Measuring Elite Quality

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Abstract

The aim of this paper is two-fold. Firstly, we present a methodology to measure the novel concept of elite quality (EQ), that is, country's elites' propensity– on aggregate – to create value, rather than rent seek. A four-level architecture allows for both an overall quantification of a country's EQ, as well as an in-depth analysis of specific political economy dimensions, such as elite power. Secondly, the Elite Quality Index (EQx) is brought to life using data on 107 indicators for 151 countries. Our index negatively correlates with inequality measures, which suggests that more powerful elites less inclined to run value creation business models will exacerbate inequality. A variety of robustness tests suggest that the EQx scores and ranking are robust to ceteris paribus changes in key modelling assumptions. Thus, the EQx offers a reliable framework and potentially a new tool to analyze the political economy of countries.

Keywords: index, elite quality, institutions, value creation, rent seeking, crony capitalism

JEL codes: D72, F50, P16, P48

"… in this world, with great power there must also come – great responsibility!"

(Stan Lee's Spider-Man (Amazing Fantasy #15), 1962)

1 Introduction

What is the role of elites in a country's economic and human development? Are powerful elites beneficial or harmful to their countries' institutional and economic performance? Can we measure when they are "good" or "bad" for their country? The recent surge in populistic movements all over the world renders such questions very topical. In this paper, we will try to sketch a structured data-driven answer to these questions, which will allow us to rank the different countries' elites from the highest quality to the lowest. The aim is not judgmental, but hopefully useful to highlight, for each country, where improvement is possible and needed in order to facilitate its growth and development process.

These issues have been approached by the literature from various angles. Acemoglu and Robinson (2012) distinguish between inclusive institutions – shaped by elites interested in their country's productivity growth driven by investment and innovation – and "extractive" institutions, created by elites interested in extracting resources and exploiting the rest of society. Such institutions persist and are governed by political dynamics such as regulatory capture (Stigler 1971; Laffont and Tirole 1991). More recently, Acemoglu and Robinson (2016, 2019a) highlighted the crucial role of the never-ending tension (or "Red Queen effect") between an increasing state capacity and a compensating civil society mobilization. In Western democracies, such a balance guarantees that government bureaucratic elites have the power to provide frameworks and incentives for value creation, enforce laws and solve conflicts, while society has the power to mobilize against abuse, extractive business models and exploitation. Like in an optimal growth

model's saddle path, the relative strength of these two forces should follow a fine balance in order for the country not to diverge to too a strong bureaucratic elite (like China's "despotic Leviathan"), nor to too week institutions with fragmented power distribution (like African countries' "the cage of norms").

Highlighting yet another angle, Diamond (1997) promotes the importance of variation in geography, climate and biodiversity to account for differences between continents in early human history. Geographic considerations have also led to an extensive literature on the implications of natural resources and the "resource curse" for economic development (Humphreys, Sachs and Stiglitz 2007). Yet another strand of literature views history as the main determinant of the diverging patterns of economic development across the world (North 1981). History is argued to matter via several channels, for instance, via historically determined institutions. In their seminal paper, Acemoglu, Johnson and Robinson (2001) investigate the role of colonial origins for current institutions, in particular democracy and property rights. Another strand of literature focuses on the history of culture (see for instance Cozzi (1998) and Tabellini (2008) as well as the literature on social capital (Bourdieu 1986; Putnam 1994)). A link between history, development and religion was first proposed by Weber (1905). He argued for Protestantism, in contrast to Catholicism, to be an important factor in the early stages of European capitalism because it was characterized by a work ethic that encouraged hard work and the accumulation of wealth.

Undeniably, the above discussed factors are crucial to understanding the great differences in living standards that exist across the world by determining the general setting a society operates in. However, this tends to ignore one of the driving forces behind change – elites – and releases them from their agency and responsibility for their nation's human and economic development. Within a given setting, it is those with power and coordination capacity that determine how

resources are allocated, be it human, natural, financial or knowledge-based resources. Hence, in this study, we focus on leaders and decision-makers possessing the strongest coordination capacity over a society's key resources – elites. How they act and what kind of business models they choose, determines social and economic outcomes.

Parry (2005, introduction) refers to elites as "persons who attain the leading positions in a range of activities that have a major bearing on societies". Accordingly, elites are the leading figures in sectors as diverse as, for instance, the political sector, the military, the bureaucratic apparatus, business, unions, or the media. According to Parry (2005, 15) the study of elites as part of political science dates back to Vilfredo Pareto (1848-1923) and Gaetano Mosca (1858-1941). Mosca, for instance, defined elites as "the class that rules… always less numerous, performs all political function, monopolises power and enjoys the advantages that power brings" (quotation in Parry 2005, 33).

How do elites utilize their coordination capacity? We argue that elites, as a network of powerful individuals, operate business models that generate wealth and allow its accumulation along with power. Furthermore, we claim that these individual business models can be located on a continuum that ranges from value creation to value extraction (Casas, forthcoming 2022). While the former describes business models that, figuratively speaking, grow the elite's slice of the pie by growing the entire pie, the latter describes business models that grow an elite's slice of the pie by increasing its share. The term adopted for elites that engage in value creation business models is 'high quality elites', while elites that engage in value extraction business models are coined 'low

quality elites'[1]. High quality elites give more to society than they take, while low quality elites take more from society than they give. We postulate that the aggregate of elites' individual business models determines a country's aggregate level of value creation. Quite importantly, we theoretically allow relatively unchecked powerful elites to behave in the interest of society even far away from Acemoglu and Robinson (2019a) "narrow corridor". Such elite behavior is clearly commendable, because elites scoring high in terms of power could also do the opposite and leverage their capability to just extract resources. Hence, we will label such elites "high quality elites". The most striking example of such benevolent attitude, as we will show, is certainly Singapore. Of course, by only focusing on elite observed behavior, we cannot predict whether such elites could later move to rent-seeking behavior, which is instead prevented on Acemoglu and Robinson's "narrow corridor".

How can we measure elite quality? And what is the state of elite quality across countries? This paper aims to address these two questions. First, we propose a methodology to measure elite quality, that is, the ability of business models of a country's elite – on aggregate – to create value, rather than rent seek. This is done by means of a composite index called "Elite Quality Index" (also index or EQx), where the underlying indicators provide quantitative evidence of different degrees of value creation and their opposite, value extraction. We present a host of robustness tests that suggest that the proposed index and the resulting scores and ranking are robust to a range of alternative specifications. Furthermore, our multi-layered index architecture allows for an in-depth analysis regarding specific aspects of elite quality at four different levels (sub-index, index area,

[1] Welzel (2002, 319) employs a more specific concept of elite quality, claiming that the quality of elites is characterized by the extent of corruption and female representation. We will also incorporate these elements and generalize them.

pillar and indicator level). Thus, the EQx represents a new tool that can serve to analyze and compare the political economy of countries by shedding light on the aggregate quality of national elites.

Second, we apply the proposed methodology to a set of 151 countries using data on 107 indicators. The EQx reveals substantial differences in the state of elite quality across the considered countries. Singapore ranks first; despite the high degree of power enjoyed by the country's political and economic elites, the city state represents a benchmark for global value creation. Selected members of the European Union vary significantly in their performance, with EU countries spread between the Netherlands (4th) and Bulgaria (49th). The United States comes in 5th. China comes in 26th and thus outperforms several European countries as well as the other BRICS countries Russia, Brazil, South Africa and India, which rank (in that order) between 65th and 118th. Mauritius (50th) and Rwanda (52nd) lead the field of African countries. We demonstrate the analytical and applied usefulness of the EQx as a toolset in economics by (1) presenting extracts of exemplary country portraits for a diverse set of countries, (2) investigating the EQx relation to inequality measures, and (3) comparing the EQx to existing measures of general economic and human development.

The methodology laid out in this paper represents the starting point for the development of a longitudinal study with annual results and their qualitative interpretation. Further results and analysis for the 151 countries considered in the present study are offered in the Elite Quality Report 2021 (Casas and Cozzi, 2021), which followed the pilot report (Casas and Cozzi, 2020). Hence, another aim of the present study is to elicit a discussion and solicit inputs to improve the EQx methodology, the theoretical grounding and employed datasets.

The remainder of this study is organized as follows. Section 2 outlines the theoretical framework the EQx is based on. Section 3 details the methodology the index employs. Section 4

presents key results and illustrates the explanatory power of the EQx. Section 5 scrutinizes the index' sensitivity to its underlying assumptions via a range of robustness tests. Finally, section 6 concludes.

2 Theoretical framework

We work on the assumption that all elite business models can be located on a spectrum that ranges from value creation to value extraction. In parallel to Acemoglu and Robinson (2019b, 16), the term value 'extraction' is chosen to highlight the distributional effects of elites' business models. It builds upon the seminal work of Tullock (1967) who introduced the notion of 'rent seeking' to show that the welfare costs of monopolies and tariffs are actually higher than the static deadweight loss they imply. Using Tullock's (1967) terminology, value extraction business models are designed to create and capture rents.

A similar dichotomy to value creating and extracting business models is implied by the concept of inclusive and extractive institutions (Acemoglu and Robinson 2012). Inclusive institutions allow all individuals to participate in and benefit from economic activities "on a level playing field" (Acemoglu and Robinson 2012, 144), while extractive institutions imply that vast parts of a society are barred from participation while elites extract resources and opportunities. Importantly, this concept focuses on the classification of government structures. Our concept is different in that it shifts the focus on elite business model choices, within a given institutional, cultural and geographical setting.

However, institutions and elites are closely related, as a country's institutions regulate, incentivize and frame the actions and operations of the elite. On the other hand, following Casas (forthcoming 2022), we argue for directionality with elites influencing and shaping a country's

institutions. For instance, elites might exert pressure in the political realm to adjust institutions according to their preferred business model. Low quality elites might promote monopolies or tax privileges that benefit them. High quality elites aiming at value creation might strengthen the public health and education system to develop human capital or promote the protection of property rights providing incentives for innovation, because these are resources consistent and required with value creation business models.

Table 1. Structure of the elite quality index

Index	*Sub-index*	*Index area*	*Pillar*
EQx	I Power	i. Political Power	i.1 State Capture
			i.2 Regulatory Capture
			i.3 Human Capture
		ii. Economic Power	ii.4 Coalition Dominance
			ii.5 Firm Dominance
			ii.6 Creative Destruction
	II Value	iii. Political Value	iii.7 Giving Income
			iii.8 Taking Income
			iii.9 Unearned Income
		iv. Economic Value	iv.10 Producer Value
			iv.11 Capital Value
			iv.12 Labor Value

Note: Structure of the EQx. The 12 pillars consist of a total of 107 indicators.

We analyze elite quality along two dimensions: power and value, with value meaning current value creation/extraction activities as well potential future value creation/extraction activities. Furthermore, these two aspects have economic and political dimensions (Casas forthcoming 2022). This naturally provides a clear "structure of the various sub-groups of the phenomenon" (OECD 2008, 23) that is illustrated in Table 1. The two sub-indices Power and Value each contain a political and economic dimension, yielding four index areas. Each index area in turn measures three aspects of elite quality, conceptualized as pillars. Finally, each of these in total twelve pillars contain a set of individual indicators (between three and fifteen indicators each). Thus, the EQx condenses the complex phenomenon of elite quality in one number. Moreover, its

multi-layered architecture reflects the multidimensional nature of elite quality and thus allows for an in-depth analysis at different levels.

3 Methodology

We propose measuring elite quality by means of an index. Indices can summarize complex realities and provide an easy to interpret summary of a multi-dimensional phenomenon, without losing the underlying information base. This facilitates the communication of insights to decision-makers and the general public. Furthermore, the construction of a country ranking allows one to compare performances and, in the future, track progress over time (OECD 2008, 13f). The overarching objective of the process of index construction should be to make the procedure as clear and transparent and therefore justifiable as possible (Santeramo 2017, 135). In consequence, the underlying assumptions and methods used for our index construction are presented and evaluated in detail hereinafter.

Furthermore, since the use of a protocol ensures homogeneity in the index construction process, structure follows by and large the recommendations of the "Checklist for building a composite indicator" presented by the OECD's (2008) handbook of index construction. Its recommendations focus specifically on indices for country comparison and ranking (OECD 2008, 5)[2].

[2] The OECD (2008) handbook and its checklist constitute a widely established starting point for the construction as well as evaluation of composite indicators, see for instance Álvarez-Díaz et al. (2018, 6), Greco et al. (2019, 63f), Grupp and Schubert (2010, 69) and Ivaldi, Bonatti and Soliani (2016, 401).

3.1 Selection of indicators

EQx indicators are selected according to the theoretical framework. Table A1.1 in Appendix A1 lists and defines all indicators. Column (2) indicates whether an indicator primarily measures value creation or value extraction[3].

Most indicators are defined such that higher values are better than lower values ("the higher the better"), or the reverse ("the lower the better"), thus measuring value creation linearly. We acknowledge that this approach does not do justice to the ambivalent nature of many indicators. Only a small set of indicators are defined as "deviation from optimum", measuring value creation in a non-linear fashion. This is done to capture the detrimental effects of values being either higher or lower than some reference level. Online appendix B1 indicates the indicators that are non-linear measures of elite quality, as well as the chosen benchmark and underlying rationale.

Furthermore, some indicators measure overlapping aspects of elite quality. This is allowed for, based on the following considerations. Firstly, using different sources to measure a similar aspect may help to address shortcomings in the data when an indicator covers only a particular set of countries, and allows to diversify the risk of mismeasurement. Secondly, in some cases, overlap is intended in order to emphasize a particular aspect[4]. Thirdly, the indicators might complement each other by measuring a similar aspect from a different perspective[5]. Finally, it should be noted

[3] For a full description and the rationale behind each indicator, see Casas and Cozzi (2021, pp.122-140).

[4] For example, the EQx includes both the World Bank's Ease of Doing Business Index (*Institutional quality* (DBI, i.2)) as a measure of overall institutional quality, as well as two of its indicators, *Protecting Minority Investors* (PMI, i.2) and *Firm Entry Ratio* (ENR, ii.6) in order to particularly take account of these two aspects.

[5] For example, the index includes several indicators on gender equality: one indicator focuses on the political sphere by measuring the proportion of women serving in government bodies (*Women Power Index* (WIP, i.1)), another

that a potentially overemphasized aspect is not expected to dominate index scores, given the ample number of indicators considered.

3.2 Data

In order to measure country-level elite quality on the basis of relevant and up-to-date information, numerous datasets are collected from various international organizations. The sources are listed for each indicator in the appendix in Table A1.1, column (7), and are referenced in detail in Table A1.2, in Appendix A1. The data sources can be divided in three broad categories presented in Table 2. Column (4) in Table A1.1 classifies each indicator accordingly. Online appendix B2 provides further information on how the data was transformed to yield individual indicators.

Table 2. Types of dataset sources

Category	*Short description*	*Example*
Index	Source data is an existing composite indicator and/or country data have already been normalized	*Women Power Index* (WPI, i.1)
Raw	Source data has not been transformed	*R&D % GDP* (RND, ii.6)
Proprietary	Source data is gathered by EQx team	[planned in the future]

Note: Table indicates the types of data used for the indicators.

To compute the EQx, we use the most recent available data. Most indicators use data from 2020, and almost all indicators are based on data between 2018 and 2020. Fourteen indicators are

indicator focuses on gender inequality as a consequence of legislative barriers (*Women, Business and the Law* (WBL, i.3)) two indicators consider the labor market (*Gender Wage Gap* (GWG, iv.12) and *Labor force participation ratio – male vs female* (LFR, iv.12)), and yet another two indicators look at entrepreneurial aspects (*Women self-made billionaires* (WSB, i.3) and *Index of Women Entrepreneurs* (IWE, ii.6)). Thus, these indicators measure gender equality from different perspectives and are in consequence included in different pillars.

based on datasets from 2016 or older, up to 2012. This can be justified because these indicators are computed as an average value across several years (e.g. *Listed firms turnover, long run 15 years* (TUL, ii.6)), or because they reflect phenomena deemed relatively stable (e.g. *Political decentralization* (PDE, i.1)). This is consistent with accepted index construction practice as generally, data limitations constrain the temporal and geographical coverage of indicators, as well as other methodological decisions (Nardo et al. 2005, 35). That is, when constructing an internationally comparable measure, it is not unusual for indices to consider data on different years and for different sets of countries (Szerb and Acs 2011, 8-10; Alkire and Santos 2014, 257). Table 3 indicates the main facts on the geographical coverage of indicators.

Table 3. Data constraints in geographical coverage – main figures

% of indicators covering:	
>90% of countries	43% of EQx indicators
>75% of countries	65.4% of EQx indicators
>50% of countries	74.8% of EQx indicators
% of missing country datapoints overall	26% of observations
Avg. number of available indicators per country	79.2 (out of maximum 107)
Avg. number of countries covered by indicators	111.8 (out of maximum 151)
Minimum number of indicators per country	42 (Turkmenistan)

Note: Main figures on the geographical coverage of indicators. Further information on the geographical and temporal coverage of the data are provided in Table B3 and B4 in the online appendix.

Considering the international vocation and comparative perspective of the EQx, the long-term aim is to measure elite quality for as many countries as possible, the aforementioned data constraints notwithstanding. Acknowledging data constraints, decisions on index construction parameters are based on normative arguments that are discussed next.

3.3 Imputation of missing data

Since no approach to impute missing data is exempt from drawbacks, we hereinafter judiciously document the chosen procedure.

When addressing missing values, the aim is to avoid systematic upward or downward biases as a result of missing values. That is, a lack of data should not penalize or favor any country, but should solely influence the accuracy of its score, i.e. the more indicators are accounted for in the computation of the final country score, the more accurate the latter will be.

High data quality is achieved in three main ways. First, minimum requirements in terms of data availability are defined. Datasets are only considered if they cover a minimum of 15% of the considered countries (here this corresponds to 24 countries), and provide recent information on countries' elite quality, i.e. by 2018 or later[6]. Furthermore, countries are only included in the EQx if their index score is based on at least 40 datapoints, and more specifically, at least 3 datapoints per index area and 1 datapoint per pillar in at least 11 pillars. Moreover, concerning the structure of the index, pillars need to be based on a minimum of three indicators.

Second, in case recent data is not available for only a small set of countries, missing datapoints are imputed with the latest available data, up to three years prior to the most recent year.

Third, we implement an "available-case analysis" (Little and Rubin 2002, 54) that should only be used if the "amount of missing information is limited" (Little and Rubin 2002, 41). We argue that this is the case here, applying the above minimum requirements. In case an indicator is missing for a particular country, the weight of the missing data point is split between the remaining

[6] With a few exceptions as explained in chapter 3.2.

indicators of the same pillar, in proportion to their respective weights[7]. This approach is also implemented in other indices, such as the Multidimensional Poverty Index (Alkire and Santos 2014, 256)[8]. It is based on the premise that indicators within the same pillar, and pillars within the same index area, measure similar aspects of elite quality.

Importantly, the "available-case analysis" uses all available values, that is, the final EQx will see indicator datasets in part stemming from different years and covering a heterogeneous set of countries (Nardo et al. 2005, 54). This dents cross-country consistency across EQx scores in the same manner that it does with most indices. At the same time, EQx aims to offer valuable insights on aggregate elite quality at the single country level. The available-case analysis potentially

[7] In the present study, two countries are missing all indicator values for a pillar (Myanmar for 'Coalition Dominance' (ii.4), and Syria for 'Unearned Income' (iii.9)). In this case, the weight of the hypothetical missing pillar datapoint is split between the two other pillars of the same index area, mirroring the approach for individual missing indicators.

[8] The reader should note that different approaches to the issue of missing data were considered, based on Little and Rubin (2002) who created a taxonomy of missing-data methods (consider Little and Rubin (2002, 19-21) for an overview). The easiest and most straightforward method, that we call 'case deletion', is to "discard incompletely recorded units and to analyze only the units with complete data" (p. 19). This is, however, unsuitable for the EQx because in the main 2020 report, nearly all considered datasets constitute a non-complete country list. Moreover, this technique often leads to "serious bias" (p.19) and loss of precision (higher standard errors) as useful information is left out.

Another category covers the so-called "Imputation-Based Procedures" (p. 20). Here, the idea is to fill-in the missing values with substitute values. Nardo et al. (2005, 10-11) differentiate Single Imputation (e.g. use of "mean/median/mode, Regression Imputation, Expectation Maximization Imputations" as substitute) and Multiple Imputations techniques. While both of the above methods - representing a "complete case analysis" (Little and Rubin 2002, 41) - are widely used, EQx decided against it due to the size and heterogeneity of the EQx database.

implies a gain in efficiency since overall, more information is used to calculate index values, than if a "complete case analysis" was implemented (Nardo et al. 2005, 41). Furthermore, as emphasized by another composite indicator - the Environmental Performance Index (EPI) – "even less-than-ideal indicators contribute to the overall usefulness of the EPI as a composite index" (Wendling et al. 2018, 7). The same applies to the EQx. Note also that reassuringly, a range of robustness tests (see chapter 5) suggest that not only EQx scores, but, in particular the EQx ranking is robust to modifications in key modelling assumptions. This suggests that meaningful cross-country comparisons are possible.

3.4 Normalization

Since indicators have different scales and measurement units, normalization is necessary prior to aggregating the data to "avoid adding up apples and oranges" (OECD 2008, 27).

Initially, a logarithmic transformation is applied to indicator datasets: firstly, if Pearson's second coefficient of skewedness exceeds unity, which indicates strong skewedness (Belfiore and Favero 2019, p. 63); and secondly, if that Indicator is not already based on an existing index. This is to improve the distribution of the data and thus yield more meaningful Indicator scores. In total, 21 of the 107 EQx Indicators are based on a log transformation.

Next, indicators are standardized, with a mean of zero and standard deviation of one, applying z-scores (Nardo et al. 2005, 47; OECD 2008, 28). This improves the comparability of datasets with large differences in scales and units, as is the case with EQx indicators. Then, outliers are forced to fall within a [-2,+2] interval. The resulting z-scores are then rescaled to fall within a [0 ,100] interval. Hitherto, all EQx indicators were assigned a so-called directionality, being either the lower, the better; or the higher, the better; or the closer to 0 or an optimum, the better. In

consequence, in a final step, normalized values are transformed such that a value close to 100 indicates a high level of elite quality, and a value close to 0 represents a low level of elite quality. Further information on the normalization process in provided in section B5 of the online appendix.

3.5 Weighting and aggregation

How to establish an appropriate weighting and aggregation method represents a contentious issue in the academic debate on the construction of indices (Santeramo 2017). While there are numerous weighting techniques, the OECD (2008, 31) highlights that "regardless of which method is used, weights are essentially value judgements". However, the (OECD 2008, 33) further highlights that "the absence of an "objective" way to determine weights and aggregation methods does not necessarily lead to rejection of the validity of composite indicators, as long as the entire process is transparent." This is to be achieved by the following two sections [9].

3.5.1 Weighting criteria theoretical background

The theoretical framework, summarized in section 2, provides a clear structure to the index. The weights applied at each level (indicator, pillar, index area and sub-index) emerge from two different approaches: either they are deduced from the theoretical framework, or they are allocated

[9] By weighting the individual indicators, varied relevance can be attributed to them. Applying equal weights to all indicators is "by far" (Yang 2014, 6) the most commonly used method to avoid any subjective value judgements (OECD 2008, 31; Santeramo 2017, 132). This approach has been both criticized and endorsed (Chowdhury and Squire 2006). Crucially, equal weighting does not imply "no weights", but carries an implicit value judgement of weights being equal. This might "disguise […] insufficient knowledge of […] relationships or a lack of consensus" (OECD 2008, 31).

by a group of experts employing a Budget Allocation Process (BAP). Weights are summarized in Table 4. The weight of each Indicator in the EQx depends on the weight of that Indicator within its Pillar (see Table A1.1 in the Appendix), the weight of that Pillar within its Index Area, the weight of that Index Area within its Sub-Index, and the weight of that Sub-Index within the overall EQx.

The weights of the index' main building blocks (sub-index and index areas) are deduced from conceptual deliberations (see Casas 2022, forthcoming, for a theoretical discussion).

Conceptual Deliberation 1 argues that power is a necessary condition for value extraction. Accordingly, the sub-index Power can be interpreted as an indicator of future value extraction potential. We weight present value extraction dynamics stronger than (potential) future ones, and thus at present the weighting judgment sees the sub-index Value at 2/3 while Power is weighted at 1/3.

Table 4. Weighting in the EQx

Aggregation level	*Method*	*Weights*	
Sub-index		*Within EQx*	*Within EQx*
Sub-index I: Power	CD 1	33.3%	33.3%
Sub-index II: Value	CD 1	66.6%	66.6%
Index area		*Within sub-index*	*Within EQx*
Sub-index I: Power			
i. Political Power	CD 2	33.3%	11.1%
ii. Economic Power	CD 2	66.6%	22.2%
Sub-index II: Value			
iii. Political Value	CD 3	33.3%	22.2%
iv. Economic Value	CD 3	66.6%	44.4%
Pillar		*Within index area*	*Within EQx*
Sub-index I: Power			
i. Political Power			
i.1 State Capture	BAP	36.0%	4%
i.2 Regulatory Capture	BAP	37.0%	4.1%
i.3 Human Capture	BAP	27.0%	3%
ii. Economic Power			
ii.4 Coalition Dominance	BAP	21.0%	4.7%
ii.5 Firm Dominance	BAP	23.0%	5.1%
ii.6 Creative Destruction	BAP	56.0%	12.4%
Sub-index II: Value			
iii. Political Value			

iii.7 Giving Income	BAP	36.4%	8.1%
iii.8 Taking Income	BAP	36.4%	8.1%
iii.9 Unearned Income	BAP	27.2%	6%
iv. Economic Value			
iv.10 Producer Value	BAP	29.0%	12.9%
iv.11 Capital Value	BAP	34.0%	15.1%
iv.12 Labor Value	BAP	37.0%	16.4%
		Within pillar	*Within EQx*
Indicator	BAP	Table A1.1, column (5)	Table A1.1, column (6)

Note: Table indicates the underlying weighting method (Conceptual Deliberation (CD) or Budget Allocation Process (BAP)) and the resulting weighting for each aggregation level. The within EQx weights anticipate the linear aggregation scheme detailed in section 3.5.2. Percentages, rounded to one decimal, may not add up to 100 due to rounding.

A similar rationale is applied for Conceptual Deliberation 2, establishing the weight of the index areas Economic Power and Political Power, within the sub-index Power. We argue that Political Power primarily reflects potentially extractive processes, as political may convert to economic power. Hence, the weights for the economic and political dimensions of the sub-index Power are established at 2/3 and 1/3. On account of the larger relevance and impact of economic value creation processes compared to political value creation processes, the same weights are also applied to the index areas Economic Value (2/3) and Political Value (1/3). The rationale of the underlying Conceptual Deliberation 3 assumes a higher relevance of the economic over the political dimension in the overall value creation process.

The weights of the individual indicators within their pillars, as well as the weights of the twelve pillars within their index areas, are determined in the course of a Budget Allocation Process (BAP). The BAP (citing Moldan, Billharz and Matravers 1997; OECD 2008, 32) is a participatory method where experts are provided a budget of N points that they allocate to each index element. In the case of the EQx, experts allocate points between 1 and 5 to each indicator and pillar. Intuitively, experts "pay" more for index elements they want to stress.

Generally, the BAP is characterized by its "transparent and relatively straightforward nature and short duration" (OECD 2008, 96). Nardo et al. (2005, 67) highlight that the weighting is not based on "technical manipulations" but on experts' opinions, which helps increase the

legitimacy of the index. Furthermore, the BAP fosters the creation of a forum of discussion, thus promoting a consensus for policy actions.

Further information on the exact procedure employed is provided in section B6 in the online appendix.

3.5.2 Aggregation

Indicator aggregation represents another decisive and the final step in the computation of an index. Munda (2012, 337) argues that "what defines a composite indicator is the set of properties underlying its mathematical aggregation convention". Since, again, there is no "objective" approach to determine the optimal aggregation scheme (OECD 2008, 33), the implications of different aggregation methods should be considered carefully.

The two most commonly adopted techniques are the geometric and linear aggregations[10]. Both methods imply some compensability between indicators, that is, a deficit in a country's performance in one dimension can generally be compensated by a surplus in another dimension. However, the methods differ in the extend of compensability they allow. In the case of geometric aggregation, compensability is lower for an indicator with low values. In this case, scoring low on one indicator implies having to score substantially higher on other indicators to improve the overall score (OECD 2008, 33). This has led, for instance, to the aggregation of indicators building the Human Development Index (HDI) being switched from a linear to a geometric method in 2010, to

[10] An index constructed based on two indicators with equal weights would result from $(x_1 * x_2)^{1/2}$ in case of a geometric aggregation and $\frac{1}{2}(x_1 + x_2)$ in case of linear aggregation (Santeramo 2017, 131).

acknowledge criticism that values of indicator "GDP per capita" should not compensate for low levels of "Life expectancy at birth" (Mazziotta and Pareto 2013, 68).

Linear aggregation, on the other hand, implies a constant and full compensability among indicators (OECD 2008, 338; Munda 2012, 33). This means that "poor performance in some indicators can be compensated by sufficiently high values of other indicators" (Nardo et al. 2005, 12). EQx applies a linear aggregation approach. Within pillars, indicators are assumed to measure similar aspects of elite quality, in consequence, a full compensability is allowed for. A similar reasoning applies for the aggregation of pillars within index areas. Concerning the aggregation of index areas and sub-indices, we highlight that linear aggregation transmits the relative importance of dimensions to the index, as determined by the underlying weighting scheme (Santeramo 2017, 131). Hence, a linear aggregation ensures a full transmission of the relative weights as implied by the theoretical framework. Summarizing, the EQx implements a linear aggregation scheme at each level of aggregation. This simple method, adopted by a vast majority of indices (Yang 2014, 5), contributes to an index that is in its construction process simple and easy to understand. For an example on how indicators are weighted and aggregated to calculate index scores, consult section B7 in the online appendix.

This concludes the construction of the EQx, to measure the quality of national elites on aggregate.

4 Results

The EQx assesses the aggregate of a country's elite business models in terms of relative value creation and value extraction. Table 5 provides an overview of the EQx for all 151 and reveals substantial differences in the state of elite quality across countries.

Table 5. EQx results

	EQx		***Sub-Index***			
			Power (I)		***Value (II)***	
Country	*Rank*	*Score*	*Rank*	*Score*	*Rank*	*Score*
Singapore	1	68.12	15	63.14	1	70.62
Switzerland	2	67.64	11	64.74	2	69.09
United Kingdom	3	64.7	3	69.93	12	62.09
Netherlands	4	64.54	5	66.22	4	63.7
United States	5	64.11	1	70.23	18	61.04
Sweden	6	63.67	7	65.8	9	62.61
Israel	7	63.63	8	65.23	8	62.82
Norway	8	63.5	18	62.45	3	64.03
Australia	9	63.47	13	63.71	6	63.35
Denmark	10	63.43	9	65.15	10	62.56
Canada	11	63.18	6	65.93	15	61.8
Estonia	12	62.91	2	70.01	22	59.35
New Zealand	13	62.61	20	60.9	5	63.46
Finland	14	62.58	14	63.59	13	62.07
Germany	15	62.44	10	64.89	16	61.21
Korea, Rep.	16	62.32	16	62.98	14	61.98
Japan	17	61.77	22	60.71	11	62.3
United Arab Emirates	18	61.46	4	68.42	26	57.97
Austria	19	61.06	21	60.86	17	61.16
Ireland	20	60.77	32	55.98	7	63.17
Qatar	21	60.2	25	58.82	19	60.89
Czech Republic	22	59.17	33	55.77	20	60.86
France	23	58.33	17	62.47	29	56.26
Lithuania	24	57.85	19	62.4	33	55.58
Malaysia	25	57.81	29	56.71	24	58.37
China	26	57.58	34	55.76	23	58.49
Spain	27	57.28	23	59.75	31	56.04
Portugal	28	57.25	12	64.34	42	53.71
Slovenia	29	57.18	24	59.26	30	56.14
Thailand	30	57.09	53	51.64	21	59.81
Cyprus	31	56.26	42	53.8	27	57.5
Belgium	32	56.08	28	57.37	35	55.44
Hungary	33	55.61	35	55.75	34	55.54
Bahrain	34	55.58	47	52.6	28	57.07
Poland	35	55.15	30	56.66	37	54.39
Vietnam	36	54.32	74	46.92	25	58.02
Italy	37	54.25	36	55.26	41	53.75
Latvia	38	54.17	26	58.13	50	52.19
Oman	39	53.62	67	48.83	32	56.01
Slovak Republic	40	53.41	38	54.48	46	52.88
Chile	41	53.02	27	57.81	58	50.62
Azerbaijan	42	52.93	57	51.12	39	53.84
Croatia	43	52.85	46	52.79	45	52.89
Indonesia	44	52.72	48	52.52	47	52.83
Panama	45	52.67	58	50.99	44	53.51
Kazakhstan	46	52.23	68	48.82	38	53.94
Greece	47	51.76	52	51.66	52	51.81
Romania	48	51.67	56	51.33	51	51.84
Bulgaria	49	51.61	45	53.47	57	50.68
Mauritius	50	51.6	61	50.16	49	52.32
Belarus	51	51.3	70	48.47	48	52.71
Rwanda	52	50.9	40	54.14	65	49.28
Cuba	53	50.8	102	42.5	36	54.95
Kuwait	54	50.57	59	50.85	59	50.43
Mexico	55	50.27	37	54.99	79	47.9

Botswana	56	50.22	39	54.22	77	48.23
Costa Rica	57	49.97	54	51.55	69	49.18
Benin	58	49.88	71	47.94	55	50.85
North Macedonia	59	49.68	49	51.97	74	48.54
Peru	60	49.63	55	51.45	72	48.71
Uruguay	61	49.57	43	53.78	83	47.47
Mongolia	62	49.36	84	45.35	53	51.36
Ghana	63	49.31	65	49.82	70	49.06
Saudi Arabia	64	49.02	51	51.77	80	47.65
Russian Federation	65	48.91	73	47.65	63	49.53
Kenya	66	48.88	41	53.82	97	46.42
Philippines	67	48.82	81	45.95	62	50.25
Papua New Guinea	68	48.69	122	38.39	39	53.84
Moldova	69	48.27	63	49.87	82	47.48
Serbia	70	48.17	60	50.67	89	46.92
Colombia	71	48.09	63	49.87	86	47.19
Georgia	72	47.97	99	43.12	60	50.4
Cambodia	73	47.76	136	35.96	43	53.66
Dominican Republic	74	47.64	90	44.36	65	49.28
Uganda	75	47.52	106	41.9	61	50.33
Ukraine	76	47.27	85	45.34	76	48.24
Albania	77	47.24	76	46.54	81	47.6
Guinea-Bissau	78	46.88	93	44.2	78	48.22
Burkina Faso	79	46.6	101	42.59	73	48.61
Trinidad and Tobago	80	46.57	87	45.31	85	47.2
Côte d'Ivoire	81	46.53	82	45.81	91	46.9
Uzbekistan	82	46.43	83	45.4	88	46.95
Lao PDR	83	46.38	127	37.45	55	50.85
Paraguay	84	46.27	110	41.1	71	48.85
Togo	85	46.15	116	39.71	64	49.36
Brazil	86	46.13	50	51.96	120	43.22
Turkey	87	46.02	66	49.27	115	44.39
Jamaica	88	45.99	78	46.17	101	45.9
Tanzania	89	45.89	111	40.76	75	48.45
Nepal	90	45.72	95	43.96	96	46.6
Ecuador	91	45.69	92	44.29	99	46.39
Senegal	92	45.6	80	46	108	45.4
Niger	93	45.59	96	43.92	97	46.42
Timor-Leste	94	45.56	98	43.18	93	46.75
Madagascar	95	45.5	140	33.96	54	51.27
Guinea	96	45.31	126	37.49	68	49.22
Bolivia	97	45.21	109	41.17	84	47.24
Jordan	98	44.99	62	50.09	124	42.44
Armenia	99	44.92	86	45.33	111	44.72
South Africa	100	44.91	31	56.36	137	39.19
Zimbabwe	101	44.45	114	39.88	94	46.74
Malawi	102	44.34	104	42.32	109	45.35
Mozambique	103	44.27	117	39.55	95	46.63
Burundi	104	44.24	138	34.22	67	49.25
Cameroon	105	43.89	125	37.55	87	47.07
Namibia	106	43.85	74	46.92	125	42.32
Nigeria	107	43.84	103	42.35	112	44.59
Eswatini	108	43.78	115	39.78	102	45.78
Guatemala	109	43.76	118	39.21	100	46.04
Honduras	110	43.74	89	44.47	118	43.37
Morocco	111	43.64	69	48.66	130	41.13
Congo, Rep.	112	43.63	129	37.28	92	46.8
Sierra Leone	113	43.42	88	44.96	123	42.65
Bosnia and Herzegovina	114	43.4	91	44.3	121	42.95
Mali	115	43.3	121	38.42	103	45.74
Argentina	116	43.17	72	47.9	133	40.81
Sri Lanka	117	42.96	97	43.27	122	42.8
India	118	42.92	44	53.74	144	37.51
Ethiopia	119	42.74	107	41.27	117	43.47
Myanmar	120	42.53	130	36.72	107	45.43
Kyrgyz Republic	121	42.33	100	42.75	126	42.13
Egypt, Arab Rep.	122	42.31	112	40.31	119	43.32
Nicaragua	123	42.21	124	37.79	114	44.42
Congo, Dem. Rep.	124	42.19	144	32.73	89	46.92
Venezuela, RB	125	42.06	134	36.06	110	45.06
Bangladesh	126	41.7	139	34.07	106	45.51
Liberia	127	41.57	137	35.82	113	44.44
Central African Republic	128	41.51	141	33.4	105	45.56
Chad	129	41.48	142	33.07	104	45.69

El Salvador	130	41.46	108	41.25	127	41.56
Gambia, The	131	41.11	94	44.02	136	39.66
Tunisia	132	41.04	79	46.08	139	38.53
Equatorial Guinea	133	40.22	119	38.71	131	40.98
Algeria	134	40.08	120	38.44	132	40.91
Lesotho	135	40.03	77	46.45	145	36.82
Lebanon	136	39.97	113	40.08	135	39.92
Afghanistan	137	39.88	132	36.56	128	41.54
Zambia	138	39.83	105	42.14	138	38.68
Turkmenistan	138	39.83	149	31.78	116	43.85
Tajikistan	140	39.58	133	36.08	129	41.33
Gabon	141	39.53	123	38.13	134	40.22
Pakistan	142	37.96	128	37.38	140	38.25
Angola	143	37.47	131	36.69	142	37.87
Haiti	144	36.22	145	32.61	141	38.03
Mauritania	145	36.03	143	32.92	143	37.58
Iraq	146	35.01	148	31.83	146	36.59
Iran, Islamic Rep.	147	34.65	147	32.02	147	35.97
Syrian Arab Republic	148	33.76	134	36.06	149	32.62
Yemen, Rep.	149	32.76	151	28.37	148	34.96
Sudan	150	28.46	146	32.57	150	26.4
Libya	151	27.32	150	31.31	151	25.32

Note: Table indicates index scores and ranking for the overall EQx and its two sub-indices.

Singapore ranks first, with a considerable lead. Interestingly, the sub-index Power shows that Singaporean elites are more powerful than e.g., advanced Western economies, hence penalizing Singapore with rank 15 in the Power sub-index. Yet due to a superb performance in the Value sub-index, Singapore manages to compensate its low Power score and thus sits atop the table in the EQx overall ranking. This indicates that Singaporean elites use their vast power for value creation rather than rent seeking purposes.

A political economy configuration running in the opposite direction to Singapore can be observed in the two Anglo-Saxon economies: The United Kingdom (ranking 3rd) and the United States (5th). The leading ranks in the Power sub-index imply that American and British elites are the least powerful of all considered countries. However, despite their relative weakness, they manage to run business models that also extract value, and thus rank only 12th and 18th in the Value sub-index.

Members of the European Union (EU) vary significantly in their elite quality. The Netherlands come in 4th in the overall EQx ranking and perform similarly in the two sub-indices Power and Value (rank 5 and 4 respectively). Sweden, Norway and Denmark form a Scandinavian

cluster (rank 6, 8 and 10), obtaining similar ranks in the two-subindices. Germany comes in 15th in the overall EQx ranking. Several Eastern European countries, such as Estonia (rank 12), Lithuania (rank 24), Hungary (rank 33) and Poland (rank 35) reach or exceed the Elite Quality levels of France (rank 23), Spain (rank 27) and Italy (rank 36). Finally, Greece, Romania and Bulgaria are at the rear of the EU countries, ranking 47th, 48th and 49th.

Mauritius (rank 50), Rwanda (rank 52), Botswana (rank 56), Benin (rank 58) and Ghana (rank 63) lead the field of African countries. China comes in 26th in the EQx list and thus performs best of the BRICS countries and outranks several upper-middle income countries (classification of the World Bank 2020b) such as Russia (ranking 65th), Turkey (87th) and South Africa (100th). With Brazil and India ranking 86th and 118th, a split in the BRICS countries between China and the four other countries is clearly visible at EQx. Chinese elites are roughly as powerful as elites in Mexico or Italy; however, they engage in value creation activities similarly to elites in Estonia or the United Arab Emirates.

The most powerful elites operate in Yemen (rank 151) and Libya (rank 150), where Libya also scores lowest of all surveyed countries in terms of their current value creation activities, reflected in the last rank of the Value sub-index.

Indices provide specific analytical perspectives. For instance, the Global Competitiveness Index (GCI) sheds light on the competitiveness of countries, and the United Nations Human Development Index (HDI) on different levels of human development. Thus, indices enable the interpretation of the relative current position of a country in terms of what the index measures and provides intelligence on other relevant outcomes (e.g. competitiveness can lead to economic growth and human development).

Hereinafter, we illustrate the usefulness of the EQx as an analytical framework and tool to analyze the political economy of countries, in three different ways. Firstly, an exemplary EQx country scorecard is provided for the United States in Appendix A2. It serves to visualize in detail a country's performance regarding all dimensions of elite quality and can serve to ground the analysis thereof. Furthermore, Appendix A3 provides nine exemplary extracts of country portraits presented in Casas and Cozzi (2020, 2021) by diverse authors. They are based on the EQx and its component sub-indices, index areas, pillars and indicators. Some of these political economy analyses focus on aggregate EQx levels, while interpretation is also provided for individual indicators which are treated as evidence of value creation and extraction phenomena in the political economy. We present selected extracts of country portraits on Austria (Keuschnigg, 2021), Bangladesh (Sang, 2021), Georgia (Chedia, 2021), India (Cozzi and Gupta, 2021), Japan (Anonymous, 2020), Russia (Shibanov, 2021), Switzerland (Bütler, 2021), Ukraine (Savruk, 2021), and the United Kingdom (Schneider, 2021).

Secondly, taking up on the distributive implications of the concept of elite quality, we investigate how the EQx relates to two measures of inequality. And thirdly, we compare the EQx to renowned measures of general economic and human development.

4.1 Elite quality and inequality

Since the EQx represents the first attempt to measure the novel concept of elite quality, index scores cannot be directly validated by comparing them to some existing measure thereof. However, the underlying theoretical framework hints at distributive implications of different levels of elite quality: with high quality elites giving more than they take, a country scoring high on the EQx is expected to be characterized by a more equal society, and vice versa. Interestingly, this is indeed

the case. The following two scatterplots in Figure 1 show how the EQx relates to two measures of inequality: the share of pre-tax national income accruing to the 90 to 100 percentile of adult individuals, i.e. the top 10% (on the left) and the Gini index (on the right). A lower score in one of the inequality measures indicates a more equal society.

The negative correlation with the Gini index (Pearson correlation coefficient: -0.34) as well as the share of pre-tax national income accruing to the Top 10% (-0.401) is quite important. The negative correlation with the Gini index may suggest that better elites, by favoring aggregate growth, investment, and innovation, produce benefits especially to the middle- and lower-income strata of the population. Conversely, low quality elites take advantage of their power to increase their wealth at the expense of the less powerful, and usually poorer, segments of society. Hence better elites reduce inequality, while bad elites running extractive business models increase it.

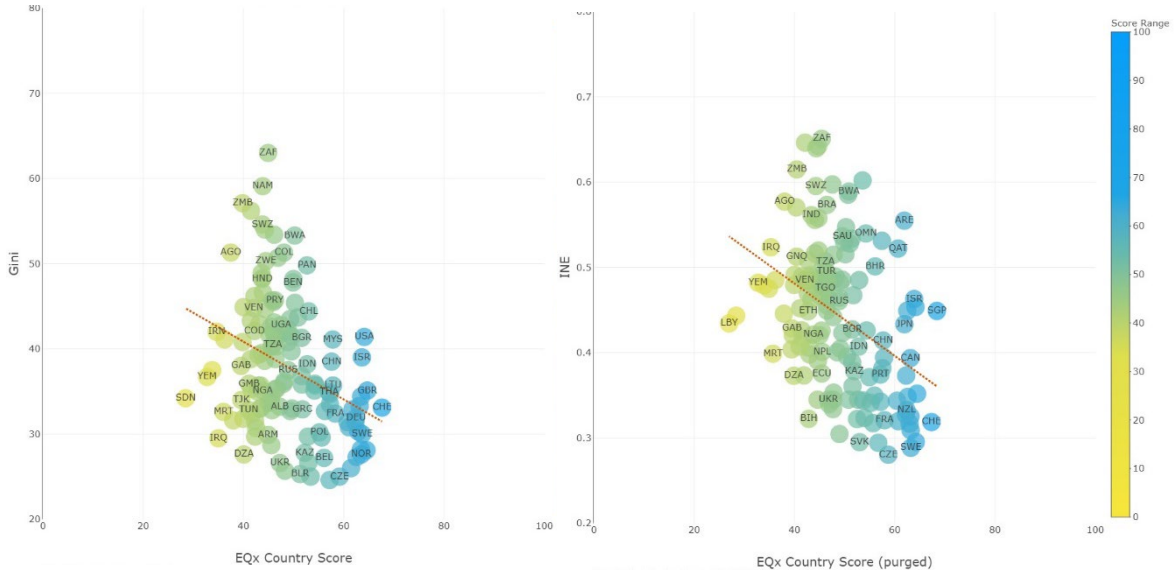


Figure 1. Elite quality and the Gini index (left) and the pre-tax national income accruing to a country's top 10% (right).
Note: The vertical axis plots a measure of inequality, while the horizontal axis plots the EQx. Since measure *Top 10% share of pre-tax national income* (INE, iii.8) is an EQx indicator, it has been

purged from the EQx for the right graph. The orange dashed line indicates a fitted regression line. A random selection of country codes is printed in case of overlaps.

Of course, correlation is no proof of causation. It could be possible that a long history of inclusive institutions (Acemoglu and Robinson 2012) allow the least powerful social classes to keep the more powerful elites in check away of rent seeking, thereby preventing them to abuse of their power and to appropriate a too large share of value added. However, in either case, from a policy perspective our index appears to provide a promising lever to achieve the social objective of combined efficiency and equality.

4.2 Comparative analysis of the EQx with other indices

Compared to existing renowned measures of economic and human development, does the EQx have its own explanatory space on both theoretical and empirical grounds? Regarding the latter, the comparison with other indices provides initial answers. We gauge the explanatory space of the EQx by investigating how the EQx relates to other established indices. We compare the EQx to five indices of different domains of human and economic development: (1) the Global Competitiveness Index or GCI (Schwab 2019) which tracks national competitiveness, (2) the Global Innovation Index or GII (Cornell University, INSEAD and WIPO 2019), (3) the Human Development Index or HDI (United Nations Development Programme 2019) which measures human development, (4) the Environmental Performance Index (2020) or EP which summarizes environmental and sustainability issues, and (5) an indicator for Happiness retrieved from the World Happiness Report (the "ladder question", Helliwell et al. 2020).

Table 6 provides the correlation coefficients between indices. Since the GCI and EPI serve as a basis for some the EQx indicators [11], the EQx is purged from the respective indicators before examining the relation between the resulting purged EQx and the GCI and EPI, respectively.

The differences in Pearson correlation coefficients are small but revealing, implying that EQx is empirically not disassociated from leading indices. The question then becomes the extent to which a comparative analysis tells us something other indices do not. From an applied perspective, the question is whether the differences are relevant for policy in terms of suggesting discrete measures. We know, for instance, that for the Gini index, even small differences can have a large social impact and are worth addressing.

Table 6. Pearson correlation coefficients between EQx and other indices

	EQx (1)	*GII (2)*	*GCI (3)*	*HDI (4)*	*EPI (5)*	*Happiness (WHR) (6)*
EQx	1					
GCI	0.859	1				
GII	0.843	0.893	1			
HDI	0.736	0.816	0.860	1		
EPI	0.750	0.835	0.792	0.879	1	
Happiness (WHR)	0.740	0.753	0.759	0.8	0.769	1

Note: Table shows the pairwise correlation between five measures of economic and human development and the EQx, for the set of EQx countries and for the year 2021. If 2021 data was not available, the most recent available data is used. EQx indicators based on the GCI and EPI are respectively omitted from the EQx when calculating the pairwise correlation between GCI and EPI with the EQx in column (1). Coefficients are rounded to three decimals. All correlation coefficients are significant at the 0.1% level.

[11] Five of the GCI's own indicators enter the EQx as indicators: (1) *Government's responsiveness to change*, i.1 RTC; (2) *Ease of challenging regulations*, i.2 EPI; (3) *Venture capital availability*, ii.6 VCA; (4) *Organized crime*, iii.8 OCR; (4) *DOI Inflation*, iv.11 DOI. The EPI enters the EQx as an individual indicator iii.9 EPI *Environmental Performance Index*.

Figure 2 hence illustrates the correlation coefficients from a different perspective, showing the distances of each index in relation to other indices. This particular comparative rendition of multi-index data facilitates the contextualization of the EQx in relation to leading indices. The principal interpretation is that the EQx is consistent with other leading indices in terms of the correlation distances it had with other indices, with which it correlates at levels above the 0.736 mark. If two indices have a very high correlation, the question invariability would arise about whether the pair might not be describing the same phenomena. Of significance is also that the EQx is correlated to other indices in a markedly different way than other indices are correlated with each other. That means that that EQx possesses its own 'explanatory space'. In other words, 'elite quality' is a theoretical construct that captures 'something' about a nation that other indices do not directly describe.

In this regard, it is interesting to observe that two correlation distance clusters seem to have formed vis à vis the EQx in a way that they have not formed for other indices. The first cluster is about the indices that are of an economic nature, i.e., competitiveness (GCI) and innovation (GII). These two indices have a certain distance from each other (0.893) and yet both have in turn a similar distance to the EQx (respectively 0.859 and 0.843). It would appear that the EQx is about equidistant to both and a conceptual triangle might be posited to exist between the three indices, with the EQx slightly further apart from GCI and GII (than these two are from each other). These distances highlight the relevance of EQx for policymakers aiming to target, for instance, economic growth or prosperity via competitiveness, innovation and elite quality: the optimal action would include specifically tailored, discrete policies to increase competitiveness, foster innovation and

encourage elite business model transformation (e.g., via institutional change or policy incentives) toward higher levels of value creation, i.e., elite quality.

The second correlation distance cluster of the EQx is with indices that describe the specific, non-economic phenomena of human development (HDI), environmental protection (EPI) and happiness (WHR). For all three indices the correlations with EQx are very similar (respectively 0.736, 0.750, and 0.740). No distance clusters form in the same manner between either one of the two economic indices and the non-economic indices. This might reflect the fact that the EQx has a broader quality as it attempts to identify value creation wherever in the (political) economy such phenomena can be captured with data (the extensive phenomena that are captured by EQx component indicators range from monetary policy to gender discrimination).

A key question for the EQx that might be facilitated by the analysis of correlation distances relates to the EQx theoretical ambition of being an independent variable which potentially serves as a leading indicator to other phenomena in the economy and society (on account of the fact that elite value creation business models have a forward temporal impact). For different time horizons (e.g., year 3, 5, 7 in the future) what will happen to the distance between EQx and other indices? In other words, the EQx temporal hypothesis would hold that correlation distances shorten and lengthen over discrete time horizons. Therefore, for specific indices consistent correlation distances shorter than the present ones (for a given range of years in the future) might exist. The research question is whether the EQx is a predictor of mid-term economic growth, or whether changes of the EQx scores can foretell what will happen to a nation's competitiveness or happiness.

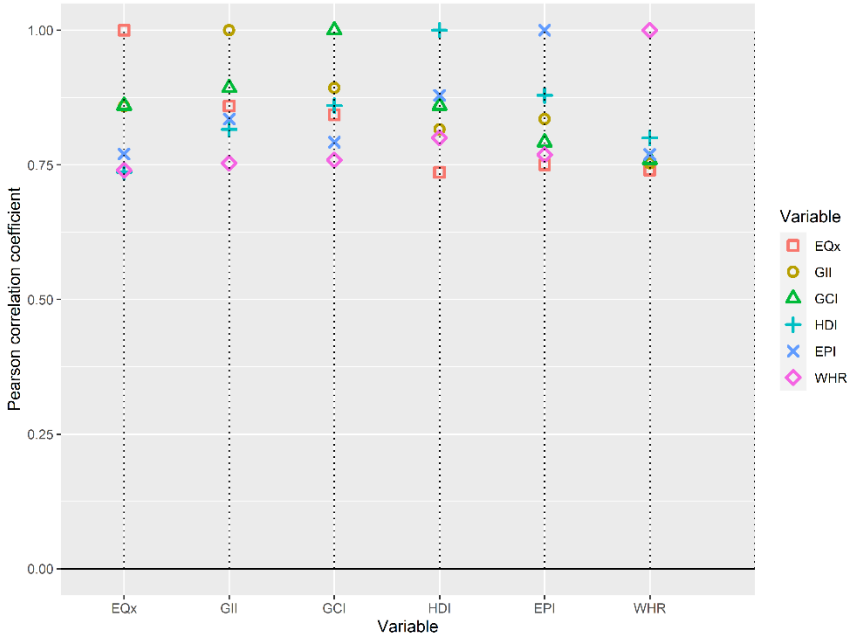


Figure 2. Distances among leadig human and economic devleopement indices, illustrating correlation coefficients acrross indices.

In short, this section's examination shows the potential of EQx to provide insight and policy ideas in a manner similar to what other leading indices do. The comparative discussion vis-à-vis existing indices will be ongoing as EQx establishes a unique empirical place to complement its theoretical positioning, resulting in an explanatory space for elite quality potentially relevant in the areas of economics, development and public policy, both from research and applied perspectives.

5 Sensitivity analysis

The following section has two goals. Firstly, to validate the judgement calls discussed in the methodology section and secondly, to address the critical view that data constraints limit the cross-

country comparability of EQx scores. This is achieved by gauging how sensitive the EQx scores and country ranking are, ceteris paribus, to changes in key modelling assumptions and modifications of its setup (OECD 2008, 34; Santeramo 2017, 131).

We refer to the EQx calculated according to the previously discussed methodology as baseline EQx. The robustness of the baseline EQx is tested by comparing country scores and rankings across alternative specifications. In most cases, this is accomplished by computing Spearman and Kendall Tau-b correlation coefficients, i.e. two non-parametric measures of the strength and direction of statistical association, between the rankings (OECD 2008, 81). Thus, the similarity in the baseline and alternative ranking can be quantified and assessed. This approach is widely used, for instance to investigate the robustness of the Corruption Perceptions Index (Álvarez-Díaz et al. 2018, 10ff), the European Well-being Index (Ivaldi, Bonatti and Soliani 2016, 409), and the Multidimensional Poverty Index (Alkire and Santos 2014, 260ff).

The following sections assess the index' sensitivity with respect to the (1) selection of indicators, (2) data quality, (3) choice of normalization scheme, (4) choice of weighting scheme, and (5) choice of aggregation scheme.

5.1 Leave-one-out robustness

The first test aims at showing the balanced structure of the EQx. Are all of the 107 indicators within the 12 pillars similarly important? Are some of them redundant, or, on the contrary, dominating index scores? As small changes in scores might imply substantial changes in the ranking, one should avoid the EQx ranking to be dominated by a small set of indicators or a particular pillar. This is because the explanatory power of the EQx is substantially based on a comparative analysis of a country's performance. Moreover, one should ensure that the EQx

provides a balanced measure of elite quality, which fully accounts for the multi-dimensional nature of this concept.

Hence, in a first step, we test the impact of each pillar on the EQx ranking, by excluding one pillar at a time, and comparing the emerging ranking to the baseline ranking, following the approach presented by Álvarez-Díaz et al. (2018, 21). Figure 3 illustrates the deviation (EQx minus simulation) from baseline ranks. The distribution of the differences in country scores is illustrated by vertical lines for each excluded pillar. Boxes include 50% of all countries and the horizontal line within a box indicates the median. A small box and short vertical line close to the zero-difference horizontal red dashed line indicates that the respective pillar does not significantly affect the final index ranking.

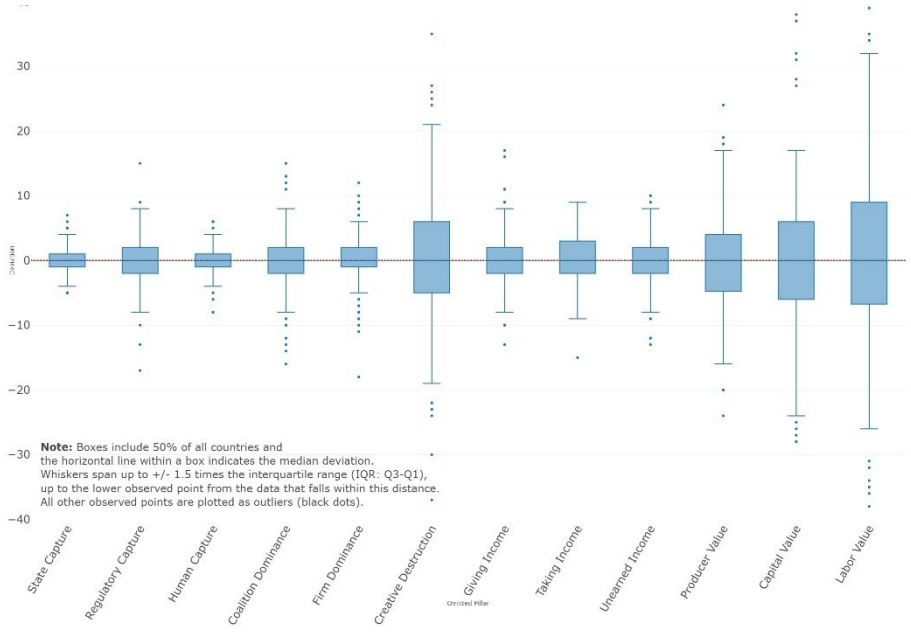


Figure 3. Deviation from baseline EQx when excluding one pillar at a time.

When omitting any pillar, the median deviation from the EQx ranking is zero. Furthermore, for 50% of countries, omitting any pillar affects their ranking by less than 10 positions. Importantly,

all pillars contribute to the final EQx ranking, since omitting any pillar has an effect on the overall ranking.

Table 7 lists the Kendall Tau-b and Spearman correlation coefficients between the EQx ranking and the implied alternative ranking when omitting one pillar at a time. The correlation coefficients are smaller than 1 for all pillars, which again shows that all pillars contribute to the EQx ranking. Pillars 6 (Creative Destruction), 11 (Capital Value) and 12 (Labor Value) are the most important pillars, since their omission shift the index ranking the most. However, the correlation coefficients are high and statistically significant in all cases.

Table 7. Correlation coefficients between the EQx and alternative ranking omitting one pillar at a time

	Omitted pillar											
	i.1	*i.2*	*i.3*	*ii.4*	*ii.5*	*ii.6*	*iii.7*	*iii.8*	*iii.9*	*iv.10*	*iv.11*	*iv.12*
Kendall Tau-b	0.978	0.954	0.972	0.939	0.951	0.861	0.944	0.952	0.95	0.897	0.843	0.779
Spearman	0.999	0.996	0.998	0.993	0.995	0.971	0.994	0.996	0.996	0.983	0.962	0.928

Note: Coefficients are rounded to three decimals. Both the Kendall and Spearman correlation coefficients are significant at the 1 % level. All coefficients are statistically significant at the 1% level.

Figure B1 in the online appendix tests the sensitivity of the index to the selection of underlying indicators and shows the deviation from baseline scores and ranking when excluding one indicator at a time. It appears that no indicator overly dominates the ranking, even though the omission of individual indicators can imply considerable shifts in the rankings for single countries. The impact of indicators is larger in the right half of the graph, which reflects the higher weights allocated to the indicators in the Value sub-index. When omitting any single indicator, in most cases, this does not change the rank of a country at all or only by one rank; on average, a country's rank shifts by 0.983 positions. The alternative rankings, when on omitting any one indicator at a time, are highly and significantly correlated with the baseline EQx, with a Kendall Tau-b correlation coefficient of

at least 0.927 (Spearman: 0.99). Hence, we conclude that while all indicators and pillars contribute somehow to the EQx, with some possibly having a larger impact than others, no indicator and no pillar dominates the final ranking.

5.2 Implications of data constraints

An obvious concern is that missing values are not missing entirely at random but based on a systematic pattern (OECD 2008, 24): data availability might be related to a country's elite quality. This could represent an endogeneity bias for the EQx. The scatterplot in Figure 4 illustrates the relation between EQx country scores, and the number of indicators used for calculation. On average, a country's EQx score is calculated using almost 80 indicators. Turkmenistan has the least data, with 42 indicators.

As suspected, there generally appears to be a positive relation between data availability, i.e. the number of indicators used for index computation, and resulting index scores. Countries with more data tend to score higher on the EQx. This relation is particularly strong at the extremes of index performance: the countries that score highest in the EQx also have the most data, and the countries that score lowest, the least data. However, the Figure also shows that there is a large variation in data availability for countries with a middling EQx performance, colored in green. This mid-level performance section of the EQx ranking does not seem to be related to data availability.

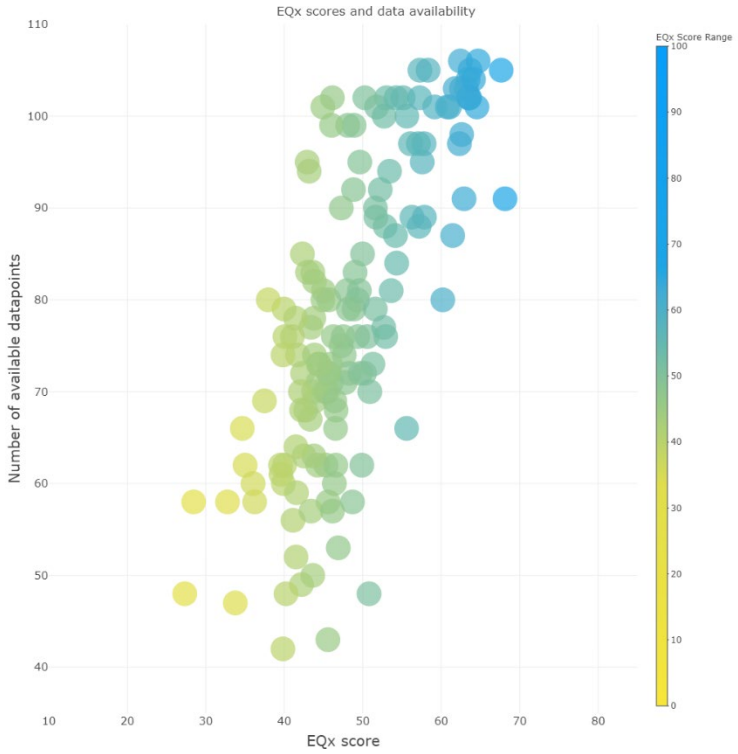


Figure 4. Data availability and EQx scores.

More importantly, a positive relation between country scores and data availability is not necessarily an indicator of a bias: high quality elites may allow for and foster the collection of data irrespective of the outcome, while conditions might not be favorable for data collection in countries with low quality elites. Provided the existing indicators are unbiased, index values are not biased, but less precise. The state of elite quality is depicted using less, but nevertheless correct, information. We are confident that this argument applies here, since the EQx uses data of renowned and trustworthy international organizations.

5.3 Robustness to the normalization scheme

As outlined in section 3.4, indicators are converted to a common scale in the process of constructing the EQx. In summary, the EQx applies a z-score standardization, before rescaling the

resulting values to range between 0 and 100. Hence, we evaluate the sensitivity of the EQx ranking to this normalization scheme by applying two alternative normalization schemes: the standardization of values according to the Min-Max procedure, and the normalization of values by ranking them (for formulas, see OECD, 2008, p.30). For almost 50% of countries, applying a different normalization procedure affects their rank by less than 6 positions. Table 8 compares the resulting rankings to the EQx baseline ranking by means of the Spearman and Kendall Tau-b rank correlation coefficients. The rankings that use different normalization schemes are highly and significantly correlated with the baseline rankings. This suggests that the EQx is stable to changes in the normalization method.

Table 8. Correlation coefficients between the EQx and alternative ranking applying different normalization schemes

	Min-Max	*Ranking*
Kendall Tau-b	0.847	0.867
Spearman	0.96	0.978

Note: Coefficients are rounded to three decimals. All coefficients are statistically significant at the 1% level.

5.4 Robustness to the weighting scheme

As detailed in section 3.5.1, the EQx weighting scheme is established by a panel of experts and based on conceptual deliberations. While the chosen approach is based on careful theoretical considerations, key insights must be robust to a plausible range of weights. Table 9 compares the baseline ranking to the index ranking resulting from several alternative weighting schemes and shows the respective Kendall Tau-b and Spearman rank correlation coefficients. Columns (2) to

(6) apply equal weighting at different aggregation levels, representing a less fine-grained approach than for the baseline specification. Column (7) takes this to the extreme, calculating index values as an unweighted mean of all indicators. Columns (8) and (9) vary the weighting of the two sub-indices, and column (10) applies equal weighting both at the index area and sub-index level.

Unsurprisingly, the correlation coefficients are lower the more the weighting scheme is modified. The lowest correlation coefficient is obtained in column (6) when weighting all elements equally within their level of aggregation, representing a fairly strong modification of the baseline weighting scheme. The resulting Kendall Tau-b (Spearman) correlation coefficient still amounts to 0.842 (0.963). All correlation coefficients are significant at the 1% level. Hence, we conclude that the EQx ranking is largely robust to slight and even far-reaching modifications in the underlying weighting scheme.

Table 9. Robustness to alternative weighting schemes

	EQx (1)	*Altern. 1 (2)*	*Altern. 2 (3)*	*Altern. 3 (4)*	*Altern. 4 (5)*	*Altern. 5 (6)*	*Altern. 6 (7)*	*Altern. 7 (8)*	*Altern. 8 (9)*	*Altern. 9 (10)*
Indicator weight within pillar	BAP	equal	✓	equal	equal	equal		✓	✓	✓
Pillar weight within index area	BAP	✓	equal	equal	equal	equal		✓	✓	✓
Index area weight within sub-index										
Political Power	$0.\overline{3}$	✓	✓	✓	equal	equal	Equal final	✓	✓	equal
Economic Power	$0.\overline{6}$	✓	✓	✓	equal	equal	indicator	✓	✓	equal
Political Value	$0.\overline{3}$	✓	✓	✓	equal	equal	weights:	✓	✓	equal
Economic Value	$0.\overline{6}$	✓	✓	✓	equal	equal	$1/107$	✓	✓	equal
Sub-indices										
Power	$0.\overline{3}$	✓	✓	✓	✓	equal		0.25	equal	equal
Value	$0.\overline{6}$	✓	✓	✓	✓	equal		0.75	equal	equal
Kendall Tau-b	1	0.936	0.945	0.921	0.88	0.842	0.936	0.953	0.912	0.863
Spearman	1	0.993	0.995	0.99	0.979	0.963	0.993	0.996	0.986	0.969

Note: The above part of the table shows the weighting scheme used for the EQx (column (1)), as well as 9 alternative weighting schemes (column (2) to (10)). "BAP" indicates weights determined by the Budget Allocation Process, "equal" indicates equal weighting within the respective level. The check mark indicates that the baseline weighting scheme is not changed. The lower part of the table indicates the Kendall Tau-b and Spearman correlation coefficient between the EQx ranking and a ranking using an alternative weighting scheme. Coefficients are rounded to three decimals. All coefficients are statistically significant at the 1% level.

5.5 Robustness to the aggregation scheme

The EQx applies a linear aggregation scheme, where a weighted arithmetic mean is taken at each aggregation level. This approach implies constant and full compensability between the aggregated elements (perfect substitutes) (OECD 2008, 33; Munda 2012, 338). However, one might argue, that scoring low in one sub-index should imply having to score substantially higher in the other sub-index to improve the overall score, implying a lower level of compensability. This can be realized with an aggregation scheme where a geometric mean is taken at each level of aggregation. Hence, in order to assess the sensitivity of the EQx ranking towards this functional form, we alternatively consider a geometric aggregation scheme when aggregating the two sub-indices, Power and Value.

The resulting ranking is again highly and significantly correlated with the EQx ranking, with a Kendall Tau-b correlation coefficient amounting to 0.988 (Spearman: approximately 1). For more than 80% of countries, the implied ranking deviates not at all or by only one position from the baseline EQx ranking. These results suggest that the EQx is largely robust to its underlying functional form.

In conclusion, these results suggest that the EQx has a relatively balanced structure, and the implied ranking is largely robust to concerns related to data availability, the chosen normalization method, as well as the weighting and aggregation scheme.

6 Conclusion

The aim of this paper was two-fold. Firstly, we proposed a sound and transparent methodology to comprehensively measure the novel concept of elite quality. The EQx index provides an easy to

interpret summary, a practice-oriented heuristic, of the various conceptual political economy dimensions of the elite quality construct, by providing a solution to aggregate the microeconomic perspective of value creation business models. As a result, it allows us to compare the performance of countries on a common scale and pursue important research questions. For instance, the index turns out to be negatively correlated with the Gini index, which suggests that in countries where elites are less powerful or more committed to value creation business models, citizens will be more equal.

In this vein, EQx can serve as a tool to communicate insights and can be used as basis for discussions with policymakers, decision-makers running elite business models and, hopefully, with the general public.

All the underlying assumptions and methods used for index construction have been presented in detail, to render the index as transparent, justifiable and reliable as possible. The different index levels allow for both an overall quantification of a country's elite quality, as well as an in-depth analysis regarding specific aspects of elite quality at four different levels of analysis (index, sub-index and index area, pillar and finally at the indicator level). The methodology can be applied to improved datasets covering a larger number of countries and additional indicators. The variety of robustness tests run suggest that EQx scores and ranking are not driven by individual indicators, different levels of data availability or the chosen normalization method, and are largely robust to a range of alternative weighting and aggregation schemes.

Secondly, the proposed methodology is applied using data on 151 countries and 107 indicators. Thus, the EQx is the first internationally comparable index that quantifies and operationalizes elite quality. The index offers unique insights, possibly controversial but certainly interesting, and enriches the options to analyze the political economy of countries and future

economic and human growth prospects. The EQx reveals substantial differences in the state of elite quality across the considered countries. A practical application of the EQx is shown by presenting nine selected extracts of country analyses through the lens of the EQx that leverage the novel analytical tool box.

This paper has focused on presenting the index construction process and scrutinizing the robustness of EQx scores and ranking - ceteris paribus - to changes in key modelling choices. We have refrained from an econometric analysis using the index and its constellation of sub-indices and pillars, because this will be the focus of future research.

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Conflict of interest

The authors have no conflicts of interest to declare.

References

Acemoglu, D., S. Johnson, and J. A. Robinson. 2001. "The Colonial Origins of Comparative Development: An Empirical Investigation." *American Economic Review* 91 (5): 1369–401.

Acemoglu, D., and J. A. Robinson. 2019a. *The Narrow Corridor: States, Societies and the Fate of Liberty*. New York, NY: Penguin Press.

——. 2019b. "Rents and Economic Development: The Perspective of Why Nations Fail." *Public Choice* 181 (1): 13–28.

——. 2016. "Paths to Inclusive Political Institutions." In *Economic History of Warfare and State Formation*, edited by J. Eloranta, E. Golson, A. Markevich, and N. Wolf, 3–50. Singapore: Springer Singapore.

——. 2012. *Why Nations Fail: The Origins of Power, Prosperity, and Poverty*. New York, NY: Crown Publishers.

Alkire, S., and M. E. Santos. 2014. "Measuring Acute Poverty in the Developing World: Robustness and Scope of the Multidimensional Poverty Index." *World Development* 59: 251–74.

Álvarez-Díaz, M., M. Saisana, V. Montalto, and C. Tacao Moura. 2018. *Corruption Perceptions Index: 2017 Statistical Assessment EUR 29405 EN, JRC113251*. Luxembourg, Europe: Publications Office of the European Union.

Anonymous. 2020. “Japan: Will elites finally shift gears in the Reiwa era of "beautiful harmony"?” In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2020: 32 Country Scores and Global Rank* (p.40). Zürich: Seismo. doi: 10.33058/seismo.30750.04.

Belfiore, P., and L.P. Favero. 2019. *Data Science for Business and Decision Making.* London: Elsevier.

Bourdieu, P. 1986. "The Forms of Capital." In *Handbook of Theory and Research for the Sociology of Education*, edited by J. G. Richardson, 241–58. New York, NY: Greenwood Press.

Bütler, M. 2021. "Switzerland: COVID-19 challenges a political economy tuned for high value creation." In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.88). Zurich: Seismo. doi: 10.33058/seismo.30800.

Casas, T. (forthcoming 2022). *Towards an Elite Theory of Economic Development: A Conceptual Inquiry into Value Creation and its Measurement.* DeGruyter.

Casas, T., and G. Cozzi (Eds.). 2020. *Elite Quality Report 2020: 32 Country Scores and Global Rank.* Seismo. https://doi.org/10.33058/seismo.30750.

Casas, T., and G. Cozzi, (Eds.). 2021. *Elite Quality Report 2021: Country Scores and Global Rankings.* Seismo. https://doi.org/10.33058/seismo.30781.

Chedia, B. 2021. "Georgia: Caught in post-Soviet patterns but with real potential for elite quality transformation". In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.62). Zurich: Seismo. doi: 10.33058/seismo.30789.

Chowdhury, S., and L. Squire. 2006. "Setting Weights for Aggregate Indices: An Application to the Commitment to Development Index and Human Development Index." *The Journal of Development Studies* 42 (5): 761–71.

Cornell University, INSEAD, and WIPO. 2019. *The Global Innovation Index 2019: Creating Healthy Lives - the Future of Medical Innovation*. Geneva, Switzerland: Global Innovation Index, World Intellectual Property Organization.

Cozzi, G. 1998. "Culture as a Bubble." *Journal of Political Economy* 106 (2): 376–94.

Cozzi, G., and Gupta, N. 2021. "India: Divisive elites struggle to create prosperity". In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.70). Zurich: Seismo. doi: 10.33058/seismo.30792.

Csontos, L., and S. C. Ray. 1992. "The Leontief Production Function as a Limiting Case of the CES." *Indian Economic Review* 27 (2): 235–7.

Diamond, J. M. 1997. *Guns, Germs, and Steel: The Fates of Human Societies*. New York, NY: Norton.

Environmental Performance Index. 2020. "2020 EPI Results: Results Overview." https://epi.yale.edu/epi-results/2020/component/epi.

Greco, S., A. Ishizaka, M. Tasiou, and G. Torrisi. 2019. "On the Methodological Framework of Composite Indices: A Review of the Issues of Weighting, Aggregation, and Robustness." *Social Indicators Research* 141 (1): 61–94.

Grupp, H., and T. Schubert. 2010. "Review and New Evidence on Composite Innovation Indicators for Evaluating National Performance." *Research Policy* 39 (1): 67–78.

Helliwell, J. F., R. Layard, J. Sachs, and J. E. De Neve. 2020. *World Happiness Report*. New York, NY: Sustainable Development Solutions Network.

Humphreys, M., J. D. Sachs, and J. E. Stiglitz. 2007. *Escaping the Resource Curse (Initiative for Policy Dialogue at Columbia)*. New York, NY: Columbia University Press.

Ivaldi, E., G. Bonatti, and R. Soliani. 2016. "The Construction of a Synthetic Index Comparing Multidimensional Well-Being in the European Union." *Social Indicators Research* 125 (2): 397–430.

Keuschnigg, C. 2021. “Austria: High elite quality but less than top performance”. In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (pp.51-52). Zurich: Seismo. doi: 10.33058/seismo.30784.

Laffont, J. J., and J. Tirole. 1991. "The Politics of Government Decision-Making: A Theory of Regulatory Capture." *The Quarterly Journal of Economics* 106 (4): 1089–127.

Lee, S.H. 2021. “Bangladesh: Poised to emerge if Elite Quality Improves”. In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.54). Zurich: Seismo. doi: 10.33058/seismo.30785.

Little, R. J. A., and D. B. Rubin. 2002. *Statistical Analysis with Missing Data*. Hoboken, NJ: Wiley-Interscience, John Wiley & Sons.

Mazziotta, M., and A. Pareto. 2013. "Methods for Constructing Composite Indices: One for All or All for One?" *Rivista Italiana die Economia Demografia e Statistica* 67 (2): 67–80.

Medina, L., and Schneider, F.G. 2018. *Shadow Economies Around the World: What Did We Learn Over the Last 20 Years?* (IMF Working Paper No. 18/17). doi: 10.2139/ssrn.3124402.

Meixler, E., G. Smith and E. Goldberg. 2019. FirstFT: 2019 in review. *The Financial Times.* https://www.ft.com/content/0591e3c0-2518-11ea-9a4f-963f0ec7e134.

Moldan, B., S. Billharz, and R. Matravers. 1997. *Sustainability Indicators: A Report on the Project on Indicators of Sustainable Development*. Chichester, England: John Wiley and Sons.

Munda, G. 2012. "Choosing Aggregation Rules for Composite Indicators." *Social Indicators Research* 109 (3): 337–54.

Nardo, M., M. Saisana, A. Saltelli, and S. Tarantola. 2005. "Tools for Composite Indicators Building." *European Comission, Ispra* 15 (1): 19–20.

North, D. C. 1981. *Structure and Change in Economic History*. New York, NY and London: W. W. Norton Company.

OECD. 2008. *Handbook on Constructing Composite Indicators: Methodology and User Guide*. Paris: OECD.

Parry, G. 2005. *Political Elites*. Colchester, England: ECPR Press.

Putnam, R. D. 1994. *Making Democracy Work: Civic Traditions in Modern Italy. With the Assistance of R. Leonardi and R. Y. Nanetti*. Princeton, NJ: Princeton University Press.

Santeramo, F. G. 2017. "Methodological Challenges in Building Composite Indexes: Linking Theory to Practice." In *Emerging Trends in the Development and Application of Composite Indicators*, edited by V. Jeremic, Z. Radojicic, and M. Dobrota, 127–40. Pennsylvania, PA: Hershey.

Savruk, O. 2021. "Ukraine: Elite transformational leadership is needed to create trust and institutional reform". In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.90). Zurich: Seismo. doi: 10.33058/seismo.30801.

Schneider, M.T. 2021. "The United Kingdom: On the elite quality podium, while navigating choppy waters in search of a new place in the world". In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.94). Zurich: Seismo. doi: 10.33058/seismo.30803.

Schwab, K. 2019. *The Global Competitiveness Report: Insight Report*. Cologny, Switzerland: World Economic Forum.

Shibanov, O. 2021. “Russia: Better than it was, worse than it could have been”. In T. Casas i Klett and G. Cozzi. (Eds.), *Elite Quality Report 2021: Country Scores and Global Rankings* (p.84). Zurich: Seismo. doi: 10.33058/seismo.30798.

Stigler, G. J. 1971. "The Theory of Economic Regulation." *The Bell Journal of Economics and Management Science* 2 (1): 3–21.

Szerb, L., and Z. Acs. 2011. "The Global Entrepreneurship and Development Index Methodology." *SSRN Electronic Journal*: 1–30. doi: 10.2139/ssrn.1857985.

Tabellini, G. 2008. "The Scope of Cooperation: Values and Incentives." *The Quarterly Journal of Economics* 123 (3): 905–50.

Tullock, G. 1967. "The Welfare Costs of Tariffs, Monopolies, and Theft." *Economic Inquiry* 5 (3): 224–32.

United Nations Development Programme. 2019. "Human Development Reports." http://hdr.undp.org/en/content/human-development-index-hdi.

Weber, M. 1905. *Die Protestantische Ethik und der Geist des Kapitalismus*. Munich, Germany: C.H. Beck.

Welzel, C. 2002. "Effective Democracy, Mass Culture, and the Quality of Elites: The Human Development Perspective." *International Journal of Comparative Sociology* 43 (3-5): 317–49.

Wendling, Z., J. Emerson, A. de Sherbinin, D. Esty, M. Levy. 2018. *2018 Environmental Performance Index*. New Haven, CT: Yale Center for Environmental Law & Policy.

Wilcox, R. 2005. "Trimming and Winsorization." In *Encyclopedia of Biostatistics*, edited by P. Armitage, and T. Colton, 4588–90. Chichester, England: Wiley.

World Bank. 2020a. "Doing Business: Ease of Doing Business Scores." https://www.doingbusiness.org/en/data/doing-business-score.

——. 2020b. "World Bank Country and Lending Groups." https://datahelpdesk.worldbank.org/knowledgebase/articles/906519.

Yang, L. 2014. "An Inventory of Composite Measures of Human Progress." http://hdr.undp.org/sites/default/files/inventory_report_working_paper.pdf.

Appendix

A1 EQx indicator list

Table A1.1 EQx indicator list

Index area / *Pillar* / *Indicator*		*Coin side* (2)	*Country coverage* (3)	*Data type* (4)	*Within pillar weight (BAP)* (5)	*Within EQx weight* (6)	*Source* (7)
i Political Power							
i.1 State Capture							
COR	Political corruption	E	151	Index	7.1%	0.3%	Varieties of Democracies (V-DEM) Dataset, sub-set on Political Corruption
MOB	Social Mobility	C	118	Raw	10.7%	0.4%	The World Bank (Development Research Group), Global Database on Intergenerational Mobility (GDIM) database, 2018
PDE	Political decentralization	C	134	Index	10.7%	0.4%	Ivanyna & Shah (2014)
ADE	Administrative decentralization	C	128	Index	3.6%	0.1%	Ivanyna & Shah (2014)
PGL	Political globalisation	C	148	Index	10.7%	0.4%	ETHZ, The KOF Globalisation Index
WPI	Women's Power Index	C	151	Index	10.7%	0.4%	The Council of Foreign Relations (CFR)
RTC	Government's responsiveness to change	C	131	Index	14.3%	0.6%	The World Economic Forum (WEF), The Global Competitiveness Index
EPR	E-Participation Index	C	150	Index	10.7%	0.4%	The UN, Department of Economic and Social Affairs, E-Government Development Knowledge Base
PFD	Press freedom	C	149	Index	10.7%	0.4%	Reporters Without Borders, World Press Freedom Index
COC	Control of corruption	C	151	Index	10.7%	0.4%	The World Bank, Worldwide Governance Indicators (WGI)
i.2 Regulatory Capture							
DBI	Institutional quality	C	149	Index	20.8%	0.9%	The World Bank, Ease of Doing Business Index
CRO	Crony capitalism	E	64	Raw	20.8%	0.9%	Forbes, World's Billionaires List and The World Bank (GDP data)
PMI	Protecting minority investors	C	149	Index	12.5%	0.5%	The World Bank, Ease of Doing Business Index
ECR	Ease of challenging Regulations	E	121	Index	12.5%	0.5%	The World Economic Forum (WEF), The Global Competitiveness Index
EDB	Digital institutional quality	C	42	Index	16.7%	0.7%	Chakravorti and Chaturvedi (2019), Ranking 42 countries by Ease of Doing Digital Business
PRI	Property rights	C	149	Index	16.7%	0.7%	The Heritage Foundation, Index of Economic Freedom (IEF)
i.3 Human Capture							
GSI	Global Slavery Index	E	144	Index	29.4%	0.9%	The Minderoo Foundation's Walk Free Initiative, The Global Slavery Index
WBL	Women, business and the law	C	146	Index	11.8%	0.4%	The World Bank, Women, Business and the Law
LIN	LGBT+ Inclusiveness	C	136	Index	11.8%	0.4%	The Franklin & Marshall Global Barometer of Gay Rights
GRI	Religion – Government Restriction Index	E	151	Index	5.9%	0.2%	Pew Research Center, Government Restriction Index (GRI)

SHI	Religion – Social Hostilities Index	E	151	Index	11.8%	0.4%	Pew Research Center, Social Hostilities Index (SHI)
WSB	Women self-made billionaires	C	56	Raw	5.9%	0.2%	Forbes, World's Billionaires List
HRI	Human Rights Index	C	147	Index	5.9%	0.2%	The Fund for Peace, Fragile States Index
FDP	Forcibly displaced population as % of population	E	151	Raw	11.8%	0.4%	UNHCR, Refugee Population Statistics Database (for forcibly displaced populations) & The World Bank (Population data)
AFI	Academic Freedom Index	C	148	Index	5.9%	0.2%	The Global Public Policy institute (GPPI), Academic Freedom Index
ii Economic Power							
ii.4 Coalition Dominance							
IEE	Top 3 industries exports as % of exports	E	30	Raw	13.6%	0.6%	United Nations, Comtrade Database (exports) & The World Bank (GDP data)
ECI	Economic Complexity Index	C	124	Index	13.6%	0.6%	The Observatory of Economic Complexity (OEC), Economic Complexity Index
IVA	Top 3 industries as % of VA	C	95	Raw	13.6%	0.6%	United Nations Statistics Division (Economic Statistics Branch), National Accounts Estimates of Main Aggregates
CON	Construction as % of GDP (dev. fm optimum)	C/E	48	Raw	13.6%	0.6%	MarketLine, (Construction Data) & World Bank (GDP data)
MIL	Military expenses as % of GDP (dev. fm optimum)	C/E	138	Raw	13.6%	0.6%	Stockholm International Peace Research Institute (SIPRI), Military Expenditure Database
UNI	Unionization rate (dev. fm optimum)	C/E	66	Raw	9.1%	0.4%	International Labor Organisation, ILOSTAT Database
CBC	Collective Bargaining Coverage	E	57	Index	9.1%	0.4%	International Labor Organisation, ILOSTAT Database
BSN	Barriers in service & network sectors	E	45	Index	13.6%	0.6%	OECD Product Market Regulation Statistics
ii.5 Firm Dominance							
PRO	Top 10 firms profitability	E	98	Raw	20.0%	1.0%	Refinitiv Eikon
SME	SME per 1,000 people	C	108	Raw	20.0%	1.0%	SME Finance Forum, MSME Economic Indicators
BIW	Billionaires' wealth as % of GDP	E	148	Raw	6.7%	0.3%	Forbes, World's Billionaires List & The World Bank (GDP data)
FKG	Top 10 firms market cap as % of GDP	E	89	Raw	20.0%	1.0%	Refinitiv Eikon
FRG	Top 3 firms revenues as % of GDP	E	92	Raw	13.3%	0.7%	Refinitiv Eikon
FRR	Top 30 firms revenues as % of GDP	E	71	Raw	20.0%	1.0%	Refinitiv Eikon
ii.6 Creative Destruction							
TUL	Listed firms turnover, long run 15 years	C	33	Raw	3.3%	0.4%	Refinitiv Eikon
TUS	Listed firms turnover, short run 3 years	C	33	Raw	6.7%	0.8%	Refinitiv Eikon
ENT	Entrepreneurship	C	122	Index	16.7%	2.1%	The Global Entrepreneurship and Development Institute (GEDI), Global Entrepreneuship & Development Index
VCK	Venture capital finance	C	150	Raw	16.7%	2.1%	Refinitiv Eikon
RND	R&D % GDP	C	81	Raw	6.7%	0.8%	The UNESCO Institute for Statistics, Global Database on Research and Experimental Development (R&D)

ENR	Firm entry ratio	C	121	Raw	10.0%	1.2%	The World Bank, Doing Business Indicators
EXR	Firm exit ratio	C	24	Raw	6.7%	0.8%	OECD, Structural and Demographic Business Statistics (SDBS), Business Demography Indicators (ISIC Rev. 4)
BCD	Billionaire's creative destruction	C	64	Raw	16.7%	2.1%	Forbes, World's Billionaires List
IWE	Index of Women Entrepreneurs	C	56	Index	6.7%	0.8%	Mastercard, Index of Women Entrepreneurs
VCA	Venture capital availability	C	132	Index	6.7%	0.8%	World Economic Forum (WEF), The Global Competitiveness Index
GSE	Governmental support to entrepreneurship	C	67	Index	3.3%	0.4%	Global Entreprenuership Monitor (GEM), 'Government Support and Policies' sub-indicator of the Entrepreneurial Framework Conditions
iii Political Value							
iii.7 Giving Income							
SNT	Subsidies and transfers as % of expenses	E	108	Raw	7.4%	0.6%	International Monetary Fund (IMF), 'Government Finance Statistics Yearbook'
REG	Regional redistribution as % of government budget	E	142	Raw	7.4%	0.6%	The Fraser Institute (Transfers and Subsidies dataset from the Economic Freedom Database)
EDU	School life expectancy	C	95	Raw	7.4%	0.6%	UNESCO Institute for Statistics
GPS	Expenditure on general public services as % of GDP (dev. fm optimum)	C	56	Raw	5.6%	0.4%	OECD, The Classification of the Functions of government (COFOG)
INT	Internet access	C	145	Raw	3.7%	0.3%	International Telecommunication Union (ITU)
NRI	Network Readiness Index	C	128	Index	3.7%	0.3%	Portulans Institute, Network Readiness Index (NRI)
LEW	Life expectancy women	C	120	Raw	3.7%	0.3%	United Nations, Department of Economic and Social Affairs
LEM	Life expectancy men	C	120	Raw	3.7%	0.3%	United Nations, Department of Economic and Social Affairs
FSQ	Global Food Security Index – availability, quality and safety	C	111	Index	7.4%	0.6%	The Economist Intelligence Unit, Global Food Security Index (GFSI)
COV	COVID-19 excess deaths, age-adjusted	E	39	Raw	9.3%	0.7%	The Financial Times (via Github), Excess mortality data & The World Bank (Population aged 65 and above (% of total population))
COF	COVID-19 fatality rate, age-adjusted	E	142	Raw	9.3%	0.7%	Johns Hopkins University, Coronavirus Resource Center (COVID-19 deaths and cases) & The World Bank (Population aged 65 and above (as % of total population))
CGD	COVID-19 growth differential	E	145	Raw	9.3%	0.7%	The International Monetary Fund (IMF)
COM	COVID-19 mortality rate, age-adjusted	E	142	Raw	9.3%	0.7%	Johns Hopkins University, Coronavirus Resource Center (COVID-19 deaths) & The World Bank (Population aged 65 and above (as % of total population))
CLS	COVID-19 lost schooldays	E	147	Raw	9.3%	0.7%	UNESCO, Global Education Coalition
OSI	Online Service Index	C	147	Raw	3.7%	0.3%	The UN, Department of Economic and Social Affairs, E-Government Development Knowledge Base
iii.8 Taking Income							

DCT	Corporate tax rate (dev. fm optimum)	C	131	Raw	11.8%	1.0%	KPMG (Corporate tax rates table)
HOM	Homicide rate	E	101	Raw	8.8%	0.7%	The United Nations Office on Drugs and Crime (UNODC)
INE	Top 10% share of pre-tax national income	E	150	Raw	14.7%	1.2%	The World Inequality Lab, World Inequality Database (WID)
FDE	Fiscal descentralization	C	66	Index	2.9%	0.2%	The International Monetary Fund (IMF)
DTR	Tax revenue as % of GDP (dev. fm optimum)	C	112	Raw	5.9%	0.5%	The World Bank
BRD	Battle-related deaths per 100,000 people	E	151	Raw	11.8%	1.0%	The International Monetary Fund (IMF), Government Finance Statistics Yearbook & World Bank and OECD GDP estimates (retrieved from the World Bank)
GCI	Global Cybersecurity Index	C	149	Index	14.7%	1.2%	International Telecommunication Union (ITU), The Global Cybersecurity Index (GCI)
SUI	Suicide rate per 100'000 people	E	150	Raw	5.9%	0.5%	The World Health Organization (retrieved from The Global Economy)
SUB	Death rates from substance use disorders per 100'000 people	E	150	Raw	14.7%	1.2%	Institute for Health Metrics and Evaluation (IHME), Global Burden of Disease Collaborative Network
OCR	Organized crime	E	132	Index	8.8%	0.7%	World Economic Forum, Global Competitiveness Index
iii.9 Unearned Income							
DUT	Dutch disease propensity	E	149	Raw	25.0%	1.5%	The World Bank (Total natural resources rents (% of GDP) data)
EPI	Environmental Performance Index	C	148	Index	41.7%	2.5%	Yale Center for Environmental Law & Policy, Environmental Performance index
DBT	Government debt as % of GDP	E	144	Raw	33.3%	2.0%	The Global Economy (Government debt as percentage of GDP data)
iv Economic Value							
iv.10 Producer Value							
TRF	Trade freedom	C	149	Index	13.3%	1.7%	The Heritage Foundation, Index of Economic Freedom (IEF)
FDI	FDI net inflows as % of GDP	C	146	Raw	10.0%	1.3%	UNCTAD Statistics
BTF	Barriers to FDI	E	78	Index	10.0%	1.3%	OECD, FDI Regulatory Restrictiveness Index
EGL	Economic globalisation	C	148	Index	10.0%	1.3%	ETHZ, The KOF Globalization Index
HEI	Health Efficiency Index	C	53	Index	6.7%	0.9%	The Bloomberg Health-Efficiency Index
OFB	Open for business	C	55	Index	6.7%	0.9%	U.S. News & World Report, 2020 Best Countries
ESG	ESG company scores	C	49	Raw	3.3%	0.4%	MSCI ESG Rating database
RDR	R&D as % of revenue Top 10	C	117	Raw	3.3%	0.4%	Bureau van Dijk (Orbis database)
FSA	Global Food Security Index – affordability	C	111	Index	6.7%	0.9%	The Economist Intelligence Unit, Global Food Security Index (GFSI)
PAT	Number of patent applications per 100'000 people	C	113	Raw	3.3%	0.4%	The World Bank (The World Intellectual Property Organization (WIPO), WIPO Patent Report: Statistics on Worldwide Patent Activity)
IPM	Share of imports targeted by protectionist measures	E	148	Raw	13.3%	1.7%	SIAW Insitute, University of St. Gallen, The Global Trade Alert

DGI	Share of discriminatory government interventions as % of total investments	E	146	Raw	13.3%	1.7%	SIAW Insitute, University of St. Gallen, The Global Trade Alert
iv.11 Capital Value							
DNI	Neutral interest rate (dev. fm optimum)	C	26	Raw	12.9%	1.9%	The International Monetary Fund (IMF)
DOI	Inflation (dev. fm optimum)	C	133	Index	9.7%	1.5%	The International Monetary Fund (IMF)
GOL	Gold demand as % of GDP	E	25	Raw	9.7%	1.5%	World Gold Council
DMA	M&A as % of investment – 3 yrs. rolling average (dev. fm optimum)	C	68	Raw	9.7%	1.5%	Refinitiv Eikon (M&A statistics) & OECD (Total Investment)
DKI	Delta capital gains tax vs income tax	E	85	Raw	9.7%	1.5%	PWC (capital gains tax statistics) & KPMG (personal income tax statistics)
UNC	Unicorns per 1 million people	C	149	Raw	9.7%	1.5%	The Hurun Research Institute, Hurun Global Unicorn List
BSG	Billionaires self-made number per 1 million people	C	64	Raw	9.7%	1.5%	Forbes, World's Billionaires List
BSM	Billionaires self-made as % of total billionaires	C	64	Raw	12.9%	1.9%	Forbes, World's Billionaires List
FMI	Financial Markets Index	C	145	Index	16.1%	2.4%	The International Monetary Fund (IMF), Financial Development Index
iv.12 Labor Value							
UEM	Unemployment rate	E	114	Raw	15.0%	2.5%	The International Labour Organization, ILOSTAT database
LFP	Labor force participation rate	C	147	Raw	5.0%	0.8%	OECD, Labour Force Statistics
WLP	Delta real wage vs labor productivity increases	C	34	Raw	15.0%	2.5%	OECD (Labor compensation per hour worked & GDP per hour worked data)
LDR	Labor dependency ratio	E	151	Raw	10.0%	1.6%	The International Labor Organisation, ILOSTAT Database
YUN	Youth unemployment rate	E	151	Raw	20.0%	3.3%	The World Bank (Unemployment, youth total, % of total labor force ages 15-24 data, modeled ILO estimate)
GWG	Gender wage gap	E	129	Raw	10.0%	1.6%	The World Bank (Wage equality between women and men for similar work)
BRN	Net brain drain	E	81	Raw	15.0%	2.5%	OECD (highly skilled worker inflows and outflows) & The International Labour Organization, ILOSTAT Database (highly skilled workforce)
LFR	Labor force participation ratio – male vs female	E	151	Raw	10.0%	1.6%	The World Bank, World Development Indicators (WDI)

Note: List of all indicators considered for the EQx. The first column indicates whether an indicator measures value creation (C) or extraction (E), column (2) provides a short description, column (3) indicates how many countries are covered, column (4) lists the type of the underlying dataset. Column (5) and (6) indicate the indicator's within pillar weight as determined via the Budget Allocation Process as well as the final within EQx weight, rounded to 1 decimal. Weights may not add up to 100 due to rounding. Finally, column (7) gives the source.

Table A1.2 Data Sources and Indicator References

Index area *Pillar* *Indicator*		*Note*	*Source*
i Political Power			
i.1 State Capture			
COR	Political corruption	*	[Dataset] Coppedge, Michael, John Gerring, Carl Henrik Knutsen, Staffan I. Lindberg, Jan Teorell, David Altman, Michael Bernhard, M. Steven Fish, Adam Glynn, Allen Hicken, Anna Luhrmann, Kyle L. Marquardt, Kelly McMann, Pamela Paxton, Daniel Pemstein, Brigitte Seim, Rachel Sigman, Svend-Erik Skaaning, Jeffrey Staton, Steven Wilson, Agnes Cornell, Nazifa Alizada, Lisa Gastaldi, Haakon Gjerløw, Garry Hindle, Nina Ilchenko, Laura Maxwell, Valeriya Mechkova, Juraj Medzihorsky, Johannes von Römer, Aksel Sundström, Eitan Tzelgov, Yi-ting Wang, Tore Wig, and Daniel Ziblatt. 2020. "V-Dem [Country–Year/Country– Date] Dataset v10". Varieties of Democracy (V-Dem) Project. https://doi.org/10.23696/vdemds20. [Related paper] Pemstein, Daniel, Kyle L. Marquardt, Eitan Tzelgov, Yi-ting Wang, Juraj Medzihorsky, Joshua Krusell, Farhad Miri, and Johannes von Römer. 2020. "The V-Dem Measurement Model: Latent Variable Analysis for Cross-National and Cross-Temporal Expert-Coded Data". V-Dem Working Paper No. 21. 5th edition. University of Gothenburg: Varieties of Democracy Institute.
MOB	Social Mobility	*	[Dataset] GDIM. 2018. Global Database on Intergenerational Mobility [Dataset]. Development Research Group, World Bank. Washington, DC: World Bank Group [Related paper] Narayan, A., Van der Weide, R., Cojocaru, A., Lakner, C., Redaelli, S., Gerszon Mahler, D., Ramasubbaiah, R. G. N., & Thewissen, S. (2018). Fair Progress? : Economic Mobility Across Generations Around the World. Equity and Development. Washington, DC: World Bank. https://openknowledge.worldbank. org/handle/10986/28428 License: CC BY 3.0 IGO.
PDE	Political decentralization	*	[Dataset] Ivanyna, Maksym; Shah, Anwar, (2014), How Close Is Your Government to Its People? Worldwide Indicators on Localization and Decentralization [Dataset], https://doi.org/10.7910/DVN/24566, Harvard Dataverse, V2. [Related paper] Maksym Ivanyna and Anwar Shah (2014). How Close Is Your Government to Its People? Worldwide Indicators on Localization and Decentralization. Economics: The Open-Access, Open-Assessment E-Journal, 8 (2014-3): 1–61. http://dx.doi.org/10.5018/economics-ejournal.ja.2014-3.
ADE	Administrative decentralization	*	[Dataset] Ivanyna, Maksym; Shah, Anwar, 2014, How Close Is Your Government to Its People? Worldwide Indicators on Localization and Decentralization [Dataset], https://doi.org/10.7910/DVN/24566, Harvard Dataverse, V2. [Related Paper] Maksym Ivanyna and Anwar Shah (2014). How Close Is Your Government to Its People? Worldwide Indicators on Localization and Decentralization. Economics: The Open-Access, Open-Assessment E-Journal, 8 (2014-3): 1–61. http://dx.doi.org/10.5018/economics-ejournal.ja.2014-3.
PGL	Political globalisation	*	[Dataset description article] Gygli, Savina, Florian Haelg, Niklas Potrafke and Jan- Egbert Sturm (2019): The KOF Globalisation Index – Revisited, Review of International Organiza¬tions, 14(3), 543- 574 https://doi.org/10.1007/s11558- 019-09344-2. [Related Paper] Dreher, Axel (2006): Does Globalization Affect Growth? Evidence from a new Index of Globalization, Applied Economics 38, 10: 1091- 1110.
WPI	Women's Power Index		[Dataset] Council on Foreign Relations. (2020). Women's Power Index [Dataset]. Retrieved January 5, 2021, from: https://www.cfr.org/article/womens-power-index.
RTC	Government's responsiveness to change		[Report] World Economic Forum. (2019). Global Competitiveness Report 2019. Retrieved March 15, 2021, from: http://www3.weforum.org/docs/WEF_TheGlobalCom¬petitivenessReport2019.pdf

EPR	E-Participation Index		[Dataset] United Nations Department of Economic and Social Affairs. (2020). 2020 E-Government Development Index [Dataset]. Retrieved October 10, 2020, from: https://publicadministration.un.org/egovkb/ Data-Center.
PFD	Press freedom		[Dataset] Reporters Without Borders. (2020). World Press Freedom Index 2020. Retrieved November 29, 2020, from: https://rsf.org/en/ranking.
COC	Control of corruption		[Dataset] Worldwide Governance Indicators. (2020). The Worldwide Governance Indicators (WGI) Project [Dataset]. Retrieved January 20, 2021, from: http://info.worldbank.org/governance/wgi/. [Related Paper] Kaufmann, D., Kraay, A., and Mastruzzi, M. (2010). The Worldwide Governance Indicators: Methodology and Analytical Issues. World Bank Policy Research Working Paper No. 5430. Available at: SSRN: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=1682130.
i.2 Regulatory Capture			
DBI	Institutional quality		[Report] The World Bank. (2020). Doing Business 2020: Comparing Business Regulation in 190 Economies. Washington, DC: World Bank. Available at: https://openknowledge.worldbank.org/handle/10986/32436
CRO	Crony capitalism		[Dataset] Forbes. (2020). Forbes Billionaires List 2020. Retrieved November 25, 2020, from: https://www.forbes.com/billionaires/ [Dataset] The World Bank. (n.d.). GDP (current US$) [Indicator ID: NY.GDP. MKTP.CD]. Retrieved June 4, 2020, from: https://data.worldbank.org/indicator/ NY.GDP.MKTP.CD.
PMI	Protecting minority investors		[Report] The World Bank. (2019). Doing Business 2019: Training for Reform. Washington, DC: World Bank. Available at: https://openknowledge.worldbank.org/handle/10986/30438.
ECR	Ease of challenging Regulations		[Dataset] World Economic Forum. (2019). The Global Competitiveness Report 2019. (Efficiency of legal framework in challenging regulations, scale 1-7) [Dataset]. Retrieved May 13, 2021, from: https://www.humanprogress.org/dataset/efficiency-of-legal-framework-in-challenging-regulations/.
EDB	Digital institutional quality		[Report] Chakravorti, B., & Chaturvedi, R. S. (2019). Ranking 42 Countries by Ease of Doing Digital Business. Harvard Business Review. Available at: https://hbr.org/2019/09/ranking-42-countries-by-ease-of-doing-digital-business
PRI	Property rights		[Dataset] The Heritage Foundation. (2020). Index of Economic Freedom (Property Rights Index) [Dataset]. Retrieved November 11, 2020, from: https://www.theglobaleconomy.com/rankings/herit_property_rights/.
i.3 Human Capture			
GSI	Global Slavery Index		[Report] The Minderoo Foundation. (2018). The Global Slavery Index 2018. Retrieved January 13, 2021, from: https://www.globalslaveryindex. org/resources/downloads/.
WBL	Women, business and the law		[Dataset] The World Bank. (2020). Women, Business and the Law Data for 1971-2020 [Dataset]. Retrieved July 7, 2020, from: https://wbl.worldbank.org/en/wbl-data.
LIN	LGBT+ Inclusiveness	*	[Dataset] Susan Dicklitch-Nelson, Berwood Yost, and Scottie Thompson Buckland. F&M Global Barometer of Gay Rights and Global Barometer of Transgender Rights [Dataset], Lancaster, PA: F&M GBGR® and GBTR™, 2018, www.fandmglobalbarometers.org.
GRI	Religion – Government Restriction Index	*	[Source] Pew Research Center. (November, 10, 2020). 'In 2018, Government Restrictions on Religion Reach Highest Level Globally in More Than a Decade'. Available at: https://www.pewforum.org/wp-content/uploads/sites/7/2020/11/ PF_11.10.20_religious.restrictions.full_.report.pdf
SHI	Religion – Social Hostilities Index	*	[Source] Pew Research Center. (November, 10, 2020). 'In 2018, Government Restrictions on Religion Reach Highest Level Globally in More Than a Decade'. Available at: https://www.pewforum.org/wp-content/ uploads/sites/7/2020/11/PF_11.10.20_religious.restrictions.full_. report.pdf
WSB	Women self-made billionaires		[Dataset] Forbes. (2020). Forbes Billionaires List 2020 [Dataset]. Retrieved November 25, 2020, from: https://www.forbes.com/billionaires/
HRI	Human Rights Index		[Dataset] The Fund for Peace. (n.d.). Fragile States Index. (P3 Human Rights) [Dataset]. Retrieved March 13, 2021, from: https://fragilestatesindex.org/excel/.
FDP	Forcibly displaced population as % of population		[Dataset]

		UNHCR. (n.d.). Refugee Population Statistics Database. (Forcibly displaced population as % of Population) [Dataset]. Retrieved March 13, 2021 from: https://www.unhcr.org/refugee-statistics/download/?url=pW9yAD.
AFI	Academic Freedom Index	[Dataset] The World Bank. (n.d.). Population, total [Indicator ID: SP.POP.TOT]. Retrieved December 12, 2020, from: https://data.worldbank.org/indicator/SP.POP.TOTL [Report] Global Public Policy Institute. (2021). Free Universities: Putting the Academic Freedom Index Into Action. Retrieved from: https://www.gppi.net/media/KinzelbachEtAl_2021_Free_Universities_ AFi-2020.pdf.
ii Economic Power		
ii.4 Coalition Dominance		
IEE	Top 3 industries exports as % of exports	[Dataset] United Nations. (n.d.). UN Comtrade Database [Dataset]. Retrieved May 13, 2021 from: https://comtrade.un.org/.
ECI	Economic Complexity Index	[Dataset] The Observatory of Economic Complexity (OEC). (n.d.). Economic Complexity Ranking of Countries (2012-2017) [Dataset]. Retrieved January 14, 2021 from: https://oec.world/en/rankings/country/eci/
IVA	Top 3 industries as % of VA	[Dataset] United Nations Statistics Division (Economic Statistics Branch). (n.d.). National Accounts Estimates of Main Aggregates Gross Value Added by Kind of Economic Activity at current prices - U.S. dollars [Dataset]. Retrieved April 2, 2021 from: http://data.un.org/Data.aspx?q=value+ad-ded&d=SNAAMA&f=grID%3A201%3BcurrID%3AUSD%3BpcFlag%3A0.
CON	Construction as % of GDP (dev. fm optimum)	[Dataset] MarketLine. (2020). Construction Industry Data [Dataset]. Retrieved October 1, 2020 from: https://advantage.marketline.com/HomePage. [Dataset] The World Bank. (n.d.). GDP (current US$) [Indicator ID: NY.GDP. MKTP.CD]. Retrieved October 1, 2020, from: https://data.worldbank.org/indicator/ NY.GDP.MKTP.CD.
MIL	Military expenses as % of GDP (dev. fm optimum)	[Dataset] Stockholm International Peace Research Institute (SIPRI). (n.d.). SIPRI Military Expenditure Database [Dataset]. Retrieved October 15, 2020 from: https://www.sipri.org/databases/milex.
UNI	Unionization rate (dev. fm optimum)	[Dataset] International Labour Organization (ILO). (2020). ILOSTAT Database. Statistics on union membership. Trade union density rate (%) (Indicator code: ILR_TUMT_NOC_RT_A) [Dataset]. Retrieved September 25, 2020 from: https://ilostat.ilo.org/topics/union-membership/.
CBC	Collective Bargaining Coverage	[Dataset] International Labour Organization (ILO). (2020). ILOSTAT Database, Statistics on union membership. Collective bargaining coverage rate (%) (Indicator code: ILR_CBCT_NOC_RT_A) [Dataset]. Retrieved September 25, 2020 from: https://ilostat.ilo.org/topics/union-membership/.
BSN	Barriers in service & network sectors	[Dataset] OECD. (2021). Indicators of Product Market Regulation [Dataset]. Retrieved May 13, 2021 from: https://www.oecd.org/economy/reform/indicators-of-product-market-regulation/.
ii.5 Firm Dominance		
PRO	Top 10 firms profitability	[Dataset] Eikon. (2021). Company-based Data: Revenue, Profit, Market Capitalization [Dataset – 2019 data]. Retrieved May 13, 2021 from: https://eikon.thomsonreuters.com/index.html.
SME	SME per 1,000 people	[Dataset] SME Finance Forum. (2019). MSME Economic Indicators Database 2019 [Dataset]. Retrieved May 13, 2021 from: https://www.smefinanceforum.org/data-sites/msme-country-indicators.
BIW	Billionaires' wealth as % of GDP	[Dataset] Forbes. (2020). Forbes Billionaires List 2020 [Dataset]. Retrieved November 25, 2020, from: https://www.forbes.com/billionaires/ [Dataset] The World Bank. (n.d.). GDP (current US$) [Indicator ID: NY.GDP. MKTP.CD]. Retrieved January 20, 2021, from: https://data.worldbank.org/indicator/NY.GDP.MKTP.CD.
FKG	Top 10 firms market cap as % of GDP	[Dataset] Eikon. (2021). Company-based Data: Revenue, Profit, Market Capitalization [Dataset – 2019 data]. Retrieved May 13, 2021 from: https://eikon.thomsonreuters.com/index.html
FRG	Top 3 firms revenues as % of GDP	[Dataset] Eikon. (2021). Company-based Data: Revenue, Profit, Market Capitalization [Dataset – 2019 Data]. Retrieved May 13, 2021: from https://eikon.thomsonreuters.com/index.html
FRR	Top 30 firms revenues as % of GDP	[Dataset] Eikon. (2021). Company-based Data: Revenue, Profit, Market Capitalization [Data set – 2019 Data]. Retrieved May 13, 2021 from: https://eikon.thomsonreuters.com/index.html

ii.6 Creative Destruction

TUL	Listed firms turnover, long run 15 years	[Dataset] Eikon. (n.d.). Constituents: Leavers and Joiners [Dataset]. Retrieved February 1, 2020, from: https://eikon.thomsonreuters.com/index.html
TUS	Listed firms turnover, short run 3 years	[Dataset] Refinitiv Eikon (n.d.). Constituents: Leavers and Joiners [Dataset]. Retrieved February 1, 2020, from: https://eikon.thomsonreuters.com/index.html.
ENT	Entrepreneurship	[Report] Ács, Z. J., Lloyd, A., & Szerb L. (n.d.). Global Entrepreneurship Index 2018. Retrieved May 13, 2021 from: https://thegedi.org/wp-content/uploads/dlm_up- loads/2017/11/ GEI-2018-1.pdf.
VCK	Venture capital finance	[Dataset] Eikon. (2021). Venture Capital Finance [Dataset]. Retrieved May 13, 2021 from: https://eikon.thomsonreuters.com/index.html.
RND	R&D % GDP	[Dataset] The World Bank. (n.d.). Research and development expenditure (% of GDP) [IIndicator ID: GB.XP D.RSDV.GD.ZS]. Retrieved January 2, 2021 from: https:// data.worldbank.org/indicator/GB.XP D.RSDV.GD.ZS.
ENR	Firm entry ratio	[Dataset]. The World Bank. (2019). Entrepreneurship Survey and database (New business density) [Dataset]. Retrieved May 13, 2021 from: https://www.doingbusiness.org/en/data/exploretopics/entrepreneurship
EXR	Firm exit ratio	[Dataset]. OECD. (2018). Structural and Demographic Business Statistics (SDBS), Business Demography Indicators: Death rate of enterprises [Dataset]. Retrieved February 4, 2021 from: https://stats. oecd.org/Index.aspx?QueryId=70734.
BCD	Billionaire's creative destruction	[Dataset] Forbes. (2020). Forbes Billionaires List 2020 [Dataset]. Retrieved November 25, 2020, from: https://www.forbes.com/billionaires/
IWE	Index of Women Entrepreneurs	[Dataset] Mastercard. (2020). The Mastercard Index of Women Entrepreneurs 2020 Report [Dataset]. Retrieved January 1, 2020 from: https://www.mastercard.com/news/media/1ulpy5at/ma_miwe-report-2020.pdf.
VCA	Venture capital availability	[Dataset] World Economic Forum. (2017). World Economic Forum Global Competitiveness Index. Venture capital availability, 1-7 (best) [Dataset]. Retrieved March 10, 2021, from: https://tcdata360.worldbank.org/indicators/ h8a7ea3d1?country=BRA&indicator=529&viz=line_ chart&years=2007,2017.
GSE	Governmental support to entrepreneurship	[Dataset] Global Entrepreneurship Monitor. (n.d.). Entrepreneurial Framework Conditions. Indicator: Government Support and Policies [Dataset]. Retrieved May 13, 2021 from: https://www.gemconsortium.org/data/key-nes.

iii Political Value

iii.7 Giving Income

SNT	Subsidies and transfers as % of expenses	[Dataset]. The World Bank. (n.d.). Subsidies and other transfers (% of expense) [Indicator ID: GC.XPN.TRFT.ZS]. Retrieved November 11, 2020 from: https://data.worldbank. org/indicator/GC.XPN.TRFT.ZS?view=chart.
REG	Regional redistribution as % of government budget	[Report] Gwartney, J., Lawson, R., Hall, J., Murphy, R., Berggren, N., McMahon, F., and Nilssen, T. (2020). Economic Freedom of the World: 2020 Annual Report. Vancouver, BC: Fraser Institute. Available at: fraserinstitute.org/studies/economic-freedom-of-the-world-2020-annual-report
EDU	School life expectancy	[Dataset] UNESCO Institute for Statistics (n.d.). School life expectancy by level of education [Dataset]. Retrieved January 11, 2021 from: http://data.uis.unesco.org.
GPS	Expenditure on general public services as % of GDP (dev. fm optimum)	[Dataset] Eurostat. (2020). General government expenditure by function of government (COFOG) [gov_10a_exp] [Dataset]. Retrieved May 13, 2021 from: https://appsso.eurostat.ec.europa. eu/nui/submitViewTableAction.do. [Related paper] Eurostat. (2020). Government expenditure on general public services, Statistics explained. Retrieved May 13, 2021 from: https://ec.europa.eu/eurostat/statistics-explained/ pdfscache/ 42727.pdf.
INT	Internet access	[Dataset] International Telecommunication Union. (n.d.). ITU-D ICT Statistics. Percentage of Individuals using the Internet [Dataset]. Retrieved December 1, 2020, from: https://www.itu.int/net4/ITU-D/icteye/#/query
NRI	Network Readiness Index	[Dataset] Portulans Institute. (2020). Network Readiness Index 2020: Benchmarking the Future of the Network Economy [Dataset]. Retrieved December 1, 2020, from: https://networkreadinessindex.org/.

LEW	Life expectancy women	*	[Dataset] United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1. URL: https://population.un.org/wpp2019/Download/Standard/ Interpolated/.
LEM	Life expectancy men	*	[Dataset] United Nations, Department of Economic and Social Affairs, Population Division (2019). World Population Prospects 2019, Online Edition. Rev. 1. URL: https://population.un.org/wpp2019/Download/Standard/ Interpolated/.
FSQ	Global Food Security Index – availability, quality and safety		[Dataset] The Economist Intelligence Unit. (n.d.). Global Food Security Index. Rankings and Trends [Dataset]. Retrieved January 12, 2021, from: https://foodsecurityindex.eiu.com/Index.
COV	COVID-19 excess deaths, age-adjusted		[Dataset] The Financial Times. (n.d.). Financial Times. Excess mortality during the Covid-19 pandemic [Dataset]. Retrieved May 13, 2021 from: https://github.com/Financial-Times/coronavirus-excess-mortality-data. [Dataset] The World Bank. (n.d.). Population ages 65 and above (% of total population) [Indicator ID: SP.POP.65UP.TO.ZS]. Retrieved May 13, 2021 from: https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS.
COF	COVID-19 fatality rate, age-adjusted		[Dataset] Johns Hopkins University. (n.d.). Coronavirus Resource Center. Retrieved March 17, 2021 from: Statista: Coronavirus (COVID-19) deaths worldwide per one million population, by country [Dataset]. Available at: https://www.statista.com/statistics/1104709/coronavirus-deaths-worldwide-per-million-inhabitants/. [Dataset] The World Bank. (n.d.). Population ages 65 and above (% of total population) [Indicator ID: SP.POP.65UP.TO.ZS]. Retrieved May 13, 2021 from: https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS.
CGD	COVID-19 growth differential		[Dataset] The International Monetary Fund. (2021). World Economic Outlook Database [Dataset]. Retrieved February 1, 2021 from: https://www.imf.org/en/Publications/WEO/weo-database/2020/ October.
COM	COVID-19 mortality rate, age-adjusted		[Dataset] Johns Hopkins University. (n.d.). Coronavirus Resource Center. Retrieved March 17, 2021 from Statista: Coronavirus (COVID-19) deaths worldwide per one million population, by country [Dataset]. Available at: https://www.statista.com/statistics/1104709/coronavirus-deaths-worldwide-per-million-inhabitants/. [Dataset] The World Bank. (n.d.). Population ages 65 and above (% of total population) [Indicator ID: SP.POP.65UP.TO.ZS]. Retrieved May 13, 2021 from: https://data.worldbank.org/indicator/SP.POP.65UP.TO.ZS.
CLS	COVID-19 lost schooldays		[Dataset] UNESCO. (n.d.). Global monitoring of school closures [Dataset]. Retrieved April 8, 2021 from: https://en.unesco.org/covid19/ educationresponse#durationschoolclosures.
OSI	Online Service Index		[Dataset] United Nations Department of Economic and Social Affairs. (2020). 2020 E-Government Development Index [Dataset]. Retrieved October 10, 2020, from: https://publicadministration.un.org/egovkb/Data-Center.

iii.8 Taking Income

DCT	Corporate tax rate (dev. fm optimum)		[Dataset] KPMG. (n.d.). Corporate tax rates table [Dataset]. Retrieved Jan 17, 2021, from: https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/ tax-rates-online/corporate-tax-rates-table.html.
HOM	Homicide rate		[Dataset] United Nations Office on Drugs and Crime. (2019). Global Study on Homicide [Dataset]. Retrieved November 15, 2020 from: https://dataunodc.un.org/GSH_app.
INE	Top 10% share of pre-tax national income		[Dataset] The World Inequality Lab. (n.d.). World Inequality database [Dataset]. Retrieved March 13, 2021 from: https://wid.world/world/#sptinc_p90p100_z/ US;FR;DE;CN;ZA;GB;WO/last/eu/k/p/yearly/s/false/24.322/80/ curve/false/country.
FDE	Fiscal descentralization		[Dataset] The International Monetary Fund (IMF). (n.d.). Fiscal Decentralization [Dataset]. Retrieved January 19, 2021 from: https://data.imf. org/?sk=1C28EBFB-62B3-4B0C-AED3-048EEEBB684F. [Related Paper] Hu, C., Kabanda, M., Lledó, V., Ncuti, C. & Xiang, Y. (2018). The IMF Fiscal Decentralization Dataset : Methodological Note. Available at: https://data.imf. org/?sk=1C28EBFB-62B3-4B0C-AED3-048EEEBB684F.

DTR	Tax revenue as % of GDP (dev. fm optimum)		[Dataset] The World Bank. (n.d.). Tax revenue (% of GDP) [Indicator ID: GC. TAX.TOTL.GD.ZS]. Retrieved March 13, 2021 from: https://data.worldbank.org/indicator/GC.TAX. TOTL.GD.ZS
BRD	Battle-related deaths per 100,000 people		[Dataset] Uppsala Conflict Data Program. (2020). Battle-related deaths (number of people) [Dataset]. http://www.pcr.uu.se/research/ucdp/. Retrieved February 8, 2021 from: the World Bank [Indicator ID: VC.BTL.DETH]: https://data.worldbank.org/ indicator/VC.BTL.DETH.
GCI	Global Cybersecurity Index		[Dataset] International Telecommunication Union. (2018). Global Cybersecurity Index (GCI) 2018 [Dataset]. Retrieved October 8, 2020 from: https://www.itu.int/dms_pub/itu-d/opb/str/D-STR-GCI.01-2018-PDF-E.pdf.
SUI	Suicide rate per 100'000 people		[Dataset] World Health Organization. (n.d.). Suicide mortality rate, per 100,000 population [Dataset]. Retrieved January 1, 2021 from: https://www.theglobaleconomy.com/download-data.php.
SUB	Death rates from substance use disorders per 100'000 people	*	[Dataset] Global Burden of Disease Collaborative Network. Global Burden of Disease Study 2017 (GBD 2017) Results. Seattle, United States: Institute for Health Metrics and Evaluation (IHME), 2018.
OCR	Organized crime		[Dataset] World Economic Forum. (2017). World Economic Forum Global Competitiveness Index. Organized crime [Dataset]. Retrieved March 10, 2021, from: https://tcdata360.worldbank.org/indicators/ h3031de56?country=BRA&indicator=678&viz=line_ chart&years=2007,2017.
iii.9 Unearned Income			
DUT	Dutch disease propensity		[Dataset] World Bank. (n.d.). Total natural resources rents (% of GDP) [Indicator ID: NY. GDP.TOTL.RT.ZS]. Retrieved February 1, 2021 from: https://data.worldbank.org/ indicator/NY.GDP.TOTL.RT.ZS. [Related paper] World Bank. (2011). The Changing Wealth of Nations: Measuring Sustainable Development in the New Millennium. Washington DC: World Bank.
EPI	Environmental Performance Index	*	[Report] Wendling, Z.A., Emerson, J.W., de Sherbinin, A., Esty, D.C., et al. (2020). 2020 Environmental Performance Index. New Haven, CT: Yale Center for Environmental Law & Policy. epi.yale.edu.
DBT	Government debt as % of GDP		[Dataset] TheGlobalEconomy.com. (n.d.). Government debt by country, around the world [Dataset]. Retrieved November 15, 2020 from: https://www.theglobaleconomy.com/rankings/ Government_debt/.
iv Economic Value			
iv.10 Producer Value			
TRF	Trade freedom		[Website] The Heritage Foundation. (n.d.). Country Rankings. Index of Economic Freedom. Retrieved November 15, 2020 from: https://www.heritage.org/index/explore.
FDI	FDI net inflows as % of GDP		[Dataset] United Nations Conference on Trade and Development (UNCTAD). (n.d.). Foreign direct investment: Inward and outward flows and stock, annual [Dataset]. Retrieved January 17, 2021 from: https://unctadstat.unctad.org/EN/Index.html.
BTF	Barriers to FDI		[Dataset] OECD. (n.d.). FDI Regulatory Restrictiveness Index [Dataset]. Retrieved January 17, 2021 from: https://stats.oecd.org/Index.aspx?datasetcode=FDIINDEX#.
EGL	Economic globalisation	*	[Dataset] Gygli, Savina, Florian Haelg, Niklas Potrafke and Jan-Egbert Sturm (2019): The KOF Globalisation Index – Revisited, Review of International Organizations, 14(3), 543-574 https://doi.org/10.1007/s11558-019-09344-2. [Related Paper] Dreher, Axel (2006): Does Globalization Affect Growth? Evidence from a new Index of Globalization, Applied Economics 38, 10: 1091-1110.
HEI	Health Efficiency Index		[Article] Miller, L. J., and Lu, Wei. (2020). Asia Trounces U.S. in Health- Efficiency Index Amid Pandemic. Bloomberg Online. Retrieved March 17, 2021 from: https://www.bloomberg.com/news/articles/2020-12-18/asia-trounces-u-s-in-health-efficiency-index-amid-pandemic#:~:text=The%20 Bloomberg%20Health%2DEfficiency%20Index,systems%20have%20 the%20best%20outcomes.&text=America%27s%20low%20scores%20 reflect%20a,the%20largest%20Covid%2D19%20caseload.
OFB	Open for business		[Report] U.S. News. (2020). Best Countries 2020: Global rankings, international news and data insights. Retrieved February 18, 2021 from: https://www.usnews.com/media/best-countries/overall-rankings-2020. pdf?int=top_nav_Download%202020%20Rankings
ESG	ESG company scores		[Dataset]

			MSCI (2020). MSCI ESG KLD Stats. New York, US: MSCI Inc. Retrieved September 8, 2020 from: Wharton Research Data Services (WRDS) database.
RDR	R&D as % of revenue Top 10	*	[Dataset] Orbis. (2020). Profit & Loss Account Data: Research and Development Expenses (USD) [Dataset - 2019 Data]. Retrieved May 14, 2021 from: https://orbis.bvdinfo.com.
FSA	Global Food Security Index – affordability		[Dataset] The Economist Intelligence Unit. (n.d.). Global Food Security Index. Rankings and trends [Dataset]. Retrieved January 12, 2021, from: https://foodsecurityindex.eiu.com/Index.
PAT	Number of patent applications per 100'000 people		[Dataset] The World Bank. (n.d.). Patent applications, residents. [Dataset ID: IP.PAT:RESD]. [Dataset ID: NY.GDP.PCAP.PP.CD]. Retrieved October 10, 2020 from: https://data.worldbank.org/indicator/IP.PAT.RESD
IPM	Share of imports targeted by protectionist measures	*	[Related paper] Simon J. Evenett and Johannes Fritz (2020). The Global Trade Alert database handbook. Manuscript, 14 July 2020.
DGI	Share of discriminatory government interventions as % of total investments	*	[Related paper] Simon J. Evenett and Johannes Fritz (2020). The Global Trade Alert database handbook. Manuscript, 14 July 2020.
iv.11 Capital Value			
DNI	Neutral interest rate (dev. fm optimum)		[Dataset] OECD. 2020. Main Economic Indicators [Dataset]. doi: 10.1787/7a23d68b-en (Accessed on 31 March, 2020).
DOI	Inflation (dev. fm optimum)		[Dataset] The World Bank. (n.d.). GDP growth (annual %) [Indicator ID: NY.GDP.MKTP. KD.ZG]. Retrieved June 4, 2020, from: https://data.worldbank.org/ indicator/NY.GDP.MKTP.KD.ZG. [Dataset] The International Monetary Fund (IMF). (n.d.). Consumer Price Index, All items, Percentage change, Previous year [Dataset]. Retrieved March 21, 2021 from: https://data.imf.org/?sk=4FFB52B2-3653-409A-B471-D47B46D904B5&sId=1485878855236
GOL	Gold demand as % of GDP		[Dataset] The International Monetary Fund (IMF). (n.d.). Consumer Price Index, All items, Percentage change, Previous year [Dataset]. Retrieved March 21, 2021 from: https://data.imf.org/?sk=4FFB52B2-3653-409A-B471-D47B46D904B5&sId=1485878855236
DMA	M&A as % of investment – 3 yrs. rolling average (dev. fm optimum)		[Dataset] Refinitv Eikon. (n.d.). M&A Transaction Data, 1970-2020 [Dataset]. Retrieved January 10, 2021 from: https://eikon.thomsonreuters.com/index.html. [Dataset] The World Bank. (n.d.). Total investment (% of GDP) [Dataset]. Retrieved February, 15, 2021 from: https://tcdata360.worldbank.org/indicators/inv.all. pct?country=BRA&indicator=345&viz=line_chart&years=1980,2024.
DKI	Delta capital gains tax vs income tax		[Website] PWC. (n.d.). Capital Gains Tax (CGT) rates. Retrieved from: https://taxsummaries.pwc.com/quick-charts/capital-gains-tax-cgt-rates. [Website] KPMG. (n.d.). Individual Income Tax Rates Table. Retrieved from: https://home.kpmg/xx/en/home/services/tax/tax-tools-and-resources/ tax-rates-online/individual-income-tax-rates-table.html.
UNC	Unicorns per 1 million people		[Website] Hurun Research Institute. (2020). Hurun Global Unicorn Index 2020. Retrieved from: https://www.hurun.net/en-US/Info/Detail?num=E0D67D6B2DB5.
BSG	Billionaires self-made number per 1 million people		[Dataset] Forbes. (2020). Forbes Billionaires 2020. Retrieved July 18, 2020, from: https://www.forbes.com/billionaires/.
BSM	Billionaires self-made as % of total billionaires		[Dataset] Forbes. (2020). Forbes Billionaires 2020. Retrieved July 18, 2020, from: https://www.forbes.com/billionaires/.
FMI	Financial Markets Index		[Dataset] International Monetary Fund. (n.d.). Financial Development Index. Financial Markets Index. Retrieved February 16, 2021 from: https://data.imf.org/?sk=f8032e80-b36c-43b1-ac26-493c5b1cd33b.
iv.12 Labor Value			
UEM	Unemployment rate		[Dataset] The World Bank. (n.d.). Unemployment, total (% of total labor force) (national estimate) [Indicator ID: SL.UEM.TOTL.NE.ZS]. Retrieved November 17, 2020 from: https://data.worldbank.org/indicator/SL.UEM.TOTL.NE.ZS.
LFP	Labor force participation rate		[Dataset] International Labour Organization. (n.d.). ILOSTAT database. Labour force participation rate by sex and age – ILO modelled estimates (code: EAP_2WAP_SEX_AGE_RT_A_EN). Retrieved January 27, 2021 from: https://ilostat.ilo.org/topics/population-and-labour-force/.

WLP	Delta real wage vs labor productivity increases	*	[Dataset] OECD (2020). Labour compensation per hour worked (indicator). doi: 10.1787/251ec2da-en (Accessed February 20, 2021). [Dataset] OECD (2020). GDP per hour worked (indicator). doi: 10.1787/1439e590-en (Accessed February 20, 2021).
LDR	Labor dependency ratio		[Dataset] International Labour Organization. (n.d.). ILOSTAT database. Labour Dependency ratio [ILO modelled estimates]. Retrieved January 10, 2021 from: https://ilostat.ilo.org/topics/population-and-labour-force/.
YUN	Youth unemployment rate		[Dataset] The World Bank. (n.d.). Unemployment, youth total (% of total labor force ages 15-24) (modeled ILO estimate) [Indicator ID: SL.UEM.1524. ZS]. Retrieved January 17, 2021 from: https://data.worldbank.org/indicator/SL.UEM.1524.ZS.
GWG	Gender wage gap		[Dataset] World bank. (n.d.). Wage equality between women and men for similar work (survey data, normalized on a 0-to-1 scale) [Dataset]. Retrieved May 14, 2021 from: https://tcdata360.worldbank.org/ indicators/44b08997?country=BRA&indicator=28164&viz=line_ chart&years=2016,2018.
BRN	Net brain drain		[Dataset] OECD. (n.d.). OECD Databases on Migration [Dataset]. Retrieved October 1, 2020 from: https://www.oecd.org/migration/mig/oecdmigrationdatabases.htm
LFR	Labor force participation ratio – male vs female		[Dataset] International Labour Organization. (n.d.) ILOSTAT Database. Employment by Education [Dataset]. Retrieved October 1, 2020 from: https://ilostat.ilo.org/resources/concepts-and-definitions/description-employment-by-education/ [Dataset] The World Bank. (n.d.). Ratio of female to male labor force participation rate (%) (modeled ILO estimate) [Indicator ID: SL.TLF. CACT.FM.ZS]. Retrieved January 27, 2021 from: https://data.worldbank.org/indicator/SL.TLF.CACT.FM.ZS.

Note: Table lists the source that supplies the data used, for each indicator. A follow up reference might be provided for additional, relevant literature. Data sources are indicated with an asterisk when the data provider requested/recommended a specific citation format.

A2 Country scorecard of the United States (Casas and Cozzi, 2021, p.97)

United States

EQx2021 Country Scorecard

Population	328 million
GDP (nominal)	21433 billion USD
GDP per capita	6529'8 USD



Level 1 – Index

EQx Rank / 151	EQx Score
5	64.1

Very High Quality Elites

Level 2 – Sub-Indices & Index Areas

EQx Sub-Indices

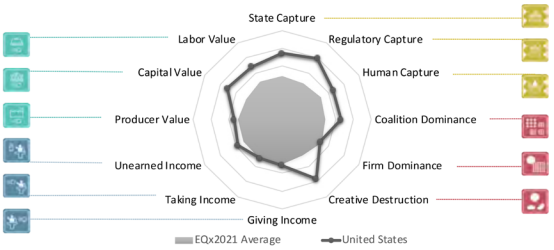
Power		Value	
Rank / 151	Score	Rank / 151	Score
1	70.2	18	61.0

EQx Index Areas

Political Power (i)		Economic Power (ii)		Political Value (iii)		Economic Value (iv)	
Rank / 151	Score	Rank / 151	Score	Rank / 151	Score	Rank / 151	Score
10	74.4	3	68.2	53	52.5	4	65.3

Level 3 – Pillars

		Rank / 151	Score
Political Power (I)	State Capture	15	74.8
	Regulatory Capture	3	80.0
Economic Power (II)	Human Capture	24	66.2
	Coalition Dominance	12	66.2
	Firm Dominance	90	49.7
	Creative Destruction	5	76.5
Political Value (III)	Giving Income	63	51.3
	Taking Income	74	50.1
	Unearned Income	42	57.3
Economic Value (IV)	Producer Value	53	54.1
	Capital Value	3	71.1
	Labor Value	12	68.8



Level 4 – EQx Indicators

			Rank / 151	Score
State Capture (i.1)	COR	Political corruption	26	82.1
	MOB	Social mobility	74	37.5
Regulatory Capture (i.2)	PDE	Political decentralization	1	100.0
	ADE	Administrative decentralization	10	84.4
	PGL	Political globalization	15	81.8
	WPI	Women's Power Index	106	33.2
	RTC	Government's responsiveness to change	10	91.8
	EPR	E-Participation Index	1	87.4
	PFD	Press freedom	35	68.5
	COC	Control of corruption	20	84.7
	DBI	Institutional quality	4	85.5
	CRO	Crony capitalism	39	53.4
	PMI	Protecting minority investors	33	71.9
	ECR	Ease of challenging regulations	1	100.0
	EDB	Digital institutional quality	1	93.2
	PRI	Property rights	20	84.0
Human Capture (i.3)	GSI	Global Slavery Index	9	70.1
	WBL	Women, business and the law	32	71.7
	LIN	LGBT+ Inclusiveness	34	71.4
	GRI	Religion - Government Restriction Index	75	56.5
	SHI	Religion - Social Hostilities Index	76	53.6
Coalition Dominance (ii.4)	WSB	Women self made billionaires	7	75.1
	HRI	Human Rights Index	42	65.4
	FDP	Forcibly displaced population as % of population	1	56.2
	AFI	Academic Freedom Index	33	72.2
	IEE	Top 3 industries exports as % of GDP	7	71.1
	ECI	Economic Complexity Index	6	94.5
	IVA	Top 3 industries as % of VA	75	29.4
	CON	Construction as % of GDP (dev. fm optimum)	13	63.7
	MIL	Military expenses as % of GDP (dev. fm optimum)	45	64.9
	UNI	Unionization rate (dev. fm optimum)	2	72.9
	CBC	Collective bargaining coverage	15	70.7
	BSN	Barriers in service & network sectors		
Firm Dominance (ii.5)	PRO	Top 10 firms profitability	85	50.4
	SME	SMEs per 1,000 people	41	45.5
	BIW	Billionaires' wealth as % of GDP	141	16.3
	FKG	Top 10 firms market cap as % of GDP	62	41.2
	FRG	Top 3 firms revenues as % of GDP	5	60.0
	FRR	Top 30 firms revenues as % of GDP	9	65.9
Creative Destruction (ii.6)	TUL	Listed firms turnover, long run 15 years	24	33.0
	TUS	Listed firms turnover, short run 3 years	22	41.3
	ENT	Entrepreneurship	1	100.0
	VCK	Venture capital finance	1	100.0
	RND	R&D as a % of GDP	8	82.2
	ENR	Firm entry ratio		
	EXR	Firm exit ratio		
	BCD	Billionaire's creative destruction	38	39.7
	IWE	Index of Women Entrepreneurs	2	89.2
	VCA	Venture capital availability	1	100.0
	GSE	Governmental support to entrepreneurship	23	55.1
Giving Income (iii.7)	SNT	Subsidies and transfers as % of expenses	92	20.2
	REG	Regional redistribution as % of government budget	111	28.7
	EDU	School life expectancy	25	65.7
	GPS	Expenditure on general public services as % of GDP (dev. f	34	52.4
	INT	Internet access	23	76.3
	NRI	Network Readiness Index	8	94.7
	LEW	Life expectancy women	31	69.9
	LEM	Life expectancy men	30	70.0
	FSQ	Global Food Security Index - availability, quality and safet	4	90.6
	COV	COVID-19 excess deaths, age-adjusted	28	46.6
	COF	COVID-19 fatality rate, age-adjusted	32	60.3
	CGD	COVID-19 growth differential	77	52.4
	COM	COVID-19 mortality rate, age-adjusted	119	26.3
	CLS	COVID-19 lost schooldays	137	14.3
	OSI	Online Service Index	6	85.0
Taking Income (iii.8)	DCT	Corporate tax rate (dev. fm optimum)	33	65.3
	HOM	Homicide rate	69	36.9
	INE	Top 10% share of pre-tax national income	78	47.1
	FDE	Fiscal decentralization	16	64.5
	DTR	Tax revenue as % of GDP (dev. fm optimum)	15	77.2
	BRD	Battle-related deaths per 100,000 people	1	53.8
	GCI	Global Cybersecurity Index	2	86.5
	SUI	Suicide rate per 100,000 people	126	26.0
	SUB	Death rates from substance use disorders per 100,000 peo	142	0.0
	OCR	Organized crime	50	59.4
Unearned Income (iii.9)	DUT	Dutch disease propensity	39	62.1
	EPI	Environmental Performance Index	21	85.0
	DBT	Government debt as % of GDP	135	18.9
Producer Value (iv.10)	TRF	Trade freedom	65	60.6
	FDI	FDI net inflows as % of GDP	113	41.0
	BTF	Barriers to FDI	50	53.7
	EGL	Economic globalization	24	80.8
	HEI	Health Efficiency Index	52	6.4
	OFB	Open for business	2	91.9
	ESG	ESG company scores	30	51.8
	RDR	R&D as % of revenue Top 10 firms	1	100.0
	FSA	Global Food Security Index - affordability	6	80.0
	PAT	Number of patent applications per 100,000 people	1	100.0
	IPM	Share of imports targeted by protectionist measures	131	31.7
	DGI	Share of discriminatory government interventions as % of t	116	29.5
Capital Value (iv.11)	DNI	Neutral interest rate (dev. fm optimum)	4	73.0
	DOI	Inflation (dev. fm optimum)	1	62.7
	GOL	Gold demand as % of GDP	4	67.3
	DMA	M&A as % of investment - 3 yrs. rolling average (dev. fm.	64	41.6
	DKI	Delta capital gains tax vs income tax	58	28.0
	UNC	Unicorns per 1 million people	1	100.0
	BSG	Billionaires self-made number per 1 million people	5	93.6
	BSM	Billionaires self-made as % of total billionaires	24	58.1
	FMI	Financial Markets Index	1	100.0
Labor Value (iv.12)	UEM	Unemployment rate	25	61.4
	LFP	Labor force participation rate	72	50.5
	WLP	Delta real wage vs labor productivity increases	10	64.0
	LDR	Labor dependency ratio	34	68.0
	YUN	Youth unemployment rate	52	64.4
	GWC	Gender wage gap	7	92.3
	BRN	Net brain drain	4	82.2
	LFR	Labor force participation ratio - male vs female	59	62.8

The Elite Quality Report 2021 (EQx2021) provides Country Scores & Global Rank for 151 countries

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A3 Selected extracts of country analyses through the lens of the EQx

Austria

> "The Value Creation performance of economic elites fares somewhat less favorably, although remains substantially above the international average (Economic Value, iv, rank # 20). On the positive side, the *Net brain drain* (BRN, iv.12, rank # 6) is low, while *Economic globalization* is high (EGL, iv.10, rank # 7). Performance is also good with regard to *Trade freedom* (TRF, iv.10, rank # 13), the *Global Food Security Index* (FSQ, iii.7, rank # 13), self-made billionaires (BSG, iv.11, rank # 12), *Unicorns per million people* (UNC, iv.11, rank # 14), and the close link between wage increases and productivity growth (WLP, iv.12, rank # 14). However, Austria's economic elite system is less convincing in other areas. For example, the rankings are particularly unfavorable for the *Gender wage gap* (GWG, iv.12, rank # 100) and *Labor force participation rate* (LFP, iv.1, rank # 86). It also seems that Austria is not a very attractive location for profit-seeking multinationals, as indicated by the poor ranking in terms of *FDI net inflows as % of GDP* (FDI, iv.10, rank # 95). The high *Share of imports targeted by protectionist measures* (IPM, iv.10, rank # 82) and *Share of discriminatory government interventions as % of total interventions* (DGI, iv.10, rank # 89) also indicate an uptick in protectionism and rent extraction rather than Value Creation by local players." (Keuschnigg, 2021, p. 52)

Bangladesh

> "As the EQx illustrates, Producer rent (iv.10, rank # 132) is very high in Bangladesh, due to the collusion issues mentioned above. For instance, major suppliers create artificial

shortages to put upward pressure on prices during peak demand seasons; prices nearly tripled during this year's month of Ramadan. While trade is generally liberalized under Bangladeshi law (IPM, iv.10, rank # 1), the reality is a closed economy with low *Trade freedom* (TRF, iv.10, rank # 127), which results in poor foreign direct investment inflow (FDI, iv.10, rank # 122). This is mainly due to the protectionist efforts of underdeveloped industries, including the financial sector (FMI, iv.11, rank # 64). Such policies adopted by the elites to protect their business models hinder the diversification of Bangladesh's economy. Capital rents (iv.11, rank # 86) are high, as resources are transferred from the state sector to a select class of individuals—the elites. Despite official figures showing a lower *Unemployment rate* (UEM, iv.12, rank # 40) in Bangladesh compared to its geographic and economic neighbors, labor rents (iv.12, rank # 92) are high as is reflected in low participation rates in the labor market and high gender disparities. Policy reforms and the transformation of the elite business model found in some of the areas discussed have the potential to result in quick wins for the nation." (Sang, 2021, p. 54)

Georgia

"Nearly 30 years have passed since the collapse of the Soviet Union and the restoration of Georgia's independence, yet the process of political and economic transition is still ongoing. Georgia has achieved some success in reforming its political institutions (for example, it enjoys a multi-party system, media independence from the state, and an array of civil society institutions). However, the economic system is currently on 'artificial ventilation' and rent-seeking business models remain an issue. Therefore, it is not surprising that Georgia has more encouraging scores in the political dimensions of the EQx

(Political Power, i, rank # 38 and Political Value, iii, rank # 46) than the economic dimensions (Economic Power, ii, rank # 145 and Economic Value, iv, rank # 81)." (Chedia, 2021, p. 62)

India

"India scores poorly in the EQx2021; ranked # 118 out of 151 countries covered. The country is dragged down by the Pillars of the Value Sub-Index (rank # 144), which suggests that there is a lack of desire by Indian elites to produce value.

The Power Pillar produces better results (rank # 44) but these are contradictory. High scores for *Political globalization* (PGL, i.1, rank # 17), decentralization (PDE, i.1, rank # 33), and *Protecting minority investors* (PMI, i.2, rank # 12) coexist with little *Press freedom* (PFD, i.1, rank # 116) and a lack of *Social mobility* (MOB, i.1, rank # 115), which reflects insufficient access to education. Such negligence may ruin a country where 50% of the population is under 29 years of age and with a very high *Youth unemployment rate* (iv.12, YUN, rank # 120)." (Cozzi and Gupta, 2021, p. 70)

Japan

"Raising productivity is a priority for Japan's elites, and the labour market is hence an important space that brings together demographics and growth. The Labor Rent Pillar (iv.12) sees Japan performing very well including a low *Unemployment rate* (UEM, iv.12). However, labor turnover is low, and upward mobility of non-regular workers is limited,

meaning that the extent of subtle but persistent distortions might be underestimated. Moreover, demographic trends threaten to create serious labor shortages in the future, with the number of workers set to deplete by almost 8 million in 203013. While Japan scores rather low on all 3 EQx gender Indicators, if the Prime Minister's "Abenomics is womenomics" is truly implemented and Japan breaks with tradition here, the country will witness a growth and productivity boost in the coming years." (Anonymous, 2020, p. 40)

Russia

"Overall, Russia looks unbalanced with wildly different scores across different indicators. As was the case with the EQx2020, some Indicators place the country in the world's top 10, while other rankings are very low and make Russia look worse than a median country. In the coming years we expect to see stronger state regulation, higher taxes and more infrastructure spending. As a result, elites might become even more connected to the government than they are now. Thus, the government will need clear policies to redistribute its revenues in order to reduce inequality and increase Russia's Elite Quality ranking." (Shibanov, 2021, p. 84)

Switzerland

"In the near future, the EQx paints a brighter picture. As is already apparent, Switzerland's economy is recovering quickly due to its high degree of Creative Destruction (ii.6, rank # 9) and overall strong Economic Value performance (iv, rank # 2) which is mirrored by its top ranking in openness for business (OFB, iv.10, rank # 1), R&D activities (RDR, iv.10,

rank #1) and a low level of import protection (IPM, iv.10, rank # 1). What also stands out is that economic benefits are shared with workers (Labor Value iv.12, rank # 7). It is to be hoped that the disruption and loss of trust apparent in the second and third waves of the pandemic do not jeopardize the important economic and political values upon which Swiss elites have built inclusive and Value Creation business models." (Bütler, 2022, p. 88)

Ukraine

"In the EQx2021, Ukraine ranks # 78 out of the 151 countries assessed. However, for six EQx Indicators, the country is ranked among the top 20 countries, while it is in the top half for 46 Indicators and the bottom half for 42. A key to understanding the overall Elite Quality picture, is the size of the shadow economy, which, according to the World Bank, comprises up to 50% of Ukraine's GDP (Medina & Schneider, 2018). The economic elite system of the country is a balancing act that involves a wide range of players, from large business owners to individual entrepreneurs. Both the positive and negative aspects of this system need evaluation." (Savruk, 2021, p. 90)

United Kingdom

"The UK's third position in the Political Power Sub-Index reflects high *Institutional quality* (DBI, ii.2, rank # 7), an excellent level of *Political globalization* (PGL, i.1, rank # 4) emanating from the country's rich global past and national identity, and a leading position in *Digital institutional quality* (EDB, i.2, rank # 2). Taken together, all of this appears to show a positive narrative for one of the world's oldest parliamentary democracies

embracing a modern future. However, a closer look reveals that substantial work is still needed regarding the political inclusion of women (WPI, i.1, rank # 28), the degree of *Crony capitalism* (CRO, i.2, rank # 34), *Political corruption* (COR, i.1, rank # 20) and unresolved religious tensions (GRI, i.3, rank # 57 & SHI, i.3, rank # 122). In addition, the UK's high Political Power ranking (i, rank # 3) does not translate into political elites delivering political value in equal measure. Public debt remains persistently high (DBT, iii.9, rank # 121) despite the legacy of low levels of *Subsidies and transfers as % of expenses* (SNT, iii.7, rank # 80) that have resulted from years of austerity. Further, the well-known lack of *Regional redistribution as % of government budget* (REG, iii.7, rank # 122), together with the low degree of *Political decentralization* (PDE, i.1, rank # 33) and *Administrative decentralization* (ADE, i.1, rank # 46) needs to be addressed not only with regard to the North-South divide in England, but much more urgently in the face of a resurgent independence movement in Scotland and the threat of renewed conflict in Northern Ireland." (Schneider, 2021, p. 94)