Statistical Appendix 1 for Chapter 2 of World Happiness Report 2021

John F. Helliwell, Haifang Huang, Shun Wang, and Max Norton

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1 Data Sources and Variable Definitions

- Happiness score or subjective well-being (variable name *ladder*): The survey measure of SWB is from the Feb 26, 2021 release of the Gallup World Poll (GWP) covering years from 2005 to 2020. Unless stated otherwise, it is the national average response to the question of life evaluations. The English wording of the question is "Please imagine a ladder, with steps numbered from 0 at the bottom to 10 at the top. The top of the ladder represents the best possible life for you and the bottom of the ladder represents the worst possible life for you. On which step of the ladder would you say you personally feel you stand at this time?" This measure is also referred to as *Cantril life ladder*, or just *life ladder* in our analysis.

- The statistics of GDP per capita (variable name *gdp*) in purchasing power parity (PPP) at constant 2017 international dollar prices are from the October 14, 2020 update of the World Development Indicators (WDI). The GDP figures for Taiwan, Syria, Palestine, Venezuela, Djibouti and Ymen are from the Penn World Table 9.1.

  - GDP per capita in 2020 are not yet available as of December 2020. We extend the GDP-per-capita time series from 2019 to 2020 using country-specific forecasts of real GDP growth in 2020 first from the OECD Economic Outlook No 108 (December 2020) and then, if missing, forecasts from World Bank's Global Economic Prospects (Last Updated: 06/08/2020). The GDP growth forecasts are adjusted for population growth with the subtraction of 2018-19 population growth as the projected 2019-20 growth.

- Healthy Life Expectancy (HLE). Healthy life expectancies at birth are based on the data extracted from the World Health Organization's (WHO) Global Health Observatory data repository (Last updated: 2020-09-28). The data at the source are available for the years 2000, 2005, 2010, 2015 and 2016. To match this report's sample period (2005-2020), interpolation and extrapolation are used.

- Social support (or having someone to count on in times of trouble) is the national average of the binary responses (either 0 or 1) to the GWP question "If you were in trouble, do you have relatives or friends you can count on to help you whenever you need them, or not?"

- Freedom to make life choices is the national average of responses to the GWP question "Are you satisfied or dissatisfied with your freedom to choose what you do with your life?"

- Generosity is the residual of regressing national average of response to the GWP question "Have you donated money to a charity in the past month?" on GDP per capita.

- Corruption Perception: The measure is the national average of the survey responses to two questions in the GWP: "Is corruption widespread throughout the government or not" and "Is corruption widespread within businesses or not?" The overall perception is just the average of the two 0-or-1 responses. In case the perception of government corruption is missing, we use the perception of business corruption as the overall perception. The corruption perception at the national level is just the average response of the overall perception at the individual level.

- Positive affect is defined as the average of three positive affect measures in GWP: happiness, laugh and enjoyment in the Gallup World Poll waves 3-7. These measures are the responses to the following three questions, respectively: "Did you experience the following feelings during A LOT OF THE DAY yesterday? How about Happiness?", "Did you smile or laugh a lot yesterday?", and "Did you experience the following feelings during A LOT OF THE DAY yesterday? How about Enjoyment?" Waves 3-7 cover years 2008 to 2012 and a small number of countries in 2013. For waves 1-2 and those from wave 8 on, positive affect is defined as the average of laugh and enjoyment only, due to the limited availability of happiness.

- Negative affect is defined as the average of three negative affect measures in GWP. They are worry, sadness and anger, respectively the responses to "Did you experience the following feelings during A LOT OF THE DAY yesterday? How about Worry?", "Did you experience the following feelings during A LOT OF THE DAY yesterday? How about Sadness?", and "Did you experience the following feelings during A LOT OF THE DAY yesterday? How about Anger?"

- Gini of household income reported in the Gallup World Poll (variable name *giniIncGallup*). The income variable is described in Gallup's "WORLDWIDE RESEARCH METHODOLOGY AND CODEBOOK" (Updated July 2015) as "Household Income International Dollars *[...]* To calculate income, respondents are asked to report their household income in local currency. Those respondents who have difficulty answering the question are presented a set of ranges in local

currency and are asked which group they fall into. Income variables are created by converting local currency to International Dollars (ID) using purchasing power parity (PPP) ratios." The gini measure is generated using STATA command *ineqdec0* by WP5-year with sample weights.

- GINI index from the World Bank (variable name *giniIncWB* and *giniIncWBavg*) from the World Development Indicators. The variable labeled at the source as "GINI index (World Bank estimate)", series code "SI.POV.GINI". According to the source, the data source is "World Bank, Development Research Group. Data are based on primary household survey data obtained from government statistical agencies and World Bank country departments." The variable *giniIncWB* is an unbalanced panel of yearly index. The data availability is patchy at the yearly frequency. The variable *giniIncWBavg* is the average of *giniIncWB* starting from year 2000. The average does not imply that a country has the gini index in all years since then. In fact, most do not.

- Institutional trust: The first principal component of the following five measures: confidence in the national government, confidence in the judicial system and courts, confidence in the honesty of elections, confidence in the local police force, and perceived corruption in business. This principal component is then used to create a binary measure of high institutional trust using the 75th percentile in the global distribution as the cutoff point; this way a country whose population tends to have a low level of institutional trust in the global distribution will have a low average institutional trust at the national level. This measure is not available for all countries since not all surveys in all countries ask all of the questions that are used to derive the principal component.

2 Coverage, Summary Statistics and Regression Tables

WP5 is GWP's coding of countries including some sub-country territories such as Hong Kong. Not all the countries and territories appear in all the years. Our analysis does not cover all of the country/territories that have valid happiness scores.

The 2018-2020 ranking of happiness scores includes 149 countries/territories; only two third of them (95 to be precise) have survey information in 2020. The remaining countries' ranking are based on surveys in 2018 and 2019. The chapter also report average happiness scores from the 2017-2019 period; as we noted in the text, the scores are slightly different from those reported in WHR 2020 because of the late arrival of data for 15 countries; their 2019 survey data were not released to the WHR team for analysis until after the publication of WHR 2020. The late arrival causes only minor changes.

To appear in regression analysis that uses data from outside the GWP survey, a wp5-year pair needs to have the necessary external information (GDP, healthy life expectancy, etc). The regression analysis thus does not necessarily cover all of the coun-

tries/territories in the GWP. Nor does it necessarily cover all the countries/territories that are ranked by their happiness scores in this report. The underlying principle is that we always use the largest available sample. For different kind of analysis/ranking, the largest available samples can be different.

Regions: Some of the analysis includes dummy indicator for regions, namely Western Europe, Central and Eastern Europe, Commonwealth of Independent States, Southeast Asia, South Asia, East Asia, Latin America and Caribbean, North America and ANZ, Middle East and North Africa, and Sub-Saharan Africa. A later set of tables list individual countries by their region grouping.

3 Imputed Missing Values in Our Exercise of Explaining Ladder Scores with Six Factors

We do not make use of any imputed missing values in our rankings of happiness and its supporting factors. The only place where we make use of imputation is when we try to decompose a country's average ladder score into components explained by six hypothesized underlying determinants (GDP per person, healthy life expectancy, social support, perceived freedom to make life choice, generosity and perception of corruption). A small number of countries have missing values in one or more of these factors. The most prominent is about the perception of corruption in businesses and governments. In several countries, the relevant questions were not asked in the Gallup World Poll. For these countries we impute the missing values using the "control of corruption" indicator from the Worldwide Governance Indicators (WGI) project. Specifically, the imputed value is calculated as the predicted value using estimates from a model that regresses Gallup World Poll's perception of corruption on WGI's control of corruption. In all, less than 10 countries, listed in a later table, have the measure of corruption perception imputed in this way. In a few cases, countries are missing one or more of the happiness factors in the most recent years, but the information is available in earlier years; for example they may have GDP statistics in 2017 but not in the period from 2018 to 2020. In this case we use the information from the last available year. There is a limit of 3 years for how far back we go in search of those missing values. A few territories/countries do not have data on healthy life expectancy in the World Health Organization's (WHO) Global Health Observatory data repository. For Hong Kong, we calculate the health life-to-life expectancy ratio using estimates reported in "Healthy life expectancy in Hong Kong Special Administrative Region of China," by C.K. Law, & P.S.F. Yip, published at the *Bulletin of the World Health Organization*, 2003, 81 (1). The same ratio information for Swaziland in the period 2005-2010 can be found in "Healthy life expectancy for 187 countries, 1990 - 2010: a systematic analysis for the Global Burden Disease Study 2010," by Joshua A Salomon et al, *The Lancet*, Volume 380, Issue 9859. We then multiply the ratios for Hong Kong and Swaziland, respectively, with their life expectancy time series in the WDI to get the health life expectancy up to 2017. The time series is then extrapolated to the end of our sample period. The Lancet

article also provides information for Taiwan and the Palestinian Territories. But the WDI does not provide life expectancy data for these two regions. For these two, we use their 2010 healthy life expectancy. For Kosovo, we adjust its time series of life expectancy (available in the World Development Indicators) to a time series of health life expectancy by assuming that its health life-to-life expectancy ratio equals to the world average. Northern Cyprus is missing GDP per capita, Healthy, life expectancy, as well as the measure of Generosity; we use the statistics of Cyprus instead. We note again we do not use any of the imputed values to generate country rankings. We use them only for our decomposition exercises, and the ranking of countries do not depend on those exercises.

Table 1: Number of ladder (WP16) observations for WP5-years - Part 1

Country/territory (ID)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
United States (1)		1001	1225	1004	1003	1005	1008	2094	1005	2048	1019	1032	1013	1004	1026	1007
Egypt (2)	999		1024	1105	2112	2053	5296	4186	1149	1000	1000	1000	1000	1000	2070	1002
Morocco (3)						1006	1001	3000	1007		2050	1008	1006	1001	1015	1006
Lebanon (4)	996	1000		1000	2010	2027	2007	2013	1000	1000	1000	1000	1000	1000	1040	
Saudi Arabia (5)	1004		1006	1150	2052	2038	2022	1077	2036	2035	1012	1000	1002	1003	1045	1043
Jordan (6)	1000		1016	1007	2016	2000	2000	2000	1000	1000	1000	1000	1012	1002	1001	1012
Syria (7)				1209	2100	2035	2041	2043	1022		1002					
Turkey (8)	995		1001	1004	999	1000	1001	2000	1000	2003	1002	1001	1000	1000	2059	1000
Pakistan (9)	1001		1502	2484	3122	1030	1000	3012	1000	1000	1000	1000	1600	1000	1091	
Indonesia (10)		1180	1000	1050	1080	1080	1000	3000	1000	1000	1000	1000	1000	1000	2192	
Bangladesh (11)		1048	1200	1000	1000	1000	1000	3000	1000	1000	1000	1000	1000	1000	3072	1013
United Kingdom (12)	1037		1204	1001	1002	1000	9239	13408	750	2000	1000	1000	1000	1000	1025	1000
France (13)	1002	1220		1006	1000	1004	1001	2005	751	2000	1000	1000	1000	1000	1025	1000
Germany (14)	1001		1221	3016	2010	1007	9105	13269	751	2014	1000	2000	1000	1000	1025	1000
Netherlands (15)	1000		1000	1000		1001	1000	1000	751	2002	1003	1000	1001	1002	1029	1006
Belgium (16)	1003		1022	1002		1003	1002	1001	1006	2004	1037	1000	1001	1011	1025	1005
Spain (17)	1000		1004	1009	1005	1000	1006	2003	1004	2000	1000	1000	1000	1000	1025	1000
Italy (18)	1002		1008	1008	1005	1000	1005	2007	1004	2000	1000	1000	1000	1000	1025	1000
Poland (19)	1000		1000		1000	2000	1029	1000	1000	1000	1000	1000	1000	1000	1080	1010
Hungary (20)	1025		1010		1008	1008	1014	1004	1019	1003	1000	1000	1000	1000	1080	1001
Czech Republic (21)	1001		1072			2082	1000	1005	1001	1008	1000	1000	1000	1000		1004
Romania (22)	1022		1000		1000	1000	1008	1000	1000	998	1001	1001	1001	1002	1080	
Sweden (23)	1000		1001	1000	1002	1002	1006	1000	750	2001	1000	1000	1000	1001	1025	1000
Greece (24)	1002		1000		1000	1000	1000	1000	1003	1000	1000	1000	1000	1000	1080	1002
Denmark (25)	1004		1009	1001	1000	1000	1005	1001	753	2002	1005	1000	1000	1000	1025	1000
Iran (26)	1300		1004	1040			1003	3507	1000	2009	1001	1000	1000	1002	1058	1009
Hong Kong S.A.R. of China (27)		800		751	755	756	1028	1006		2017		1005	1007		1004	1005
Singapore (28)		1095	1000	2551	1005	1001	1000		1000	1000	1000	1000	1000	1000	1040	
Japan (29)	1000		1150	3000	1000	1000	1000	2000	1001	2006	1003	1003	1002	1003	1023	1016
China (30)		3730	3733	3712	3833	4151	4220	9413	4244	4696	4265	4373	4141	3649	3709	3503
India (31)		2100	3186	2000	3010	6000	3518	10080	5540	3000	3000	3000	3000	3000	6643	9453
Venezuela (32)	1000	1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1000
Brazil (33)	1029		1038	1032	1031	1043	1042	1002	2006	1007	1004	1001	1000	1000	3001	1002

Table 2: Number of ladder (WP16) observations for WP5-years - Part 2

Country/territory (ID)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mexico (34)	1007		999	1000	1000	1000	1000	2000	1000	1017	1031	1000	1000	1034	1001	1010
Nigeria (35)		1000	1000	1000	1000	1000		2000	1002		1000	1000	1000	1000	3000	1004
Kenya (36)		1000	1000	2200	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1001	1008
Tanzania (37)		1000	1000	1000	1000	1000	1000	1000	1008	1008	1000	1000	1000	1000	1000	1001
Israel (38)		1002	1001	1001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1010	1095	1057
Palestinian Territories (39)		1000	1000	1000	2014	2000	2000	2000	1000	1000	1000	1000	1000	1000	1090	
Ghana (40)		1000	1000	1000	1000	1000	1000	1000	1008	1000	1000	1000	1000	1000	1010	1000
Uganda (41)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1016
Benin (42)		1000		1000			1000	1000	1000	1000	1000	1000	1000	1000	1000	1042
Madagascar (43)		1000		1000			1000	1000	1008	1008	1000	1000	1000	1000	1000	
Malawi (44)		1000	1000		1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	
South Africa (45)		1001	1000	1000	1000	1000	1000	2000	1000	1000	1000	1000	1000	1000	1060	1019
Canada (46)	1355		1010	1005	1011	1007	1013	2003	1021	2025	1011	1016	1005	1009	1031	1006
Australia (47)	1000		1205	1005		1000	1010	1002	1002	2002	1001	1004	1003	1001	1047	1003
Philippines (48)		1200	1000	1000	1000	1000	1000	2000	1000	1000	1000	1000	1000	1000	2090	1000
Sri Lanka (49)		1033	1000	1000	1000	1030	1000	2031	1030	1062	1062		1104	1109	1083	
Vietnam (50)		1023	1015	1016	1008	1000	1000	2000	1017	1000	1000	1039	1002	1012	2000	
Thailand (51)		1410	1006	1038	1019	1000	1000	2000	1000	1000	1000	1000	1000	1000	2000	1000
Cambodia (52)		1000	1000	1024	1000	1000	1000	1000	1000	1000	1000	1000	1600	1000	1000	1002
Laos (53)		1001	1000	1000			1000	1000					1000	2504	1070	1000
Myanmar (54)								1020	1020	1020	1020	1020	1600	1000	1100	1000
New Zealand (55)		1028	750	750		750	1000	1008	500	2001	1007	1004	1001	1001	1042	1002
Angola (56)							1000	1000	1000	1000						
Botswana (57)		1000		1000		1000	1000	1000	1000	1000	1000	1000	1000	1002	1114	
Ethiopia (60)								1500	1000	1004	1000	1000	1000	1000	2222	1003
Mali (61)		1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1130	
Mauritania (62)			1000	1000	1984	2000	2000	1000	1008	1000	1000	1000	1000	1000	1100	
Mozambique (63)		1000	1000	1000			1000				1000		1000	1000	1000	
Niger (64)		1000	1000	1000	1000	1000	1000	1000	1008	1008	1000	1000	1000	1000	1000	
Rwanda (65)		1504		1000	1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	
Senegal (66)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Zambia (67)		1001	1000	1000	1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1026
South Korea (68)		1100	1000	1000	1000	1000	1001	2000	1000	2000	1000	1000	1000	1015	1016	1005

Table 3: Number of ladder (WP16) observations for WP5-years - Part 3

Country/territory (ID)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Taiwan Province of China (69)		1002		1000		1000	1001	1000	1000	2000	1000	1000	1000	1000	1030	1000
Afghanistan (70)				1010	2000	1000	1000	2000	1000	1000	1000	1000	1000	1000	1127	
Belarus (71)		1092	1114	1091	1077	1013	1007	1052	1032	1036	1034	1039	1053	1061	1128	
Georgia (72)		1000	1000	1080	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1003
Kazakhstan (73)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1000
Kyrgyzstan (74)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1000
Moldova (75)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1000
Russia (76)		2011	2949	2019	2042	4000	2000	3000	2000	2000	2000	2000	2000	2000	3003	2022
Ukraine (77)		1102	1066	1074	1081	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1001
Burkina Faso (78)		1000	1000	1000		1000	1000	1000	1008	1000	1000	1000	1000	1000	1000	
Cameroon (79)		1000	1000	1000	1000	1200	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Sierra Leone (80)		1000	1000	1000		1000	1000		1008	1008	1000	1000	1000	1000	1133	
Zimbabwe (81)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1082	1004
Costa Rica (82)		1002	1002	1000	1000	1006	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Albania (83)			981		1000	1000	1006	1029	1035	999	1000	999	1000	1000	1080	1000
Algeria (84)						1000	2001	2027		1002		1001	1016	1000	1100	
Argentina (87)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1060	1000
Armenia (88)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	
Austria (89)		1004		1001		2000	1004	1001	1000	2000	1000	1000	1000	1000	1025	1000
Azerbaijan (90)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	
Bahrain (92)					2128	2032	2010	1000	1002	1005	2004	1010	1064		1060	1009
Belize (94)			502							504						
Bhutan (95)									1000	1020	1020					
Bolivia (96)		1000	1000	1003	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1001
Bosnia and Herzegovina (97)			2002		1002	1000	1009	1005	1010	1001	1000	1000	1000	1000	1080	1001
Bulgaria (99)			1003			2000	1006	1000	1000	1000	1000	1000	1000	1001	1080	1000
Burundi (100)				1000	1000		1000			1000				1000		
Central African Republic (102)			1000			1000	1000					1000	1000			
Chad (103)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1111	
Chile (104)		1007	1023	1108	1009	1007	1009	1003	1001	1032	1040	1008	1040	1000	1060	1000
Colombia (105)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000
Comoros (106)					2000	2000	2000	1000						1000	1000	
Congo (Kinshasa) (107)					1000		1000	1000	1000	1000	1000	1000	1000			

Table 4: Number of ladder (WP16) observations for WP5-years - Part 4

Country/territory (ID)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Congo Brazzaville (108)				1000			1000	500	1000	1000	1000	1000	1000	1000	1090	
Croatia (109)			1000		1009	1029	1029	1000	1000	1000	1000	1000	1000	1000	1080	1002
Cuba (110)		1000														
Cyprus (111)		1000			502	1005	1005	500	500	2000	1029	1006	1008	1026	1043	1005
Djibouti (112)				1000	2000	1000	1000									
Dominican Republic (114)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1078	1000
Ecuador (115)		1067	1061	1001	1000	1000	1003	1003	1000	1000	1000	1000	1000	1000	1000	1000
El Salvador (116)		1000	1001	1000	1006	1001	1000	1000	1000	1000	1000	1000	1000	1000	1080	1000
Estonia (119)		1003	1001	601	608		1007	1004	1010	1000	1000	1000	1000	1000	1080	1000
Finland (121)		1010		1005		1000	1000	1000	750	2001	1000	1000	1000	1000	1025	1000
Gabon (122)							1000	1000	1008	1008	1000	1000	1000	1000	1070	
Guatemala (124)		1021	1000	1000	1015	1014	1000	1000	1000	1000	1000	1000	1000	1000	1100	
Guinea (125)							1000	1000	1008	1000	1000	1000	1000	1000	1140	
Guyana (127)			501													
Haiti (128)		505		500		504	504	504	504	504	504	504	504	500		
Honduras (129)		1000	1000	1000	1002	1000	1002	1000	1000	1000	1000	1000	1000	1000	1000	
Iceland (130)				502				1002	502		596	529	500		504	501
Iraq (131)				990	2001	2000	2000	2000	1003	2010	1009	1011	1000	2097		1000
Ireland (132)		1000		1001	500	1001	1000	1000	1000	2000	1000	1000	1000	1000	1025	1000
Ivory Coast (134)					1000				1008	1000	1000	1000	1000	1000	1000	1021
Jamaica (135)		543					506		504	504			504		501	
Kuwait (137)		1000			2002	2004	2000	1000	1008	1013	2000	1000	1000		2023	
Latvia (138)		1000	1017	513	515		1006	1001	1000	1002	1001	1019	1002	1021	1080	1001
Lesotho (139)							1000					1000	1000		1000	
Liberia (140)			1000	1000		1000				1000	1000	1000	1000	1000	1000	
Libya (141)								1002			1006	1001	1007	1004	1040	
Lithuania (143)		1015	1007	506	500	1001	1000	1000	1000	1000	1000	1000	1000	1000	1080	1002
Luxembourg (144)					500	1002	1000	1001	500	2000	1000	1000	1000	1000	1025	
North Macedonia (145)			1042		1008	1000	1018	1025	1020	1000	1024	1024	1008	1008	1080	1003
Malaysia (146)		1012	1233	1000	1011	1000	1000	1000	1000	2008	1002			1000	1060	
Maldives (147)														1000		
Malta (148)					508	1008	1004	1004	500	2013	1002	1011	1004	1010	1027	1001
Mauritius (150)							1000			1000		1000	1000	1000	1059	1000

Table 5: Number of ladder (WP16) observations for WP5-years - Part 5

Country/territory (ID)	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Mongolia (153)			1000	1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1070	1000
Montenegro (154)			834		1003	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	1004
Namibia (155)			1000							1000			1000	1005	1002	1000
Nepal (157)		1002	1000	1003	1002	1000	1000	2000	1050	1050	1000	1000	1000	1000	2095	
Nicaragua (158)		1001	1000	1000	1012	1000	1003	1000	1000	1000	1000	1000	1000	1000	1080	
Norway (160)		1001		1000				1004		2000	1005	2000	1000	1000	1025	1000
Oman (161)							2016									
Panama (163)		1005	1000	1004	1018	1000	1000	1001	1000	1000	1000	1000	1000	1000	1080	
Paraguay (164)		1001	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	2000		1079	
Peru (165)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	
Portugal (166)		1007		1002		2002	1000	1001	1001	2020	1021	1008	1000	1003	1026	1002
Puerto Rico (167)		500								500						
Qatar (168)					2028	1000	1032	2000			1000					
Serbia (173)			1556		1008	1000	1001	1023	1030	1000	1000	1000	1000	1000	1080	1002
Slovakia (175)		1018				1007	1012	1007	1004	1000	1000	1000	1000	1000	1080	1001
Slovenia (176)		1009			500	1002	1001	1000	1001	2020	1002	1000	1000	1000	1025	1001
Somalia (178)										1000	1000	1191				
Sudan (181)					1784	1808	2000	1000		1000						
Suriname (182)								504								
Eswatini (183)							1000							1000	1110	
Switzerland (184)		1000			1003			1000		2010	501	1000	1000	1000	1025	1000
Tajikistan (185)		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	3000	1080	1000
The Gambia (186)													1000	1000	1120	
Togo (187)		1000		1000			1000			1000	1000	1000	1000	1000	1130	
Trinidad and Tobago (189)		508		502			504		504				504			
Tunisia (190)					1006	2085	2034	2053	1053	1056	1000	1001	1001	1001	1000	1003
Turkmenistan (191)					1000		1000	1000	1000	1000	1000	1000	1000	1000	1089	
United Arab Emirates (193)		1013			2054	2066	2036	2016	1000	1002	2903	1855	1850	1857	1413	2928
Uruguay (194)		1004	1004	1005	1000	1000	1000	1009	1000	1000	1000	1000	1000	1000	1080	1001
Uzbekistan (195)		1000		1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1080	
Yemen (197)			1000		2000	2000	2000	2000	1000	1000	1000	1000	1000	1000	1140	
Kosovo (198)			1046	1047	1000	1017	1047	1024	1000	1001	1000	1000	1000	1000	1088	1000
Somaliland region (199)					2000	2000	2000	1000								
Northern Cyprus (202)								500	502	2004	1000	1000		1000	1050	
South Sudan (205)										1000	1000	1000	1000			

Figure 1: County-by-country trajectory plots - part 1

Figure 2: County-by-country trajectory plots - part 2

Figure 3: County-by-country trajectory plots - part 3

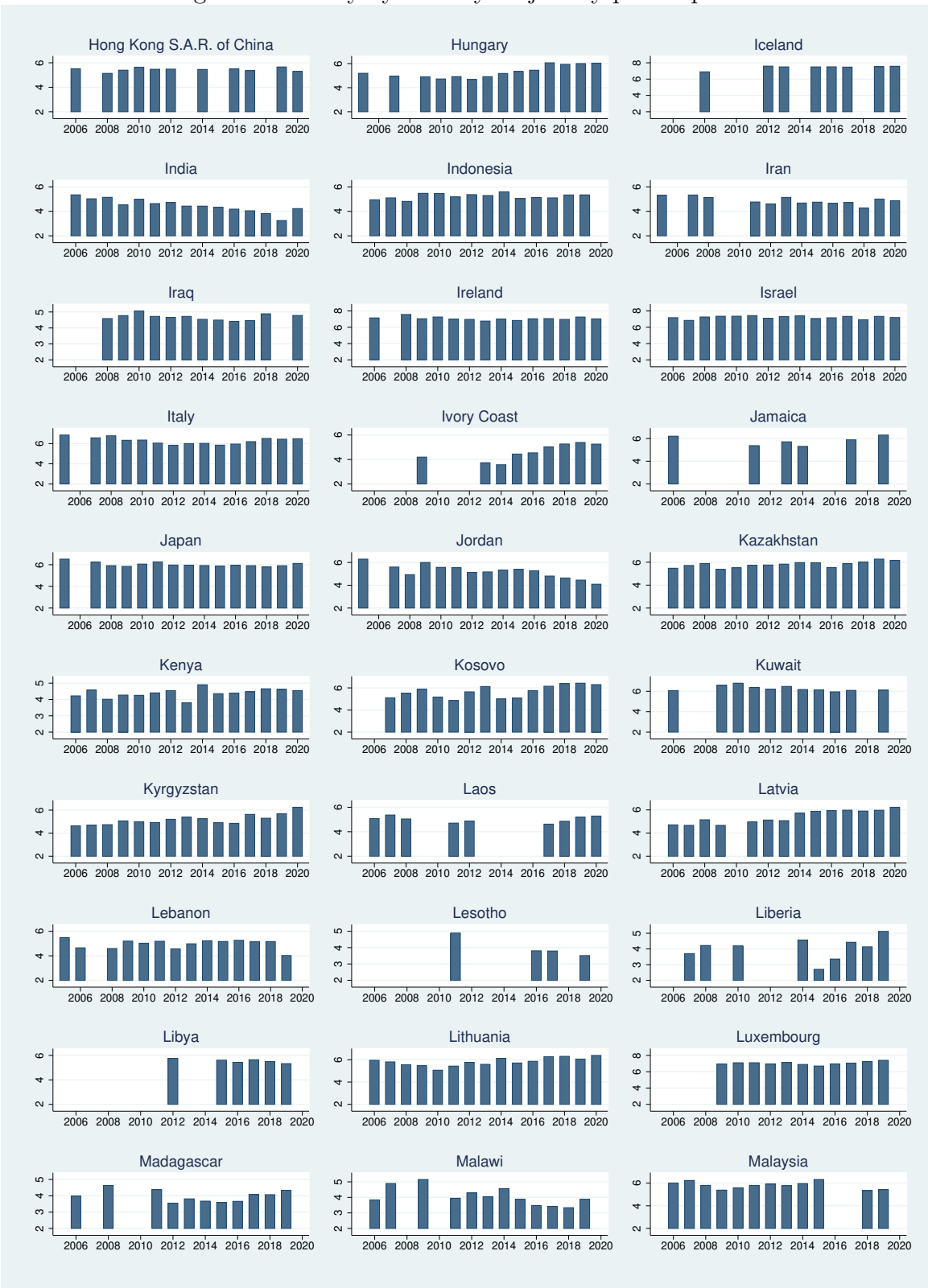

Figure 4: County-by-country trajectory plots - part 4

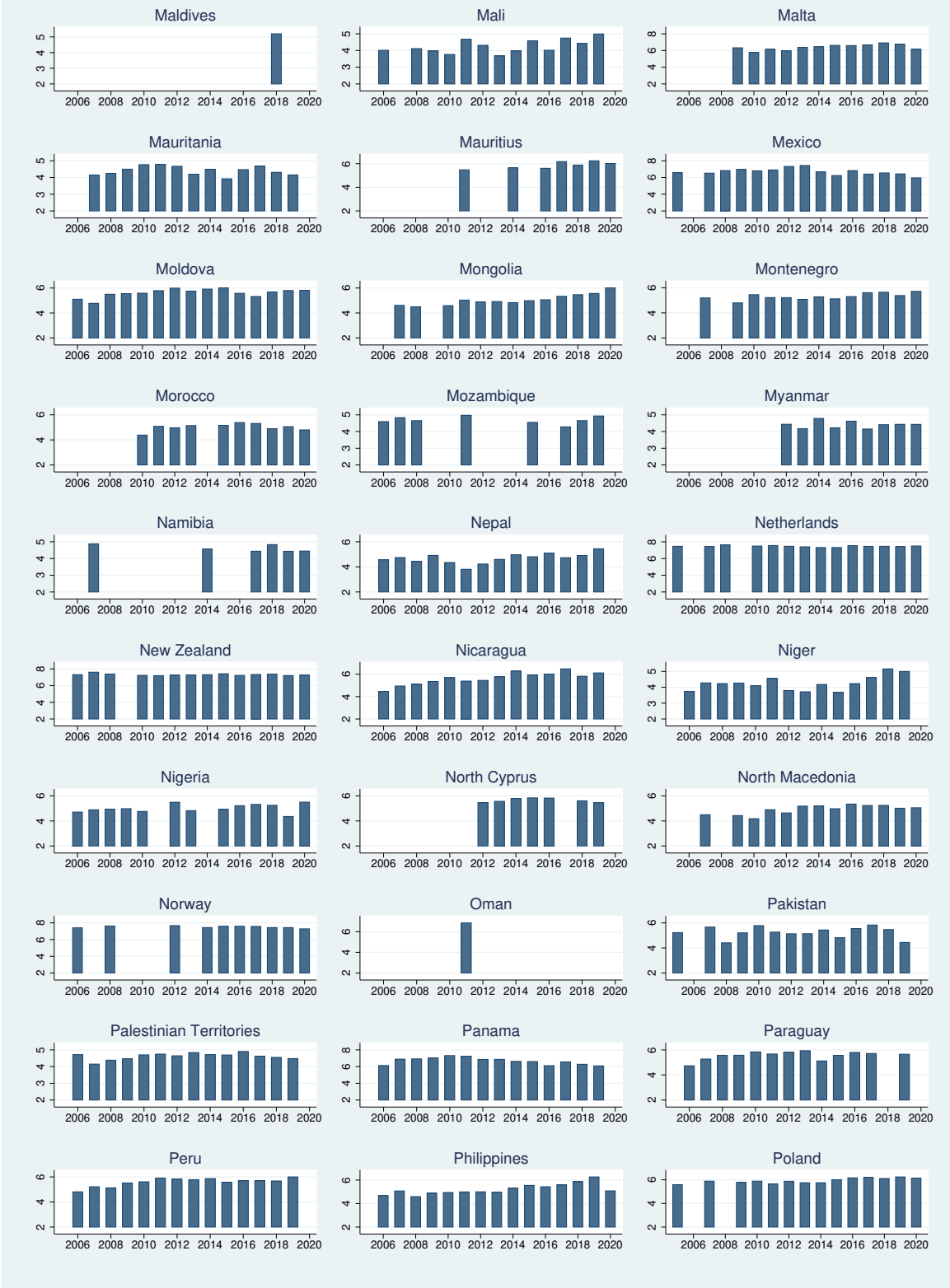

Figure 5: County-by-country trajectory plots - part 5

Figure 6: County-by-country trajectory plots - part 6

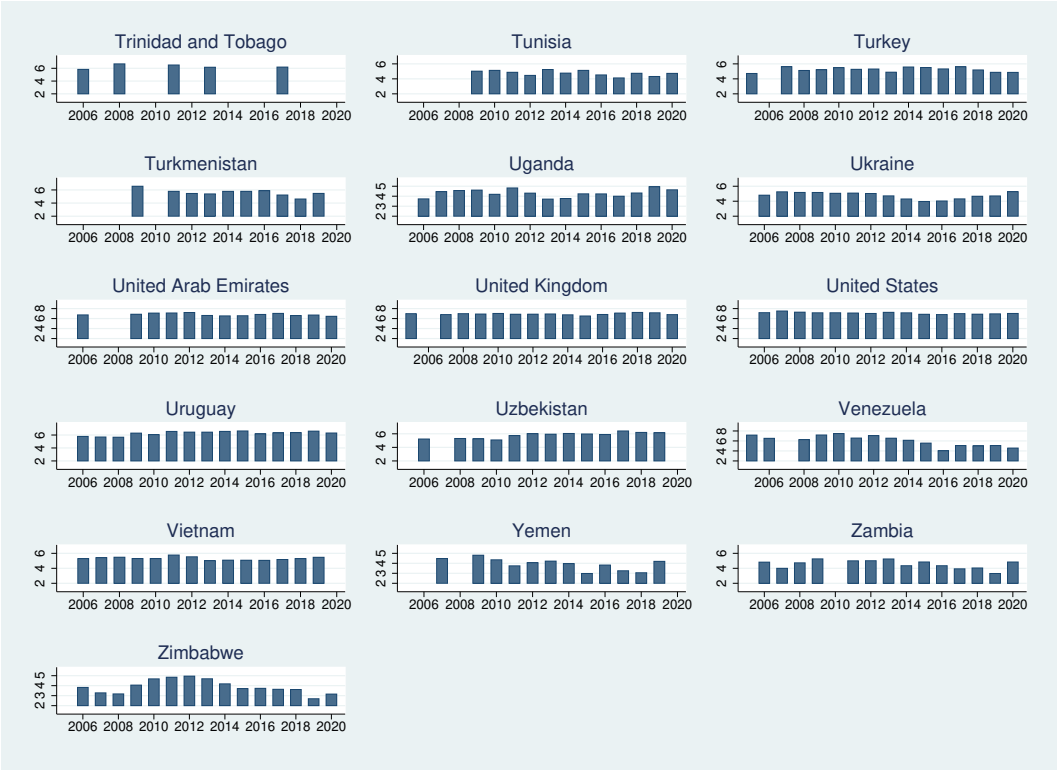

Table 6: Summary statistics for country-year observations with valid happiness scores - Fullest sample

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Ladder	5.47	1.12	2.38	8.02	1949
Positive affect	0.71	0.11	0.32	0.94	1927
Negative affect	0.27	0.09	0.08	0.70	1933
Log GDP per capita	9.37	1.15	6.64	11.65	1913
Social support	0.81	0.12	0.29	0.99	1936
Healthy life expectancy at birth	63.36	7.51	32.3	77.10	1894
Freedom to make life choices	0.74	0.14	0.26	0.99	1917
Generosity	0	0.16	-0.34	0.70	1860
Perceptions of corruption	0.75	0.19	0.04	0.98	1839

Table 7: Summary statistics for country-year observations with valid happiness scores - Period from 2005 to 2008

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Ladder	5.44	1.13	2.81	8.02	328
Positive affect	0.71	0.1	0.36	0.89	324
Negative affect	0.25	0.07	0.09	0.47	326
Log GDP per capita	9.21	1.19	6.68	11.37	327
Social support	0.81	0.13	0.29	0.98	326
Healthy life expectancy at birth	61.45	8.42	40.3	74.2	324
Freedom to make life choices	0.71	0.15	0.26	0.97	319
Generosity	0.02	0.17	-0.31	0.48	293
Perceptions of corruption	0.77	0.18	0.06	0.98	313

Table 8: Summary statistics for country-year observations with valid happiness scores - Period from 2008 to 2010

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Ladder	5.46	1.11	2.81	7.97	348
Positive affect	0.71	0.11	0.36	0.9	341
Negative affect	0.24	0.08	0.08	0.47	343
Log GDP per capita	9.27	1.17	6.72	11.59	346
Social support	0.81	0.12	0.29	0.98	343
Healthy life expectancy at birth	62.28	7.96	32.3	74.8	340
Freedom to make life choices	0.70	0.15	0.26	0.97	341
Generosity	0.01	0.16	-0.31	0.54	345
Perceptions of corruption	0.76	0.19	0.04	0.98	337

Table 9: Summary statistics for country-year observations with valid happiness scores - Period from 2017 to 2019

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Ladder	5.51	1.11	2.38	7.86	433
Positive affect	0.71	0.11	0.32	0.9	429
Negative affect	0.29	0.09	0.09	0.6	429
Log GDP per capita	9.43	1.16	6.64	11.65	420
Social support	0.81	0.12	0.32	0.98	432
Healthy life expectancy at birth	64.55	6.83	45.2	77.10	420
Freedom to make life choices	0.79	0.12	0.37	0.99	430
Generosity	-0.02	0.16	-0.34	0.65	418
Perceptions of corruption	0.73	0.18	0.07	0.96	407

Table 10: Summary statistics for country-year observations with valid happiness scores - Period from 2018 to 2020

Variable	Mean	Std. Dev.	Min.	Max.	N
Life Ladder	5.61	1.08	2.38	7.89	381
Positive affect	0.71	0.1	0.32	0.89	377
Negative affect	0.29	0.09	0.08	0.54	377
Log GDP per capita	9.52	1.11	6.64	11.65	362
Social support	0.82	0.11	0.42	0.98	381
Healthy life expectancy at birth	65.36	6.56	48.2	77.10	369
Freedom to make life choices	0.8	0.11	0.37	0.97	378
Generosity	-0.02	0.15	-0.34	0.56	361
Perceptions of corruption	0.72	0.19	0.07	0.96	359

Table 11: Regressions to Explain Average Happiness across Countries (Pooled OLS with year fixed effects)

	Ladder	PosAffect	NegAffect	LadderAgain
	(1)	(2)	(3)	(4)
Log GDP per capita	0.349	-.013	0.004	0.372
	(0.07)***	(0.01)	(0.008)	(0.069)***
Social support	2.253	0.252	-.322	1.903
	(0.359)***	(0.047)***	(0.051)***	(0.374)***
Healthy life expectancy at birth	0.031	0.001	0.002	0.028
	(0.01)***	(0.001)	(0.001)**	(0.01)***
Freedom to make life choices	1.217	0.369	-.081	0.54
	(0.3)***	(0.041)***	(0.041)**	(0.291)*
Generosity	0.652	0.132	0.025	0.387
	(0.269)**	(0.029)***	(0.027)	(0.266)
Perceptions of corruption	-.638	0.019	0.099	-.714
	(0.285)**	(0.026)	(0.023)***	(0.277)***
Positive affect				1.936
				(0.345)***
Negative affect				0.419
				(0.412)
Year 2005	0.414	-.011	0.024	0.428
	(0.083)***	(0.009)	(0.008)***	(0.081)***
Year 2006	-.007	0.011	-.003	-.018
	(0.059)	(0.009)	(0.009)	(0.059)
Year 2007	0.24	0.017	-.029	0.226
	(0.061)***	(0.009)**	(0.007)***	(0.06)***
Year 2008	0.336	0.023	-.041	0.315
	(0.058)***	(0.008)***	(0.007)***	(0.062)***
Year 2009	0.23	0.017	-.024	0.21
	(0.057)***	(0.008)**	(0.008)***	(0.057)***
Year 2010	0.147	0.012	-.028	0.138
	(0.047)***	(0.007)*	(0.006)***	(0.048)***
Year 2011	0.162	0.002	-.023	0.172
	(0.048)***	(0.008)	(0.006)***	(0.05)***
Year 2012	0.135	0.013	-.017	0.12
	(0.041)***	(0.007)**	(0.006)***	(0.044)***
Year 2013	0.032	0.01	-.008	0.019
	(0.04)	(0.005)*	(0.006)	(0.041)
Year 2015	-.002	-.003	0.002	0.006
	(0.04)	(0.005)	(0.004)	(0.039)
Year 2016	-.036	-.005	0.015	-.029
	(0.048)	(0.005)	(0.005)***	(0.046)
Year 2017	0.04	-.014	0.02	0.062
	(0.055)	(0.006)**	(0.006)***	(0.052)
Year 2018	0.072	-.009	0.023	0.084
	(0.062)	(0.007)	(0.007)***	(0.059)
Year 2019	0.047	-.011	0.022	0.062
	(0.064)	(0.007)	(0.007)***	(0.062)
Year 2020	0.057	-.022	0.03	0.091
	(0.073)	(0.008)***	(0.007)***	(0.07)
Obs.	1712	1709	1711	1708
e(N-clust)	155	155	155	155
e(r2-a)	0.757	0.472	0.297	0.774

Notes: 1). Standard errors in parentheses. *, **, and *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels. All standard errors are cluster-adjusted at the country level. The row "e(N-clust)" indicates the number of countries. 2). See section "Data Sources and Variable Definitions" for more information.

Table 12: Regressions to Explain Average Happiness across Countries (Pooled OLS without year fixed effects)

	Ladder	PosAffect	NegAffect	LadderAgain
	(1)	(2)	(3)	(4)
Log GDP per capita	0.361	-.011	0.0005	0.382
	(0.069)***	(0.01)	(0.008)	(0.068)***
Social support	2.310	0.268	-.346	1.844
	(0.354)***	(0.045)***	(0.05)***	(0.37)***
Healthy life expectancy at birth	0.029	0.0009	0.003	0.027
	(0.01)***	(0.001)	(0.001)***	(0.01)***
Freedom to make life choices	1.056	0.34	-.032	0.39
	(0.277)***	(0.037)***	(0.037)	(0.27)
Generosity	0.702	0.142	0.007	0.42
	(0.265)***	(0.028)***	(0.027)	(0.264)
Perceptions of corruption	-.649	0.017	0.102	-.700
	(0.279)**	(0.026)	(0.023)***	(0.275)**
Positive affect				1.988
				(0.355)***
Negative affect				0.185
				(0.385)
year-1				
year-2				
year-3				
year-4				
year-5				
year-6				
year-7				
year-8				
year-9				
year-11				
year-12				
year-13				
year-14				
year-15				
year-16				
Obs.	1712	1709	1711	1708
e(N-clust)	155	155	155	155
e(r2-a)	0.752	0.465	0.245	0.77

Notes: 1). Standard errors in parentheses. *, **, and *** indicate statistical significance at 10 percent, 5 percent and 1 percent levels. All standard errors are cluster-adjusted at the country level. The row "e(N-clust)" indicates the number of countries. 2). See section "Data Sources and Variable Definitions" for more information.

Figure 7: Ranking of Happiness: 2018-2020 (Part 1); those with a * before ranking do not have 2020 information

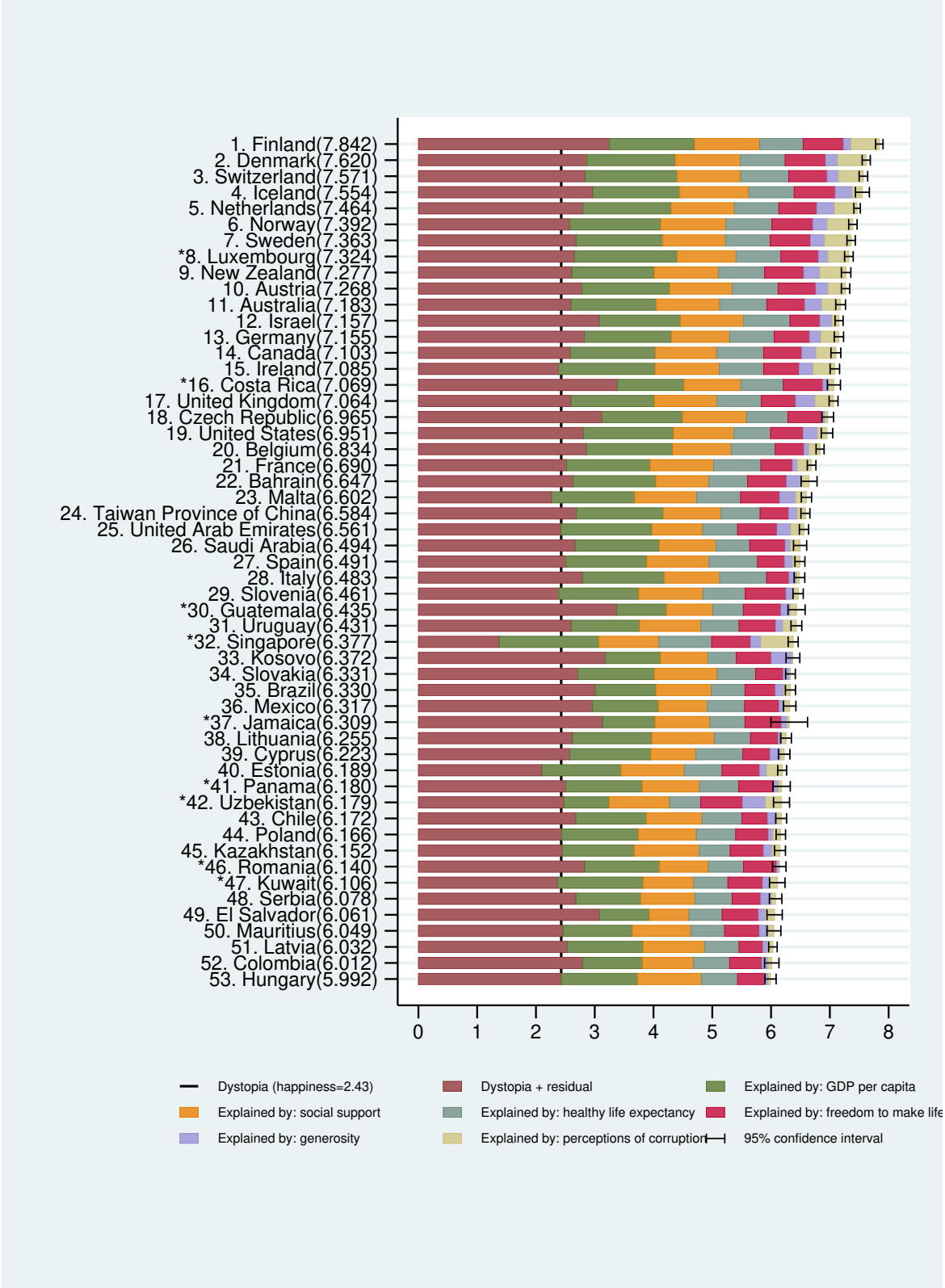

Figure 8: Ranking of Happiness: 2018-2020 (Part 2); those with a * before ranking do not have 2020 information

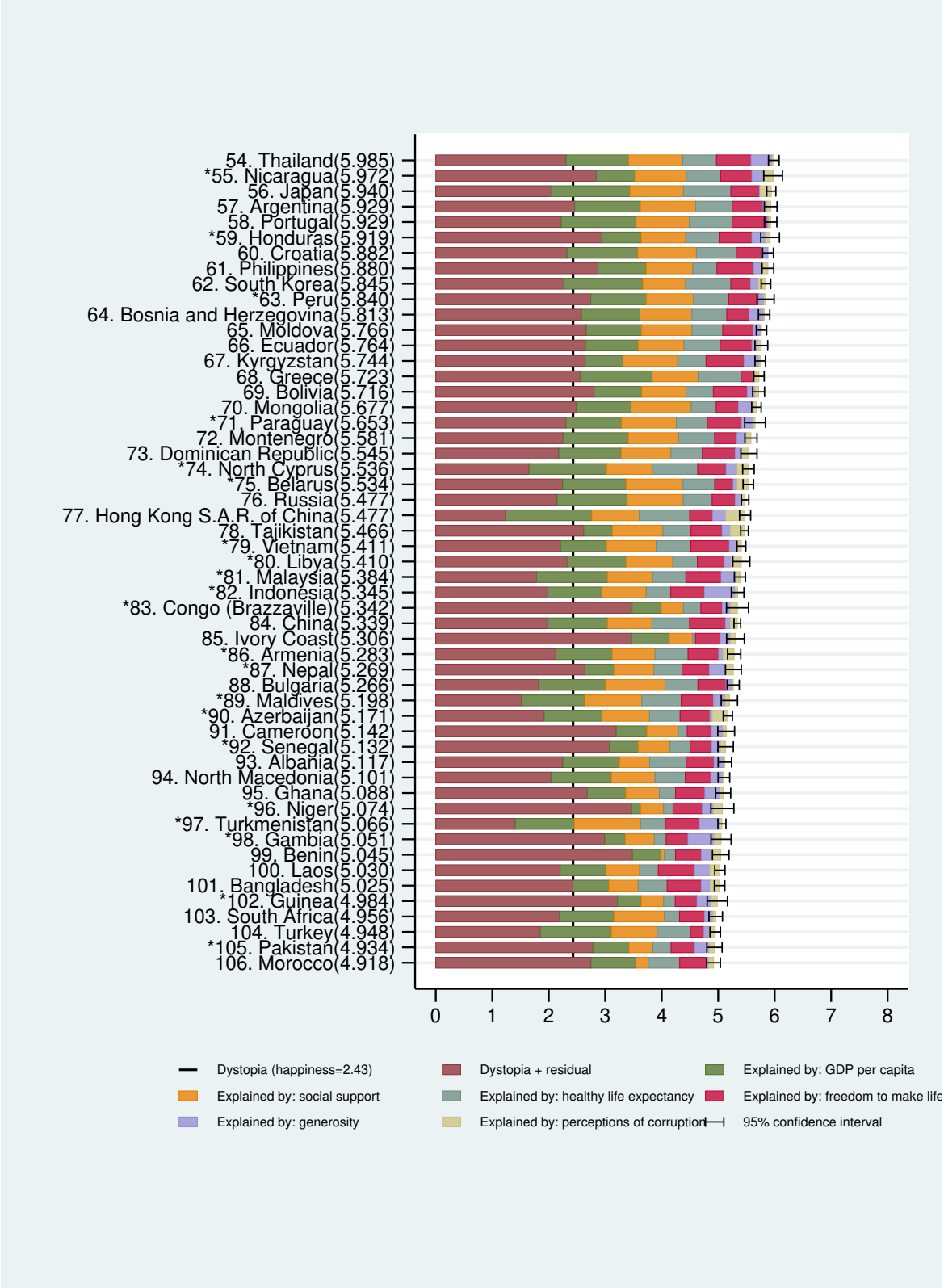

Figure 9: Ranking of Happiness: 2018-2020 (Part 3); those with a * before ranking do not have 2020 information

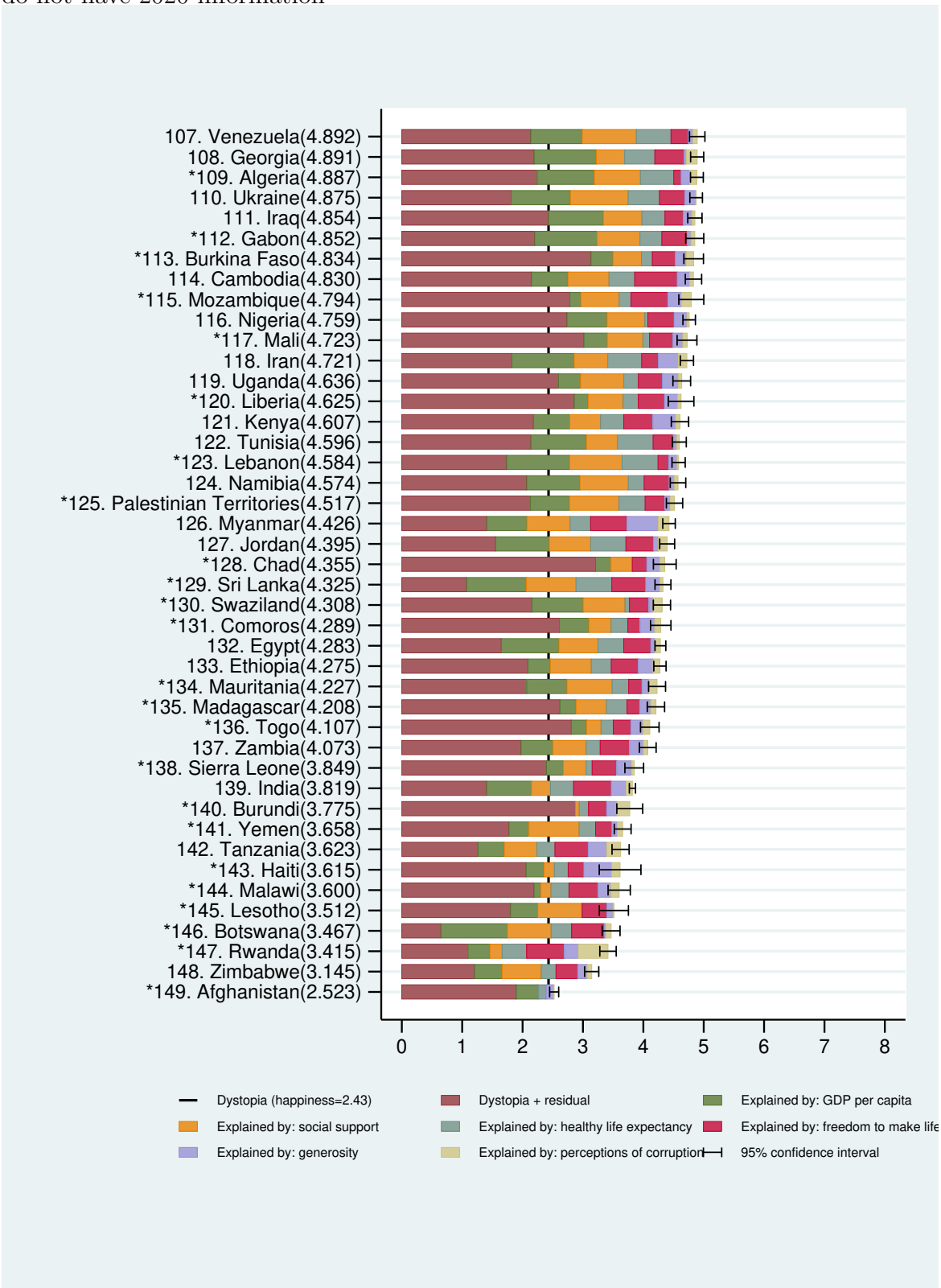

Figure 10: Ranking of Happiness: 2018-2020 (Part 1); those with a * before ranking do not have 2020 information

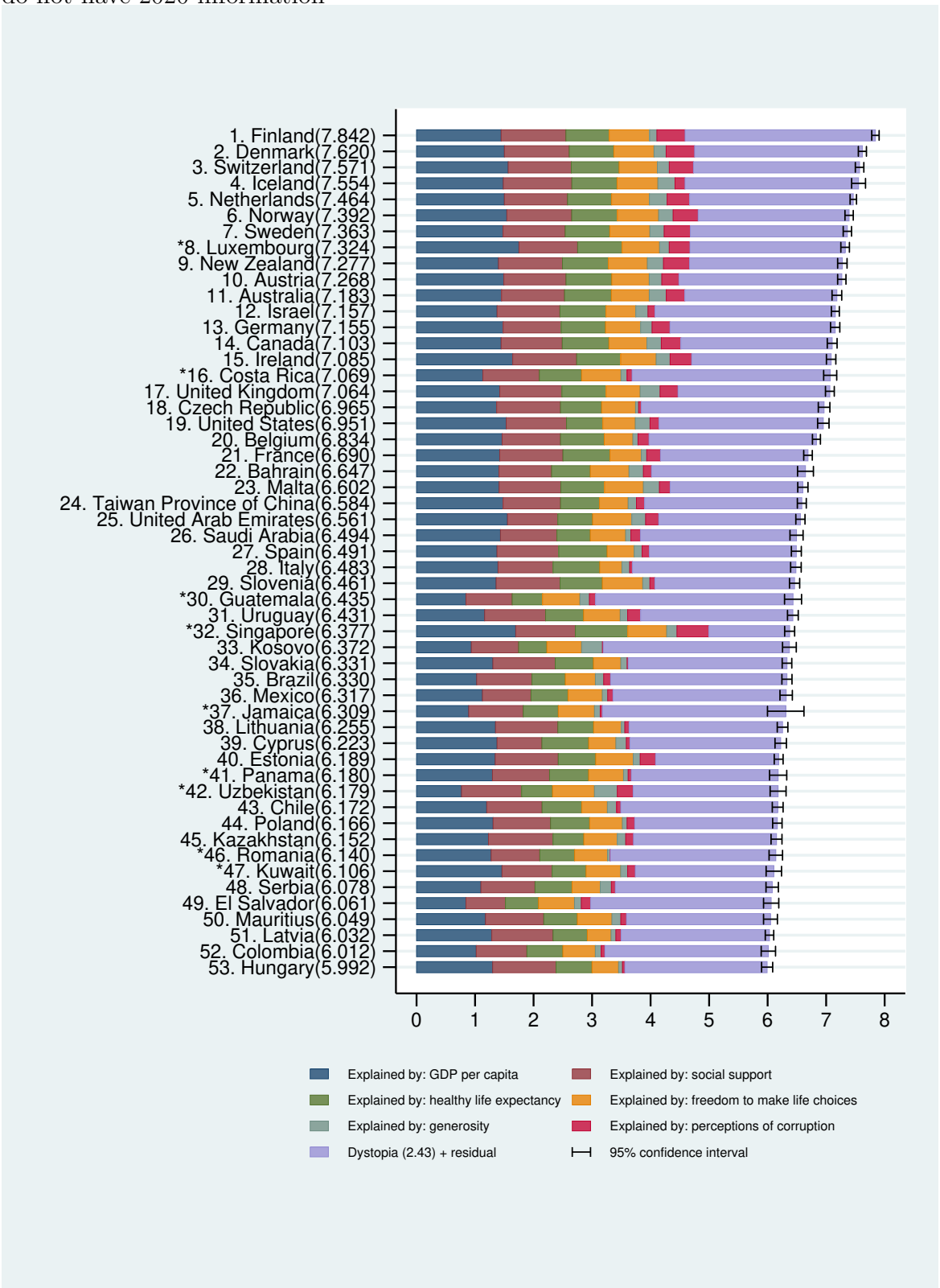

Figure 11: Ranking of Happiness: 2018-2020 (Part 2); those with a * before ranking do not have 2020 information

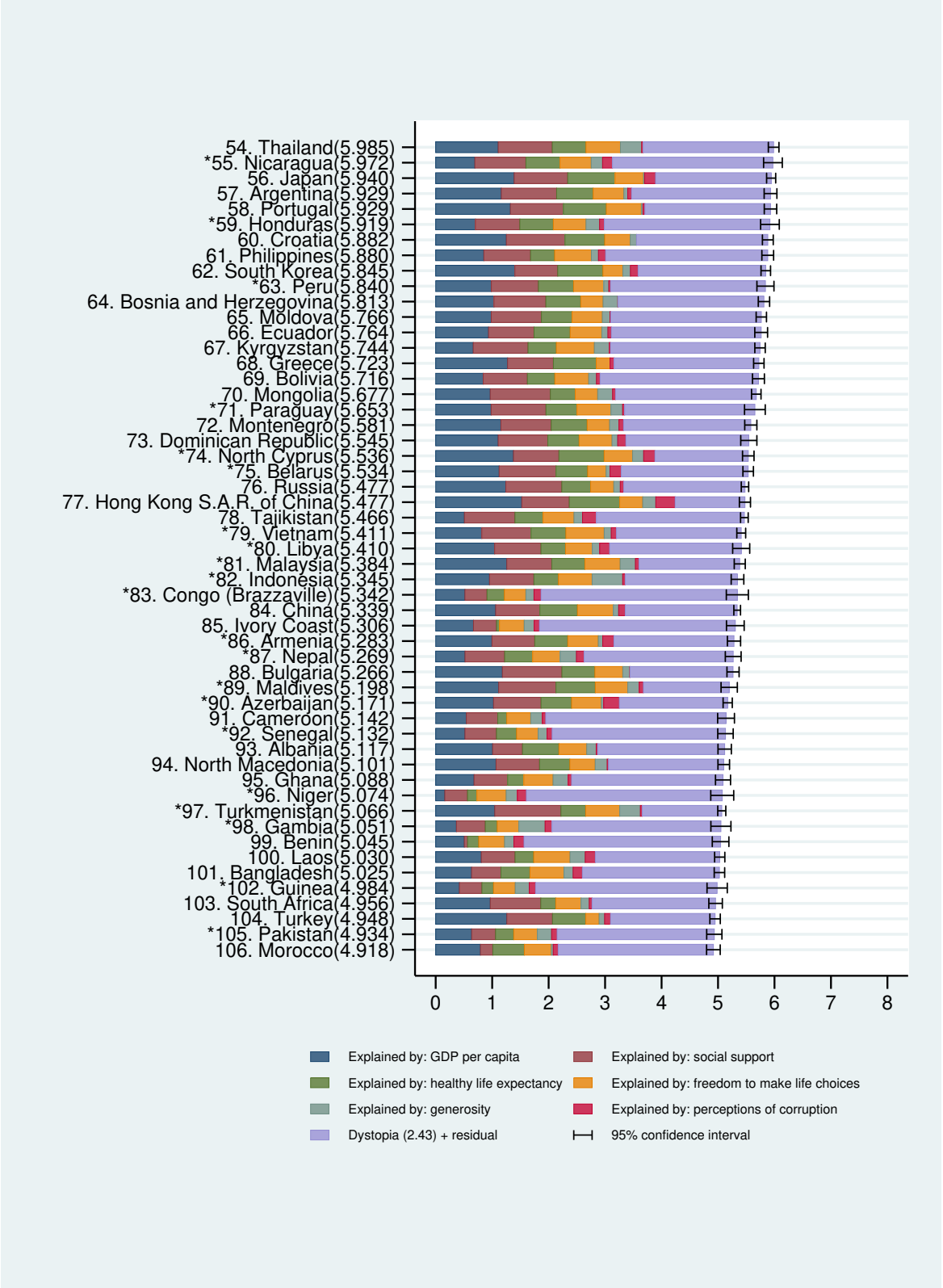

Figure 12: Ranking of Happiness: 2018-2020 (Part 3); those with a * before ranking do not have 2020 information

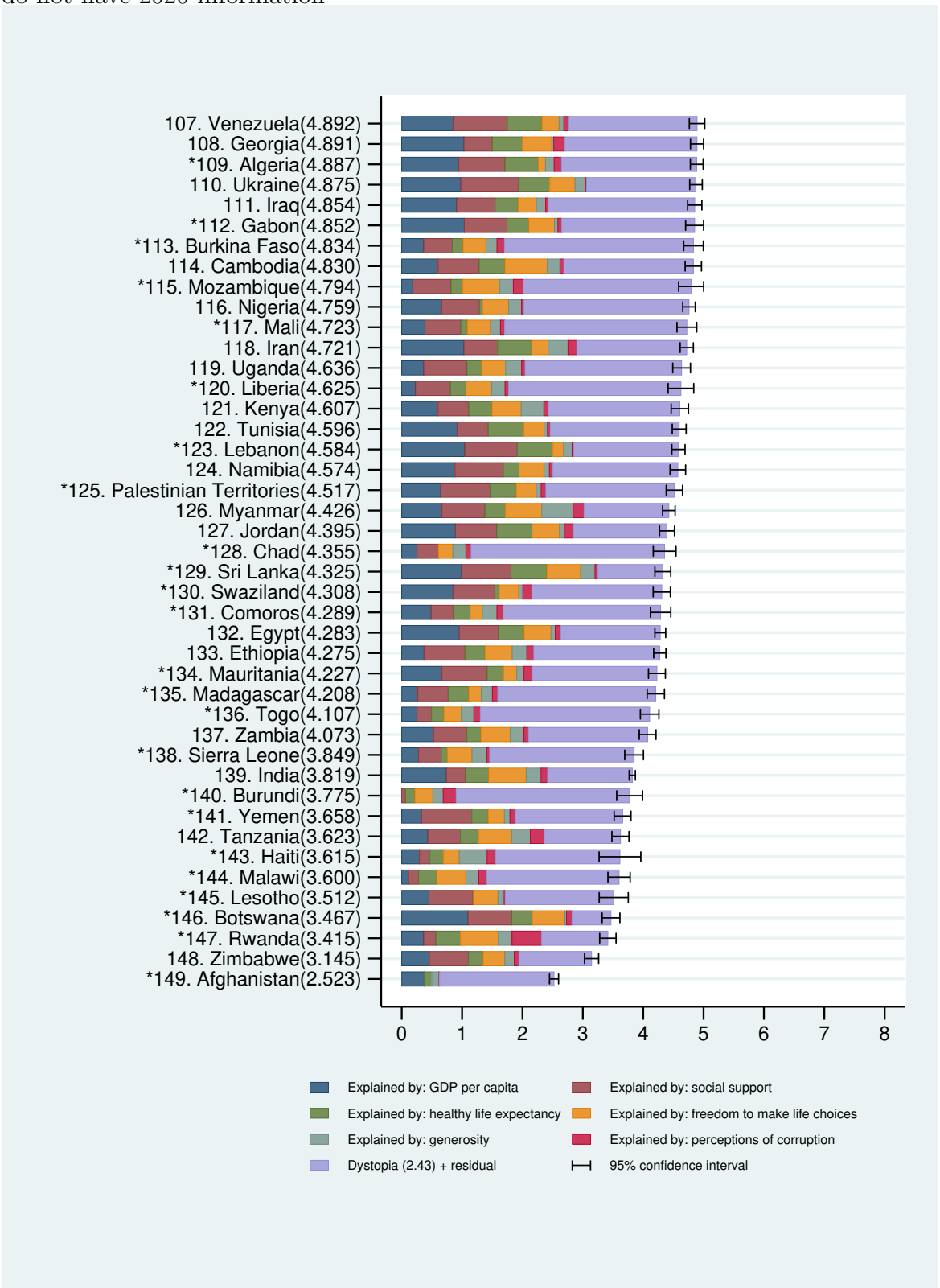

Table 13: Countries that used imputed corrupt based on WGI control of corruption indicators

Country name	Imputation indicator: corrupt is imputed based on WGI's control of corruption in
Egypt	1
Saudi Arabia	1
Jordan	1
China	1
Bahrain	1
Kuwait	1
Maldives	1
Turkmenistan	1
United Arab Emirates	1

Ranking of the Six Factors Used to Explain Happiness Scores

The next set of figures are rankings of countries by the six underlying factors used to explain international differences in happiness scores, namely GDP per person, healthy life expectancy, social support, perceived freedom to make life choice, generosity and perception of corruption. The rankings are based on national averages over the period from 2018 to 2020. The ranking figures do not show imputed data. As we explain when describing our imputation algorithm, we do not use the imputed values in any of our headline results including the happiness rankings. The only place where we use them is when we try to decompose a country's average happiness score into components explained by the six factors. The imputation involves only a small number of countries. Here, we avoid relying on the imputation to generate the rankings. If a country is missing the information about corruption perceptions, for example, they won't show up in the corruption ranking, thus the ranking for corruption will cover a smaller number of countries than the ranking of overall happiness.

Figure 13: Ranking of Natural Log of Per-Capita GDP: 2018-2020; bars show natural logs, dollar values are shown on the Y axis after country names (Part 1)

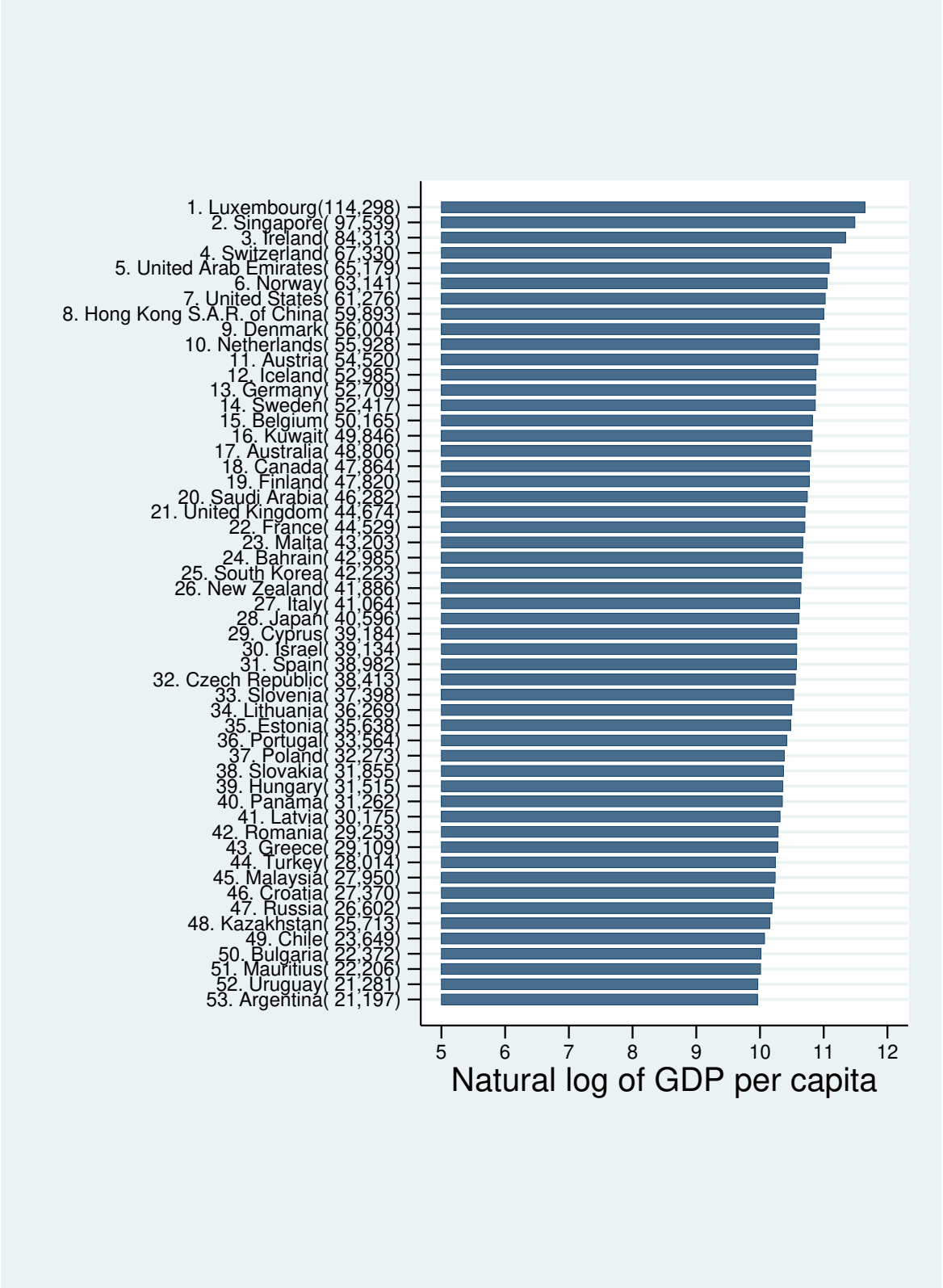

Figure 14: Ranking of Natural Log of Per-Capita GDP: 2018-2020; bars show natural logs, dollar values are shown on the Y axis after country names (Part 2)

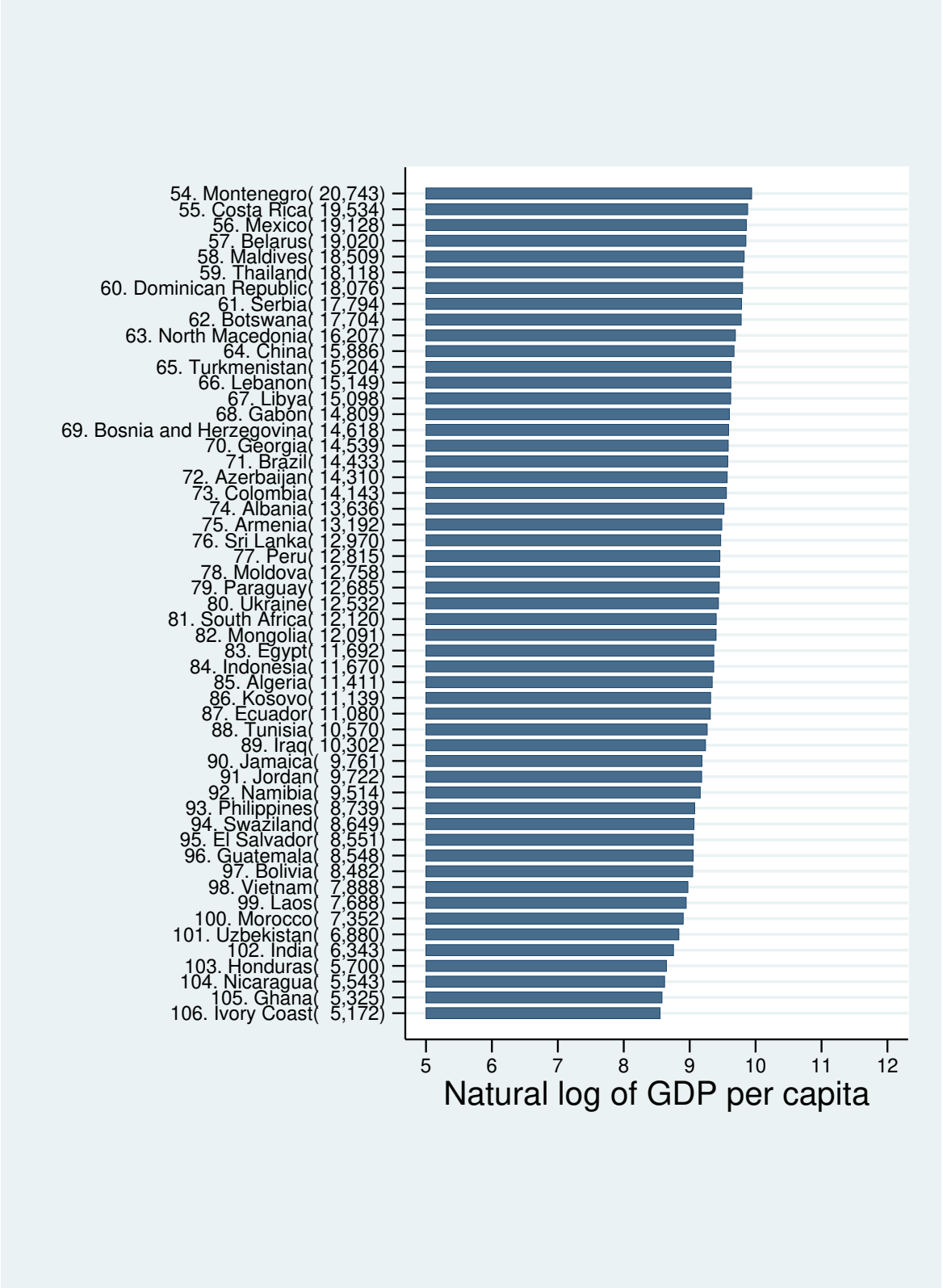

Figure 15: Ranking of Natural Log of Per-Capita GDP: 2018-2020; bars show natural logs, dollar values are shown on the Y axis after country names (Part 3)

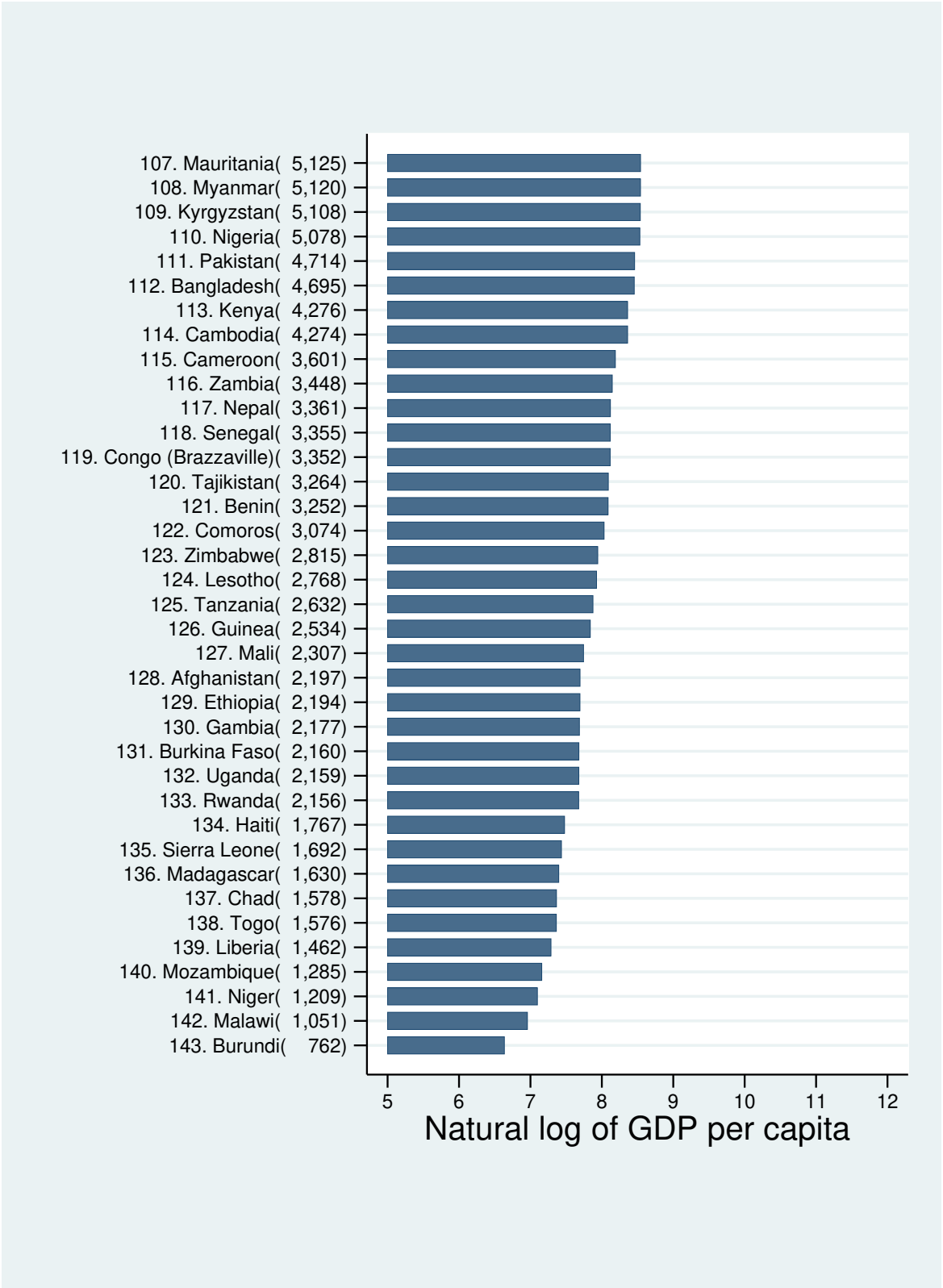

Figure 16: Ranking of Social Support: 2018-2020 (Part 1)

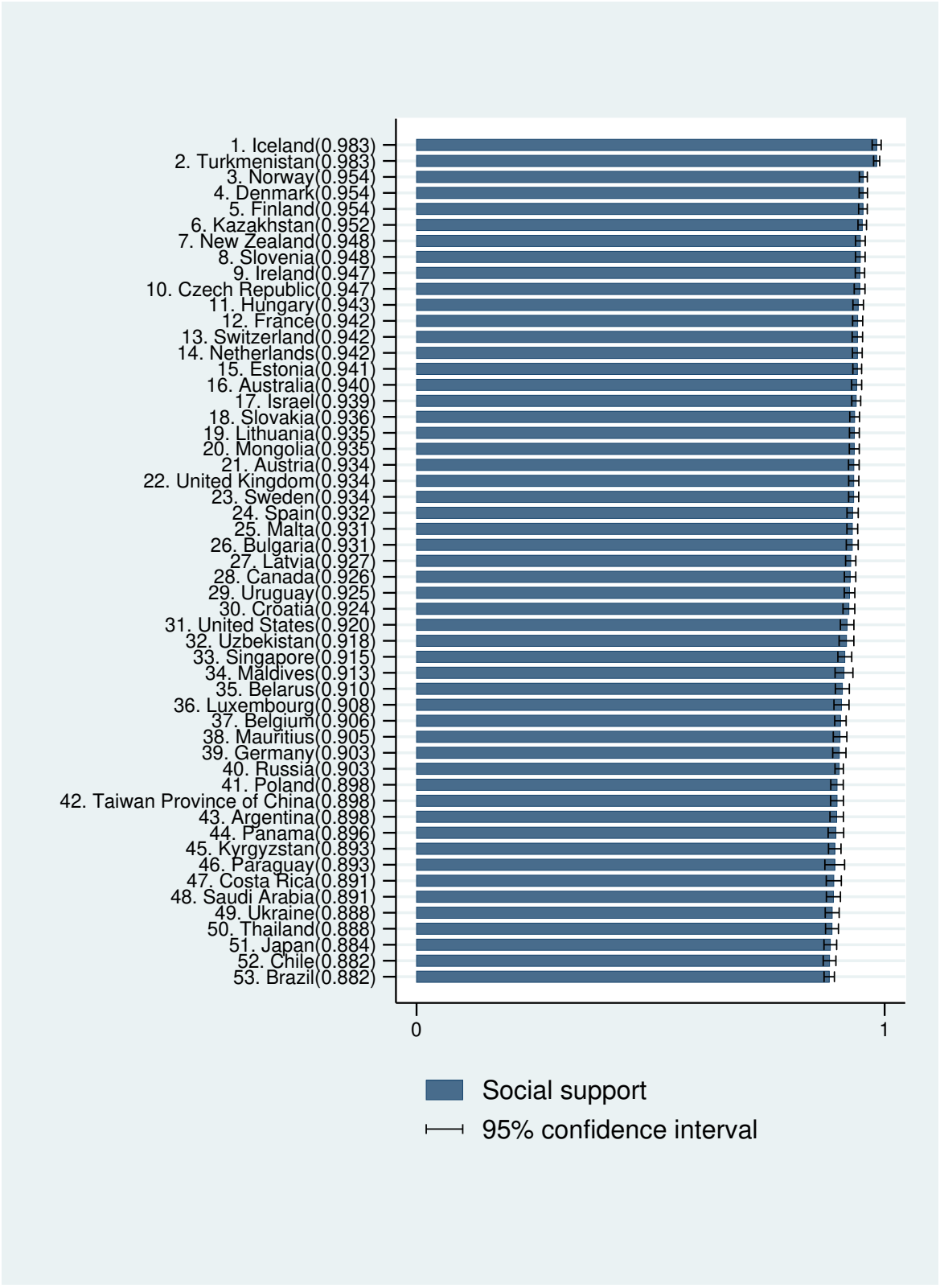

Figure 17: Ranking of Social Support: 2018-2020 (Part 2)

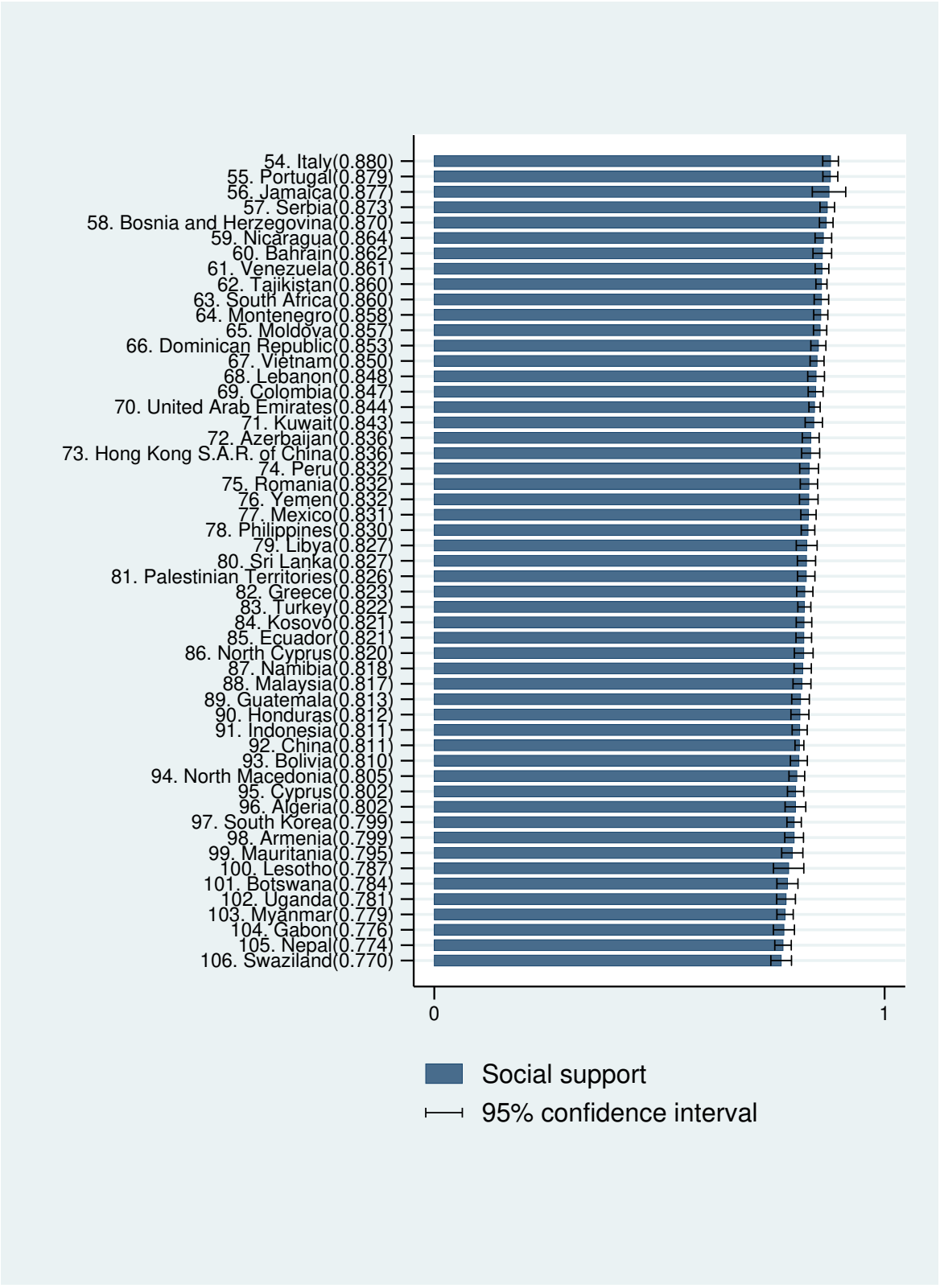

Figure 18: Ranking of Social Support: 2018-2020 (Part 3)

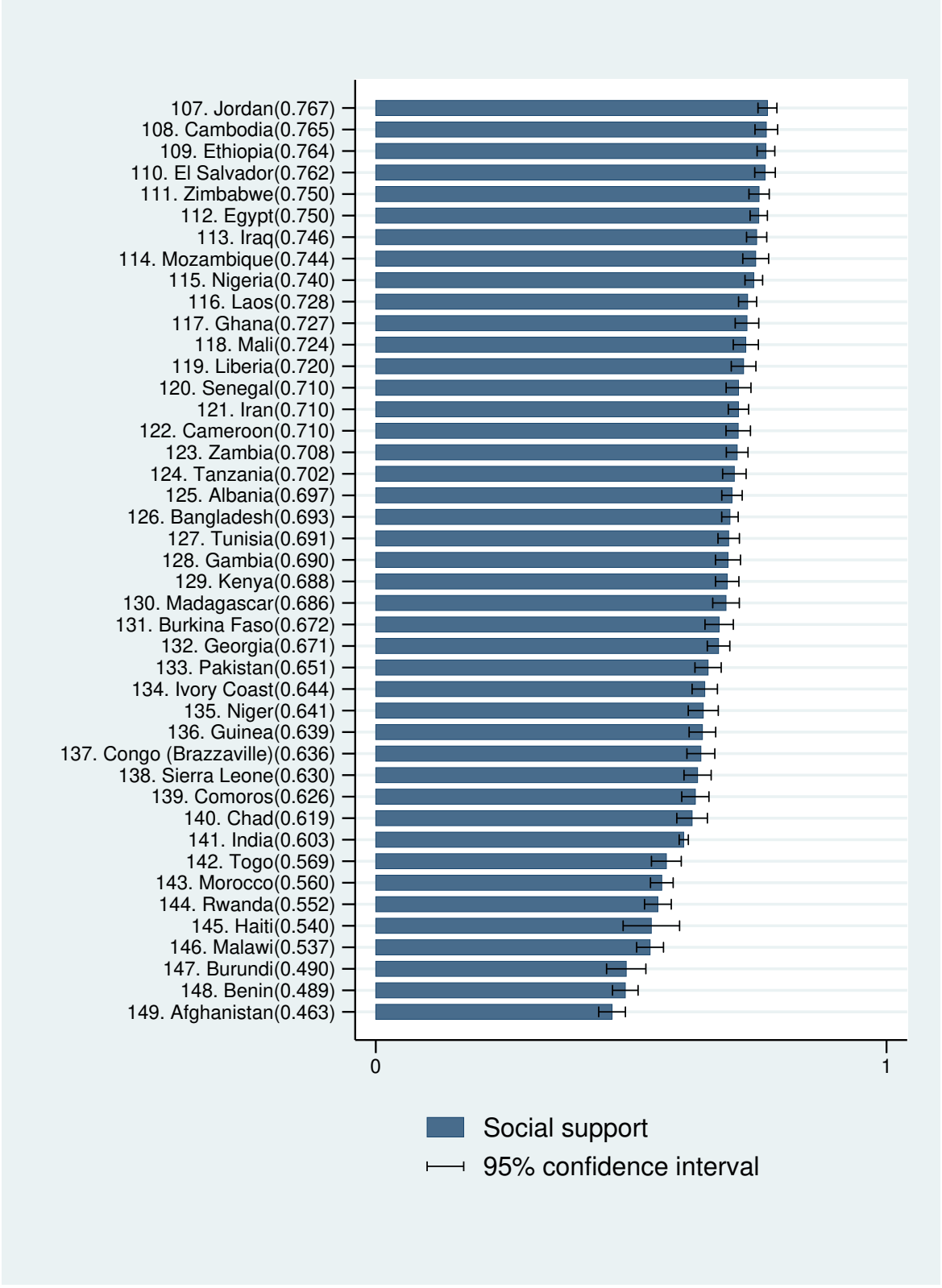

Figure 19: Ranking of Healthy Life Expectancy: 2018-2020 (Part 1)

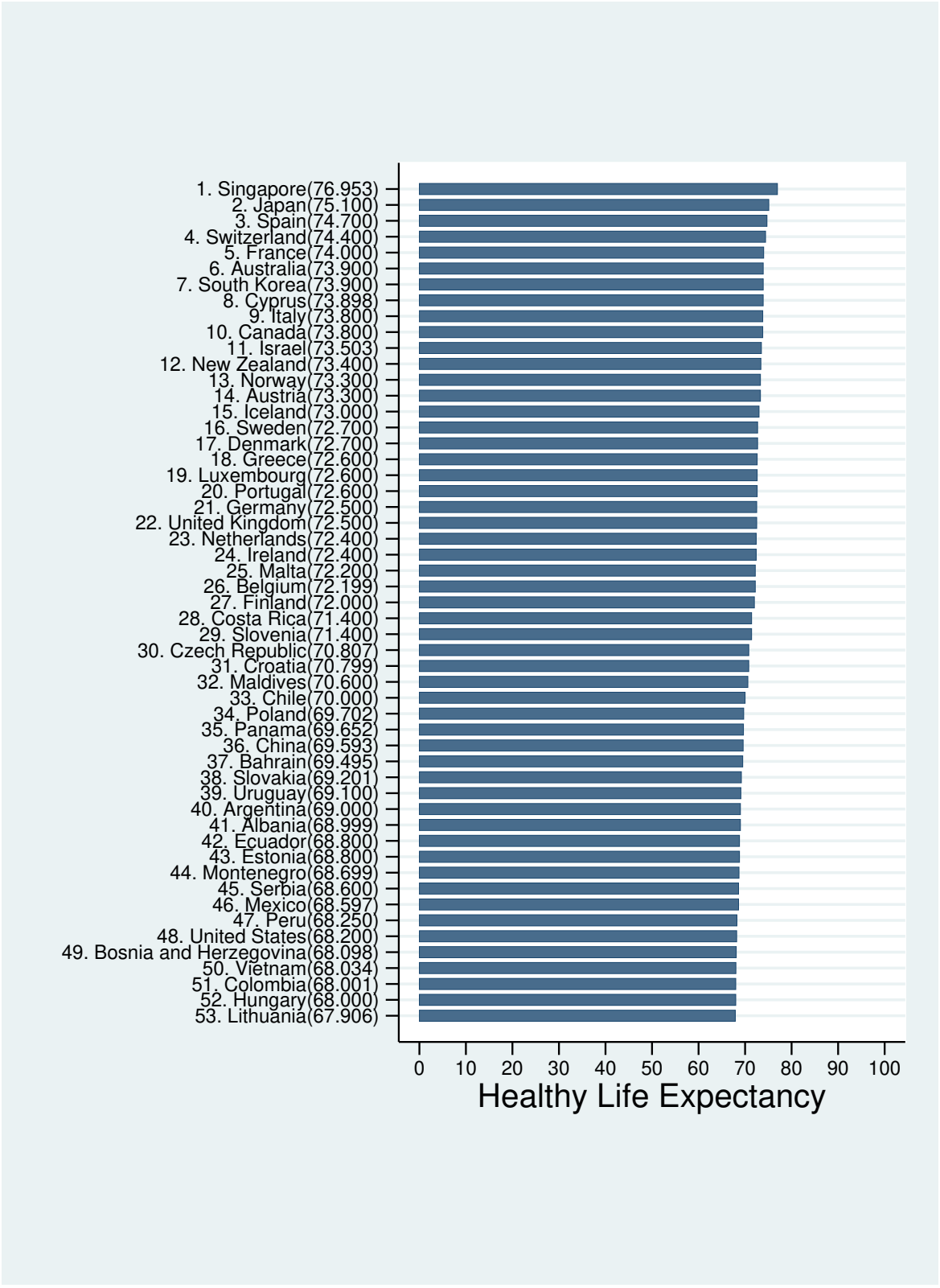

Figure 20: Ranking of Healthy Life Expectancy: 2018-2020 (Part 2)

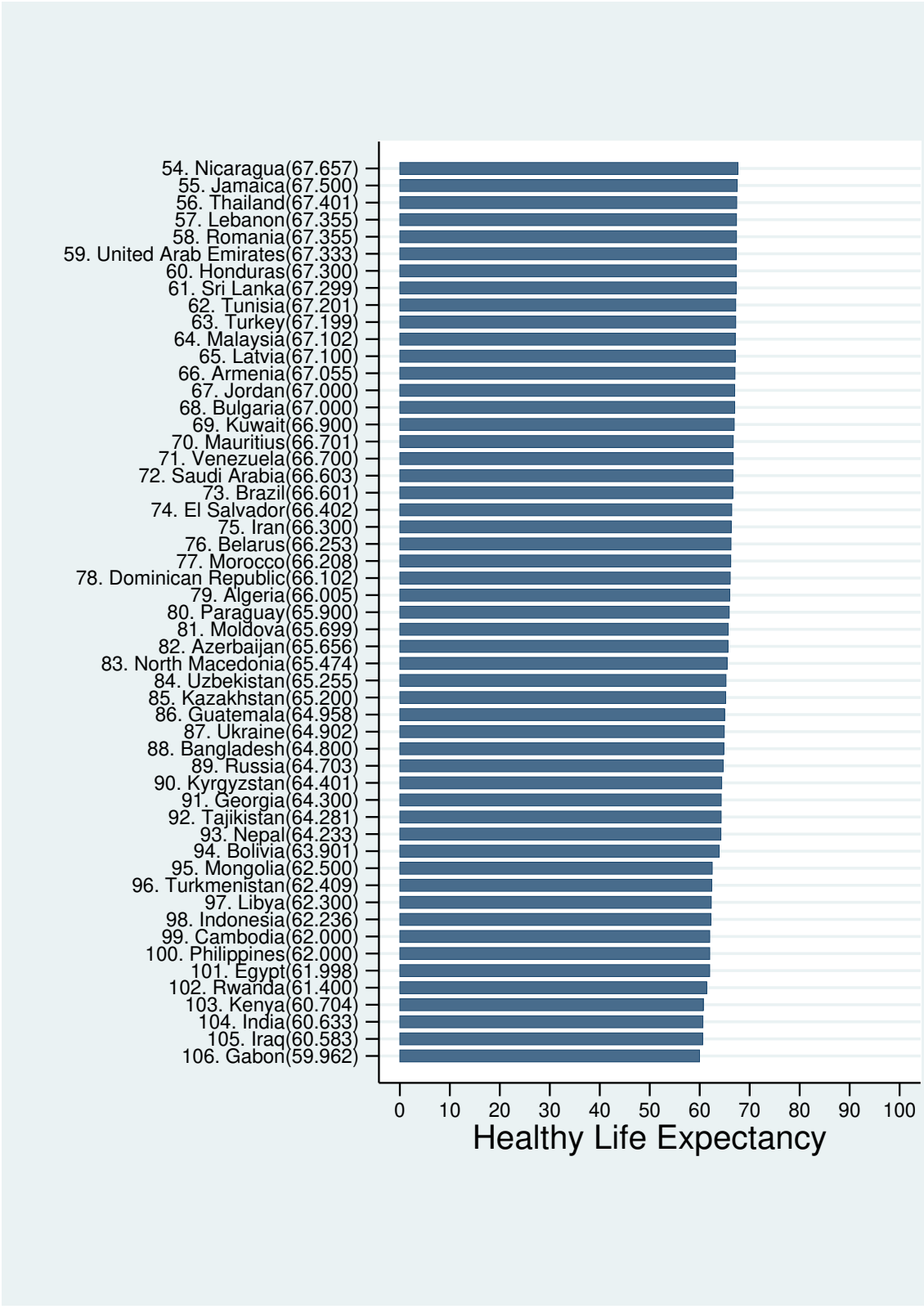

Figure 21: Ranking of Healthy Life Expectancy: 2018-2020 (Part 3)

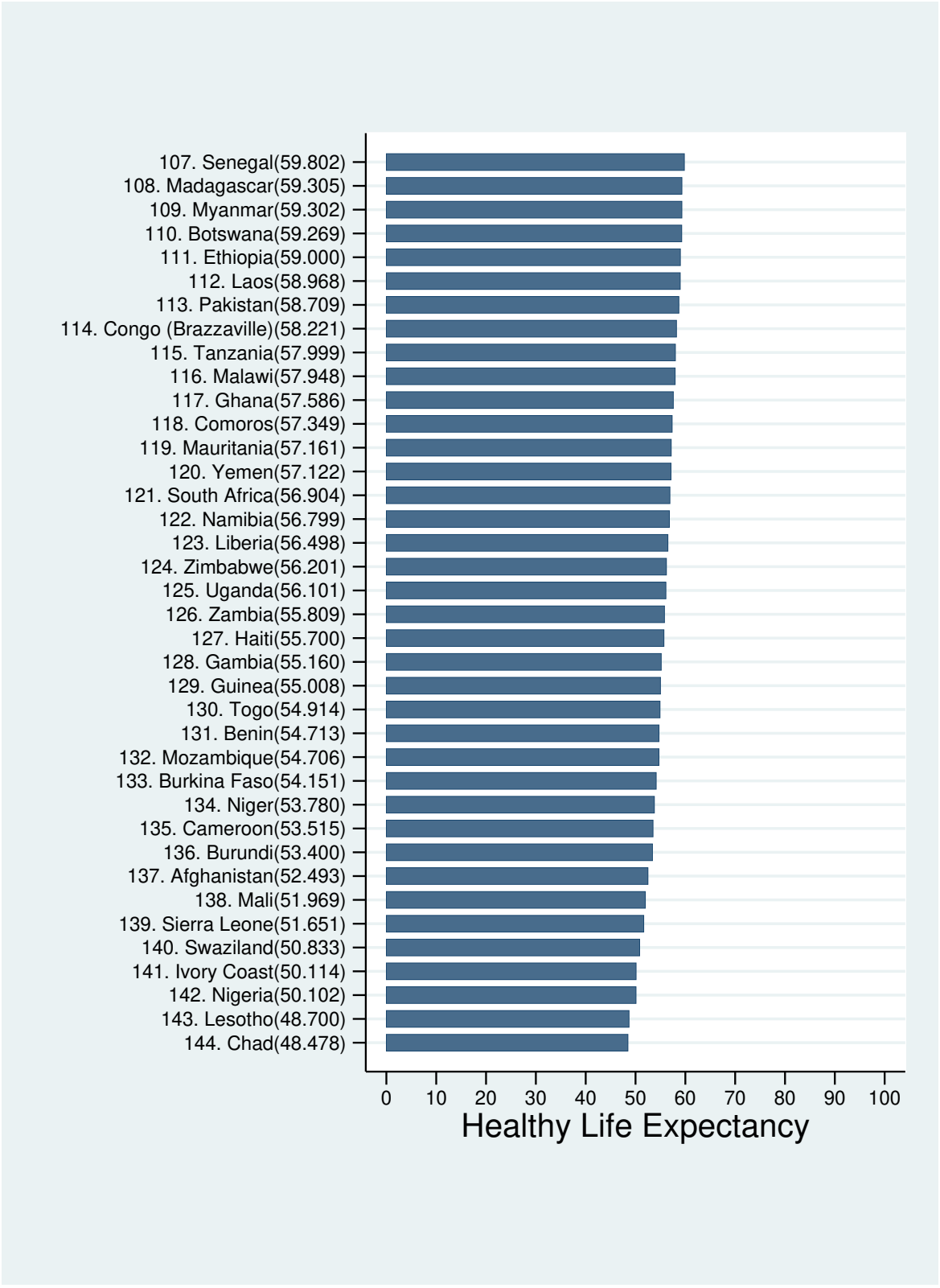

Figure 22: Ranking of Freedom to Make Life Choices: 2018-2020 (Part 1)

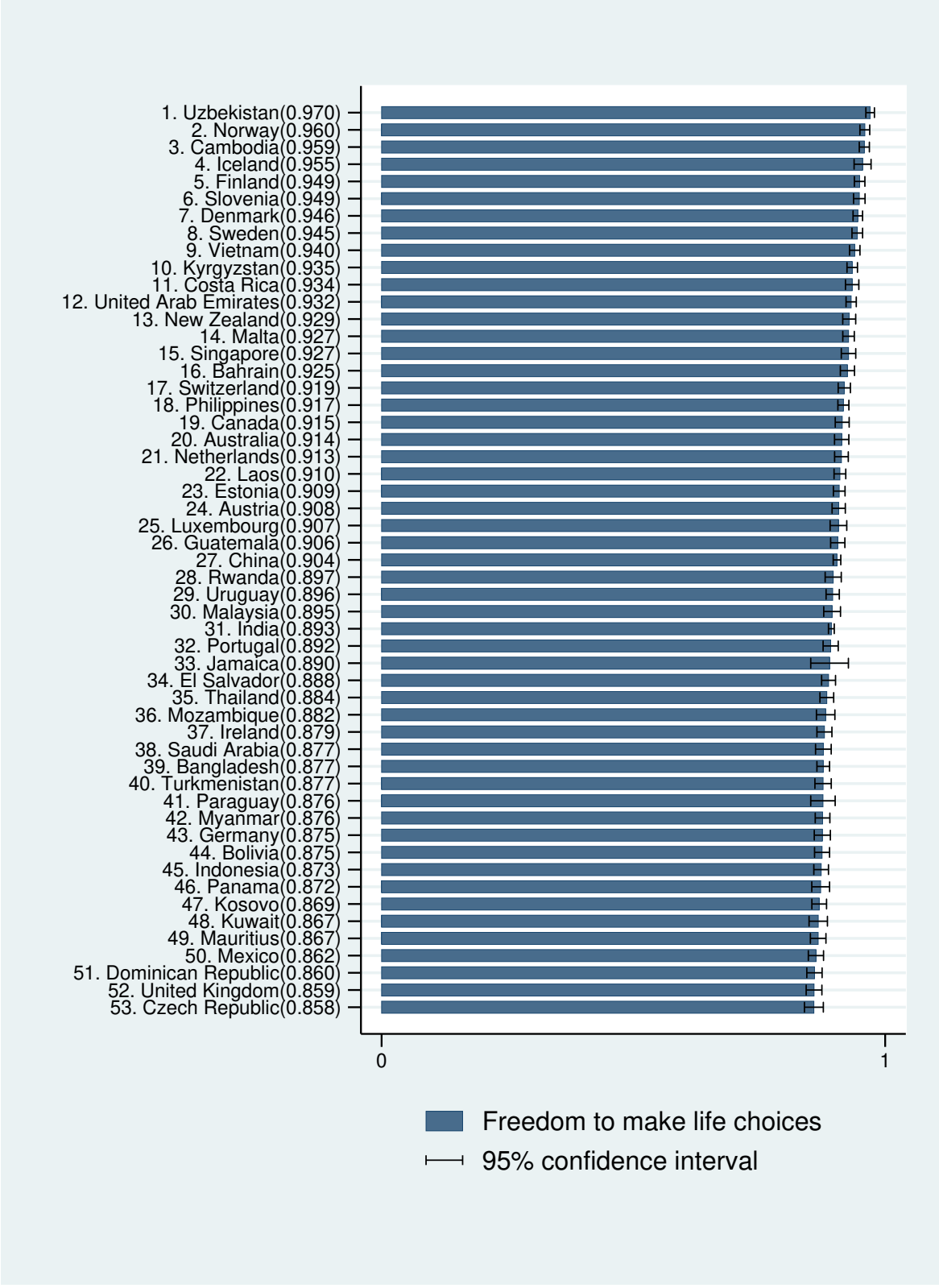

Figure 23: Ranking of Freedom to Make Life Choices: 2018-2020 (Part 2)

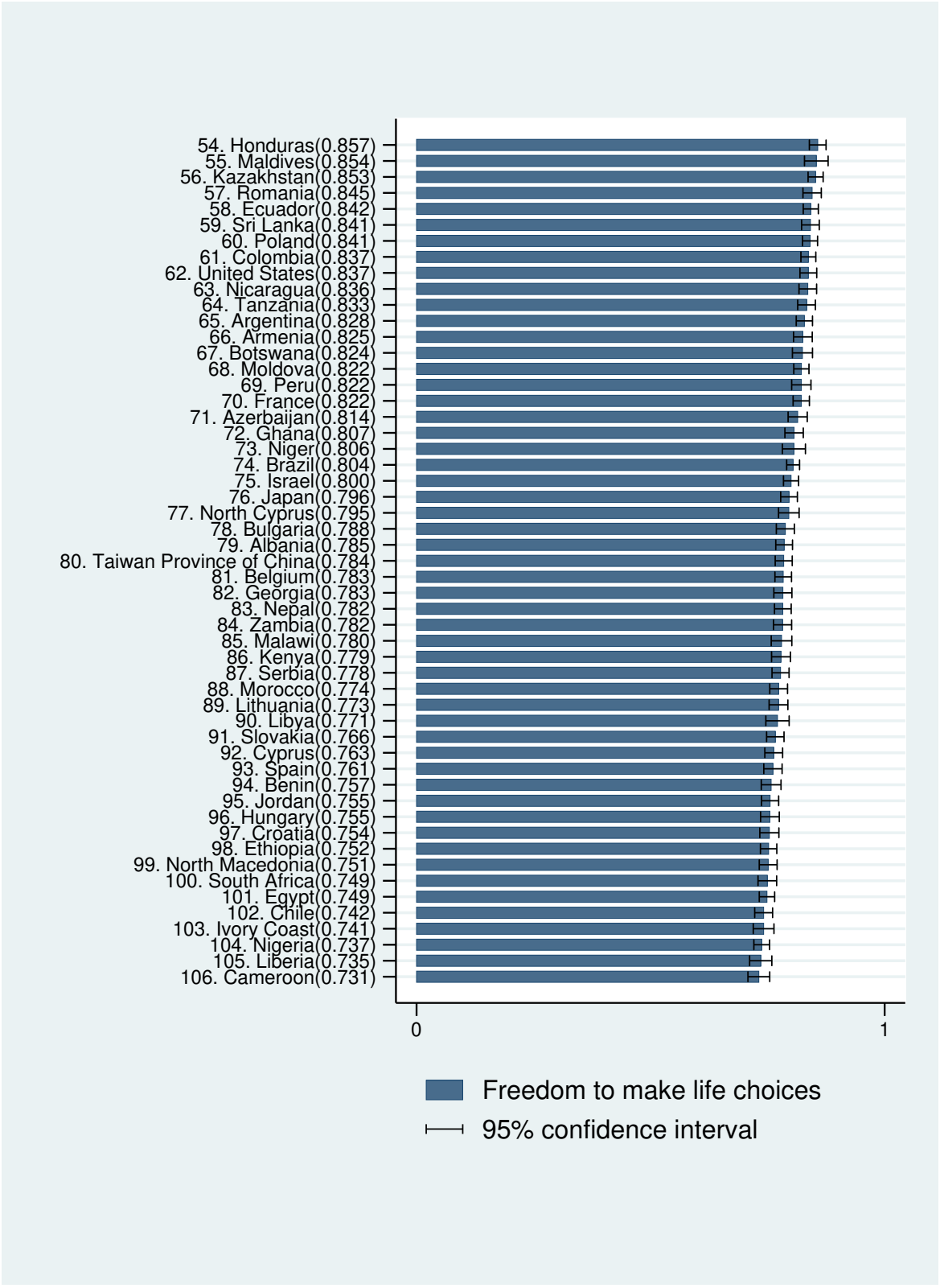

Figure 24: Ranking of Freedom to Make Life Choices: 2018-2020 (Part 3)

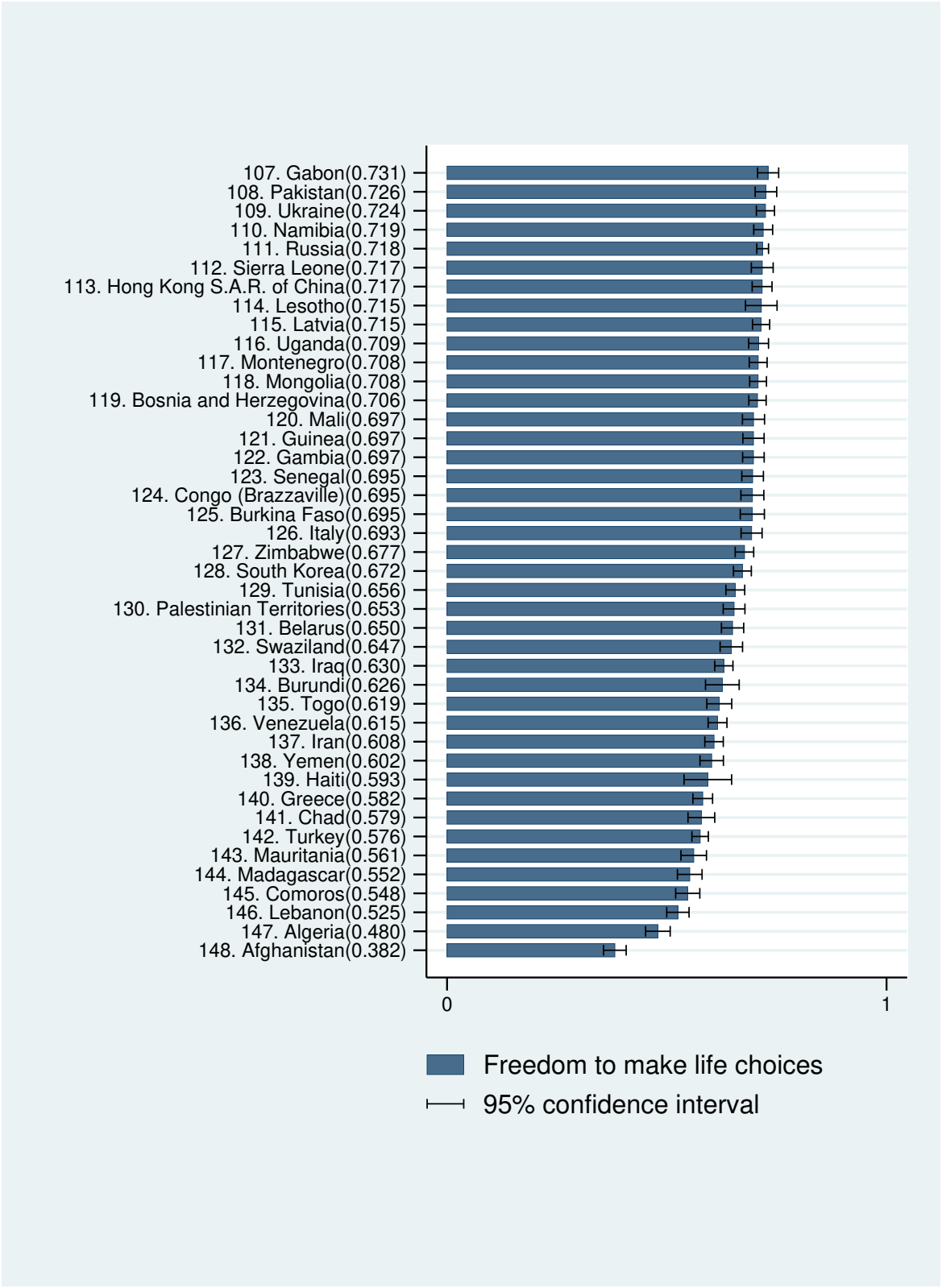

Figure 25: Ranking of Generosity – % Who Donated to Charity in the Past Month – Without Adjusting for Per-Capita Income: 2018-2020 (Part 1)

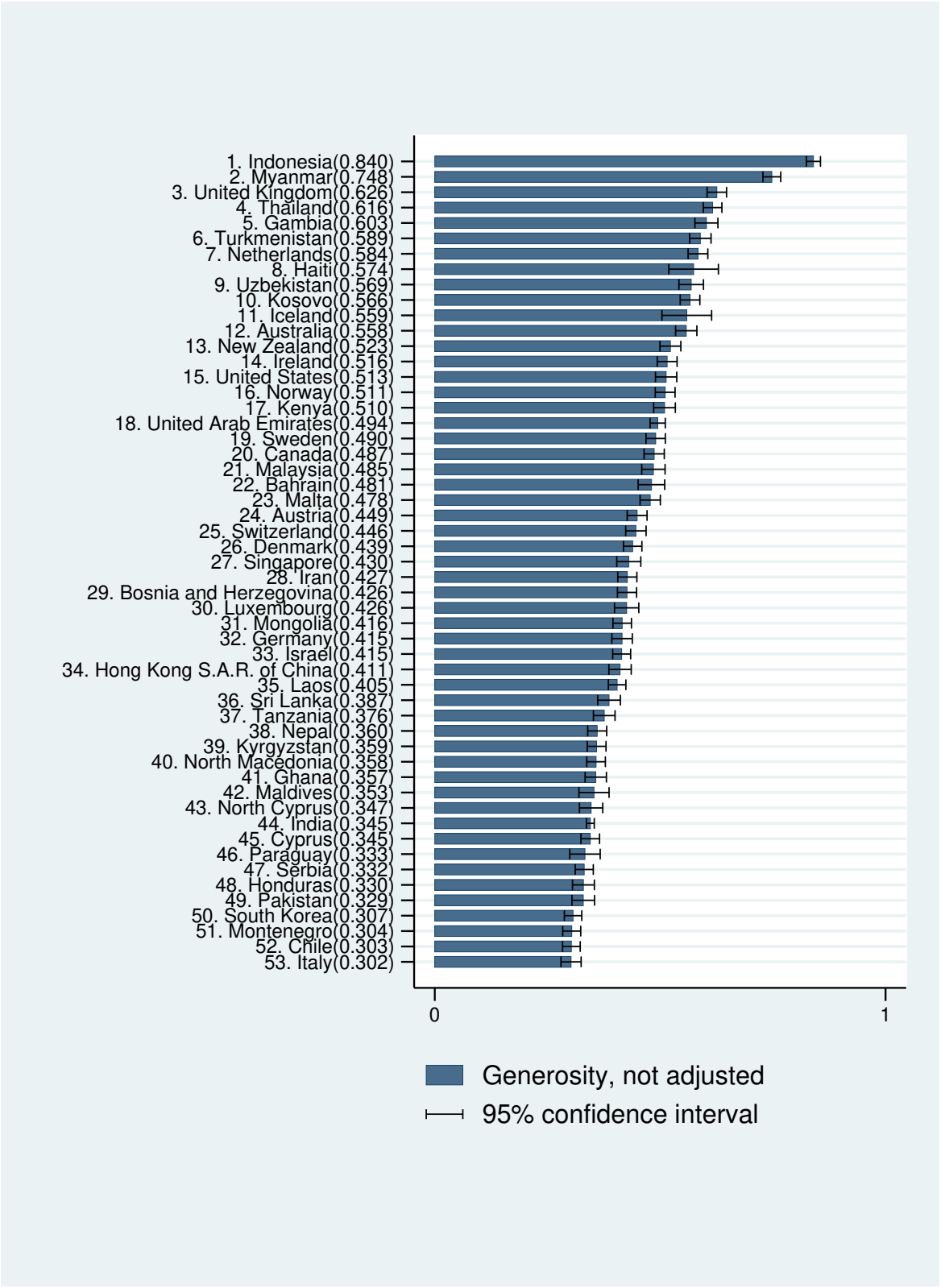

Figure 26: Ranking of Generosity – % Who Donated to Charity in the Past Month – Without Adjusting for Per-Capita Income: 2018-2020 (Part 2)

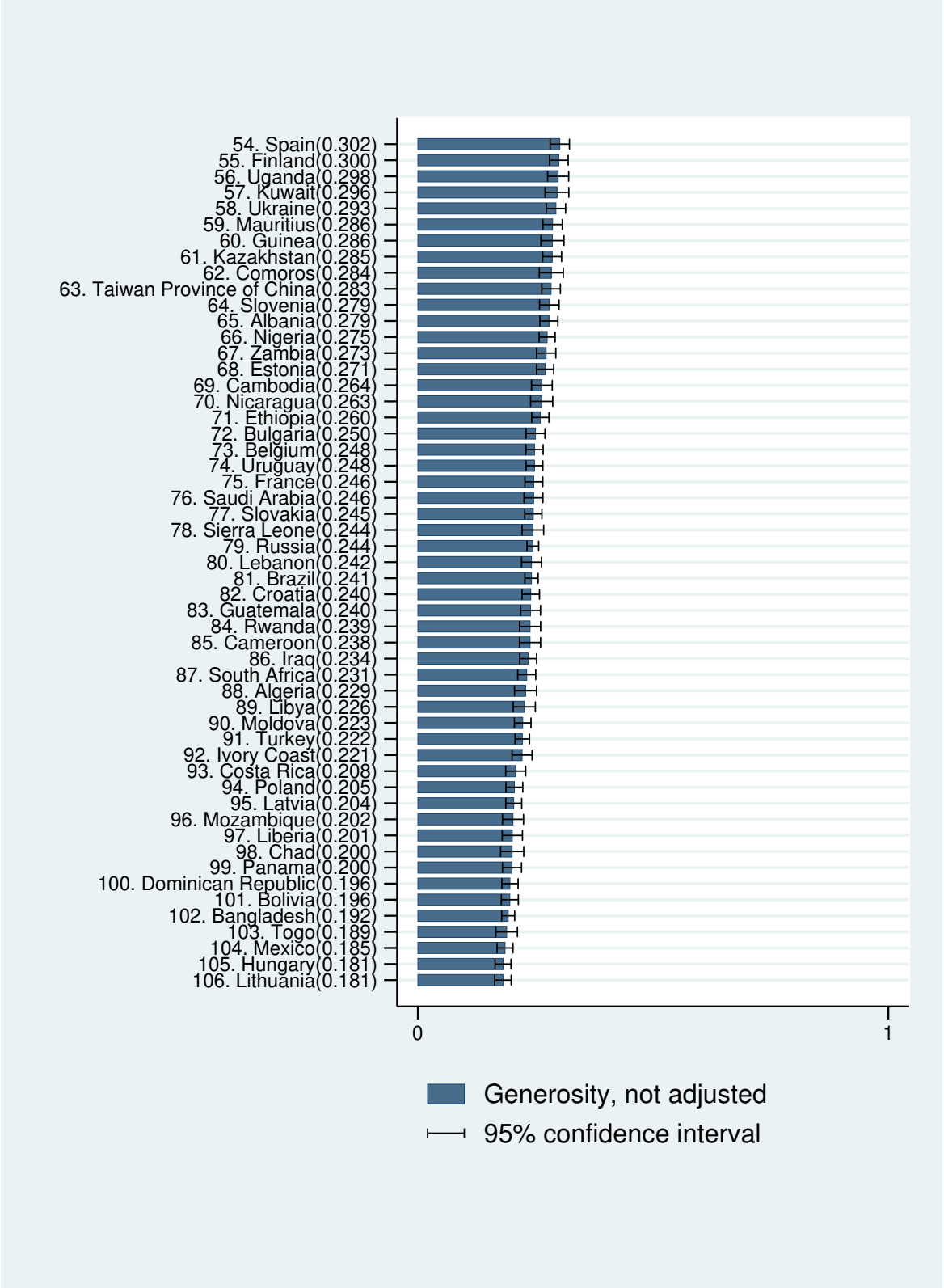

Figure 27: Ranking of Generosity – % Who Donated to Charity in the Past Month – Without Adjusting for Per-Capita Income: 2018-2020 (Part 3)

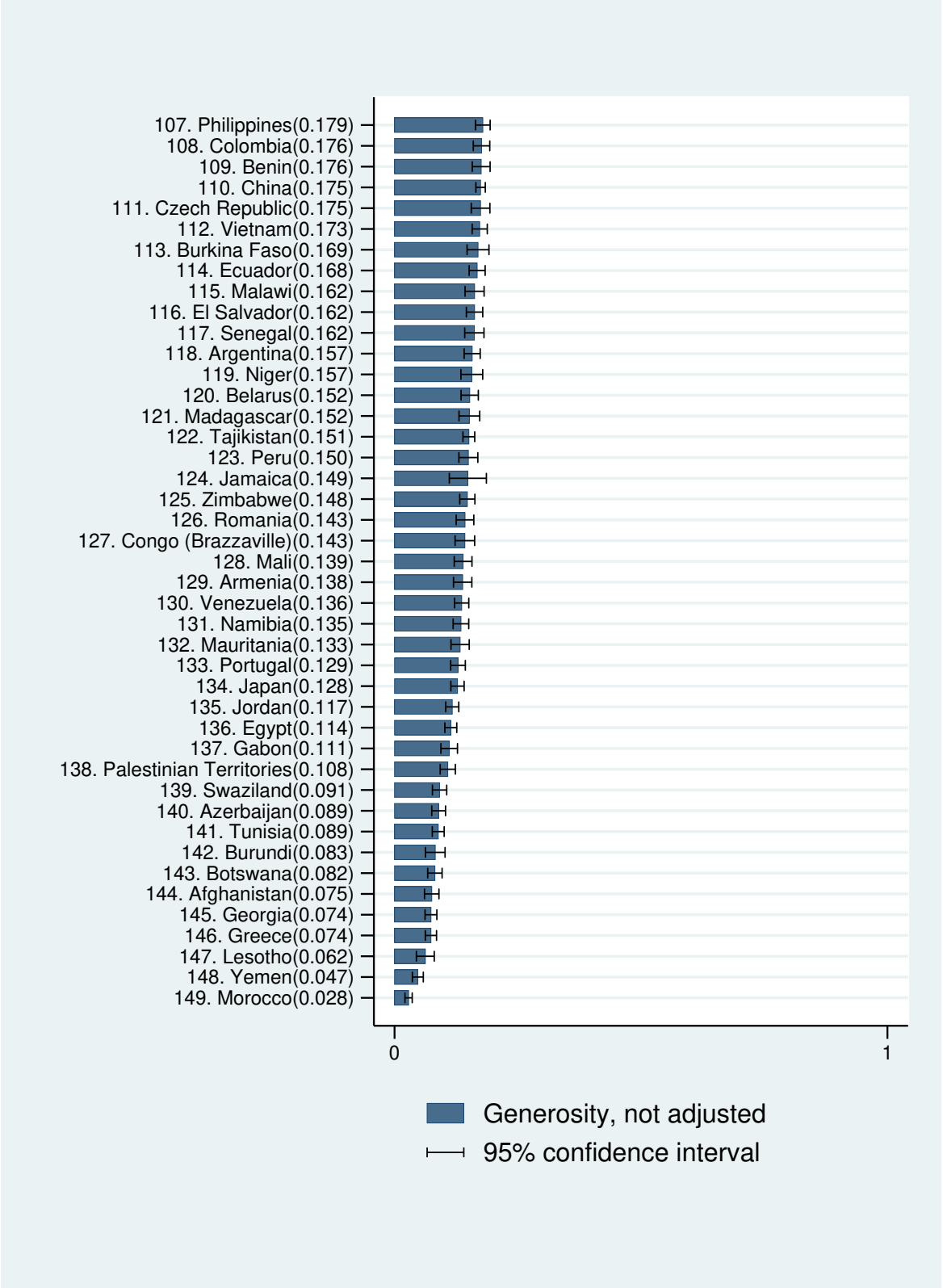

Figure 28: Ranking of Perceptions of Corruption: 2018-2020 (Part 1)

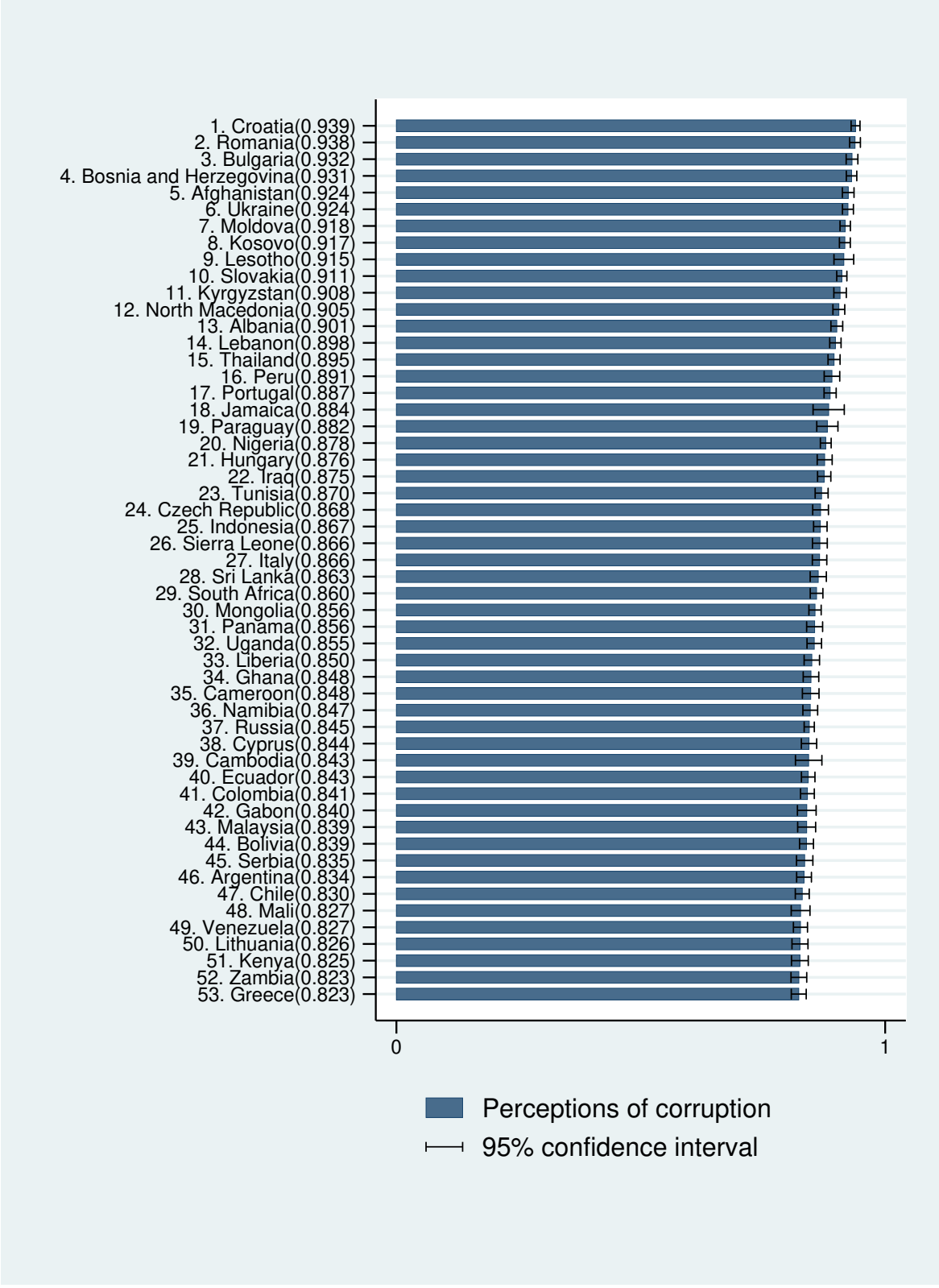

Figure 29: Ranking of Perceptions of Corruption: 2018-2020 (Part 2)

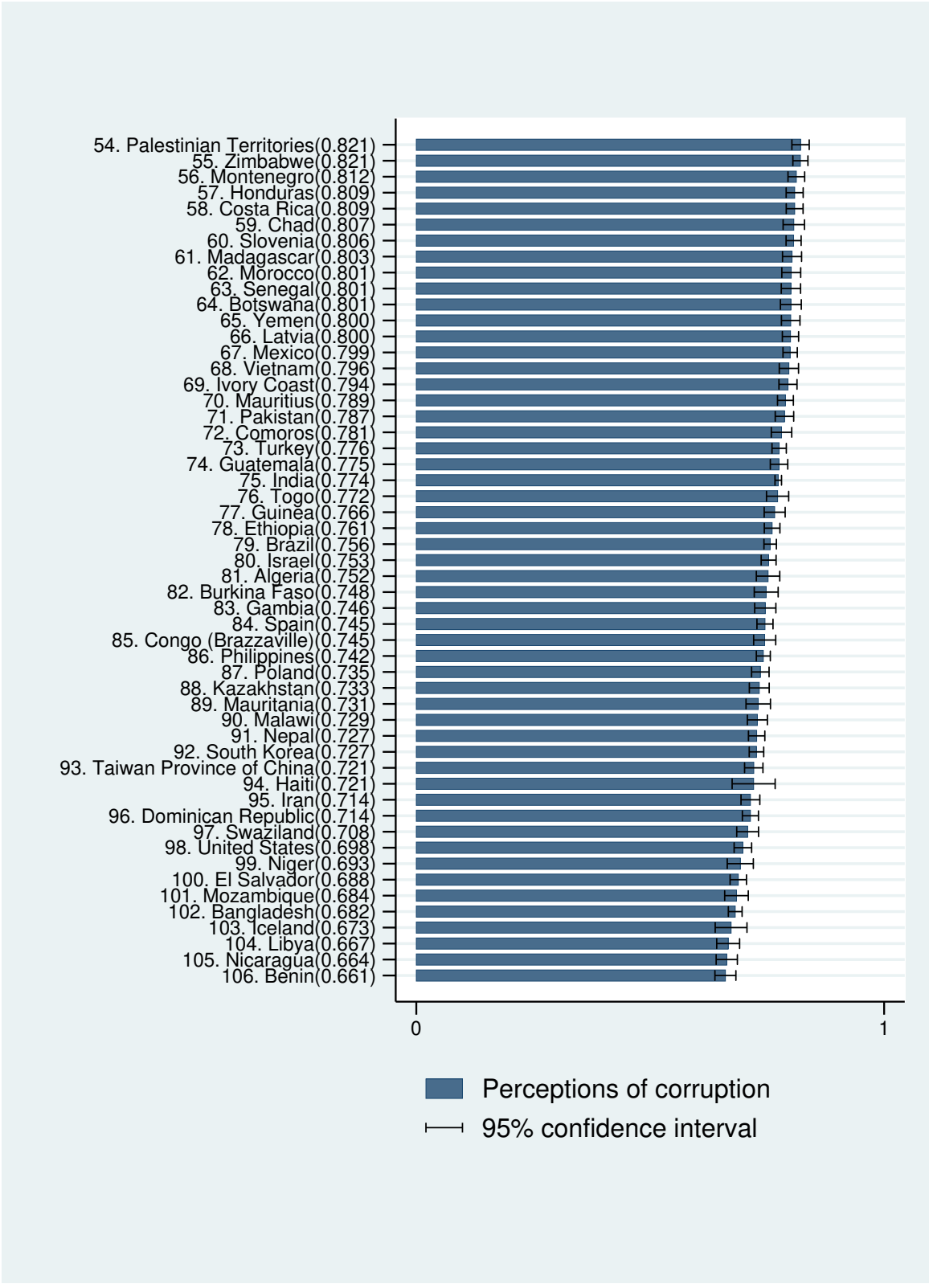

Figure 30: Ranking of Perceptions of Corruption: 2018-2020 (Part 3)

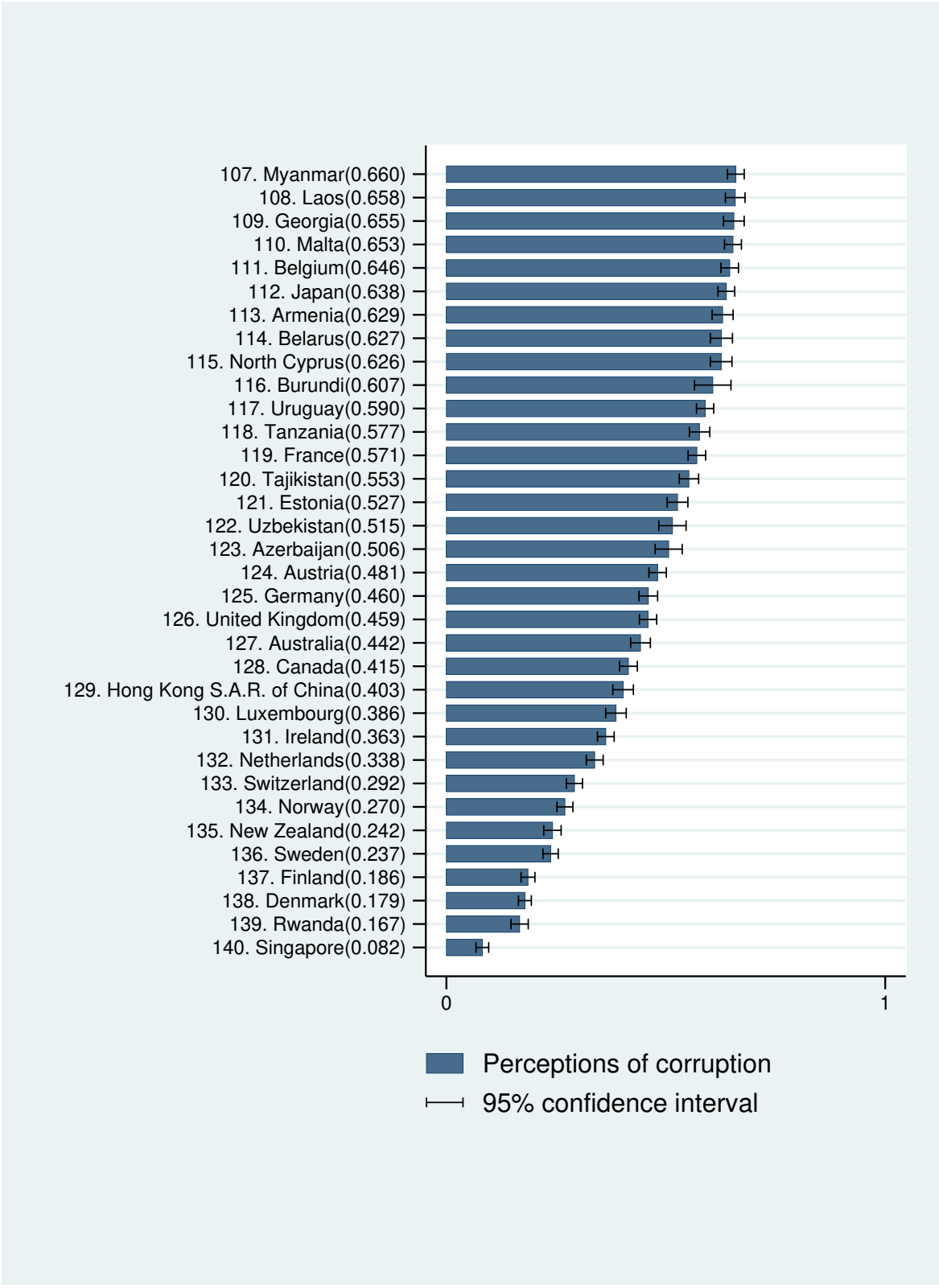

Figure 31: Ranking of Positive Affect: 2018-2020 (Part 1)

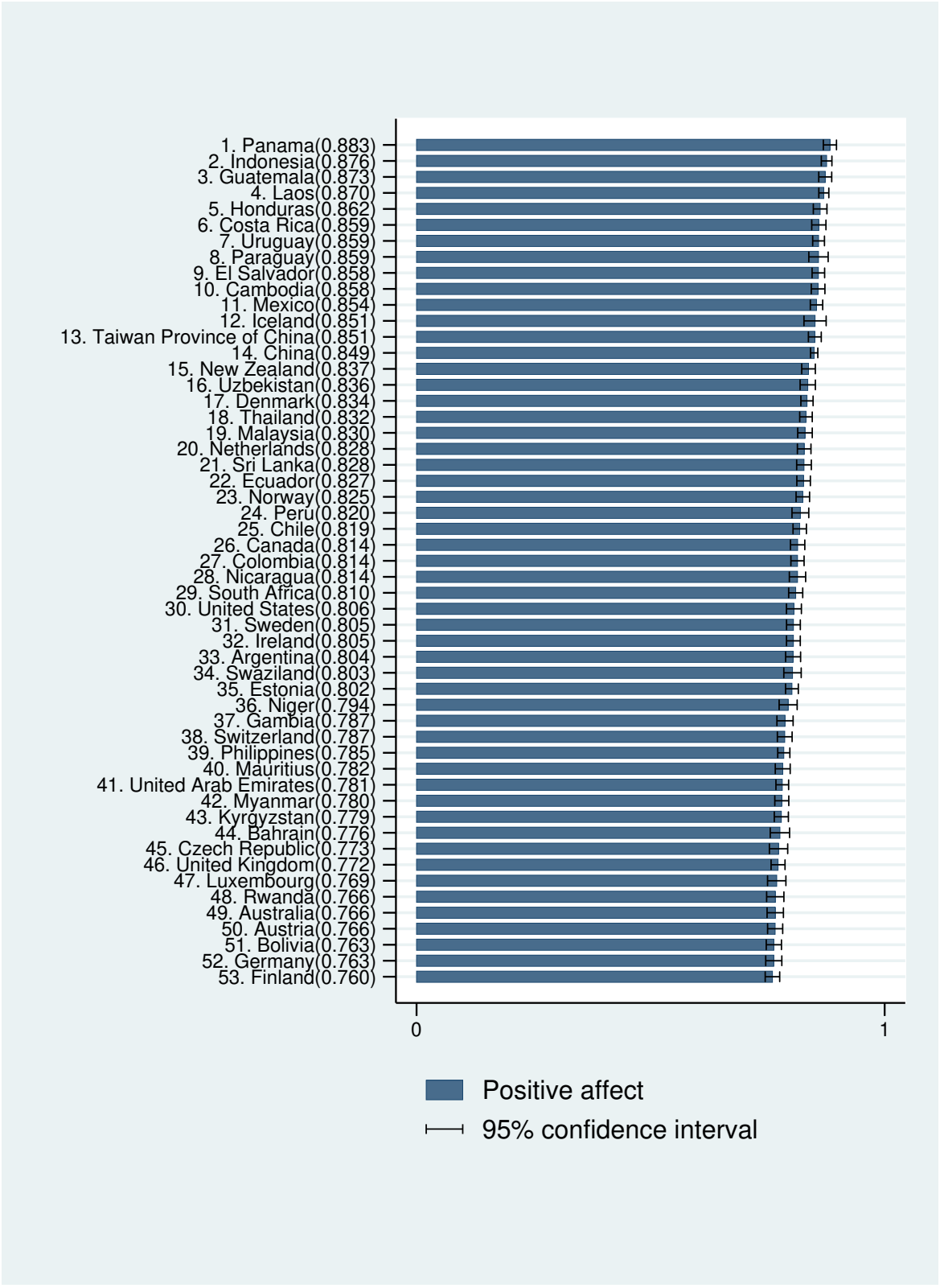

Figure 32: Ranking of Positive Affect: 2018-2020 (Part 2)

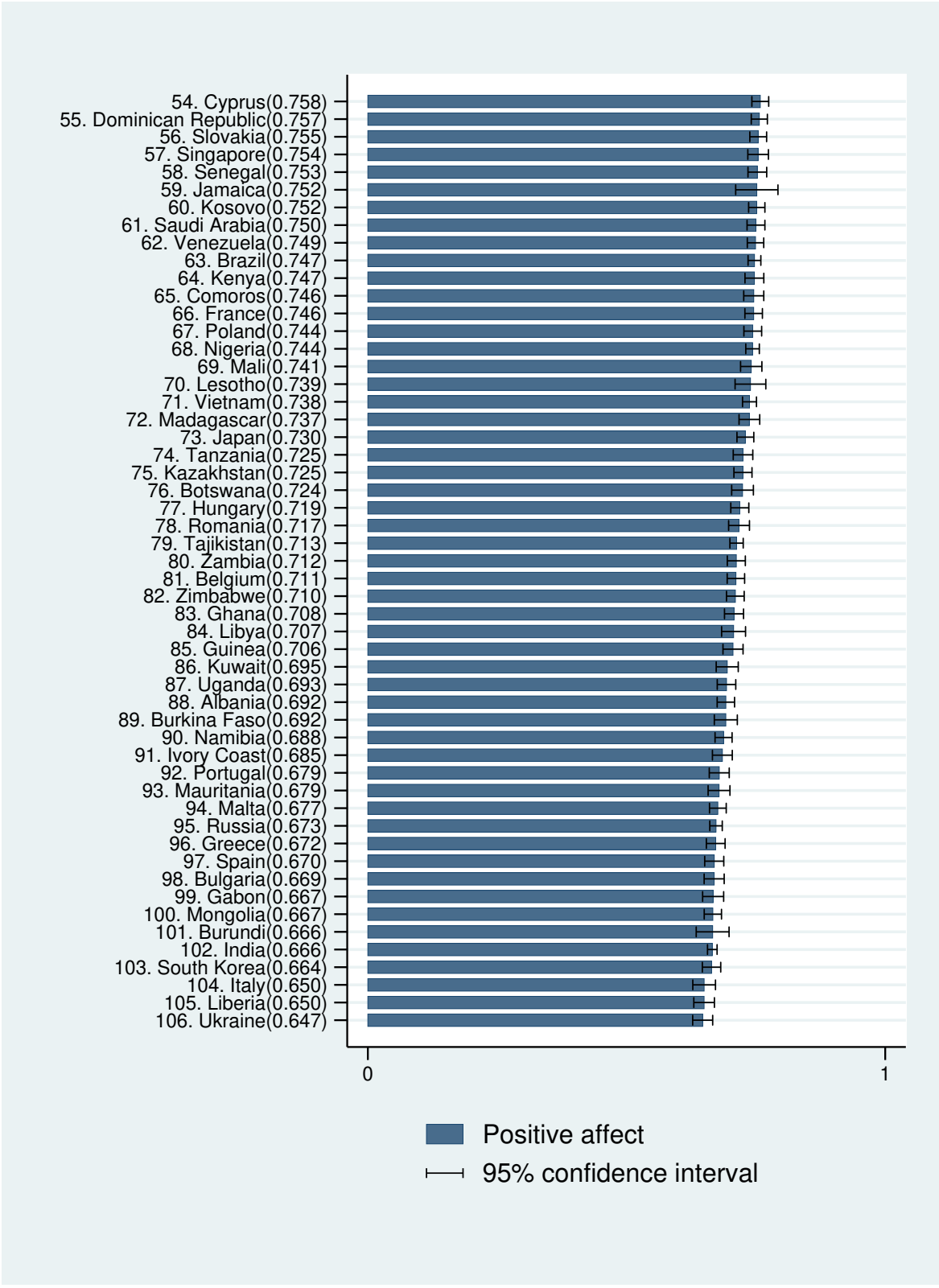

Figure 33: Ranking of Positive Affect: 2018-2020 (Part 3)

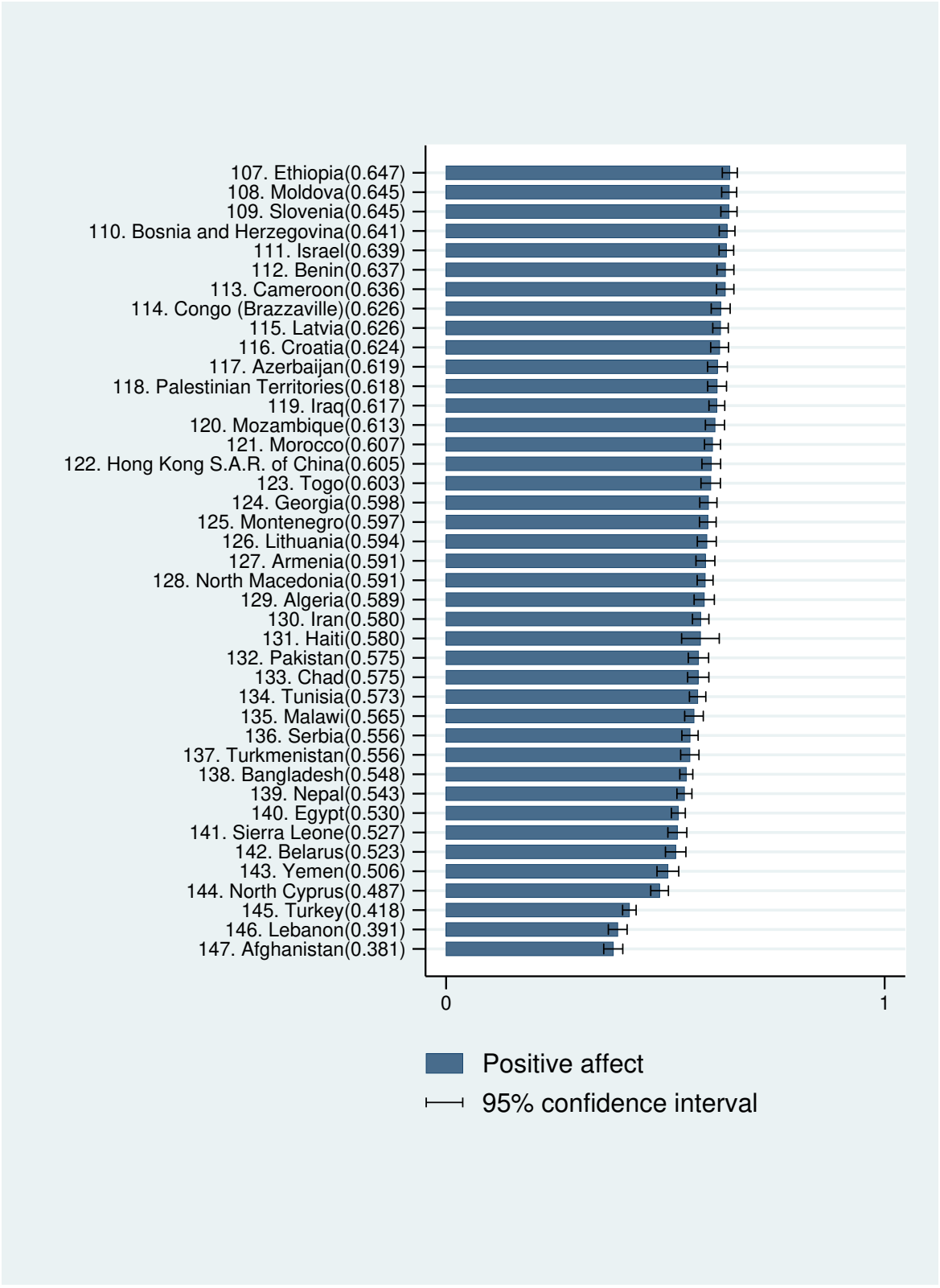

Figure 34: Ranking of Negative Affect: 2018-2020 (Part 1)

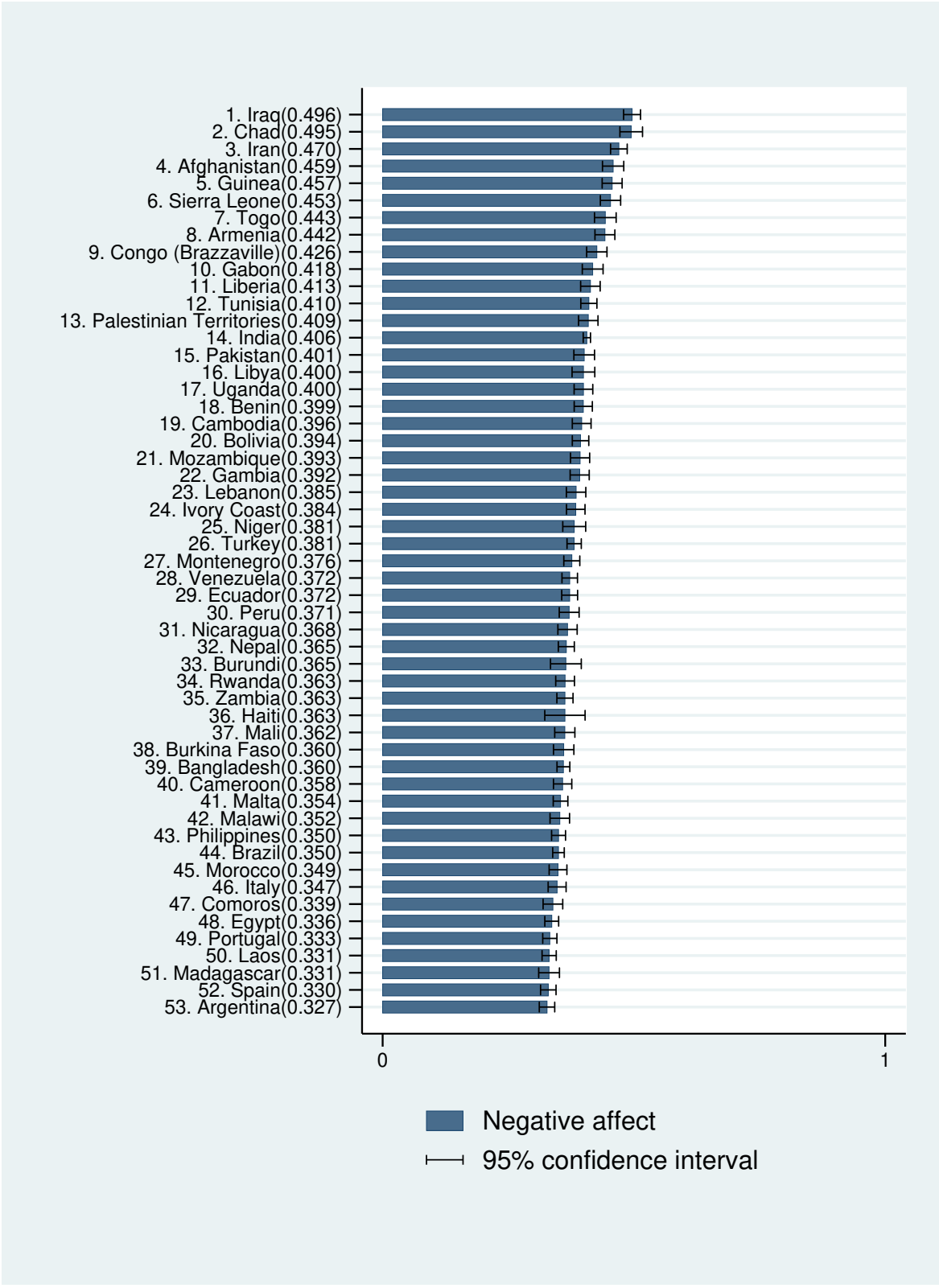

Figure 35: Ranking of Negative Affect: 2018-2020 (Part 2)

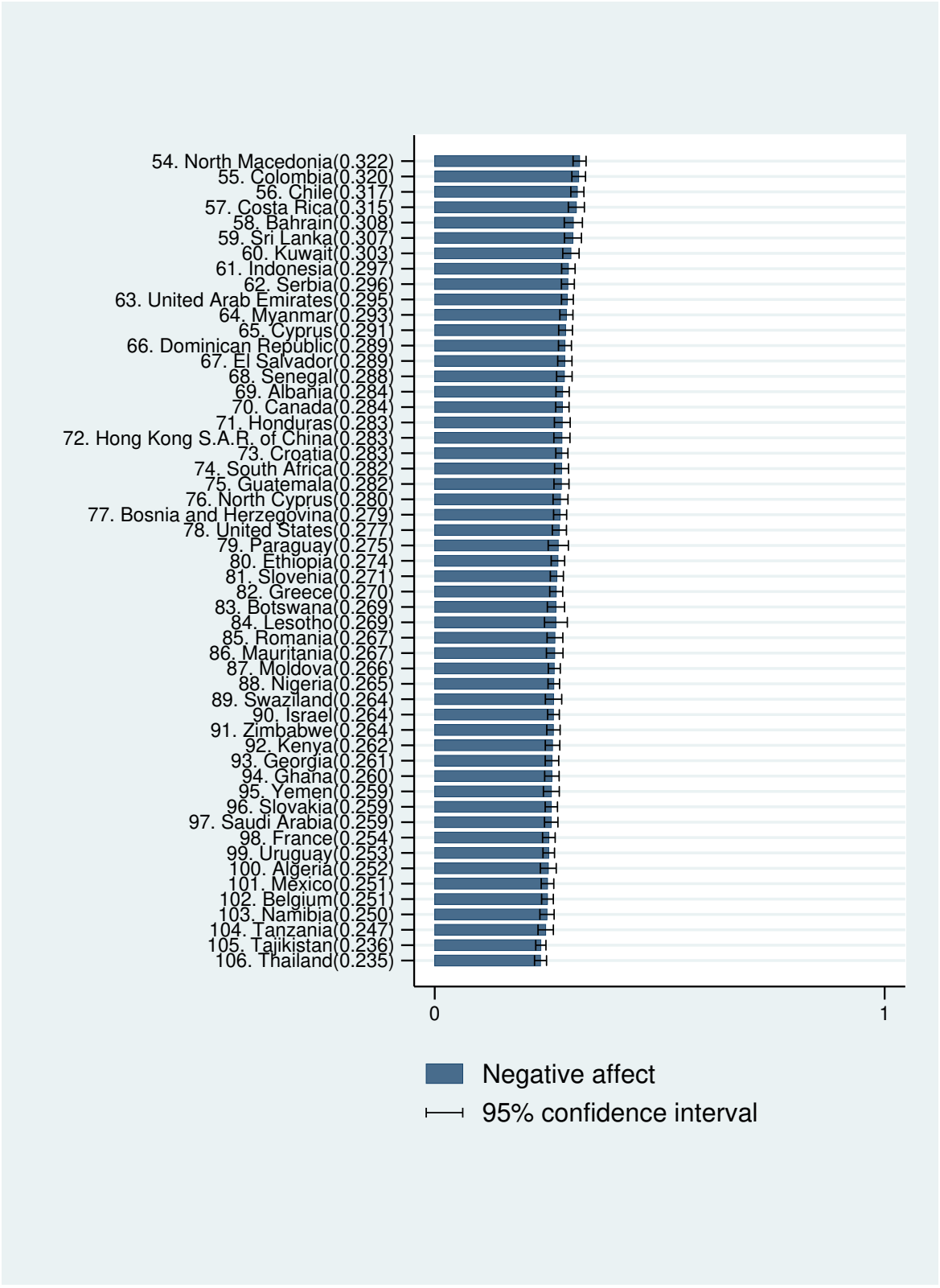
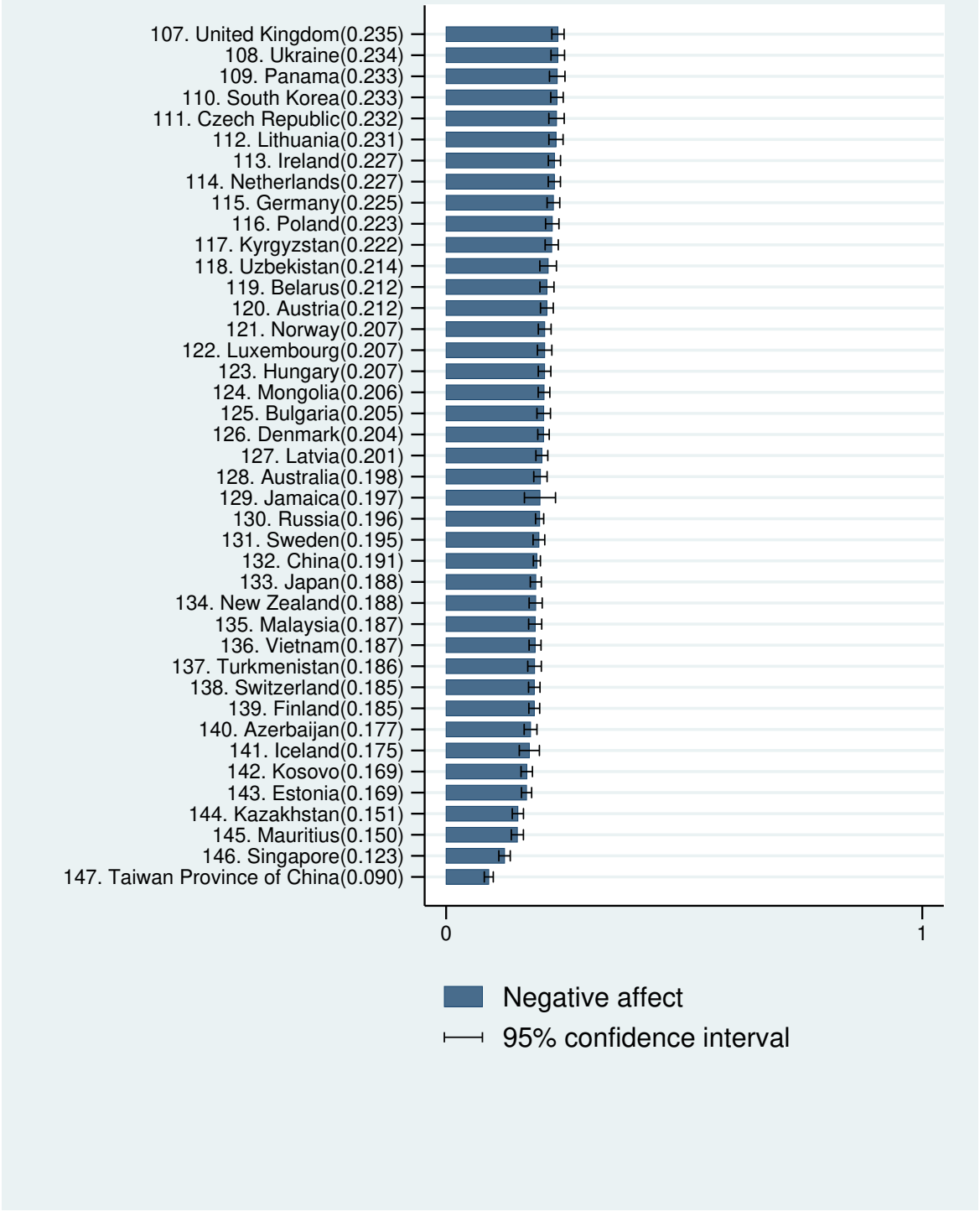
Figure 36: Ranking of Negative Affect: 2018-2020 (Part 3)