Biophysical Economics
&
The Corona Virus Pandemic

Blair Fix
Coping with the pandemic:

1. Monetary constraints
2. Biophysical constraints
Monetary Constraints:
How do I pay my rent?
Jobless Claims Spike
929,000 Canadians applied for EI in week of March 16

Employment Insurance Claims, Weekly

Source: Statistics Canada, Bloomberg Calculations
Note: Historical data are weekly averages of monthly initial and renewal claims, most recent weekly figure is for March 16-22
Canada’s Budget Deficit To Hit $180 Billion In COVID-19 Crisis: Economists

But thanks to rock-bottom interest rates, taxpayers will only be on the hook for $1 billion a year
Modern Monetary Theory

(MMT)

Some info:
Wikipedia Article
Bloomberg Interview
Vox Article
Monetary constraint = Social constraint

Who gets to create and spend money?
Biophysical Constraints

How is the economy structured?
Industrialization = Biophysical Transformation
A change that’s bad for pandemics:

Urbanization
Urban and rural populations in the United States

Figure illustrates the size of the rural and urban populations in the United States over time. The US Census Bureau's population threshold of an urban place changes over time. The rural population is defined as any population outside urban areas. See the source tab for further information.

Source: US Census Bureau (2010)
Supporting people in cities takes energy
International 2008

Energy Use per Capita (kg oil equivalent)

Urban Population (% of Total)

Log Regression
$R^2 = 0.55$

No Causation Implied

Blair Fix

Bangladesh
Qatar
Energy Use per Capita

International

Bangladesh
Qatar
Energy Use per Capita (kg oil equivalent)

Urban ... States

Nigeria

Hong Kong

Peru

Mexico

United States

Oman

Kazakhstan

United States

Nigeria

Hong Kong

R2 = 0.55

Log Regression

Blair Fix

Peru

No Causation Implied

International 
2008
A change that’s good for (mitigating) pandemics:
The service transition
Standard Thinking:
Industrialization = growth of industry

Reality:
Industrialization = growth of services
Service Transition = Energy Transition
Corona virus experiment:

How many jobs can society do without?
(in the short run)
Would this have been possible 200 years ago?

Coronavirus: Half of humanity now on lockdown as 90 countries call for confinement

By Alasdair Sandford & Euronews with AP, AFP • last updated: 03/04/2020
The diagram compares the percentage of the labor force in agriculture, industry, and services in the United States in 1800 and 2010.

In 1800, the labor force was predominantly in agriculture, with a smaller percentage in industry and services.

By 2010, the labor force had shifted significantly, with the majority in services, followed by industry and agriculture.
Thank You

I blog about my research at Economics from the Top Down:

https://economicsfromthetopdown.wordpress.com/