

Empirical Analysis of the Role of Energy in Economic Growth

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Abstract

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Keywords: economic growth, energy, cobb-douglas, CES, LINEX

Caleb, put your LaTeX code here.

1. Cobb-Douglas Without Energy

Table 1: Cobb-Douglas (without energy) for 1980-2011 (US, UK, JP) or 1991-2011 (others). (Parameter estimates beneath symbol. 95% confidence interval bounds to left and right.)

	λ			α			β		
US	0.0087	0.0102	0.0116	0.21	0.27	0.34	0.66	0.73	0.79
UK	-0.0104	0.0097	0.0303	-0.25	0.44	1.12	-0.13	0.56	1.24
JP	0.0021	0.0052	0.0082	0.44	0.52	0.59	0.41	0.48	0.56
CN	-0.0405	0.0188	0.0779	0.11	0.71	1.32	-0.32	0.29	0.89
ZA	-0.0007	0.0008	0.0022	0.46	0.60	0.73	0.26	0.40	0.54
SA	-0.0159	-0.0123	-0.0087	0.21	0.45	0.68	0.32	0.55	0.78
IR	0.0032	0.0039	0.0045	0.49	0.60	0.70	0.30	0.40	0.51
TZ	-0.0039	0.0015	0.0068	0.50	0.73	0.95	0.05	0.27	0.50
ZM	0.0218	0.0249	0.0280	1.25	1.41	1.57	-0.57	-0.41	-0.25

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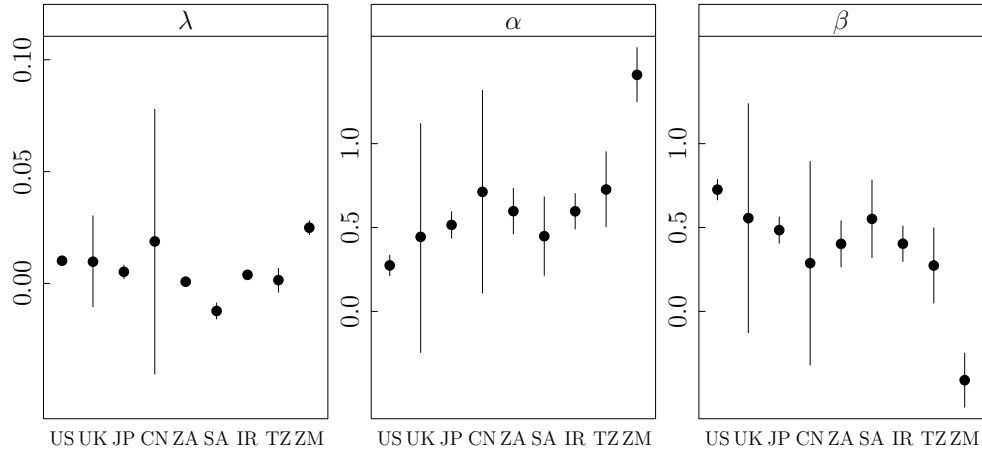


Figure 1: Cobb-Douglas (without energy) model parameters. Vertical bars indicate 95% confidence intervals.

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[1] "predGDPX"
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2. Cobb-Douglas With Energy

We can force α , β , and γ to be in $[0, 1]$ by a reparameterization:

$$a \in [0, 1], b \in [0, 1], \alpha = \min(a, b), \beta = |b - a|, \gamma = 1 - \max(a, b)$$

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[1] 0.273 [1] 0.9964 [1] -0.0005691 [1] 0.5584 [1] 0.5741 [1] 1.119 [1] 0.7765
[1] 1.017 [1] 0.4271 [1] 0.4272 [1] 0.3582 [1] 0.7612 [1] 0.5862 [1] 0.9729 [1]
0.4324 [1] 0.4323 [1] 0.6281 [1] 0.6279
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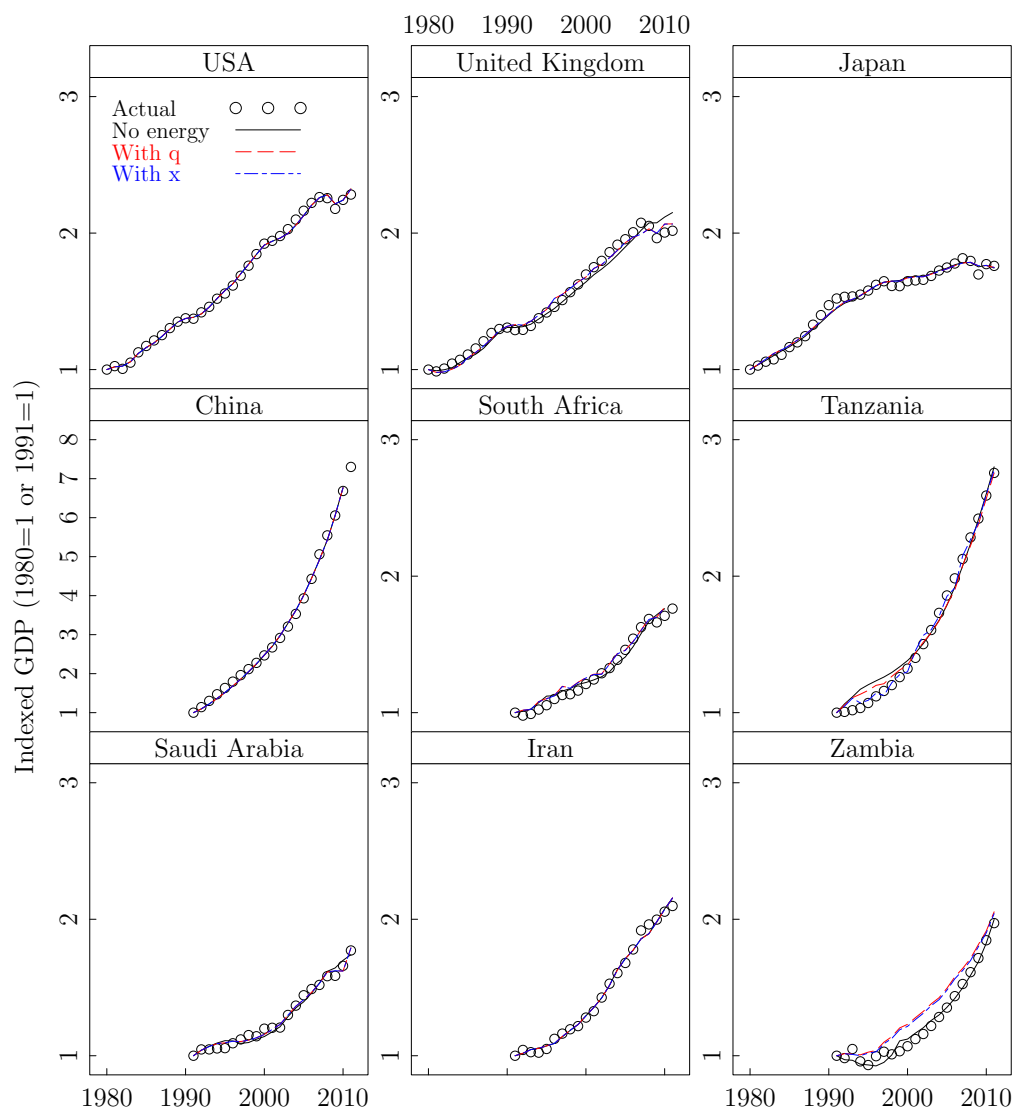


Figure 2: Cobb-Douglas results.

Table 2: Cobb-Douglas (with Q) for 1980-2011 (US, UK, JP) or 1991-2011 (others). (Parameter estimates beneath symbol. 95% confidence interval bounds to left and right.)

	λ	α	β	γ
US	0.0102	0.27	0.72	0.00
UK	0.0228	-0.00	0.56	0.44
JP	0.0049	0.57	0.55	-0.12
CN	0.0133	0.78	0.24	-0.02
ZA	0.0048	0.43	0.00	0.57
SA	-0.0137	0.36	0.40	0.24
IR	0.0033	0.59	0.39	0.03
TZ	0.0056	0.43	-0.00	0.57
ZM	0.0217	0.63	-0.00	0.37

2.1. Cobb-Douglas with Q

2.2. Cobb-Douglas With X

2.3. Cobb-Douglas With U

3. CES

3.1. CES with Q