SUPPLEMENTARY MATERIALS FOR "MEASURING OPEN ACCESS ORDERS"

Ryan H. Murphy

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Below are supplementary materials for "Measuring Open Access Orders," forthcoming in *Journal of Institutional Economics*.

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1. Initial Validation of the Measure of Open Access Orders

For an initial validation of the results, we correlate it with the Bertelsmann Stiftung

Transformation index, as in our assessment, it is the closest prior index conceptually to open access
orders. The Bertelsmann index appears in a correlation matrix alongside our measure of open access
orders and the six dimensions of *Worldwide Governance Indicators* (all data is from 2018, to circumvent
COVID-19 irregularities, and because the Bertelsmann index was not collected for 2019). The correlation
between open access orders and the Bertelsmann index is 0.906, and its correlation with the various
dimensions of *Worldwide Governance Indicators* is roughly as high as the correlations amongst the
indicators *Worldwide Governance Indicators*.

The Bertelsmann Stiftung Transformation index is not itself a measure of open access orders. A useful analogy may be that our measure assesses open access orders, while the Bertelsmann index measures something more akin to inclusive institutions in the sense of Acemoglu and Robinson (2012; 2013; 2019). Practically speaking, the Bertelsmann index also has a few other disadvantages, namely that it does not cover most developed countries and it is only available for rather recent years.

Variable	Open Ac. Order	Bertels- mann	Ctrl of Corrup		Polit. Stab.	Reg. Qual.	Rule of	f Voice & Acct.
Open Access Order	1.000							
Bertelsmann Status	0.906	1.000						
Control of Corruption	0.807	0.738	1.000					
Government Effectiveness	0.832	0.791	0.929	1.000				
Political Stab. And Absence of Violence	0.739	0.732	0.783	0.782	1.000			
Regulatory Quality	0.863	0.843	0.896	0.949	0.757	1.000		
Rule of Law	0.839	0.788	0.951	0.957	0.791	0.943	1.000	
Voice & Accountability	0.928	0.911	0.784	0.760	0.709	0.798	0.791	1.000

WORKS CITED

Acemoglu, Daron and James Robinson. 2012. Why Nations Fail: The Origins of Power, Prosperity, and Poverty. New York: Crown Business.

^{---. 2013. &}quot;Economics versus Politics: Pitfalls of Policy Advice." *Journal of Economic Perspectives* 27, no. 2: 173-192.

^{---. 2019.} The Narrow Corridor: States, Societies, and the Fate of Liberty. New York: Penguin.

2. An Application: The Worldwide Open Access Order Steady State

The thrust of this paper is descriptive and does not make any claims concerning the importance of open access orders relative to other sets of institutions in explaining economic performance. As such, the application of the data will also be descriptive. We collected data for the beginning of each decade (1950, 1960.... 2010) and categorized countries by quasi-quintile, i.e., in twenty-point tranches such that the highest tranche corresponds to open access order. We then calculated the historical probability that ten years later a country would be in each of the five tranches. This appears as a transitional probability matrix in the table below.

While it is descriptive, it also serves as something of an empirical test regarding the long run trajectory of institutions. For instance, should we expect countries to converge towards open access orders over time? Of course, the biases to this approach are obvious. We are ignoring the two world wars at the beginning of the century, which are the best examples of institutional environments completely collapsing. On the other hand, the absence of these grounds for pessimism is somewhat mitigated by the implicit censoring of countries which improved their institutional environments rapidly in concert with enough data being collected for a country for it to be scored (e.g., the transition economies of the 1990s).

The empirical findings present something of a half-measure in terms of optimism. Iterating the transition matrix from the five initial quasi-quintiles will reach a steady state² where a country in the long

¹ For instance, building institutions which provide the basis for social legibility are an important dimension of state capacity (see Lee and Zhang 2017). While the presence of these institutions is not important for *Varieties of Democracy*, they are generally important for the availability of economic freedom data (e.g., for the national accounts data).

² For example, suppose a country begins as an open access order. Per the table below 7, 93.46% of the time, it will remain an open access order in 10 years, 4.67% of the time, it will decline to the (60,80) range, and 1.87% of the time it will fall to the (40,60) range. In the third period, of the 93.46% of the countries that remained an open access order, 93.46% of those will again remain an open access order, 4.67% of them fall in the (60,80) range, and 1.87% will fall in the (40,60) range. In addition, of those the fell to the (60,80) range, 38.89% will return to an open access order, 44.44% will remain in the (60,80) range, 12.50% will fall to the (40,60) range, 2.78% gall to the (20,40) range, and 1.39% fall to the (0,20) range. The 1.87% which fell to the (40,60) range in the second period will be allocated in accordance to the (40,60) column of the Transition Probability Matrix. This represents what is projected to happen from year zero (the first period) to year 20 (the third period). This process is iterated until it reaches a steady state.

run will have a 73.6% chance of being an open access order, a 10.1% chance of scoring (60,80), a 7.0% chance of scoring on the (40,60) interval, a 4.4% change of scoring on the (20,40) interval, and a 5.0% chance of scoring on the (0,20) interval. These probabilities are entirely speculative and a steady state is not approached (especially from below) for literal centuries. It is assumed that the probabilities in-sample from 1950-2020 will continue to hold out of sample. The probability that a country is an open access order after beginning in each of the tranches is represented in the figure below.

The "steady state" of the number of open access orders is nowhere close to having been achieved in 2020, where only 21.7% of all countries (35 out of 161) are classified as open access orders. Recent events also do not inspire much confidence in the continued trajectory of democratic triumphalism or the neoliberal era. These results are merely a naïve extrapolation of trends over a 70-year period, although performed in systematized fashion allowing us to place a rather fine point on the pace of the movement towards open access orders, and the rate of entrance and exit out of them. Of course, this portrayal of normative implications is contingent on viewing the neoliberal era as representing something beneficial for humankind.

This examination has also made evident that backsliding does occur, and even if we follow the rather optimistic postwar path of institutions, there are many examples of countries that achieved the categorization of an open access order only to backslide later. Some of these countries were already listed in the main text, although that was limited to countries that were not listed as open access orders as of 2020. The highest value of open access order that any country has achieved is 92.24 by Iceland in 2005, which subsequently lost the classification when it closed its economy from 2009-2011 in the aftermath of the Global Financial Crisis. It did not fall that far, so better examples may be Hungary (as high as 86.39 in 2004) or Mauritius (87.40 in 2012) as two alternative countries that achieved a score comfortably within the open order classification only to lose it. Of course, all countries that had the classification at some point before World War II subsequently lost it (even ignoring the war years), with New Zealand at 89.43 reaching the highest value in that era. Rather radical circumstances are needed for countries to lose the

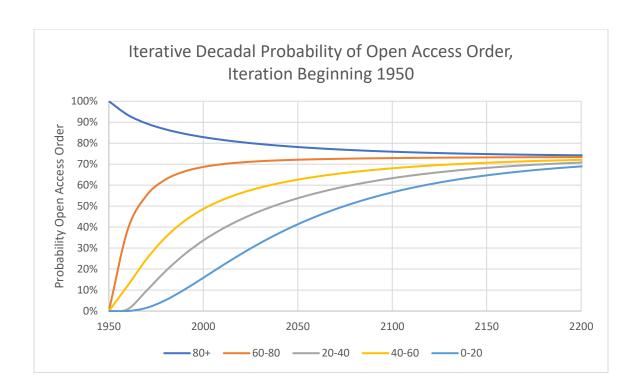
classification after reaching a score of 90 – though even this remains to be seen as we learn more about the disruptions caused by COVID-19.

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Lee, Melissa M. and Nan Zhang. 2017. "Legibility and the Informational Foundations of State Capacity." *Journal of Politics* 79, no. 1: 118-132.

Transition Probability Matrix, Persistence between Decades Between Quantiles of Open Access Order, 1950-2020.

	Initial Period Score for Open Access Order												
Probability of Receiving Score in Following Period	0-20	20-40	40-60	60-80	80+ (Open Access Order)								
80+	0.00%	0.88%	12.16%	38.89%	93.46%								
60-80	2.17%	14.91%	20.27%	44.44%	4.67%								
40-60	4.33%	22.81%	44.59%	12.50%	1.87%								
20-40	17.96%	41.23%	20.27%	2.78%	0.00%								
0-20	75.54%	20.18%	2.70%	1.39%	0.00%								
SUM	100.00%	100.00%	100.00%	100.00%	100.00%								



3. Historical Scores of Open Access Order by Country Open access orders are in **bold**.

•									
Country	1950	1960	1970	1980	1990	2000	2010	2015	2020
Albania	0.01	0.01			5.66	36.43	54.84	56.54	52.61
Algeria			2.69	0.10	0.03	4.57	7.62	3.74	10.69
Argentina	12.05	27.04	17.92	1.31	1.30	73.83	31.12	12.67	5.06
Armenia							36.12	38.24	81.17
Australia	62.91	70.45	90.54	89.29	95.84	95.90	95.71	95.49	94.39
Austria	24.47	66.35	65.45	77.24	85.30	92.35	91.80	92.06	88.62
Azerbaijan							8.61	10.28	10.97
Bahrain							17.90	12.57	13.10
Bangladesh				0.05	0.83	26.59	24.96	21.00	16.80
Barbados				41.11	39.66	56.82	60.63	67.62	75.30
Belarus									20.65
Belgium	41.68	85.03	88.41	87.63	88.46	91.78	90.08	90.79	86.66
Benin		0.15	10.36	2.40	10.83	34.35	40.82	33.11	41.75
Bhutan								65.95	56.75
Bolivia	5.70	13.79	6.04	1.45	20.98	49.22	38.81	33.59	25.34
Bosnia and Herz.							38.74	39.93	27.76
Botswana				22.81	27.33	75.00	75.08	78.52	74.05
Brazil	8.11	18.20	5.82	0.41	0.52	30.08	65.94	50.48	47.44
Bulgaria	0.01	0.02			1.18	25.38	78.70	78.31	74.27
Burkina Faso		12.45					33.65	32.76	40.98
Burundi			12.08	1.60	7.64	11.51	9.73	12.99	9.88
Cabo Verde							57.62	74.91	78.66
Cambodia							18.64	19.23	15.17
Cameroon				7.20	7.51	10.05	14.21	13.07	13.00
Canada	67.56	86.32	91.96	93.36	93.66	93.89	93.13	93.33	90.38
Central African Rep.				2.06	2.44	6.53	7.16	3.06	5.26
Chad		1.90		6.86	6.47	9.64	8.64	6.66	8.54

Country	1950	1960	1970	1980	1990	2000	2010	2015	2020
Chile	19.96	33.28	1.79	3.92	67.72	87.30	92.67	91.51	86.10
China	0.01	0.01		0.74	0.08	11.87	16.85	17.86	17.25
Colombia	10.87	31.84	16.73	4.07	9.89	27.28	54.60	56.86	50.10
Comoros									11.83
Congo, Dem. Rep.			0.38	0.00	0.01	0.17	7.24	7.10	7.65
Congo, Rep.			4.77	0.79	4.09	2.47	2.04	2.15	6.60
Costa Rica	37.26	78.24	87.05	44.37	79.11	91.04	87.19	91.14	90.04
Cote d'Ivoire		0.75		7.55	6.34	21.04	17.22	29.28	29.95
Croatia						44.95	74.21	80.85	74.87
Cyprus		25.46	26.52	15.69	30.46	56.93	82.59	82.74	78.08
Czech Rep.	0.01	0.01				76.77	88.78	90.32	85.68
Denmark	50.44	82.81	75.21	71.94	92.27	96.26	95.41	95.90	95.10
Djibouti									21.03
Dominican Republic			4.75	13.45	0.51	41.95	49.87	45.91	56.31
Ecuador	24.78	23.06	5.48	33.70	24.64	26.76	36.08	36.94	49.38
Egypt	14.97	2.64		1.74	1.22	16.36	18.26	9.30	14.02
El Salvador	12.88	12.88	9.38	0.69	6.84	45.87	53.03	56.50	43.24
Estonia						90.79	94.24	95.24	93.85
Eswatini							18.03	19.02	16.91
Ethiopia	0.36	1.89					11.25	9.86	16.27
Fiji			43.39	23.28	17.42	36.54	25.81	42.35	40.29
Finland	45.37	69.17	88.00	82.57	88.34	94.33	93.78	92.55	90.43
France	47.88	41.66	59.03	59.57	83.01	90.28	90.75	90.24	85.39
Gabon		0.42	2.59	1.91	13.39	16.34	14.60	17.69	19.85
Georgia						4.46	58.51	78.30	71.69
Germany	62.38	88.39	91.31	91.94	93.35	94.30	93.66	94.58	91.46
Ghana		6.20	1.71	0.01	2.13	26.02	64.08	50.16	50.26

Country	1950	1960	1970	1980	1990	2000	2010	2015	2020
Greece	9.44	29.56	14.55	28.06	42.76	80.17	77.39	65.99	71.10
Guatemala	30.05	9.79	10.31	7.20	20.66	37.57	45.27	49.84	39.45
Guinea		0.19						8.78	13.32
Guinea-Bissau					0.01	2.13	6.69	7.22	14.70
Guyana			32.24	2.78	2.30	42.04	44.14	58.03	28.89
Haiti	1.21	3.14	3.32	2.85	5.75	31.82	19.57	19.84	16.52
Honduras	13.17	16.52	12.48	9.44	17.21	32.77	31.02	32.13	28.78
Hong Kong		39.74	42.06	44.95	51.27	61.72	61.29	57.08	48.22
Hungary	0.01	0.02	3.89	2.36	10.15	78.01	83.65	72.17	58.62
Iceland							72.12	86.67	90.99
India	30.10	28.83	18.36	4.90	7.90	45.99	50.84	52.35	47.97
Indonesia	0.37	1.52	2.89	5.39	12.18	39.17	63.89	66.40	58.70
Iran	10.95	4.57	10.01	0.70	3.66	18.87	16.73	13.36	5.48
Iraq									9.63
Ireland	49.05	36.35	68.09	69.75	79.03	92.15	89.54	93.40	91.71
Israel	8.99	13.67	7.40	0.71	9.04	70.62	84.55	84.55	81.05
Italy	54.44	45.09	50.15	26.22	73.20	86.42	84.91	84.50	84.87
Jamaica				3.91	28.21	70.93	71.95	78.80	77.47
Japan							90.95	90.35	89.75
Jordan	0.38	0.20	8.78	13.51	12.24	27.39	36.32	38.48	40.66
Kazakhstan							22.61	22.88	25.03
Kenya			4.68	2.79	8.60	31.13	53.52	56.37	53.60
Korea, Republic	0.61	6.85	14.17	9.19	58.15	75.77	85.58	82.96	86.52
Kuwait				1.08	14.87	40.10	41.28	38.97	41.49
Kyrgyz Republic							34.89	46.80	42.54
Lao PDR								19.46	21.92
Latvia						81.26	86.76	92.75	88.99

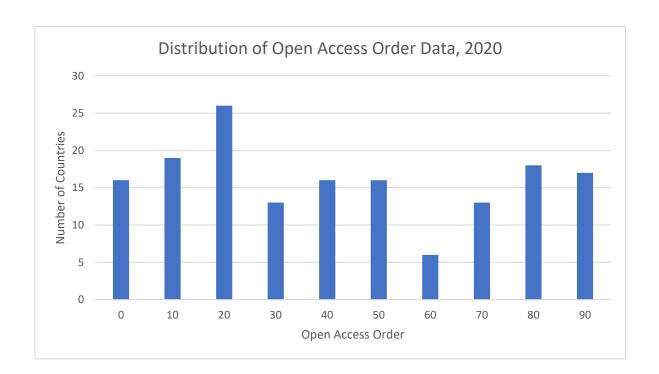
Country	1950	1960	1970	1980	1990	2000	2010	2015	2020
Lebanon		15.61					23.72	31.39	11.36
Lesotho							36.52	50.02	51.84
Liberia								43.75	37.22
Libya								5.13	2.72
Lithuania						78.10	87.98	91.57	90.21
Luxembourg	48.96	90.39	88.72	93.61	92.83	93.16	88.63	91.55	88.97
Madagascar		1.51	13.74	0.17	1.57	18.38	10.74	18.82	19.84
Malawi			14.86	3.31	8.98	7.99	36.55	27.91	35.92
Malaysia		32.56	25.94	34.09	29.06	25.83	32.40	36.00	48.67
Mali		0.68		12.44	15.05	25.39	26.24	25.13	23.70
Malta			40.14	14.13	33.34	71.49	85.63	83.56	84.11
Mauritania		0.03					24.14	15.85	22.63
Mauritius			56.29	7.80	39.17	79.34	87.22	84.31	65.02
Mexico	15.30	17.86	21.43	10.31	24.02	52.08	55.22	51.70	54.02
Moldova							54.27	53.44	55.01
Mongolia							69.06	66.91	65.07
Montenegro							58.95	56.46	58.65
Morocco		11.28	7.60	2.42	8.48	21.53	30.82	31.60	33.76
Mozambique							16.78	16.99	24.07
Myanmar	10.86	5.26	0.03	0.01	0.00	0.12	0.22	14.64	27.40
Namibia						56.52	60.79	62.89	58.81
Nepal	0.00	0.29		4.56	5.03	30.05	49.45	51.69	50.05
Netherlands	36.20	72.90	87.66	89.50	91.68	94.68	92.43	93.88	91.98
New Zealand	57.73	35.55	68.77	68.84	93.51	95.91	95.84	96.53	95.75
Nicaragua	3.02	2.50	1.59	0.53	0.01	28.64	27.26	20.89	11.85
Niger		0.30		12.31	6.72	16.05	18.63	24.55	28.44
Nigeria		12.49	0.51	0.14	0.19	5.49	25.43	37.17	32.30

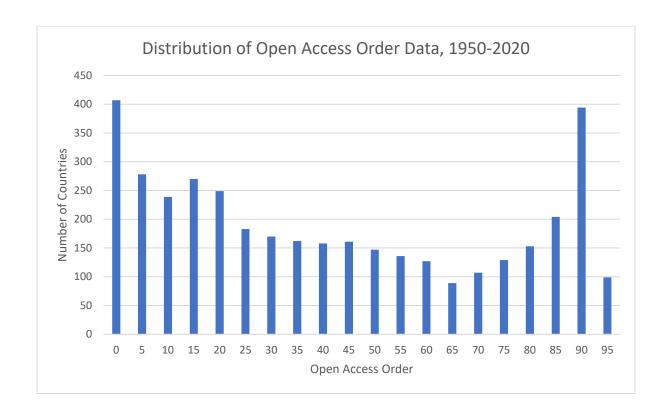
Country	1950	1960	1970	1980	1990	2000	2010	2015	2020
North Macedonia							57.57	43.84	55.49
Norway	72.14	67.19	78.70	67.68	88.77	94.11	92.40	89.03	91.47
Oman				5.94	20.22	26.86	28.81	29.40	29.15
Pakistan	4.80	6.36	3.56	1.02	4.52	8.13	16.89	17.35	20.16
Panama	25.40	27.44	15.21	13.69	39.76	62.81	63.36	66.97	66.22
Papua New Guinea							37.77	23.72	29.42
Paraguay	0.05	6.07	6.59	6.46	12.15	32.04	51.94	41.62	43.85
Peru							75.55	76.61	73.80
The Philippines	31.61	11.72	6.72	4.93	38.97	56.39	59.32	63.76	45.90
Poland	0.65	1.17		13.90	0.37	55.21	76.71	83.74	64.64
Portugal	18.96	22.88	12.57	29.94	54.25	91.70	85.90	90.81	87.07
Qatar							25.98	24.90	24.09
Romania	0.01	0.12		3.66	1.70	13.10	69.29	79.46	75.92
Russia	0.00	0.01		0.02	0.01	7.40	23.25	21.34	20.91
Rwanda			10.08	1.48	1.63	21.04	30.84	32.28	28.99
Saudi Arabia							17.54	15.35	17.92
Senegal							24.43	35.81	37.63
Serbia							51.29	47.41	40.00
Seychelles								64.66	66.04
Sierra Leone				0.98	0.02	3.67	39.33	22.04	34.97
Singapore			45.75	51.73	58.69	50.07	61.01	62.78	62.32
Slovak Republic						71.49	87.72	84.56	83.15
Slovenia						70.47	80.47	85.08	74.45
Somalia									4.04
South Africa	1.35	8.98	15.91	9.40	19.63	72.27	73.09	68.17	58.94
Spain	8.19	15.35	17.10	51.92	66.20	93.63	91.80	90.88	90.20
Sri Lanka	66.01	11.35	5.55	10.80	18.65	38.35	33.84	52.60	49.73

Country	1950	1960	1970	1980	1990	2000	2010	2015	2020
Sudan									0.65
Surname							53.71	44.46	28.29
Sweden	74.76	74.26	59.43	73.24	84.85	94.64	94.35	94.75	90.61
Switzerland	80.53	82.00	84.31	93.74	95.85	96.45	96.16	96.00	95.94
Syria	20.38	19.03	0.96	0.12	0.01	4.09	10.78	0.72	1.57
Taiwan	0.03	4.83	13.05	15.31	41.89	81.72	84.50	86.69	88.50
Tajikistan							10.64	9.69	12.03
Tanzania							48.34	50.14	43.44
Thailand	9.76	11.38	14.53	13.66	33.58	47.68	45.68	23.49	29.34
Timor-Leste							20.71	43.92	33.38
Togo		2.01		0.56	6.83	15.59	16.19	25.88	30.54
Trinidad and Tobago				18.08	24.78	75.63	70.93	68.16	72.95
Tunisia		2.65	5.79	5.06	10.99	19.50	19.97	47.30	42.98
Turkey	8.51	4.82	0.42	0.09	10.20	22.42	54.37	37.21	20.04
Uganda							43.97	41.74	39.04
Ukraine						3.39	22.62	12.57	31.43
United Arab Emirates				18.31	20.84	23.43	24.21	24.53	25.36
United Kingdom	30.98	62.16	50.98	81.21	92.54	95.24	93.94	94.26	90.86
United States	76.74	78.68	85.99	93.06	93.35	95.11	94.60	94.61	89.59
Uruguay	37.44	51.55	38.62	14.55	60.94	82.16	89.35	86.11	80.33
Venezuela	15.67	46.55	62.32	52.06	22.71	23.44	0.13	0.00	0.02
Vietnam						13.83	19.10	22.38	24.07
Yemen, Republic	4.76	5.35					9.45	0.75	1.16
Zambia			12.48	3.53	0.04	59.11	65.35	54.32	37.29
Zimbabwe				6.68	10.05	1.85	4.15	26.73	1.59

4. Histograms of Open Access Order Data

Below are histograms of open access order for 2020 and for the complete 1950-2020 data. There is no obvious pattern to the 2020 data, though it peaks in the tranche of scores running (20, 30). The complete distribution of data for all years is closer to a barbell distribution, however. One interpretation of the data is that recent history has seen the disappearance of weak states attempting totalitarianism, and the states that were trying that have shifted from the bottom tranche to lower-middle tiers in the data. The countries with scores still under a "5" in 2020 are Somalia, Libya, Zimbabwe, Syria, Yemen, Sudan, and Venezuela.





5. Open Access Order Data, 1850-1935

Country	1850	1860	1870	1875	1880	1885	1890	1895	1900	1905	1910	1925	1930	1935
Australia										86.99	85.25	81.75	67.66	67.60
Austria		16.48	33.36	35.92	37.27	36.80	38.81	44.84	43.18	42.28	40.62	43.04	34.36	4.35
Belgium	46.68	60.14	60.46	62.10	65.55	65.03	65.05	74.18	74.96	74.87	71.25	55.78	65.49	41.70
Canada			55.05	60.59	60.05	60.29	63.24	62.24	64.60	65.22	65.82	75.26	69.05	67.07
Denmark	24.66	51.51	45.92	56.29	59.70	59.26	59.39	61.75	56.59	74.75	81.22	81.28	81.25	75.54
Finland												73.78	55.00	34.79
France	5.73	20.55	21.16	62.21	72.73	72.73	72.01	71.71	73.56	73.78	72.68	45.98	56.43	15.04
Germany	0.59	21.66	28.48	36.65	37.33	37.33	42.03	42.67	42.91	43.77	44.10	39.96	25.03	1.56
Greece	12.90	20.79	27.79	28.19	31.82	32.91	27.55	26.88	24.68	26.37	35.33	21.65	34.37	22.49
Ireland												76.63	72.03	56.64
Italy			19.17	21.82	29.02	34.67	28.86	31.62	44.00	45.61	45.05	14.06	11.26	1.61
Japan				21.80	25.99	27.88	34.98	38.28	42.81	43.53	43.44			
Netherlands	51.23	59.50	57.72	64.69	65.53	64.59	69.21	69.76	73.15	72.74	73.24	83.17	81.67	75.36
New Zealand											89.43	85.94	76.30	70.83
Norway										65.59	76.91	76.41	82.07	76.57
Portugal	1.18	11.85	10.07	14.00	19.97	16.09	12.06	14.01	21.56	21.45	29.38	10.53	7.65	10.63
Spain	5.08	9.65	17.37	24.50	27.80	28.54	28.01	26.85	30.80	32.29	32.71	9.03	21.19	0.00
Sweden	26.20	36.07	48.90	56.62	57.78	57.89	60.27	59.67	60.39	55.45	57.65	84.09	83.16	80.24
Switzerland	9.67	62.68	64.96	80.22	81.64	80.22	81.02	82.09	82.83	83.08	83.14	81.75	76.22	66.83

United Kingdom 43.33 51.11 59.62 61.83 63.13 67.43 69.03 70.64 74.04 74.03 71.89 **81.41** 75.01 60.57 United States 42.93 11.29 44.99 49.74 50.52 50.91 52.90 55.20 58.68 60.32 64.04 70.15 60.05 66.65