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Measuring open access orders

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Abstract

This paper assesses how to quantitatively classify countries as conforming to the ideal of an 'open access order' in the spirit of Douglass North, John Joseph Wallis, and Barry Weingast's *Violence and Social Orders*. It does so by taking the harmonic mean of already existing measures of economic freedom, liberal democracy, and state capacity. Thirty-five countries out of 161 in 2020 were assessed to be open access orders. A main dataset is constructed for the years 1950 to present, and a supplementary dataset for select countries is constructed for years back to 1850. Switzerland has the highest index score for open access orders in 2020, is classified to be an open access order continuously since 1950, and is the first country to be classified as an open access order (in 1875).

Introduction

Violence and Social Orders presents a framework by Douglass North, John Joseph Wallis, and Barry Weingast (2009) that interprets world political history and economic development as a process of transforming societies that are governed by 'natural states', where elites struggle to control violence and collect the social surplus, into 'open access orders', where the state wields its power impersonally and universally for the benefit of all, not merely the elites.[1] Societies that have reached statehood begin as natural states, and only a select few have developed into open access orders. The focus of the book is the emergence of open access orders and the process by which it took place. It specifies the process by which natural states develop in stages from 'fragile' to 'basic' to 'mature' natural states, and it delineates preconditions that must take place in order for a state to then transition from a natural state to an open access order. Namely, the preconditions are that (1) elites must have attained the rule of law for themselves, such that they are not beholden to the whims of the sovereign, (2) perpetually living organizations (like bureaucracies and corporations) must exist which do not rely on any particular individual(s), and (3) the state must have consolidated control of the military.

We do not propose to measure these preconditions directly, however. Rather, we will combine three sets of institutions that are features of open access orders described throughout *Violence and Social Orders*, even though these institutions themselves are not the point of emphasis by the authors.

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[1]There is a significant overlap between 'open access orders' and the inclusive institutions of Acemoglu and Robinson (2012). But our methodology will be concerned with the language found in North *et al.* (2009), and there is a reason to believe that what we call open access orders feature more market liberalization than what Acemoglu and Robinson (2012) call inclusive institutions (see Acemoglu and Robinson, 2013, 2019: 464–496).

These institutions are economic freedom, liberal democracy, and state capacity. The use of these institutional characteristics will be justified textually in the section that follows.

This paper makes no claims about whether the key hypotheses of North *et al.* (2009) are actually correct, focusing merely on the measurement of each country's adherence to the constellation of institutions described or implied in the text. 'Data and variable construction' section also will outline the results of the construction of the main dataset, which identifies 35 out of 161 countries in 2020 as constituting open access orders. The results are elaborated upon in 'Main results' section. The country with the highest score overall is Switzerland. Switzerland is also the only country observed to have been an open access order throughout the entirety of the period the main dataset covers, from 1950 to 2020.

'Extension to 1850' section supplements the 1950–2020 dataset using an alternative data source for 21 countries from 1850 to 1910 and 1925 to 1935. Australia, Denmark, the Netherlands, New Zealand, Norway, Sweden, Switzerland, and the United Kingdom are each classified as an open access order at some point prior to Second World War. Switzerland is the first country to ever be classified as an open access order, beginning in 1875. Some of the counterintuitive findings in this era are driven by countries of this era typically thought of as democracies lacking suffrage for women. These findings are perhaps pushback on the position in North *et al.* (2009) that both the United Kingdom and the United States attained open order status in the 19th century, although it is consistent with later concerns raised in Levi *et al.* (2017). 'Conclusion' section concludes.

Data and variable construction

For a society to be an open access order, it must allow universal, competitive entry into both the economic and the political realm. The limited access order limits entry into economic and political processes to facilitate the monopolization and collection of the social surplus that is to be shared by the elite. To transition to the open access order, a state must first undergo sufficient institutional development and reform so that the elite are themselves able to control societal violence and consume the social surplus peaceably. That requires that the elite are able to ensure that their property is not taken from them by the sovereign without the due process of law; they must enjoy the rule of law and put limits on the state. In order to prevent the arbitrary onset of violence, the civil elite must also put the military under its own authority. The last condition that must be put in place is the development of depersonalized bureaucratic and corporate structures which are capable of supporting markets (and economic growth) in the long-run.

When these conditions are put into place, a mature natural state is achieved and elites are able to securely enjoy the benefits of the social surplus, with violence in control, effective market-supporting state structures put in place, and a constrained executive. Subsequently, elites may eventually perceive the benefits of extending participation in market and political processes to the non-elite. As this participation is granted, the non-elite are able to enjoy protection of property and freedom of entry (economic freedom) and participation in the political process (democracy), all supported by effective state structures (state capacity).

This reading of the argument of *Violence and Social* Orders – that open access orders are thusly characterized by economic freedom, liberal democracy, and state capacity – is supported by the text of the work, even though this point is non-obvious from a brief summary of it. It is also worth noting, however, that one prominent reviewer of the book actually describes open access orders in terms of liberal institutions – although with disapproval – that the 'image [North and his colleagues] convey [of open access orders] is classically liberal: it resonates with the writings of John Stuart Mill and Thomas H. Marshall and those of the modern pluralists David B. Truman and Robert A. Dahl' (Bates, 2010: 754).

But we can go to the text itself for support of operationalizing open access orders in terms of economic freedom, liberal democracy, and state capacity. Regarding economic freedom:

> The transition [to an open access order] entails a set of changes in the economy that ensure open entry and competition in many markets, free movement of goods and individuals over space and

time, the ability to create organizations to pursue economic opportunities, the protection of property rights, and the prohibition on the use of violence to obtain resources and goods or to coerce others (2009: 2).

Compare this to the definition of economic freedom found in the *Economic Freedom of the World*: 'The cornerstones of economic freedom are personal choice, voluntary exchange, freedom to enter markets and compete, and security of person and private property' (Gwartney *et al.*, 2022: v). We will return to discussing the index in detail later in this section, which is what we will use for measuring economic freedom.

Similarly, robust liberal political institutions are necessary for an open access order:

Control of the political system [in an open access order] is open to entry by any group and contested through prescribed, and typically formal, constitutional means. All citizens have the right to form organizations, and they use the services of the state to structure the internal and external relationships of their organizations to individuals and other organizations. The ability to form organizations at will without the consent of the state ensures nonviolent competition in the polity, the economy, and indeed in every area of society with open access. The ability of political actors to use organized military or police power to coerce individuals in constrained by the ability of economic and other actors to compete for political control (2009: 22).

Later, they emphasize that a broad measure of functioning democracy encapsulates the functioning of open access order political institutions, and a narrowly defined 'democracy' is insufficient for the political institutions of an open access order.

Many mature natural states have elections and party competition, and contemporary political scientists typically consider them democracies in the same way as the open access orders of Western Europe, the United States, and Japan. However, elections are not the same across this divide, and we cannot lump them together as a single category called democracy…Mature natural states may have elections and party competition, but they lack a wide range of institutions that support open access democracy in ways that are simply missing in natural states (2009: 137).

Our measure of democracy, to be discussed later in this section, is expansive in the ways North *et al.* conceive of democracy of not just being present, but *functioning*, in open access orders (if somewhat imperfectly).

It is also clear that capacities of the state are also required of open access orders. All open access orders have coercive capacities of the state which the state is unafraid of using, and a credible Weberian monopoly of violence.

We… emphasiz[e] that most organizations in all societies function with the explicit support of the state. We argue that most organizations, even simple ones, rely on third-party enforcement of agreements and relationships between the organization's members, or agreements between the organization and outside actors. The state most often provides third-party enforcement (2009: 7).

Open access orders control violence through a different logic than the natural state. These societies create powerful, consolidated military and police organizations subservient to the political system. All open access societies satisfy the Weberian assumption: their states possess a monopoly on the legitimate use of violence (2009: 21–22).

Moreover, aside from coercive capacities, most treatments of state capacity written by those who are sympathetic to the case for state capacity view market-supporting institutions, high bureaucratic quality, and the rule of law as essential features of state capacity, and assert that 'state capacity' shouldn't be

merely taken to mean a state's ability to coerce (Besley and Persson, 2009; Hendrix, 2010; Johnson and Koyama, 2017). The development of universalistic and impersonal institutions that are much of the core of open access orders are, more or less, extensions of these features. The measure of state capacity that we will discuss also largely frames state capacity in terms of these institutions.

Others have developed very high-level aggregations of institutions, but they haven't done so with a focus on open access orders. The two most well-known of these are *Worldwide Governance Indicators* from the World Bank and the Bertelsmann Stiftung Transformation Index (BTI). *Worldwide Governance Indicators* is a collection of six institutions that can be combined with a simple average, or with a focus on a subset of them (as in Pritchett, 2022). BTI measures the transition of developing countries into having both modern market economies and democratic political systems. Ott (2022) suggests adjusting the *Economic Freedom of the World* index by eliminating its size of government indicator and replacing it with something like state capacity. Dolan (2021) provides an aggregation of data on 'liberalism' while using Vallier (2020) as a theoretical benchmark. However, none of these fully captures all of the characteristics of open access orders as described above.

With all this in mind, we operationalize open access orders as a combination of market liberal institutions, liberal democratic institutions, and state capacity. But a simple arithmetic mean of the three sets of institutions mischaracterizes countries which are strong in two of the three sets of institutions, yet weak in the third. This is most salient for a country like Singapore, which has extremely high levels of state capacity and market liberal institutions, but only as much democracy as is needed to secure legitimacy for what amounts to one party rule. We do not believe it is controversial to claim that Singapore is a country that is run by the elite for the elite, albeit with much of the surplus enjoyed across society. It is not an open access order.[2] To ensure that a minimal level of market liberal institutions, liberal democratic institutions, and state capacity are all achieved in what gets classified as an open access order, we will be using the harmonic mean,[3] rather than the arithmetic mean, of the three sets of institutions. Using the harmonic mean thereby allows us to rule out as an open access order any country that lacks any one of democratic political institutions, market institutions, or state capacity.

Market liberal institutions (economic freedom) will be primarily measured by the *Economic Freedom of the World* (EFW) index (Gwartney *et al.*, 2022). This index combines data on the [limited] size of government, the quality of the legal system and property rights, sound money, the freedom to trade internationally, and [limited] regulation. In its native form, the index is on a [0, 10] scale, with higher index values always corresponding to more freedom. In the current build, 165 countries are measured, with yearly data from 2000 to 2020 and five-year increments from 1970 to 2000. Literature reviews on the causes and consequences of economic freedom can be found in Lawson (2022) and Lawson *et al.* (2020). We will supplement the main dataset with data from Lawson and Murphy (2019; c.f. Murphy and Lawson, 2018), which extend the data in five-year increments back to 1950. Finally, when we extend the data back to 1850, we will use scores on market liberal institutions from De La Escosura (2016). The data from Lawson and Murphy (2019) and De La Escosura (2016) are less complete and spottier than the main EFW index, but it is workable for this particular application.

The second source of data is 'Liberal Democracy' from the *Varieties of Democracy* (V-Dem) project (Coppedge *et al.*, 2022).[4] The democracy measures from V-Dem are built on a set of mid-level indices, which are in turn built using dozens of responses to survey questions by country-level experts

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[2]Secondarily, many Western Europe countries in the second half of the 20th century curtailed markets in favour of intervention and public ownership of the means of production. While we do not wish to label all or most social democracies as failing to achieve an open access order, there is a line passed which excessive economic intervention should prevent a country from being categorized as an open access order.

[3]The harmonic mean is defined as: $\left(\frac{\sum_{i=1}^{n} x_i^{-1}}{n}\right)^{-1}$ where values of x_i are positive numbers. In the case here, n is the number of institutions (3), and x_i is the score of the ith institution in a given country.

[4]An important recent study on the effects of democracy on growth can be found in Acemoglu *et al.* (2019). A meta-study on the topic can be found in Colagrossi *et al.* (2020).

(or historians). The data are run from 1789 to present. The baseline measure of democracy is 'electoral democracy', which is a combination of the mid-level indices of 'freedom of association thick', 'clean elections', 'freedom of expression', 'elected officials', and 'suffrage'. The electoral democracy data are combined with liberal political institutions – 'equality before the law and individual liberties', 'judicial constraints on the executive', and 'legislative constraints on the executive' – to create liberal democracy. This version of democracy was chosen as appropriate for open access orders in order that liberal political institutions with universalistic values are emphasized, and explicitly not the illiberal democracy found in natural states.[5]

Although it was not a point of discussion in North *et al.* (2009), it may be possible that alternative political structures to liberal democracy may also constitute means of political participation required of an open access order. Historically, the issue is somewhat pertinent to the earlier historical era in 'Extension to 1850' section.[6] However, it is not essential to the current construction of the index, as it is not clear any country would be scored all that much different were these alternative institutional structures were taken into account as amounting to similar effective participatory mechanisms as voting. The two countries possessing at least modestly high state capacity and economic freedom but which will not be classified as open access orders, Singapore and Rwanda, have clear autocratic elements actively preventing political participation. Conversely, a country that has built its political institutions overlaying a traditional institutional structure, Botswana, has been assessed to have reasonably liberal democratic political structures (although that has shifted in the most recent years).

One admitted weakness of the use of the liberal democracy variable is its relative lack of emphasis on the ability of the non-elite to influence politics, which is of special interest for North *et al.* (2009). Some of the components of the V-Dem liberal democracy measure can be read in these terms, if only indirectly. For instance, one of the five components of 'electoral democracy', 'freedom of association thick', is comprised of party bans, barriers to parties, opposition parties' autonomy, multiparty elections, civil society organization entry and exit, and civil society organization repression. Another one of the five components of electoral democracy, freedom of expression (which phrases the question specifically in terms of what 'ordinary people' [Coppedge *et al.*, 2022: 46] are able to do),[7] indirectly or directly speaks to the ability of the non-elite to enter and influence politics. V-Dem has a separate conception of democracy called 'participatory democracy' with its own participatory component index,[8] but it is not quite clear that the assorted array of variables aggregated there would be an improvement on addressing the meaning of North *et al.* (2009), and using it would lose out on the elements of political and legal institutions found in liberal democracy that clearly speak to the meaning of open access orders. It is freely admitted that since liberal democracy does not fully capture the conception of democracy as intended by North *et al.* (2009), it is superior to the other options in the V-Dem dataset or

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[5]Another point is that although liberal democracy is a continuous variable, the steep requirements for a high score in liberal democracy mean that both actual autocracies and countries with weak or unstable democratic institutions will be excluded. The countries with the weakest liberal democratic institutions in the 1950–2020 period to be ultimately categorized as open access orders are Switzerland (1950–1970), the USA (1965), Malta (2005–2007, 2013–2019), South Korea (2014–2015), Bulgaria (2016), Botswana (2018–2019), and Armenia (2020). The single lowest liberal democracy score for a country that is classified an open access order is Malta in 2018. (This list of countries was created by generating a list of countries that scored above an '80' in liberal democracy according to the methodology described below.)

[6]Where the issue arises historically, as we will see in 'Extension to 1850' section, is in the assessment of the democratic character of European 'democracies' prior to World War II that hadn't extended the franchise to women (in conjunction with imperfect democratic credentials along some other dimensions). Although women's suffrage wasn't a focus of North *et al.* (2009), we do conclude that it is appropriate to view a lack of women's suffrage as a substantial impediment to the political institutions of open access orders.

[7]The data underlying freedom of expression are media censorship effort, harassment of journalists, media bias, media self-censorship, print/broadcast critical, print/broadcast media perspectives, freedom of discussion for men/women, and freedom of academic and cultural expression.

[8]The components of the participatory component index are civil society participation, elected local government power or elected regional government power (whichever scores higher), and direct popular vote.

other measures besides V-Dem, including the *Polity* data series and the various binary measures of democracy.

The third measure is from O'Reilly and Murphy (2022), who use different[9] pieces of data from the V-Dem project to construct a measure of state capacity.[10] Since the data are from V-Dem, a similarly lengthy panel is available. The broadest version of the index consists of six variables from V-Dem: 'rule of law', 'state authority over territory', 'rigorous and impartial public administration', 'particularist or public goods', 'educational equality', and 'state fiscal source of revenue', combined using principal component analysis. We will be using the second version of the O'Reilly and Murphy index which drops 'educational equality' because of conceptual ambiguities.[11] It should be noted that 'state fiscal source of revenue' is essentially a fiscal capacity measure, with countries receiving higher scores on a [0–4] interval when revenue is raised with more capacity-intensive methods (the highest score is attained when taxes are primarily on economic transactions aside, but not taxes on land or trade).

Although 'state authority over territory' and 'state fiscal source of revenue' are measures of a state's ability to coerce, the remainder concern bureaucratic quality, universalistic institutions, and market-supporting institutions that hew rather closely to open access orders. Alternative measures of state capacity may place more emphasis on coercive capacities (e.g. military personal and the police), which may veer towards the kinds of capacities used to control and manipulate society (c.f. Besley *et al.*, 2021), rather than support a liberal, open access order. The O'Reilly and Murphy (2022) index does not place particular emphasis on coercive capacities. A visual description of all data used to construct the open access orders measure can be found in Figure 1.

The data must be processed so it is all on the same scale and reflects the variation that is relevant for assessing whether a country is an open access order.[12] It must also be greater than zero for the harmonic mean to work correctly. Each of the three variables is separately placed into cumulative density functions of the normal distribution. However, for each observation, the mean and standard deviation parameters used reflect 2020 data, not the whole sample, such that the past is 'judged by the standards of today'. In other words, the level of liberal democracy in 1970 in Turkey, for example, is assigned a percentile as if it were a country on today's distribution. This yields a scoring that runs over the interval (0, 1). For readability, the score is multiplied by 100. The harmonic mean of the three variables on the (0, 100) scale is then used to construct the final value of our measure of open access orders.

This leaves the question of where, numerically, an open access order starts or begins. This is an inherently arbitrary decision, with almost any cut-off giving the 'wrong' answer for particular cases. However, upon looking at the results in the main dataset,[13] we rather rapidly came to the conclusion that a score of '80' out of 100 was a rather robust cut-off, and further explorations of the data have identified few (if any?) counterexamples where it gives a *clearly* wrong answer, especially in more recent periods where data quality is higher.[14] Using this definition, countries in 2020 that are

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[9]There is some overlap between the 'equality before the law and individual liberties' data used to construct liberal democracy and the rule of law V-Dem data used to construct the state capacity measure.

[10]See Johnson and Koyama (2017) on a survey of the effects of state capacity on economic performance.

[11]'Educational equality' is included as a measure of state capacity because it assesses what proportion of a country receives the most basic of education. It is ambiguous whether it is state capacity (because all states try to do this, and whether they do it or not is largely about capacity) or if it is measuring human capital. For the purposes of this paper, we do not use the version of the data that includes it to avoid the issue.

[12]For example, our early explorations of the state capacity data pooled it from all years and looked at countries by percentile. In this case, the value that was observed for the USA and Demark for state capacity was essentially identical, because for so many historical years, very few states had much capacity at all. It is appropriate to have the data distributed such that there is some space between the USA and Denmark, and to essentially zero out the state capacity of large swaths of the dataset, as that is more representative of the real world, historically.

[13]As we will see, however, using this definition as a cut-off means that our results for 1935 and earlier are more fragile, because the countries which score as open access orders cluster around a score of 80.

[14]A possible exception is if one believes the interventionist response to COVID-19 in 2020 itself constitutes a departure from an open access order, though we believe this is a bit of a literal interpretation of 'open access orders'.
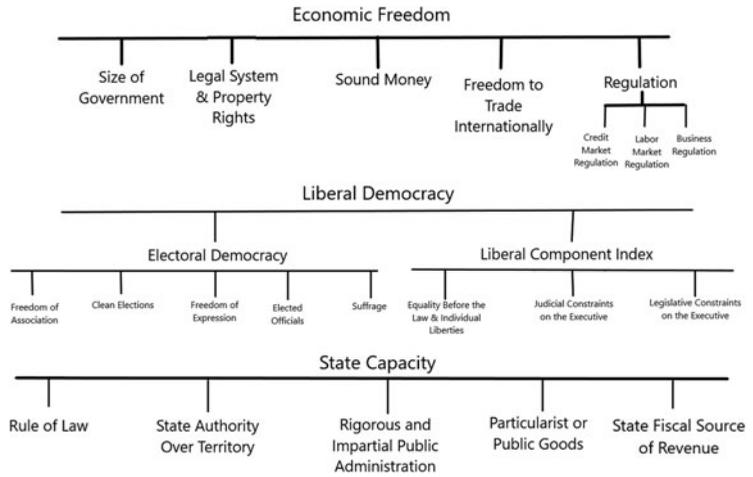
Figure 1. Description of data underlying economic freedom, liberal democracy, and state capacity.

Table 1. Summary statistics, 1950–2020

Variable	*n*	Mean	Std. Dev.	Min	Max
Open access order	3,963	43.509	31.977	0.000	96.575
Liberal democracy	3,963	51.008	32.535	6.886	97.262
State capacity	3,963	52.368	30.169	0.027	97.607
Economic freedom	3,963	45.113	33.315	0.000	99.589

immediately above it (between 80 and 85) are Italy, Malta, Slovak Republic, Armenia, Israel, and Uruguay. The countries immediately below it (between 75 and 80) are Cabo Verde, Cyprus, Jamaica, Romania, and Barbados. To return to a motivating example from earlier, Singapore scores a 62 and isn't particularly close to any hypothetical cut-off. Our reading is that 80 is surrounded by countries almost exactly on the margin of where countries can begin being reasonable considered to be open access orders, rather than governed by state structures used for the benefit of elites and insiders, and places the cut-off amongst them as well as could be hoped.

Main results

Descriptive statistics for open access order, economic freedom, liberal democracy, and state capacity are all found in Table 1, with the latter three adjusted and reflecting 'the standards of today' by using the mean and standard deviation of 2020 in a CDF function (multiplied by 100). Sample sizes are identical, as country-years with complete data were selected prior to processing the data. In 2020, 161 countries are assigned scores. In the online Supplementary materials, a validation is performed correlating the measure with the Bertelsmann Stifung Transformation Index and *Worldwide Governance Indicators*. Also in the Supplementary materials is a decadal listing of open access order by country, plus data for 2015.[15]

Using our methodology, the 35 countries classified as open access orders in 2020 appear in Table 2, along with their ranks, and the years they have been classified as open access orders. The countries with the highest score – though it is unclear what this is to mean, if we are to take 'open access order' to be a binary indicator – are Switzerland, New Zealand, Denmark, Australia, and Estonia.

[15]http://www.ryanhmurphy.com/uploads/1/3/2/7/13275808/measuring_open_access_order_supplementary_materials.pdf

Table 2. Countries classified as open access order in 2020

Country	Open access order, 2020	Open access order rank	Economic freedom 2020	Liberal democracy 2020	State capacity 2020	Years classified as open access order
Armenia	81.17	33	88.89	78.59	77.01	2019–2020
Australia	94.39	4	92.57	94.56	96.10	1965–2020
Austria	88.62	22	81.78	92.02	92.94	1990–2020
Belgium	86.66	25	75.63	94.94	92.08	1960–1970; 1980–2020
Canada	90.38	14	88.24	91.13	91.85	1955–2020
Chile	86.10	27	81.78	92.42	84.78	1995–2020
Costa Rica	90.04	17	83.51	96.03	91.48	1970; 1995–2020
Czechia	85.69	28	86.86	88.23	82.20	2001–2020
Denmark	95.10	3	93.33	96.76	95.28	1960; 1990–2020
Estonia	93.85	5	91.05	95.32	95.31	2000–2020
Finland	90.43	13	84.06	95.36	92.67	1970; 1980–2020
France	85.39	29	74.20	93.84	90.91	1990–2020
Germany	91.46	9	84.33	95.09	95.90	1960–2020
Iceland	90.99	10	86.38	92.42	94.57	2005[a]–2008; 2012–2020
Ireland	91.71	7	89.31	94.35	91.62	1995–2020
Israel	81.05	34	74.92	83.78	85.25	2002–2020
Italy	84.87	30	76.67	92.90	86.66	2000–2020
Japan	89.75	18	88.46	90.81	90.00	2005[a]–2020
Korea, South	86.52	26	77.35	93.56	90.45	2002–2020
Latvia	88.99	20	87.33	90.56	89.13	2000–2020
Lithuania	90.21	15	88.46	91.73	90.50	2001–2020

(*Continued*)

Table 2. (*Continued.*)

Country	Open access order, 2020	Open access order rank	Economic freedom 2020	Liberal democracy 2020	State capacity 2020	Years classified as open access order
Luxembourg	88.97	21	81.19	93.61	93.30	1960–2020
Malta	84.11	31	86.13	81.91	84.41	2005–2020
Netherlands	91.98	6	86.86	94.60	94.92	1970–2020
New Zealand	95.75	2	95.56	95.83	95.85	1990–2020
Norway	91.47	8	82.37	96.16	97.48	1990–2020
Portugal	87.07	24	77.69	94.03	91.33	1995–2020
Slovakia	83.15	32	74.20	91.44	85.71	2004–2020
Spain	90.20	16	83.78	94.08	93.50	1995–2020
Sweden	90.61	12	81.78	96.82	94.74	1985–2020
Switzerland	95.94	1	96.52	95.97	95.35	1950–2020
Taiwan	88.50	23	85.12	88.38	92.28	2000–2020
United Kingdom	90.86	11	85.88	93.99	93.16	1980–2020
United States	89.59	19	91.41	89.47	87.95	1965–2020
Uruguay	80.33	35	63.58	93.61	91.43	2000–2002; 2004–2020

[a]Country did not receive a state capacity rating prior to 2005.

The top of the rankings is very similar[16] to the top of the rankings for the *Human Freedom Index* (Vasquez *et al.*, 2021), which combines economic freedom data with other measures of free institutions, although *technically* none of the measures in the *Human Freedom Index* are a measure of democracy or state capacity.[17] Neither Singapore nor the institutionally similar Hong Kong[18] is rated at any point as an open access order. The United States 'ranks' 19th.

North *et al.* (2013) apply the concept of limited access and closed access orders to nine countries, providing historical detail for countries outside the well-worn confines of the United States, the United Kingdom, and France, where most examples in North *et al.* (2009) are found. They classify Bangladesh, Democratic Republic of the Congo, India, Mexico, Mozambique, The Philippines, and Zambia as limited access orders, and Chile and South Korea as open access orders. If we use data from 2012 (to better correspond to the 2013 publication date of the book), we classify all nine countries in line with North *et al.* (2013). Zambia comes somewhat close to being classified as an open access order, with a score of 66.58. Data for these countries in 2012 are provided in Table 3.

Table 4 reports all other countries that were at any time ever scored as an open access order, but are not classified as one in 2020. Three countries[19] ceased to be classified as open access orders in conjunction with policy issues likely related to COVID-19: Botswana, Cyprus, and Slovenia. Should policy normalize worldwide, these countries are likely to be reclassified as open access orders. (They may promptly return to achieving the classification, but we may wish to see how the data play out.[20]) Another three countries, all Eastern European, have floated around the cusp of open access order classification for several years, and, for certain years a few actually were classified as open access orders (i.e. Bulgaria, Croatia, Romania). Four countries are no longer classified as open access orders, and perhaps significant changes to their politics would need to take place in for them to be classified reliably as open access orders once again (Greece, Hungary, Mauritius,[21] and Poland).

Figures 2 and 3 each provide time series for four countries – South Korea, Taiwan, Panama, and Venezuela, and then China, Singapore, Russia, and Chile. Coverage is somewhat spotty in Figure 3.[22] When democratization, economic liberalization, or state building occur, the time series increase, most especially when they increase in tandem with one another. The methodology does not see China or Russia ever moving towards an open access order in a serious way. Time series for other countries will appear in the following section, where we discuss how the data were brought back to 1850. Histograms with brief discussions thereof appear in the online Supplementary materials.

One apparent outlier is that France is not classified as an open access order until 1990. While this may seem extremely late relative to France's reputation as a historical champion of liberalism, at no point in the post-war era was the country particularly close; its economic freedom score was no higher

[16]The top 10 countries in the *Human Freedom Index* in 2021 are Switzerland, New Zealand, Denmark, Estonia, Ireland, Finland, Canada, Australia, Sweden, and Luxembourg.

[17]In reality, there is some amount of overlap of various civil liberties in defining liberal democracy and the *Human Freedom Index*. V-Dem is also one source among many for data for the *Human Freedom Index*. The similarity of data sources is not so high that the two measures cannot be empirically distinguished. The correlation between the *Human Freedom Index* and open access orders is slightly higher than it is with the Bertelsmann Stiftung Transformation Index (0.907 *versus* 0.906), and is actually lower than the correlation between *Worldwide Governance Indicators* 'Voice and Accountability' and open access orders (0.928).

[18]The official V-Dem data do not include a score for the proportion of Hong Kong's territory it controls. This may be because of political awkwardness as to how to interpret the question. For our purposes, it is reasonable to assign a '100' to Hong Kong, and its state capacity data were constructed separately consistent with O'Reilly and Murphy (2022).

[19]The presence of three countries switching classification was considered an insufficient number to motive focusing on data from 2019 instead of 2020.

[20]Policies relating to COVID-19 may persist, and it is hardly obvious that we should simply discount observed changes in institutions because the crisis was 'exogenous'. See Miozzi and Powell (2023) on ways in which the changes in policy could be further integrated into economic freedom. Were these changes to be instituted in this paper, considerably more countries would likely lose their classification as an open access order.

[21]See Darga and Peeraullee (2021) for reporting on recent trends in the institutions of Mauritius.

[22]Data quality demands for the year 1970 in Gwartney *et al.* (2022) are sometimes not met in a given country, but the country can be picked back up prior to 1970 in Lawson and Murphy (2019), where data coverage standards are less rigorous.

Table 3. Year 2012 data of countries classified as limited and open access orders by North *et al.* (2013)

	Economic freedom	Liberal democracy	State capacity	Open access order
Limited access orders				
Bangladesh	24.74	19.65	27.99	23.61
Democratic Republic of the Congo	8.78	16.40	4.85	7.87
India	37.71	73.94	71.15	55.45
Mexico	58.87	58.56	48.35	54.80
Mozambique	15.69	37.27	28.33	23.83
The Philippines	72.74	54.91	63.36	62.84
Zambia	75.63	55.68	72.07	66.58
Open access orders				
Chile	90.30	95.90	90.51	92.17
South Korea	83.78	84.89	87.88	85.48

Table 4. Countries previously classified as open access orders

Country	Open access order, 2020	Years classified as open access order
Botswana	74.05	2018–2019
Bulgaria	74.27	2007–2008; 2016
Croatia	74.87	2012; 2015
Cyprus	78.08	2004; 2007–2012; 2015–2019
Greece	71.10	2000; 2002–2007
Hungary	58.62	2001–2012
Mauritius	65.02	2005–2018
Poland	64.64	2012–2015
Romania	75.92	2016
Slovenia	74.45	2004; 2006–2012; 2013–2019

than 38.1 (in 1975) and its open access score never surpassed 62.7 (also in 1975) until 1990. Its economic freedom actually declined to 26.2 in 1985, before surging upwards to 68.1 in 1990 and allowing France's overall score to cross the open access order threshold in 1990.[23] It is worth noting, if only in passing, that in recently released transcripts from the original Mont Pelerin Society, F. A. Hayek, in response to Bertrand de Jouvenel's claim that there is no longer any political support for private property in France, said 'It's merely that liberalism is impossible in France' (Caldwell, 2022: 170). Pre-reform France was not exactly a capitalistic society, even if it wasn't quite Leninist either, and if

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[23]A selection of specific changes to the underlying economic freedom data in this period are a reduction in the top marginal tax rate, a significant privatization of the capital stock (according to *Varieties of Democracy*), improvements in women's economic rights, a reduction in inflation, and a large liberalization to global financial markets (both foreign currency bank accounts and according to the Chinn-Ito Financial Openness Index).
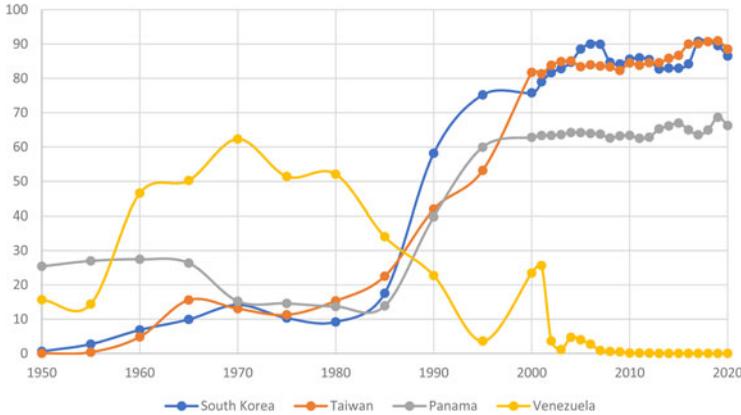
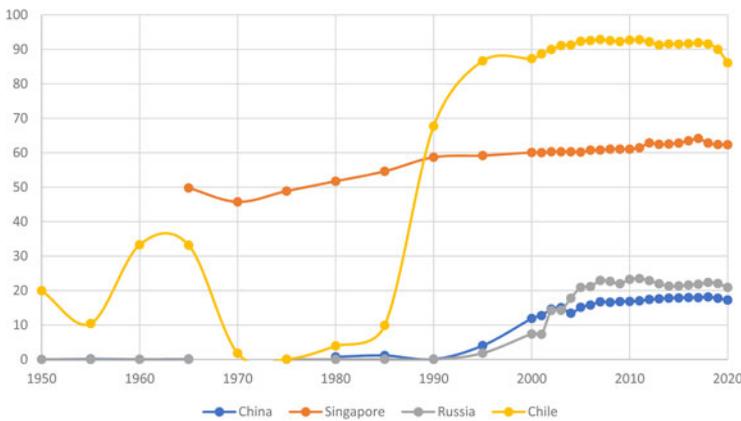**Figure 2.** Open access order for selection countries, 1950–2020.

Figure 3. Open access order for selection countries, 1950–2020.

we grant equal partner status to economic freedom as we do liberal democracy and state capacity, it means we should not classify France as an open access order until 1990.

Extension to 1850

The data for state capacity and liberal democracy already reach back to 1789. The binding constraint for this exercise is the availability of data for economic freedom. De La Escosura (2016) brings economic freedom data back to 1850 for a select number of countries. A simple regression using the De La Escosura data to predict EFW in overlapping years from 1970 to 2005 has an R^2 of 0.777, suggesting it is reasonable to substitute fitted values from the regression into where economic freedom was used in the previous section.[24] We can thereby provide data coverage for 21 countries for the years 1935 and earlier (data for 1915, 1920, 1940, and 1945 are unavailable due to the two world wars); fitted values from the regression are used for economic freedom in all 21 countries 1935 and earlier, while the same data sources as later years are used for state capacity and liberal democracy. For 1850, we are able to provide scores for Belgium, Denmark, France, Germany, Greece, the Netherlands, Portugal, Spain, Sweden, Switzerland, the United Kingdom, and the United States. Table 5 reports descriptive

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[24]Pooling the Lawson and Murphy (2019) data with the Gwartney *et al.* (2022) in this regression, because it is less precise, reduces the R^2 in the regression to 0.669, so the regression coefficients from the 1970–2005 regression were used to generate fitted values for the pre-World War II periods. The intercept in the regression is −1.78 ($t = −4.65$) and the coefficient in the regression is 1.06 ($t = 24.02$).

Table 5. Summary statistics, 1850–1910 and 1925–1935

Variable	n	Mean	Std. Dev.	Min	Max
Open access order	324	43.172	25.512	0.000	89.431
Economic freedom	324	47.319	30.831	0.000	93.692
Liberal democracy	324	42.161	25.306	0.000	96.383
State capacity	324	64.565	24.901	1.246	97.107

statistics for the sample of countries from 1935 and earlier. Again, countries are judged by the 'standards of today'.

The important question to address here, however, is which countries should be classified as open access orders prior to Second World War. One interpretation of North *et al.* (2009), especially when read in terms of North and Weingast (1989), is that Britain (or the United Kingdom) was the first open access order (we will do more to address this below). Although we observe the United Kingdom to be classified as an open access order in 1925, Australia (1905 and 1910), Denmark (1910), New Zealand (1910), and Switzerland (1875–1910) were classified as open access orders prior to the United Kingdom.[25] There is a bit of ambiguity because both Australia and New Zealand received scores classifying them as open access orders the first year they received any score at all, but it appears that Switzerland is the world's oldest open access order. Perhaps not coincidentally, Switzerland, New Zealand, and Australia rank as first, second, and fourth in open access order 'rankings' in 2020. Finally, the Netherlands (1925 and 1930), Norway (1930), and Sweden (1925–1935) were also classified as open access orders before Second World War, but they did not precede the United Kingdom.

Figure 4 presents the open access order data for Switzerland, the United States, and the United Kingdom, as well as Greece, which is included to provide an example of a country following a different trajectory. The online Supplementary materials contain decadal data 1850–1870 and quinquennial data 1875–1935, except 1915–1920.

The variable which actually underlies some of these counterintuitive results is the suffrage component of liberal democracy, which is important because of the particular way liberal democracy is calculated.[26] Put simply, for many of the years in question, women's suffrage had not yet become reality. When there is complete men's suffrage (including no property or literacy requirements), but no women's suffrage, the suffrage score cannot rise above 0.5 (out of 1.0). Although women's suffrage was not discussed widely in North *et al.* (2009), it does not seem unwarranted to have women's suffrage to be among the issues strongly considered for determining the point in time when a country has transitioned to the status of a modern democracy. It is worthy noting, however, that the countries in question (aside from Switzerland) were very much in the process of building their democratic institutions, especially in the 19th century, and would not have been rated as perfect democracies even if they had women's suffrage.

All of these findings, however, are very sensitive to the cut-off for the definition of 'open access order', because so many of the countries from this period are just on the cusp of being classified as an open access order (i.e. scores of around '80'). If we move the definition of open access order up

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[25]It is reasonable to suggest that the UK played an important role in creating the global conditions necessary for these other countries to have achieved this level of institutional quality, as implied, for example, by Ferguson (2002).

[26]Liberal democracy is calculated using both electoral democracy and a liberal components index. The electoral democracy is an average of two methods of aggregating the underlying democracy data: an additive index, and a multiplicative index. In 1900 in the UK, for example, only 35% of adults had the right to vote. In the multiplicative side of things, this means that the data are multiplied by 0.35. If 90% of adults had the right to vote, the multiplicative index would have been multiplied by 0.90 instead. That puts heavy downwards pressure on the index when it is then fully aggregated (when electoral democracy and the liberal components index are aggregated, it is also done with a mix of additive and multiplicative methods).
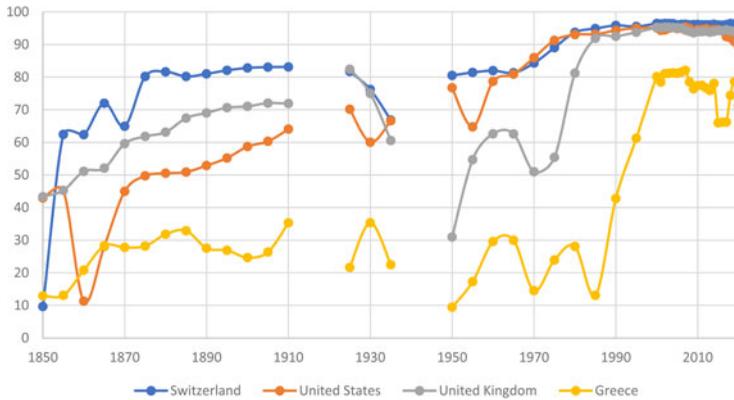
Figure 4. Open access order for select countries, 1850–2020.

from a score of 80 to 85, only Australia and New Zealand retain their classification as open access orders at some point prior to Second World War. This is somewhat problematic because they enter the dataset (Australia in 1905 and New Zealand in 1910) as open access orders, so we cannot say when they became open access orders. The timing of their entrance into the dataset matches Australia's independence, but the year of New Zealand's independence is ambiguous in its history.

Suppose instead we have a more expansive definition of open access order (i.e. the country-years which follow are all in addition to the country-years corresponding to the cut-off of 80). If we instead drop the cut-off from 80 to 75, Canada and Ireland gain the classification in 1925. Denmark's and the Netherlands's classifications are extended from 1930 to 1935. New Zealand, Switzerland, and the United Kingdom gain the classification in 1930, and Norway is classified as an open access order in 1910 and 1925–1935 (instead of just 1930). Additionally, Belgium's 'miss' of the cut-off by 0.04 points in 1900 is not meaningful and it could be reasonably added to the list of open access orders as well.

The main result of Switzerland as the world's oldest open access order holds regardless of whether open access orders are defined as starting at 75 or 80. If the cut-off should be set at 85, the only countries classified as open access orders before Second World War are Australia and New Zealand, but because of limits to the data we cannot give a firm answer as to when the first open access order historically arose. It is worth noting that, should women's suffrage be given even more emphasis than it already is given, classifying only Australia and New Zealand as open access orders in this period may well be appropriate.

Finally, we should also make use of the discussion in North *et al.* (2009: 213–240) where they date the transition to open access orders for three countries, the United Kingdom, France, and the United States. They date the institutional changes for the United Kingdom and the United States to the 1840s, and date France's opening economic opening to the 1860s and its political opening to the period 1870s–1900s. While our scores combine economic freedom, state capacity, and liberal democracy into a single factor, for all three cases, we can say the discrepancy is largely because of different evaluations of the degree of liberal democracy in each country in the 19th century. The liberal democracy score in 1850 for the UK is only 34.5, and slowly edges up to 53.5 in 1910. In 1925, it scores an 80.5. Economic freedom surpasses 80.0 in the UK first in 1860 and remains there through 1925, excepting First World War. Its state capacity begins at 39.2 in 1850, but surpasses 80.0 in 1870 and remains there through 1935.

The United States is not designated an open access order by our methodology in any year until 1965. While in the later periods, the liberal democracy score is what prevented it from receiving the designation, the only year prior to Second World War the United States surpasses an 80.0 in economic freedom is 1910 (though it is very close in 1890, 1895, 1905, and 1925). State capacity does not surpass 80.0 in the United States until 1935. Our later dating of the United States is consistent with

Levi *et al.* (2017), who argue that the focus of North *et al.* (2009) on open access to business creation (i.e. incorporation laws) neglects the lack of open access to labour organizations in the United States until the creation of the National Labor Relations Board. Levi *et al.* (2017) also mention the lack of true citizenship for African Americans as another factor which should prevent the United States from being considered a true open access order.[27] When the kinds of liberal political institutions described in North *et al.* (2009) are unpacked, it seems likely that the description of the United Kingdom and the United States as open access orders in the 19th century was a mistake, even if many of the elements needed for economic growth were by then in place.

France, meanwhile, is not assessed as an open access order by our methodology until 1990. It had sufficient economic freedom and state capacity from 1880 to 1905 (economic freedom ranging from 82.5 to 85.4 and state capacity from 79.4 to 80.0), but at no point is France assessed to a sufficient degree of liberal democracy in 1935 or earlier, peaking at 61.4 in 1910 and 1930. In the post-war era, its liberal democracy and state capacity are assessed as sufficient (excepting 1965, where liberal democracy dips to 67.4), but the state is judged as having far too great of an interventionist role in the economy until 1990 to be designated an open access order, as discussed earlier in greater detail.

Conclusion

We assemble a historical dataset of countries to quantitatively assess whether they achieve the institutional characteristics North *et al.* (2009) call open access orders. We make use of institutional characteristics described in the text of North *et al.* (2009) as to what constitutes an open access order, namely, economic freedom, liberal democracy, and state capacity, in making this assessment. We aggregate them using a harmonic mean to capture the importance of possessing each characteristic (e.g. no autocracies will be rated as an open access order, regardless of how well a country scores in economic freedom and state capacity) to be accurately judged an open access order. We are able to assess 161 countries in 2020, 35 of which we classify as open access orders. Our main dataset provides historical data back to 1950, and we are also able to create estimates for 21 countries going back to 1850. In addition to functioning as an operationalization of North *et al.* (2009), the data may also be used as a 'complete' measure of institutions – that is, inclusive of three of the major categories of institutions – where previously there had been few data constructs that could serve this function for the years before 2000.[28]

In the post-war period, Switzerland has always been classified as an open access order, and has the highest index score of any country as of 2020. Western Europe, the United States, and Canada gained the classification at various points in the second half of the 20th century, with the United States itself earning the classification in 1965. Ten countries were classified as open access orders at some point in their history but were not classified as such in 2020; three of these countries appear to have lost the classification in conjunction with COVID-19. At the beginning of this century, many countries in Southern and Eastern Europe, as well as Latin America, East Asia, and elsewhere, were gaining the open access order classification at a consistent rate, although only a handful gained this status in recent years, as the Great Recession, the rise of populism, and COVID-19 have inhibited further institutional reform.

Whether we use our baseline cut-off for what defines an open access order, or a more expansive definition, Switzerland again is classified as the earliest open access order in the data before Second World War. If we use a more stringent cut-off, Switzerland is not classified as an open access order at all before Second World War, and the only countries that would be classified as open access orders in that time interval are Australia and New Zealand, due in part because of women's suffrage.

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[27]Note that Barry Weingast is an author of Levi *et al.* (2017), and that John Joseph Wallis is an editor of the book which contains Levi *et al.* (2017) as a chapter.

[28]That is, consider the limited time dimension of *Worldwide Governance Indicators* or the Bertelsmann Transformation Index.

While Switzerland appears to still stand out amongst all countries in our various assessments, findings using this earlier data are much more sensitive because there are many countries clustered right around the arbitrary cut-off used to define open access order.

The subtitle of North *et al.* (2009) is 'a conceptual framework for interpreting recorded human history'. The purpose of this paper has been to provide a quantitative foundation with a lengthy time component for that conceptual framework. Given the framework, it is inappropriate for certain development successes, including Singapore (and to some extent China, and more recently with Rwanda), to be classified as an open access order. We also have observed countries, such as Greece, Hungary, and Poland, which seemed to have reached the Fukuyamian 'end of history' and the status of an open access order, only to backslide. The methodology developed herein correctly quantifies and classifies countries according to these observations.

These outliers of history may act as tests of the framework. The goal of this paper has only been to quantify open access orders accurately. The question of whether open access orders are what is key to sustained, shared economic development, whether one of its constitutive parts (economic freedom, democracy, or state capacity) actually is, or something else entirely (like education) is key, remains a separate project. But comparisons between qualitative, historical accounts of open access orders in the frame of North *et al.* (2013), and the quantitative assessments found herein are potentially useful for the further application and refinement of the ideas developed in North *et al.* (2009), and for the understanding of recorded human history.

Supplementary material. The supplementary material for this article can be found at https://doi.org/10.1017/S1744137423000103.

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