The Energy Paradox: Energy Use And Happiness*

Draft: Sunday 19th August, 2018

SUPPLEMENTARY ONLINE MATERIAL TODO:print outcompare lists 2017 and 2018 and first graph with past version in paper and interpret interrelationships among vars as per reviewer;drop that one inksacpe graph where there is todo below; fix captions

Contents

1 Country-level

Table S1: Key variables for each country."

"Country Code (ISO 2 digits)"	"Country Name"	"happiness (WDH)"	"energy use, pc"	"PCGDP"	"co2 emissions, pc"	"female life expectancy" ""
AD	Andorra	6.8		43,885	7.0	
AE	United Arab Emirates	7.3	9,950	54,559	26.8	77
AF	Afghanistan	4.1		424	0.1	58
AL	Albania	4.6	675	3,044	1.3	79
AM	Armenia	5.0	780	2,427	1.4	76
AO	Angola	4.3	505	2,803	1.0	49
AR	Argentina	7.3	1,720	8,501	4.0	78
AT	Austria	7.4	3,910	44,510	8.4	82
AU	Australia	7.7	5,680	48,066	17.4	83
AZ	Azerbaijan	5.3	1,467	3,251	3.8	72
BA	Bosnia and Herzegovina	5.8	1,307	3,765	4.3	78
BD	Bangladesh	5.3	162	603	0.3	68
BE	Belgium	7.3	5,489	42,572	10.4	82
BF	Burkina Faso	4.4		498	0.1	54
BG	Bulgaria	4.4	2,500	5,530	6.1	76
BI	Burundi	2.9		212	0.0	54
BJ	Benin	3.0	327	715	0.4	58
BO	Bolivia	6.3	566	1,732	1.4	65
BR	Brazil	7.5	1,146	9,472	1.9	76
BW	Botswana	4.7	1,020	5,540	2.2	56
BY	Belarus	5.2	2,727	3,957	5.9	75
BZ	Belize	6.6	579	4,217	1.5	72
CA	Canada	7.8	8,190	46,270	16.7	83
CD	Congo, Dem. Rep.	4.4	296	278	0.0	55
CF	Central African Republic	4.6		427	0.1	47
CG	Congo, Rep.	3.7	309	2,601	0.3	55
CH	Switzerland	8.0	3,528	70,324	5.5	84
CI	Cote d'Ivoire	4.4	469	1,256	0.4	49
CL	Chile	6.7	1,729	11,140	3.9	82
CM	Cameroon	3.9	372	1,121	0.2	53
CN	China	6.3	1,319	2,772	4.2	75
CO	Colombia	7.7	634	5,340	1.4	76
CR	Costa Rica	8.5	888	7,055	1.6	80

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*We thank anonymous reviewer for pointing that the relation between energy use and happiness is very similar to the relation between economic growth and happiness (i.e., the Happiness Paradox).

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"Country Code (ISO 2 digits)"	"Country Name"	"happiness (WDH)"	"energy use, pc"	"PCGDP"	"co2 emissions, pc"	"female life expectancy"	""
CY	Cyprus	7.1	2,250	30,090	7.4	81	
CZ	Czech Republic	6.5	4,281	17,574	11.7	79	
DE	Germany	7.1	4,072	39,571	9.8	82	
DJ	Djibouti	5.7	178	1,161	0.5	60	
DK	Denmark	8.3	3,560	58,061	9.4	80	
DO	Dominican Republic	7.5	774	4,413	2.2	75	
DZ	Algeria	5.4	982	4,068	3.0	74	
EC	Ecuador	6.4	705	4,162	2.1	77	
EE	Estonia	6.0	3,764	13,790	12.0	78	
EG	Egypt, Arab Rep.	5.7	771	2,217	2.2	72	
ES	Spain	7.2	3,098	30,650	7.5	84	
ET	Ethiopia	4.2	482	238	0.1	57	
FI	Finland	7.9	6,720	44,691	11.5	82	
FR	France	6.6	4,180	40,050	5.9	84	
GB	United Kingdom	7.2	3,592	38,376	8.8	81	
GE	Georgia	4.3	686	2,119	1.2	77	
GH	Ghana	5.2	295	1,095	0.4	59	
GN	Guinea	4.5		435	0.2	53	
GR	Greece	6.4	2,669	27,165	8.7	82	
GT	Guatemala	7.2	602	2,659	0.9	73	
GY	Guyana	6.5	664	2,567	2.1	68	
HK	Hong Kong SAR, China	6.6	1,993	26,963	6.1	85	
HN	Honduras	7.0	570	1,890	1.0	74	
HR	Croatia	6.0	2,121	12,752	5.0	79	
HT	Haiti	3.9	312	716	0.2	61	
HU	Hungary	5.5	2,586	12,396	5.5	77	
ID	Indonesia	6.3	781	2,513	1.5	69	
IE	Ireland	7.6	3,486	49,200	10.4	81	
IL	Israel	7.0	2,895	27,646	9.0	82	
IN	India	5.5	458	971	1.1	65	
IQ	Iraq	4.7	1,020	3,954	3.5	71	
IR	Iran, Islamic Rep.	5.9	2,351	5,183	6.8	73	
IS	Iceland	8.2	12,501	41,290	7.3	83	
IT	Italy	6.7	3,091	36,994	7.9	84	
JM	Jamaica	6.7	1,398	4,987	3.8	76	
JO	Jordan	5.9	1,138	3,577	3.6	74	
JP	Japan	6.5	3,978	43,598	9.5	86	
KE	Kenya	3.7	453	887	0.3	54	
KG	Kyrgyz Republic	5.5	508	759	1.1	72	
KH	Cambodia	4.9	282	592	0.2	65	
KR	Korea, Rep.	6.0	4,344	18,280	9.9	82	
KW	Kuwait	6.6	10,525	43,489	29.6	75	
KZ	Kazakhstan	6.1	3,371	6,890	10.8	72	
LA	Lao PDR	6.2		844	0.2	63	
LB	Lebanon	4.7	1,374	6,987	4.3	78	
LK	Sri Lanka	5.1	453	2,154	0.6	77	
LR	Liberia	4.3		323	0.2	56	
LT	Lithuania	5.5	2,649	10,090	4.1	78	
LU	Luxembourg	7.7	8,574	99,962	22.2	82	
LV	Latvia	5.4	1,947	10,256	3.3	77	
MA	Morocco	5.4	456	2,370	1.4	72	
MD	Moldova	4.9	906	1,305	1.2	72	
ME	Montenegro	5.2	1,860	5,604	3.7	76	
MG	Madagascar	3.7		421	0.1	62	
MK	Macedonia, FYR	4.7	1,368	3,820	5.3	76	
ML	Mali	4.7		645	0.1	52	
MN	Mongolia	5.7	1,177	2,055	3.8	69	
MR	Mauritania	4.9		1,091	0.5	62	
MT	Malta	7.1	2,005	19,496	6.2	82	
MW	Malawi	6.2		393	0.1	49	
MX	Mexico	7.9	1,549	8,670	3.9	78	
MY	Malaysia	6.5	2,418	7,847	6.4	76	
MZ	Mozambique	3.8	403	331	0.1	52	
NA	Namibia	5.2	627	4,381	1.1	59	
NE	Niger	3.8	130	335	0.1	54	
NG	Nigeria	5.7	734	1,729	0.7	49	
NI	Nicaragua	7.1	516	1,421	0.8	75	
NL	Netherlands	7.6	4,895	48,434	10.5	82	
NO	Norway	7.9	5,972	86,843	9.7	82	
NP	Nepal	5.3	354	505	0.1	66	
NZ	New Zealand	7.5	4,197	32,702	8.3	82	
PA	Panama	7.8	877	6,281	2.1	79	
PE	Peru	6.2	481	3,884	1.3	75	
PH	Philippines	5.9	459	1,807	0.9	70	
PK	Pakistan	5.0	488	949	0.9	65	
PL	Poland	6.4	2,424	10,050	8.0	79	
PS	West Bank and Gaza	4.9		2,262	0.5	73	
PT	Portugal	5.7	2,408	22,063	5.8	81	
PY	Paraguay	6.8	712	2,756	0.7	73	
QA	Qatar	6.8	19,361	64,738	58.0	78	
RO	Romania	5.7	1,791	6,773	4.5	76	
RS	Serbia	5.4	2,166	4,486	6.9	76	
RU	Russian Federation	5.5	4,505	8,714	11.2	73	
RW	Rwanda	4.3		425	0.1	59	
SA	Saudi Arabia	6.5	5,145	16,212	15.3	75	
SD	Sudan	5.0	381	1,181	0.3	62	
SE	Sweden	7.8	5,532	48,956	5.6	83	
SG	Singapore	6.9	5,278	38,239	8.3	82	
SI	Slovenia	6.9	3,532	21,764	7.8	81	
SK	Slovak Republic	5.9	3,392	13,221	7.1	78	
SL	Sierra Leone	3.5		386	0.1	44	

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"Country Code (ISO 2 digits)"	"Country Name"	"happiness (WDH)"	"energy use, pc"	"PCGDP"	"co2 emissions, pc"	"female life expectancy"	""
SN	Senegal	4.5	254	937	0.4	62	
SV	El Salvador	6.7	735	3,333	1.1	75	
SY	Syrian Arab Republic	5.9	1,046		3.0	76	
TD	Chad	5.4		687	0.0	49	
TG	Togo	2.6	432	495	0.3	55	
TH	Thailand	6.6	1,432	4,198	3.6	76	
TJ	Tajikistan	5.1	338	578	0.4	70	
TM	Turkmenistan	7.2	3,912	3,010	9.9	69	
TN	Tunisia	5.9	832	3,483	2.2	77	
TR	Turkey	5.6	1,263	8,793	3.6	76	
TT	Trinidad and Tobago	7.0	11,620	13,646	27.0	73	
TZ	Tanzania	2.8	430	596	0.1	56	
UA	Ukraine	5.0	2,871	2,604	6.8	74	
UG	Uganda	4.8		496	0.1	52	
US	United States	7.4	7,725	47,470	19.2	80	
UY	Uruguay	6.7	939	9,240	1.8	79	
UZ	Uzbekistan	6.0	1,901	1,007	4.6	71	
VE	Venezuela, RB	7.5	2,177	12,397	6.5	77	
VN	Vietnam	6.1	483	1,015	1.1	79	
YE	Yemen, Rep.	4.8	308	1,198	0.9	63	
ZA	South Africa	5.8	2,652	6,690	9.0	55	
ZM	Zambia	5.0	597	1,109	0.2	50	
ZW	Zimbabwe	3.0	736	885	0.8	42	

Table S2: Key variables for each country."

"Country Code (ISO 2 digits)"	"Country Name"	"happiness (WDH)"	"energy use, pc"	"PCGDP"	"co2 emissions, pc"	"female life expectancy"	""
AD	Andorra	6.8		45,030	7.1		
AE	United Arab Emirates	7.3	9,742	54,113	26.3	77	
AF	Afghanistan	4.1		413	0.1	59	
AL	Albania	4.6	675	3,127	1.3	78	
AM	Armenia	5.0	790	2,462	1.4	75	
AO	Angola	4.3	462	2,484	0.9	55	
AR	Argentina	7.3	1,720	8,501	4.0	78	
AT	Austria	7.4	3,910	44,652	8.4	82	
AU	Australia	7.7	5,680	48,171	17.4	83	
AZ	Azerbaijan	5.3	1,467	3,251	3.8	72	
BA	Bosnia and Herzegovina	5.8	1,325	3,820	4.3	78	
BD	Bangladesh	5.3	162	601	0.3	68	
BE	Belgium	7.3	5,489	42,509	10.4	82	
BF	Burkina Faso	4.4		501	0.1	54	
BG	Bulgaria	4.4	2,500	5,428	6.1	76	
BI	Burundi	2.9		226	0.0	54	
BJ	Benin	3.0	335	731	0.4	59	
BO	Bolivia	6.3	566	1,732	1.3	65	
BR	Brazil	7.5	1,154	9,540	1.9	76	
BW	Botswana	4.7	1,027	5,576	2.2	54	
BY	Belarus	5.2	2,727	4,099	5.9	75	
BZ	Belize	6.6	579	4,216	1.6	72	
CA	Canada	7.8	8,190	46,272	16.9	83	
CD	Congo, Dem. Rep.	4.4	303	299	0.0	55	
CF	Central African Republic	4.6		421	0.1	46	
CG	Congo, Rep.	3.7	291	2,458	0.3	56	
CH	Switzerland	8.0	3,528	70,752	5.5	84	
CI	Cote d'Ivoire	4.4	464	1,242	0.4	49	
CL	Chile	6.7	1,724	11,011	3.9	80	
CM	Cameroon	3.9	387	1,249	0.3	53	
CN	China	6.3	1,319	2,772	4.3	75	
CO	Colombia	7.7	634	5,340	1.4	76	
CR	Costa Rica	8.5	888	7,055	1.6	80	
CY	Cyprus	7.1	2,252	30,090	7.4	81	
CZ	Czech Republic	6.5	4,281	17,605	11.7	79	
DE	Germany	7.1	4,072	39,569	9.8	82	
DJ	Djibouti	5.7	177		0.5	60	
DK	Denmark	8.3	3,560	58,061	9.4	80	
DO	Dominican Republic	7.5	774	4,481	2.2	75	
DZ	Algeria	5.4	982	4,065	3.0	74	
EC	Ecuador	6.4	705	4,162	2.1	77	
EE	Estonia	6.0	3,764	13,789	12.0	78	
EG	Egypt, Arab Rep.	5.7	752	2,164	2.1	72	
ES	Spain	7.2	3,098	30,648	7.5	84	
ET	Ethiopia	4.2	482	238	0.1	57	
FI	Finland	7.9	6,720	44,688	11.5	82	
FR	France	6.6	4,180	39,984	5.9	84	
GB	United Kingdom	7.2	3,592	38,623	8.8	81	
GE	Georgia	4.3	686	2,117	1.2	76	
GH	Ghana	5.2	293	1,087	0.4	59	
GN	Guinea	4.5		618	0.2	54	
GR	Greece	6.4	2,669	27,164	8.7	82	
GT	Guatemala	7.2	605	2,675	0.9	73	
GY	Guyana	6.5	658	2,565	2.1	68	
HK	Hong Kong SAR, China	6.6	1,993	26,963	6.1	85	
HN	Honduras	7.0	533	1,781	1.0	74	
HR	Croatia	6.0	2,121	12,748	4.9	79	
HT	Haiti	3.9	312	716	0.2	61	

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"Country Code (ISO 2 digits)"	"Country Name"	"happiness (WDH)"	"energy use, pc"	"PCGDP"	"co2 emissions, pc"	"female life expectancy"	""
HU	Hungary	5.5	2,586	12,466	5.5	77	
ID	Indonesia	6.3	779	2,508	1.5	69	
IE	Ireland	7.6	3,486	48,906	10.4	81	
IL	Israel	7.0	2,895	27,962	9.0	82	
IN	India	5.5	458	964	1.1	65	
IQ	Iraq	4.7	1,021	3,958	3.5	71	
IR	Iran, Islamic Rep.	5.9	2,341	5,594	6.6	73	
IS	Iceland	8.2	12,501	41,289	7.3	83	
IT	Italy	6.7	3,091	36,992	7.9	84	
JM	Jamaica	6.7	1,364	4,867	3.7	76	
JO	Jordan	5.9	1,059	3,330	3.3	74	
JP	Japan	6.5	3,978	43,598	9.5	86	
KE	Kenya	3.7	445	870	0.3	58	
KG	Kyrgyz Republic	5.5	508	759	1.1	72	
KH	Cambodia	4.9	283	594	0.2	65	
KR	Korea, Rep.	6.0	4,339	18,258	9.9	81	
KW	Kuwait	6.6	10,366	42,898	29.2	75	
KZ	Kazakhstan	6.1	3,371	6,890	11.4	72	
LA	Lao PDR	6.2		844	0.2	63	
LB	Lebanon	4.7	1,374	7,005	4.3	78	
LK	Sri Lanka	5.1	450	2,139	0.6	77	
LR	Liberia	4.3		324	0.2	56	
LT	Lithuania	5.5	2,649	10,087	4.1	78	
LU	Luxembourg	7.7	8,574	101,171	22.2	82	
LV	Latvia	5.4	1,947	10,269	3.3	77	
MA	Morocco	5.4	454	2,362	1.4	73	
MD	Moldova	4.9	906	1,305	1.2	72	
ME	Montenegro	5.2	1,860	5,714	3.7	76	
MG	Madagascar	3.7		420	0.1	62	
MK	Macedonia, FYR	4.7	1,357	3,788	5.2	76	
ML	Mali	4.7		649	0.1	52	
MN	Mongolia	5.7	1,177	2,055	3.8	69	
MR	Mauritania	4.9		1,097	0.5	62	
MT	Malta	7.1	2,005	19,496	6.2	82	
MW	Malawi	6.2		385	0.1	52	
MX	Mexico	7.9	1,567	9,014	4.2	78	
MY	Malaysia	6.5	2,432	7,850	6.4	76	
MZ	Mozambique	3.8	406	334	0.1	53	
NA	Namibia	5.2	627	4,382	1.1	57	
NE	Niger	3.8	129	332	0.1	54	
NG	Nigeria	5.7	737	1,746	0.7	49	
NI	Nicaragua	7.1	516	1,413	0.8	75	
NL	Netherlands	7.6	4,895	48,431	11.0	82	
NO	Norway	7.9	5,972	86,844	9.7	82	
NP	Nepal	5.3	353	503	0.1	66	
NZ	New Zealand	7.5	4,197	32,122	8.3	82	
PA	Panama	7.8	874	6,336	2.1	79	
PE	Peru	6.2	481	3,885	1.3	75	
PH	Philippines	5.9	458	1,803	0.9	71	
PK	Pakistan	5.0	487	947	0.9	65	
PL	Poland	6.4	2,424	10,050	8.0	79	
PS	West Bank and Gaza	4.9		2,259	0.5	73	
PT	Portugal	5.7	2,408	22,062	5.8	81	
PY	Paraguay	6.8	712	2,756	0.7	73	
QA	Qatar	6.8	19,050	63,770	57.1	78	
RO	Romania	5.7	1,791	6,794	4.5	76	
RS	Serbia	5.4	2,166	4,486	6.9	76	
RU	Russian Federation	5.5	4,505	8,714	11.2	73	
RW	Rwanda	4.3		426	0.1	56	
SA	Saudi Arabia	6.5	5,315	18,565	15.8	75	
SD	Sudan	5.0	381	1,215	0.3	62	
SE	Sweden	7.8	5,532	48,956	5.6	83	
SG	Singapore	6.9	5,278	38,239	8.7	82	
SI	Slovenia	6.9	3,532	21,762	7.8	81	
SK	Slovak Republic	5.9	3,392	13,220	7.1	78	
SL	Sierra Leone	3.5		346	0.1	44	
SN	Senegal	4.5	254	941	0.4	62	
SV	El Salvador	6.7	725	2,829	1.1	75	
SY	Syrian Arab Republic	5.9	1,037		3.0	76	
TD	Chad	5.4		687	0.0	49	
TG	Togo	2.6	424	486	0.3	55	
TH	Thailand	6.6	1,434	4,204	3.6	76	
TJ	Tajikistan	5.1	336	574	0.4	71	
TM	Turkmenistan	7.2	3,902	3,002	9.8	69	
TN	Tunisia	5.9	832	3,483	2.2	77	
TR	Turkey	5.6	1,262	9,237	3.6	76	
TT	Trinidad and Tobago	7.0	11,620	13,646	27.7	73	
TZ	Tanzania	2.8	426	591	0.1	57	
UA	Ukraine	5.0	2,871	2,604	6.8	74	
UG	Uganda	4.8		487	0.1	54	
US	United States	7.4	7,725	47,470	19.2	80	
UY	Uruguay	6.7	939	9,240	1.8	79	
UZ	Uzbekistan	6.0	1,901	1,007	4.7	71	
VE	Venezuela, RB	7.5	2,176	12,371	6.5	77	
VN	Vietnam	6.1	472	991	1.1	79	
YE	Yemen, Rep.	4.8	307	1,194	0.9	63	
ZA	South Africa	5.8	2,595	6,544	8.8	57	
ZM	Zambia	5.0	598	1,111	0.2	51	
ZW	Zimbabwe	3.0	741	904	0.8	47	

Figure S4 shows Gross Domestic Product (GDP) per capita against energy use per capita. It confirms earlier argument that there is some minimum threshold for energy consumption below which, more increase is desirable. That is developing countries should increase their energy consumption. Here, it is clear that at low levels, say below 2,000, no country reaches 20k in gdp, and at higher levels of energy use, there is wide variability in gdp. On the other hand, at low levels of GDP, there is quite a bit of variability in energy use. While moderate or even high happiness is possible at low level of energy consumption (figure **??**), moderate wealth is not possible, and moderate wealth in turn is important for happiness.

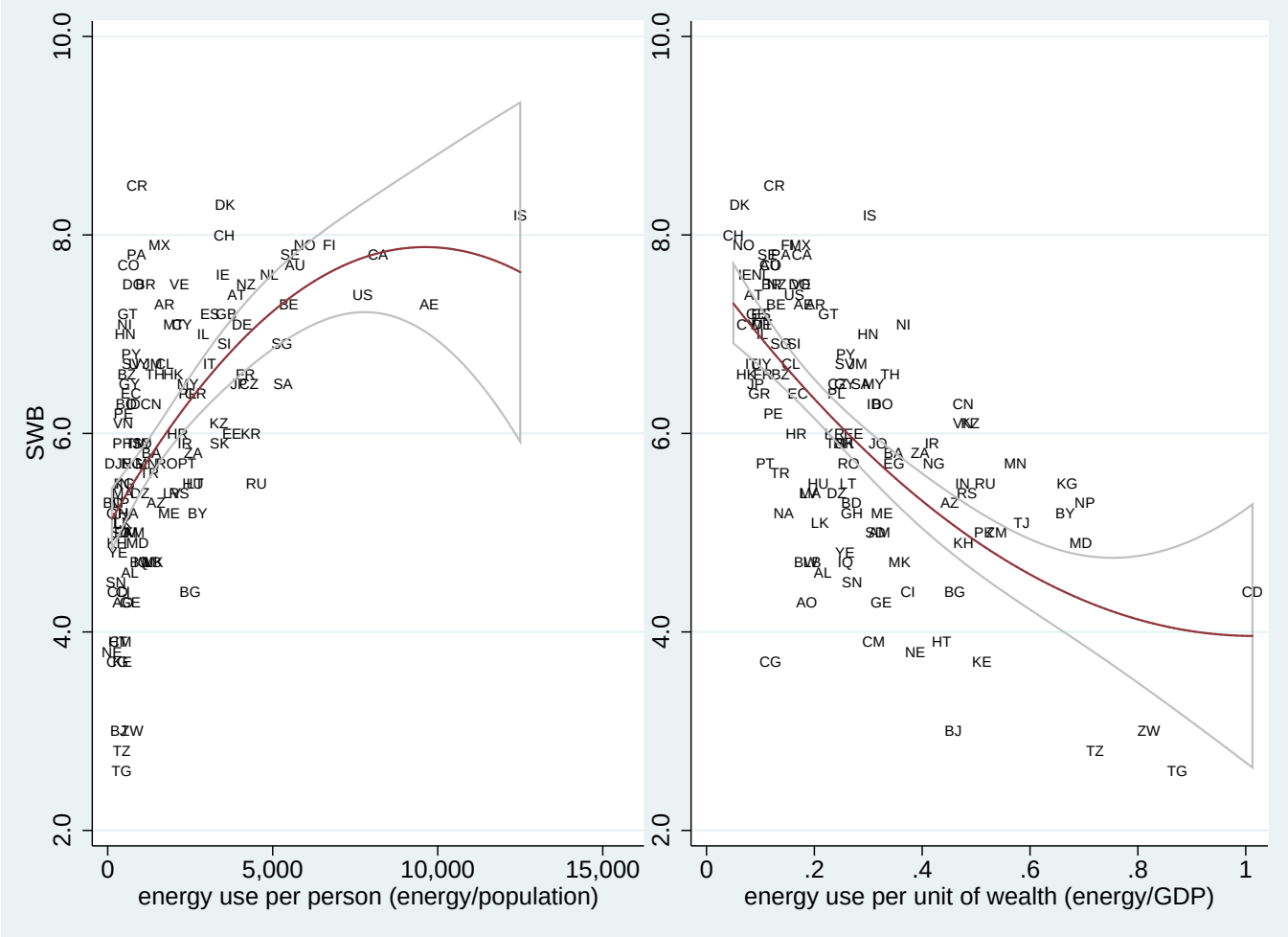

Figure S1: Repeated figure from the body

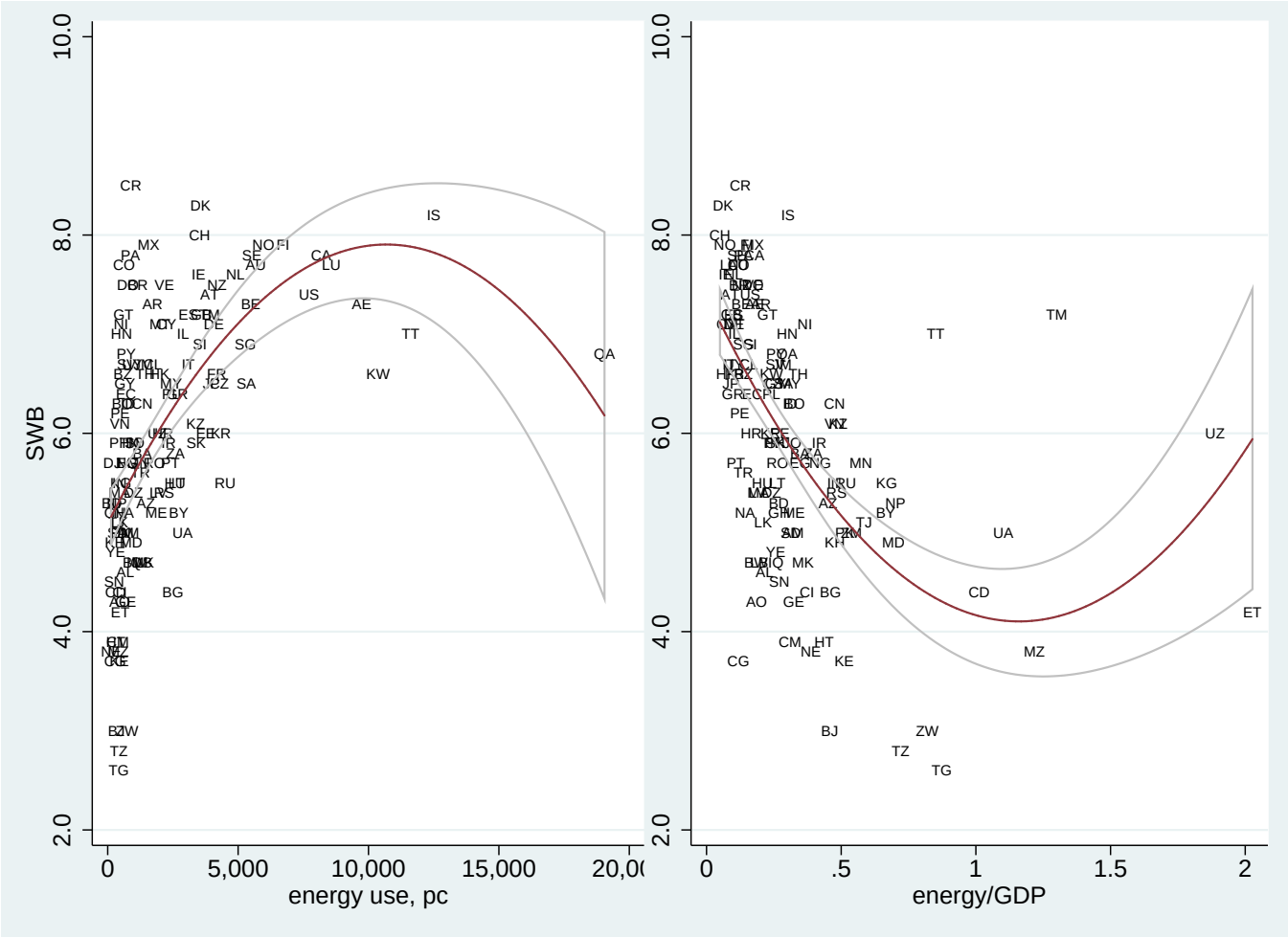

Figure S2: Figure 1 from text without dropping outliers.

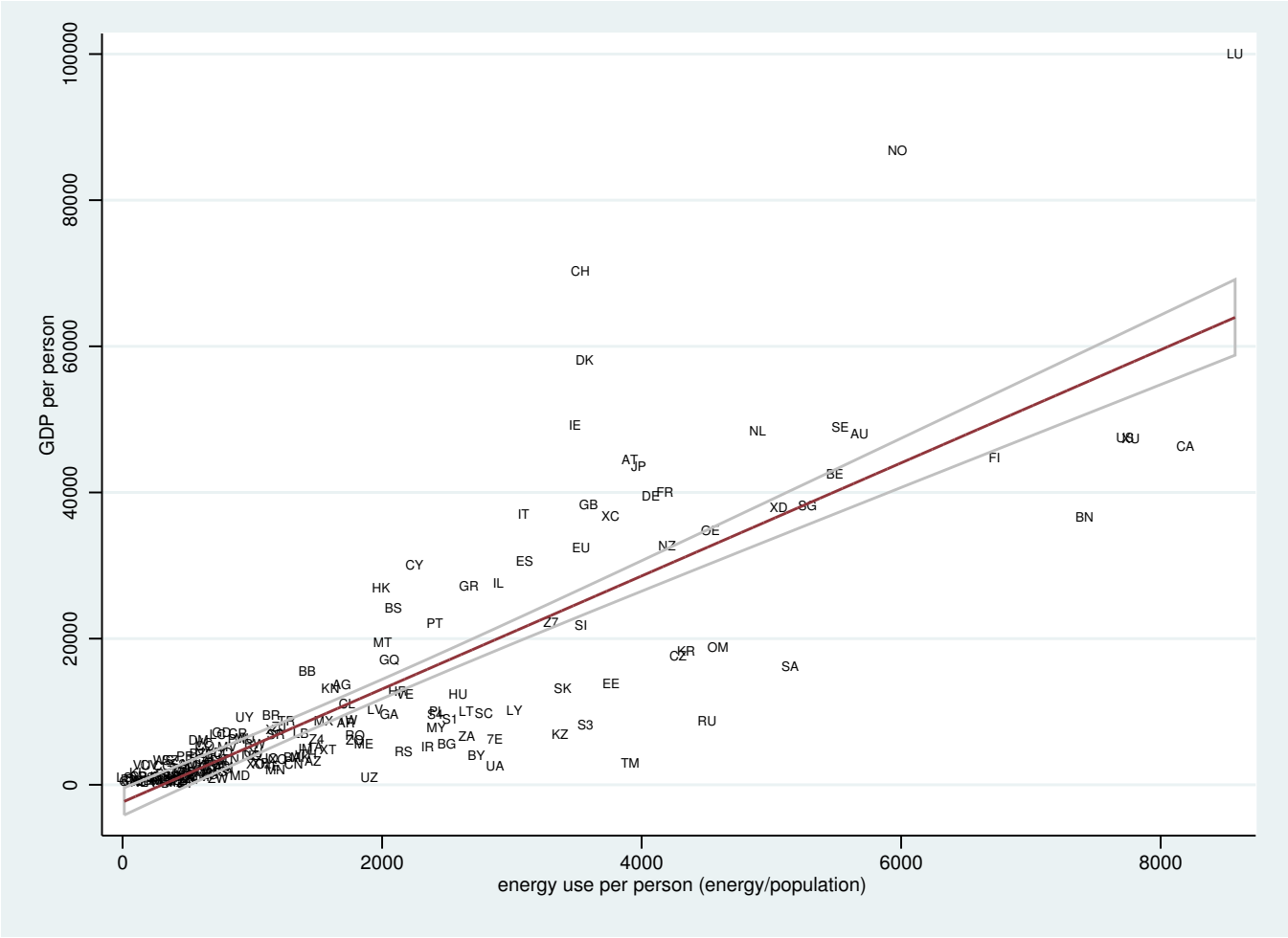
GDP per person
energy use per person (energy/population)
0
20000
40000
60000
80000
100000
0
2000
4000
6000
8000
LU
NO
CH
DK
IE
NL
SE
AU
US
CA
FI
AT
JP
BE
DE
FR
GB
XC
XD
9G
IT
BN
CE
NZ
EU
ES
CY
HK
GR
IL
BS
PT
Z7
SI
MT
GQ
CZ
KR
OM
SA
BB
KN
AG
SK
EE
HU
LT
SC
LY
UY
BR
GA
LV
CL
MY
S3
RU
KZ
7E
ZA
BG
IR
RS
BY
UA
TM
UZ
MD
ME

Figure S3

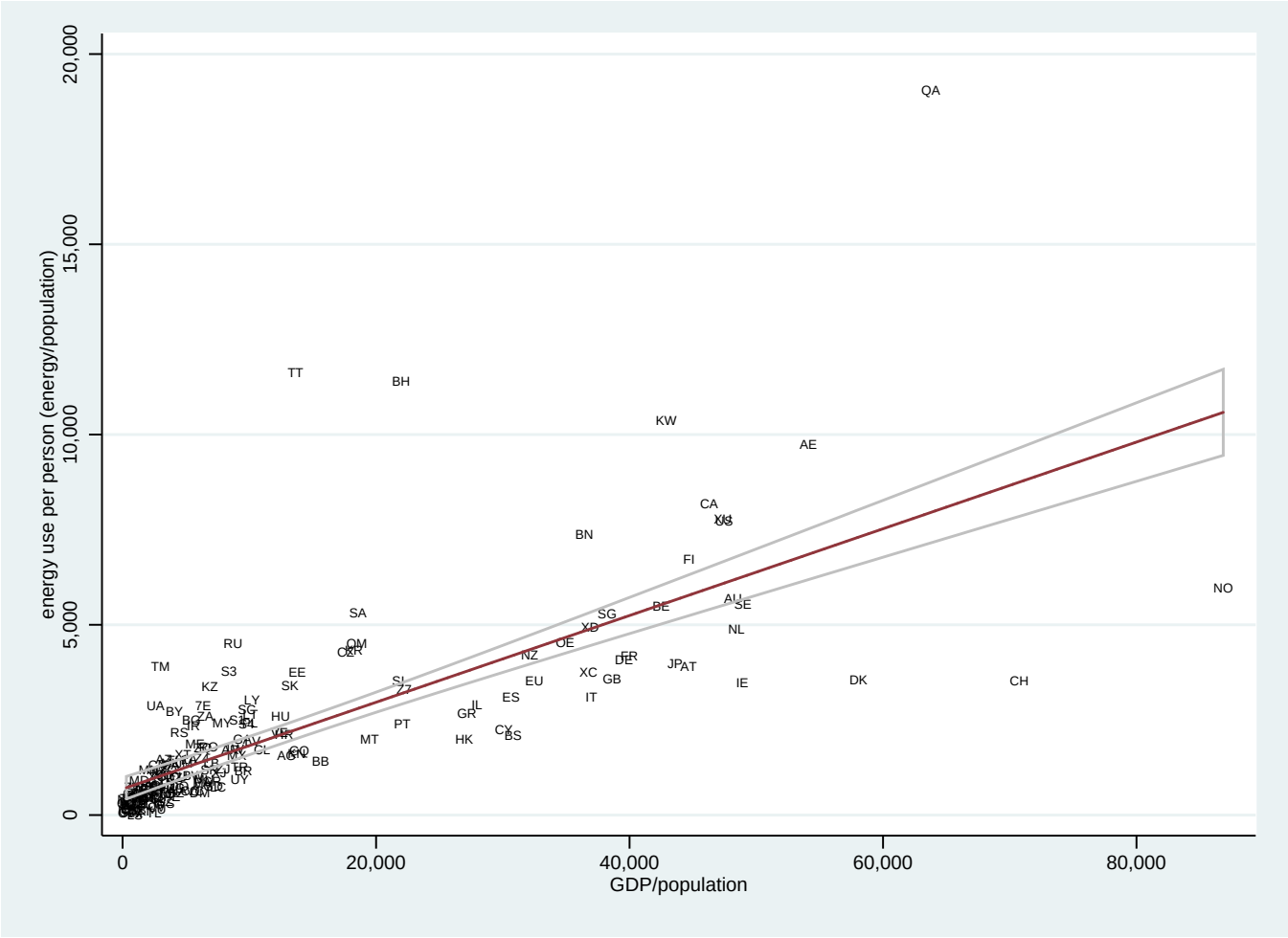

Figure S4: energy use per capita against GDP (GDP) per capita. Linear fit shown with 95% confidence intervals. Energy use refers to use of primary energy before transformation to other end-use fuels. All data were averaged over 2000-2009 period. Several outliers were dropped: countries with gdp above 50,000: ??? and ene¿10k

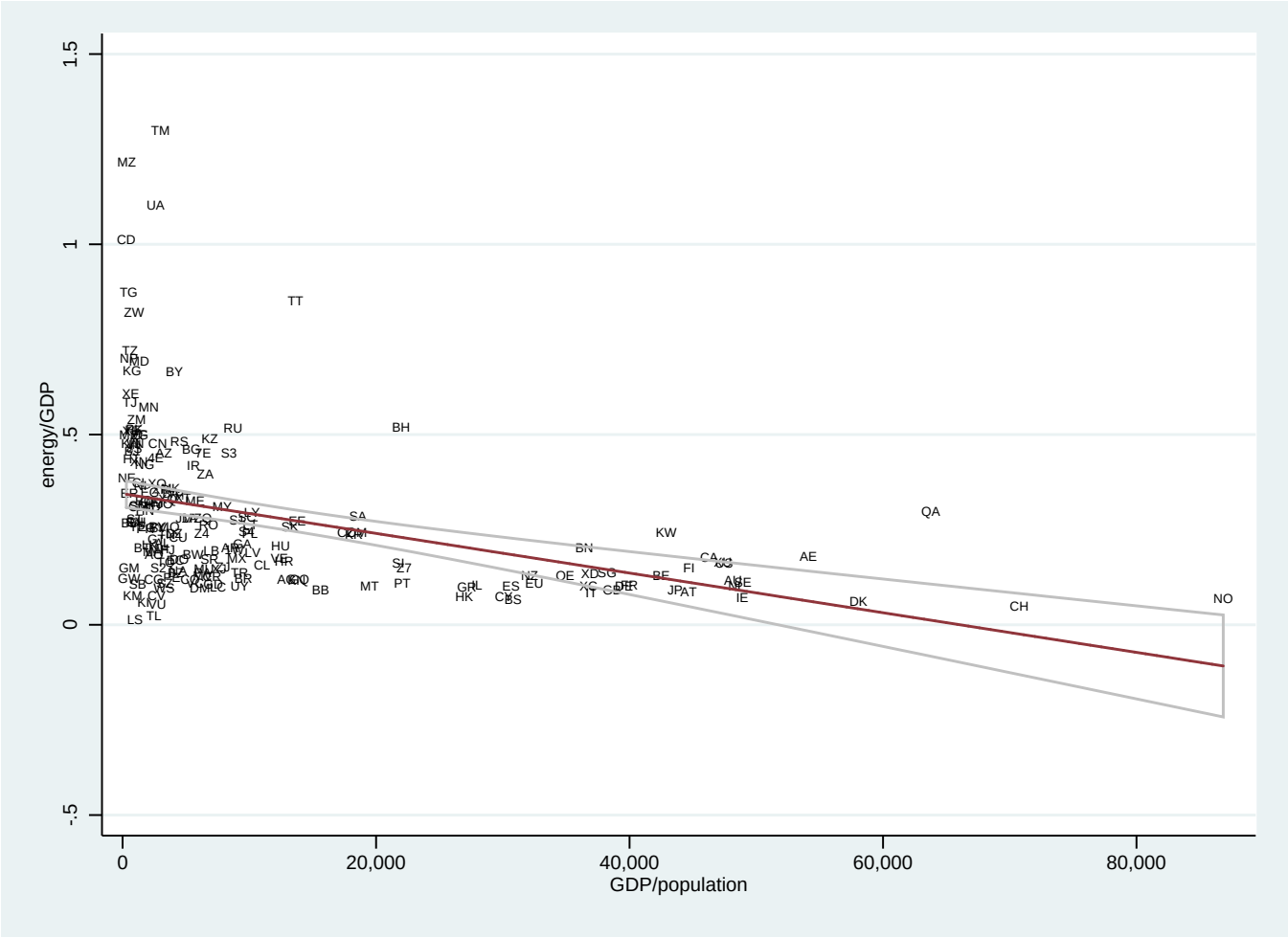

Figure S5: gdpCapeneGdp

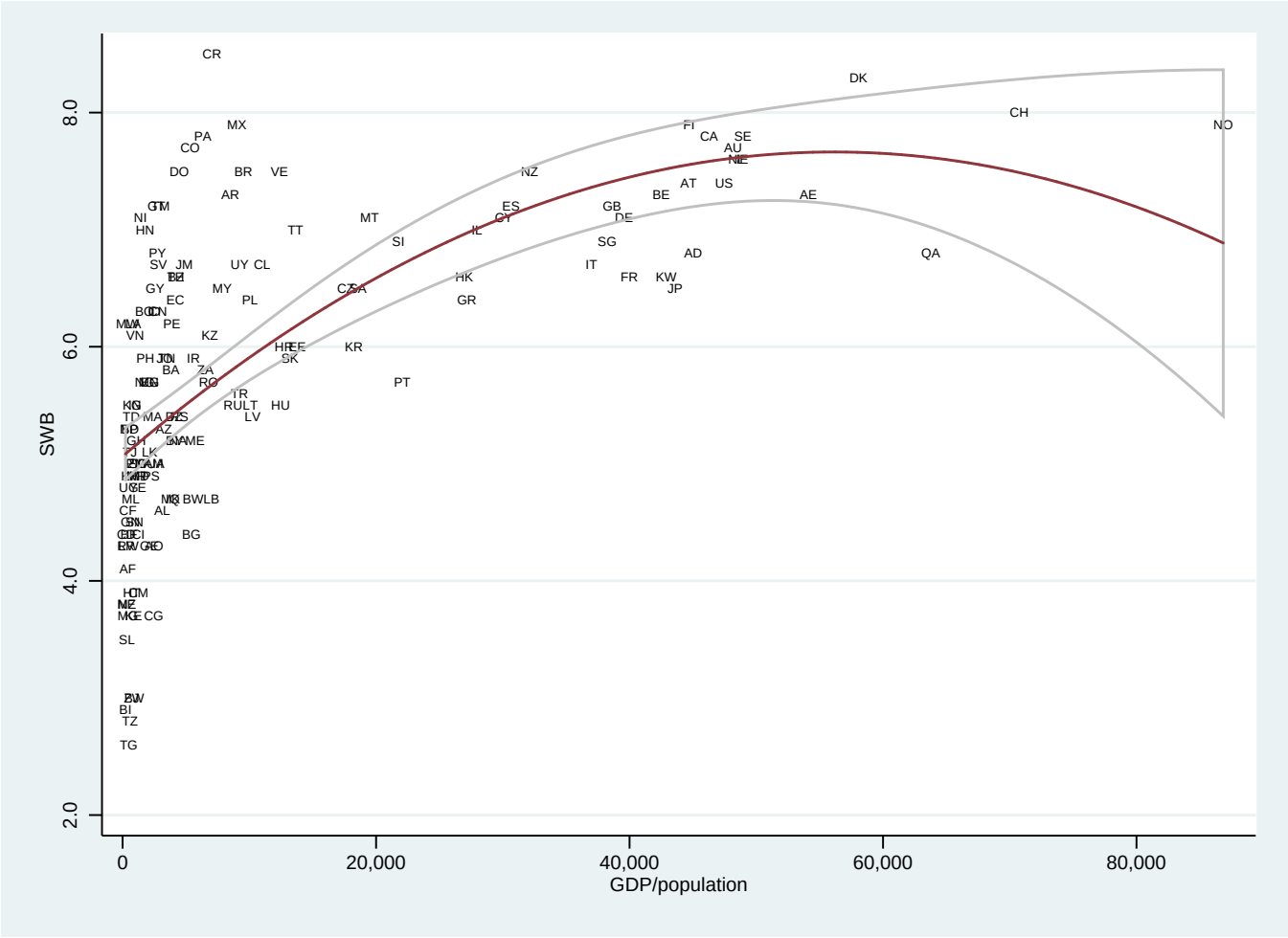

Figure S6: swbGDP

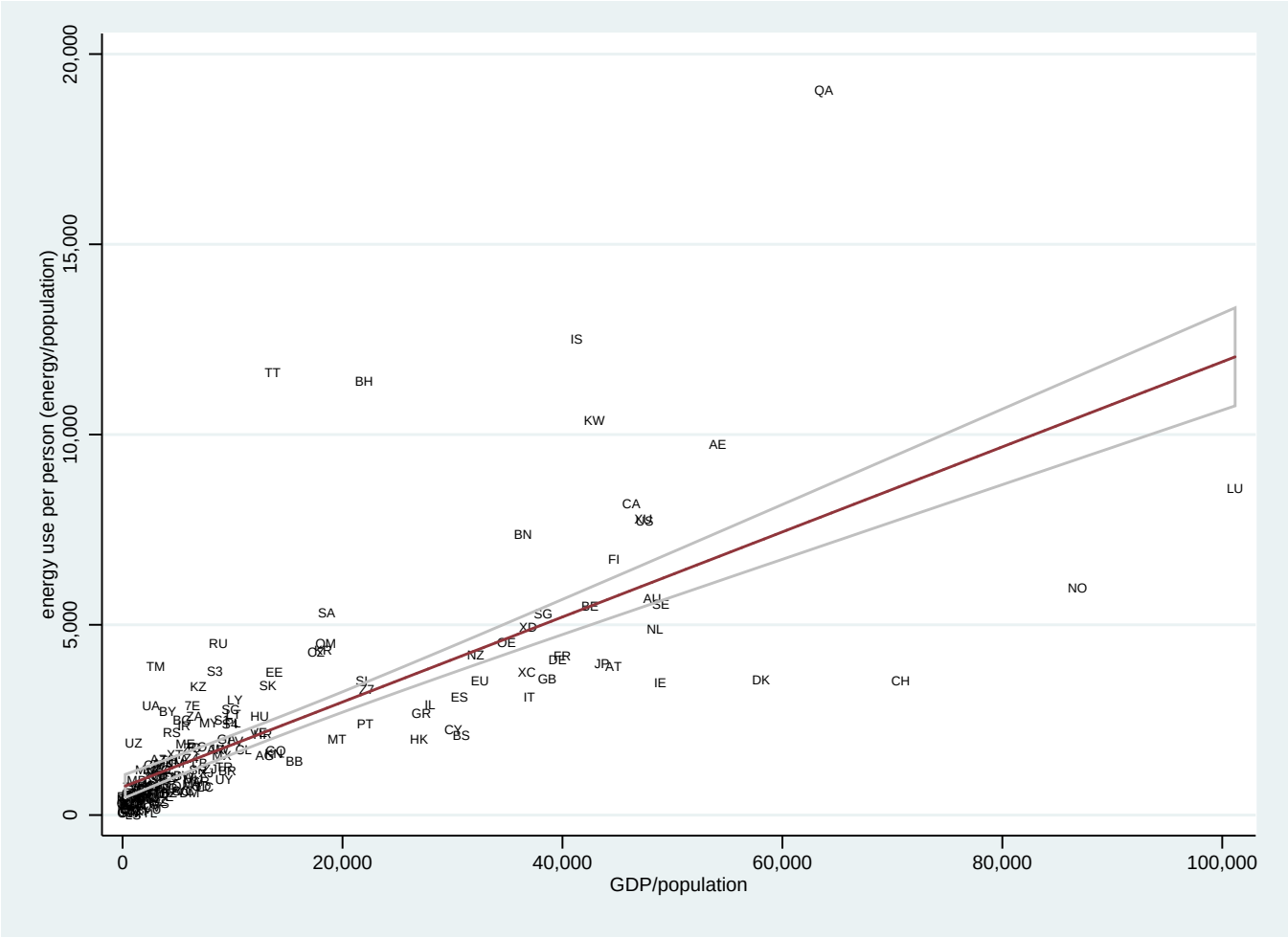

Figure S7: gdpEneB

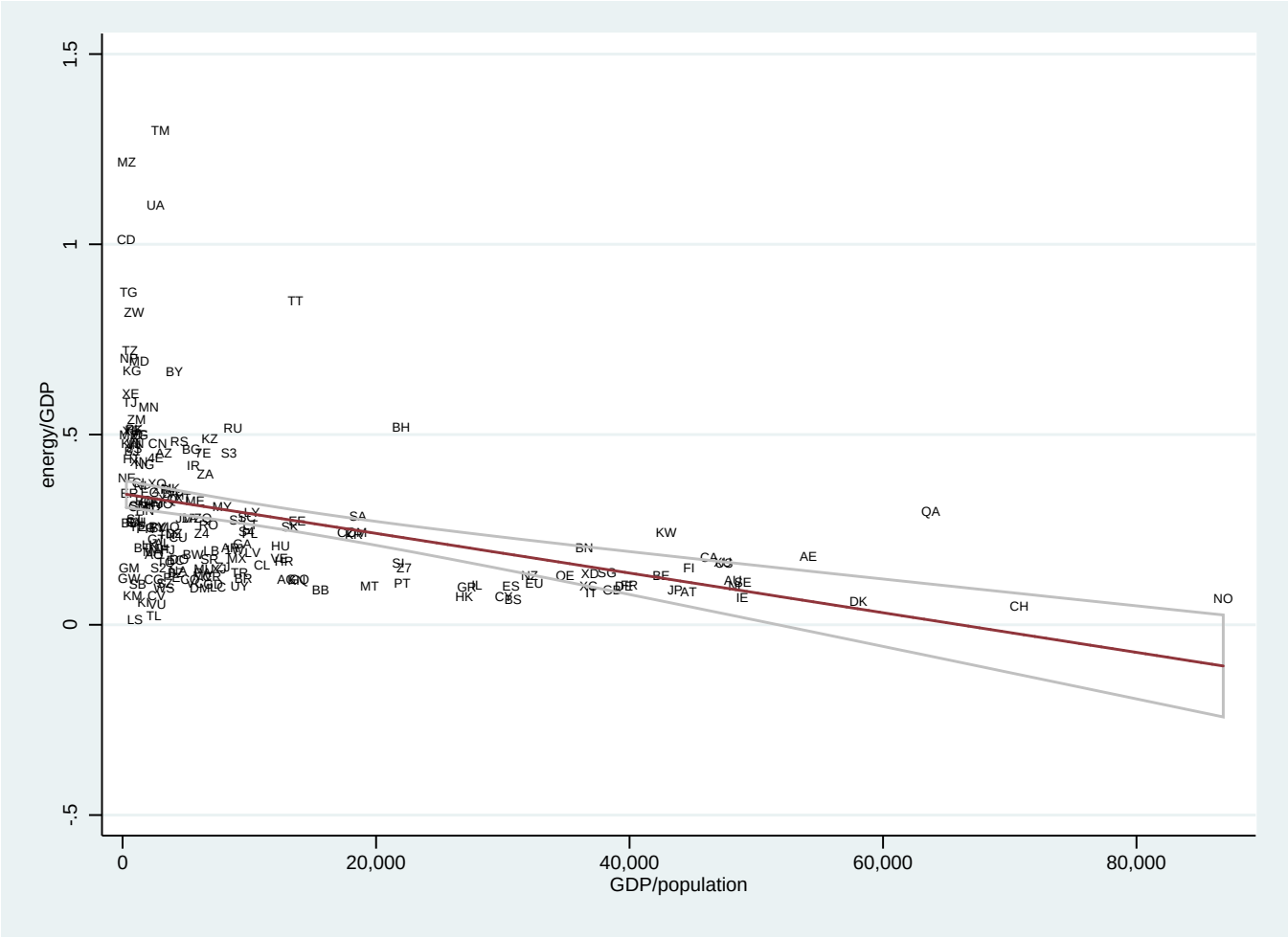

Figure S8: gdpCapeneGdpB

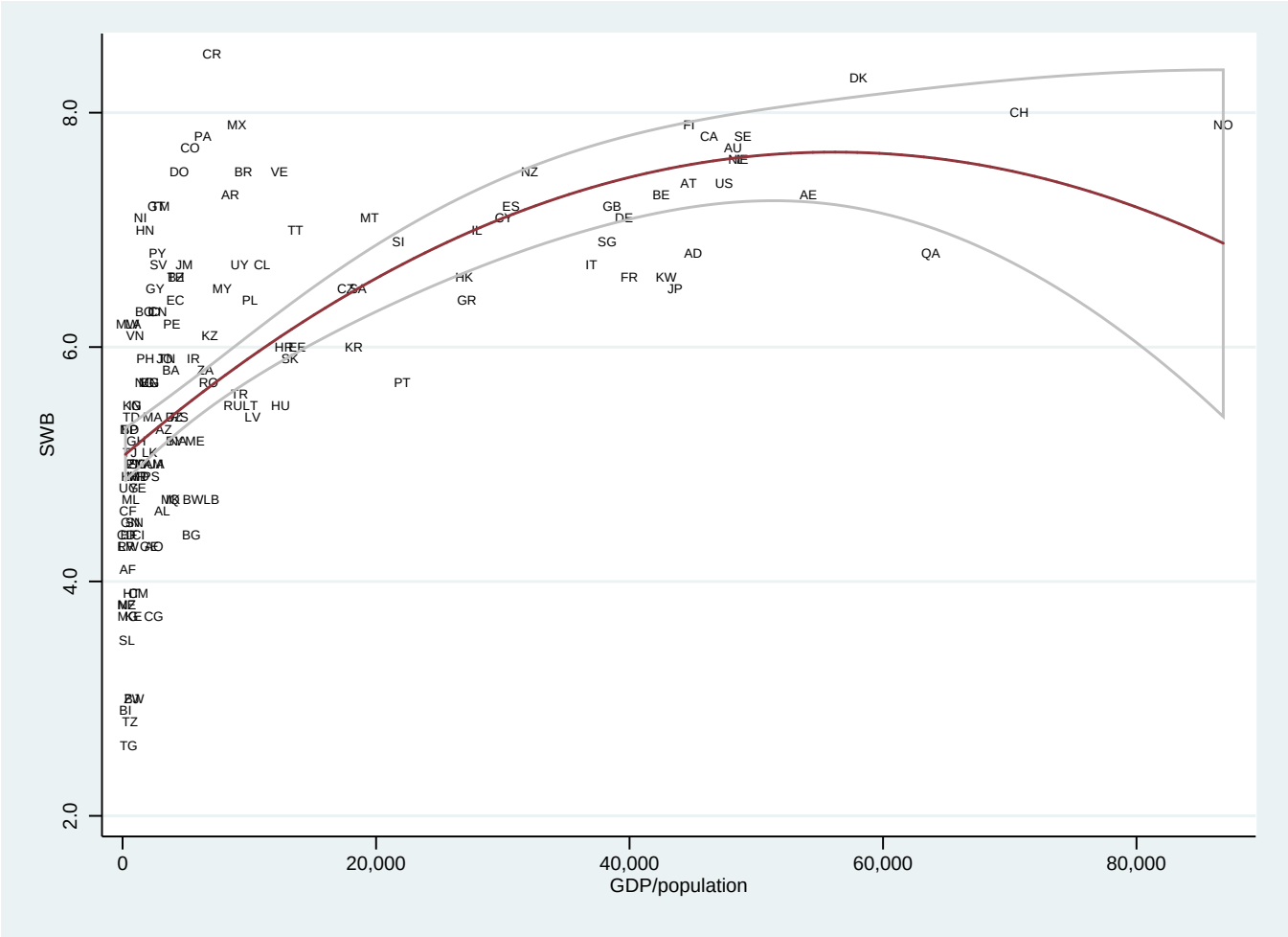

Figure S9: swbGDPB

2 Census division-level

Figure S10 shows relationship between GDP and residential energy use across US census divisions. There is not much relationship: some census divisions display positive correlations and some negative. Weak relationship is not due to use of residential energy (total energy use is similarly related to GDP). It is rather, that in developed countries, energy has lower relationship with GDP. While there is clear positive relationship across countries as shown in previous section, there is not much relationship over time in the US.

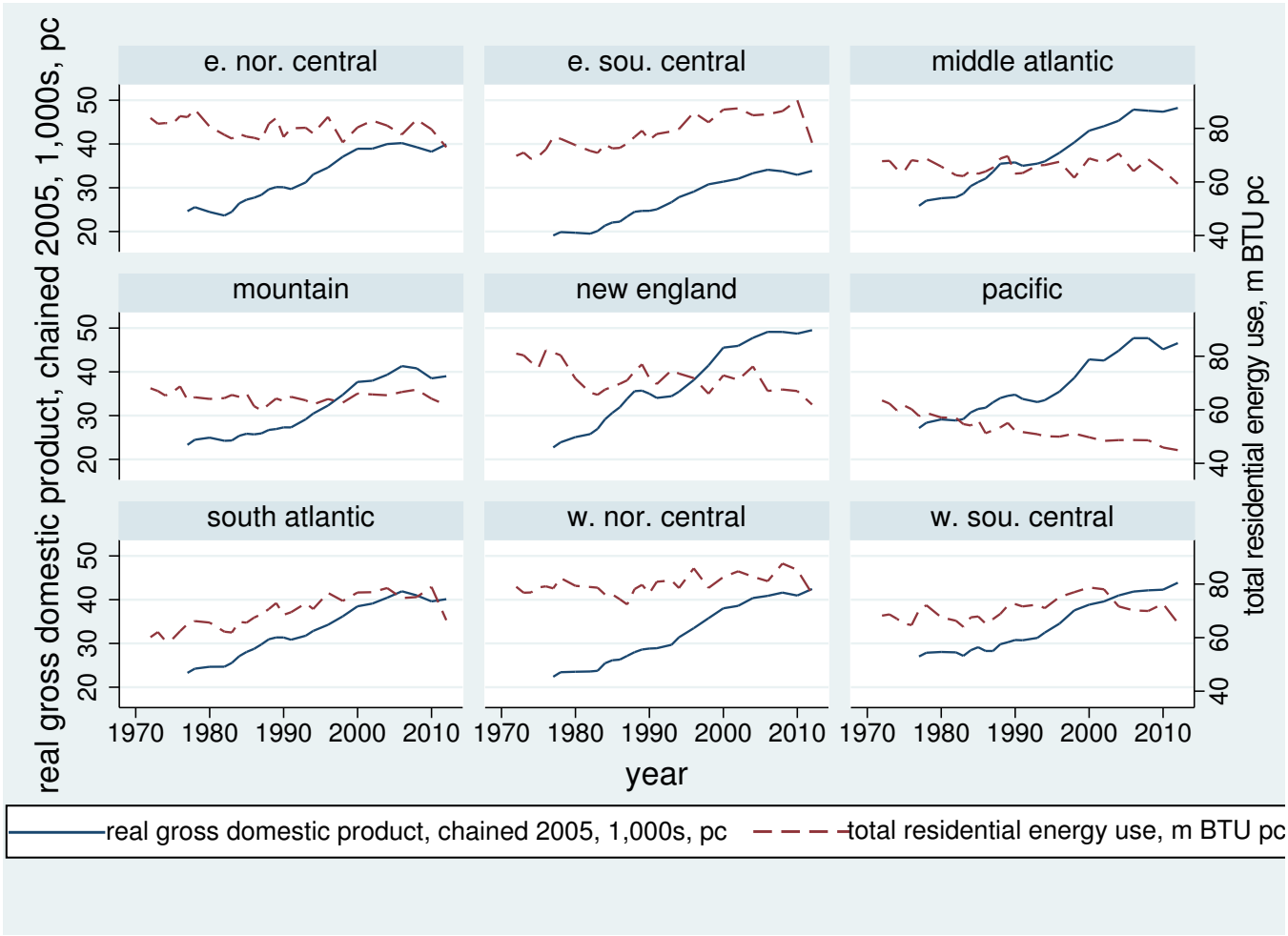

Figure S10: Real Gross Domestic Product (GDP) per capita and residential energy use per capita across census regions.

Figure S11 shows relationship between GDP and happiness across US census divisions. Here, unexpectedly, the relationship is moderately negative, or even strongly negative in Pacific and Mountain. It is only weakly positive in Middle Atlantic.

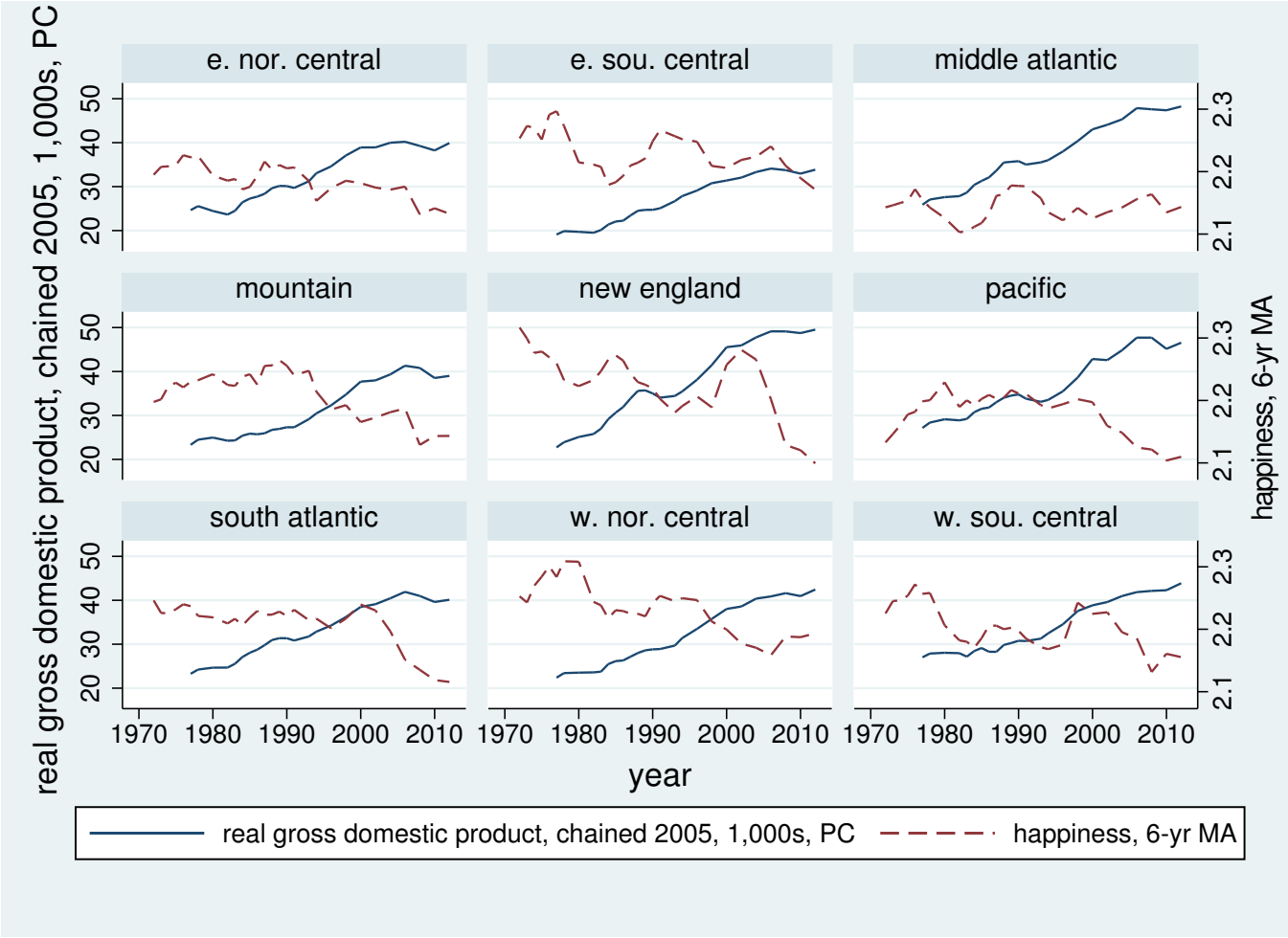

Figure S11: Happiness and Real Gross Domestic Product (GDP) per capita across census regions.

3 US energy use descriptive statistics

How do we use energy in the US? Energy use in the US has been fairly flat over past 40 years at 70m btu pc.(`http://www.eia.gov/todayinenergy/detail.cfm?id=3590`), and coasts consume less than inland middle (`http://energy.gov/maps/2009-energy-consumption page=0%2C1`). Use by sector in the US is following: 22% residential, 18% commercial, 32% industrial, and 28% transportation.(`http://www.eia.gov/consumption/`). Total energy consumption by end use is shown in table S3.

Table S3: Total energy consumption by end use; quadrillion Btu, 2011.

Space Heating	5.6
Space Cooling	2.6
Water Heating	2.7
Refrigeration	1.2
Cooking	0.6
Clothes Dryers	0.7
Freezers	0.2
Lighting	2
Clothes Washers	0.1
Dishwashers 1/ 0.307437 Televisions and Related Equipment	1
Computers and Related Equipment	0.4
Furnace Fans and Boiler Circulation Pumps	0.4
Other Uses	3.7

How is electricity used in US homes? Data are shown in table S4. It is important to note that end uses of energy changed over time, for instance from 1993 to 2009: appliances share increased from 24% to 35% and space heating dropped from 53% to 41% (`http://www.eia.gov/todayinenergy/detail.cfm?id=10271&src=%E2%80%B9%20Consumption%20%20%20%20%20%20Residential%20Energy%20Consumption%20Survey%20%28RECS%29-b1`).

Table S4: Estimated US residential electricity consumption by end use, 2012 (www.eia.gov/tools/faqs/faq.cfm?id=96&t=3).

End Use	Quadrillion Btu	Billion kilowatthours	% Share of total
Space cooling	0.85	250	18.00%
Lighting	0.64	186	14.00%
Water heating	0.45	130	9.00%
Refrigeration	0.38	111	8.00%
Televisions and related equipment	0.33	98	7.00%
Space heating	0.29	84	6.00%
Clothes dryers	0.2	59	4.00%
Computers and related equipment	0.12	37	3.00%
Cooking	0.11	31	2.00%
Dishwashers	0.1	29	2.00%
Furnace fans and boiler circulation pumps	0.09	28	2.00%
Freezers	0.08	24	2.00%
Clothes washers3	0.03	9	1.00%
Other uses	1.02	299	22.00%
Total consumption	4.69	1375	