

Debt, Jobs and Oil

Thoughts on the
American Economy

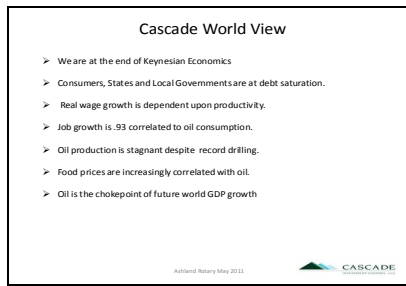
The Ashland Rotary Club

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May 19, 2011



My firm believes that the Post WW2 economic cycle pattern of recession and recovery has been broken and that a new economic cycle pattern is emerging.

This presentation is on our website as are my notes.



We are at the end of the road for Keynesian Economics.

We can no longer stimulate the forward consumption of consumer goods and services via increased consumer debt.

State and Local government services are (in our opinion) far overextended from their stable tax base, and will be severely debt constrained in the future.

Real wage growth is dependent upon productivity, which in turn is highly energy dependent. Without wage growth above the real rate of interest being charged to consumers, we are in danger becoming a nation of “debt slaves” like Ireland, Portugal and Greece.

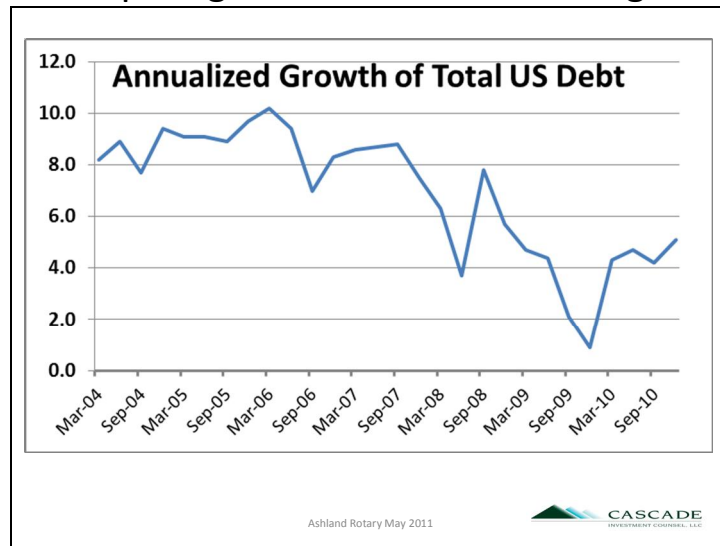
Job growth is 93% correlated to oil consumption. Productivity in the past century is more correlated to energy consumption than education.

Oil production is stagnant

Food prices are increasingly correlated to oil due to fertilizer, pesticides, etc.

Oil is the most important commodity on earth after water and is the chokepoint of future world GDP growth

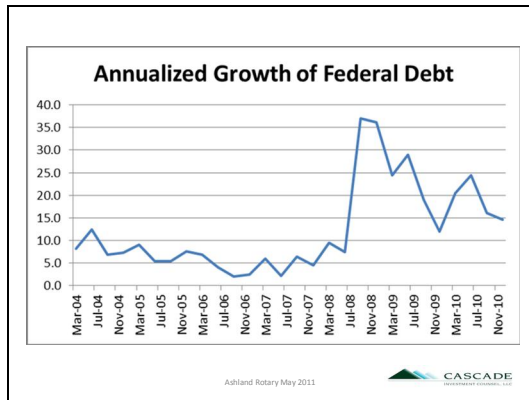
Keynesian Economics, in essence, was a scheme to accelerate future consumption into the present through fiscal deficits in recessions and fiscal surpluses in good times. However, since Eisenhower was President there have only been 5 years of budget surplus and 4 were due to unexpected capital gains tax windfalls during the dot com craze.



The number 1 problem in the US is debt: Many other Western world nations have too much debt and for some like the PIIGS if interest rates rise only slightly they will not be able to pay the interest on the debt let alone ever make a principle payment.

The Debt Crisis of 2008 is not solved or resolved

As can be seen here total debt has continued to rise throughout the ongoing crisis: debt growth never went below zero.



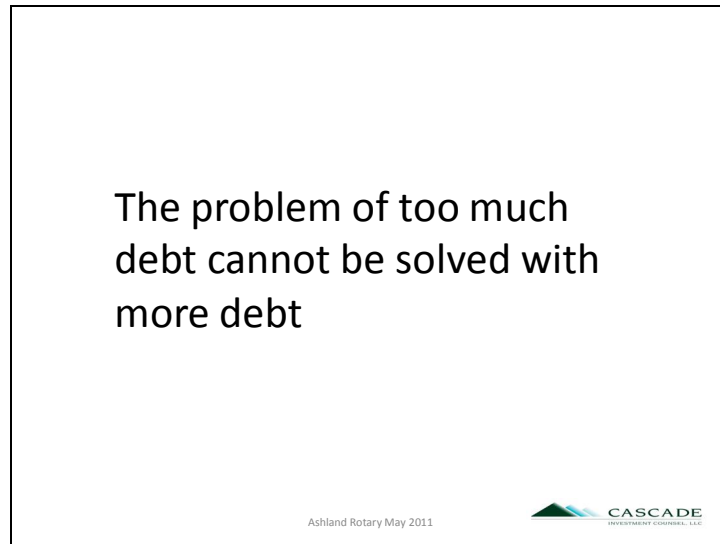
Federal Government is issuing immense amounts of debt in the hopes that jobs and GDP can be maintained. This is being done in the name of warding off deflation.

Few un payable debts have actually been extinguished. Rather they have been transferred from private ownership to public.

Yes there have been home foreclosures but they have been largely in the portfolios of FNMA and FRE where Congress has covered the losses.

Household debt is at saturation and is contracting slowly due to bankruptcy, home foreclosures and credit card restrictions. We believe that there is really no household demand for Federal Government debt, so the Fed is monetizing about \$19 billion per week of Treasury debt.

Gross debt in the US has grown from \$22 trillion to \$36 trillion since the end of the last recession



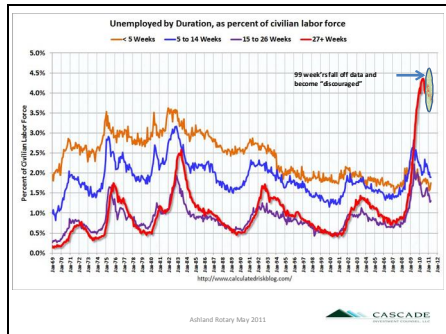
Government is not capable of creating wealth, only transferring it.

Tarp “saved” 9 Wall Street banks with \$700 billion. Those banks misuse of debt cost 10.5 million full time jobs.

QE 1 Did not work. It only moved \$1.7 trillion of bad loans from those banks to public. A \$1.5 trillion budget deficit in 2010 produced 1.12 million jobs 60% of which were in temporary employment (308,000), 24% leisure and hospitality (240,000) and 10% retail trade (116,000)

QE 2 Has been a \$600 billion boon to Wall Street which has caused enormous inflation in Equities and Commodities.

QE 3 Could (will) be a financial disaster for America as we move our public balance sheet to greater leverage than Greece.



The Number 2 problem in the US is Jobs.

There are 315 million people living in America but only 159 million Americans actually have a job. All others are living off of parents, children, rents, bond coupons, dividends or transfer payments from those who are working.

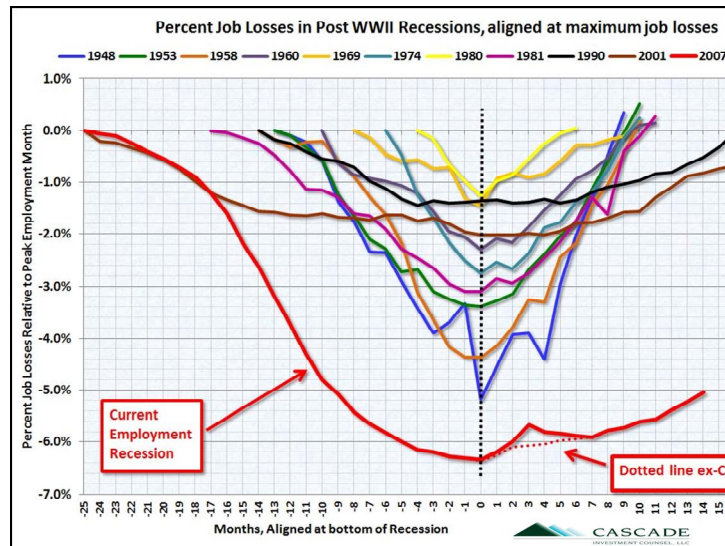
While the private sector employment seems to have stabilized, the nation has far more public sector jobs than it can sustain. We expect that there will be significant public sector layoffs in the coming years.

People without jobs have little capacity to pay down debt and in many cases make interest payments.

Those on unemployment are now unemployed for the longest average time since the Depression of the 1930's

We believe that jobs and unemployment are in structural crisis and therefore our government is in structural crisis.

“This Time It’s Different”

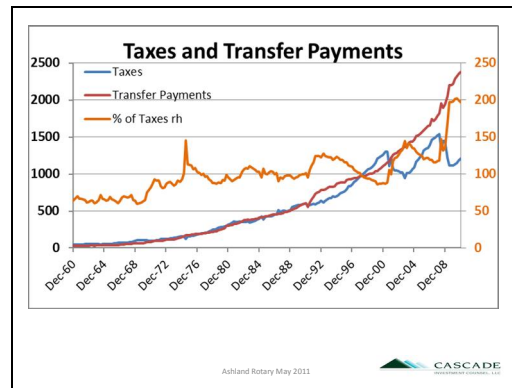


This graphic traces employment dips in each Post WW2 recession. The vertical dotted line is the nadir point or maximum job losses. To the left are the number of months it took to reach nadir; to the right the number of months it took for employment to reach prior levels.

The brown line is 2001 recession. While shallower than most recessions it took a year longer to get to nadir and a year longer to return to normal.

The recession is officially over but we are still 7 million jobs shy of the 2007 start. A jobless recovery is not a recovery at all.

We submit that the Post WW2 economic cycle is broken because households cannot borrow the nation out of economic reality.



A rapidly increasing number of Americans are living on transfer payments from government. SNAP Enrollment has set a record each month since reaching 31.78 million in December 2008. USDA estimates enrollment averaged 40.5 million people in fiscal year 2010 at a cost of \$59 billion. For fiscal 2011, average enrollment is forecast for 43.3 million people.

The blue line is the taxes collected LHS \$1.2 trillion


The red line are transfer payments LHS \$2.4 trillion

The gold line RHS is the transfer payments as a % of taxes collected. Transfer payments alone now represent 200% of taxes collected. Thus half is borrowed. All other government functions are funded with debt.

Government expenditures as a % of all private industry gross W2 wages crossed 80% in 2009 and has now reached about 110%

Energy Equivalents

1.E+00	J	1.0 J	1 Newton Metre	The energy of a medium apple falling 1 metre	
1.E+03	kilo-(kJ)	1.05E+03 J	1 British Thermal Unit (BTU)	Energy required to raise 1 pound of water 1 degree F	
		4.186E+03 J	1 food Calorie	4 BTU's in a food calorie	
1.E+06	mega-(MJ)	3.60E+06 J	1 Kilowatt-hour of electric consumption	3600 BTU's	
		8.40E+06 J	Daily recommended food energy for a man at rest	8400 BTU's	2010 Calories
1.E+07		1.70E+07 J	Energy of a day of heavy labor	17,000 BTU's	4086 Calories
1.E+09	giga-(GJ)	6.12E+09 J	Energy in a barrel of oil equivalent (bboe)	6,000,000 BTU's	353 days heavy labor or 714 days food
		7.2E+10 J	Annual energy for 1 US automobile	72,000,000 BTU's	4236 days heavy labor or 8568 days food
1.E+18	exa-(EJ)	4.74E+20 J	Total World Annual Energy consumption 2008	475 Quadrillion BTU's	The US uses about 100 Quads of energy each year

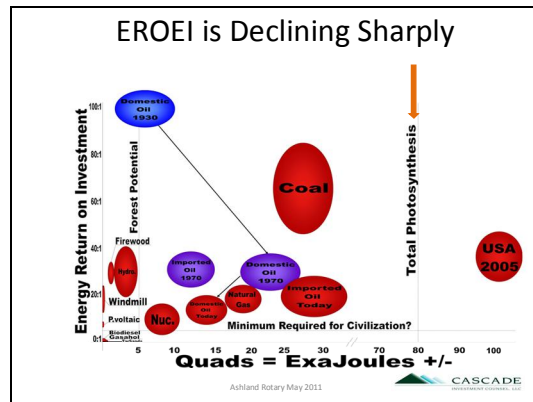
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The number 3 problem is the end of the age of cheap energy. When I spoke to you several years ago “peak oil” was the topic.

At Cascade we try to convert energy to a small common denominator so we can see cost/benefit relationships.

These are the handouts on your table

A “Quad” is 1 quadrillion BTU’s. The table will hopefully put this in perspective.



The absolutely most important equation in the energy field is EROEI: Energy Return on Energy Invested.

Oil in the 1930's returned 100+ : 1 Oil in the 1970's returned 30-40 : 1 US oil before the Macondo blowout returned 15-20 :1 now ?

Natural gas is now 18-22 but declining rapidly due to water and pollution issues

Ethanol and biodiesel have negative EROI

About 40% of oil and gas extracted is used in production and transportation to the end consumer, i.e. minimum EROI is 1.4 at point of extraction. If we add infrastructure costs (roads, auto costs and maintenance) this rises to 3 :1. The minimum to maintain civilization as we now know it is probably closer to 5:1 and if we curtail coal we will get there very quickly.

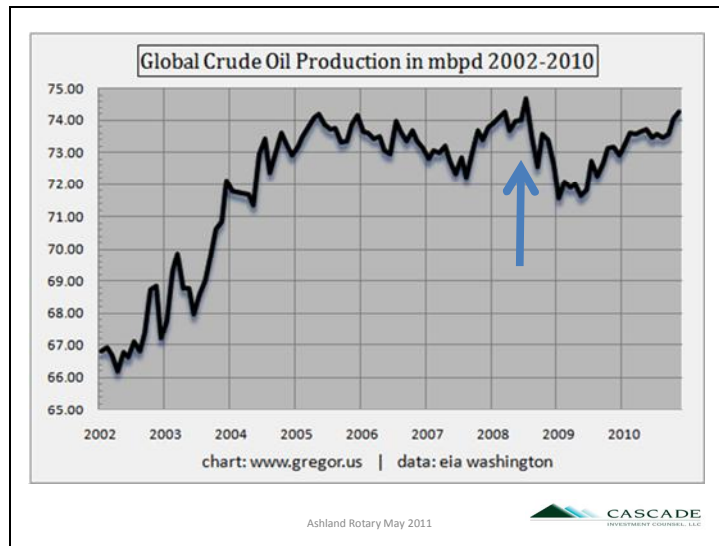
The energy value of the world's forests is less than 5 Quads

Total annual worldwide photosynthesis is estimated at 80 Quads

The world produces about 475 Quads and the US burns about 100

The good news is this is unchanged from 2005.

The bad news: life as we know it is dependent upon coal and nuclear



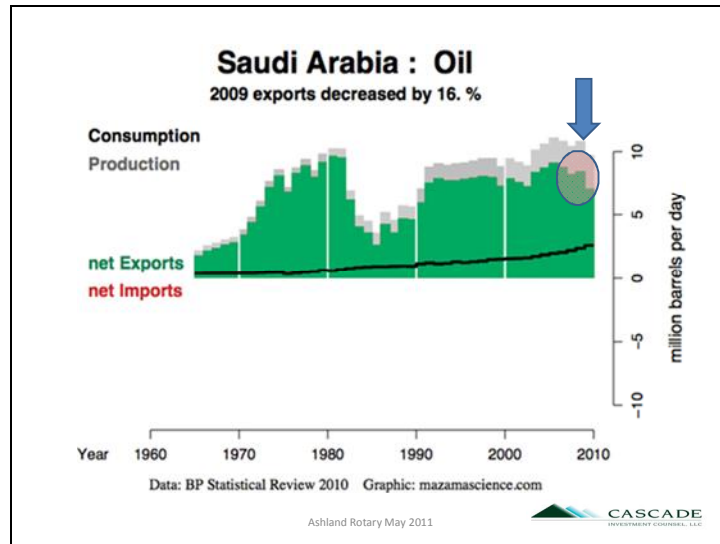
The actual amount of oil produced has remained steady since mid 2004. What has risen slightly is the condensate that burps up at the end of the life of a natural gas well called natural gas liquids (NGL).

Notice that the price rise to \$140 bbl. in 2008 (blue arrow) only moved the output by 500,000 bbl. a day. It's not difficult to conclude that the spare capacity just doesn't exist

Colin Campbell said years ago that "You can't pump what you can't find"

The last major oil discovery that was producible was the Cantrell field in Mexico in 1985 and its production is collapsing rapidly

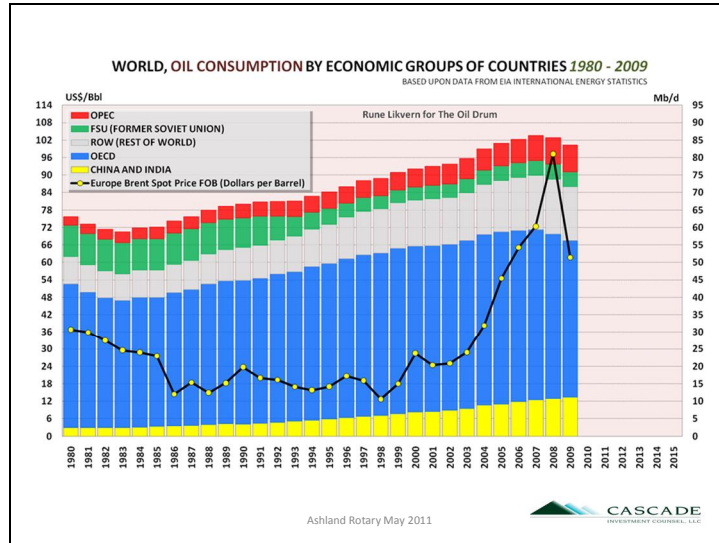
The Kingdom of Saudi Arabia (KSA) is supposedly the “swing producer” of oil



KSA total production has been flat for years at about the same rate as the last 1970's (grey column). What has been changing is domestic consumption (black line). The green column is what is left for export. I need not remind you of their demographic profile. King Abdullah said in 2010 that KSA would not produce any higher level of oil than present to keep some for future generations.

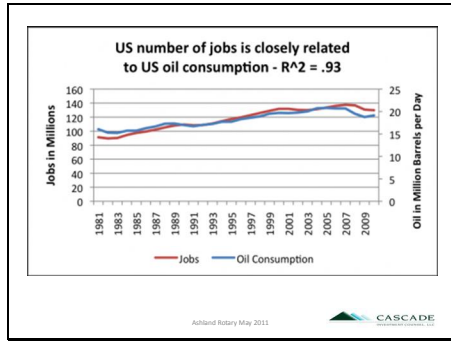
Although KSA boasts much excess capacity to produce oil their oil exports only went up about 100,000 bbl. Per day at the height of the 2008 oil squeeze. Exports actually fell 16% in 2009

KSA now exports less oil than just before the 1st oil embargo.



This graphic show who consumes the oil by groups. China and India's (in yellow) consumption growth is at the expense of everyone except the few net exporters.

At Cascaded we believe it is not how much oil remains in the world; rather the willingness of those that own it and control it to sell it to us and **THEIR TERMS OF TRADE**



Cutting to the chase:

There is a 93% correlation between the number of jobs and oil consumption.

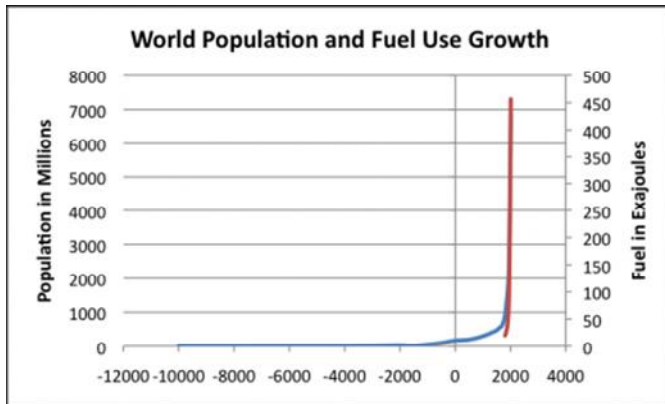
As energy costs rise productivity falls. Interest on debt can only be serviced through productivity. The modern fiat financial systems depend upon a constant state of growth in GDP, and the systems fail of their own weight in the absence of growth. Problem 3 guarantees that Problem 1 and 2 cannot be solved without extreme pain, particularly to lenders.

We believe that there must be a quantum leap in oil conservation because the most efficient/productive nations will bid for what future export oil is available. Failure to do so will result in a major reduction in the American standard of living and the certain failure of the banking system in its current form.

The new economic cycle is this: Price of oil rises to pain point: economy stagnates. Conservation/innovation = GDP growth.

Housing in areas like Southwest where you must heat in winter, air condition in summer and commute to everywhere will fall drastically in value. The most desirable place in the US to be is Pacific NW, and Oregon in particular. We have water, arable land and hydroelectric power.

Do the Math

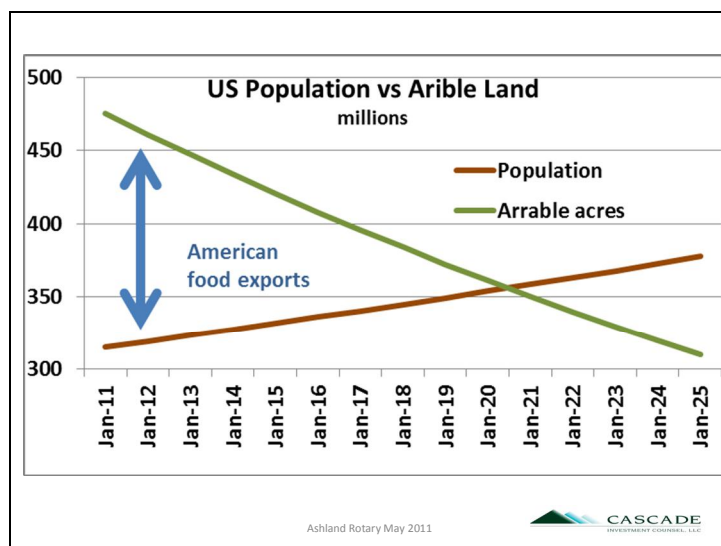


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7 billion people; 475 Quads.

What will happen when the people go up and the Quads go down?

What will the social compact be in 2025?



Almost all productive US land is now exploited by agriculture

Ag consumes 85% of US freshwater

475 million acres of farmland declining 3%/yr

1.4 acres of farmland per capita

Each new person needs 1 acre to feed

40% of US corn crop goes into ethanol with a negative EROI

US Population is growing at 1.3% per year

Thus the US will become a net importer of food early in the next decade