

HCSS Security

## What World do we Live in? An Analysis of Global Geodynamic Trends

### Methodological Annex

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## List of Abbreviations






AI	Artificial Intelligence
CAMEO	Conflict and Mediation Event Observations Event and Actor
CoW	Correlates of War
CPI	Corruption Perceptions Index
ETH	Eidgenössische Technische Hochschule
EU	European Union
EVS	European Values Survey
FBIC	Formal Bilateral Influence Capacity Index
GDELT	Global Database of Events, Language, and Tone
GDP	Gross Domestic Product
GNI	Gross National Income
GPD	Global Populism Database
GPI	Global Peace Index
GRI	Government Restrictions Index
GSS	General Social Survey
GWP	Gross World Product
HCSS	The Hague Center for Strategic Studies
HDI	Human Development Index
ICBM	Intercontinental Ballistic Missile
ICEWS	Integrated Crisis Early Warning System
ICT	Information and Communications Technology
IDEA	International Institute for Democracy and Electoral Assistance
IISS	International Institute for Strategic Studies
IMC	Interstate Military Competition
IMF	International Monetary Fund
KOFGI	<b>Konjunkturforschungsstelle's Globalization Index</b>
LoR	Level of Representation
MENA	Middle East and North Africa
NATO	North Atlantic Treaty Organization
NGO	Non-Governmental Organization
OECD	Organization for Economic Co-operation and Development
PRIO	Peace Research Institute Oslo
R&D	Research and Development
SHI	Social Hostilities Index
SIPRI	Stockholm International Peace Research Institute
TAPI	Timbro Authoritarian Populism Index
TERRIER	Temporally Extended, Regular, Reproducible International Events Records
UAE	United Arab Emirates
UCDP	Uppsala Conflict Data Program
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Program
UNESCO	United Nations Educational, Scientific and Cultural Organization

UNGA	United Nations General Assembly
US	United States
VAP	Voting Age Population
V-DEM	Varieties of Democracy
WGI	Worldwide Governance Indicators
WHO	World Health Organization
WIL	World Inequality Lab
WVS	World Values Survey

## Indicators and descriptions

### Indicators and sources

Table 1 – Indicator and sources across six domains

Domain	Observation Level	Indicator	Source
Socioeconomic	 Subjective	Financial Satisfaction	WVS Key Aggregates <sup>1</sup>
	Objective	Human Development	UNDP <sup>2</sup>
	 Subjective	Spending on healthcare & education	The World Bank Data <sup>3</sup>
	Objective	Internal inequality	Various
	 Subjective	Perception that working hard gets one ahead	WVS Key Aggregates <sup>4</sup>
	Objective	International inequality	The World Bank Data <sup>5</sup>
Identitary	 Subjective	Trust in outgroups	WVS Key Aggregates <sup>6</sup>
	Objective	Inclusiveness	Haas Institute for a Fair and Inclusive Society <sup>7</sup>
	 Subjective	Social hostilities	Pew Research Center: Social Hostilities Index <sup>8</sup>
	Objective	Religious restrictions	Pew Research Center: Government Restrictions Index <sup>9</sup>
		Subjective	Populist discourse

<sup>1</sup> Christian Welzel, “WVS 1 to 6 Key Aggregates, Version 1” (Lueneburg, Germany, 2014), <http://www.worldvaluessurvey.org/WVSEventsShow.jsp?ID=367&fbclid=IwAR3mQVBrK1MESd-ohXJhg6jZ4IKIgfWID5UCMw2FZxe7yyouHhj8eQjhlKo>.

<sup>2</sup> United Nations Development Programme, “Human Development Index (HDI),” accessed September 12, 2019, <http://hdr.undp.org/en/content/human-development-index-hdi>.

<sup>3</sup> The World Bank Group, “Domestic General Government Health Expenditure (% of General Government Expenditure),” The World Bank Data, 2019, <https://data.worldbank.org/indicator/SH.XPD.GHED.GE.ZS>; The World Bank Group, “Government Expenditure on Education, Total (% of Government Expenditure),” The World Bank Data, 2019, <https://data.worldbank.org/indicator/SE.XPD.TOTL.GB.ZS>.

<sup>4</sup> Welzel, “WVS 1 to 6 Key Aggregates, Version 1.”

<sup>5</sup> The World Bank Group, “GDP per Capita (Current US\$),” The World Bank Data, 2018, <https://data.worldbank.org/indicator/NY.GDP.PCAP.CD>.








<sup>6</sup> Welzel, “WVS 1 to 6 Key Aggregates, Version 1.”

<sup>7</sup> Haas Institute for a Fair and Inclusive Society, “2018 Inclusiveness Index,” December 2018, [https://haasinstitute.berkeley.edu/sites/default/files/haasinstitute\\_2018inclusivenessindex\\_publish.pdf](https://haasinstitute.berkeley.edu/sites/default/files/haasinstitute_2018inclusivenessindex_publish.pdf).

<sup>8</sup> Pew Research Center, “Global Restrictions on Religion 2007-2014,” Religion & Public Life, 2016, <https://www.pewforum.org/dataset/global-restrictions-on-religion-2007-2014/>.

<sup>9</sup> Pew Research Center.

<sup>10</sup> Kirk A. Hawkins et al., “Global Populism Database: Populism Dataset for Leaders 1.0,” 2019, <https://populism.byu.edu/Pages/Data>.

		Objective	Votership for populist parties	TAPI <sup>11</sup>
Connectedness		Subjective	Trust in peers	WVS Survey Key Aggregates <sup>12</sup>
		Objective	Informational connectedness	WVS Key Aggregates <sup>13</sup>
		Subjective	Depth of diplomatic connections	The Frederick S. Pardee Center for International Futures: Diplometrics <sup>14</sup>
		Objective	Level of globalization	KOF Swiss Economic Institute: Globalization Index <sup>15</sup>
		Subjective	Number of diplomatic events	GDEL <sup>16</sup>
		Objective	Volume of international exchanges	The Frederick S. Pardee Center for International Futures: Bandwidth <sup>17</sup>
Political		Subjective	Desire to live in democracy	WVS Key Aggregates <sup>18</sup>
		Objective	Voter turnout	IDEA <sup>19</sup>
		Subjective	Perceived democracy	WVS Key Aggregates <sup>20</sup>
		Objective	Polity level	The Center for Systemic Peace <sup>21</sup>
		Subjective	UNGA voting disagreement	Bailey, Strezhnev and Voeten, 2017 <sup>22</sup>

<sup>11</sup> Timbro Authoritarian Populism Index, "The Data," Timbro Authoritarian Populism Index 2019, February 2019, <https://populismindex.com/data/>.

<sup>12</sup> Welzel, "WVS 1 to 6 Key Aggregates, Version 1."

<sup>13</sup> Welzel.

<sup>14</sup> J. D. Moyer, D. K. Bohl, and S. Turner, "Diplometrics: Diplomatic Representation," Frederick S. Pardee Center for International Futures, 2016, <https://pardee.du.edu/diplomatic-representation-data-set>.

<sup>15</sup> Savina Gygli et al., "KOF Globalisation Index - Revisited," *Review of International Organizations* 14, no. 3 (2019): 543–74.

<sup>16</sup> The GDEL<sup>T</sup> Project, "The GDEL<sup>T</sup> Project: Data," 2019, <https://www.gdelproject.org/data.html>.

<sup>17</sup> Jonathan D. Moyer et al., "Power and Influence in a Globalized World" (Washington, DC: Atlantic Council, Frederick S. Pardee Center for International Futures and HCSS, January 2018), [https://www.atlanticcouncil.org/images/Power\\_and\\_Influence\\_.pdf](https://www.atlanticcouncil.org/images/Power_and_Influence_.pdf).

<sup>18</sup> Welzel, "WVS 1 to 6 Key Aggregates, Version 1."







<sup>19</sup> International Institute for Democracy and Electoral Assistance (IDEA), "Voter Turnout Database," 2019, <https://www.idea.int/data-tools/data/voter-turnout>.

<sup>20</sup> Welzel, "WVS 1 to 6 Key Aggregates, Version 1."

<sup>21</sup> Center for Systemic Peace, "Polity IV Project, Political Regime Characteristics and Transitions, 1800-2018," Integrated Network for Societal Conflict Research (INSCR), July 27, 2019, <https://www.systemicpeace.org/inscrdata.html>.

<sup>22</sup> Michael A. Bailey, Anton Strezhnev, and Erik Voeten, "Estimating Dynamic State Preferences from United Nations Voting Data," *Journal of Conflict Resolution* 61, no. 2 (2017): 430–56, <https://doi.org/10/f9pzwz>.



	Objective	Number of people living under democracy	The Center for System Peace <sup>23</sup> & The World Bank Data <sup>24</sup>
Judicial	 Subjective	Perceived fairness	WVS Key Aggregates <sup>25</sup>
	Objective	Civil liberties	Freedom House <sup>26</sup>
	 Subjective	Corruption perception	Transparency International <sup>27</sup>
	Objective	Rule of law	V-DEM Project <sup>28</sup>
	 Subjective	Human rights	Fariss, 2019 <sup>29</sup>
	Objective	Illiberal states' influence	The Frederick S. Pardee Center for International Futures: FBIC <sup>30</sup>
Security	 Subjective	Willingness to fight	WVS Key Aggregates <sup>31</sup>
	Objective	Conflict fatalities	Uppsala Conflict Data Program <sup>32</sup>
	 Subjective	Negative military rhetorical assertiveness	GDEL <sup>33</sup>
	Objective	Military expenditure	The World Bank <sup>34</sup>
	 Subjective	Global peace	Institute for Economics & Peace <sup>35</sup>
	Objective	Number of active conflicts	Uppsala Conflict Data Program <sup>36</sup>

<sup>23</sup> Center for Systemic Peace, "Polity IV Project, Political Regime Characteristics and Transitions, 1800-2018."

<sup>24</sup> The World Bank Group, "Total Population," The World Bank Data, 2019, <https://data.worldbank.org/indicator/SP.POP.TOTL>.

<sup>25</sup> Welzel, "WVS 1 to 6 Key Aggregates, Version 1."

<sup>26</sup> Transparency International, "Corruption Perceptions Index 2018," [www.transparency.org](http://www.transparency.org), 2019, <https://www.transparency.org/cpi2018>.

<sup>27</sup> Transparency International.

<sup>28</sup> Michael Coppedge et al., "V-Dem Country-Year Dataset V9" (Varieties of Democracy (V-Dem) Project, 2019), <https://www.v-dem.net/en/data/data-version-9/>.

<sup>29</sup> Christopher Fariss, "Yes, Human Rights Practices Are Improving Over Time," May 27, 2019, <https://doi.org/10.7910/dvn/eb8dd8>.

<sup>30</sup> Moyer et al., "Power and Influence in a Globalized World."

<sup>31</sup> Welzel, "WVS 1 to 6 Key Aggregates, Version 1."

<sup>32</sup> "UCDP - Uppsala Conflict Data Program," accessed November 25, 2019, <https://ucdp.uu.se/exploratory>.

<sup>33</sup> The GDEL<sup>33</sup> Project, "The GDEL<sup>33</sup> Project: Data."

<sup>34</sup> The World Bank Group, "Military Expenditure (% of GDP)," The World Bank Data, 2019, <https://data.worldbank.org/indicator/ms.mil.xpnd.gd.zs>.

<sup>35</sup> Institute for Economics & Peace, "Global Peace Index 2019: Measuring Peace in a Complex World" (Sydney: Institute for Economics & Peace, June 2019), <http://visionofhumanity.org/reports/>.

<sup>36</sup> "UCDP - Uppsala Conflict Data Program."

## Indicators description

### Socioeconomic

Table 2 - Socioeconomic: Individual-Subjective

<b>Description.</b> Financial satisfaction.	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> This measurement is compiled on the basis of data made available through the World Values Survey (WVS). <b>It poses the question</b> “How satisfied are you with the financial situation of your household?” (WVS wave 5, V68). Respondents were asked to rate their financial satisfaction on a scale of 1 to 10, with 1 representing complete dissatisfaction and 10 representing complete satisfaction. The variable is rescaled from minimum 0.0 and maximum 1.0. Country and regional scores represent population averages.<sup>37</sup></p>	
<p><b>Background.</b> The WVS grew out of the European Values Survey (EVS) in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>38</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>39</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>40</sup> provide similar surveys, but are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

Table 3 - Socioeconomic: Individual-Objective

<b>Description.</b> Human Development.	<b>Source.</b> United Nation Development Program: Human Development Index.
<p><b>Description.</b> The Human Development Index (HDI) was devised by the United Nations (UN) to measure human development and welfare more accurately through Gross Domestic Product (GDP) and related measures alone. It has three components, the first of which is health, operationalized as life expectancy at birth. The second, education, is operationalized through average years of education of adults 25 years or older, and through average years of expected education for children at school entry age. This dichotomy captures both the level of education of the population and the quality of education for current young generations. The last component is standard of living, captured through Gross National Income (GNI) per capita on a logarithmic scale, as increasing wealth yields diminishing returns in terms of increased standards of living. These three dimensions are normalized between their “natural zeroes” (e.g. zero years of education) and their “aspirational targets” (i.e. the ideal score, 18 years of education for example), between 0 and 1. For education, the two indicators are divided by two and added together. The three component indices are then combined</p>	

<sup>37</sup> Christian Welzel, “Description of Welzel Data for QoG and WVS 1 to 6 Key Aggregates” (Lueneburg, Germany, 2014).

<sup>38</sup> World Values Survey, “Who Are We,” World Values Survey, accessed December 31, 2019, <http://www.worldvaluessurvey.org/WVSContents.jsp>.

<sup>39</sup> World Values Survey, “World Values Survey Publications,” World Values Survey, accessed December 31, 2019, <http://www.worldvaluessurvey.org/WVSContents.jsp>.

<sup>40</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

with equal weight and divided by three to produce an HDI score which ranges between 0 and 1.<sup>41</sup>

**Background.** The HDI was designed by the United Nations Development Program (UNDP) as one of the many tools it has devised for tracking human wellbeing throughout the world. First published in 1990, it compounded a paradigm shift in development theory through its focus on the physical outcomes of development (i.e. human welfare), rather than only measuring the supposed means to reach it (such as GDP per Capita).<sup>42</sup> It immediately became an industry standard, and continuous publications concerning its methodology and critiques have come out in the years it existed. In response to some of these criticisms and developments in global attitudes towards development, the UNDP has created several similar indices with different focuses. Chief among these are the Inequality-adjusted HDI and the Gender Development Index, which take into account domestic inequalities and gender differences, respectively.<sup>43</sup>

Table 4 - Socioeconomic: State-Subjective

<b>Description.</b> Government Spending on Healthcare and Education.	<b>Source.</b> The World Bank Data.
<p><b>Description.</b> This measure combines healthcare and education spending as a percentage of government spending. These are collected by the World Bank using data from the United Nations Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics (for education)<sup>44</sup> and the World Health Organization (WHO) Global Health Expenditure database (for health).<sup>45</sup> <b>‘Government’ is understood in all layers of the state, local, regional and central, and includes externally funded expenditure (e.g. through development aid). Spending is expressed as a percentage of total government spending. The percentages of the two different categories were added together to produce a percentage of total expenditure which goes to education and healthcare. Although both indicators are updated annually, education expenditure’s data availability is poorer than that of health expenditure (which generally has data for all countries all years). For the aggregate percentage, the value was taken as null if either of the components was null for a given country-year.</b></p>	
<p><b>Background.</b> UNESCO and the WHO are both industry standards when it comes to statistics pertaining to healthcare and education. As UN institutions, they have strong institutional backing and enjoy the participation of UN member states. Geodynamics made use of the World Bank Data to aggregate these measures as it provides an easily accessible and reliable access point for these data that is updated regularly. Other institutions, notably the Organization for Economic Co-operation and Development (OECD), also publish data on these indicators,<sup>46</sup> but only for their</p>	

<sup>41</sup> Human Development Report Office, “Human Development Reports: Technical Notes,” 2019, [http://hdr.undp.org/sites/default/files/hdr2019\\_technical\\_notes.pdf](http://hdr.undp.org/sites/default/files/hdr2019_technical_notes.pdf).

<sup>42</sup> Elizabeth A. Stanton, “The Human Development Index: A History,” Working Paper (Political Economy Research Institute, University of Massachusetts Amherst, February 2007).

<sup>43</sup> Human Development Report Office, “Human Development Reports: Technical Notes,” Technical note 1.

<sup>44</sup> The World Bank Group, “Government Expenditure on Education, Total (% of Government Expenditure).”

<sup>45</sup> The World Bank Group, “Domestic General Government Health Expenditure (% of General Government Expenditure).”

<sup>46</sup> OECD, “Health Spending (Indicator),” OECD Data, 2019, <http://data.oecd.org/healthres/health-spending.htm>; OECD, “Education Spending (Indicator),” OECD Data, 2019, <http://data.oecd.org/eduresource/education-spending.htm>.

member countries. The UNESCO/WHO data is considered preferable due to its wide geographical coverage.

Table 5 - Socioeconomic: State-Objective

<b>Description.</b> Internal inequality.	<b>Source.</b> Various.
<p><b>Description.</b> Because the discussion regarding the “appropriate” method for measuring inequality is still ongoing, state-level inequality was measured on the basis of two distinct variables; namely: share of national income captured by the top 10% as a share of GDP and number of billionaires holding 50% of global wealth. These variables were respectively sourced from the World Inequality Report 2018 and from Oxfam,<sup>47</sup> and were not adapted and/or modified. The research team also explored a Gini-based measurement for internal inequality (available through the World Bank) but opted against this measurement in the light of ongoing discussions vis-à-vis the “appropriateness” of such a measurement and poor temporal and geographical coverage, among others.<sup>48</sup></p>	
<p><b>Background.</b> Discussions regarding the “appropriate” method for measuring inequality are still ongoing. Gini measurements based on income are commonly cited, but have been widely criticized for their inability to capture the “hollowing out” of the middle class. Other methods include the calculation of the top 1%’s captured share of global income relative to the bottom 50%’s share, the top 10%’s share of income as a percent of GDP, and the share of wealth relative to population size.<sup>49</sup> Many proposed metrics – notably those outlined in a recent Economist article – were not viable within the context of the geodynamics study because control variables relating to taxes and transfers were not available at a sufficiently granular temporal and/or geographical scope.<sup>50</sup> The metrics incorporated within this study largely reflect commonly cited observations relating to the exacerbation of income inequality, and were opted for as a result of their international and regional availability as a time series.</p>	

Table 6 - Socioeconomic: System-Subjective

<b>Description.</b> Perception that working hard gets one ahead.	<b>Source.</b> Gallup World Poll adapted from UAE Numbers.
<p><b>Description.</b> In this Gallup World Poll question, individuals were asked “can people in this country get ahead by working hard, or not?” The score for a given country-year reflects the percentage of people which responded “yes”.<sup>51</sup> Data was not available through Gallup directly, but could be sourced through the United Arab Emirates (UAE) Numbers dataset. In instances where country-years were missing, the value</p>	

<sup>47</sup> See Facundo Alvaredo et al., *World Inequality Report 2018* (Harvard University Press, 2018). See also Diego Alejandro Vázquez Pimentel, Iñigo Macías-Aymar, and Max Lawson, *Reward Work, Not Wealth: To End the Inequality Crisis, We Must Build an Economy for Ordinary Working People, Not the Rich and Powerful* (Oxfam GB, 2018).

<sup>48</sup> For a discussion of the appropriateness of Gini measurements, see Branko Milanovic, “Description of All the GINI Dataset” (Stone Center on Socio-Economic Inequality, 2019), <https://stonecenter.gc.cuny.edu/research/all-the-ginis-alg-dataset-version-february-2019/>. See also “Economists Are Rethinking the Numbers on Inequality,” *The Economist*, November 28, 2019, <https://www.economist.com/briefing/2019/11/28/economists-are-rethinking-the-numbers-on-inequality>.

<sup>49</sup> See “Global Inequality,” *Inequality.org*, accessed November 21, 2019, <https://inequality.org/facts/global-inequality/>. See also *Global Wealth Databook 2018* (Credit Suisse, 2018).

<sup>50</sup> See “Economists Are Rethinking the Numbers on Inequality.”

<sup>51</sup> Legatum Institute, “The Legatum Prosperity Index™ 2018 Methodology Report” (Legatum Institute, 2018), [https://www.prosperity.com/download\\_file/view/3583/1692](https://www.prosperity.com/download_file/view/3583/1692) p.34. Legatum methodology paper, 34.

was set to the most recent available datapoint (i.e.: if data for 2014 was missing but data was for 2015 was available, the 2014 value was set to reflect the 2015 value).<sup>52</sup>

**Background.** The World Gallup Poll is an industry standard source for people’s behavior and attitudes worldwide.<sup>53</sup> Gallup data has been used in numerous reports by prominent organizations such as the 2017 Global Findex of the World Bank,<sup>54</sup> the Voices of women and men report by the International Labor Organization or the World Happiness Report 2019<sup>55</sup> conducted by the UN Sustainable Solutions Network.<sup>56</sup> Their data on people’s perception of work efficiency has been used for the Prosperity Index in Africa 2011,<sup>57</sup> as well as for the “Perceived HDI” by Neri, 2008,<sup>58</sup> among others.

Table 7 - Socioeconomic: System-Objective

<b>Description.</b> International inequality.	<b>Source.</b> The World Bank Data.
<p><b>Description.</b> This measurement uses the World Bank’s dataset on GDP per capita. GDP (“sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products”) was divided by a country’s population in the middle of a given year to provide the per capita GDP. To correct for inflation, current United States (US)\$ values were used.<sup>59</sup> A Gini coefficient was calculated for country values on a yearly basis, yielding values between 0 and 1. In a Gini coefficient, a score of 0 indicates that all values are exactly equal (i.e. that all nations are equally wealthy), whereas a score of 1 indicates that the values are perfectly inequal (i.e. that one nation holds all the world’s wealth).</p>	
<p><b>Background.</b> This indicator as it is used in Geodynamics inherently focuses on income rather than other aspects of inequality. Income inequality as measured through GDP per capita is frequently employed, but many broader alternatives exist and are often used (especially within humanitarian contexts), focusing on health, education, and others.<sup>60</sup> However, as these factors are already accounted for through HDI, their inclusion here would be redundant. Furthermore, this Gini measure allows for a comparison between internal and external inequality, providing context.</p>	

<sup>52</sup>United Arab Emirates Federal Competitiveness and Statistics Authority, “Perception of Working Hard Getting One Ahead,” UAE Numbers, June 29, 2018, <http://uaennumbers.fcsa.gov.ae/FCSALPIR2018Dec/prosperity-index-by-legatum?action=download>.

<sup>53</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>54</sup> Asli Demirgüç-Kunt et al., “The Global Findex Database 2017,” 2017, [https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017%20Findex%20full%20report\\_0.pdf](https://globalfindex.worldbank.org/sites/globalfindex/files/2018-04/2017%20Findex%20full%20report_0.pdf).

<sup>55</sup> John F. Helliwell, Richard Layard, and Jeffrey D. Sachs, “World Happiness Report 2019,” 2019, <https://s3.amazonaws.com/happiness-report/2019/WHR19.pdf>.

<sup>56</sup> International Labor Organization, “Towards a Better Future for Women and Work: Voices of Women and Men,” 2017, [https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms\\_546256.pdf](https://www.ilo.org/wcmsp5/groups/public/---dgreports/---dcomm/---publ/documents/publication/wcms_546256.pdf).

<sup>57</sup> Legatum Institute, “The Prosperity Index in Africa - The Role of Entrepreneurship and Opportunity in Sub-Saharan Africa,” 2011.

<sup>58</sup> Marcelo Neri, “A Perceived Human Development Index,” in *Handbook of Happiness Research in Latin America*, ed. Mariano Rojas (Dordrecht: Springer Netherlands, 2016), 557–77, [https://doi.org/10.1007/978-94-017-7203-7\\_31](https://doi.org/10.1007/978-94-017-7203-7_31).

<sup>59</sup> The World Bank Group, “GDP per Capita (Current US\$).”

<sup>60</sup> For example Oxfam, “5 Shocking Facts about Extreme Global Inequality and How to Even It Up,” Oxfam International, October 4, 2019, <https://www.oxfam.org/en/5-shocking-facts-about-extreme-global-inequality-and-how-even-it>.

Identitary

Table 8 - Identitary: Individual-Subjective

<b>Description.</b> Trust in outgroups.	<b>Source.</b> WVS Key Aggregates. <sup>61</sup>
<p><b>Description.</b> This measurement is compiled on the basis of data made available through the WVS. It measures trust in dissimilar people with a 3-item index asking for the level of trust individuals have in people from another religion (WVS wave 5, V129), nationality (V130) and people they meet for the first time (V128). The exact wording of the question from the WVS dataset is: <b>“I’d like to ask you how much you trust people from various groups. Could you tell me whether you trust people from this group completely, somewhat, not very much or not at all?”</b><sup>62</sup> Respondents are able to indicate their level of trust towards the specific outgroup on a scale from 0 (do not trust at all) to 4 (trust completely).</p>	
<p><b>Background.</b> The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>63</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>64</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>65</sup> provide similar surveys, but are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

Table 9 - Identitary: Individual-Objective

<b>Description.</b> Inclusiveness.	<b>Source.</b> Haas Institute for a Fair and Inclusive Society: Inclusiveness Index.
<p><b>Description.</b> The Inclusiveness Index collects data on marginalization across a broad range of potentially marginalized groups. The demographic subgroups analyzed are <b>“gender, LGBTQ populations, people with disabilities, and racial, ethnic, and religious subgroups.”</b><sup>66</sup> A country’s <b>inclusivity towards these demographic sub-groups</b> is analyzed along dimensions pertaining to outgroup violence, political representation, income inequality, anti-discrimination laws, rates of incarceration, and immigration/asylum policies.<sup>67</sup> Z-scores (number of standard deviations from the mean) are compiled for each country-year for each indicator. These z-scores are then averaged (providing equal weight to all indicators) per dimension. The overall Inclusivity Index score for a given country-year is calculated by averaging the z-scores of the dimensions. The final index score therefore represents how many standard deviations a country deviated from the mean on average across all dimensions.<sup>68</sup></p>	

<sup>61</sup> Welzel, “WVS 1 to 6 Key Aggregates, Version 1.”

<sup>62</sup> Jan Delhey, Kenneth Newton, and Christian Welzel, “How General Is Trust in ‘Most People’? Solving the Radius of Trust Problem,” *American Sociological Review* 76, no. 5 (October 1, 2011): 786–807, <https://doi.org/10/dtjxvs>.

<sup>63</sup> World Values Survey, “Who Are We.”

<sup>64</sup> World Values Survey, “World Values Survey Publications.”

<sup>65</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>66</sup> Haas Institute for a fair and inclusive society, “2018 Inclusiveness Index - Measuring Global Inclusion and Marginality,” 2018, [https://haasinstitute.berkeley.edu/sites/default/files/haasinstitute\\_2018inclusivenessindex\\_publish.pdf](https://haasinstitute.berkeley.edu/sites/default/files/haasinstitute_2018inclusivenessindex_publish.pdf) p.5.

<sup>67</sup> Haas Institute for a fair and inclusive society p.6-7.

<sup>68</sup> Haas Institute for a fair and inclusive society p.42.

**Background.** This new index (first published in 2016) is published in an annual report by the Haas Institute for a Fair and Inclusive Society, an institute of Berkeley University. We chose this measurement over other measurements of tolerance such as the one from the General Social Survey<sup>69</sup> because the Inclusiveness index goes beyond analyzing what the dominant group thinks about marginalized groups in society and also examines how marginalized groups fare relative to dominant groups in society.<sup>70</sup>

Table 10 - Identitary: State-Subjective

<b>Description.</b> Social Hostilities.	<b>Source.</b> Pew Research Center: Social Hostilities Index.
<b>Description.</b> The Social Hostilities Index (SHI) is a measurement constructed by the Pew Research Center that includes 13 different indicators to track “social impediments on religion.” <sup>71</sup> The index ranges from 0 to 10, with zero indicating no social hostilities and 10 representing very high social hostilities. Questions used include, among others, “did individuals or groups use violence or the threat of violence, including so-called honor killings, to try to enforce religious norms?” and “were women harassed for violating religious dress codes?” For a full list of questions used for the Index see Pew Research Center, Appendix 5: Summary of Results (2014). <sup>72</sup>	
<b>Background.</b> The SHI represents one half of Pew’s Religious Restrictions Index and is widely utilized, for example by Grim (2014) and Zucca (2017) recent book on Religious Rights. <sup>73</sup> Vasquez and Stumberger use it to establish a comprehensive Freedom Index (2012) <sup>74</sup> and Larsen, Koch and Dragolov include the Index in measuring social cohesion in Asian societies. <sup>75</sup>	

Table 11 - Identitary: State-Objective

<b>Description.</b> Religious restrictions.	<b>Source.</b> Pew Research Center: Government Restrictions Index.
<b>Description.</b> The Government Restrictions Index (GRI) is another 20-item measurement constructed by the Pew Research Center to assess the level of restrictions on religion imposed by governments worldwide. The Index ranges from 0 to 10, with zero indicating no government restrictions on religion and 10 representing extremely high levels of restrictions. Examples of the 20 questions used are “does the constitution, or law that functions in the place of a constitution (basic law), specifically provide for “freedom of religion” or include language used in Article 18 of the UN Universal Declaration of Human Rights?” and “does any level of	

<sup>69</sup> Tom W. Smith et al., “General Social Surveys, 1972-2018 [Machine-Readable Data File]” (National Science Foundation, n.d.), <https://gssdataexplorer.norc.berkeley.edu/variables/441/vshow>.

<sup>70</sup> Haas Institute for a fair and inclusive society, “Annual Report 2018”; Darin Mather and Eric Tranby, “New Dimensions of Tolerance: A Case for a Broader, Categorical Approach,” *Sociological Science* 1 (2014): 512–31, <https://doi.org/10/gghckz>.

<sup>71</sup> Pew Research Center, “Appendix 1: Methodology,” Pew Research Center’s Religion & Public Life Project, January 14, 2014, <https://www.pewforum.org/2014/01/14/appendix-1-methodology/>.

<sup>72</sup> Pew Research Center, “Appendix 5: Summary of Results - Religious Hostilities Reach Six-Year High,” 5, accessed December 27, 2019, <https://assets.pewresearch.org/wp-content/uploads/sites/11/2014/01/RestrictionsV-summary-of-results.pdf>.

<sup>73</sup> Brian J Grim and Monica Duffy Toft, “Growing Religion and Growing Religious Restrictions: A Global Overview,” accessed January 2, 2020, <https://journals.sagepub.com/doi/full/10.1177/2233865914537054>.

<sup>74</sup> Ian Vásquez and Tanja Stumberger, *Towards a Worldwide Index of Human Freedom*, ed. Fred McMahon (Vancouver, B.C.): [Germany: Fraser Institute ; Liberales Institut, 2012].

<sup>75</sup> Mandi Larsen, Michael Koch, and Georgi Dragolov, “Measuring Social Cohesion in Asia,” 2018, 28.

government interfere with worship or other religious practices.”<sup>76</sup> To answer these questions, data was obtained from official documents such as country constitutions, UN reports or non-governmental organizations.<sup>77</sup>

**Background.** The GRI represents **one half of Pew’s Religious Restrictions Index**. It has been updated annually since its original publication in 2007 and has been widely used in academic papers, often in combination with its counterpart, the SHI. Examples of its use include Finke & Martin (2014) and Grim et al. (2014).<sup>78</sup>

Table 12 - Identitary: System-Subjective

<b>Description.</b> Populist discourse.	<b>Source.</b> Global Populism Database.
<p><b>Description.</b> The Global Populism Database is compiled by Brigham Young University’s Team Populism and commissioned by The Guardian. They use the definition of populism introduced by Cas Mudde, which states that “populists tend to frame politics as a battle between the virtuous ‘ordinary’ masses and a nefarious or corrupt elite – and insist that the general will of the people must always triumph.”<sup>79</sup> The team analyzed speeches by country leaders (presidents/prime ministers/etcetera) to assign that leader with a populism score in accordance with the degree to which they expressed sentiments aligning with the aforementioned definition. This ranges from “0 (no populism) to 1 (clear populism, but used inconsistently or with a mild tone) to 2 (clear populism used consistently with a strong tone)”.<sup>80</sup> In instances where a country has two or more different leaders in a given year, its score for that year reflects the average level of populist discourse observed across leaders for that year.</p>	
<p><b>Background.</b> The Global Populism Database, a project spearheaded by The Guardian together with Team Populism,<sup>81</sup> examines the degree of populist discourse in more than 1000 speeches of 215 heads of governments (presidents and prime ministers) between 2000 and 2018.<sup>82</sup> This dataset was opted for over the dataset made available by the ParlGov project, as the latter only features data for European and OECD countries.<sup>83</sup></p>	

Table 13 - Identitary: System-Objective

<b>Description.</b> Votership for populist parties.	<b>Source.</b> Timbro Authoritarian Populism Index.
<p><b>Description.</b> The index reports on the percentage of seats in national parliamentary elections cast for parties identified as subscribing to authoritarian populist ideologies. Due to differing electoral systems, this does not reflect percentages of votes cast equally in all countries. For example, the United Kingdom (UK)’s constituency system means that significant disparities between votes and</p>	

<sup>76</sup> Pew Research Center, “Appendix 5: Summary of Results - Religious Hostilities Reach Six-Year High,” 5.

<sup>77</sup> Pew Research Center, 5.

<sup>78</sup> Roger Finke and Robert R. Martin, “Ensuring Liberties: Understanding State Restrictions on Religious Freedoms,” *Journal for the Scientific Study of Religion* 53, no. 4 (2014): 687–705, <https://doi.org/10/gghckv>; Brian J. Grim, Greg Clark, and Robert Edward Snyder, “Is Religious Freedom Good for Business?: A Conceptual and Empirical Analysis,” *Interdisciplinary Journal of Research on Religion* 10 (2014).

<sup>79</sup> Paul Lewis, Seán Clarke, and Caelainn Barr, “How We Combed Leaders’ Speeches to Gauge Populist Rise,” *The Guardian*, March 6, 2019, <https://www.theguardian.com/world/2019/mar/06/how-we-combed-leaders-speeches-to-gauge-populist-rise>.

<sup>80</sup> Lewis, Clarke, and Barr.

<sup>81</sup> Lewis, Clarke, and Barr.

<sup>82</sup> Kirk A. Hawkins et al., “Global Populism Database, V1,” July 8, 2019, <https://doi.org/10.7910/DVN/LFTQEZ>.

<sup>83</sup> “ParlGov - Parliaments and Governments Database - Project Description,” 2019, <http://www.parlgov.org/>.



parliamentary seats may exist. Only European countries which are categorized as **'free'** by Freedom House are included, as alternatives to authoritarian populism are often absent in unfree societies. Authoritarian populism is conceptualized as consisting of three core components. These are a narrative of people vs. elites, a penchant for majority rule without objections (i.e. often in disregard for minority rights and checks and balances), and an ideal of a strong state both in the face of internal opposition and external relations (e.g. being opposed to the North Atlantic Treaty Organization (NATO) or European Union (EU)).<sup>84</sup>

**Background.** The Timbro Authoritarian Populism Index (TAPI) is the industry standard measurement of populism in Europe, with the most comprehensive data stretching back to 1980.<sup>85</sup> In contrast to conventional measurements, it offers data on right-, as well left wing populism.<sup>86</sup> Google Scholar returns over 50 scholarly articles citing the TAPI between 2015 and 2019 alone. The research team was not able to identify any alternate datasets.

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<sup>84</sup> Andreas Johansson Heinö, "Timbro Authoritarian Populism Index 2017," *Timbro* (blog), 2018, <https://timbro.se/allmant/timbro-authoritarian-populism-index2017/>.

<sup>85</sup> Timbro Authoritarian Populism Index, "About TAP," Timbro Authoritarian Populism Index 2019, 2019, <https://populismindex.com/about/>.

<sup>86</sup> Heinö, "Timbro Authoritarian Populism Index 2017."

Connectedness

Table 14 - Connectedness: Individual-Subjective

<b>Description.</b> Trust in peers	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> The Generalized Trust index, developed by Welzel (2013)<sup>87</sup> and based on WVS data calculates trust in others based on aggregated scores of individuals trust in close peers, trust in unspecified people and remote/dissimilar people. To measure the first, respondents were asked to indicate on a 4-point scale to what extent they trusted their family (WVS wave 5, V125) their neighbors (V126) or other people they know (V127). General or unspecified trust was measured with two questions whether “most people can be trusted” or “you can’t be too careful” (V23) and on a 10-point scale whether “most people would try to take advantage of you” (1) or “most people try to be fair” (10) (V47). To measure trust in remote people, the same three items as for the Trust in out-groups index have been utilized (V128, V129, V130). To account for increasing generality of trust, average trust in close peers is weighted one time, trust in unspecified people is weighted twice and trust in remote persons is weighted <b>three times in Welzel’s Generalized Trust index. The higher the score the higher</b> the level of generalized trust that people display in others. Country and regional scores are population averages.<sup>88</sup></p>	
<p><b>Background.</b> The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>89</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>90</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>91</sup> provide similar surveys, but are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

Table 15 - Connectedness: Individual-Objective

<b>Description.</b> Informational Connectedness.	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> This measurement is compiled on the basis of data made available through the WVS. It tracks the average number of information sources used by the <b>respondents over time. For this, individuals were asked “For each of the following sources, please indicate whether you used it last week or did not use it last week to obtain information”. The 8-information sources inquired were: Daily newspaper, TV news, printed magazines, radio news, mobile phone, email, internet, and conversation with friends and family (WVS wave 5, V223-229). The 8-point index ranges from 0 (no information sources) used in the previous week to a maximum of 1.0 if all types of media have actively been used to gather information.</b><sup>92</sup> The higher</p>	

<sup>87</sup> Welzel, “WVS 1 to 6 Key Aggregates, Version 1.”

<sup>88</sup> Welzel, “Description of Welzel Data for QoG and WVS 1 to 6 Key Aggregates.”

<sup>89</sup> World Values Survey, “Who Are We.”

<sup>90</sup> World Values Survey, “World Values Survey Publications.”

<sup>91</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>92</sup> Welzel, “WVS 1 to 6 Key Aggregates, Version 1.”

the world average score on this measurement, the more information sources have been used by individuals worldwide, making for an increasing spread of information.

**Background.** The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>93</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>94</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>95</sup> provide similar surveys, but are not freely available. We have corroborated findings from WVS with Gallup where available.

Table 16 - Connectedness: State-Subjective

<b>Description.</b> Depth of diplomatic connections.	<b>Source.</b> The Frederick S. Pardee Center for International Futures: Diplometrics.
<p><b>Description.</b> Diplometrics takes stock of <b>countries'</b> outgoing diplomatic missions, as well as the level of representation (LoR) present at each mission. LoR is assigned a score between 0 and 1, with 1 representing an ambassador or equivalent, who is located within the destination country and is assigned only that country, and 0 representing no relationship whatsoever (e.g. after a mission is expelled, recalled, or withdrawn). 0.75 represents either an unknown representative or one lower than the rank of ambassador, with only the target country as its focus. 0.5 indicates an ambassador or equivalent with multiple countries assigned. 0.375 represents either an unknown representative or one lower than the rank of ambassador with multiple countries assigned. 0.125 represents an interest desk and 0.1 means a country's interests are served by another state.<sup>96</sup> A country's <b>diplomatic connections score in a given year</b> is the sum of its outgoing LoR scores. In this way, Geodynamics not only captures the amount of relationships a country has, but also the importance it assigns to these relationships. Of course, in practice countries with greater GDP have higher purchasing power when it comes to their diplomatic corps, which is also reflected in the highest scores for this metric (China and the US with 162.5 in 2013).</p>	
<p><b>Background.</b> The Diplometrics dataset by the Frederick S. Pardee Center is a niche indicator with few alternatives. Correlates of War (CoW) developed a Diplomatic Exchange dataset, which provides data on diplomatic representation every five years and which only runs to 2005.<sup>97</sup> As Geodynamics strives to provide insights into developments from 2000 to the present, the research team opted for the Diplometrics dataset by virtue of its temporal availability.</p>	

Table 17 - Connectedness: State-Objective

<b>Description.</b> Level of globalization.	<b>Source.</b> KOF Swiss Economic Institute: Globalization Index.
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<sup>93</sup> World Values Survey, "Who Are We."

<sup>94</sup> World Values Survey, "World Values Survey Publications."

<sup>95</sup> Gallup Inc, "World Poll," Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>96</sup> Jonathan D. Moyer, David K. Bohl, and Sara Turner, "Diplometrics: Diplomatic Representation Data Codebook" (Denver: Frederick S. Pardee Center for International Futures, March 16, 2016) p.9.

<sup>97</sup> Correlates of War, "Diplomatic Exchange , 1817-2005 (V2006.1)," November 27, 2007, <https://doi.org/10.7910/DVN/B4K1OQ>.

<p><b>Description.</b> The Eidgenössische Technische Hochschule (ETH) Zurich’s Konjunkturforschungsstelle Globalization Index (KOFGI) is divided into two levels, each subdivided into three dimensions, some of which are subdivided again. The total number of indicators is 43, and the weight accorded to these varies per installment of the index. The levels are de jure, (whether the infrastructure for globalization is in place, e.g. through protections of free trade) and de facto (the actual level of international interactions, e.g. the level of international phone traffic in a country). The dimensions are economic globalization (trade and financial), social globalization (personal contact, information flows and cultural proximity) and political globalization. All sub-dimensions are assigned equal weight to establish the dimensions, which are combined with equal weights to form the Index. The overall index (which is used in Geodynamics) is the average of the de facto and the de jure indices.<sup>98</sup> All variables are normalized between 1 and 100, with 100 representing the highest score in that variable of any country throughout the entire time range. Missing values are imputed using linear interpolation, while missing beginning or final values are substituted with the closets available datapoint. A country-year is left blank when more than half of the variables lack data or when two of the three dimensions cannot be calculated.<sup>99</sup></p>
<p><b>Background.</b> Despite the variety of measures assessing the level of globalization, the KOFGI emerged as an industry stand as the most widely cited globalization index.<sup>100</sup> Potrafke (2014) compiled an extensive overview featuring over 100 papers, which cite the KOFGI and earmark it as an industry standard. We opted for this measure because it offers data for up to 208 countries and over the longest period from 1970 till today.<sup>101</sup></p>

Table 18 - Connectedness: System-Subjective

<p><b>Description.</b> Number of diplomatic events.</p>	<p><b>Source.</b> GDELT.</p>
<p><b>Description.</b> The events datasets used to discern total reported diplomatic events by the Hague Centre for Strategic Studies (HCSS) are Global Database of Events, Language, and Tone (GDELT)<sup>102</sup> (English and translingual), Integrated Crisis Early Warning System (ICEWS),<sup>103</sup> Temporally Extended, Regular, Reproducible International Events Records (TERRIER)<sup>104</sup> and Phoenix.<sup>105</sup> All of these use artificial intelligence to analyze large datasets of news articles to discern which actors engage in which actions in these articles. The actors and actions are coded using Conflict and Mediation Event Observations Event and Actor (CAMEO) codes.<sup>106</sup></p>	

<sup>98</sup> Savina Gygli et al., “2019 KOF Globalisation Index: Variables Description” (Zürich: KOF Swiss Economic Institute, 2019), <https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html>.

<sup>99</sup> Savina Gygli et al., “2019 KOF Globalisation Index: Method of Calculation” (Zürich: KOF Swiss Economic Institute, 2019), <https://kof.ethz.ch/en/forecasts-and-indicators/indicators/kof-globalisation-index.html>.

<sup>100</sup> Florian Haelg, “The KOF Globalisation Index – A Multidimensional Approach to Globalisation,” accessed January 3, 2020, <https://doi.org/10/gghckx>.

<sup>101</sup> Niklas Potrafke, “The Evidence on Globalization,” 2014, 42.

<sup>102</sup> The GDELT Project, “The GDELT Project: Data.”

<sup>103</sup> Elizabeth Boschee et al., “ICEWS Automated Daily Event Data” (Lockheed Martin, 2019), <https://dataverse.harvard.edu/dataverse/icews>.

<sup>104</sup> Jill Irvine et al., “Temporally Extended, Regular, Reproducible International Event Records” (University of Oklahoma, February 14, 2019), <https://osf.io/4m2u7/>.

<sup>105</sup> Patrick T. Brandt et al., “Real Time Event Data / Phoenix” (Dallas: University of Texas, Dallas, 2018), <http://eventdata.utdallas.edu/>.

<sup>106</sup> Philip A. Schrodt, “CAMEO: Conflict and Mediation Event Observations Event and Actor Codebook” (University Park, Pennsylvania: Pennsylvania State University, March 2012).

The specific CAMEO codes which HCSS has categorized as reflecting diplomatic events are the following: 015: Acknowledge or claim responsibility; 016: Deny responsibility; 0313: Express intent to cooperate on judicial matter; 0314: Express intent to cooperate on intelligence; 031: Express intent to engage in material cooperation, not specified below; 032: Express intent to engage in diplomatic cooperation (such as policy; support)"; 033: Express intent to provide material aid, not specified below; 0333: Express intent to provide humanitarian aid; 035: Express intent to yield, not specified below; 036: Express intent to meet or negotiate; 037: Express intent to settle dispute; 052: Defend verbally; 054: Grant diplomatic recognition; 1013: Demand judicial cooperation; 1014: Demand intelligence cooperation; 1041: Demand leadership change; 1042: Demand policy change; 1043: Demand rights; 1044: Demand change in institutions, regime; 131: Threaten non-force, not specified below; 101 - Demand material cooperation, not specified below; 104 - Demand political reform, not specified below; 1053: Demand release of persons or property; 103 - Demand material aid, not specified below; 1055: Demand to allow international involvement (non-mediation); 105: Demand that target yield, not specified below ; 106: Demand meeting, negotiation; 107: Demand settling of dispute; 111: Criticize or denounce; 1121: Accuse of crime corruption; 112: Accuse, not specified below; 1122: Accuse of human rights abuses; 1123: Accuse of aggression; 1124: Accuse of war crimes; 1125: Accuse of espionage, treason; 114: Complain officially; 1311: Threaten to reduce or stop aid; 1313: Threaten to reduce or break relations; 134: Threaten to halt negotiations; 135: Threaten to halt mediation; 136: Threaten to halt international involvement (non-mediation); 139: Give ultimatum.<sup>107</sup>

To avoid inaccuracies, only events between two different state actors are included. The final percentages used in the report are calculated by dividing the number of events in GDELT English which correspond to the abovementioned CAMEO codes in a given month by the total number of international state events in that month and multiplying that by 100 to yield a percentage. To ensure greater accuracy, these findings were corroborated by the other four datasets, which generally yielded similar findings.

**Background.** This measure was especially developed by HCSS. HCSS has categorized the widely used CAMEO codes for textual analysis into different domains (military, diplomatic, etcetera) and assessed whether they can be considered positive or negative, rhetorical or factual, and assertive or passive. HCSS has used this taxonomy in various papers to make sense of big data using Artificial Intelligence (AI).<sup>108</sup>

Table 19 - Connectedness: System-Objective

<b>Description.</b> Volume of international exchanges.	<b>Source.</b> The Frederick S. Pardee Center for International Futures: Bandwidth.
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<sup>107</sup> Schrod. t.

<sup>108</sup> Hugo van Manen and Tim Sweijs, "Military Competition in Perspective: Trends in Major Powers' Postures and Perceptions" (The Hague: The Hague Centre For Strategic Studies, 2019), <https://www.hcss.nl/pub/2019/strategic-monitor-2019-2020/military-competition-in-perspective/>; Stephan De Spiegeleire, Khrystyna Holyńska, and Yevhen Sapolovych, "Things May Not Be as They Seem: Geo-Dynamic Trends in the International System," 2018, <https://www.clingendael.org/pub/2018/strategic-monitor-2018-2019/geo-dynamic-trends-in-the-international-system/>; Stephan De Spiegeleire, "Great Power Assertivitis," HCSS StratMon 2016 (The Hague: The Hague Centre For Strategic Studies, August 9, 2016), <https://www.hcss.nl/news/great-power-assertivitis>.

**Description.** To measure the volume of international exchanges over time, we combine data on economic, security, and diplomatic bandwidth from the Frederick S. Pardee Center for International Futures. It takes into account the gross value of trade flows and active trade agreements between states for the economic dimension. The security bandwidth indicator includes data on the total volume of arms transfers and a weighted count of dyadic military alliances. Finally, the political domain measures diplomatic representation by ranking diplomatic offices by their level of engagement with the host state. Additionally, it considers shared membership of intergovernmental organizations between states.<sup>109</sup> The three measures are normalized so that for each country, 1 represents the highest dyadic bandwidth score (country-year) over the entire time range of the dataset (1963-2016). The weights assigned to each component within total bandwidth can be found in the Pardee Center's report.<sup>110</sup>

**Background.** As a measurement, the volume of international exchanges relates most directly to globalization – a metric which is operationalized through the KOFGI under the connectedness domain's state-objective measurement.<sup>111</sup> The KOFGI covers trade-related indicators such as total volume of international trade, commonly associated with international exchange. The research team opted for the **Frederick S. Pardee Center for International Futures' Bandwidth measurement** over the KOFGI predominantly because it captures not only interactions which are economic in nature, but also interactions which relate to the political and security domains. The measurement was furthermore opted for to avoid overreliance on the KOFGI.

<sup>109</sup> Jonathan Moyer D., Tim Sweijts, and Hugo van Manen, "Appendix to Interdependence and Power in a Globalized World," Working paper (Frederick S. Pardee Center for International Futures, December 2017), 9–10, <https://pardee.du.edu/appendix-interdependence-and-power-globalized-world>.

<sup>110</sup> Moyer et al., "Power and Influence in a Globalized World," 9.

<sup>111</sup> Haelg, "2019."

Political

Table 20 - Political: Individual-Subjective

<b>Description.</b> Desire to live in democracy.	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> This measurement is compiled on the basis of data made available through the WVS. It measures the extent to which individuals wish their country to be governed democratically. (WVS wave 5, V162). Respondents were able to answer these questions on a scale from 1 (not important at all) to 10 (absolutely important).<sup>112</sup> The variable is rescaled to reach from a minimum of 0 (lowest importance) to the maximum 1.0 (highest importance), with fractions for intermediate positions. Country or regional scores are population averages.<sup>113</sup></p>	
<p><b>Background.</b> The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>114</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>115</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>116</sup> provide similar surveys, but are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

Table 21 - Political: Individual-Objective

<b>Description.</b> Voter turnout.	<b>Source.</b> International Institute for Democracy and Electoral Assistance.
<p><b>Description.</b> Voter turnout over time is measured as percentage of the number of registered voters. Data is derived from the International Institute for Democracy and Electoral Assistance. The dataset includes only turnout data for national political elections that were held after 1945, under universal suffrage and in which more than one party or person was on the ballot.<sup>117</sup> Whereas data on the total Voting Age Population (VAP) is also available from the same dataset, we purposely chose registered voters as reference category because using VAP would include people that are of voting age but not eligible to vote (e.g. prisoners or discriminated groups in certain countries), and because it is always an estimate and often less accurate than the registered voter count. This decision does inherently inflate the turnout percentages for countries which do not have automatic voter registration (e.g. the US).</p>	
<p><b>Background.</b> The Voter Turnout Database entails the most comprehensive collection of election turnout statistics from presidential and parliamentary elections since 1945.<sup>118</sup> Google Scholar returns 3,470 scientific results for the search terms <b>“institute for democracy and electoral assistance” + “turnout,” including</b></p>	

<sup>112</sup> Christian Welzel, “Freedom Rising Online Appendix” (Cambridge University Press, 2013), 101, [https://www.cambridge.org/files/8613/8054/8416/FreedomRising\\_OA.pdf](https://www.cambridge.org/files/8613/8054/8416/FreedomRising_OA.pdf).

<sup>113</sup> Welzel, “Description of Welzel Data for QoG and WVS 1 to 6 Key Aggregates.”

<sup>114</sup> World Values Survey, “Who Are We.”

<sup>115</sup> World Values Survey, “World Values Survey Publications.”

<sup>116</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>117</sup> International Institute for Democracy and Electoral Assistance (IDEA), “Voter Turnout Database.”

<sup>118</sup> International Institute for Democracy and Electoral Assistance (IDEA).

publications from Pew Research Center citing this dataset, indicating its wide usage.<sup>119</sup>

Table 22 - Political: State-Subjective

<b>Description.</b> Perceived democracy.	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> <b>Description.</b> This measurement is compiled on the basis of data made available through the WVS. It measures how democratic respondents perceive their country to be governed (WVS wave 5, V163). Respondents were able to answer this question on a 10-point scale from 1 (not at all democratic) to 10 (absolutely democratic).<sup>41</sup> The variable is rescaled to range from a minimum of 0 to the maximum of 1.0 (very democratic) with fractions for intermediate positions. Country or regional scores are population averages.<sup>120</sup></p>	
<p><b>Background.</b> The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>121</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>122</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>123</sup> provide similar surveys, but are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

Table 23 - Political: State-Objective

<b>Description.</b> Polity level.	<b>Source.</b> The Center for Systemic Peace.
<p><b>Description.</b> Geodynamics used the “POLITY” measure in the Polity IV dataset. This is a composite measure whereby a country’s autocracy score (0-10) is subtracted from its democracy score (0-10). The sections included in both these scores are competitiveness and openness of executive recruitment, constraints on the chief executive, regulation of participation in decision making processes and the competitiveness of participation. As democratic and autocratic characteristics can coexist within the same polity, it is not uncommon for a country to have points on both the democratic and autocratic indicators.<sup>124</sup> Country-level Polity scores range from -10 to 10. Countries which are under foreign invasion or occupation are coded as null. The same is true for countries in a chaotic transition or a period of ‘anarchy’.<sup>125</sup></p>	
<p><b>Background.</b> The two most widely used indicators of democracy are the Freedom House and Polity IV score.<sup>126</sup> Because the former measures political rights, civil liberties and freedom status rather than level of democracy, it is used within the</p>	

<sup>119</sup> Drew Desilver, “U.S. Trails Most Developed Countries in Voter Turnout,” 2017, 6.

<sup>120</sup> Welzel, “Description of Welzel Data for QoG and WVS 1 to 6 Key Aggregates.”

<sup>121</sup> World Values Survey, “Who Are We.”

<sup>122</sup> World Values Survey, “World Values Survey Publications.”

<sup>123</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>124</sup> Monty G. Marshall, Ted Robert Gurr, and Keith Jagers, “Polity IV Project, Political Regime Characteristics and Transitions, 1800-2018: Dataset Users’ Manual” (Center for Systemic Peace, July 27, 2019), 13-17, <https://www.systemicpeace.org/inscrdata.html>.

<sup>125</sup> Marshall, Gurr, and Jagers, 17.

<sup>126</sup> John Höglström, “Does the Choice of Democracy Measure Matter? Comparisons between the Two Leading Democracy Indices, Freedom House and Polity IV,” *Government and Opposition* 48, no. 2 (April 2013): 201-21, <https://doi.org/10.12235s>; Marshall, Gurr, and Jagers, “Polity IV Project, Political Regime Characteristics and Transitions, 1800-2018: Dataset Users’ Manual.”



judicial rather than the political domain. The Varieties of Democracy (V-DEM) project also offers a classification into different regime types, but covers a much shorter time span<sup>127</sup> than the Polity IV data and the V-DEM data omits the distinction between anocracy and autocracy, which is why we eventually chose to use Polity IV data for this indicator.

Table 24 - Political: System-Subjective

<b>Description.</b> UNGA voting disagreement	<b>Source.</b> Bailey, Strezhnev and Voeten, 2017.
<p><b>Description.</b> The Bailey et al. dataset compares voting behavior in the United Nations General Assembly (UNGA) between countries by assigning them an ‘ideal point’ score. The ideal point score is centered on 0 with a standard deviation of 1. An abstention is considered to be in between a yea and a nay.<sup>128</sup> The ideal point score represents the level of alignment with the US-led liberal order, which leads to the US having the highest score in all years. Geodynamics uses the standard deviation of all ideal points scores for each year to give an indication of the level of (dis)agreement within the UNGA. Over the entire dataset, this number logically tends towards 1. However, variations between years can be used to give some indication of the level of disagreement.</p>	
<p><b>Background.</b> UNGA voting behavior has become an industry standard indicator of states’ foreign policy preferences.<sup>129</sup> Bailey, Streyhnev and Voeten’s (2017) dataset is ideal for cross-year analysis as it uses identical resolutions introduced multiple times as anchor points to capture changing state preferences. This counteracts the issue pertaining in previous models (e.g. Gartzke, 2000 or Signorino and Ritter, 1999)<sup>130</sup> that different voting behavior might in fact reflect changing priorities in the UN agenda and the types of resolutions entered over time.<sup>131</sup></p>	

Table 25 - Political: System-Objective

<b>Description.</b> Number of people living under democracy.	<b>Source.</b> The Center for Systemic Peace & the World Bank Data.
<p><b>Description.</b> To account for the number of people living under democratic rule, we use the Polity Score described above (see Political: State-Objective). It allows for a classification of regime types whereby -10 to -6 indicates autocratic rule, -5 to +5 anocratic rule and +5 to +10 a democracy.<sup>132</sup> To determine the number of people living within the three different regime types, we use population data from the World Bank. Countries with less than 1 million inhabitants were omitted from the data, meaning that percentages reported for this indicator are percentages of all countries included and not percentages of the world population.</p>	

<sup>127</sup> V-Dem Data runs from 1900-2018 while Polity IV data is available from 1800-2018. See: Vanessa Boese A., “How (Not) to Measure Democracy,” 2019, <https://doi.org/10/gghckt>.

<sup>128</sup> Bailey, Strezhnev, and Voeten, “Estimating Dynamic State Preferences from United Nations Voting Data,” 435–36.

<sup>129</sup> Bailey, Strezhnev, and Voeten, “Estimating Dynamic State Preferences from United Nations Voting Data.”

<sup>130</sup> Erik Gartzke, “Preferences and the Democratic Peace,” *International Studies Quarterly* 44, no. 2 (2000): 191–212, <https://doi.org/10/b34swv>; Curtis S. Signorino and Jeffrey M. Ritter, “Tau-b or Not Tau-b: Measuring the Similarity of Foreign Policy Positions,” *International Studies Quarterly* 43, no. 1 (1999): 115–144, <https://doi.org/10/cxtcmg>.

<sup>131</sup> Bailey, Strezhnev, and Voeten, “Estimating Dynamic State Preferences from United Nations Voting Data,” 431.

<sup>132</sup> Center for Systemic Peace, “The Polity Project,” 2018, <https://www.systemicpeace.org/polityproject.html>.

**Background.** The two most widely used indicators of democracy are the Freedom House and Polity IV score.<sup>133</sup> Because the former measures political rights, civil liberties and freedom status rather than level of democracy, it is used within the judicial rather than the political domain. The V-DEM project also offers a classification into different regime types, but covers a much shorter time span<sup>134</sup> than the Polity IV data and the V-DEM data omits the distinction between anocracy and autocracy, which is why we eventually chose to use Polity IV data for this indicator.

Table 26 - Judicial: Individual-Subjective

<b>Description.</b> Perceived fairness.	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> This measurement is compiled on the basis of data made available through the WVS. To assess individuals perceived fairness, respondents were asked: “Do you think most people would try to take advantage of you if they got a chance, or would they try to be fair? Please show your response on this card, where 1 means that “people would try to take advantage of you,” and 10 means that “people would try to be fair”” (WVS wave 5, V47). The 10-point scale was standardized to range from 0 (people always take advantage of you) to 1 (always fair).<sup>135</sup> Country and regional scores are population averages.</p>	
<p><b>Background.</b> The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>136</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>137</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>138</sup> provide similar surveys which are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

<sup>133</sup> Högström, “Does the Choice of Democracy Measure Matter?”; Marshall, Gurr, and Jagers, “Polity IV Project, Political Regime Characteristics and Transitions, 1800-2018: Dataset Users’ Manual.”

<sup>134</sup> V-Dem Data runs from 1900-2018 while Polity IV data is available from 1800-2018. See: Boese A., “How (Not) to Measure Democracy.”

<sup>135</sup> Welzel, “Description of Welzel Data for QoG and WVS 1 to 6 Key Aggregates.”

<sup>136</sup> World Values Survey, “Who Are We.”

<sup>137</sup> World Values Survey, “World Values Survey Publications.”

<sup>138</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

Judicial

Table 27 - Judicial: Individual-Objective

<b>Description.</b> Restrictions on civil liberties.	<b>Source.</b> Freedom House.
<p><b>Description.</b> For this measure, Geodynamics makes use of a part of Freedom House’s Freedom in the World index. This index is comprised of a Political Rights rating and a Civil Liberties rating. As we measure democracy separately through Polity IV, only the Civil Liberties rating was considered for this section (although Freedom House does note that the gap between these two ratings is rarely more than 2, as they go hand in hand). Civil Liberties is measured in four categories, divided into a total of 15 questions. These categories are freedom of expression and belief, associational and organizational rights, rule of law, and personal autonomy and individual rights. Not all of these categories are accorded equal weight.<sup>139</sup> The Civil Liberties rating is converted to a score between 1 (most free) to 7 (least free). Geodynamics then applies the same categories usually applied to the index as a whole, namely Free (1.0 to 2.5), Partly Free (3.0 to 5.0), and Not Free (5.5 to 7.0).<sup>140</sup></p>	
<p><b>Background.</b> The Freedom in the World Index constitutes a true industry standard for measurements pertaining to judicial civil liberties and political rights. According to Google Scholar, data from this index has found use in almost 8.000 academic papers, including widely cited publications by Krueger (2017) and Diamond (2015).<sup>141</sup></p>	

Table 28 - Judicial: State-Subjective

<b>Description.</b> Corruption perception.	<b>Source.</b> Transparency International.
<p><b>Description.</b> The Corruption Perceptions Index (CPI) assesses the levels of corruption in a given country based on 13 different data sources for corruption, comprised of expert assessments and business opinion surveys. These sources are then rescaled so that their average and standard deviation match that of the CPI in 2012 (45 and 20, respectively), and so that 0 equals most corrupt and 100 least corrupt.<sup>142</sup> As the CPI’s methodology was changed in 2012 to make it comparable over time, data from before that year are not included in Geodynamics.<sup>143</sup> Manifestations of corruption include bribery, diversion of public funds, and instances of nepotism within the civil service. In some cases, <b>the state’s mechanisms to prevent corruption, such as effective prosecution of corrupt individuals and the levels of excessive bureaucratic burden, are also taken into account. A country’s score is reported only if it has data from at least 3 of the 13 sources in that year.</b><sup>144</sup></p>	
<p><b>Background.</b> This measurement is a widely used industry standard, returning more results than rivaling measures such as the World Bank’s Control of Corruption indicator.<sup>145</sup> Further, we chose it over other measurements of corruption (e.g. Gallup</p>	

<sup>139</sup> Please refer to Freedom House’s methodology section for a precise breakdown of weights: Freedom House, “Methodology 2019,” January 15, 2019, <https://freedomhouse.org/report/methodology-freedom-world-2019>.

<sup>140</sup> Freedom House.

<sup>141</sup> Alan B. Krueger, *What Makes a Terrorist*. (PRINCETON UNIVERSITY PRES, 2017); Larry Diamond, “Facing up to the Democratic Recession,” *Journal of Democracy* 26, no. 1 (2015): 141–155, <https://doi.org/10/gf56mz>.

<sup>142</sup> “Corruption Perceptions Index 2018: Technical Methodology Note” (Transparency International, 2018), 3–4, <https://www.transparency.org/cpi2018>.

<sup>143</sup> Transparency International, “Corruption Perceptions Index 2012: An Updated Methodology,” 2012, 1, [https://www.transparency.org/files/content/pressrelease/2012\\_CPIUpdatedMethodology\\_EMBARGO\\_EN.pdf](https://www.transparency.org/files/content/pressrelease/2012_CPIUpdatedMethodology_EMBARGO_EN.pdf).

<sup>144</sup> “Corruption Perceptions Index 2018: Technical Methodology Note,” 1–2.

<sup>145</sup> Vereinte Nationen, ed., *Measuring Corruption in Africa: The International Dimension Matters*, African Governance Report, 4.2016 (Addis Ababa: Economic Commission for Africa, 2016).

World Poll Corruption measure, Global Corruption Barometer or the TRACE Bribery Risk), as it is a composite measure combining 13 different data sources and therefore covering the broadest understanding of the concept. The CPI has been utilized by the European Parliament<sup>146</sup> and the UN Economic Commission to Africa<sup>147</sup> among others.

Table 29 - Judicial: State-Objective

<b>Description.</b> Rule of law.	<b>Source.</b> V-Dem Project.
<p><b>Description.</b> This measure is taken from the V-DEM Project’s ninth installment. The Rule of Law Index (<i>v2x_rule</i>) addresses the question “to what extent are laws transparently, independently, predictably, impartially, and equally enforced, and to what extent do the actions of government officials comply with the Law?”<sup>148</sup> The index itself is made up of 15 measures relating to these issues. Examples are “compliance with high court”, “high court independence”, “transparent laws with predictable enforcement”, “executive bribery and corrupt exchanges”, “access to justice for women”, etcetera. These measures are scored based on multiple country expert opinions. All measures are assigned equal weight and normalized between 0 and 1 on an interval scale.<sup>149</sup></p>	
<p><b>Background.</b> V-DEM is a massive research project which involves hundreds of indicators and indices. Published as a collaboration between the University of Gothenburg and the University of Notre Dame starting 2011, it has extended its time range on some indicators to span from 1789 to the present. They work with over 3000 country experts, while their team itself comprises 50 people.<sup>150</sup> Their work is considered an industry standard, with their codebook and methodology alone having 303 and 88 citations, respectively.</p> <p>There are numerous alternative indicators for rule of law, some of which are included in Geodynamics. For example, corruption constitutes a key component in measuring rule of law. A similar index to V-DEM’s is the World Justice Project’s Rule of Law Index. While impressive in its size and scope, it covers only 126 countries in 2018 and has only been published since 2012.<sup>151</sup> Another alternative is the World Bank’s Worldwide Governance Indicators (WGI) project, which has its own rule of law index. However, this index also incorporates the likelihood and occurrence of crime.<sup>152</sup> As this indicator of Geodynamics aims to specifically establish the quality and freedoms of the judiciary, rather than the effectiveness of enforcement of all crime, V-DEM’s index is a better fit than the WGI’s.</p>	

Table 30 - Judicial: System-Subjective

<b>Description.</b> Human rights.	<b>Source.</b> Fariss, 2019.
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<sup>146</sup> Piotr Bąkowski and Sofija Voronova, “Corruption in the European Union - Prevalence of Corruption, and Anti-Corruption Efforts in Selected EU Member States” (European Parliamentary Research Service, 2017).

<sup>147</sup> Vereinte Nationen, *Measuring Corruption in Africa*.

<sup>148</sup> Michael Coppedge et al., “V-Dem Codebook V9” (Varieties of Democracy (V-Dem) Project, 2019), 269, [https://www.v-dem.net/media/filer\\_public/e6/d2/e6d27595-9d69-4312-b09f-63d2a0a65df2/v-dem\\_codebook\\_v9.pdf](https://www.v-dem.net/media/filer_public/e6/d2/e6d27595-9d69-4312-b09f-63d2a0a65df2/v-dem_codebook_v9.pdf).

<sup>149</sup> Coppedge et al., 269.

<sup>150</sup> V-Dem Institute, “Home,” 2020, <https://www.v-dem.net/en/>.

<sup>151</sup> Juan Carlos Botero, Mark David Agrast, and Alejandro Ponce, “World Justice Project Rule of Law Index 2019” (Washington D.C.: World Justice Project, February 28, 2019), <https://worldjusticeproject.org/our-work/research-and-data/wjp-rule-law-index-2019>.

<sup>152</sup> The World Bank, “Worldwide Governance Indicators: Documentation,” Worldwide Governance Indicators, 2019, <https://info.worldbank.org/governance/wgi/Home/Documents>.

**Description.** In this more general observation of human rights, Geodynamics uses **Fariss’ index of human rights**. Fariss combines the findings of 13 other datasets on government violence with varying data ranges.<sup>153</sup> His conceptualization of human rights focuses on state violations of physical rights (e.g. government killing, political imprisonment, torture, disappearances).<sup>154</sup> Fariss created an index in which the overall average between 1946 and 2017 (his data range) equals 0 and countries are assigned a score which represents the number of standard deviations they are removed from that average.<sup>155</sup>

**Background.** Fariss’ dataset is unique in that it attempts to correct for the changing standards of human rights over time. The principles considered part of human rights and the strictness with which they are protected by watchdogs have increased over time. This means any human rights scores that do not correct for this increase in standards (e.g. Freedom House, Amnesty International) remain stagnant in historical perspective, while Fariss’ measurement registers a relative global improvement of human rights protection over time.<sup>156</sup>

Table 31 - Judicial: System-Objective

**Description.** **Illiberal states’ influence.** **Source.** The Frederick S. Pardee Center for International Futures: FBIC & Freedom House.

**Description.** This measure combines data provided by two sources, namely Freedom House’s Civil Liberties scores (elaborated on in the individual-objective category of this domain) and global influence as measured by the Pardee Center’s Formal Bilateral Influence Capacity (FBIC) index. In any given year, the pool of illiberal states is made up of countries which were classified as “unfree” on Freedom House’s Civil Liberties index. This filter is applied to FBIC scores to calculate country-level influence within the international system on an annual basis.

The FBIC measures bilateral political influence between states as a product of their bandwidth (the intensity of their interactions, explained more elaborately in Connectedness-system-objective) and dependence of one country on the other for crucial parts of its security and economic welfare. Dependence is an expression of **Country A’s** importance to Country B (e.g. trade as a part of its GDP).<sup>157</sup> The specific indicators for dependence are trade and aid in the economic dimension, and arms imports in the security dimension. The weights attributed to these can be found in the Pardee Center’s report.<sup>158</sup> **Countries’** total influence scores in any given year are representative of their dyadic influence over all other countries in that year. The total world influence of all countries (both free and unfree) was calculated on an annual basis and used to express the sum of illiberal states’ influence in any given year as a percentage of the world total.

<sup>153</sup> Christopher J. Fariss, “Respect for Human Rights Has Improved Over Time: Modeling the Changing Standard of Accountability,” *American Political Science Review* 108, no. 2 (May 2014): 302–3, <https://doi.org/10/gd56vj>.

<sup>154</sup> Fariss, “Yes, Human Rights Practices Are Improving Over Time,” 870.

<sup>155</sup> Fariss, “Respect for Human Rights Has Improved Over Time: Modeling the Changing Standard of Accountability,” 298.

<sup>156</sup> Fariss, “Yes, Human Rights Practices Are Improving Over Time,” 868.

<sup>157</sup> Moyer et al., “Power and Influence in a Globalized World,” 8.

<sup>158</sup> Moyer et al., 9–10.

**Background.** The FBIC is unique in its quantitative representation of global influence. A similar index, the Lowy Institute's Asia Power Index, combines dozens of indicators over 8 different categories, creating a thorough overview of relative power. However, as the name suggests, its coverage is limited to Asia; and the Asian Pacific and the US in particular. The index's current iteration is furthermore only available for 2019, making over-time trend analysis impossible.<sup>159</sup> In other research, there is often a focus on military aspects alone, as in the International Institute for Strategic Studies (IISS)' Military Balance+ database,<sup>160</sup> or CoW's Composite Index of National Capability.<sup>161</sup>

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<sup>159</sup> Hervé Lemahieu and Bonnie Bley, "Lowy Institute Asia Power Index 2019" (Sydney: Lowy Institute, 2019), <https://power.lowyinstitute.org/about.html>.

<sup>160</sup> International Institute for Strategic Studies (IISS), "Military Balance+," IISS, accessed January 7, 2020, <https://www.iiss.org/publications/the-military-balance-plus>.

<sup>161</sup> J. David Singer, Stuart Bremer, and John Stuckey, "Capability Distribution, Uncertainty, and Major Power War, 1820-1965," in *Peace, War, and Numbers*, by Bruce Russett (Beverly Hills: Sage, 1972), 19–48.

## Security

Table 32 - Security: Individual-Subjective

<b>Description.</b> Willingness to fight.	<b>Source.</b> WVS Key Aggregates.
<p><b>Description.</b> This measurement is compiled on the basis of data made available through the WVS. It represents a dummy variable created from the question whether or not individuals are willing to fight for their country in the case of war (WVS 5, V75). It is a binary variable to capture the share of people within a county or region that is ready to defend its country in times of conflict.<sup>162</sup></p>	
<p><b>Background.</b> The WVS grew out of the EVS in 1981 and by now covers around 100 countries through telephone, face-to-face and internet surveys conducted by scores of social scientists.<sup>163</sup> It constitutes something of an industry standard and has published over 1,000 papers based on its findings in 20 languages, as well as reports. Thousands of secondary papers have been published by other authors.<sup>164</sup> Finding reliable global survey data constitutes a near-impossible exercise due to the scale of such a project, but the WVS is one of the largest scale open-source datasets available for the purpose. Other agencies, notably the Gallup World Poll,<sup>165</sup> provide similar surveys which are not freely available. We have corroborated findings from WVS with Gallup where available.</p>	

Table 33 - Security: Individual-Objective

<b>Description.</b> Conflict fatalities.	<b>Source.</b> Uppsala Conflict Data Program & World Bank
<p><b>Description</b> Number of active conflicts was derived from the publicly available Uppsala Conflict Data Program (UCDP). The authors of the UCPD define active conflicts as battle-related deaths in the case of state-based or non-state-based conflict and deaths stemming from attacks of organized actors against unarmed civilians in the case of one-sided violence.<sup>166</sup></p>	
<p><b>Background.</b> Data from the UCDP is utilized by the UNDP,<sup>167</sup> the Swiss Agency for Development and Cooperation<sup>168</sup> and academic journals such as <i>Political Geography</i><sup>169</sup> or the <i>Journal of Conflict Resolution</i>.<sup>170</sup> The Peace Research Institute Oslo (PRIO) Battle Deaths Dataset<sup>171</sup> constitutes a plausible alternative to the <b>Uppsala’s conflict fatalities data</b>, but coverage is only up to 2008, making the UCDP the preferable choice.</p>	

Table 34 - Security: State-Subjective

<sup>162</sup> Welzel, “Description of Welzel Data for QoG and WVS 1 to 6 Key Aggregates.”

<sup>163</sup> World Values Survey, “Who Are We.”

<sup>164</sup> World Values Survey, “World Values Survey Publications.”

<sup>165</sup> Gallup Inc, “World Poll,” Gallup.com, 2019, <https://www.gallup.com/analytics/232838/world-poll.aspx>.

<sup>166</sup> Marie Allansson, “Definitions - Department of Peace and Conflict Research - Uppsala University, Sweden,” accessed December 30, 2019, <https://www.pcr.uu.se/research/ucdp/definitions/>.

<sup>167</sup> Jonathan D. Moyer et al., “Assessing the Impact of War on Development in Yemen” (United Nations Development Programme, 2019), <https://www.undp.org/content/dam/yemen/General/Docs/ImpactOfWarOnDevelopmentInYemen.pdf>.

<sup>168</sup> Irene Pavesi, “TRACKING CONFLICT- RELATED DEATHS” (Swiss Agency for Development and Cooperation, 2017).

<sup>169</sup> Gerdis Wischnath and Halvard Buhaug, “Rice or Riots: On Food Production and Conflict Severity across India,” *Political Geography*, Special Issue: Climate Change and Conflict, 43 (November 1, 2014): 6–15, <https://doi.org/10/f6tq7c>.

<sup>170</sup> Marc L. Hutchison, “Tolerating Threat? The Independent Effects of Civil Conflict on Domestic Political Tolerance,” *Journal of Conflict Resolution* 58, no. 5 (2014): 796–824, <https://doi.org/10/f6j4kr>.

<sup>171</sup> Peace Research Institute Oslo (PRIO), “Battle Deaths Data - PRIO,” accessed January 7, 2020, <https://www.prio.org/Data/Armed-Conflict/Battle-Deaths/>.

<p><b>Description.</b> Negative military rhetorical assertiveness. <b>Source.</b> GDELT.</p>
<p><b>Description.</b> Geodynamics uses a measurement of negative military rhetorical assertiveness which is frequently used by HCSS.<sup>172</sup> The events datasets used for this sort of analysis by HCSS are GDELT<sup>173</sup> (English and translingual), ICEWS,<sup>174</sup> TERRIER<sup>175</sup> and Phoenix.<sup>176</sup> All of these use artificial intelligence to analyze large datasets of news articles to discern which actors engage in which actions in these articles. The actors and actions are coded using CAMEO codes.<sup>177</sup></p> <p>The specific CAMEO codes which HCSS has categorized as reflecting negative military rhetorical assertiveness are the following: 1012: Demand military cooperation; 1056: Demand de-escalation of military engagement; 1032: Demand military aid; 1034: Demand military protection or peacekeeping; 138: Threaten with military force, not specified below; 1381: Threaten blockade; 1382: Threaten occupation; 1383: Threaten unconventional attack; 1384: Threaten conventional attack; 1385: Threaten unconventional mass violence.<sup>178</sup></p> <p>To avoid inaccuracies, only events between two different state actors are considered. The final percentages used in the report are calculated by dividing the number of events in GDELT English which correspond to the abovementioned CAMEO codes in a given month by the total number of international state events in that month and multiplying that by 100 to yield a percentage. To ensure greater accuracy, these findings were corroborated by the other four datasets, which yielded similar findings.</p>
<p><b>Background.</b> This measure was especially developed by HCSS. HCSS has categorized the widely used CAMEO codes for textual analysis into different domains (military, diplomatic, etcetera) and assessed whether they can be considered positive or negative, rhetorical or factual, and assertive or passive. HCSS has used this taxonomy in various papers to make sense of big data using AI.<sup>179</sup></p>

Table 35 - Security: State-Objective

<p><b>Description.</b> Military expenditure. <b>Source.</b> The World Bank Data.</p>
<p><b>Description.</b> Military expenditure as percentage of GDP. The World Bank data uses NATO's definition to determine military expenditure. It includes "all current and capital expenditures on the armed forces, including peacekeeping forces; defense ministries and other government agencies engaged in defense projects; paramilitary forces, if these are judged to be trained and equipped for military operations; and military space activities. Such expenditures include military and civil personnel, including retirement pensions of military personnel and social services for personnel; operation and maintenance; procurement; military research and</p>

<sup>172</sup> van Manen and Sweijs, "Military Competition in Perspective: Trends in Major Powers' Postures and Perceptions"; De Spiegeleire, Holynska, and Sapolovych, "Things May Not Be as They Seem: Geo-Dynamic Trends in the International System"; De Spiegeleire, "Great Power Assertivitis."

<sup>173</sup> The GDELT Project, "The GDELT Project: Data."

<sup>174</sup> Boschee et al., "ICEWS Automated Daily Event Data."

<sup>175</sup> Irvine et al., "Temporally Extended, Regular, Reproducible International Event Records."

<sup>176</sup> Brandt et al., "Real Time Event Data / Phoenix."

<sup>177</sup> Schrod, "CAMEO."

<sup>178</sup> Schrod.

<sup>179</sup> van Manen and Sweijs, "Military Competition in Perspective: Trends in Major Powers' Postures and Perceptions"; De Spiegeleire, Holynska, and Sapolovych, "Things May Not Be as They Seem: Geo-Dynamic Trends in the International System"; De Spiegeleire, "Great Power Assertivitis."



development; and military aid.”<sup>180</sup> Country scores are averaged at the world and regional level.

**Background.** Military expenditure as percentage of GDP is most basic measure of military commitment and defensive intentions of a state. Here it is used to assess the relative changes of military expenditure over time.<sup>181</sup> The Stockholm International Peace Research Institute’s (SIPRI) data, used here by the World Bank, is an industry standard for this and other conflict-related data, and its annual reports are cited by dozens of papers. SIPRI itself was ranked as 32 of the top think tanks worldwide and 23 in defense and national security in the 2018 *Global Go To Think Tank Index Report*.<sup>182</sup>

The IISS publishes “The Military Balance”, which also provides similar data. However, its data is not open source.<sup>183</sup> CoW also publishes data on military spending as part of its National Material Capabilities project, but it does not extend as far to the present as SIPRI’s data does.<sup>184</sup>

Table 36 - Security: System-Subjective

<b>Description.</b> Global peace.	<b>Source.</b> Institute for Economics & Peace.
<b>Description.</b> The Global Peace Index (GPI) assesses three different domains of peacefulness over time. The first domain “Ongoing Domestic and International Conflict” measures the extent to which countries are involved in internal and external conflicts, as well as their role and duration of involvement in conflicts. The second domain assesses social safety and security by means of low crime rates, terrorist attacks and violent demonstrations. The third estimates the level of a country’s militarization. All three are tied together into the GPI, ranging from 1 to 5 with 1 indicating complete peace and 5 indicating no peace at all. <sup>185</sup>	
<b>Background.</b> The GPI is an instrument to rank a country’s or region’s peacefulness relative to others. It has been utilized by the UN and the World Bank among others and served as a data source in widely cited academic papers published by Wolfsfeld et al. (2013), Skaaning (2010) and Alexander et al. (2012). <sup>186</sup>	

Table 37 - Security: System-Objective

<b>Description.</b> Total number of active conflicts.	<b>Source.</b> Uppsala Conflict Data Program
<b>Description.</b> Number of active conflicts was derived from the publicly available UCDP. The UCDP identifies an active conflict if there are at least 25 battle-related	

<sup>180</sup> The World Bank Group, “Military Expenditure (% of GDP).”

<sup>181</sup> Dr Sam Perlo-Freeman, “Monitoring Military Expenditure | SIPRI,” 2017, <https://www.sipri.org/commentary/topical-background/2017/monitoring-military-expenditure>.

<sup>182</sup> James G. McGann, “2018 Global Go To Think Tank Index Report” (The Lauder Institute, University of Pennsylvania, 2019), 62; 109, [https://repository.upenn.edu/think\\_tanks/16/](https://repository.upenn.edu/think_tanks/16/).

<sup>183</sup> International Institute for Strategic Studies (IISS), “Military Balance+.”

<sup>184</sup> Singer, Bremer, and Stuckey, “Capability Distribution, Uncertainty, and Major Power War, 1820-1965.”

<sup>185</sup> Institute for Economics & Peace, “Global Peace Index 2019: Measuring Peace in a Complex World,” 63.

<sup>186</sup> Gadi Wolfsfeld, Elad Segev, and Tamir Sheafer, “Social Media and the Arab Spring: Politics Comes First,” *The International Journal of Press/Politics* 18, no. 2 (2013): 115–137, <https://doi.org/10/f4r5m8>; Svend-Erik Skaaning, “Measuring the Rule of Law,” *Political Research Quarterly* 63, no. 2 (2010): 449–60, <https://doi.org/10/fp3wkb>; Amy C. Alexander, Ronald Inglehart, and Christian Welzel, “Measuring Effective Democracy: A Defense,” *International Political Science Review* 33, no. 1 (2012): 41–62, <https://doi.org/10/dvjxjf>; “Press Conference on Launch of 2013 Global Peace Index | Meetings Coverage and Press Releases,” accessed January 6, 2020, [https://www.un.org/press/en/2013/130612\\_Peace.doc.htm](https://www.un.org/press/en/2013/130612_Peace.doc.htm).

deaths in one calendar year on one of the conflicts sides. These may be state-based conflicts (at least one actor is a government) as well as non-state conflicts (two organized groups, neither of which is a state or government).<sup>187</sup>

**Background.** Data from the UCDP constitute a true industry standard measurement on the number of current conflicts. The data is utilized by the UNDP,<sup>188</sup> the Swiss Agency for Development and Cooperation<sup>189</sup> and academic journals such as Political Geography<sup>190</sup> or the Journal of Conflict Resolution,<sup>191</sup> among others. Data from other measures such as the Global Conflict Tracker<sup>192</sup> or the related PRIO Armed Conflict Dataset are not nearly in their coverage as the UCDP.

<sup>187</sup> Allansson, "Definitions - Department of Peace and Conflict Research - Uppsala University, Sweden."

<sup>188</sup> Moyer et al., "Assessing the Impact of War on Development in Yemen."

<sup>189</sup> Pavesi, "TRACKING CONFLICT- RELATED DEATHS."

<sup>190</sup> Wischnath and Buhaug, "Rice or Riots."

<sup>191</sup> Hutchison, "Tolerating Threat?"

<sup>192</sup> "Center for Preventive Action," Council on Foreign Relations, accessed January 7, 2020, <https://www.cfr.org/programs/center-preventive-action>.

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