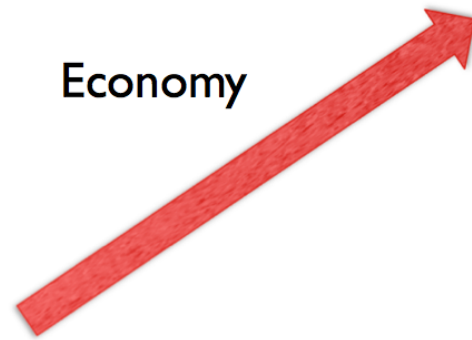


Financial Impacts of Reaching 'Limits to Growth'

Gail Tverberg; ASPO-USA November 4, 2011

It seems to me that we may be reaching limits to growth:

- 1) We have an economy that needs growth

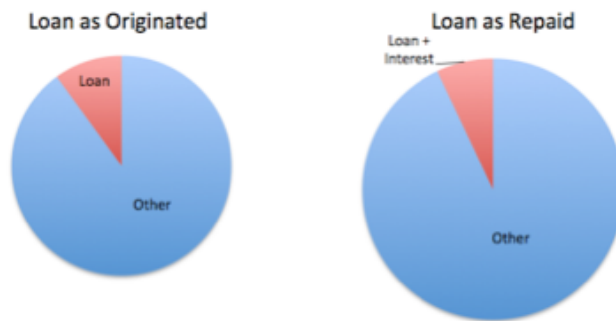


- 2) We have limited oil supply that constricts growth

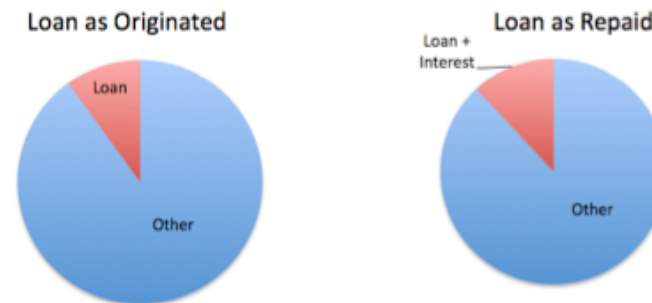


World financial system depends on growth

Repaying loans is easy in a growing economy



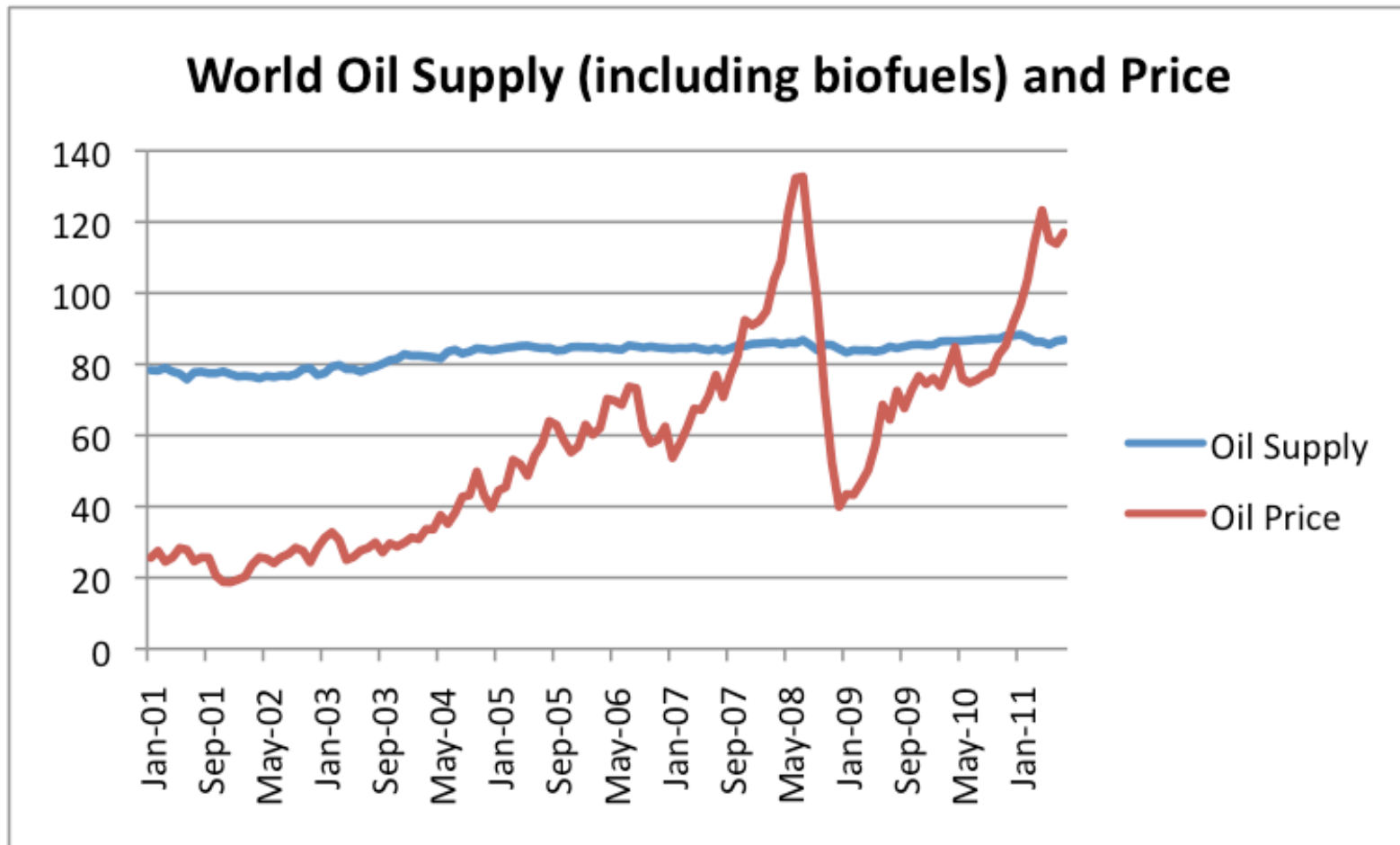
Repaying loans is much more difficult in a shrinking – or flat - economy



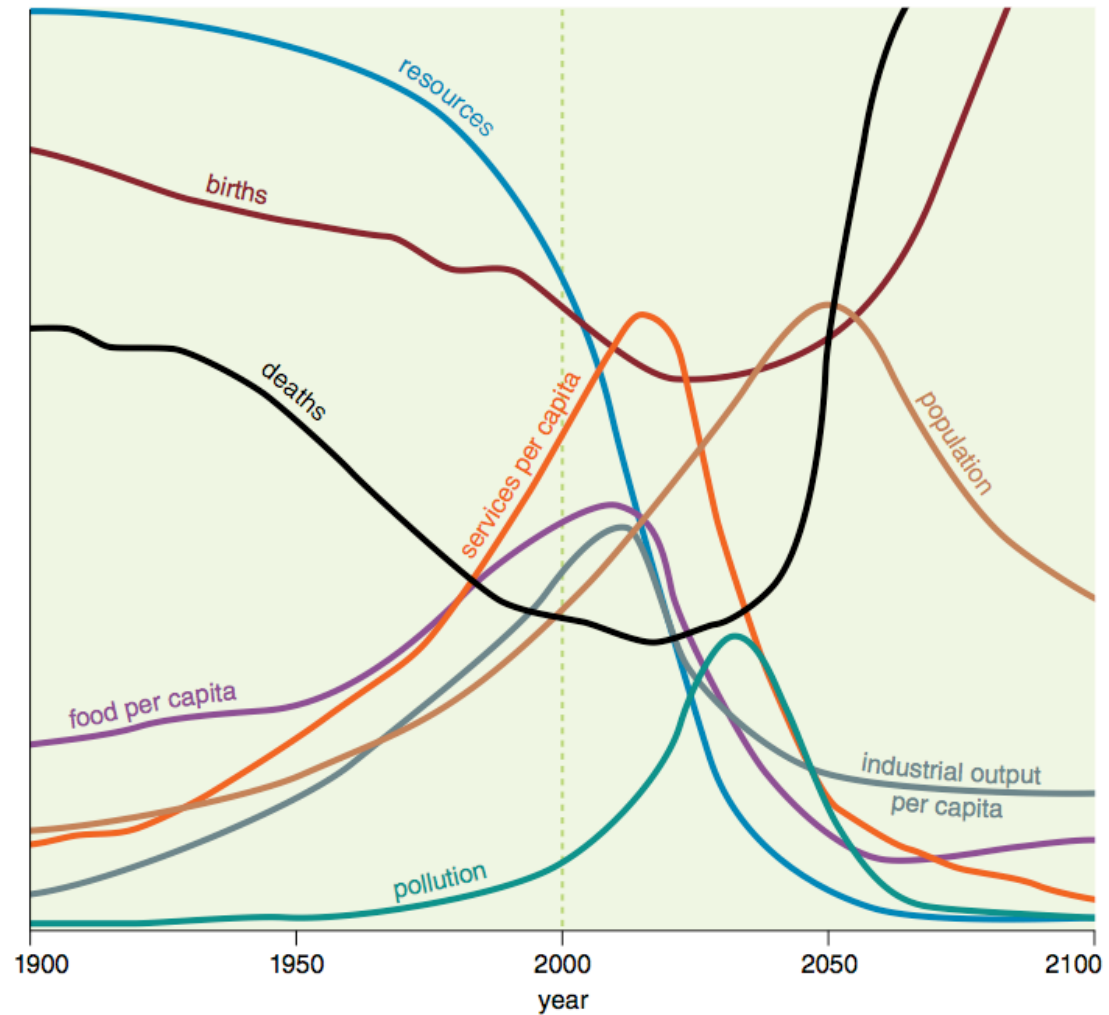
Reinhart and Rogoff looked at 800 years of repayment of sovereign debt

- ▶ They report --
- ▶ “It is notable that the non-defaulters, by and large, are all hugely successful growth stories.”
- ▶ Countries that were growing could repay debt!

With peak oil approaching, it becomes virtually impossible to invest enough in oil

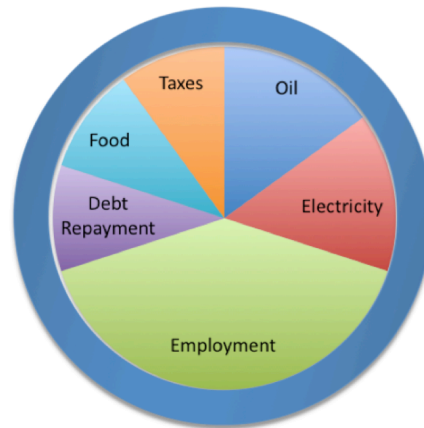


In fact, we may be hitting “Limits to Growth” of 1972 fame



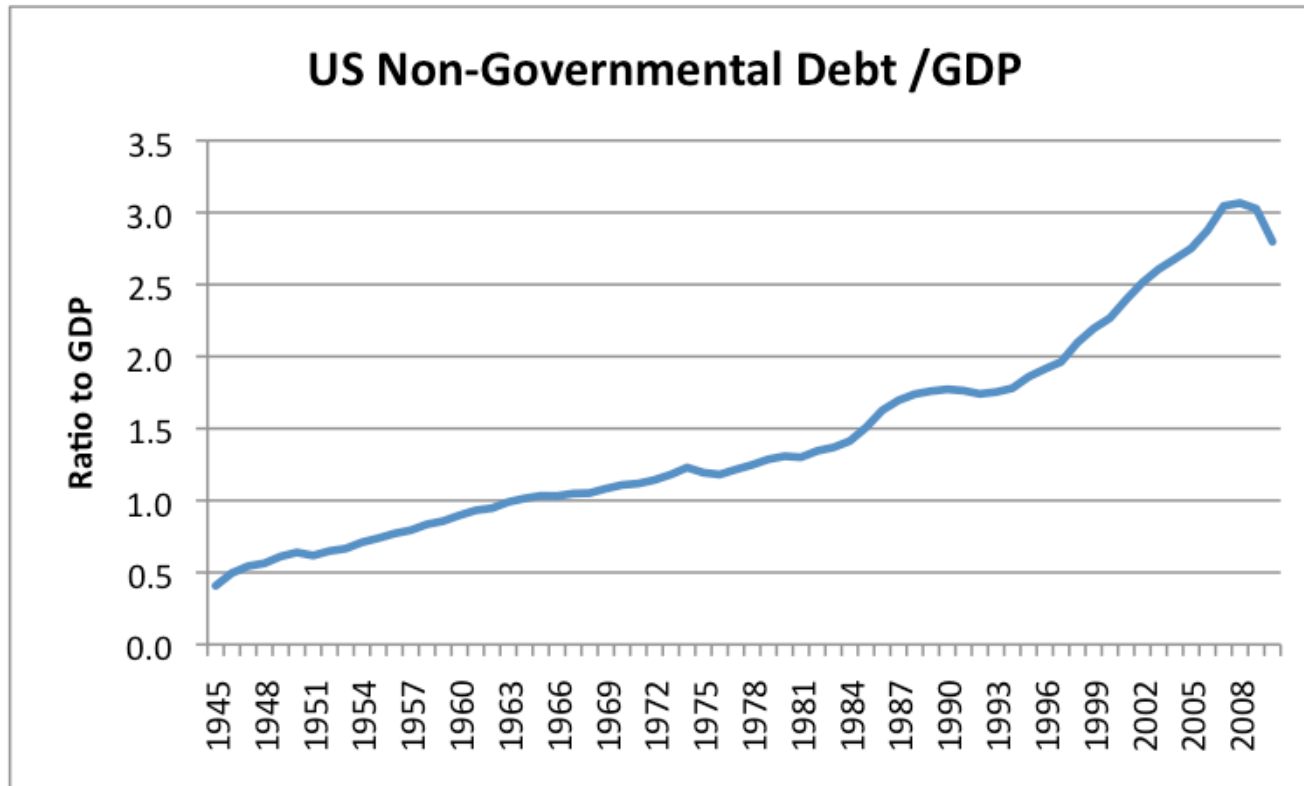
How LTG works: Liebig's Law of the Minimum

- ▶ Agricultural yield is proportional to the amount of the most limiting nutrient
- ▶ Chemical reactions – output limited by the reagent with smallest quantity



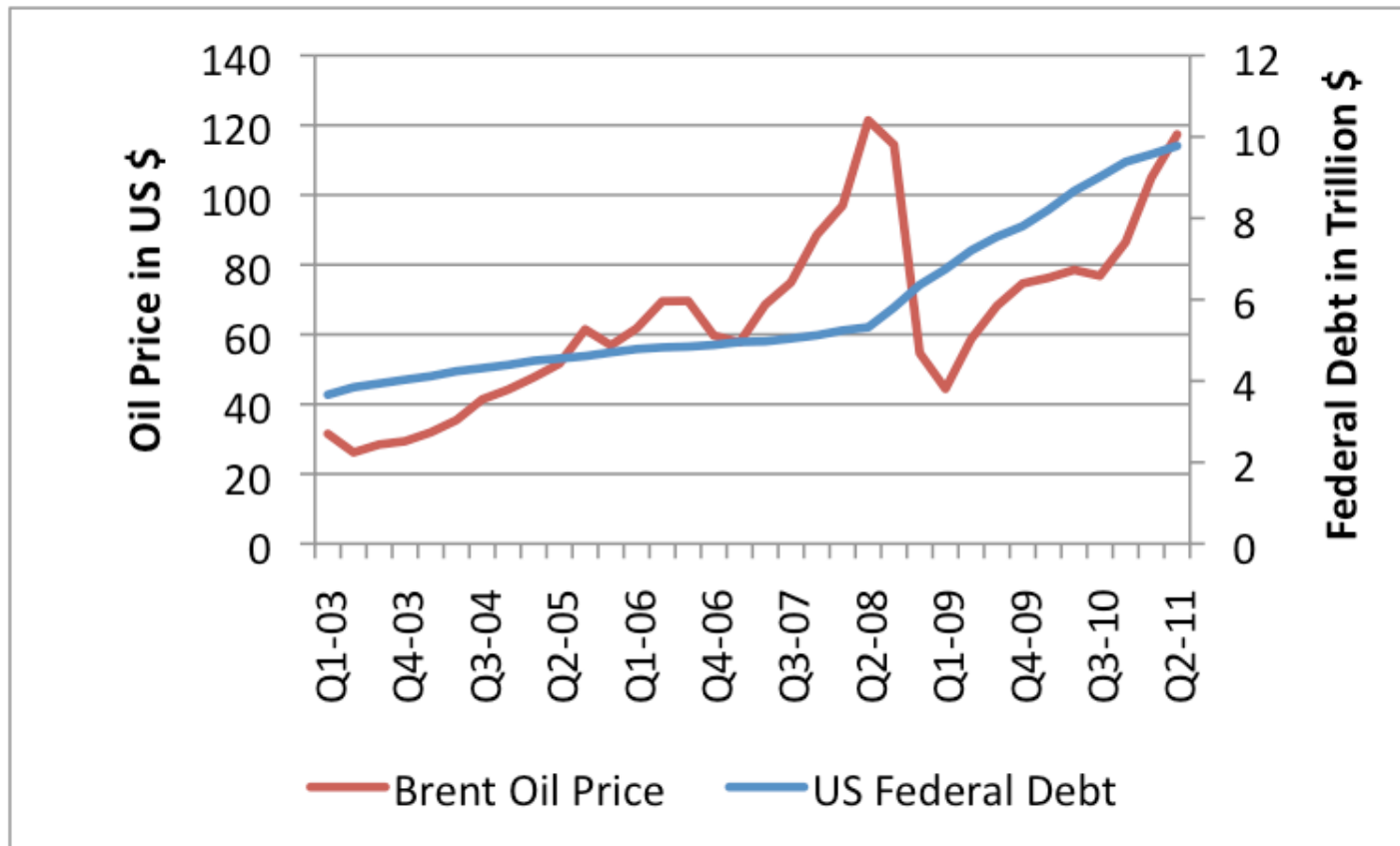
- ▶ Does limited oil supply constrict economic output?
 - ▶ High price restricts consumer's ability to purchase oil

In the private sector, debt bubble since 1945 seems to be deflating

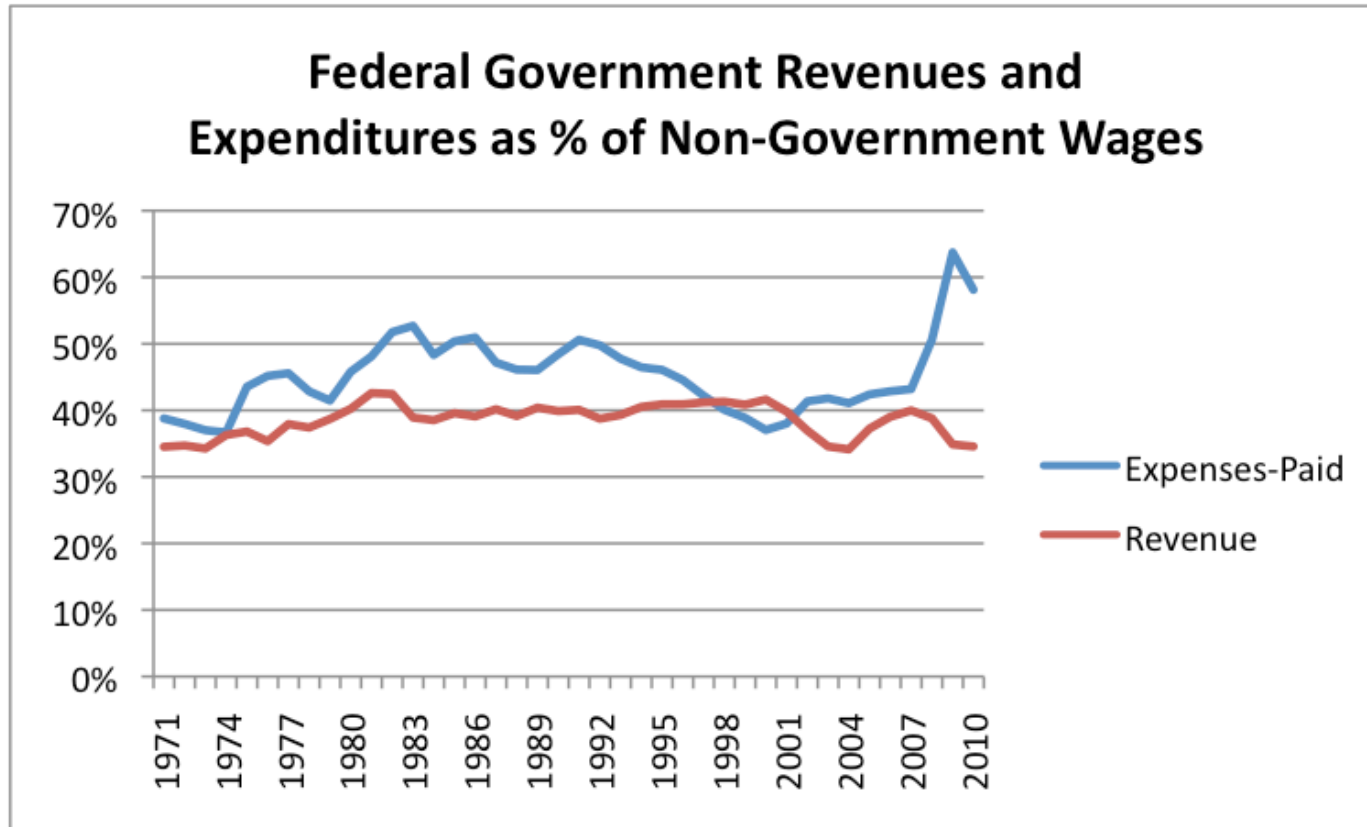


Problems from the 2008-2009 recession are still around

- ▶ Moved to the governmental sector



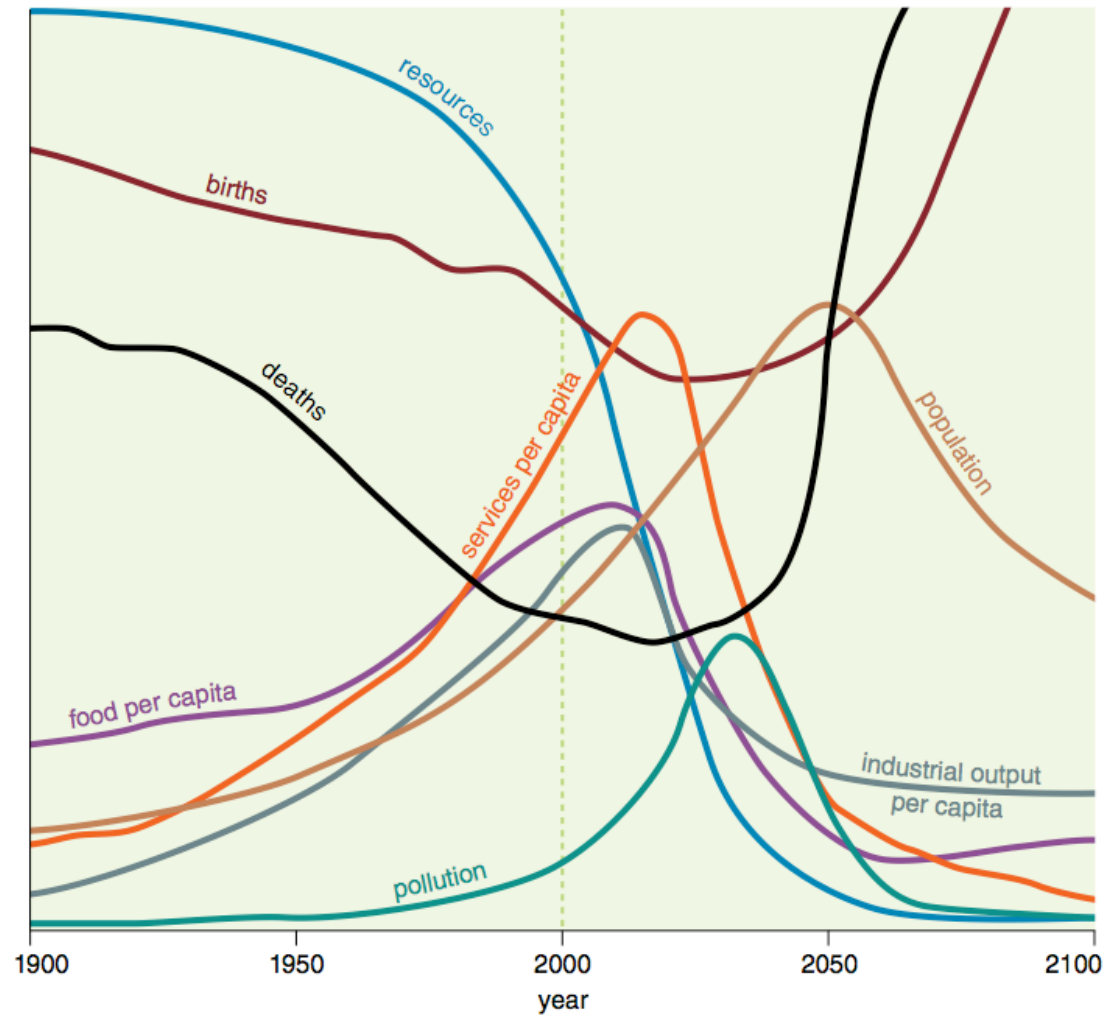
Government expenditures still outpace income – US and elsewhere



Encountering many problems now

- 1) Either very high oil prices or recession
- 2) US governmental debt crisis
- 3) Euro crisis
- 4) Chinese debt problem
- 5) Debt deleveraging
- 6) Further MENA problems
- 7) Conflict between resource needs and pollution issues

Let's look at "Limits to Growth" graph again



What to expect from LTG

- ▶ Huge financial disruptions
 - ▶ International trade problems
- ▶ Political disruptions
- ▶ Electricity ceases to work
 - ▶ Intermittency; local outages
 - ▶ May become widespread
- ▶ Oil supply problems

Financial Implications

- ▶ **If monetary system still works:**
 - ▶ Necessities will be expensive
 - ▶ Homes, businesses, vehicles will be cheap
 - ▶ Stocks, bonds will decline in value

- ▶ **But money may not be available:**
 - ▶ Then relationships and power will be important
 - ▶ Also goods to trade

Insurance and Bank Accounts

- ▶ Stick to short term insurance policies
 - ▶ Homeowners
 - ▶ Auto
 - ▶ Term life insurance

- ▶ Don't count on
 - ▶ Pensions, Social Security
 - ▶ Bank accounts
 - ▶ Government guarantee helps somewhat
 - ▶ Most anything that is paper

How about gold or silver?

- ▶ Too little gold to work well as money
 - ▶ Gold hard to weigh, tell if real
 - ▶ Coins better in this respect
 - ▶ Won't work for small purchases
 - ▶ Certificates based on gold would be better, but . . .

- ▶ Silver would be better
 - ▶ Coins more plentiful
 - ▶ Still only small amount
 - ▶ Still won't work well as money, by itself

What are the best investments?

- ▶ Knowledge
- ▶ Relationships
- ▶ Land, tools, seed, and water
 - ▶ Also shelter near land
- ▶ Other thoughts
 - ▶ Don't be afraid to spend now
 - ▶ Don't worry about paying down debt
 - ▶ But don't add debt either
 - ▶ Appreciate what we have now

Gail Tverberg

- ▶ Own site: OurFiniteWorld.com
- ▶ Some posts on TheOilDrum.com, EnergyBulletin.net, FinancialSense.com, OilPrice.com, and PeakOil.com
- ▶ E-mail: [GailTverberg at comcast dot net](mailto:GailTverberg@comcast.net)