5. The Role of Government Costs and Debt

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Earlier we talked about a basketful of problems—now focus on one part

Financial Failure Basket

- Higher cost of energy production
- Higher cost of metals production
- Higher cost of pollution controls
- Higher food production costs
- Falling wages of common workers
- More need for higher education

Too many commitments based on when times were better

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How affordability works

- How much do you have to actually spend?

- Is it just your wages, or do you have to make adjustments for government taxes and debt?
Amount available to spend this month

- + Wages

- + Amount of new debt

- - Repayment of old debt, including interest on old debt

- - Taxes required by government

= Actual amount available to spend
Amount available to spend (continued)

- Might also need to subtract other mandatory payments
  - Required health insurance premiums
  - Required pension payments (subtracted from wages)
  - Required higher education programs

- All of these payments tend to go up faster than wages

- One exception is interest payments on debt
  - Governments lower interest rates as much as possible
  - Attempt to make debt affordable
  - Low interest rates also hide low wage problem
As mentioned previously, taxes in the United States have risen based on data of the US Bureau of Economic Analysis.
One piece of spending of most governments is care for older citizens

- In the United States, program pays for
  - Health care for those over 65 years old
  - A monthly income payment for those who retire
    - Amount varies based on retirement age and past income

- Nearly all such government programs are on a “pay-as-you-go” basis
  - Contributions of younger workers pay for retirees

- Tax rates tend to rise as number of retirees rises, compared to the number of workers.
  - Age distribution of population important
Needed payments to the elderly are sometimes called “intergenerational debt”

- Can be handled by elderly living with an adult child
  - Or by elderly having their own apartment

- If elderly have their own apartments, costs tend to be higher

- When adult children move to the city, there is often a need for separate apartments for the elderly
  - Can lead to higher taxes, if government pays for pensions to cover these costs
What else does the government pay for?

- Why would these costs tend rise?

- Are there any programs that a country adds, as it gets more wealthy?

- How easy is it to take away programs that have been added?
Payments to government are similar to debt

- They are an ongoing obligation
  - Prevent spending the tax money on anything else

- Even if people think they own land, it can be taken away by a government, if high taxes cannot be paid
  - Similar to situation with debt that cannot be paid

- Also, those who hold office in government can amass wealth and power
  - Similar to those who are issuers of debt
  - Can contribute to growing inequality
Debt
(Actually promises in general, overlapping with Money)
Debt is mysterious to most people

- What experience have you had with debt?
Really need to discuss promises in general

- Promises are what hold our networked economy together

- Promises \textbf{allow division of labor}
  - Can be a simple as in hunter-gathering
  - If I promise to share meat, if I find it, do you promise to share plant foods that you gather?
  - Develops into complex system of rules and expectations
  - “Gift economies” in early societies
Many forms of promises

- Government
  - Promise to provide roads, schools, laws, other services that individual can’t provide

- Money
  - Government backed promises of future value

- Debt
  - Monetary promise to repay borrowed funds, usually with interest

- Liability
  - Balance sheet item corresponding to some amount owed
  - Example, bank account balances are “liability” of a bank
Financial promises (including debt) play many important roles

- Allow modern jobs
  - Pay worker at end of month with money
  - Instead of daily with goods

- Allow a transition to fossil fuels
  - “Accumulated wealth” is very small without fossil fuels
  - Adding debt fills several important roles:
    - Allows buyer of finished goods (new home, or new truck) to pay for the goods over time
    - Allows those building factories to pay for the factories, using future sales
    - Indirectly, increases the price for the coal or oil or natural gas
How increased debt increases price for fossil fuels

- With increased debt, more people *can afford* products made with fossil fuels
  - In earlier example, more people have a “+ new debt” entry, allowing them to buy a car or house or new appliances

- Because of this, there is greater “demand” for coal, oil, and natural gas
  - Moves “demand” forward from future period

- Price of commodities rise

- Corollary:
  - If debt shrinks, fossil fuel prices are likely to fall
    - Even slower increase in debt may reduce fossil fuel prices
How would borrowing be more difficult in a shrinking economy than a growing one?
Somehow need to “earn” the interest to pay back the debt with interest

- Economic growth provides the funds to do this

Repaying loans is easy in a growing economy
Repaying loans is much more difficult in a shrinking – or flat - economy.
Economic growth is enabled by *cheap* energy to leverage human energy

- As diminishing returns sets in, the cost of extracting oil (or other energy product) rises
- Less benefit from adding energy—economic growth slows

**Cost vs Value of Barrel of Oil**

- Value to society rises with efficiency gains
- Cost of extraction rises with depletion
- Subsidy to the Economy

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Governments try to create economic growth

- Governments don’t understand that what we really need is growing amounts of cheap energy of various kinds
  - Such energy is disappearing, because of diminishing returns

- Try other methods to “stimulate” (create) economic growth
  - More debt
  - Lower interest rates
  - A program called “Quantitative Easing”

- World economic growth is slowing
  - China was economic growth leader, now slowing
  - Europe, Japan, Brazil, Oil Exporting Nations now slowing too

- Current situation is bad
  - Oil prices are low—need more debt to raise prices
  - Debt levels are high
  - Many borrowers are becoming maxed out on debt
As economic growth slows, huge amount of debt becomes a problem

- If a factory needs to close, its debt can’t be paid
- If workers lose their jobs, their debt can’t be repaid
- If price of oil decreases (with slowing growth), shale drillers can’t repay their debt
- Governments, such as those of Greece and Ukraine have trouble repaying their debt
- Amount of interest payments becomes a problem
Problem: How to handle need for more debt, when such debt is no longer affordable

- Remember original calculation of spendable income
  - Increase in debt allows more spending

- As economy slows, have a need for total debt to rise
  - Allow companies to drill more wells in shale
  - Allow consumers buy more homes and cars

- But debt growth really only possible in growing economy
  - Becomes too hard to pay back, if return is not great enough
  - Diminishing returns occurs on investments (similar to on oil and coal)

- At some point, governments, companies, consumers realize they must slow debt growth
  - We are reaching this point now
  - Interest payments, no matter how low, are too high
Household debt growth slowed after 2007 – reached maximum level
Instead, government debt has grown since 2007

Global debt has increased by $57 trillion since 2007, outpacing world GDP growth

Global stock of debt outstanding by type
$ trillion, constant 2013 exchange rates

<table>
<thead>
<tr>
<th></th>
<th>Compound annual growth rate (%)</th>
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<tbody>
<tr>
<td></td>
<td>2000–07</td>
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<tr>
<td>Household</td>
<td>8.5</td>
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<tr>
<td>Corporate</td>
<td>5.7</td>
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<tr>
<td>Government</td>
<td>5.8</td>
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<tr>
<td>Financial</td>
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Total debt as % of GDP

<table>
<thead>
<tr>
<th></th>
<th>4Q00</th>
<th>4Q07</th>
<th>2Q14¹</th>
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<tbody>
<tr>
<td></td>
<td>246</td>
<td>269</td>
<td>286</td>
</tr>
</tbody>
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¹ 2Q14 data for advanced economies and China; 4Q13 data for other developing economies.
NOTE: Numbers may not sum due to rounding.

SOURCE: Haver Analytics; national sources; World economic outlook; IMF; BIS; McKinsey Global Institute analysis

Source: http://www.mckinsey.com/insights/economic_studies/debt_and_not_much_deleveraging
China’s rapid growth in debt since 2007 has helped keep up oil prices, prevent fall into world wide recession. Helped offset slowing debt growth elsewhere.

Source: http://www.mckinsey.com/insights/economic_studies/debt_and_not_much_deleveraging
Another aspect of debt problem: Banks that governments can’t bail out

- In 2008-2009, governments “bailed out” banks by taking on additional debt themselves

- Now governments have so much debt that it doesn’t look like they can do any more “bail-outs”.

- Instead, governments are planning on “bail-ins.”
  - Bank depositors would find their balances reduced if banks need money
  - Insurance programs for bank balances do not have much money to back up their guarantees

- If bank deposits are taken, companies may not be able to pay workers
  - Or customers may not be able to pay for goods and services
We need to distinguish between “paper assets” and things we already own

- Paper assets are bank accounts, insurance policies, shares of stocks, bonds, and other “promises”

- These only have value if there are real goods and services to buy with them in the future
  - If these goods and services don’t exist, “paper assets” will have little or no value
  - All we have in a given year is the food we grow in that year
    - Also the resources we pull out of the ground that year
    - And the goods made with these resources

- “Money” can’t distribute goods that don’t exist
Another problem: Insurance policies and pension programs act like “paper assets”

- There are “two sides” to every debt
  - Someone who owes money
  - Someone who expected to get the money, plus interest

- If there are many debt defaults, insurance companies and pension plans will be affected
  - Insurance companies own bonds – these are used to pay claims
  - Pension funds own stocks and bonds—amounts may not be available for those retiring from a job

- Funds promised in the future may not really be available
  - Any “paper investment” depends on what is actually grown or manufactured – can’t count on future value
We eventually end up with a collision course

- Debt needs to grow, to keep up prices of commodities
- Governments need to grow, to provide all of the services they have promised
- Cost of extracting commodities rises
- Wages of common workers fall

- There is not enough money to go around!
  - Really represents a resource problem
  - Not enough cheap energy products to meet all needs
    - These needs keep growing, as diminishing returns affect metal extraction, higher education, medicine, and other areas
It seems likely that low oil prices will start the cycle of debt defaults

- Many oil companies have borrowed heavily to finance their operations

- **Headline as I write this talks about oil company defaults** [http://wolfstreet.com/2015/03/05/default-monday-oil-gas-companies-face-their-creditors/now beginning](http://wolfstreet.com/2015/03/05/default-monday-oil-gas-companies-face-their-creditors/now beginning)

- **Example: American Eagle Energy**
  - Took out loan of $175 million in August, 2014
  - Doesn’t have funds to pay its *first* interest payment

- Other commodities have low prices as well
  - Defaults likely to occur on these debts also

- **Problem with defaults in one area soon spreads to problems in other areas**
  - Banks become insolvent
  - Especially a problem if “derivatives” are used

- May spread further, as job layoffs result