Heun et al. Chapt 1

Fig. 1.1 Source: Authors’ calculations using data obtained from World Bank databank (Indicator

NY.GDP.PCAP.KD.ZG accessed August 1, 2014.) [? ] <<<<<<<<

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This emerging paradigm is taking shape with the leadership of theorists such as Robert Ayres, Kenneth Boulding, Robert Costanza, Herman Daly, Charles Hall, Marina Fischer-Kowalski, and others. [\*\*\*\* others?

\*\*\*\*] In this book, we’ll refer to this approach as a “biophysical” approach to the economy.

[ Fix, Blair . (in press) Rethinking growth theory from a biophysical perspective. Springer;

Boyd, Roger, 2013. Energy and the financial system: What every economist, financial analyst and investor needs to know. Springer NY

Kopits, Steven ……..Springer.

4 But, clean air and water, SOILS , forests, and natural areas2

p.6 activity are highly correlated, as Cleveland, <<no comma

Writing is good so far

and disposal of the biological or physical (as opposed to financial

\*\*\*\* Need to obtain permission to use this graph? Yes ask Science Magazine

Fig. 1.3 Gasoline shortages in 1973. \*\*\*\* We probably don’t need to obtain permission

to use this photograph, because it is from the US national archives. <<<<<<<<<<<<all US data is open access and permission not needed

Fig. 1.4 Oil prices and production. \*\*\*\* Recreate this graph from our own data? http://www.

theoildrum.com/node/8162 <<probably best to use oil alone.(not condensate) I have sent out some in my Energy list Serve. Best to get from Ron Patterson in Texas

p. 9 But, in 1960 could worldwide the <<<<<<<oil production rate have been increased by 20% in

p. 10 In these circumstances, oil supply is said to be very inelastic (unresponsive) <<< to price.

p.11 . For oil only, Murphy and Hall found that the oil cost share threshold that correlates with US recessions is about 5.5%.[14] Not Murphy and Hall but Hamilton is source….

Low cost share. Ironically, economists assign low importance to energy because of its cheap price, when its cheap price that has allowed our economy to be able to afford to be so productive.

but it usually EVENTUALLY REFLECTED IN cost

Turning again to our oil example, EROIsoc for oil has declined from a value of 100 in the 1930s [18, p. 781] to around 20 today.[19, Fig. 2] In other words, ……Actually this is misleading because the value of 100:1 is not for extracting oil but for finding it. The values for US are given in Guilford et al. (aboput 28:1 in 1970s to 10:1 in 2007)v and for the world (publically traded) in Gagnon et al. 36:1 in 1990s to 18:1 in 2006 or so. SO it has declined to ½ to 1/3 of its peak …

13 The early 19th century economist Ricardo applied this … theowners of <<<

that

has lower EROIsoc than early Texas crude oil. (EROI of tight oil is not too different from regular oil today

…

Fig. 1.6 US oil production. http://ourfiniteworld.com/2014/07/23/

world-oil-production-at-3312014-where-are-we-headed/ \*\*\*\* Becky–can you

obtain this data and plot it similarly? \*\*\*\* >>>again Ron Patterson has this updated

consequence, more financially expensive to extract oil today than it was 10, 20, 30,

and 100 years ago. It Not 100 (see Gilford et al )

Without going into detail, we state without discussion that similar dynamics will

apply to any non-renewable material (e.g. copper, fish, soil, timber) or energy stock (natural gas, hydro dam sites) in the biosphere

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Fig 15 What does free cash flow OF mean (vs TO?)?

They are making less profits? That is true I think, but needs more explicit statement and better validation maybe….

p. 16 To first order, replace with to a first approximation ….

p. 17 Paradoxically, and contrasting with mainstream policy prescriptions, expansion of

the stock of capital in the economy can contribute to the ULTIMATE slowdown of economic

growth.

focused on increasing many material, energy, and financial flow rates in the economy. Set against the backdrop of Section 1.4, we see that consumption-driven policies are ine↵ective, because of biophysical limits that ULTIMATELY constrain the scale of the economy

In short, the economic analyses that support consumption-driven policies are

incomplete. Consumption-driven economic growth is ULTIMATELY unsustainable. [For the time being we can and do just use more energy to exploit lower grade resources….]

Bottom half of page 17 kind of redundant (could remove sentence above)

P. 18 This is the end of an era. In mature economies, consumption-enhancing economic

policies can no longer guarantee growth of living standards and well-being. But, the

mainstream is blind to what should be done instead. This has to change! <<I WOULD REMOVE AS IS redundant with next nsection.

Markets are, AT LEAST IN ECONOMIC THEORY,extremely efficient allocators of resources.

\*\*\* reference here about higher average fuel economy of autos in the US. \*\*\*\*

PN 18-19 Seems like if we need to add in stocks but the market etc are incapable of putting a value on them then why are we sayin g we ust do it? Just a little ironic…

Wordy: Because the allocative efficiency of markets is predicated upon correct and complete

information being available to market participants, today’s markets are a poor choice

for allocative decisions about scarce and difficult-to-substitute resources (such as oil)

or non-property goods (such as clean air, clean water, and other ecosystem services).

In the age of resource depletion, the allocative efficiency of markets is attractive.

Indeed, life would be better if the markets could shift supply and demand away from

binding biophysical constraints when they are encountered. But, lack of information

in today’s markets leads us to argue that they are not up to the task.

??Change to: In the age of resource depletion, the allocative efficiency of markets is attractive.

Indeed, life would be better if the markets could shift supply and demand away from

binding biophysical constraints when they are encountered. But, lack of information

in today’s markets leads us to argue that they are not up to the task. Thus today’s markets are a poor choice for allocative decisions about scarce and difficult-to-substitute resources (such as oil)

or non-property goods (such as clean air, clean water, and other ecosystem services).

Second paragraph is good…..

Final paragraphs are good but unlikely to be implemented….