

Earth & Space Sciences 345: Economic Geology

Some interesting economic perspectives:

Total revenues from US non-fuel mineral production in 2011: ~ \$74.7B

Approximately 50:50 metallic:non-metallic commodities

Most important metallic: Gold (largest producer NV), copper (largest AZ)

Non-metallic: Sand and gravel: \$17B

Total 2012 revenue of Walmart Co. \$469B

Apple \$156B

Disney Corp \$42.3B

Lesson: Despite enormous increase in demand from industrialization of the “Bric” economies (Brazil, India and China), mineral commodities are abundant, readily available, and therefore fairly cheap. This is partly the result of decades of successful geological and geophysical exploration (also better mining engineering and **metallurgical** processing, as well as improved and alternative manufacturing processes (think removal of Pb-based additives to gasoline, lower Zn usage in galvanizing, replacement of metals with plastics, etc). Also overall tendency for advanced economies to progress from commodity-based manufacturing to service/knowledge economies. Some notable exceptions – Canada, Brazil, Australia – advanced nations but economies still depend strongly on production and sale of mineral commodities.

However ... contrast this with **Energy** production:

Global ranking by revenue

Total 2012 revenue of:	Royal Dutch Shell	\$467B	(#2 <i>cf</i> Walmart)
	Exxon Corp	\$453B	3
	China National Petroleum	\$425B	4
	Sinopec	\$411B	5
	BP	\$370B	6
	Saudi Aramco	\$365B	7

Measured by revenue, 19 of the world’s largest 50 corporations are oil and gas companies. Total 2012 revenue for these was \$4.5T, a non-trivial fraction of the entire global economy. Note – profits are a *much* smaller fraction of revenues for Exxon than for Apple. Thirteen of the 19 are state-owned (or close to being so). The value of oil and gas is so high that many countries with large resources have nationalized their energy industries (China, Saudi Arabia, Kuwait, Iran, Mexico, Venezuela, Norway among others).

Summary: The minerals economy is small, energy is huge.