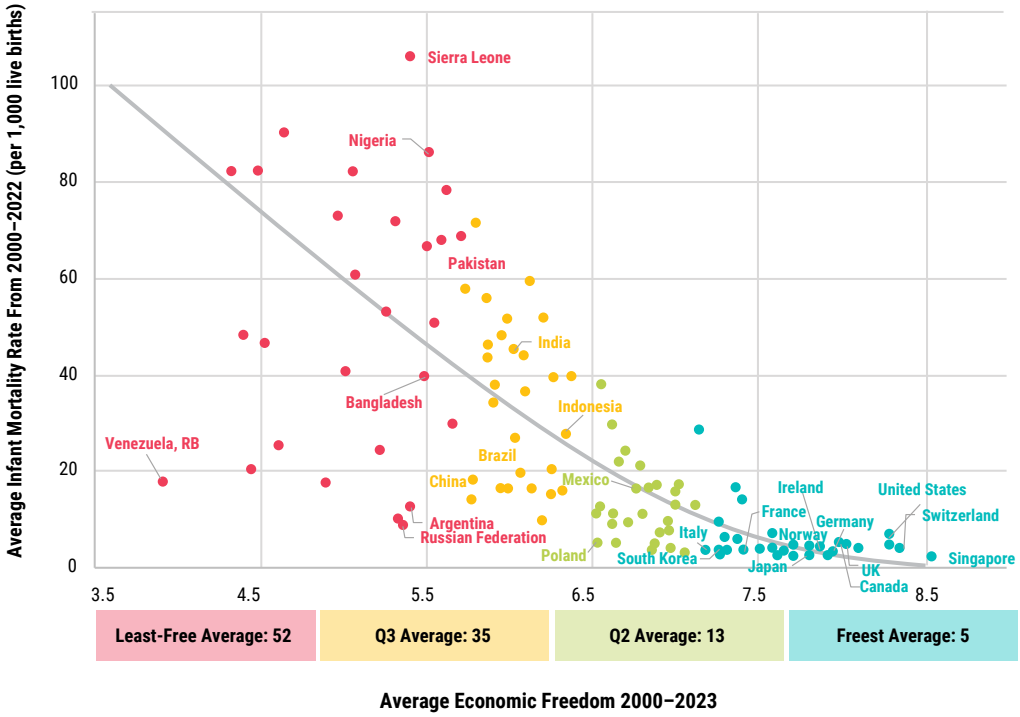


People in the freest quartile live about 17 years longer than those in the least-free quartile.

Sources: Economic freedom: Authors' calculations. Life expectancy: World Bank, World Development Indicators (2025a).

Figure 1.12: Economic Freedom and Infant Mortality

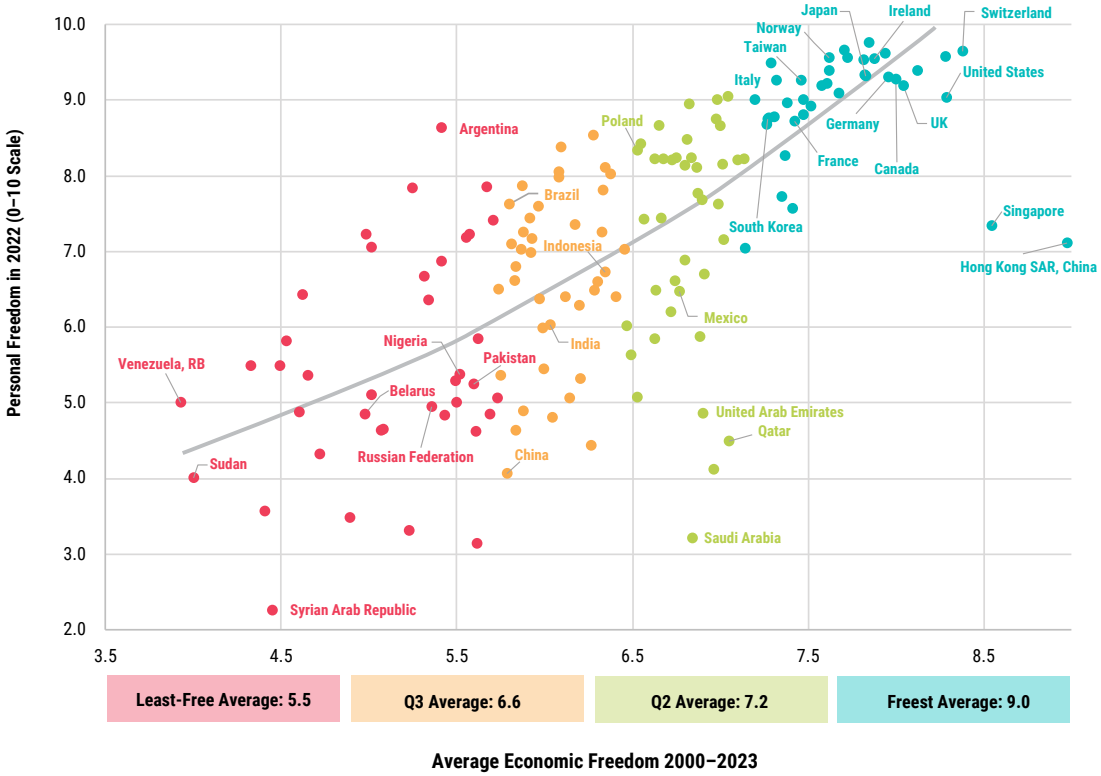
In the least-free countries, infants die at nearly 10 times the rate as they do in the freest countries.



Sources: Economic freedom: Authors' calculations. Life expectancy: World Bank, World Development Indicators (2025a).

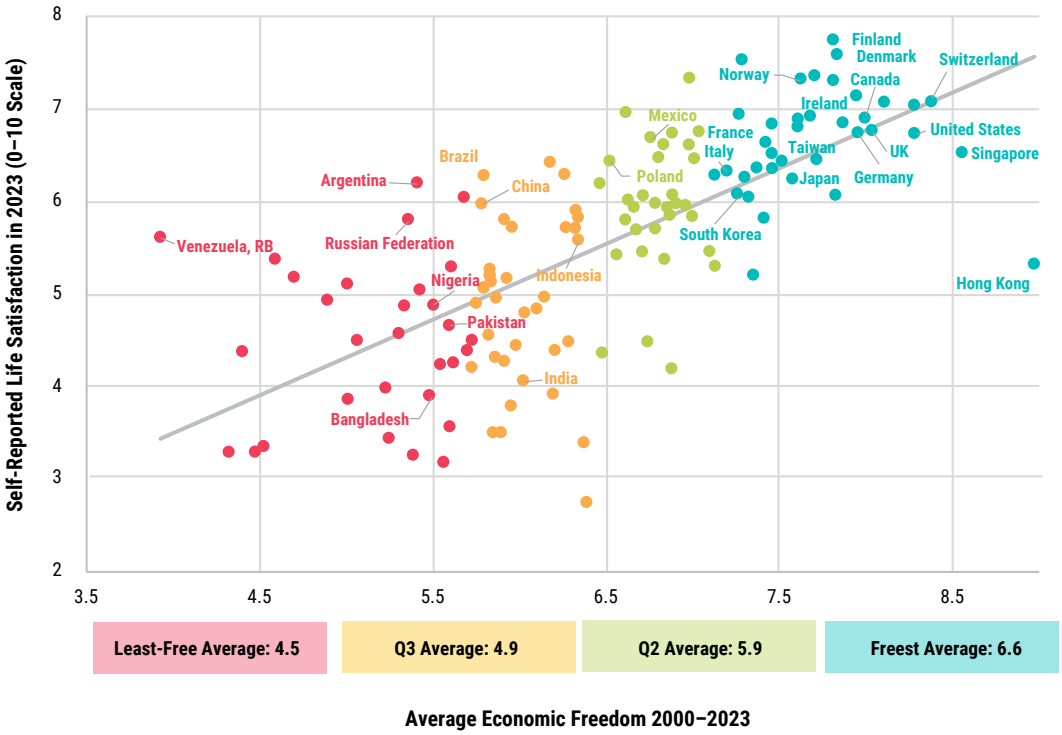
Figure 1.13: Economic Freedom and Personal Freedom

Economic freedom is positively correlated with personal freedoms.



Sources: Economic freedom: Authors' calculations. Personal Freedom: Vasquez et al. (2024).

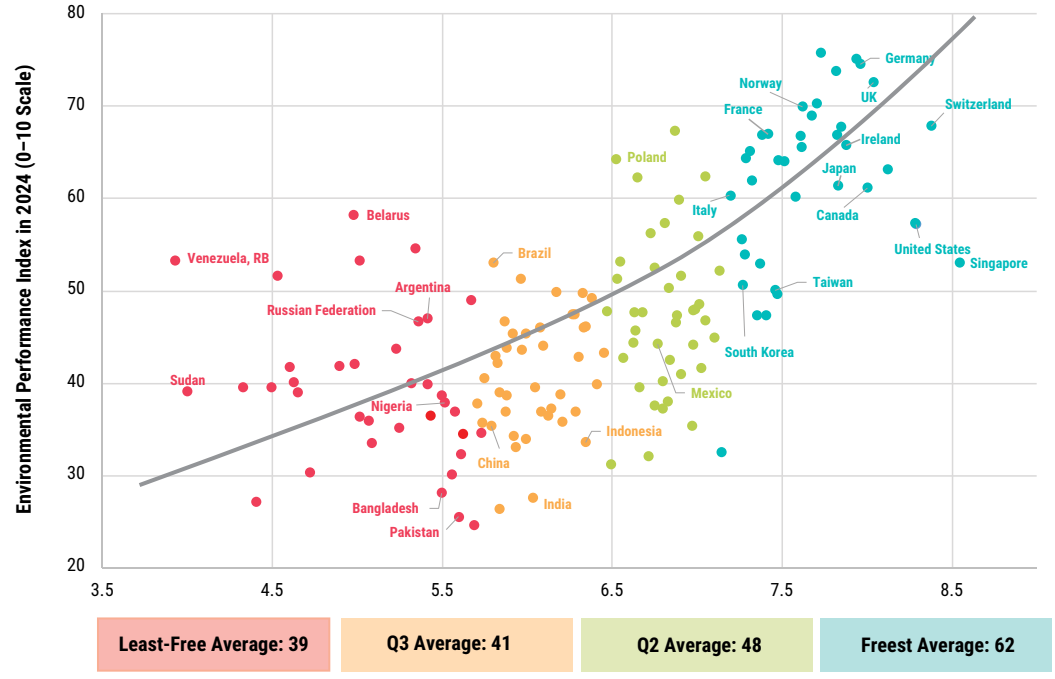
Figure 1.14: Economic Freedom and Life Satisfaction



People in economically free societies are more satisfied with their lives.

Sources: Economic freedom: Authors' calculations. Life satisfaction: Wellbeing Research Centre (2025).

Figure 1.15: Economic Freedom and Environmental Performance

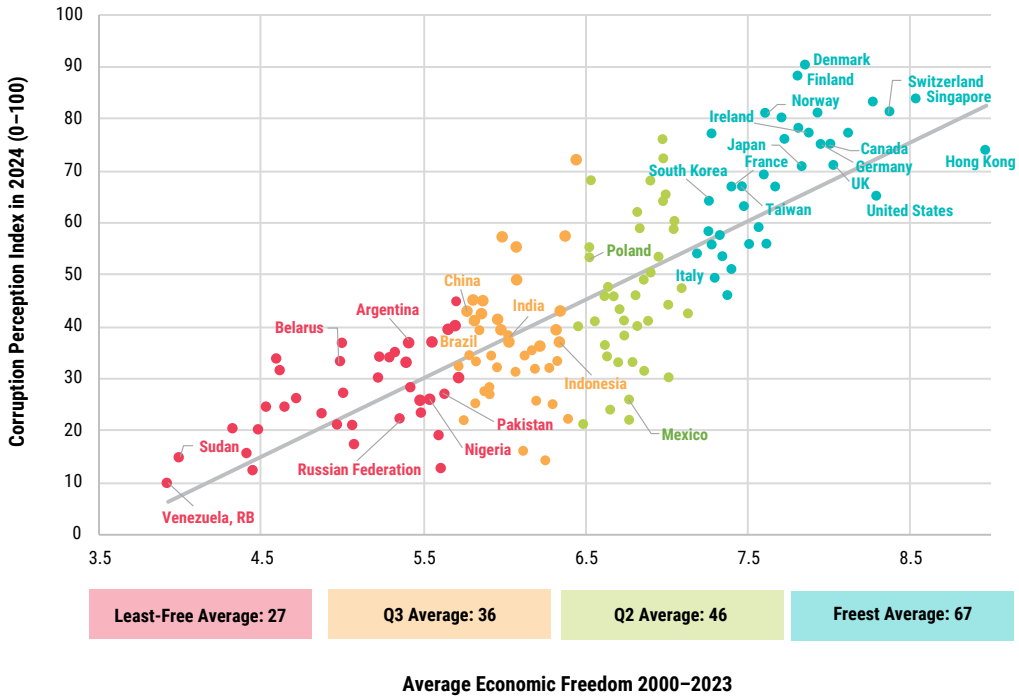


Economic freedom is positively related to environmental stewardship as measured by the Environmental Performance Index which rates countries according to climate change performance, environmental health, and ecosystem vitality.

Sources: Economic freedom: Authors' calculations. Environmental performance: Block et al., 2024.

Figure 1.16: Economic Freedom and Non-Corruption

Compared with the governments in the least economically free places, those in the freest places score two and a half times as well on the Corruption Perceptions Index.



Sources: Economic freedom: Authors' calculations. Non-Corruption: Transparency International (2024).

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CHAPTER 2

US Economic Freedom in a Trade War

Robert Lawson and Matthew D. Mitchell

After World War II, the United States played a key role in encouraging nations to lower their barriers to trade. But in recent decades, the US's commitment to free trade has waned. In 2023, the US ranked 56th out of 165 countries in terms of freedom to trade. Contrary to President Trump's claims, most major US trading partners have lower barriers to trade than the United States. Now, due to the President's trade war, US citizens will soon pay some of the highest tariffs in the world. We use these tariffs to offer an estimated preview of US economic freedom in 2025. They cause the country's trade freedom rank to fall from 56th to 76th place, and the US's overall economic freedom rank to fall from 5th to 10th.

1. The Historical Role of the US as Global Advocate for Free Trade

For the past nine decades, the US government has been a leading advocate of global free trade. Following the Smoot-Hawley tariffs of 1930—an infamous spasm of protectionism that many blame for worsening the Great Depression—leaders of both major political parties worked to make the United States the world's leading proponent of free trade.

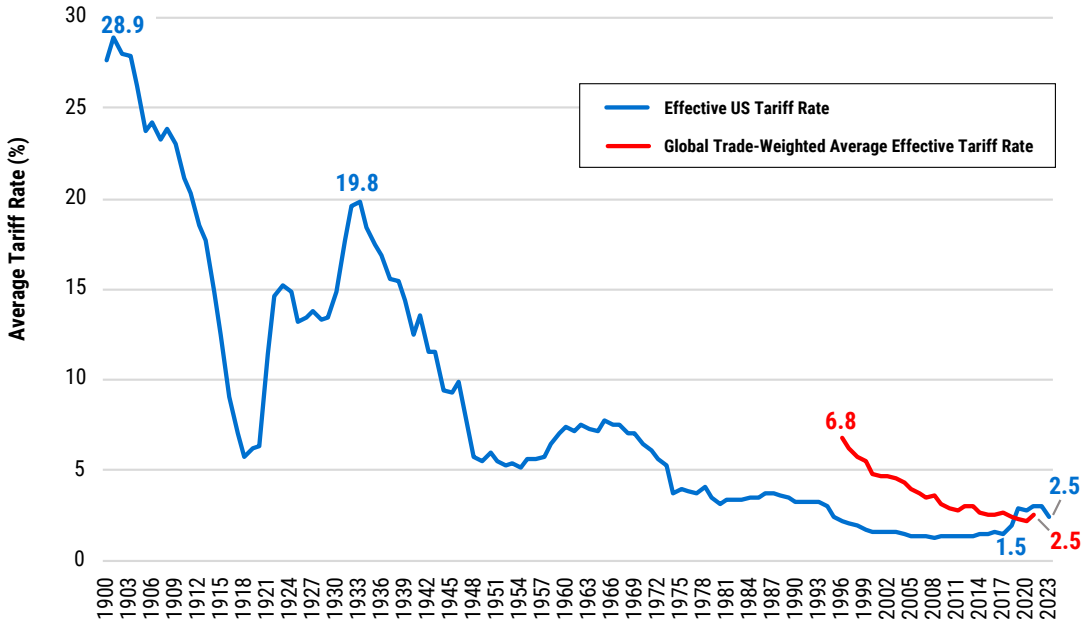
Believing that free trade was both economically and strategically important, Congress empowered presidents to negotiate reciprocal tariff reduction agreements with other countries, beginning in 1934.[1] And in the decades since, presidents from both parties used this power to negotiate multilateral and bilateral free trade agreements that reduced tariff and non-tariff barriers to trade.

As shown in figure 2.1, the effective US tariff rate fell from 19.8% in 1933 down to less than 2% before the beginning of the first Trump Administration. As these trade deals lowered the rate that Americans pay for foreign-sourced products and services, they also opened foreign markets to US exporters. Figure 2.1 also shows the global average effective

1 Before the enactment of the Reciprocal Tariff Act (RTA) of 1934, Congress set individual tariff rates. This meant that politically organized producers with foreign competitors could often successfully pressure individual members of Congress to support higher tariffs, even if these tariffs imposed greater costs on consumers. The RTA, however, changed this dynamic. It empowered presidents to negotiate tariff reduction agreements with other countries that Congress could then approve or disapprove with a simple majority vote. Since a president's constituency is the entire country, presidents have typically been less susceptible to the pressures of individual producers and have instead pursued free trade agreements that have benefitted the public at-large.

tariff rate (in years for which data are available). By 2021 the average global rate was down to 2.5%.

Figure 2.1: Effective US and Global Tariff Rates (1900–2023)



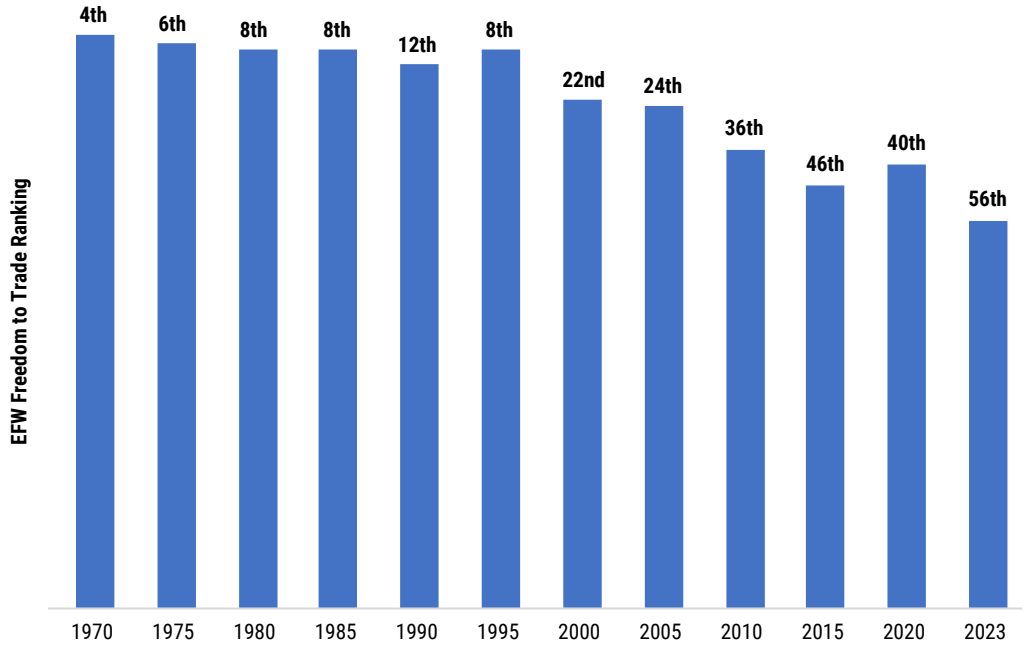
Sources: US effective tariff rate: Budget Lab, 2025a; Global effective tariff rate: Snoussi-Mimouni and Drevinskas, 2023.

2. US Trade Freedom Has Been Falling for Two Decades

Although the US continued to reduce tariff rates up until the first Trump Administration, it has allowed other non-tariff barriers to trade to grow in recent decades and as a result, the US has failed to keep up with other countries as they liberalized. Figure 2.2 shows the US's trade freedom ranking, as measured by the index published in *Economic Freedom of the World* (EFW). As recently as 1995, the US ranked 8th in the world. But as the US fell behind and others liberalized, the US fell to 56th by 2023.

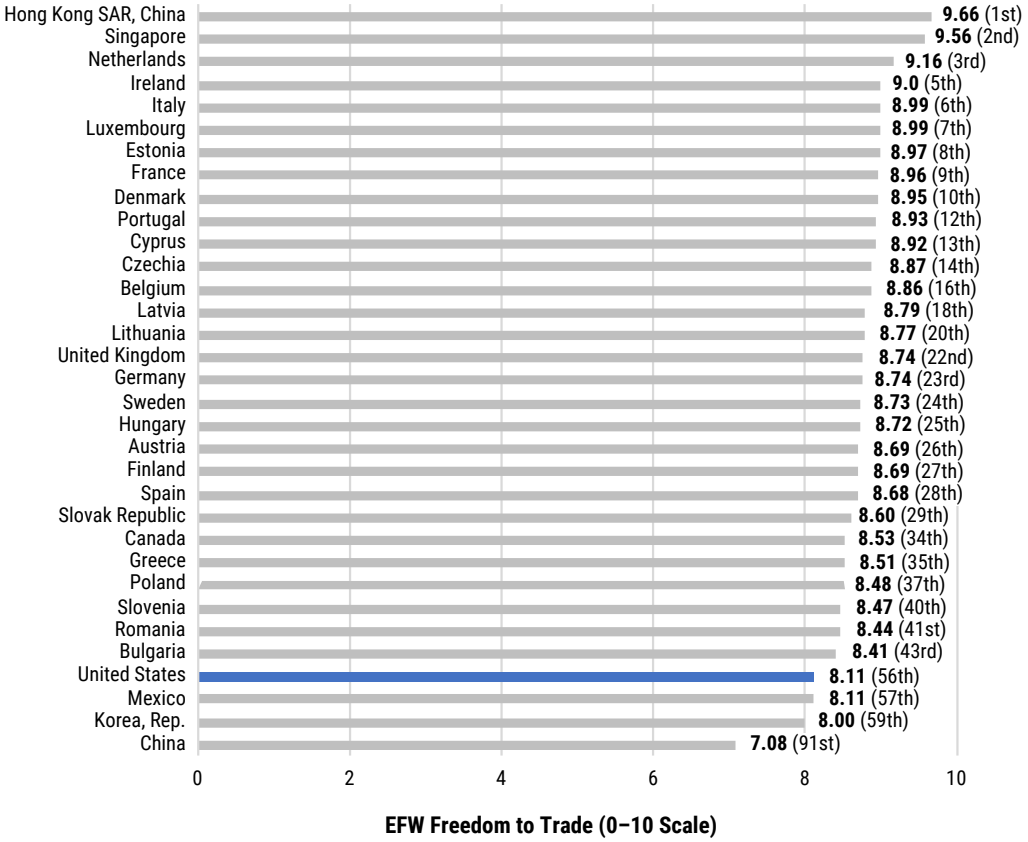
Figure 2.3 shows 2023 trade freedom scores and ranks for select countries. President Trump contends that "the United States has been ripped off by virtually every country in the world" (Renshaw et al., 2025). In particular he has singled out Canada, Mexico, China, and the countries of the European Union. Figure 2.3 shows, however, that with the exception of China, the President's favorite targets have either comparable or far more liberal trade practices than the US.

Figure 2.2: US Ranking in Freedom to Trade



Source: Authors' calculations.

Figure 2.3: Freedom to Trade, Select Country Scores and Ranks (2023)



Source: Authors' calculations.

3. Measuring US Trade Freedom

To better understand what has happened, we must take a closer look at how the EFW measures trade freedom. The trade freedom area of the EFW is made up of four components, three of which have sub-components:

1. **Tariffs**. This component is measured by three sub-components: tariff revenue, tariff rates, and the standard deviation of tariff rates across tariffed goods.
2. **Regulatory barriers to trade.** This is measured by two sub-components: non-tariff trade barriers and the cost of importing and exporting goods.[2]
3. **Black market exchange rates.** This component measures the difference between the official exchange rate and the black-market exchange rate, if there is one. A larger difference is an indication of greater restrictions on currency exchange and, therefore, international trade.
4. **Controls on the movement of capital and people.** This component is measured by four sub-components: financial openness, capital controls, freedom of foreigners to visit, and protection of foreign assets.

Like the broader index itself, each of these components is converted to a 0 to 10 scale, with 10 indicating the highest degree of trade freedom and 0 indicating the lowest. Figure 2.4 shows US trade freedom (the solid line) and its four components (the patterned lines) from 1970 through 2023. It shows that US trade freedom peaked in 1980 at 9.3 on the 10-point scale, began to slide for the next two decades, and then declined more precipitously in the last decade and a half.

It also shows that much of this decline was driven by controls on the movement of capital and people. In particular, the US imposed steeper capital controls in 2009 and more stringent limits on the freedom of foreigners to visit in 2014. Together, these changes reduced the score for this component from around 9 in 2000 to less than 6 in 2023.

4. Accounting for Trump's Tariffs

This was the state of the world in 2023. But the first six months of the second Trump Administration have radically changed the US approach to trade. Figure 2.5 shows what has happened to the effective US tariff rate through the time of this writing (July 22, 2025). US tariffs have seesawed up and down as the Administration has imposed new tariffs, reversed course (sometimes hours later), re-imposed tariffs, had tariffs struck down by courts, and then had tariffs temporarily reinstated by courts.

2 Reliable measures of regulatory trade barriers are not available before the year 2000.

Figure 2.4: US Economic Freedom to Trade Internationally and Its Components (1970–2023)

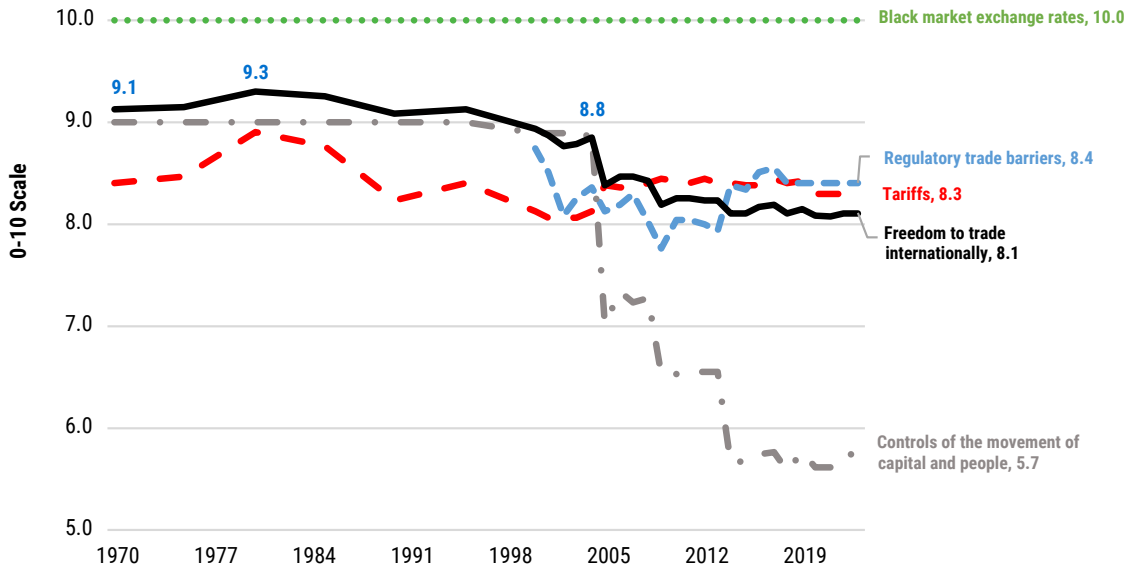
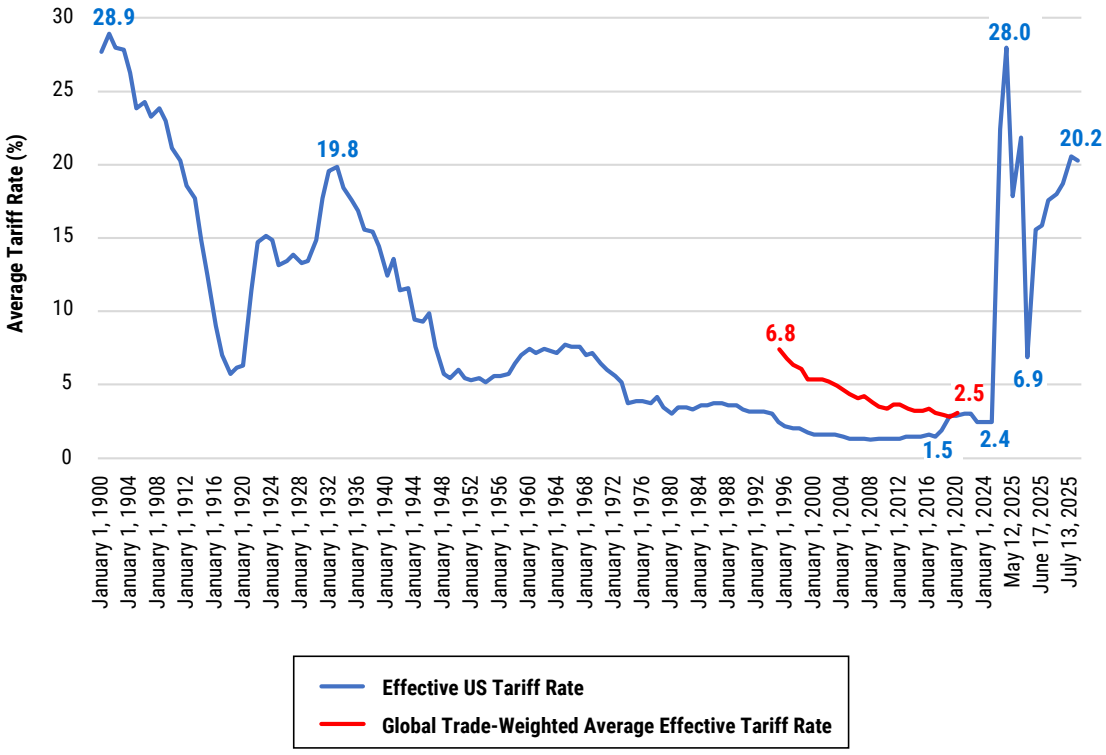


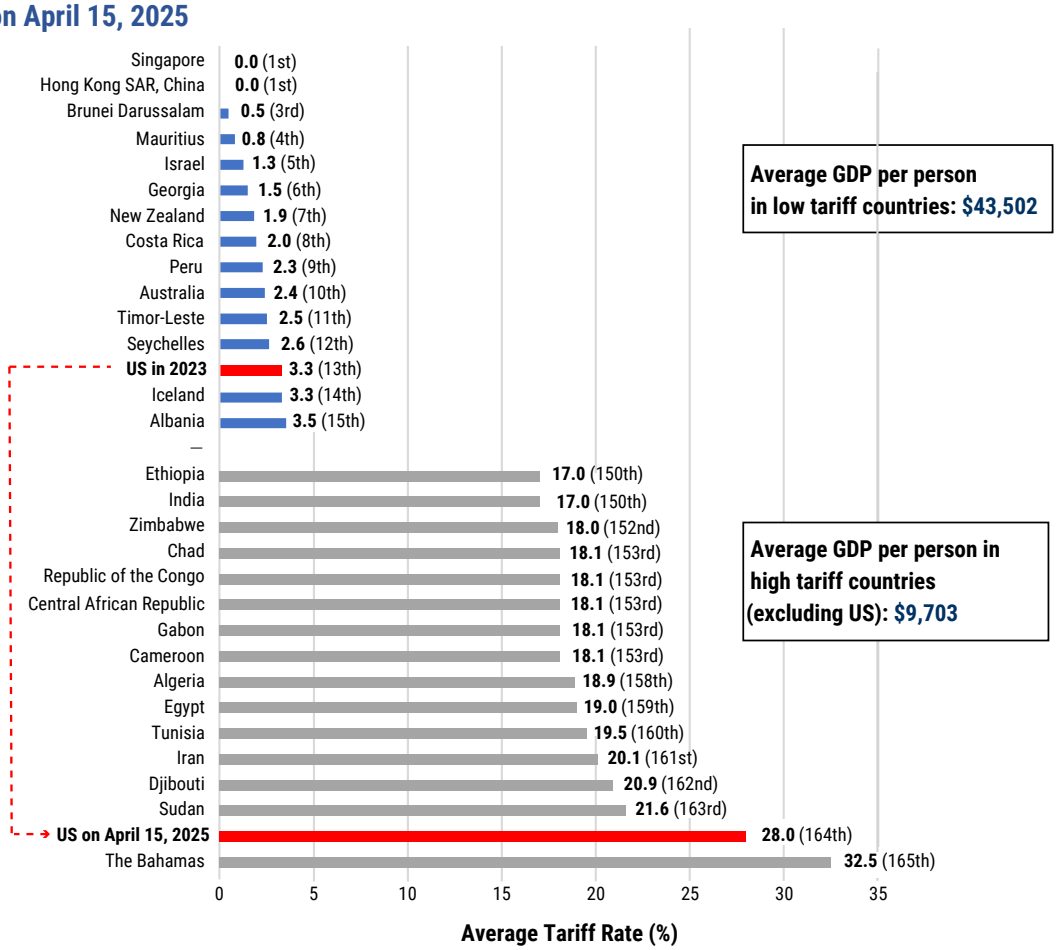
Figure 2.5: Effective US and Global Tariff Rates (1900–2025)



Sources: US effective tariff rate: Budget Lab, 2025a–2025l; Global effective tariff rate: Snoussi-Mimouni and Drevinskas, 2023.

Figure 2.6 shows the 15 countries with the highest tariffs in the world in 2023 and the 15 countries with the lowest tariffs in the world in the same year.[3] It also shows the effective US tariff rate on April 15, 2025. If this rate had been applied in 2023, the US would have had the second-highest tariff rate in the world. The figure also helps illustrate an important fact about tariffs. High-tariff countries are generally low-income countries while low-tariff countries are generally high-income countries. In the high-tariff countries, average GDP per capita is just $9,703 per year, whereas in the in low-tariff countries, it is $43,502 per year.

Figure 2.6: 15 Highest and 15 Lowest Average Tariff Rates in 2023 and Average US Tariff Rate on April 15, 2025



Sources: US 2025 tariff rate: Budget Lab, 2025b. All other tariffs: calculations by authors. GDP per capita: World Bank, 2025.

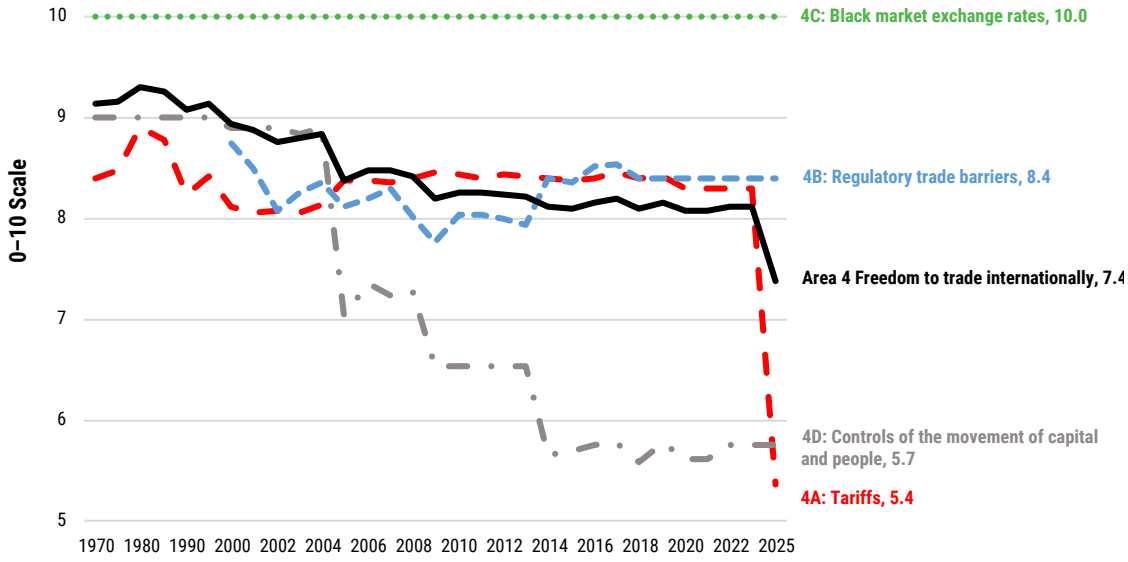
In most cases, when governments announce new policies, we must wait for official government data to be released before we can incorporate these policy changes into the EFW index. With Trump's tariffs, however, we have real-time access to the rates and revenue

3 The EFW uses the unweighted mean tariff rate. Note that this is slightly different (3.3% for the US in 2023) than the effective tariff rate (2.5%) reported in figures 2.1and 2.5.

estimates. Using a slightly modified version of our methodology, we are able to offer a preview of the way these tariffs will affect US economic freedom in 2025. To do this, we use the Yale Budget Lab's (2025b) April 15th tariff rate of 27.9%, the Tax Foundation's (York and Durante, 2025) estimate that a tariff of 20% will raise about $340 billion per year (they have not estimated the impact of a 27.9% rate), and our own estimate of the variation in tariff rates.[4]

The results are shown in figure 2.7. Together, these changes cause the US tariff score to fall from 8.3 in 2023 to 5.4 in 2025 and drop the US rank to 161 out of 165 countries in the tariff sub-component—just behind Iran. If we assume no changes in black market exchange rates, regulatory trade barriers, and controls on the movement of people and capital, US trade freedom will fall from 8.1 to 7.4, and the US rank will fall from 56th to 76th, just behind Paraguay. These changes would also reduce the US rank in overall economic freedom from 5th to 10th place.

Figure 2.7: US Economic Freedom to Trade Internationally and Its Components (1970–2025)



Sources: Budget Lab, 2025b; York and Durante, 2025; calculations by authors.

4 The EFW uses the unweighted average tariff rate. In this exercise, we use the Yale Budget Lab's estimate of the pre-substitution effective tariff rate. For the standard deviation of the tariff rate, we had to depart from the standard method. The EFW measures this sub-component by variation in rates across product lines. In this exercise, however, we do not have access to that data, so we gauged it by variation in rates across countries in the tariff schedules announced on April 2, 2025, "Liberation Day." We omitted non-countries accidentally tariffed by the Trump Administration, such as the uninhabited Heard Island and McDonald Islands.

5. Conclusion: What Does the Future Hold?

In the long run, Trump's trade war may depress US economic freedom even further. That is because researchers have found that trade freedom tends to be a leading indicator of other economic freedoms (Sobel, 2017). When countries move to restrict trade freedom, other areas of economic freedom such as size of government, sound money, and regulatory freedom often soon follow.

We may already be seeing some indication of this in the US. Since launching the trade war, for example, the president has relentlessly pushed the Federal Reserve to loosen monetary policy, a move that, if unwarranted, would cause the US sound money score to fall. Or consider the Administration's conditions for the sale of US steel to Japan's Nippon Steel. In order to make the purchase, Nippon was forced to grant the Administration extraordinary oversight over the company, permitting the president of the United States to personally oversee company decisions regarding board membership, factory locations, capital investment, employment and worker pay, and even naming rights (Beras et al., 2025). If this sort of control were expanded to other companies, it would almost certainly depress the US regulatory freedom score. Finally, to offset the higher cost of living brought on by tariffs, the president has encouraged Congress to consider tariff rebate checks. In response, Senator Josh Hawley has introduced a bill that would send up to $2,400 to a family of four and cost hundreds of billions of dollars, depressing the size of government score (Bink, 2025).

For more than a century, the United States has been the most prosperous country in the world. Americans represent just 4.2% of the global population yet they produce more than 26% of global GDP. US median income is nearly nine times the global average and the US poverty rate is a fraction of the global rate (Our World in Data, 2025). This prosperity was built on a foundation of economic freedom. And that freedom is eroding thanks to President Trump's trade war.

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CHAPTER 3

War! What Is It Good For?

Not Economic Freedom (or Vice Versa)

Walker Wright

Introduction

Between 2009 and its invasion of Ukraine in 2022, Vladimir Putin's Russia experienced serious economic stagnation (Aron, 2023). Income growth during Putin's first two presidencies solidified his popularity, but both would face serious setbacks in the years to come. The 2008 financial crisis hit the Russian economy hard. What is more, Putin's state began to tighten its grip on the economy. As a result, both the economy and Putin's popularity began to plunge in the years following the crisis. A Soviet man who admires Stalin and pines for the days of the old USSR, Putin shifted his focus from economic progress to militarized and mobilized patriotism. His approach to the horrors of the country's Communist past is captured well in the title of David Satter's (2012) book, *It Was a Long Time Ago, and It Never Happened Anyway*.

High on his own revisionist history and ideology, Putin believed he could restore Russia to the former glory of its imperial past. The annexation of Crimea followed in 2014, with the invasion of the rest of Ukraine commencing in 2022. For Putin,

> a West-oriented, free, democratic, and, eventually, stable and prosperous Ukraine was an existential threat to his regime. Sooner or later the Russians were bound to start asking: Why can't we have what our Ukrainian cousins have? He invaded Ukraine not for anything it had done, but for what it was. (Aron, 2023: 102)

The Russian experience is not unique. In this chapter, I show that low economic freedom and militarized conflict often go hand-in-hand. As Lawson, Murphy, and Mitchell show in the previous *Economic Freedom of the World* report, economic freedom in both Ukraine and Russia declined in 2022—the year of Russia's invasion of Ukraine. "It may be obvious to point out," they wrote, "but war is very bad for economic freedom" (Lawson, Murphy, and Mitchell, 2024: 16). It could also be argued that low economic freedom is very good for war. The centralization of the economy is, to borrow from Don Lavoie (2016), the *militarization* of the economy. And militarized central planners—like those in today's Russia—are more likely to wage war on their neighbors.

Doux Commerce and the liberal peace

The French political philosopher Montesquieu expressed what is perhaps the most famous sentiment regarding the relationship between economic freedom and peace:

> Commerce cures destructive prejudices, and it is an almost general rule that everywhere there are gentle mores, there is commerce and that everywhere there is commerce, there are gentle mores. Therefore, one should not be surprised if our mores are less fierce than they were formerly.… Commerce… polishes and softens barbarous mores, as we see every day.
>
> The natural effect of commerce is to lead to peace. Two nations that trade with each other become reciprocally dependent; if one has an interest in buying, the other has an interest in selling, and all unions are founded on mutual need.... By contrast, total absence of commerce produces the banditry that Aristotle puts among the ways of acquiring. (Montesquieu, 2015: 338–339)

Others threw their support behind Montesquieu's *doux* (gentle) *commerce*. The German philosopher Immanuel Kant wrote,

> The *spirit of trade* cannot coexist with war… and sooner or later this spirit dominates every people. For among all those powers (or means) that belong to a nation, financial power may be the most reliable in forcing nations to pursue the noble cause of peace[.] (Kant, 1983: 125)

In *Rights of Man*, American revolutionary Thomas Paine described commerce as

> a pacific system, operating to unite mankind, by rendering nations, as well as individuals, useful to each other.… If commerce were permitted to act to the universal extent it is capable of, it would extirpate the system of war.… [Commerce] is the greatest approach towards universal civilization, that has yet been made by any means not immediately flowing from moral principles. (Paine, 1854: 167)

Steven Pinker (2011) has documented the worldwide decline in violence over the centuries in his book *The Better Angels of Our Nature*. In doing so, he provided multiple reasons for this decline, including third-party enforcement of the rule of law, female-friendly environments, increased empathy through greater literacy, urbanization, mobility, and mass media access, increased use of reason through these same mediums, and what international relations scholars refer to as the democratic or liberal peace theory. Regarding the democratic/liberal peace theory, he explained that

> Democratic government is designed to resolve conflicts among citizens by consensual rule of law, and so democracies should externalize this ethic in dealing with other states. Also, every democracy knows the way every other

> democracy works…. The resulting trust among democracies should nip in the bud the Hobbesian cycle in which the fear of preemptive attack on each side tempts both into launching a preemptive attack. Finally, since democratic leaders are accountable to their people, they should be less likely to initiate stupid wars that enhance their glory at the expense of their citizenries' blood and treasure. (Pinker, 2011: 278)

While Pinker found various counterexamples and "headaches" with the theory, the liberal peace theory has nonetheless enjoyed substantial scholarly support for some time.[1] But Pinker (2011) offered yet another potential cause for the decline in violence: *the capitalist peace*. Invoking some of the *doux commerce* supporters mentioned above, Pinker argued that trade openness and economic freedom largely reduce the incentives of war and violence.

Economic freedom can mitigate violence through various indirect avenues as well. Distrust, corruption, unfairness, and intolerance often erupt into violence. We could say that violence is the ultimate manifestation of these things. Undermining these less-than-desirable attitudes and behaviors can consequently undermine violence. And commercial exchange has been shown to do just that (McCloskey, 2006; Wright, 2018, 2020; Storr and Choi, 2019).

But the logic may be even more straightforward: it is simply not a good idea to harm your customers or suppliers. Such behavior is bad for business. When you rely on others to buy your product or supply your needs, rocking the relational boat becomes less preferable. This is likely why higher knowledge regarding economic interdependence correlates with support for peaceful solutions to international disputes (Tanaka, Tago, and Gleditsch, 2017; Jha and Shayo, 2019; Mansury, Kim, and Li, 2024). When you find out that your best customer is in a faraway land or that your supply chain goes through another country, bombing it into oblivion seems suboptimal. Interdependence stifles the use of force. As Christopher Blattman put it,

> Interdependence doesn't eliminate the risk of war. There could still be a commitment problem, uncertainty, or unchecked leaders that push our two groups to fight. But because of entwined material interests, these forces must now overcome even more powerful incentives for compromise than usual. The gravitational pull of peace has grown stronger. (Blattman, 2022: 177)

Furthermore, when the government has less sway over the economy, seeking political favoritism or control through violence becomes less profitable. People are more likely to turn their energies toward productive rather than destructive pursuits.[2]

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1 A classic text on the topic is Russett and Oneal (2001). For a review of the theory and evidence, see Reiter (2017).

2 On rent-seeking and regulatory capture, see, e.g., Krueger (1974); Tullock (2005); Dal Bo (2006); Tollison (2012); Mitchell (2014); Lindsey and Teles (2017); Holcombe (2018). Baumol (1990) referred to rent-seeking as "unproductive entrepreneurship."

Perhaps more importantly, economic freedom lowers the barriers to exchange and association. This allows people who are different from one another to engage in positive-sum interactions with each other. Value for the participants is thus created through the exchange, but participants also begin to value *one another*. Partners become friends. And we tend not to fight our friends.[3]

Though the liberal peace theory still holds considerable weight among scholars, a wave of empirical research over the last three decades has begun to shift the consensus toward the capitalist peace theory (though the two need not be seen as exclusive to one another).[4] Of course, academics continue to debate over *how much* trade and economic freedom contribute to peace. But liberal peace theorists now include economic interdependence as an essential element within the broader liberal peace project (e.g., Oneal and Russett, 1997; Oneal, 2003; Oneal, Russett, Berbaum, 2003; Chan, 2012; Reiter, 2017). It is "part of the glue that cements the 'liberal peace' together" (Gelpi and Grieco, 2008: 30).

Economic Freedom of the World Index and peace

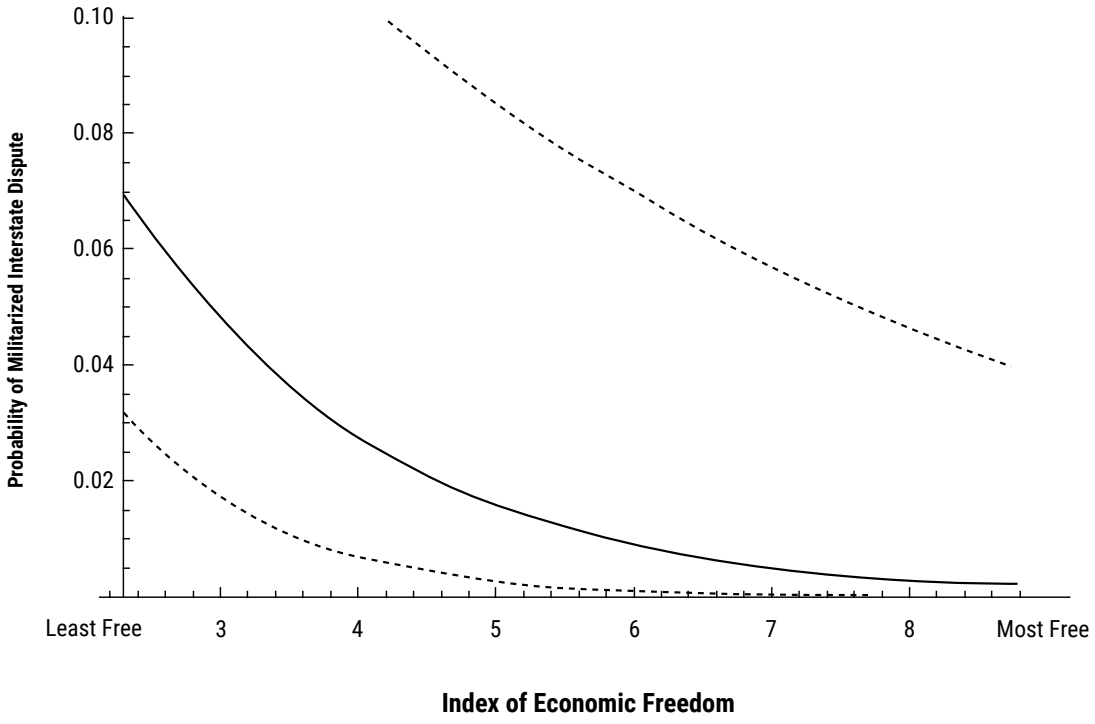
Studies of war and peace that draw specifically on the index published in *Economic Freedom of the World* (EFW) are few and far between. However, those that have offer considerable hope for the pacific nature of economic freedom. Erik Gartzke (2005) looked at economic freedom's effect on militarized interstate disputes, which he defined as major threats or uses of force, including wars involving 1,000 battlefield deaths. Gartzke's regressions revealed that higher levels of economic freedom predict a lower probability of militarized interstate disputes: in the years examined, the least free countries had a 7% chance of a dispute, while the freest countries had less than a 1% chance of a dispute (see figure 3.1). Analyzing a number of African countries in the period between 1985 and 2017, Okunlola, Ayetigbo, and Ajiye (2022) found that increased economic freedom reduces both external and internal conflicts. They concluded that increasing economic freedom would improve cooperation between African countries, especially through economic development and reduced poverty.

Turning to intrastate conflicts, Indra de Soysa sees predatory governments as encouraging black market activities, which ultimately invest in "rebellion-specific capital" (de

3 F.A. Hayek recognized the relationship between exchange and friendship with his preferred term catallaxy: "The term 'catallactics' was derived from the Greek verb katallattein (or katallassein) which meant, significantly, not only 'to exchange' but also 'to admit into the community' and 'to change from enemy into friend.' From it the adjective 'catallactic' has been derived to serve in the place of 'economic' to describe the kind of phenomena with which the science of catallactics deals. The ancient Greeks knew neither this term nor had a corresponding noun; if they had formed one it would probably have been katallaxia. From this we can form an English term catallaxy which we shall use to describe the order brought about by the mutual adjustment of many individual economies in a market. A catallaxy is thus the special kind of spontaneous order produced by the market through people acting within the rules of the law of property, tort and contract" (Hayek, 1976: 108–109).

4 For reviews of the capitalist peace literature, see Weede (2011, 2021) and Krieger and Meierrieks (2024).

Figure 3.1: Economic Freedom and Interstate Militarized Disputes



Source: Gartzke, 2005: 35.

Soysa & Vadlamannati, 2014; de Soysa, 2017). These shadow economies provide the lifeblood for rebel forces and the duration of civil conflicts.[5] This is why good economic governance (i.e., free markets and private ownership) plays a far bigger role in reducing civil war than political inclusion and the reduction of group grievances associated with exclusion and discrimination (de Soysa, Finseraas, Vadlamannati, 2024).

Case in point, de Soysa found that economic freedom lowers the risk of civil violence and matters more than both per capita income and regime type.

> Under conditions of fewer market distortions, thus, and fairer economic governance that reflects liberal values of free-market competition and respect for property, people seem to dissent less and states seem to repress less, lessening the trinity of means, motive, and opportunity for committing socially-costly violent conflict. (de Soysa, 2011: 294)

After analyzing data spanning 1970 through 2005, de Soysa and Hanne Fjelde (2010) discovered that higher levels of economic freedom lower the risk of civil war, more so even than democracy and good governance. This remains true after variables such as income per capita, growth rates, total population, ethnic fractionalization, and oil exportation

5 Economic freedom has also been shown to reduce the shadow economy. See Graeff (2024).

are controlled for. Yet, these results likely underestimate the total impact of economic freedom on civil war. Since poverty can contribute to the outbreak of war (Justino, 2012), and economic freedom promotes income growth (de Haan and Sturm, 2024; Lawson, Miozzi, and Tuszynski, 2024), its indirect effect on peace through prosperity should also be considered. When both the direct and indirect effects are taken into account, the overall impact of economic freedom on peace is potentially much larger.

In a later study, de Soysa demonstrated that countries with greater economic freedom were less likely to erupt into civil war. But even more interesting, he found that annual increases in economic freedom also lower the chance of war: "This means that year-on-year changes in a positive direction correlate with a lower probability of civil war, contrary to expectations that liberalisation could be risky for peace" (de Soysa, 2016: 13). When the effects of the EFW index's individual components were examined, it turned out that property rights and high-quality legal institutions, sound money, and free trade were ultimately what reduced the risk of intrastate conflict. The size of government and amount of regulation had no significant effect on the risk of conflict.

John Tures (2002) drew on the KOSIMO conflict dataset and 712 country-year cases across seven cross-sectional years: 1970, 1975, 1980, 1985, 1990, 1995, and 1997. He found that the most economically free countries had only an 8.6% chance of experiencing an internal conflict, compared to 20.1% in partly free countries and 28.6% in unfree ones. For full-scale civil wars, the likelihood was 2.5% in the freest countries, versus 6% and 9.5% in partly free and unfree countries, respectively.[6]

Hall and Lawson (2009) compared the EFW index to the Institute for Economics & Peace's Global Peace Index (GPI), which measures the level of peace within countries using various indicators related to domestic and international conflict, societal safety and security, and militarization. With a *lower* GPI score representing *more* peace, Hall and Lawson found that a two-unit *higher* EFW index score correlated with a 0.5 *lower* GPI score. Similarly, Jelloian (2023) discovered that higher levels of economic freedom corresponded with lower GPI scores and, consequently, more peace.

Civil conflicts often arise among religious and political groups. For example, violence broke out in the 1960s in Northern Ireland between nationalist Catholics and pro-British Protestants. This conflict continued until the Good Friday Agreement in 1998, though divisions still remain. Using data from the World Bank's *Doing Business* rankings and the EFW index, Strong (2009) found a close connection between peace, economic freedom, and business-friendly environments. He looked to Northern Ireland between 1975 and 2000 as a case study, concluding that increased economic freedom, the subsequent economic boom, and the decrease in violence were interconnected.

6 Tures (2002: 535) classified countries as economically "free" with EFW scores between 7 and 10, "partly free" with scores from 5 to 6.999, and "not free" with scores below 5.

Trade and peace

While studies specifically using the EFW index may be somewhat scarce, there is no shortage of studies using a variety of market-oriented measures to test the effects of a free economy on war and violence. These studies offer further support for the peace-inducing power of economic freedom.

Take a single component of the EFW index: international trade. Frédéric Bastiat wrote that trade barriers "create isolation, isolation gives rise to hatred, hatred to war, war to invasion" (Bastiat, 2007: 296). John Stuart Mill also believed, "It is commerce which is rapidly rendering war obsolete, by strengthening and multiplying the personal interests which are in natural opposition to it" (Mill, 1848: 581–582). Trade is "the principal guarantee of peace of the world" and "the great permanent security for the uninterrupted progress of the ideas, the institutions, and the character of the human race" (Mill, 1848). Mill's contemporary free trader Richard Cobden saw

> in the Free-trade principle that which shall act on the moral world as the principle of gravitation in the universe—drawing men together, thrusting aside the antagonism of race, and creed, and language, and uniting us in the bonds of eternal peace. (Cobden, 1846)

An abundance—and I do mean *abundance*—of empirical studies have shown Bastiat, Mill, and Cobden to be correct: trade indeed reduces interstate military conflict.[7] Other studies appear to solidify the antithetical relationship between trade and international violence. Trade reduces conflict, yes, but conflict in turn reduces trade (Anderton and Carter, 2001; Keshk, Reuveny, and Pollins, 2010; Goenner, 2011). One pair of scholars put it succinctly: "The positive relationship between economic interdependence and peaceful relationships is so well established that research now focuses on the conditions that cause variations" (Morin and Paquin, 2018: 149).

These results correspond with a study by Flaten and de Soysa (2012), which found that higher levels of economic globalization—including foreign direct investment, portfolio investment, import barriers, tariff rates, and the overall extent of trade—reduce the risk of civil war. Other scholars have come to similar conclusions. Covering the period between 1970 and 1999, Barbieri and Reuveny (2005) found that international trade, foreign direct investment, and foreign portfolio investment reduce the risk of civil war in all states observed. A recent study by Kollias and Tzeremes (2024) examined a sample of 113 countries between 1995 and 2019. They showed that economic globalization has a

7 See, for example, Polachek (1980, 2007); Gartzke, Li, and Boehmer (2001); Weede (2004); Gartzke (2007); Polachek and Seiglie (2007); Long (2008); Dorussen and Ward (2010); Hegre, Oneal, and Russett (2010); Polachek, Seiglie, and Xiang (2012); Kleinberg, Robinson, and French (2012); Gartzke and Hewitt (2013); Lee and Pyun (2016); Lee and Rider (2018); Ashan, Panza, and Song (2025).

significant, negative association with militarization. But when it came to democracy and militarization, no statistically significant relationship could be found.

Market economies and war

Pinker (2011: 287) was quick to remind us that "trade is just one facet of a country's commercial spirit." Beyond international trade and globalization, numerous studies have examined how domestic economic systems impact military conflicts. In various studies, Patrick McDonald (2007, 2009, 2010) discovered that governments with higher quantities of publicly-owned assets are more willing to engage in military conflicts.

Making a similar point, an interesting study by Candela and Geloso (2021) looked at the interactions of the 18th-century Acadian (French colonists) and the Indigenous tribe Mi'kmaq in Atlantic Canada. The Acadians had little protection or support from the state, requiring them to bear the full cost of their decisions, including raids on Mi'kmaq territory. The absence of special interest group privilege granted by the state incentivized the Acadian settlers to favor peaceful trade relations instead of violence. When you have access to a seemingly unending state budget via taxes, war does not appear as costly. However, things look different when you have to foot the bill.

Over the last two decades, political scientist Michael Mousseau has mounted an avalanche of evidence in favor of what he calls the *contractualist peace*.[8] In his research, contract-intensive, market-oriented economies continually emerge as the arbiter of peace. Mousseau (2019b) has even controversially claimed that the democratic peace theory lacks empirical backing. Rather than the capitalist or contractualist peace being credited with the peaceful results of democracy, Mousseau has argued that it is the other way around: non-warring democracies owe their peace to their contractualist economies.

In an analysis of UN voting patterns from 1946 to 2010, Mousseau (2019a) discovered that more contractualist, export-oriented countries tend to agree on issues voted on in the United Nations General Assembly. This can account for "the decline of war" and "why the probability of war among market democracies is practically zero" (Mousseau, 2019a: 194–195). As countries become more economically dependent on trade partners, they tend to realign politically toward those partners (Kleinman, Liu, and Redding, 2024). Partners with mutual interests are going to find themselves agreeing more, disagreeing less, and seldom fighting.

Military coups and violent rebellions are also forms of civil conflict. Cebotari et al. (2024) provided certain "structural predictors" of coups, including (but not limited to)

8 For an overview of Mousseau's work and findings, see Mousseau and Cao (2017) and Mousseau (2018). Mosseau has described contractualist economies as "social markets" rather than "free markets" since they can range from "the social democracies of Scandinavia… to the supposed freer-market democracies such as Switzerland and the United States" (2019a: 166).

low levels of development, a weak rule of law, high inequality, autocracy, and centralized power. Powell and Chacha (2016) analyzed a global sample of states from 1952 to 2007 and discovered that more open, market-oriented economies are less likely to experience coups. Perhaps surprisingly, they found the relationship between coups and democracy to be insignificant. Cox, North, and Weingast (2019) examined the frequency of coups in 125 countries between 1964 and 2005. They demonstrated that greater economic complexity and specialization have a strong deterrence effect on coups, even after controlling for GDP per capita and the level of democracy. The specialization of Adam Smith's commercial society helps maintain political stability and peaceful transitions of power.

Mousseau used life insurance per capita (based on World Bank data) as a measurement of contractual norms, explaining that life insurance reflects institutionalized contracting since the service is only provided after the policyholder's death. He concluded,

> Analyses of armed conflict in most nations from 1961 to 2001 showed that not a single civil war, insurgency, or rebellion occurred in any nation with a market-capitalist economy. This result is highly unlikely to be the result of chance and, after controlling for every known robust variable in civil war studies, market-capitalism emerged as the most powerful explanatory factor in the field, by a large margin. (Mousseau, 2012: 481)

Ethnic and religious conflict

Civil wars are more likely to take place between different ethnic groups (Denny and Walter, 2014). In many cases, ethnic groups silo themselves off from one another, escalating distrust and hostility towards out-groups. And economic barriers play a role in this siloing. It turns out that barriers to trade entry can produce what Saumitra Jha (2018: 513) has labeled as *ethnic cronyism*: a set of "ethnic trading networks" often "based upon personal and community ties."

Studies have also shown the destructive consequences of governments subsidizing along ethnic lines. Mousseau and Mousseau (2023) looked at 40 sub-Saharan African countries from 1946 to 2010. They found that group favoritism in government spending significantly increased the risk of ethnic violence and war. Another study analyzed 152 countries within the same time period and came to similar conclusions (Mousseau, 2023). It appears that ethnic cronyism and government privileges sow the seeds of violent conflict.

Another investigation by Mousseau (2021) of 140 countries between 1997 and 2010 found that greater global economic integration and impartiality in the rule of law reduce ethnic wars. In a similar vein, Vadlamannati, Østmoe, and de Soysa (2014) found that countries participating in International Monetary Fund (IMF) programs—which consist

of more austere public budgets and greater economic liberalization—for over five months experience improved ethnic peace.[9]

Steinberg and Saideman (2008) have shown that ethnic conflict and violence increase the more the government intervenes in the economy, from price controls to red tape. "Several individual types of state interference within the market contribute to ethnic violence," they discovered, "and no evidence suggests that *any* government interventions in the economy contribute to ethnic peace" (Steinberg and Saideman, 2008: 250, emphasis added). Similarly, Jha (2013) examined a number of South Asian medieval ports and their level of trade. It turns out that areas involved in trade and featuring low barriers to trade entry were *one-fifth* as likely to experience religious rioting between Hindus and Muslims in the period between 1850 and 1950. During the same time period, these areas were 25 percentage points less likely to experience *any* religious rioting. Between 1950 and 1995, these same areas were still less than half as likely to experience ethnic rioting. Basuchoudhary and Shughart (2010) even found in their analysis of 118 countries between 1982 and 1997 that lower rates of expropriation and government-forced contract repudiation lead to fewer terrorist attacks in ethnically-tense societies.[10]

Various organizations have also acknowledged the power commerce has to reduce conflict and establish peace. For example, a World Economic Forum (2016) report included 12 case studies across the globe, ranging from Afghanistan and Bangladesh to Nigeria and Uganda. These studies suggest that trade and integrated businesses contribute to prosperity, stabilization, and peacebuilding. The report determined, "International and local businesses have a critical role to play in finding ways to minimize fragility and build resilience. A key reason… is because fragility—including conflict and crime—is bad for business" (World Economic Forum, 2016: 8). Commerce is a stabilizing force within countries, calming conflict and encouraging peace.[11]

Conclusion

Returning to the recent aggression from Putin's Russia, Leon Aron (2023), of the American Enterprise Institute, has observed that "hubris" is a "professional illness of long-reigning authoritarians" and

> is almost always buttressed by the conviction of the moral faultlessness of one's choices. Like most long-ruling autocrats, Putin was possessed of the belief in

9 A different analysis of the literature found that IMF programs have no predictive power regarding civil war. At the very least, these IMF programs do not cause civil war. See Midtgaard, Vadlamannati, and de Soysa (2014).

10 Other studies have found that greater trade and economic freedom reduce terrorist attacks. See Krieger and Meierrieks (2024) and Jelloian (2023). On the underlying anti-market views of terrorism, see Mousseau (2002–2003).

11 See also UN Global Compact and Religious Freedom & Business Foundation (2014), which highlighted a number of business efforts that have contributed to greater interfaith understanding and peace within countries.

> his unerring knowledge of what was best for his people and of the trust in their ultimate approval and gratitude. (Aron, 2023: 110)

This "fatal conceit," as F. A. Hayek (1988) put it, was further demonstrated in Putin's attempts to control the economy. Case in point: Russia's economic freedom peaked in 2017 and has declined steadily since, ranking 119th in the world by 2022 (Lawson, Murphy, and Mitchell, 2024). In the trajectory from economic control to militarized conflict, the Russian government's conceit simply compounded one knowledge problem with another. The further loss in economic freedom since the outbreak of the Russo-Ukrainian War should not come as a surprise.

The empirical evidence in this chapter demonstrates that economic freedom can mitigate military conflict and cool tensions that arise from ethnic, political, or religious disagreements. This is because the market is a space that cultivates a culture of peace through a process that is inherently non-violent (Coyne, Romero, and Storr, 2022; Alshamy et al., 2023). Participants engage in non-violent practices of mutually beneficial exchange, developing habits and attitudes favorable towards peace. Power is restrained, making it more difficult—and thus less desirable—to achieve outcomes through violence. In a world of seemingly disparate nations, peoples, and communities, voluntary exchange can act as a thread that binds them all together; a link that can help prevent isolation, resentment, distrust, and fear from erupting into violence. It is, in essence, an extended olive branch.

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CHAPTER 4

The Effects of Economic Freedom on the Quality of Education

Horst Feldmann

Abstract. In this chapter, Dr. Horst Feldmann from the University of Bath (UK) presents statistical evidence that economic freedom improves the quality of education. He argues that economic freedom incentivizes parents to invest in the high-quality education of their children and helps them to do so. Moreover, economic freedom incentivizes and helps both governments and private providers to deliver high-quality education. Dr. Feldmann uses data from large samples of countries and two different indicators of educational quality: PISA scores (47 countries) and the World Bank's harmonized test scores (132 countries). The magnitudes of the estimated effects of economic freedom on both indicators are substantial. They are even larger once the indirect effects of economic freedom via GDP per capita are taken into account.

1. Introduction

Educational quality is of crucial importance for both students and the economy. For example, several studies find that the quality of the education children receive is critical for their later earnings (e.g., Hanushek et al., 2015). The quality of a college's graduates predicts the share of its students who become inventors, engage in entrepreneurship, or become top executives (Martellini et al., 2024). Moreover, there is overwhelming evidence that the cognitive skills of the population are a key driver of gross domestic product (GDP) growth (e.g., Hanushek and Woessmann, 2015). Likewise, cross-country differences in education quality are important in accounting for international differences in productivity (Schoellman, 2012).

Numerous studies have investigated the sources of international differences in student achievement (for a survey, see Hanushek and Woessmann, 2011). Most of them, however, focus on just two dimensions: the characteristics of national school systems, and the role of parents and families. While characteristics of school systems analyzed typically include issues such as governmental education expenditure, class size, and teacher qualifications, family characteristics typically cover issues such as parental education and occupation, migration status, and the availability of books and a computer at home. By contrast, there is little research on the role of country-level characteristics beyond national school systems. Here, I argue that the extent of countries' economic freedom is likely to favorably affect the quality of the education

they provide.

Why is economic freedom likely to improve educational outcomes? There are four reasons for this (Feldmann, 2025). First, the various economic freedoms jointly enhance the gains from educational investments. Secure property rights and the rule of law prevent the state from expropriating people's earnings. They also ensure that the state and the economy function in a predictable manner, helping individuals to make the best use of their human capital. A modest level of taxation implies that individuals are able to achieve comparatively high net returns to education while monetary stability ensures that individuals' returns to education are not diluted by inflation. A pro-competitive regulation of labor markets enables individuals to enter professions where their educational returns are the highest. A light regulatory burden on product markets and low barriers to international trade foster specialization and economic exchange, enhancing the gains from educational investments as well.

As economic freedom increases the returns to educational investments, it incentivizes parents to make their children more aware of the importance of learning and to induce them to put more effort into it. It also incentivizes them to invest in high-quality education for their children (e.g., by funding private tuition and choosing the best schools). Additionally, economic freedom makes parents more likely to request that head teachers raise educational standards, and it motivates them to elect politicians who promise to improve the quality of schools. To boost their electoral prospects, politicians in turn have an incentive to meet parents' demand, primarily by raising standards in government-run schools.

Second, as economic freedom facilitates the operation of credit markets, it makes it easier for parents to take out loans to fund the best possible education, thereby probably raising their children's academic achievements. The key elements of economic freedom relevant here are secure property rights (including the right to use property as collateral) and a pro-competitive regulation of credit markets.

Third, as a fundamental characteristic of economic freedom is freedom of choice, a country with more economic freedom is likely to provide parents with more choice between schools, including through a larger scope for privately operated schools. As the quality of instruction is key for many parents when choosing a school for their child, and as parental choice intensifies competition between schools, more school choice can incentivize governments as well as private providers to improve educational quality.

Fourth, as economic freedom has been shown to boost economic growth and income per capita (e.g., Feldmann, 2005), it enhances resources for educational investments, both for parents (via higher incomes) and for governments (via higher tax revenue). Parents can use these resources to fund private tuition, send their children to private schools, or move to catchment areas of better public schools. Governments can use the additional tax

revenue to increase their spending on education—e.g., by investing in school buildings or instructional material, or by hiring more teachers and improving their training.

This chapter applies regression analysis to test my hypothesis that economic freedom enhances the quality of education.[1] It uses data from 2018 because the COVID-19 pandemic severely disrupted schooling worldwide, reducing student learning outcomes (for a survey, see Betthäuser et al., 2023). I employ two different indicators of educational quality: the World Bank's harmonized test scores and the Organisation for Economic Co-operation and Development's (OECD) Programme for International Student Assessment (PISA) scores. The major advantage of the World Bank's harmonized test scores, which are based on several multi-country testing programs, is that they are available for a large number of countries. Specifically, whereas my PISA regressions cover 47 countries, my regressions using World Bank scores cover 132 countries (for a list of countries, see appendix 4.1). The downside of the World Bank scores is that these are country-level indicators and do not come with any information about students and schools. The major advantage of PISA is that it provides not only achievement data but also a rich set of background information about students and schools that I can include as controls. I employ both indicators to check whether my estimates are robust.

Standardized student test scores such as the ones I use have strengths and limitations. An important strength is that they focus on core skills—particularly, reading, mathematics, and science. These are the skills that have been shown to raise both students' later earnings and economic growth. A further strength is that by meeting stringent technical standards and providing internationally comparable results, they often induce national governments to improve their schools and educational standards (Schleicher, 2018). On the other hand, such test scores are far from perfect measures of educational quality. For example, subjects not tested are important for education as well—e.g., history, foreign languages, and the arts. Moreover, apart from the various subjects there are additional purposes of education, such as nurturing curiosity and instilling moral values (Sjøberg, 2015). Finally, it is problematic to define a universal set of valuable skills and knowledge, as done in international testing programs, because to some degree education needs to be country- and culture-specific (Zhao, 2020). Notwithstanding these limitations, standardized student test scores are widely regarded as good indicators of educational quality and particularly useful for cross-country analysis (Hanushek and Woessmann, 2011). This is why I employ them here.

The remainder of this chapter is structured as follows. The next section presents my econometric analysis using World Bank test scores. Section 3 presents my analysis using PISA scores. The final section concludes.

1 The chapter uses material from Feldmann (2025).

2. Analyzing World Bank Test Scores

2.1 Data and methodology

To construct harmonized test scores for a large number of countries, the World Bank has used three major international testing programs: PISA, the Trends in International Mathematics and Science Study (TIMSS) program and the Progress in International Reading Literacy Study (PIRLS). It has combined them with four major regional testing programs: the Latin American Laboratory for Assessment of the Quality of Education (LLECE), the Southern and Eastern Africa Consortium for Monitoring Educational Quality (SACMEQ), the Pacific Islands Learning and Numeracy Assessment (PILNA) and the Program for the Analysis of Education Systems (PASEC). Moreover, it has incorporated the Early Grade Reading Assessments (EGRAs) coordinated by the (now-defunct) US Agency for International Development (World Bank, 2023). Patrinos and Angrist (2018) have developed a harmonization methodology that can be used to place the test scores from the various programs on a common scale. The harmonized scores combine tests of student competences in reading, mathematics, and science.

I statistically control for other determinants of educational quality (for definitions and sources of all variables, see appendix 4.2; for descriptive statistics of the World Bank test scores sample, see appendix 4.3). For two reasons, I control for political freedom: first, to ensure that economic freedom does not proxy for it and second, to check whether political freedom exerts an influence of its own on the quality of education. I also control for Confucian heritage society. In these societies—i.e., countries such as China, Japan, South Korea, and Vietnam—education has been held in high regard for centuries. Nowadays people still attach great importance to it (Starr, 2012). Building on this attitude, East Asian governments made education a key element of their development strategies, investing heavily in this area (Page, 1994). Additionally, parents support their children with out-of-school tuition (Zhang and Yamato, 2018). In line with Confucian values and principles, educational practice is characterized by hard work and relentless assessment. As a consequence, Confucian heritage societies usually achieve top scores in international achievement tests.

Furthermore, I control for GDP per capita and government expenditure on education. Richer countries and countries that spend a larger share of their GDP on education are likely to achieve better learning outcomes. I control for urbanization because access to school is usually better in urban than in rural areas, which is likely to have positive knock-on effects on student achievement too. Finally, I control for the share of children in the population. Both parents and societies face a trade-off between child quantity and quality: the higher the number of children, the less they are usually able to invest into

each of them (Becker and Lewis, 1973). Thus, a higher share of children in the population could impair educational performance.

I instrument the economic freedom variable to extract its exogenous component. For three reasons, the variable is likely to be endogenous. First, educational quality may affect economic freedom (reverse causality bias). For example, Jones and Potrafke (2014) find that cognitive skill measures have a positive effect on property rights protection, a key element of economic freedom. Second, my regression analysis does not account for all determinants of student achievement (omitted variable bias). Third, my variable of interest may measure the true extent and characteristics of economic freedom with some error (measurement error). All three problems can be solved by using valid instruments for economic freedom.

I run two-stage least squares regressions of the following form:

Second stage:

$$T_c = \pi + \kappa E_c + \sum_{n=1}^{s} \boldsymbol{Z}_{n,c}\chi_n + o_c \quad (1)$$

First stage:

$$E_{c,t} = \rho + \tau E_{c,t-1} + \upsilon E_{c,t-2} + \sum_{n=1}^{s} \boldsymbol{Z}_{n,c,t}\varphi_n + \psi_{c,t} \quad (2)$$

T_c is the World Bank test score of country c. E denotes economic freedom and $\boldsymbol{Z}$ a vector of s control variables. While π and ρ are the constants, o_c and $\psi_{c,t}$ are the error terms. My coefficient of interest is κ, measuring the effect of economic freedom on World Bank test scores. The coefficients of the excluded instruments are τ and υ. The coefficients of the control variables are χ and φ in the second and first stage, respectively.

In my regressions with World Bank test scores the excluded instruments of economic freedom are lagged levels of this variable from the previous two years (equation 2). The rationale for using lagged levels of economic freedom is that they are likely to affect current educational performance only through the current level of economic freedom. That is, while a country's degree of economic freedom in the recent past clearly influences its current degree of economic freedom, it probably affects its current educational performance only through its current degree of economic freedom. Table 4.1 reports the results of standard tests of instrument validity. While the Kleibergen-Paap *rk* LM statistic (Kleibergen and Papp, 2006) indicates that each structural equation is identified, the first-stage *F* statistic (Staiger and Stock, 1997) and Hansen's (1982) *J* test suggest that my instruments are relevant and exogenous, and thus valid. Hence, my regressions are likely to identify the causal effect of economic freedom.

Table 4.1: Estimates for World Bank Test Scores

	(1) Baseline model	(2) Indirect effect via 'GDP per capita' added
Economic freedom	57.45*** (17.52)	67.75*** (16.88)
Political freedom	−1.86 (5.45)	−2.60 (5.44)
Confucian heritage society	13.83*** (4.31)	12.51*** (4.31)
GDP per capita	6.52** (2.67)	6.55** (2.64)
Government expenditure on education	1.22* (0.72)	1.28* (0.72)
Urbanization rate	−12.61* (7.52)	−0.89 (6.44)
Child population share	−70.80*** (23.70)	−113.98*** (15.02)
Number of observations & countries	132	132
R^2	0.72	0.72
Kleibergen-Paap *rk* LM statistic (*p* value)	0.00	0.00
F test of excluded instruments (first stage)	706.54	777.96
Hansen *J* statistic (*p* value)	0.85	0.85

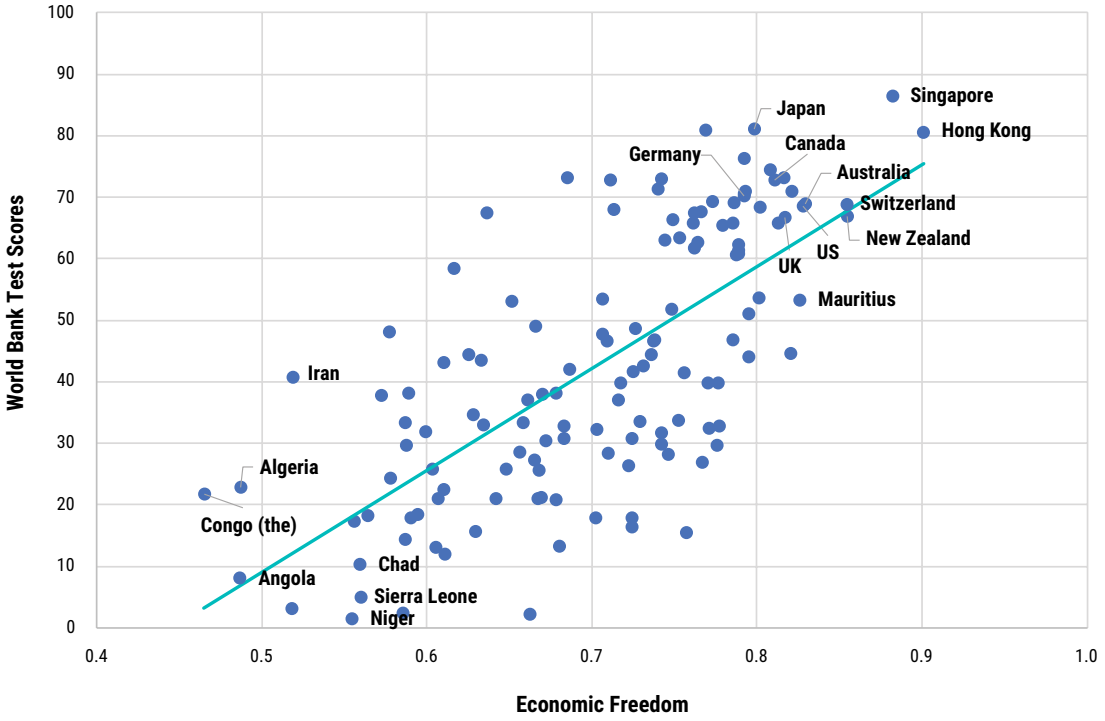
Note: Second-stage regression results from two-stage least squares estimation. Dependent variable: World Bank test scores. Economic freedom is instrumented with its lagged levels from $t-1$ and $t-2$. Data from 2018, except for the excluded instruments, whose data are from 2016–17. In model 2, GDP per capita is replaced by the residuals from a regression in which this variable is used as dependent variable. All regressions also include a constant term. The critical value from the Stock-Yogo weak identification test at 10% maximal IV size is 19.93. Robust standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

2.2 Results

Prior to delving into the outcomes derived from my multivariate regression analysis, I briefly examine the bivariate relationship between economic freedom and World Bank test scores (figure 4.1). A positive association is evident, indicating that countries characterized by more economic freedom tend to exhibit higher test scores. According to the R^2 of the underlying regression, economic freedom accounts for 49% of the variance in test scores observed across countries.

Table 4.1 reports my regression results. The estimates from my baseline model are in column 1. Although I use just six controls, the model explains 72% of the variance in test scores. The economic freedom variable has a positive and highly statistically significant coefficient, supporting my hypothesis that economic freedom improves educational

Figure 4.1: Economic Freedom and World Bank Test Scores



Note: 132 countries. Data from 2018. *Economic Freedom of the World* summary ratings, scaled to range from 0 (least free) to 1 (most free). Harmonized test scores constructed by the World Bank, based on several multi-country student achievement testing programs such as TIMSS, PIRLS, and PISA. The test scores are scaled to range from 0 (minimal attainment) to 100 (advanced attainment). The regression represented by the fitted line yields a coefficient of economic freedom of 165.73 (robust standard error = 13.37), N = 132, R^2 = 0.49.

Sources: Gwartney et al., 2022; World Bank, 2022.

quality. In a companion paper, I additionally control for the output gap, youth unemployment, foreign direct investment, air pollution, national time and risk preferences, and find the effect of economic freedom to be robust (Feldmann, 2025).

The results from my baseline model suggest that the magnitude of the effect is considerable. For example, compare New Zealand and Brazil. Whereas New Zealand had one of the highest degrees of economic freedom and one of the best World Bank test scores, Brazil's values were well below the sample mean in both areas (figure 4.1). According to my estimates, if economic freedom in Brazil had been as high as in New Zealand, its World Bank score might have been 33% higher, *ceteris paribus*. While any cross-country comparison warrants caution, the figure illustrates that economic freedom could exert a substantial influence on the quality of education.

As explained in section 1, economic freedom has also been found to increase income per capita, which in turn may contribute to improving educational quality. Thus, the positive effect of GDP per capita on World Bank scores in my baseline model is probably partly due to economic freedom's positive effect on GDP per capita. In other words, in this model the coefficient of economic freedom may underestimate the overall effect of

economic freedom because some of the effect may be captured by the coefficient of GDP per capita. In order to add the indirect effect of economic freedom on educational quality via GDP per capita to the coefficient of economic freedom, I use a method proposed by Gwartney and his colleagues (2006). I first estimate an equation with GDP per capita as the dependent variable and economic freedom and the baseline controls as right-hand side variables. Subsequently, I substitute the residuals from this regression for GDP per capita in my baseline model. The logic of doing this is that the residuals from the GDP per capita regression represent the variation that is uncorrelated with economic freedom. By using these residuals, the variation in GDP per capita that is associated with differences in economic freedom is captured in the coefficient of economic freedom. Thus, this coefficient reflects both the direct effect of economic freedom as well as its indirect effect via GDP per capita. The estimates are reported in column 2 of table 4.1. As expected, the coefficient of economic freedom is substantially larger than in the baseline model. With the indirect path through GDP per capita additionally taken into account, Brazil's World Bank test score might have been 39% higher, had its economic freedom rating been as high as New Zealand's, *ceteris paribus*.

3. Analyzing PISA Scores

3.1 Data and methodology

As my second measure of educational performance, I use PISA mathematics scores (OECD, 2019). PISA tests random samples of 15-year-old students, independent of the educational track attended or the school year they are in. The OECD's high sampling and data-quality standards ensure that each country's results are representative. The PISA math test asks students to apply their mathematical knowledge to solve real-world problems. Math scores are generally considered to be most readily comparable across countries, in contrast to other subjects such as reading, which is to some extent language-specific.

The PISA dataset allows me to control for all major determinants of educational performance that have been considered in the literature (for definitions and sources of all variables, see appendix 4.2; for descriptive statistics, see appendix 4.4). Specifically, the country-level controls include the share of government funding for schools, the share of private schools, the share of students subject to central exit exams, and an index of school autonomy. The school-level controls are the share of certified teachers, a dummy for a shortage of educational material, two school location dummies, and a school's number of students. The individual-level controls cover sex, age, migration status, parental education and occupation, books and computer at home, and language spoken at home. In addition, I employ the same country-level controls that I also use in my regressions with World Bank test scores, and for the same reasons.[2]

2 The only control from my World Bank regressions that I do not use in my PISA regressions is government

As with the World Bank test scores data, I run two-stage least squares regressions, instrumenting economic freedom to extract its exogenous component. Here, the specification is as follows:

Second stage:

$$P_{i,s,c} = \alpha + \beta E_c + \sum_{j=1}^{p} \boldsymbol{V}_{j,c}\gamma_j + \sum_{k=1}^{q} \boldsymbol{W}_{k,s,c}\delta_k + \sum_{l=1}^{r} \boldsymbol{X}_{l,i,s,c}\zeta_l + \varepsilon_{i,s,c} \quad (3)$$

First stage:

$$E_{c,t} = \eta + \sum_{m=1}^{5} \theta(E_{c,t-m} - E_{c,t-m-1}) + \sum_{j=1}^{p} \boldsymbol{V}_{j,c}\lambda_j + \sum_{k=1}^{q} \boldsymbol{W}_{k,s,c}\mu_k + \sum_{l=1}^{r} \boldsymbol{X}_{l,i,s,c}\upsilon_l + \omega_{i,s,c} \quad (4)$$

$P_{i,s,c}$ measures the PISA score of individual i in school s and country c. E represents economic freedom and $\boldsymbol{V}$ a vector of p country-level control variables. $\boldsymbol{W}$ denotes a vector of q school-level control variables and $\boldsymbol{X}$ a vector of r individual-level control variables. While α and η are the constants, $\varepsilon_{i,s,c}$ and $\omega_{i,s,c}$ are the error terms. My coefficient of interest is β, which measures the effect of economic freedom on PISA scores. The coefficients of the excluded instruments are symbolized by θ. The coefficients of the control variables are γ, δ and ζ in the second stage and λ, μ and ν in the first stage. As 'economic freedom' is a country-level variable, I cluster standard errors at this level.

In my PISA regressions, my instruments are lagged differences of the instrumented variable covering the years t–1 to t–6 (equation 4). Obviously, changes in economic freedom over the previous six years affect its current level. Moreover, it is plausible to assume that those changes affect current educational performance not directly but only through the current extent of economic freedom. The test results suggest that my instruments are valid (table 4.2). Whilst the Kleibergen-Paap *rk* LM statistic indicates that each structural equation is identified, the Kleibergen-Paap *rk* Wald *F* statistic suggests that my instruments are relevant, and the results from Hansen's *J* test indicate that they are exogenous (Kleibergen and Paap, 2006; Hansen, 1982). Thus, my statistical model probably establishes causality.

3.2 Results

Let me start again by looking at the bivariate association between economic freedom and test scores, in this case country averages of PISA scores (figure 4.2). The association is moderately positive. The R^2 of the underlying regression suggests that economic freedom alone accounts for 31% of the cross-country variation in achievement.

expenditure on education. This is because my PISA dataset includes the equivalent variable government funding for schools (appendix 4.2).

Table 4.2: Estimates for PISA Scores

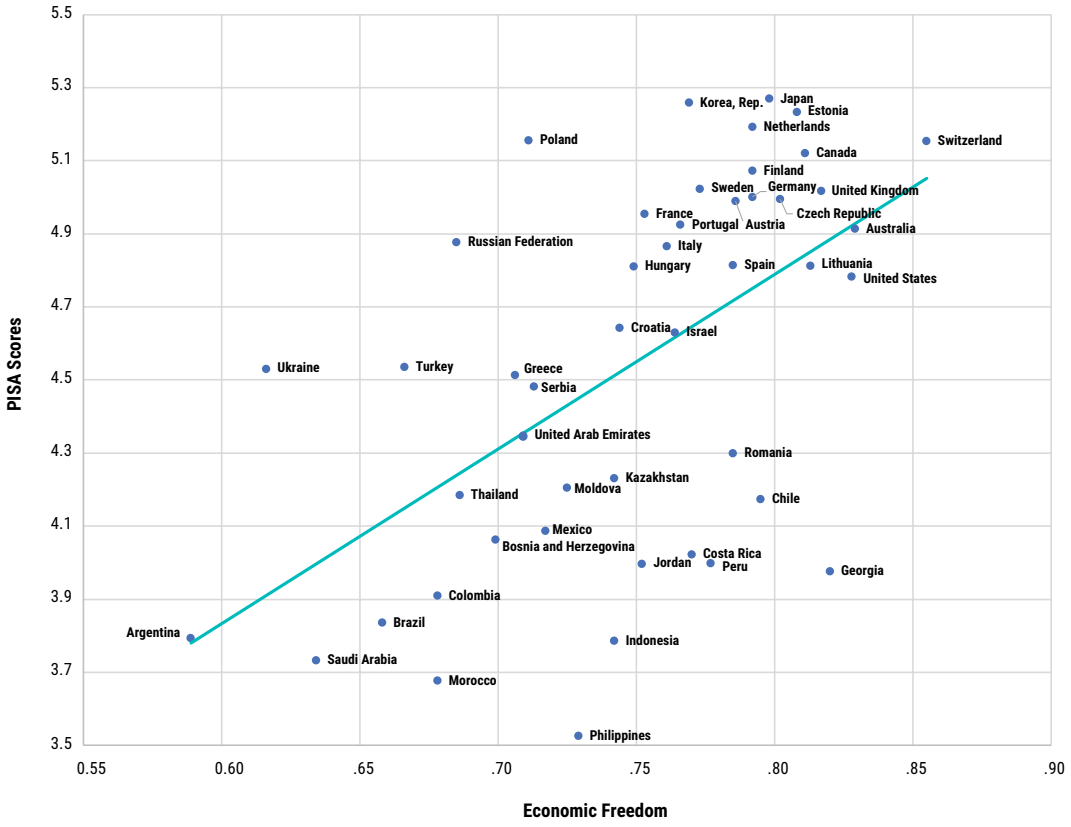
	(1) Baseline model	(2) Indirect effect via 'GDP per capita' added
Economic freedom	1.663** (0.799)	2.163*** (0.775)
Political freedom	0.181 (0.126)	0.168 (0.129)
Confucian heritage society	0.473*** (0.076)	0.504*** (0.075)
GDP per capita	0.222*** (0.071)	0.236*** (0.072)
Government funding for schools	0.308 (0.203)	0.292 (0.204)
Private schools	−0.390** (0.159)	−0.338** (0.163)
Central exit exams	0.030 (0.058)	0.024 (0.058)
School autonomy	0.039 (0.120)	0.179 (0.109)
Certified teachers	0.071 (0.049)	0.099* (0.053)
Shortage of educational material	−0.101*** (0.021)	−0.127*** (0.019)
School location: town	0.137*** (0.024)	0.154*** (0.027)
School location: city	0.224*** (0.031)	0.233*** (0.032)
School size	0.052* (0.028)	0.039 (0.029)
Individual-level controls	Yes	Yes
Number of observations	408,589	408,589
Number of countries	47	47
R^2	0.31	0.31
Kleibergen-Paap *rk* LM statistic (*p* value)	0.03	0.07
Kleibergen-Paap *rk* Wald *F* statistic	21.19	25.90
Hansen *J* statistic (*p* value)	0.62	0.61

Note: Second-stage regression results from two-stage least squares estimation, weighted by students' sampling probability. Dependent variable: PISA scores (mathematics). Economic freedom is instrumented with its lagged annual differences over *t*−1 to *t*−6. Data from 2018, except for the excluded instruments, whose sample period stretches back to 2012. In model 2, GDP per capita is replaced by the residuals from a regression in which this variable is used as dependent variable. Individual-level controls: sex, age, migration status, parental education, parental occupation, books at home, computer for school work at home, and other language than test language spoken at home. All regressions also include a constant term. The critical value from the Stock-Yogo weak identification test at 10% maximal IV relative bias is 10.83. Robust standard errors, adjusted for clustering at the country level, are reported in parentheses. ***$p < 0.01$, **$p < 0.05$, *$p < 0.10$.

Table 4.2 reports the estimates from my multivariate regressions. The estimates from the baseline model are in column 1. The coefficient of economic freedom is positive and statistically significant. This suggests that economic freedom has a positive effect on students' PISA scores, providing further support for my hypothesis. As documented in my companion paper, the result is robust to additionally controlling for the output gap, youth unemployment, foreign direct investment, air pollution, and national time and risk preferences (Feldmann, 2025). According to my baseline model, the magnitude of the estimated direct effect is large: a one standard deviation increase in economic freedom is associated with learning gains of 50% of a school year.

Column 2 of table 4.2 reports the results from a model where the coefficient of economic freedom captures both the direct effect of economic freedom and its indirect effect via GDP per capita. Once again, I use the method developed by Gwartney and his colleagues (2006) and find that the overall effect is much larger than the direct effect only. Specifically, a one standard deviation rise in economic freedom is associated with learning gains of no less than 65% of a school year. Taken together, the results with PISA scores

Figure 4.2: Economic Freedom and PISA Scores



Note: 47 countries. Data from 2018. Economic freedom values scaled to range from 0 to 1. PISA scores are for mathematics; original values divided by 100. Higher values indicate more economic freedom and higher test scores, respectively. The regression represented by the fitted line yields a coefficient of economic freedom of 4.78 (robust standard error = 0.94), $N = 47$, $R^2 = 0.31$.

Sources: Gwartney, Lawson, Hall, and Murphy, 2022; OECD, 2019.

indicate that economic freedom substantially improves educational quality, even after controlling for all major factors that have been considered in the literature.

4. Conclusion

There is a vast literature on the effects of economic freedom, in most cases finding normatively good outcomes (for a survey, see Lawson, 2022). Equally, there is a large but so far completely separate body of literature on the sources of international differences in student achievement (Hanushek and Woessmann, 2011). I bridge the gap between the two by analyzing the effects of economic freedom on the quality of education. In line with my companion paper (Feldmann, 2025), I find that economic freedom has substantial positive effects. This is probably mainly because it incentivizes parents to invest in the high-quality education of their children and helps them to do so. Economic freedom also incentivizes and helps both governments and private providers to deliver high-quality education.

The estimated direct effect of economic freedom on educational quality is substantial. Additionally, it is important to account for its indirect effect via GDP per capita since previous research has shown economic freedom to raise income per capita (Feldmann, 2005). Once the direct and indirect effects are jointly taken into account, my regression results suggest that the overall effect of economic freedom on educational quality is large. This is evident when using either PISA scores or the World Bank's harmonized test scores. Therefore, in their quest to raise the quality of education, policy makers should not narrowly focus on education policy and school systems, they should also take the institutional environment into account. Specifically, my research suggests that they should consider increasing the level of economic freedom.

Appendix 4.1: List of Countries

Albania, Algeria, Angola, *Argentina*, Armenia, *Australia*, *Austria*, Azerbaijan, Bahrain, Bangladesh, Belgium, Benin, Bosnia and Herzegovina, Botswana, *Brazil*, Bulgaria, Burkina Faso, Burundi, Cambodia, Cameroon, *Canada*, Chad, *Chile*, China, *Colombia*, *Costa Rica*, Côte d'Ivoire, *Croatia*, Cyprus, *Czech Republic*, Democratic Republic of the Congo, Denmark, Dominican Republic, Ecuador, Egypt, El Salvador, *Estonia*, Eswatini, Ethiopia, *Finland*, *France*, Gabon, Gambia, *Georgia*, *Germany*, Ghana, *Greece*, Guatemala, Guinea, Guyana, Honduras, Hong Kong, *Hungary*, Iceland, India, *Indonesia*, Iran, Ireland, *Israel*, *Italy*, Jamaica, *Japan*, *Jordan*, *Kazakhstan*, Kenya, Kuwait, Kyrgyzstan, Laos, Latvia, Lebanon, Lesotho, *Lithuania*, Luxembourg, Madagascar, Malawi, Malaysia, Mali, Malta, Mauritania, Mauritius, *Mexico*, *Moldova*, Mongolia, *Morocco*, Mozambique, Namibia, Nepal, *Netherlands*, New Zealand, Nicaragua, Niger, Norway, Oman, Pakistan, Panama, Papua New Guinea, Paraguay, *Peru*, *Philippines*, *Poland*, *Portugal*, Republic of the Congo, *Romania*, *Russia*, Rwanda, *Saudi Arabia*, Senegal, *Serbia*, Sierra Leone, Singapore, Slovakia, Slovenia, South Africa, *South Korea*, *Spain*, Sri Lanka, *Sweden*, *Switzerland*, Tajikistan, Tanzania, *Thailand*, Togo, Trinidad and Tobago, *Turkey*, Uganda, *Ukraine*, *United Arab Emirates*, *United Kingdom*, *United States*, Uruguay, Vietnam, Zambia, Zimbabwe.

Note: Countries included in both PISA sample and sample using World Bank scores are in *italic*. Bosnia and Herzegovina is included in PISA sample only. All other countries are included in sample using World Bank scores only.

Appendix 4.2: Definitions and Sources of Variables

Central exit exams

Share of students subject to central exit exams (decimal fraction, country mean). Variable used in PISA regressions only. Source: Hanushek et al., 2022.

Certified teachers

Share of fully certified teachers (decimal fraction, school level). Variable used in PISA regressions only. Source: OECD, 2019.

Child population share

Population between the ages 0 to 14 years as a decimal fraction of the total population. Variable used in regressions with World Bank test scores only. Source: World Bank, 2022.

Confucian heritage society

Dummy variable that takes the value 1 if a country's culture has historically been shaped by Confucianism. Source: To, 1993; Yao, 2000; Rainey, 2010; author's calculations.

Economic freedom

Economic Freedom of the World summary index, scaled to range from 0 (least free) to 1 (most free). The index measures the degree of economic freedom in the following five areas: size of government, legal system and property rights, sound money, freedom to trade internationally, regulation. Source: Gwartney et al., 2022.

GDP per capita

Natural logarithm of real GDP per capita at purchasing power parity rates, 2017 international dollars. Source: World Bank, 2022; author's calculations.

Government expenditure on education

General government expenditure on education (current, capital, and transfers) as a percentage of GDP. Variable used in regressions with World Bank test scores only. Source: World Bank, 2022.

Government funding for schools

Share of government funding for schools (decimal fraction, country mean). Variable used in PISA regressions only. Source: Hanushek et al., 2022.

PISA scores

PISA mathematics test scores. Original scores divided by 100. Individual-level variable. Variable used in PISA regressions only. Source: OECD, 2019.

Political freedom

Average of political rights and civil liberties ratings, scaled to range from 0 to 1, with higher values representing more such rights and liberties. Political rights include the right to form political parties, to compete for public office and to elect representatives who have a decisive vote on public policies. Civil liberties include religious, ethnic, economic, linguistic, gender and family rights, personal freedoms and freedom of the press, belief and association. Source: Freedom House, 2022; author's calculations.

Private schools

Share of privately managed (or operated) schools (decimal fraction, country mean). Variable used in PISA regressions only. Source: Hanushek et al., 2022.

School autonomy

School-autonomy index (0–1, country level). Variable used in PISA regressions only. Source: Hanushek et al., 2022.

School location: city

School is located in a city (>100,000 inhabitants) (dummy variable). Variable used in PISA regressions only. Source: OECD, 2019.

School location: town

School is located in a town (3,000–100,000 inhabitants) (dummy variable). Variable used in PISA regressions only. Source: OECD, 2019.

School size

A school's number of students, divided by 1,000. Variable used in PISA regressions only. Source: OECD, 2019.

Shortage of educational material

Shortage (or lack) of educational material (dummy variable, school level). Variable used in PISA regressions only. *Source*: OECD, 2019.

Urbanization rate

People living in urban areas as a decimal fraction of the total population. Variable used in regressions with World Bank test scores only. *Source*: World Bank, 2022.

World Bank test scores

Harmonized test scores from several multi-country student achievement testing programs such as TIMMS (Trends in International Mathematics and Science Study), PIRLS (Progress in International Reading Literacy Study) and PISA (Programme for International Student Assessment). The test scores are scaled to range from 0 (minimal attainment) to 100 (advanced attainment). Variable used in regressions with World Bank test scores only. Source: World Bank, 2022.

Note: PISA regressions additionally include individual-level control variables covering sex, age, migration status, parental education, parental occupation, books at home, computer for school work at home, and other language than test language spoken at home. Source: OECD, 2019.

Appendix 4.3: Descriptive Statistics of World Bank Test Scores Sample

	Mean	Std. dev.	Min.	Max.
		Dependent variable		
World Bank test scores	42.93	21.31	1.51	86.42
		Variable of interest		
Economic freedom	0.70	0.09	0.47	0.90
		Control variables		
Political freedom	0.61	0.32	0.00	1.00
Confucian heritage society	0.05	0.22	0.00	1.00
GDP per capita	9.49	1.19	6.61	11.65
Government expenditure on education	4.34	1.53	1.51	9.86
Urbanization rate	0.61	0.23	0.13	1.00
Child population share	0.27	0.11	0.12	0.49

Note: Data from 2018.

Appendix 4.4: Descriptive Statistics of PISA Sample

	Mean	Std. dev.	Min.	Max.
		Dependent variable		
PISA scores	4.58	1.01	0.25	8.88
		Variable of interest		
Economic freedom	0.75	0.06	0.59	0.85
		Control variables		
Political freedom	0.74	0.32	0.00	1.00
Confucian heritage society	0.03	0.17	0.00	1.00
GDP per capita	10.30	0.58	9.00	11.18
Government funding for schools	0.81	0.15	0.45	1.00
Private schools	0.21	0.20	0.00	0.66
Central exit exams	0.62	0.43	0.00	1.00
School autonomy	0.77	0.28	0.07	1.00
Certified teachers	0.80	0.32	0.00	1.00
Shortage of educational material	0.36	0.47	0.00	1.00
School location: town	0.47	0.49	0.00	1.00
School location: city	0.43	0.49	0.00	1.00
School size	0.88	0.75	0.00	11.99

Note: Data from 2018. PISA regressions additionally include individual-level control variables covering sex, age, migration status, parental education, parental occupation, books at home, computer for school work at home and other language than test language spoken at home.

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Appendix
Explanatory Notes and Data Sources

Area 1:Size of Government

A. Government consumption

i. Government consumption without interest payments

This component is measured as general government consumption spending as a percentage of total consumption. The rating for this component, as with many of the following components, is designed to mirror the actual distribution of the raw data but on a 0-to-10 scale. The rating is equal to: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. The V_i is the country's actual government consumption as a proportion of total consumption, while the V_{max} and V_{min} are set at 40% and 6%, respectively. The 1990 data were used to derive the maximum and minimum values for this component as well as most other components to follow. Countries with a larger proportion of government expenditures receive lower ratings.

ii. Government consumption with interest payments

This component is measured as general government consumption spending plus net interest payments on public debt as a percentage of total consumption plus interest payments. Interest payments will not enter the size of government area unless they are inserted here. The rating for this component, as with many of the following components, is designed to mirror the actual distribution of the raw data but on a 0-to-10 scale. The rating is equal to: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. The V_i is the country's actual government consumption plus interest payments as a proportion of total consumption, while the V_{max} and V_{min} are set at 40% and 6%, respectively. The 1990 data were used to derive the maximum and minimum values for this component as well as most other components to follow. Countries with a larger proportion of government expenditures receive lower ratings.

Sources: World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; United Nations National Accounts.

B. Transfers and subsidies

This component is measured as general government transfers and subsidies as a share of GDP. The rating for this component is equal to: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. The V_i is the country's ratio of transfers and subsidies to GDP, while the V_{max} and V_{min} values are set at 37.2% and 0.5%, respectively. The formula will generate lower ratings for countries with larger transfer sectors.

When the size of a country's transfer sector approaches that of the country with the largest transfer sector during the 1990 benchmark year, the rating of the country will approach 0.

Sources: International Monetary Fund, *Government Finance Statistics Yearbook*; World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; United Nations National Accounts; European Union, *eurostat*.

C. Government investment

Data on government investment as a share of total investment are used to construct the 0-to-10 ratings. Countries with more government investment as a share of total investment receive lower ratings. The rating for this component is equal to: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. The V_i is the country's ratio of government investment to total investment, while the V_{max} and V_{min} values are set at 50% and 15%, respectively.

Sources: International Monetary Fund, *Investment and Capital Stock Dataset*; World Bank, *World Development Indicators*; Organisation for Economic Co-operation and Development, *OECD Data.*

D. Top marginal tax rate

i. Top marginal income tax rate

Countries with higher marginal tax rates that take effect at lower income thresholds received lower ratings based on the matrix below. The income threshold data are converted from local currency to 1983 US dollars (using exchange rates and the US Consumer Price Index). These figures include sub-national rates if applicable.

ii. Top marginal income and payroll tax rates

Countries with higher marginal income and payroll (wage) tax rates that take effect at lower income thresholds received lower ratings based on the matrix below. The income threshold

Table 1: Income Threshold at Which the Top Marginal Rate Applies (1983 US$)

Top Marginal Tax Rate	<$25,000	$25,000 - <$50,000	$50,000 - <$150,000	<$150,000 +
<21%	10	10	10	10
21% – <26%	9	9	10	10
26% – <31%	8	8	9	9
31% – <36%	7	7	8	9
36% – <41%	5	6	7	8
41% – <46%	4	5	6	7
46% – <51%	3	4	5	5
51% – <56%	2	3	4	4
56% – <61%	1	2	3	3
61% – <66%	0	1	2	2
66% – <70%	0	0	1	1
70%+	0	0	0	0

data are converted from local currency to 1983 US dollars (using exchange rates and the US Consumer Price Index). These figures include sub-national rates if applicable.

Sources: PricewaterhouseCoopers, *Worldwide Tax Summaries Online*; PricewaterhouseCoopers, *Individual Taxes: A Worldwide Summary* (various issues); Ernst & Young, *Worldwide Personal Tax and Immigration Guide* (various issues); Deloitte International Tax Source, *Guide to Fiscal Information*: Key Economies in Africa (various issues).

E. State ownership of assets

This component is based on ratings from the *Varieties of Democracy* (V-Dem) data on State Ownership of the Economy, which "gauges the degree to which the state owns and controls capital (including land) in the industrial, agricultural, and service sectors. It does not measure the extent of government revenue and expenditure as a share of total output; indeed, it is quite common for states with expansive fiscal policies to exercise little direct control (and virtually no ownership) over the economy." We use the original scale (*osp) data from V-Dem for this variable and for all V-Dem-based variables to follow. The rating is equal to: $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. The V_i is the country's state ownership score, while the V_{max} and V_{min} are set at 4.0 and 0, respectively. Countries with greater government ownership of assets get lower scores.

Source: V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

Area 2: Legal System and Property Rights

Note: The ratings for Area 2 are adjusted to reflect inequalities in the legal treatment of women using a Gender Disparity Index (GDI) provided annually by Rosemarie Fike. The primary data used in the GDI are from the World Bank's *Women, Business and the Law* reports. For additional details, see Rosemarie Fike (2018), *Impact of Economic Freedom and Women's Well-Being*, <https://www.fraserinstitute.org/studies/impact-of-economic-freedom-and-womens-well-being>.

A. Judicial independence

This component is based on three sources. (a) The first source of this component is from the *Global Competitiveness Report* question: "Is the judiciary in your country independent from political influences of members of government, citizens, or firms? No—heavily influenced (= 1) or Yes—entirely independent (= 7)". The question's wording has varied slightly over the years. All variables from the *Global Competitiveness Report* were converted from the original 1-to-7 scale to a 0-to–10 scale using this formula: $EFW_i = ((GCR_i - 1) \div 6) \times 10$. (b) The second source is a collection of questions from the V-Dem dataset, namely: Judicial Purges, Government Attacks on the Judiciary, Court Packing, High Court Independence, and Low Court Independence. Each of the V-Dem variables is individually rated using the formula $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. The V_i is the country's V-Dem score according to V-Dem. For Judicial Purges, Government Attacks on the Judiciary, High Court Independence, and Low Court Independence, V_{max} and V_{min} were set at 4.0 and 0, respectively. For Court Packing, V_{max} and V_{min} were set at 3.0 and 0, respectively. All five scores are then averaged. (c) The third data source is based on *Update, A Global Measure of Judicial Independence, 1900-2015*

(Staton, Linzer, Reenock, and Holsinger, 2019). This data source scores on a 0-to-1 scale, so it was multiplied by 10 to place it on the scale of the other variables. The final rating is the average of whichever of these sources are available.

Sources: World Economic Forum, *Global Competitiveness Report*; V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>; Jeffrey Staton, Drew Linzer, Christopher Reenock, and Jordan Holsinger (2019), *Update, A Global Measure of Judicial Independence, 1900-2015* (Harvard Dataverse, V1), <https://doi.org/10.7910/DVN/NFXWUO>.

B. Impartial courts

This component is based on four sources. (a) The first source is the *Global Competitiveness Report* question: "The legal framework in your country for private businesses to settle disputes and challenge the legality of government actions and/or regulations is inefficient and subject to manipulation (= 1) or is efficient and follows a clear, neutral process (= 7)". The question's wording has varied slightly over the years. (b) The second source of this component is Judicial Corrupt Decision from the V-Dem dataset. The rating is equal to: $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. The V_i is the country's Judicial Corrupt Decisions Score, while the V_{max} and V_{min} are set at 4.0 and 0, respectively. (c) The third source is the Rule of Law indicator found in the *Worldwide Governance Indicators*. The formula used to calculate the 0-to-10 ratings is: $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. V_i represents the component value. The values for V_{max} and V_{min} are set at 2.5 and –2.5, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either 0 or 10, accordingly. (d) The fourth source is the "Transparency and the fairness of the legal system" indicator from the Economist Intelligence Unit (EIU). The original scale is 1-to-5, so the rating formula for data from the EIU is: $EFW_i = ((EIU_i - 1) \div 4) \times 10$. The final rating is the average of whichever of these sources are available.

Sources: World Economic Forum, *Global Competitiveness Report*; World Bank, *Worldwide Governance Indicators*; V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>; Economist Intelligence Unit, *Business Environment Rankings*.

C. Property rights

This component is based on three sources. (a) The first source is the *Global Competitiveness Report* question: "Property rights, including over financial assets, are poorly defined and not protected by law (= 1) or are clearly defined and well protected by law (= 7)". (b) The second source is Property Rights and Rule-Based Governance from *Country Policy and Institutional Assessment* (CPIA) data from the World Bank. This has been scaled to the Legal System and Property Rights data via regression. (c) The third source is the "Degree to which private property rights are guaranteed and protected" indicator from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available.

Sources: World Economic Forum, *Global Competitiveness Report*; World Bank, *Country Policy and Institutional Assessment*; Economist Intelligence Unit, *Business Environment Rankings.*

D. Military interference

This component is based on the *International Country Risk Guide* Political Risk Component G, Military in Politics: "A measure of the military's involvement in politics. Since the military is not elected, involvement, even at a peripheral level, diminishes democratic accountability. Military involvement might stem from an external or internal threat, be symptomatic of underlying difficulties, or be a full-scale military takeover. Over the long term, a system of military government will almost certainly diminish effective governmental functioning, become corrupt, and create an uneasy environment for foreign businesses". Originally on a 0-to-6 scale, the rating is algebraically converted to a 0-to-10 scale.

Source: PRS Group, *International Country Risk Guide*.

E.Integrity of the legal system

This component is based on two sources. (a) The first source is the *International Country Risk Guide* Political Risk Component I for Law and Order: "Two measures comprising one risk component. Each subcomponent equals half of the total. The 'law' subcomponent assesses the strength and impartiality of the legal system, and the 'order' subcomponent assesses popular observance of the law". Originally on a 0-to-6 scale, the rating is algebraically converted to a 0-to-10 scale. (b) The second source is Judicial Accountability, Compliance with the High Court, Judicial Review, Transparent Laws with Predictable Enforcement, and Access to Justice for Men from the V-Dem dataset. (An adjustment for the area as a whole is made later to account uniformly for gender disparities.) Each of the V-Dem variables is individually rated using the formula $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. V_i is the country's V-Dem score according to V-Dem, and V_{max} and V_{min} are set at 4.0 and 0, respectively. The five measures from V-Dem are then averaged. The final rating is the average of whichever of these sources are available.

Sources: PRS Group, *International Country Risk Guide*; V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

F. Contracts

This component is based on three sources. (a) The first source uses the World Bank's *Doing Business* estimates for the time and money required to collect a debt. The debt is assumed to equal 200% of the country's per-capita income where the plaintiff has complied with the contract and judicial judgment is rendered in his favor. 0-to-10 ratings are constructed for (1) the time cost (measured in number of calendar days required from the moment the lawsuit is filed until payment); and (2) the monetary cost of the case (measured as a percentage of the debt). These two ratings are then averaged to arrive at the final rating for this component. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the time or money cost value. The values for V_{max} and V_{min} are set at 725 days/82.3% and 62 days/0%, respectively. Countries with values outside the range from V_{max} to V_{min} received ratings of either 0 or 10, accordingly. (b) The second source is the "Contract

Viability/Expropriation" data from the PRS Group's *International Country Risk Guide*. The formula used to calculate the 0-to-10 ratings is: $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. V_i represents the component value. The values for V_{max} and V_{min} are set at 4 and 0.5, which corresponds to the range of the variable. (c) The third source is the "Efficiency of the legal system" indicator from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available.

Sources: World Bank, *Doing Business*; Business Environment Risk Intelligence, *Historical Ratings Research Package*; Economist Intelligence Unit, *Business Environment Rankings*.

G. Real property

This component is based on the World Bank's *Doing Business* data on the time measured in days and monetary costs required to transfer ownership of property that includes land and a warehouse. 0-to-10 ratings are constructed for (1) the time cost (measured in the number of calendar days required to transfer ownership); and (2) the monetary cost of transferring ownership (measured as a percentage of the property value). These two ratings are then averaged to arrive at the final rating for this component. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the time or money cost value. The values for V_{max} and V_{min} are set at 265 days/15% and 0 days/0%, respectively. Countries with values outside the range from V_{max} to V_{min} received ratings of either 0 or 10, accordingly.

Source: World Bank, *Doing Business*.

H. Police and crime

This component is based on two sources. (a) The first source is the *Global Competitiveness Report* question: "To what extent can police services be relied upon to enforce law and order in your country? (1 = Cannot be relied upon at all; 7 = Can be completely relied upon)". (b) The second source is the "Impact of crime" indicator from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available.

Sources: World Economic Forum, *Global Competitiveness Report*; Economist Intelligence Unit, *Business Environment Rankings*.

Area 3: Sound Money

A. Money growth

This component measures the average annual growth of the money supply in the last five years minus average annual growth of real GDP in the last 10 years. Countries where growth of the money supply greatly exceeds growth of real output receive lower ratings. The broad money supply (basically what used to be called M2) is used to measure the money supply. The rating is equal to: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the average annual growth rate of the money supply during the last five years adjusted for the growth of real GDP during the previous 10 years. The values for V_{min} and V_{max} are set at 0% and 50%, respectively. Therefore, if the adjusted growth rate of the money supply during the last five years is 0%, indicating that

money growth is equal to the long-term growth of real output, the formula generates a rating of 10. Ratings decline as the adjusted growth of the money supply increases toward 50%. When adjusted annual money growth is equal to (or greater than) 50%, a rating of 0 results.

Sources: World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; United Nations National Accounts.

B. Standard deviation of inflation

This component measures the standard deviation of the inflation rate over the last five years. Generally, the GDP deflator is used as the measure of inflation for this component. When these data are unavailable, the Consumer Price Index is used. The following formula is used to determine the 0-to-10 scale rating for each country: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the country's standard deviation of the annual rate of inflation during the last five years. The values for V_{min} and V_{max} are set at 0% and 25%, respectively. This procedure will allocate the highest ratings to the countries with the least variation in the annual rate of inflation. A perfect 10 results when there is no variation in the rate of inflation over the five-year period. Ratings will decline toward 0 as the standard deviation of the inflation rate approaches 25% annually.

Sources: World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*.

C.Inflation: most recent year

Generally, the Consumer Price Index is used as the measure of inflation for this component as it is often available before the GDP deflator is available. When these data are unavailable, the GDP deflator inflation rate is used. The 0-to-10 country ratings are derived by the following formula: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the rate of inflation during the most recent year. The values for V_{min} and V_{max} are set at 0% and 25%, respectively: the lower the rate of inflation, the higher the rating. Countries that achieve perfect price stability earn a rating of 10. As the current annual inflation rate moves towards 25%, the rating for this component moves toward 0. A 0 rating is assigned to all countries with an inflation rate of 25% or more.

Sources: World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*.

D.Foreign currency bank accounts

When foreign-currency bank accounts are permissible without *any* restrictions both domestically and abroad, the rating is 10; when these accounts are restricted, the rating is 0. If foreign currency bank accounts were permissible domestically but not abroad (or vice versa), the rating is 5.

Source: International Monetary Fund, *Annual Report on Exchange Arrangements and Exchange Restrictions*.

Area 4: Freedom to Trade Internationally

A. Tariffs

i. Trade tax revenue

This subcomponent measures the amount of tax on international trade as a share of exports and imports. The formula used to calculate the ratings for this subcomponent is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the revenue derived from taxes on international trade as a share of the trade sector. The values for V_{min} and V_{max} are set at 0% and 15%, respectively. This formula leads to lower ratings as the average tax rate on international trade increases. Countries with no specific taxes on international trade earn a perfect 10. As the revenues from these taxes rise toward 15% of international trade, ratings decline toward 0.

Sources: International Monetary Fund, *Government Finance Statistics Yearbook*; International Monetary Fund, *International Financial Statistics*.

ii. Mean tariff rate

This subcomponent is based on the unweighted mean of tariff rates. The formula used to calculate the 0-to-10 rating for each country is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the country's mean tariff rate. The values for V_{min} and V_{max} are set at 0% and 50%, respectively. This formula will allocate a rating of 10 to countries that do not impose tariffs. As the mean tariff rate increases, countries are assigned lower ratings. The rating will decline toward 0 as the mean tariff rate approaches 50%. (Note that, except for two or three extreme observations, all countries have mean tariff rates within this range from 0% to 50%.)

Source: World Trade Organization, *World Tariff Profiles*.

iii. Standard deviation of tariff rates

Compared to a uniform tariff, wide variations in tariff rates indicate greater efforts towards central planning of the economy's production and consumption patterns. Thus, countries with a greater variation in their tariff rates are given lower ratings. The formula used to calculate the 0-to-10 ratings for this component is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the standard deviation of the country's tariff rates. The values for V_{min} and V_{max} are set at 0% and 25%, respectively. This formula will allocate a rating of 10 to countries that impose a uniform tariff. As the standard deviation of tariff rates increases towards 25%, ratings decline toward 0.

Source: World Trade Organization, *World Tariff Profiles*.

B. Regulatory trade barriers

i. Non-tariff trade barriers

This subcomponent is based on two sources. (a) The first source is the *Global Competitiveness Report* survey question: "In your country, tariff and non-tariff barriers significantly reduce the ability of imported goods to compete in the domestic market. 1–7 (best)". The question's

wording has varied slightly over the years. (b) The second source is the "Tariff and non-tariff barriers" indicator from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available. Note that, notwithstanding the subcomponent's title, this indicator captures both tariff and non-tariff barriers.

Sources: World Economic Forum, *Global Competitiveness Report*; Economist Intelligence Unit, *Business Environment Rankings.*

ii. Costs of importing and exporting

This subcomponent is based on the World Bank's *Doing Business* data on the time (i.e., non-money) cost of procedures required to import a full 20-foot container of dry goods that contains no hazardous or military items. Countries where it takes longer to import or export are given lower ratings. 0-to-10 ratings are constructed for (1) the time cost (in hours) associated with border compliance and documentary compliance when exporting; and (2) the time cost (in hours) associated with border compliance and documentary compliance when importing. These two ratings are then averaged to arrive at the final rating for this subcomponent. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the time-cost value. The values for V_{max} and V_{min} are set, respectively, at 228.38 and 0 hours for exporting; and 338.00 hours and 0 hours for importing. Countries with values outside the V_{max} and V_{min} range receive ratings of either 0 or 10, accordingly.

Source: World Bank, *Doing Business*.

C. Black-market exchange rates

This component is based on the percentage difference between the official and the parallel (black-market) exchange rate. The formula used to calculate the 0-to-10 ratings for this component is the following: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i is the country's black-market exchange-rate premium. The values for V_{min} and V_{max} are set at 0% and 50%, respectively. This formula will allocate a rating of 10 to countries without a black-market exchange rate; that is, those with a domestic currency that is fully convertible without restrictions. When exchange-rate controls are present and a black market exists, the ratings will decline toward 0 as the black-market premium increases toward 50%. A 0 rating is given when the black-market premium is equal to, or greater than, 50%.

Source: *MRI Bankers' Guide to Foreign Currency*.

D. Controls of the movement of capital and people

i. Financial openness

This subcomponent is based on two sources. (a) The first source is the Chinn-Ito Index of *de jure* financial openness. This index is composed of a series of dummy variables that "codify the tabulation of restrictions on cross-border financial transactions reported in the IMF's *Annual Report on Exchange Arrangements and Exchange Restrictions*." This data source scores on a continuous scale from 0-to-1, so it is multiplied by 10 to place it on the 0-to-10 scale.

(b) The second source is the "Capital account liberalization" indicator from the Economist Intelligence Unit.

Sources: Menzie Chinn and Hiro Ito (2006), What Matters for Financial Development? Capital Controls, Institutions, and Interactions, *Journal of Development Economics* 81, 1: 163–191; Menzi Chinn and Hiro Ito (2008), A New Measure of Financial Openness, *Journal of Comparative Policy Analysis* 10, 3: 309–322; see also <http://web.pdx.edu/~ito/Chinn-Ito_website.htm>; Economist Intelligence Unit, *Business Environment Rankings*.

ii. Capital controls

The International Monetary Fund reports on up to 13 types of international capital controls. The zero-to-10 rating is the percentage of capital controls not levied as a share of the total number of capital controls listed, multiplied by 10.

Source: International Monetary Fund, *Annual Report on Exchange Arrangements and Exchange Restrictions*.

iii. Freedom of foreigners to visit

This component measures the percentage of countries for which a country requires a visa from foreign visitors. It reflects the freedom of foreigners to travel to this country for tourist and short-term business purposes. The formula used to calculate the zero-to-10 ratings is: (Vi – Vmin) / (Vmax – Vmin) × 10. Vi represents the component value. The values for Vmax and Vmin were set at 47.2 (1 standard deviation above average) and 0. Countries with values outside the range between Vmax and Vmin received ratings of either 0 or 10, accordingly.

Source: Robert Lawson and Jayme Lemke (2012), Travel Visas, *Public Choice* 154, 1-2: 17–36; IATI, <https://www.iata.org/>; authors' calculations.

iv. Protection of foreign assets

This subcomponent is based on two sources. (a) The first source is the *Global Competitiveness Report* survey questions on "Prevalence of foreign ownership" and "Business impact of rules on FDI". (b) The second source is the "Risk of expropriation of foreign assets" from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available.

Sources: World Economic Forum, *Global Competitiveness Report*; World Bank, *Worldwide Governance Indicators*; Economist Intelligence Unit, *Business Environment Rankings*.

Area 5: Regulation

A. Credit market regulation

i. Ownership of banks

Data on the percentage of bank deposits held in privately owned banks are used to construct rating intervals. Countries with larger shares of privately held deposits received higher ratings. When privately held deposits total between 95% and 100%, countries are given a rating of 10. When private deposits constitute between 75% and 95% of the total, a rating of 8 is assigned. When private deposits are between 40% and 75% of the total, the rating is 5. When private

deposits total between 10% and 40%, countries received a rating of 2. A 0 rating is assigned when private deposits are 10% or less of the total.

Sources: Anginer, D., A. Can Bertay, R. Cull, A. Demirgüç-Kunt, and D.S. Mare (2019), *Bank Regulation and Supervision Ten Years after the Global Financial Crisis*, Policy Research Working Paper, World Bank; World Bank, *Bank Regulation and Supervision Survey*; James R. Barth, Gerard Caprio, and Ross Levine (2006), *Rethinking Bank Regulation: Till Angels Govern*, Cambridge University Press.

ii. Private sector credit

This subcomponent measures the extent of government borrowing relative to private-sector borrowing. If the data are available, this subcomponent is calculated as the government fiscal deficit as a share of gross saving. The formula used to derive the country ratings for this subcomponent is $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i is the [absolute value of the] the ratio of deficit to gross savings, and the values for V_{max} and V_{min} are set at 100% and 0%, respectively. The formula allocates higher ratings as the deficit gets smaller relative to gross saving.

If the deficit data are not available, the component is instead based on the share of private credit relative to total credit extended in the banking sector. Thus, the formula used to derive the country ratings for this subcomponent is $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. V_i is the share of the country's total domestic credit allocated to the private sector and the values for V_{max} and V_{min} are set at 99.9% and 10.0%, respectively. The formula allocates higher ratings as the share of credit extended to the private sector increases.

Sources: World Bank, *World Development Indicators*; World Economic Forum, *Global Competitiveness Report*; International Monetary Fund, *International Financial Statistics*.

iii. Interest rate controls / negative real interest rates

Countries with interest rates determined by the market, stable monetary policy, and reasonable real-deposit and lending-rate spreads received higher ratings. When interest rates are determined primarily by market forces as evidenced by reasonable deposit and lending-rate spreads, and when real interest rates are positive, countries are given a rating of 10. When interest rates are primarily market-determined but the real rates are sometimes slightly negative (less than 5%) or the differential between the deposit and lending rates is large (8% or more), countries received a rating of 8. When the real deposit or lending rate is persistently negative by a single-digit amount or the differential between them is regulated by the government, countries are rated at 6. When the deposit and lending rates are fixed by the government and the real rates are often negative by single-digit amounts, countries are assigned a rating of 4. When the real deposit or lending rate is persistently negative by a double-digit amount, countries received a rating of 2. A 0 rating is assigned when the deposit and lending rates are fixed by the government and real rates are persistently negative by double-digit amounts or hyperinflation has virtually eliminated the credit market.

Sources: World Bank, *World Development Indicators*; International Monetary Fund, *International Financial Statistics*; CIA, *The World Factbook*.

B.Labor market regulation

i. Labor regulations and minimum wage

This subcomponent is based on three sources. (a) The first source is the *CBR Labour Regulation Index*, which includes three variables concerning (1) "Annual leave entitlements"; (2) "Public holiday entitlements"; and (3) "Overtime premia." The original data is on a [0,1] scale, which is flipped to reflect that these restrictions reflect lesser freedom. They are then averaged together and multiplied by 10. (b) The second source is the "Employing Workers" section of the World Bank's *Doing Business* and uses the following data: (1) whether fixed-term contracts are prohibited for permanent tasks; (2) the maximum cumulative duration of fixed-term contracts; and (3) the ratio of the minimum wage for a trainee or first-time employee to the average value added per worker. Countries with restrictions on fixed-term contracts, restrictions on the duration of fixed-term contracts, and/or higher minimum wages receive lower ratings. (c) The third source is the "Wage regulation" indicator from the Economist Intelligence Unit. The *CBR Labour Regulation Index* is treated as the preferred data source, and if it is unavailable, the average of the *Doing Business* data and the Economist Intelligence Unit data are used.

Sources: Centre for Business Research, *CBR Labour Regulation Index*; World Bank, *Doing Business*; Economist Intelligence Unit, *Business Environment Rankings*.

ii. Hiring and firing regulations

This subcomponent is based on four sources. (a) The first source is the *CBR Labour Regulation Index*, which includes seven variables concerning (1) "The law as opposed to the contracting parties, determines the legal status of the worker"; (2) "Part-time workers have the right to equal treatment with full-time workers"; (3) "Fixed-term contracts are allowed only for work of limited duration"; (4) "Fixed-term workers have the right to equal treatment with permanent workers"; (5) "Maximum duration of fixed-term contracts"; (6) "Agency work is prohibited of strictly controlled"; and (7) "Agency workers have the right to equal treatment with permanent workers of the user undertaking." The original data is on a [0,1] scale, which is flipped to reflect that these restrictions reflect lesser freedom. They are then averaged together and multiplied by 10. (b) The second source is the *Structural Reform Database* variable, Valid Grounds, which "captures the freedom of the employer in deciding when to dismiss workers and which workers to dismiss." This variable scale on a [0,1] and is multiplied by 10. (c) The third source is the *Global Competitiveness Report* question: "The hiring and firing of workers is impeded by regulations (= 1) or flexibly determined by employers (= 7)". The question's wording has varied over the years. (d) The fourth source is the "Restrictiveness of labour laws" indicator from the Economist Intelligence Unit. Data from the *CBR Labour Regulation Index* and the *Structural Reform Database* area treated as preferred, and averaged together if both are available. If neither is available, then the average of data from the *Global Competitiveness Report* and the Economist Intelligence unit is used.

Sources: Center for Business Research, *CBR Labour Regulation Index*; International Monetary Fund, *Structural Reform Database*; World Economic Forum, *Global Competitiveness Report*; Economist Intelligence Unit, *Business Environment Rankings*.

iii. Flexible wage determination

This subcomponent is based on three sources. (a) The first source is the *CBR Labour Regulation Index*, which includes 17 variables concerning (1) "Priority in re-employment"; (2) "Right to unionisation"; (3) "Right to collective bargaining"; (4) "Duty to bargain"; (5) "Extension of collective agreements"; (6) "Closed shops"; (7) "Codetermination: board membership"; (8) "Codetermination and information/consultation of workers"; (9) "Unofficial industrial action"; (10) "Political industrial action"; (11) "Secondary industrial action"; (12) "Lockouts"; (13) "Right to industrial action"; (14) "Waiting period prior to industrial action"; (15) "Peace obligation"; (16) "Compulsory conciliation or arbitration"; and (17) "Replacement of striking workers." The original data is on a [0,1] scale, which is flipped to reflect that these restrictions reflect lesser freedom. They are then averaged together and multiplied by 10. (b) The second source is the *Structural Reform Database*, which includes the variable, Procedural Inconvenience, which "includes provisions such as consultation with workers' representatives and third-party approval." This variable is on a [0,1] scale and is multiplied by 10. (c) The third source is the *Global Competitiveness Report* question: "Flexibility of wage determination, 1–7 (best)". In earlier years, the question is "Wages in your country are set by a centralized bargaining process (= 1) or up to each individual company (= 7)". Data from the *CBR Labour Regulation Index* and the *Structural Reform Database* area treated as preferred, and averaged together if both are available. If neither is available, then data from the *Global Competitiveness Report* is used.

Sources: Center for Business Research, *CBR Labour Regulation Index*, International Monetary Fund, *Structural Reform Database*, World Economic Forum, *Global Competitiveness Report*.

iv. Hours regulations

This subcomponent is based on two sources. (a) The first source is the *CBR Labour Regulation Index*, which includes four variables concerning (1) "Weekend working"; (2) "Limits to overtime working"; (3) "Duration of the normal working week"; and (4) "Maximum daily working time." The original data is on a [0,1] scale, which is flipped to reflect that these restrictions reflect lesser freedom. They are then averaged together and multiplied by 10. (b) The second source is based on the Employing Labor section in the World Bank's *Doing Business*; it uses the following five components: (1) whether there are restrictions on night work; (2) whether there are restrictions on holiday work; (3) whether the length of the work week can be 5.5 days or longer; (4) whether there are restrictions on overtime work; and (5) whether the average paid annual leave is 21 working days or more. For each question, when the regulations apply, a score of 1 is given. If there are no restrictions, the economy receives a score of 0. The 0-to-10 rating is based on how many of these regulations are in place: zero regulations results in a rating of 10; one regulation results in a rating of 8; and so on. For countries where the *CBR Regulation Index* is available, it is used, and when it is unavailable, *Doing Business* is used.

Sources: Center for Business Research, *CBR Labour Regulation Index*, World Bank, *Doing Business*.

v. Costs of worker dismissal

This subcomponent is based on three sources. (a) The first source is the *CBR Labour Regulation Index*, which includes nine variables concerning (1) "The cost of dismissing part-time workers is equal in proportionate terms to the cost of dismissing full-time workers"; (2) "Legally mandated notice period"; (3) "Legally mandated redundancy compensation"; (4) "Minimum qualifying period of service for normal case of unjust dismissal"; (5) "Law imposes procedural constraints on dismissal"; (6) "Law imposes substantive constraints on dismissal"; (7) "Reinstatement normal remedy for unfair dismissal"; (8) "Notification of dismissal"; and (9) "Redundancy selection." The original data is on a [0,1] scale, which is flipped to reflect that these restrictions reflect lesser freedom. They are then averaged together and multiplied by 10. (b) The second source is the *Structural Reform Database*, which includes three variables, (1) "Firing costs," which "consists of minimum notice periods and severance penalties"; (2) "Redress measures (in case of unfair dismissal)," which "concerns provisions such as the possibility for the worker being reinstated or to receive compensation following an unfair dismissal"; and (3) "Additional requirements for collective dismissals," which "accounts for additional restrictions imposed to the employer when dismissing a large number of workers for economic reasons." These variables are on a [0,1] scale and are multiplied by 10. The first and second variables are included normally, but to reflect the stacking nature of the third variable, it is multiplied by the second and then divided by 10 to put it back on the 0-to-10 scale. The three of these variables are then averaged. (c) The third source is the World Bank's *Doing Business* data on the cost of the advance-notice requirements, severance payments, and penalties due when dismissing a redundant worker with 10-years tenure. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the dismissal cost (measured in weeks of wages). The values for V_{max} and V_{min} are set at 58 weeks and 0 weeks, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either 0 or 10, accordingly. Data from the *CBR Labour Regulation Index* and the *Structural Reform Database* area treated as preferred, and averaged together if both are available. If neither is available, then data from the *Doing Business* report is used.

Sources: Center for Business Research, *CBR Labour Regulation Index*, International Monetary Fund, *Structural Reform Database*, World Bank, *Doing Business*.

vi. Conscription

Data on the use and duration of military conscription are used to construct rating intervals. Countries with longer conscription periods received lower ratings. A rating of 10 is assigned to countries without military conscription. When length of conscription is six months or less, countries are given a rating of 5. When length of conscription is more than six months but not more than 12 months, countries are rated at 3. When length of conscription is more than 12 months but not more than 18 months, countries are assigned a rating of 1. When conscription periods exceeded 18 months, countries are rated 0. If conscription is present but apparently not strictly enforced or the length of service could not be determined, the country is given a

rating of 3. In cases where it is clear conscription is never used, even though it may be possible, a rating of 10 is given. If a country's mandated national service includes clear non-military options, the country is given a rating of 5.

Sources: International Institute for Strategic Studies, *The Military Balance*; War Resisters International, *World Survey of Conscription and Conscientious Objection to Military Service*; additional online sources used as necessary.

vii. Foreign labor

This subcomponent is based on two sources. (a) The first source is the *Global Competitiveness Report* question: "To what extent does labour regulation in your country limit the ability to hire foreign labour? (1 = Very much limits hiring foreign labour; 7 = Does not limit hiring foreign labour at all)". The question's wording has varied over the years. (b) The second source is the "Hiring of foreign nationals" indicator from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available.

Sources: World Economic Forum, *Global Competitiveness Report*; Economist Intelligence Unit, *Business Environment Rankings*.

C. Business regulation

i. Regulatory burden

This subcomponent is based on the *Global Competitiveness Report* question on the "Burden of government regulation, 1–7 (best)". The question's wording has varied slightly over the years.

Source: World Economic Forum, *Global Competitiveness Report*.

ii. Bureaucracy costs

This subcomponent is based on the "Regulatory Burden Risk Ratings" from IHS Markit, which measures "[t]he risk that normal business operations become more costly due to the regulatory environment. This includes regulatory compliance and bureaucratic inefficiency and/or opacity. Regulatory burdens vary across sectors so scoring should give greater weight to sectors contributing the most to the economy". The raw scores range, roughly, from 0 to 7, with higher values indicating greater risk. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i is the country's Regulatory Burden rating, while the V_{max} and V_{min} are set at 5 and 0.5, respectively.

Source: IHS Markit.

iii. Impartial public administration

This subcomponent is based on the "Rigorous and Impartial Public Admin-istration" data from the V-Dem dataset. If nepotism, cronyism, and discrimi-nation are widespread in the application of public administration, countries receive a lower score. The rating is equal to: $(V_i - V_{min}) / (V_{max} - V_{min}) \times 10$. The V_i is the country's impartial administration score, while the V_{max} and V_{min} are set at 4.0 and 0, respectively.

Source: V-Dem Institute, *Varieties of Democracy*, <www.v-dem.net>.

iv. Tax compliance

This subcomponent is based on two sources. (a) The first source is the World Bank's *Doing Business* data on the time required per year for a business to prepare, file, and pay taxes on corporate income, value added or sales taxes, and taxes on labor. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the time cost (measured in hours) of tax compliance. The values for V_{max} and V_{min} are set at 892 hours and 0 hours, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either 0 or 10, accordingly. (b) The second source is the "Tax complexity" indicator from the Economist Intelligence Unit. The final rating is the average of whichever of these sources are available.

Sources: World Bank, *Doing Business*; Economist Intelligence Unit, *Business Environment Rankings*.

D. Freedom to compete

i. Market openness

This subcomponent is based on two sources. (a) The first source is the World Bank's *Doing Business* data on the amount of time and money it takes to start a new limited-liability business. Countries where it takes longer or is costlier to start a new business are given lower ratings. 0-to-10 ratings are constructed for three variables: (1) time (measured in days) necessary to comply with regulations when starting a limited liability company; (2) money costs of the fees paid to regulatory authorities (measured as a share of per-capita income); and (3) minimum capital requirements, that is, funds that must be deposited into a company bank account (measured as a share of per-capita income). These three ratings are then averaged to arrive at the final rating for this subcomponent. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the variable value. The values for V_{max} and V_{min} are set at 104 days/317%/1,017% and 0 days/0%/0%, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either 0 or 10, accordingly. (b) The second source are the "Freedom of existing businesses to compete" and "Level of government regulation and impact on private business" indicators from the Economist Intelligence Unit. The latter indicator is based heavily on regulations related to starting a business. The final rating is the average of whichever of these sources are available.

Sources: World Bank, *Doing Business*; Economist Intelligence Unit, *Business Environment Rankings*.

ii. Business permits

This subcomponent is based on the World Bank's *Doing Business* data on the time in days and monetary costs required to obtain a license to construct a standard warehouse. 0-to-10 ratings are constructed for (1) the time cost (measured in number of calendar days required to obtain a license) and (2) the monetary cost of obtaining the license (measured as a share of per-capita income). These two ratings are then averaged to arrive at the final rating for this

subcomponent. The formula used to calculate the 0-to-10 ratings is: $(V_{max} - V_i) / (V_{max} - V_{min}) \times 10$. V_i represents the time or money cost value. The values for V_{max} and V_{min} are set at 363 days/2,763%/56 days and 0 days/0%/0%, respectively. Countries with values outside the V_{max} and V_{min} range received ratings of either 0 or 10, accordingly.

Source: World Bank, *Doing Business*.

iii. Distortion of business environment

This subcomponent is based on the "Price controls" and "State control" indicators from the Economist Intelligence Unit.

Source: Economist Intelligence Unit, *Business Environment Rankings*.

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