Trends and Cycles in Global Commodity Prices: Prospects for the Energy Sector
David S. Jacks, Department of Economics, Simon Fraser University
Once—maybe twice—in every generation, the global economy witnesses a protracted and widespread commodity boom.

In each boom, the general perception is that the world is quickly running out of key materials.

The necessary consequence of this scarcity is that economic growth must grind to a halt.

From boom to bust?


This argument gave rise to the Simon-Ehrlich wager, a bet on the direction of metal prices from 1980 to 1990.

From boom to bust?
But what about the present day?

Yet again, large increases in some commodity prices have lead to the view that resource scarcity will lead to conflict and starvation.

But for others, this view is misguided: going long on commodity prices is the same as shorting human ingenuity.

From boom to bust?
So who is right?

My argument is that we have to start with the idea that real commodity prices are cyclical.

That is, real commodity prices have both trends and cycles which may be long in duration.

Because of this, long-run patterns can be easy to miss because we confuse cycles for trends.

From boom to bust?
As cycles and trends can span decades, we need very long-run commodity price data.

As cycles and trends can differ across goods, we need a wide range of commodity price data.

I have collected annual price data for 32 commodities back to 1900, representing 8.27 trillion USD of production in 2011.
Prices drawn from the animal product, energy product, grains, metals, minerals, and soft commodity sectors.

They are all expressed in USD given its role in global commodity markets.

They are also deflated using the US CPI: a dollar from 2000—much less to say 1900—is not worth the same as a dollar in 2013.

New data on old prices
Figure 1: Real Commodity Price Indices, 1900-2013

- Real price index (1975 shares)
- Real price index (2011 shares)

Trends and cycles since 1900
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Trends and cycles since 1900
Thus, real commodity prices increased:
1.) by roughly 80% from 1900;
2.) by roughly 80% from 1950;
3.) by roughly 45% from 1975.

Clearly, most of the action has been from 1950 with increases of ≈1% per year in real terms.

However, this “bird’s eye” view masks important differences across commodity type.

Trends and cycles since 1900
In particular, we need to distinguish between:

1.) “commodities in the ground”: energy products, metals, minerals; roughly speaking, non-renewable resources.

2.) “commodities to be grown”: animal products, grains, and soft commodities; roughly speaking, renewable resources.
“In the ground” versus “To be grown”
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So, real prices for “commodities in the ground”:  
1.) rose by roughly 157% from 1950;  
2.) rose by roughly 84% from 1975.

While real prices for “commodities to be grown”:  
1.) fell by roughly 47% from 1950;  
2.) fell by roughly 42% from 1975.

But where does energy fit into this picture?

“In the ground” versus “To be grown”
Developments in the energy sector

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Figure 7b: Real Commodity Price Components, 1900-2013

Developments in the energy sector

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Summarizing, real prices for energy have:
1.) risen by roughly 400% from 1900
2.) risen by roughly 270% from 1950
3.) risen by roughly 125% from 1975

At the same time, energy has experienced three cycles since 1900 with peaks in c. 1920 and 1980.

Critically, a peak is potentially forming in the present day.

Developments in the energy sector
But where are we left in terms of trajectories? Analysis of trends and cycles primarily a descriptive exercise, not one of forecasting.

Another related issue: often it is not price levels that matter, but rather relative prices.

Here, we can again draw on the long-run history of commodity prices to consider previous and future energy transitions.

Future prospects in the energy sector
From the organic to inorganic economy

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From the organic to inorganic economy
The transition to the modern petroleum economy

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The transition to the modern petroleum economy
The potential transition to natural gas
The potential transition to natural gas
Previous transitions associated with elevated relative prices which were decades long.

From WWII, relative price of petroleum was almost continuously falling: only in 2003 did this process reverse, suggesting a lot of inertia.

Also suggests that promises of natural gas may be overblown in a world of declining extraction rates and unprofitable operations.

Future prospects in the energy sector
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Contact:

David S. Jacks
djacks@sfu.ca
www.sfu.ca/~djacks