

Interaction of Global Income Inequality and Energy: Can Europe Maintain Wealth Sustainably if Asia Gains Purchase Power?

The historian Ian Morris highlights the relevance of energy availability to explain why the west rules¹. Energy consumption per capita has a significant correlation with income per capita.

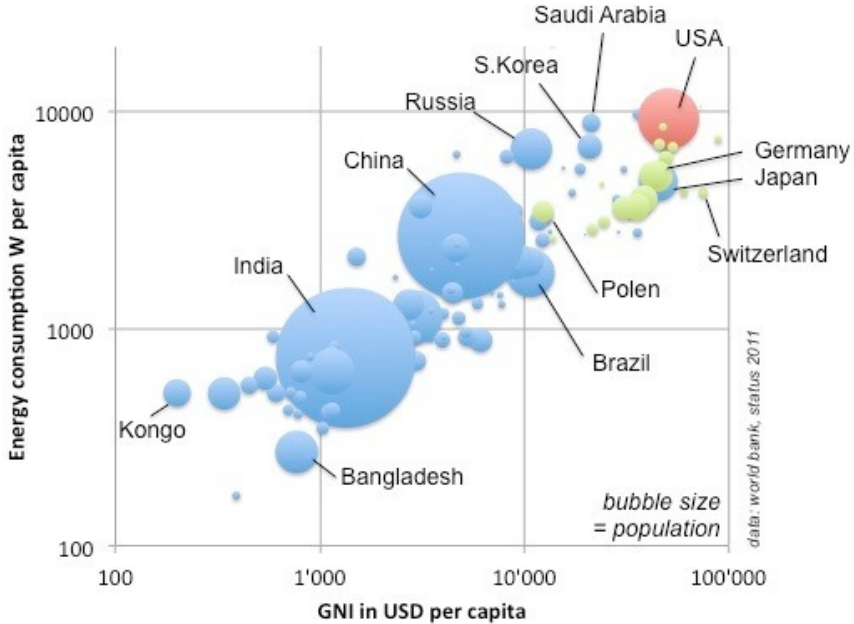


Figure 1: Correlation between income and energy consumption

From a moral perspective, reducing global income inequality is desirable. How far is this achievable with limited energy availability? The driver for industrialization is low cost of energy and capital compared to high cost of labor. Robert C. Allen² explains that it was the scarcity of labor per acre of land in the wide plains of North America that pushed mechanization and industrialization, while there was no incentive to save labor in the dense populated China.

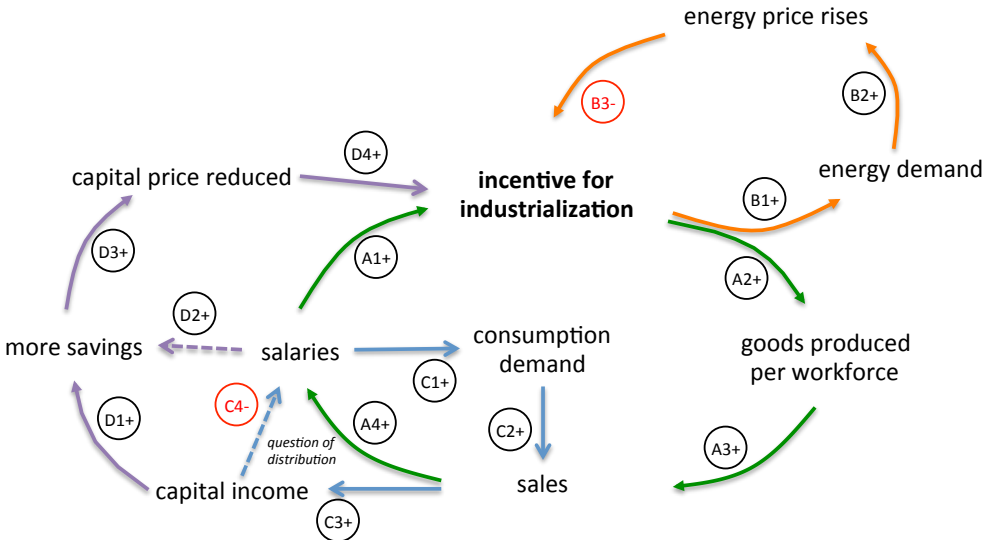


Figure 2: incentive for industrialization

¹ Ian Morris: "Why the West Rules - For Now: The Patterns of History, and What They Reveal About the Future", Profile Books, London 2010

² Robert C. Allen: "Global Economic History: A Very Short Introduction", Oxford University Press, New York, 2011

There is a cumulative cycles for growth: The industrialization triggered in North America increased the goods produced per workforce. This increases sales, which are split into salaries and capital income - provoking the question of distribution. Higher salaries give even more incentive for industrialization, as do reduced capital prices due to more savings. The prerequisite to maintain growth is that the consumption demand grows to cover sales; therefore maximizing capital income would threaten growth.

There's a breaking loop (in orange), too: Industrialization increases energy demand, leading to higher energy prices. However the energy price related to salaries is low in western countries because industrialization there started early and locally. It is out of touch with reality but relevant when thinking towards a balanced industrialized world: If industrialization would have started uniformly over the globe, the industry might not have reached the energy intensive level of today, as the scarcity and price of energy would have reduced the incentive for further industrialization.

As global income inequality and a global oil price level emerged, the cumulative cycle also works towards the opposite: In an underdeveloped country with high capital and energy cost compared to labor cost, there's no incentive for industrialization. The exception is industrialization for export, brining cheap labor on the global market, as China does. Therewith, the income distribution question becomes global. Thomas Piketty disproves the assumption that income inequality diminishes with increasing wealth within a nation³. Thinking of ways to reduce global inequality is a relevant topic of its own, however we have to question the consequences regarding the use of energy.

Assuming that salaries and purchase power of one billion Chinese would triple, rising energy demand would meet limited supply. Consequently the energy price might double - from the perspective of a European, however it becomes cheaper from the Chinese perspective. Such a development would question sustainability in Europe and the USA: Cheap imports from China phase out, and everything gets more expensive with rising energy prices.

Futher study should answer the following questions:

- What is the role of energy regarding the development of global income inequality?
- Energy and labor costs are linked when manufacturing renewable energy equipment. Is this a key to reduce global income inequality in spite of limited natural resources?
- How could a balanced world look like? What preparations have to be made to maintain sustainability in Europe if Asia gains purchase power?

Henry Lüthi, August 2015

³ Thomas Piketty: "Das Kapital im 21.Jahrhundert" C.H. Beck, München 2014