Supplementary Information, Crop Calorie Data, and Crop Allocation Data.

1. Supplementary Information

- ***a. Crop Allocation Methods***
- ***b. Livestock Conversion Methods***
- ***c. Calorie availability increases from yield improvements***

a. Crop Allocation Methods

Data from Food and Agriculture Organisation's Food Balance Sheets (FBS) were used to determine the crop allocations of 41 major crops: apples, bananas, barley, beans, cassava, cereals other, citrus other, coconuts, cottonseed, dates, fruits other, grapefruit, grapes, maize, millet, oats, oil crops other, olives, onions, oranges and mandarins, palm oil, peas, pineapples, plantains, potatoes, pulses other, rape and mustard seed, rice (paddy), roots other, rye, sesame seed, sorghum, soybeans, sugar beet, sugar cane, sunflower seed, sweet potatoes, tomatoes, vegetables other, wheat, yams [1].

The FBS split crop allocations into categories of Food, Feed, Processed, Other Utilization, Waste and Seed. These categories reflect how the domestic supply of a given crop is allocated. The domestic supply of a crop is give by FAOSTAT as: domestic supply = production – exports + imports +/- stock variations [1]. However, in this study we focused on how crop production (averaged over 1997 – 2003) in a given country was allocated, either domestically or externally. In other words we determined how crops produced within a country are used, regardless of where they are used. In order to approximate how crop production in a given country was allocated, we determined country specific crop allocations from FBS data, which were applied to an approximated domestic supply, which is: approximated domestic supply = production – exports. Exported crops accounted for 10% of produced calories circa 2000. These exported crops were allocated based on global average crop specific allocations. We calculated a global average allocation for each crop based on importing nations' allocations [2]. These importing nations' allocations were weighted by how much each nation was importing, and how they allocate their domestic crop supply. This results in country specific allocations for each crop, equation 1 in the main text:

$$\text{Crop Allocation}_{c,n} = ([\text{production}_{c,n} - \text{exports}_{c,n}] \times \text{domestic allocations}_{c,n}) + (\text{exports}_{c,n} \times \text{importing nations' allocation}_{c})$$

where $\text{Crop Allocation}_{c,n}$ represents the crop uses (subscript c) for a given nation (subscript n), and importing nations' allocation_{c} is a crop specific global average use of importing nations.

In order to describe crop allocations in terms of Food, Feed, and Other non-food uses, we had to estimate how the 'Processed', 'Seed' and 'Waste' categories of the FBS would be allocated. We determined how Processed crops were used based on the crop type. Oil seed crops (rape and mustard seed, soybeans, sunflower seed, cotton seed, sesame seed and oil crops other) were assumed to be

processed into oils for human consumption and meal for animal feed. The fraction of the crop that is oil (Table SI) was taken from Oilseed Crops[3], and are similar to FAO Technical Documentation [4].

For all other (non-oil seed) crops, 'Processed' crops were allocated into food and feed based on how the rest of the domestic supply was being allocated into food and feed. For example: Food, 3 tonnes; Feed 3 tonnes; Processed, 4 tonnes; we would allocate Processed weight back into food and feed (Food, 5 tonnes; Feed, 5 tonnes).

Other utilizations include biofuel and other industrial uses [1]. We derived crops being allocated into the 'Other utilizations' category both by the FBS 'Other Utilization' allocation as well as our calculations of crops being allocated to biofuel production. We assume the "Other utilization" category as defined by FAOSTAT did not already include crops routed to biofuels, because the crop weight routed to this category was much smaller than the weight reported being routed to biofuels from World Watch Institute [5]. For example, in the year 2000 maize production routed to 'Other Utilization' was 7 million tonnes, whereas maize production routed to biofuels in the year 2000 is over 14 million tonnes [5, 6].

Crops allocated to biofuels were determined for major biofuel producing nations in the year 2000: United States, Brazil, Germany and France. In the year 2000, the United States and Brazil used maize and sugar cane as their respective biofuel feedstocks, whereas France and Germany used rapeseed for biodiesel production. Data on the magnitude of crop production used for biofuel production in 2000 were taken from the World Watch Institute [5]. For maize and rapeseed production being used for biofuels, we assumed after processing the oil is used for biofuels and is in the 'Other' crop allocation category. Oil extracted from maize was estimated to represent 66% of calories of maize used for ethanol production. The remaining 34% maize calories were allocated to 'Feed'(Table S2). We assumed all of the protein content of processed oil crops was left in the meal, or dried distiller's grains in the case of maize, and allocated to 'Feed'. We used the same methods to calculate crop allocations to biofuels in 2010 (Table S3), using FAPRI biofuels data [7]. In the main text when referring to the mass of calories of a crop being directed to biofuels, we are referring to the total amount being allocated. However, when referring to the calories ending up in 'Feed' and 'Other' we are accounting for the 34% of corn being redirected into dried distiller's grains (DDGS) [8], and 41% of rapeseed being redirected to 'Feed' as meal (Table S2).

b. Livestock Conversions

A major component of this study is determining how many food (meat, dairy and egg) calories were derived from crop feed calories (which comprise 36% of global calorie production). While there are many ways to derive feed to animal product conversions, this study is interested only in the fate of human-edible feed crops.

There are many different ways of calculating feed conversion ratios in the literature [9, 10]. These feed conversion ratios differ based on the assumptions made about the composition of livestock diets. Monogastrics (in this study chickens and pigs) typically have diets dense in grains because unlike ruminants, they are unable to properly digest grasses. Ruminants (in this study beef cattle and dairy cattle) have periods during their life cycle where they consume only grasses, and later in their life cycle consume feed more dense in calories, containing grains such as maize, wheat, soy meal, etc. The feed conversions used in this study approximates the feed grain to ruminant meat and dairy calorie conversion during the stage of the life cycle that cattle are on feed (as opposed to weaning and grass fed stages). In this way we are only accounting for the inputs and outputs of production systems while livestock are being fed grains. We are limited, however, by lack of global data on the inputs and outputs of grain-based livestock production systems. For livestock conversions used here we estimate the proportion livestock types consuming feed grains, and how efficiently they are converted into animal products.

In general we assume the kinds of livestock consuming feed grains is proportionate to their production. Livestock products tracked in this study were chicken meat, pig meat, chicken eggs, cattle meat, and cow milk. We also wanted to account for beef cattle that are grazed throughout their life cycles and don't consume feed grains. The proportion of beef cattle that is produced from grazing production systems differs globally. Livestock's Long Shadow estimates 16% and 32% of beef cattle is produced from grazing systems in developed and developing nations respectively [11]. In this study we defined 'developed' nations to be in the World Bank's 'high income' economic group [12]. Therefore livestock conversions derived in this study include beef cattle produced only in mixed and landless production systems. However, even when cattle are on calorie-dense feeds, there can be a substantial component of the feed from grassy fodder crops. Therefore in this study we assumed beef cattle feeds have a 15% grassy fodder component (as reported by the USDA) [13] and dairy cow feeds have a 60% grassy fodder component [14].

Livestock conversions differ a great deal dependent on feed composition. Typically feeds with higher grass content have higher feed conversion ratios (requiring more feed per kilogram of animal product), and feeds dense in grains have lower feed conversion ratios. For this study we used the United States Department of Agriculture (USDA) reported conversions for livestock on feed [15]. These conversions are given in terms of kilograms of feed required per kilogram of live weight gain. In order to derive feed calorie to animal product calorie conversions, we had to translate these USDA feed conversion ratios into feed to carcass weight conversions using dressing proportions for beef cattle, chickens and pigs. Table S4 shows 'dressing percentages' of the livestock considered in this study, as well as the range of reported dressing percentages from the FAO [4]. The dressing percentage of beef

cattle used in this study (0.6) was higher than the FAO reported ranges (0.4 – 0.57), but has been reported as high as 0.6 elsewhere [16, 17].

Livestock conversion sensitivity

Assumptions of feed conversion efficiencies (tonnes of feed required for a tonne of animal live weight gain) impact the calorie delivery of global feed calories. Smil's 'Feed the World: A Challenge for the Twenty-First Century' details the USDA reported range of feeding efficiencies of major livestock types from ~1910 to 2000 [18]. We can use this range of feeding efficiencies, as well a the FAO range of dressing proportions (Table S4) to define an upper and lower bound of livestock conversion efficiencies for livestock on feed. Table S5 shows the range of feeding efficiencies for the livestock products tracked in this study.

From the range of feed conversion efficiencies and dressing proportions, we defined our upper and lower bound feed conversion efficiency scenarios. For the High Input scenario, we used the highest reported feed requirements per tonne live-weight gain, and also the lowest dressing proportion. This scenario is similar to the one used in our calorie delivery model in the main text, but it differs on the dressing proportions used for the livestock products. Combining efficiencies of tonnes of feed per tonne of liveweight (Table S5), and assumptions of dressing proportions (Table S4), we determined the tonnes of feed required per tonne of carcass weight (Table S6). For example, the beef conversion efficiency used here uses a feed to liveweight conversion of 12.7, and a dressing proportion of 0.6 gives us tonnes of feed per tonne of carcass weight by: $\frac{12.7}{1}$ tonnes feed per tonne liveweight $\times \frac{1}{0.6}$ tonnes of liveweight per tonne of carcass $= \frac{21.17}{1}$ tonnes feed per tonne of carcass weight. Table S6 shows theses feed to carcass weight conversions, as well as their respective calorie conversions.

Results for global average conversion efficiency of feed calories into livestock product calories for the high input scenario show an efficiency of 10%, which is similar to the average conversion of 12% in the main text (Table S6). The High Input scenario delivers 13% less feed calories to the food system. The Low Input scenario has high dressing proportions (Table S4) and low feed requirements (Table S5). The global average conversion efficiency for the Low Input Scenario was ~20%. This scenario contributes 67% more feed calories to the food system (Table S7). The conversion efficiencies in the main text are more similar to the High Input scenario than the Low Input scenario, but it is reasonable to assume that the United States has more efficient livestock conversions than other countries. Feed conversion

efficiencies in Bouwman et al. (2005) demonstrate this [9]. In addition, USDA feed to live-weight conversions for the year 2000 are very similar to the High Input Feeding efficiencies in Table S5 [15].

Calorie availability increases from yield improvements

In order to put some of our results in perspective, we analyzed how changing yields have impacted food availability. In this paper we find shifting crop allocations away from animal feed, biofuels, and other uses to direct human consumption could increase global crop availability by 70% (which is 3.88×10^{15} calories). We used FAO production statistics to analyze how changing yields for maize, wheat and rice [6], as opposed to increasing cropland area, has impacted calorie availability. If we look at the average yields for maize, for example: maize yields have increased from 2.16 to 5.13 tonnes per hectare on average globally. Wheat increased from 1.27 to 3.03 tonnes per hectare, and rice increased from 2.09 to 4.32 tonnes per hectare [6]. Keeping harvested areas for these three crops at their 1965 levels, we multiplied yield increases by 1965 crop extent for each crop to determine the number of calories we produced from yield increases alone. We determined the number of calories gained from yield increases from these 3 crops, from 1965 to 2009, amounted to 3.18×10^{15} calories, which is 82% of the 3.88×10^{15} calories we could get from shifting crop allocations.

Table S1
Oil content proportions by crop type

	Oil content[1]	
Crop type	***Weight***	***Calories***
Cotton seed	0.18	0.39
Oil palm	0.4	0.65
Oil crops other	0.33	0.77
Rape and mustard seed	0.33	0.59
Sesame seed	0.43	0.66
Soybeans	0.19	0.47
Sunflower seed	0.42	0.66

Oil proportions of the relevant crop are shown in terms of weight and calories.
1. Calculated from [3] and similar to [4].

Table S2
Biofuel Crop Allocation Year 2000

Country	Crop	Tonnes	Calories	Feed %	Feed calories	Fuel Calories
USA	Maize	14759615	5.28E+13	0.34[1]	1.80E+13	3.49E+13
FRA	Rapeseed	1089325	5.38869E+12	0.41[2]	2.21E+12	3.18E+12
DEU	Rapeseed	1089325	5.38869E+12	0.41[2]	2.21E+12	3.18E+12
BRA	Sugarcane	116279070	3.38842E+13	0	0.00E+00	3.39E+13
Total		**1.33E+08**	**9.75E+13**		**2.24E+13**	
Proportion of 2000 crop production		**0.03**	**0.01**			

1. Calculated from [8]
2. Calculated from [3]

Table S3
Biofuel Crop Allocation Year 2010

Country	Crop	Tonnes	Calories	Feed %	Feed calories
USA	Maize	119512195	4.27867E+14	0.34	1.45475E+14
BRA	Sugarcane	348461000	1.01543E+14	N/A	N/A
Total		467973195	5.2941E+14		
Proportion 2010 crop production		0.06	0.04		

Table S4
Livestock Dressing proportions

Livestock type	Dressing Proportion Range[1]	In Publication	High Input	Low Input
Cattle	0.4 - 0.57	0.6	0.4	0.6
Pigs	0.65 - 0.85	0.7	0.65	0.85
Chickens	0.73 - 0.83	0.75	0.73	0.83

1. Range from FAO Technical Conversion Factors [4]

Table S5
Feeding Efficiencies of livestock in terms of tonnes feed / tonne Live Weight

	In Publication	Range[1]	High Input	Low Input
Beef	12.7	8 - 12.7	12.7	8
Pork	6.5	5 - 6.5	6.5	5
Chickens	2.5	2 - 2.5	2.5	2
Eggs	2.5	2 - 2.5	2.5	2
Dairy	1.1	0.6 - 1.1	1.1	0.6

1. Range from Smil 2000a [18]

Table S6
Livestock feed conversion efficiencies

	Beef		Pork		Chicken		Eggs		Dairy	
	tonnes feed / tonne carcass weight	calorie conversion	tonnes feed / tonne carcass weight	calorie conversion	tonnes feed / tonne carcass weight	calorie conversion	tonnes feed / tonne carcass weight	calorie conversion	tonnes feed / tonne carcass weight	calorie conversion
In publication	21.17	0.0308	9.29	0.1043	3.33	0.1178	2.50	0.2207	1.10	0.4025
Low Input	13.33	0.0489	7.14	0.1356	2.67	0.1472	2.00	0.2399	0.60	0.7380
High Input	31.75	0.0205	10.00	0.1043	3.42	0.1146	2.50	0.2207	1.10	0.4025

Table S7
Livestock Sensitivity impacts on calorie delivery

	Feed calories	Conv efficiency	Converted calories
In Publication	3.45E+15	0.120	4.12E+14
High Input	3.45E+15	0.104	3.60E+14
Low Input	3.45E+15	0.200	6.91E+14

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[17] USDA 2013 National Dairy Cattle and Beef Summary Livestock and Grain Market News http://www.ams.usda.gov/mnreports/lsddcbs.pdf April 1st, 2013

[18] Smil V 2000a *Feeding the World: A Challenge for the 21st Century* (Cambridge: MIT Press) 145 - 157

2. Crop Calorie Data

EarthStat name	FAO name	Calories per tonne	Tonnes protein per tonne
apple	Apples	479479.33	0.0027
banana	Bananas	614244.63	0.0090
barley	Barley	3360215.93	0.1052
bean	Beans dry	3388881.91	0.2173
cassava	Cassava	1058035.85	0.0080
cerealnes	Cereals nes	3399999.94	0.0800
citrusnes	Citrus fruit nes	258070.35	0.0050
coconut	Coconuts	1430000.04	0.0151
cotton	Cottonseed	4100000.00	0.2300
date	Dates	1885819.82	0.0156
fruitnes	Fruit Fresh Nes	452010.61	0.0051
grapefruitetc	Grapefruit (inc. pomelos)	209379.65	0.0038
grape	Grapes	591589.58	0.0057
maize	Maize	3580802.60	0.0943
millet	Millet	3463917.52	0.0986
oats	Oats	3850000.19	0.1300
oilseednes	Oilseeds Nes	3770116.94	0.1451
olive	Olives	1534649.52	0.0123
onion	Onions dry	394971.60	0.0126
orange	Oranges	295398.96	0.0054
oilpalm	Oil palm fruit	5400000.00	0.0190
pea	Peas dry	3407849.16	0.2268
pineapple	Pineapples	291709.66	0.0028
plantain	Plantains	846666.67	0.0072
potato	Potatoes	702122.60	0.0161
pulsenes	Pulses nes	3281390.25	0.2047
rapeseed	Rapeseed	4940000.00	0.1960
rice	Rice paddy	2800000.00	0.0600
rootnes	Roots and Tubers nes	861611.93	0.0140
rye	Rye	3190000.00	0.1100
sesame	Sesame seed	5747185.43	0.1780
sorghum	Sorghum	3430000.40	0.1010
soybean	Soybeans	3596499.11	0.3631
sugarbeet	Sugar beet	700000.00	0.0130
sugarcane	Sugar cane	291428.56	0.0019
sunflower	Sunflower seed	2982902.68	0.1140
sweetpotato	Sweet potatoes	939797.99	0.0107
tomato	Tomatoes	192585.69	0.0093
vegetablenes	Vegetables fresh nes	220000.00	0.0140
wheat	Wheat	3284000.00	0.1120
yam	Yams	1090000.00	0.0170

3. Country-specific Crop Allocation Data

Country		Calorie Allocation Fractions			Protein Allocation Fractions			Weight Allocation Fractions		
Country_name	Country_code	food	feed	other	food	feed	other	food	feed	other
Afghanistan	AFG	0.759	0.149	0.093	0.758	0.157	0.085	0.756	0.119	0.125
Angola	AGO	0.649	0.251	0.100	0.749	0.157	0.093	0.617	0.281	0.102
Albania	ALB	0.506	0.353	0.141	0.538	0.309	0.153	0.648	0.241	0.111
United Arab Emirates	ARE	0.414	0.130	0.457	0.393	0.091	0.517	0.379	0.076	0.545
Argentina	ARG	0.480	0.452	0.068	0.153	0.802	0.045	0.529	0.414	0.057
Armenia	ARM	0.704	0.151	0.144	0.703	0.159	0.138	0.781	0.083	0.136
Australia	AUS	0.509	0.428	0.063	0.410	0.524	0.065	0.739	0.226	0.034
Austria	AUT	0.385	0.559	0.056	0.328	0.617	0.055	0.606	0.339	0.055
Azerbaijan	AZE	0.759	0.171	0.070	0.694	0.238	0.067	0.842	0.099	0.059
Barbados	BAR	0.999	0.000	0.001	0.996	0.002	0.002	1.000	0.000	0.000
Burundi	BDI	0.945	0.001	0.054	0.945	0.002	0.053	0.947	0.000	0.053
Belgium	BEL	0.629	0.282	0.088	0.580	0.327	0.094	0.776	0.146	0.079
Benin	BEN	0.565	0.175	0.260	0.410	0.314	0.276	0.571	0.166	0.263
Burkina Faso	BFA	0.851	0.064	0.084	0.741	0.178	0.081	0.845	0.066	0.089
Bangladesh	BGD	0.928	0.005	0.067	0.914	0.020	0.067	0.936	0.003	0.061
Bulgaria	BGR	0.391	0.506	0.103	0.348	0.553	0.099	0.449	0.446	0.106
Bahamas	BHA	0.961	0.000	0.039	0.925	0.000	0.075	0.959	0.000	0.041
Bahrain	BHR	0.909	0.020	0.071	0.908	0.019	0.073	0.910	0.016	0.074
Bosnia and Herzegovir	BIH	0.511	0.288	0.201	0.518	0.286	0.196	0.675	0.179	0.146
Belarus	BLR	0.245	0.716	0.039	0.232	0.726	0.043	0.276	0.697	0.027
Bhutan	BNT	0.400	0.533	0.068	0.376	0.557	0.068	0.627	0.312	0.061
Bolivia	BOL	0.566	0.397	0.037	0.087	0.898	0.015	0.766	0.194	0.040
Brazil	BRA	0.455	0.408	0.137	0.156	0.794	0.050	0.590	0.136	0.273
Brunei Darussalam	BRN	0.856	0.000	0.144	0.928	0.000	0.072	0.889	0.000	0.111
Botswana	BWA	0.891	0.027	0.082	0.892	0.038	0.070	0.888	0.015	0.097
Belize	BZE	0.765	0.173	0.061	0.593	0.324	0.083	0.925	0.020	0.055
Central African Republ	CAF	0.893	0.044	0.063	0.726	0.191	0.083	0.928	0.019	0.052
Canada	CAN	0.382	0.576	0.042	0.276	0.683	0.041	0.390	0.562	0.047
Cayman Islands	CAY	0.859	0.059	0.082	0.889	0.032	0.079	0.875	0.039	0.086
Switzerland	CHE	0.569	0.375	0.056	0.501	0.445	0.054	0.738	0.194	0.068
Chile	CHL	0.631	0.310	0.059	0.594	0.349	0.056	0.790	0.097	0.113
China	CHN	0.584	0.328	0.088	0.502	0.416	0.082	0.669	0.258	0.073
Cote d'Ivoire	CIV	0.782	0.120	0.099	0.579	0.334	0.087	0.802	0.085	0.114
Cameroon	CMR	0.756	0.095	0.149	0.695	0.208	0.097	0.832	0.061	0.108
Congo	COG	0.967	0.000	0.033	0.969	0.000	0.031	0.965	0.000	0.035
Colombia	COL	0.745	0.132	0.123	0.726	0.203	0.071	0.888	0.069	0.042
Comoros	COM	0.947	0.008	0.045	0.937	0.011	0.052	0.951	0.003	0.046
Costa Rica	COS	0.733	0.070	0.197	0.813	0.027	0.160	0.855	0.025	0.120
Cape Verde	CPV	0.624	0.304	0.072	0.697	0.263	0.040	0.606	0.312	0.082
Cuba	CUB	0.874	0.097	0.029	0.795	0.156	0.049	0.924	0.061	0.015
Cyprus	CYP	0.922	0.005	0.074	0.910	0.012	0.079	0.932	0.007	0.061
Czech Republic	CZE	0.276	0.692	0.031	0.212	0.754	0.034	0.254	0.723	0.024
Germany	DEU	0.411	0.527	0.061	0.365	0.565	0.069	0.607	0.330	0.063
Djibouti	DJI	0.908	0.000	0.092	0.908	0.000	0.092	0.908	0.000	0.092

Dominica	DMI	0.732	0.141	0.127	0.724	0.138	0.138	0.749	0.100	0.150
Denmark	DNK	0.247	0.713	0.040	0.202	0.757	0.041	0.412	0.548	0.040
Dominican Republic	DOM	0.955	0.015	0.030	0.943	0.020	0.037	0.973	0.003	0.023
Algeria	DZA	0.841	0.089	0.070	0.834	0.093	0.073	0.888	0.041	0.072
Ecuador	ECU	0.669	0.096	0.235	0.593	0.203	0.204	0.798	0.058	0.144
Egypt	EGY	0.670	0.245	0.086	0.624	0.290	0.087	0.766	0.167	0.067
El Salvador	ELS	0.718	0.237	0.045	0.670	0.280	0.051	0.922	0.059	0.019
Eritrea	ERI	0.923	0.021	0.055	0.847	0.098	0.055	0.906	0.035	0.059
Spain	ESP	0.357	0.605	0.037	0.246	0.718	0.036	0.619	0.330	0.051
Estonia	EST	0.220	0.764	0.016	0.187	0.797	0.016	0.347	0.639	0.014
Ethiopia	ETH	0.925	0.012	0.063	0.913	0.025	0.062	0.917	0.011	0.073
French Guiana	FGU	0.766	0.146	0.088	0.840	0.077	0.083	0.728	0.181	0.090
Finland	FIN	0.192	0.780	0.027	0.157	0.820	0.023	0.341	0.585	0.074
Fiji Islands	FJI	0.951	0.003	0.046	0.933	0.003	0.064	0.987	0.001	0.012
France	FRA	0.418	0.514	0.068	0.360	0.572	0.068	0.582	0.346	0.072
Faeroe Islands	FRO	0.753	0.095	0.152	0.753	0.095	0.152	0.753	0.095	0.152
Gabon	GAB	0.534	0.220	0.246	0.547	0.244	0.209	0.587	0.199	0.215
United Kingdom	GBR	0.458	0.514	0.028	0.395	0.577	0.028	0.619	0.354	0.028
Georgia	GEO	0.457	0.311	0.232	0.438	0.340	0.223	0.642	0.171	0.186
Ghana	GHA	0.643	0.085	0.272	0.691	0.057	0.252	0.634	0.091	0.275
Guinea	GIN	0.620	0.033	0.348	0.760	0.034	0.206	0.760	0.022	0.218
Guadeloupe	GLP	0.909	0.039	0.051	0.907	0.033	0.060	0.911	0.042	0.047
Gambia	GMB	0.730	0.066	0.204	0.791	0.081	0.127	0.765	0.065	0.170
Guinea-Bissau	GNB	0.807	0.103	0.089	0.845	0.047	0.108	0.830	0.072	0.098
Equatorial Guinea	GNQ	0.522	0.163	0.316	0.594	0.216	0.190	0.605	0.255	0.140
Greece	GRC	0.492	0.435	0.073	0.308	0.613	0.079	0.696	0.225	0.079
Grenada	GRD	0.650	0.160	0.190	0.631	0.206	0.162	0.720	0.149	0.132
Guatemala	GUA	0.784	0.129	0.087	0.752	0.181	0.067	0.920	0.026	0.054
Guam	GUM	0.955	0.007	0.038	0.950	0.011	0.039	0.949	0.011	0.040
Guyana	GUY	0.671	0.178	0.151	0.620	0.221	0.159	0.786	0.089	0.125
Haiti	HAI	0.773	0.111	0.115	0.800	0.111	0.089	0.765	0.097	0.138
Honduras	HON	0.791	0.134	0.075	0.772	0.150	0.078	0.859	0.089	0.052
Croatia	HRV	0.225	0.743	0.032	0.214	0.752	0.034	0.325	0.644	0.031
Hungary	HUN	0.289	0.646	0.065	0.250	0.681	0.069	0.445	0.499	0.056
Indonesia	IDN	0.575	0.101	0.323	0.630	0.114	0.256	0.656	0.091	0.253
India	IND	0.889	0.065	0.046	0.775	0.178	0.047	0.920	0.038	0.042
Ireland	IRL	0.273	0.685	0.042	0.225	0.731	0.044	0.555	0.414	0.031
Iran Islamic Republic	IRN	0.700	0.241	0.059	0.665	0.275	0.060	0.809	0.119	0.072
Iraq	IRQ	0.629	0.290	0.081	0.592	0.330	0.078	0.696	0.196	0.108
Israel incl. Palestine	ISR	0.563	0.353	0.084	0.373	0.544	0.083	0.831	0.086	0.084
Italy	ITA	0.387	0.596	0.017	0.330	0.652	0.017	0.528	0.438	0.033
Jamaica	JAM	0.874	0.004	0.123	0.859	0.004	0.137	0.951	0.002	0.047
Jordan	JOR	0.789	0.130	0.081	0.740	0.158	0.103	0.850	0.024	0.126
Japan	JPN	0.944	0.021	0.035	0.912	0.051	0.037	0.945	0.012	0.042
Kazakhstan	KAZ	0.553	0.298	0.149	0.547	0.304	0.149	0.577	0.279	0.144
Kenya	KEN	0.931	0.024	0.045	0.909	0.036	0.055	0.929	0.013	0.058
Kyrgyzstan	KGZ	0.616	0.349	0.035	0.590	0.372	0.038	0.706	0.249	0.045

Cambodia	KHM	0.860	0.031	0.109	0.834	0.061	0.105	0.867	0.027	0.106
Saint Kitts and Nevis	KNA	0.997	0.003	0.001	0.976	0.019	0.005	0.999	0.000	0.000
South Korea	KOR	0.886	0.036	0.079	0.834	0.088	0.078	0.878	0.026	0.097
Kuwait	KWT	0.819	0.110	0.071	0.817	0.119	0.065	0.916	0.016	0.067
Laos	LAO	0.825	0.110	0.065	0.831	0.105	0.064	0.831	0.096	0.073
Lebanon	LBN	0.705	0.145	0.151	0.723	0.154	0.123	0.759	0.110	0.132
Liberia	LBR	0.887	0.034	0.078	0.908	0.000	0.092	0.895	0.017	0.087
Libyan Arab Jamahiriy	LBY	0.599	0.239	0.162	0.625	0.252	0.122	0.770	0.104	0.126
Sri Lanka	LKA	0.913	0.008	0.079	0.921	0.006	0.073	0.904	0.011	0.085
Lesotho	LSO	0.883	0.018	0.100	0.886	0.019	0.096	0.887	0.013	0.100
Lithuania	LTU	0.353	0.603	0.044	0.347	0.609	0.044	0.333	0.619	0.049
Luxembourg	LUX	0.315	0.666	0.019	0.257	0.724	0.018	0.423	0.547	0.030
Latvia	LVA	0.370	0.600	0.031	0.373	0.594	0.033	0.400	0.573	0.027
Morocco	MAR	0.816	0.106	0.078	0.799	0.120	0.081	0.888	0.052	0.060
Moldova	MDA	0.391	0.550	0.059	0.350	0.590	0.060	0.426	0.519	0.055
Madagascar	MDG	0.815	0.045	0.140	0.828	0.042	0.130	0.725	0.044	0.231
Mexico	MEX	0.557	0.355	0.087	0.511	0.393	0.095	0.802	0.140	0.058
Macedonia	MKD	0.454	0.334	0.212	0.433	0.335	0.232	0.645	0.200	0.155
Mali	MLI	0.753	0.159	0.088	0.617	0.292	0.091	0.770	0.147	0.083
Malta	MLT	0.788	0.092	0.120	0.791	0.091	0.117	0.814	0.028	0.158
Myanmar	MMR	0.607	0.179	0.214	0.567	0.240	0.193	0.685	0.134	0.181
Mongolia	MNG	0.948	0.034	0.018	0.949	0.034	0.017	0.935	0.041	0.024
Mozambique	MOZ	0.814	0.118	0.068	0.795	0.150	0.055	0.789	0.131	0.080
Mauritania	MRT	0.757	0.148	0.094	0.783	0.123	0.093	0.771	0.134	0.095
Montserrat	MSR	0.794	0.110	0.096	0.621	0.285	0.094	0.872	0.034	0.094
Martinique	MTQ	0.899	0.029	0.072	0.894	0.028	0.078	0.904	0.029	0.067
Mauritius	MUS	0.998	0.000	0.002	0.992	0.000	0.008	0.999	0.000	0.001
Malawi	MWI	0.725	0.163	0.112	0.722	0.165	0.113	0.749	0.146	0.106
Malaysia	MYS	0.638	0.310	0.052	0.497	0.016	0.486	0.436	0.510	0.054
Namibia	NAM	0.845	0.002	0.153	0.866	0.002	0.132	0.816	0.001	0.184
New Caledonia	NCL	0.537	0.115	0.348	0.586	0.122	0.292	0.619	0.107	0.274
Niger	NER	0.747	0.142	0.112	0.745	0.143	0.111	0.761	0.128	0.111
Nigeria	NGA	0.607	0.207	0.186	0.625	0.195	0.181	0.561	0.228	0.211
Nicaragua	NIC	0.727	0.085	0.188	0.642	0.095	0.263	0.919	0.024	0.057
Netherlands	NLD	0.601	0.242	0.156	0.551	0.289	0.160	0.695	0.137	0.168
Norway	NOR	0.216	0.779	0.005	0.206	0.790	0.004	0.339	0.644	0.017
Nepal	NPL	0.793	0.083	0.124	0.793	0.080	0.126	0.831	0.050	0.119
New Zealand	NZL	0.387	0.567	0.046	0.341	0.612	0.046	0.687	0.256	0.057
Oman	OMN	0.889	0.036	0.075	0.864	0.053	0.083	0.894	0.025	0.081
Pakistan	PAK	0.819	0.133	0.048	0.652	0.285	0.062	0.921	0.057	0.023
Panama	PAN	0.747	0.140	0.112	0.719	0.209	0.072	0.870	0.050	0.080
Peru	PER	0.634	0.213	0.153	0.571	0.302	0.127	0.787	0.055	0.158
Philippines	PHL	0.724	0.190	0.085	0.685	0.243	0.073	0.821	0.097	0.083
Papua New Guinea	PNG	0.668	0.038	0.294	0.779	0.062	0.159	0.818	0.059	0.123
Poland	POL	0.405	0.518	0.077	0.348	0.577	0.074	0.515	0.390	0.095
Puerto Rico	PRI	0.930	0.025	0.045	0.927	0.022	0.052	0.929	0.025	0.046
North Korea	PRK	0.810	0.086	0.104	0.731	0.177	0.091	0.820	0.081	0.100

Portugal	PRT	0.474	0.494	0.031	0.425	0.538	0.037	0.767	0.168	0.066
Paraguay	PRY	0.417	0.505	0.078	0.101	0.843	0.056	0.352	0.535	0.112
Romania	ROM	0.326	0.611	0.064	0.301	0.630	0.070	0.418	0.523	0.059
Russian Federation	RUS	0.428	0.548	0.024	0.402	0.573	0.025	0.469	0.503	0.028
Rwanda	RWA	0.928	0.000	0.072	0.939	0.000	0.061	0.922	0.000	0.078
Saudi Arabia	SAU	0.916	0.059	0.025	0.911	0.063	0.026	0.921	0.036	0.043
Sudan	SDN	0.868	0.077	0.055	0.797	0.147	0.055	0.867	0.061	0.073
Senegal	SEN	0.749	0.045	0.205	0.704	0.091	0.205	0.834	0.031	0.136
Singapore	SGP	0.882	0.025	0.092	0.882	0.025	0.092	0.882	0.025	0.092
Solomon Islands	SLB	0.378	0.000	0.622	0.527	0.000	0.473	0.499	0.000	0.501
Sierra Leone	SLE	0.884	0.060	0.056	0.909	0.011	0.080	0.900	0.038	0.062
Somalia	SOM	0.310	0.643	0.047	0.247	0.710	0.043	0.602	0.335	0.063
Serbia and Montenegr	SRM	0.195	0.702	0.102	0.184	0.710	0.107	0.239	0.674	0.088
Saint Lucia	STL	0.827	0.060	0.113	0.819	0.065	0.116	0.814	0.066	0.121
Sao Tome and Principe	STP	0.313	0.073	0.614	0.423	0.000	0.577	0.521	0.067	0.412
Suriname	SUR	0.516	0.190	0.294	0.497	0.194	0.308	0.655	0.155	0.189
Slovakia	SVK	0.355	0.587	0.058	0.286	0.655	0.059	0.537	0.418	0.045
Slovenia	SVN	0.390	0.506	0.103	0.362	0.527	0.111	0.644	0.278	0.079
Sweden	SWE	0.257	0.701	0.042	0.252	0.709	0.039	0.217	0.715	0.069
Swaziland	SWZ	0.883	0.077	0.041	0.666	0.251	0.083	0.982	0.009	0.009
Syrian Arab Republic	SYR	0.600	0.300	0.100	0.490	0.393	0.116	0.620	0.292	0.088
Chad	TCD	0.807	0.084	0.109	0.697	0.203	0.101	0.804	0.087	0.109
Togo	TGO	0.677	0.166	0.157	0.514	0.356	0.130	0.721	0.107	0.171
Thailand	THA	0.654	0.149	0.197	0.637	0.228	0.135	0.803	0.058	0.139
Tajikistan	TJK	0.612	0.379	0.009	0.364	0.631	0.004	0.702	0.267	0.031
Turkmenistan	TKM	0.370	0.576	0.053	0.251	0.700	0.049	0.433	0.514	0.053
Trinidad and Tobago	TRI	0.998	0.000	0.002	0.995	0.000	0.005	0.999	0.000	0.001
Tunisia	TUN	0.798	0.125	0.077	0.791	0.128	0.081	0.860	0.065	0.075
Turkey	TUR	0.593	0.277	0.130	0.511	0.358	0.131	0.719	0.173	0.108
Tanzania	TZA	0.853	0.075	0.072	0.786	0.141	0.074	0.877	0.046	0.077
Uganda	UGA	0.683	0.219	0.098	0.702	0.210	0.088	0.672	0.231	0.097
Ukraine	UKR	0.384	0.578	0.039	0.356	0.603	0.040	0.358	0.614	0.028
Uruguay	URY	0.652	0.228	0.120	0.556	0.338	0.105	0.684	0.198	0.118
United States	USA	0.270	0.667	0.063	0.144	0.795	0.061	0.372	0.570	0.058
Uzbekistan	UZB	0.624	0.369	0.007	0.362	0.634	0.005	0.693	0.288	0.019
Saint Vincent/Grenadi	VCT	0.830	0.113	0.056	0.809	0.134	0.057	0.870	0.078	0.053
Venezuela	VEN	0.621	0.244	0.136	0.531	0.346	0.124	0.786	0.066	0.147
Vietnam	VNM	0.777	0.093	0.130	0.787	0.089	0.125	0.767	0.085	0.148
Vanuatu	VUT	0.447	0.008	0.546	0.474	0.011	0.515	0.486	0.011	0.502
Yemen	YEM	0.879	0.087	0.034	0.820	0.148	0.032	0.914	0.044	0.042
South Africa	ZAF	0.665	0.285	0.049	0.589	0.363	0.047	0.844	0.105	0.052
Democratic Republic o	ZAR	0.941	0.035	0.024	0.953	0.018	0.029	0.937	0.034	0.029
Zambia	ZMB	0.902	0.062	0.036	0.798	0.170	0.032	0.911	0.043	0.046
Zimbabwe	ZWE	0.726	0.228	0.046	0.556	0.395	0.049	0.867	0.105	0.028