

AGGREGATES

Trevor Gallen

Winter, 2014

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 - ▶ Understand differences over time

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 - ▶ “Health” of overall economy
 - ▶ Dimensionality

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 - ▶ How do we find their value?
 - ▶ What about government products?
- ▶ Double-entry bookkeeping means GDI is an alternative method

GDP, GDI, VALUE-ADDED

Table : Corn and Cornbread's Contribution to GDP

Step	Input Cost	Gross Revenue	Net Revenue
Farmer→Miller	\$0	\$0.10	\$0.10
Miller→Baker	\$0.10	\$1	\$0.90
Baker→Supermarket	\$1	\$10	\$9
Supermarket→ Household	\$10	<u>\$11</u>	\$1

TWO WAYS

$$\underbrace{C + I + G + X - M}_{\text{Outflows}} = Y = \underbrace{wL + \pi + rK + T}_{\text{Inflows}}$$

PROVOCATIVE ASIDE ON LOG UTILITY

- ▶ Assume Utility in consumption is log, and people are homogenous
- ▶ How much should we take from the rich and give to the poor?
- ▶ Two people, rich is F times richer than poor. If we take \$1 from him and give X to the poor, how much does X have to be to balance the two?

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Solve for x ...

$$x = \frac{F \cdot Inc + 1}{F} - Inc = \frac{1}{F}$$

If F is 10 and Inc is \$10,000, then x is \$0.1.

Is there an easier way?

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- ▶ Then when $F = 10$, $x = ???$

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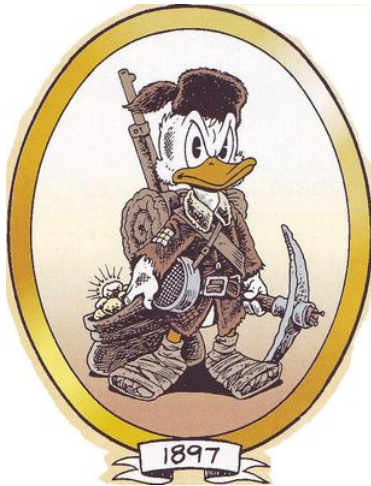
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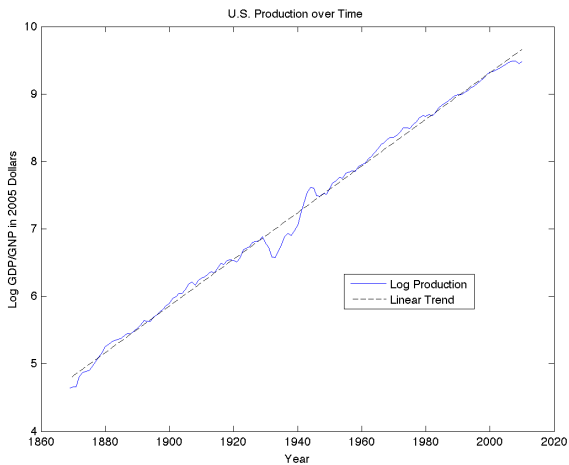
- ▶ Then when $F = 10$, $x = 2$! We should be transferring from the poor to the rich!
- ▶ This isn't crazy...labor income's standard deviation halved if hold hours constant

$$Var(\text{Labor Income}) = Var(\text{Hours} \cdot \text{Wage})$$

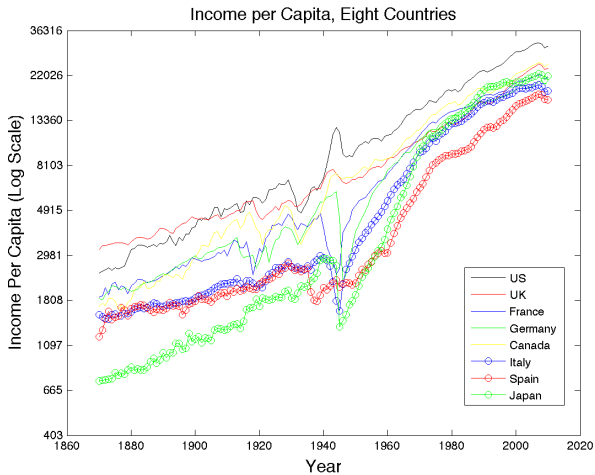
I.E. SCROOGE McDUCK ALSO WORKS HARD!



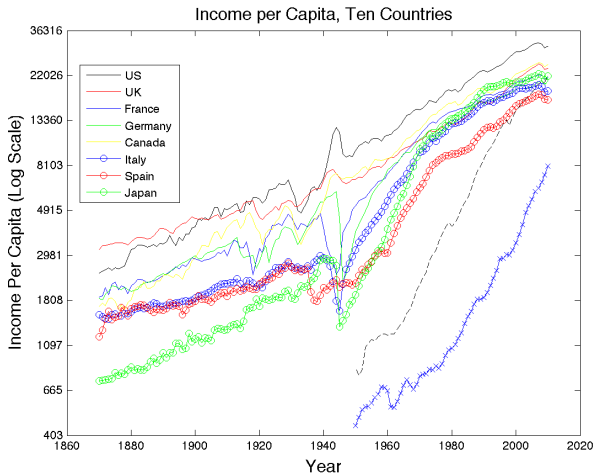
GDP-I



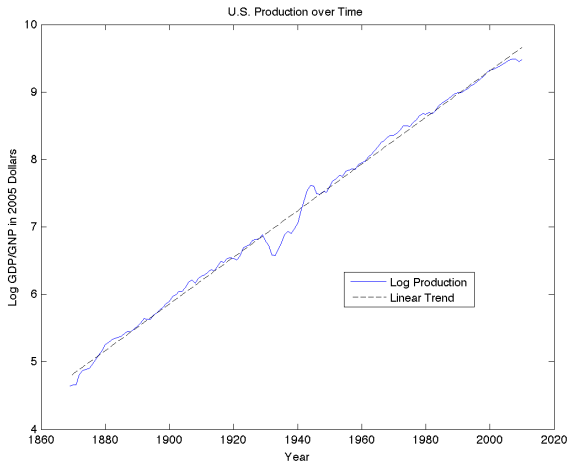
GDP PER CAPITA



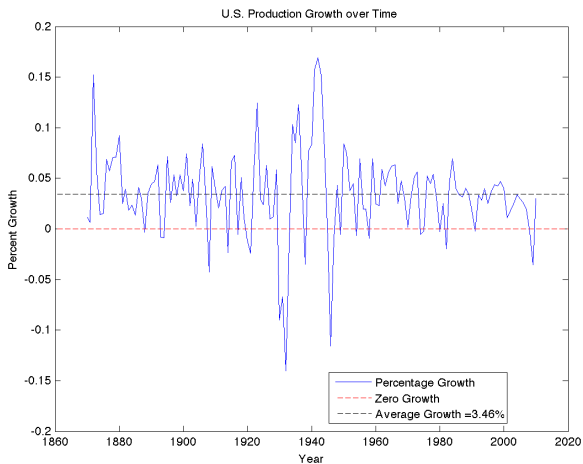
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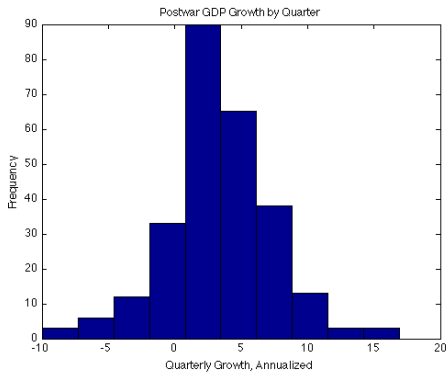
GDP-I (AGAIN)



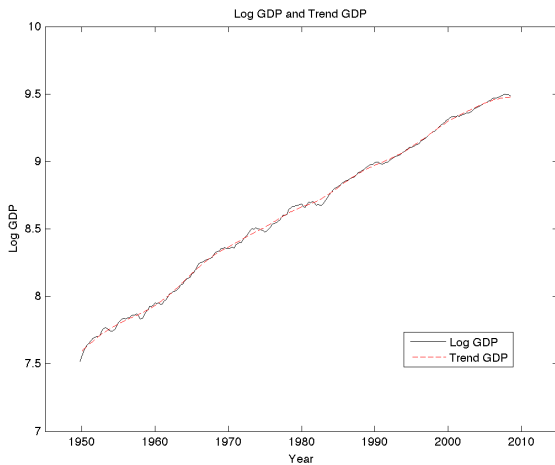
GDP-II



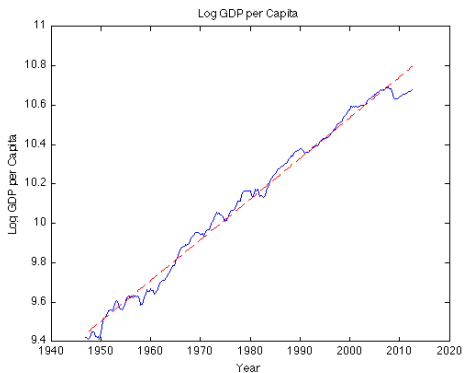
GDP-III



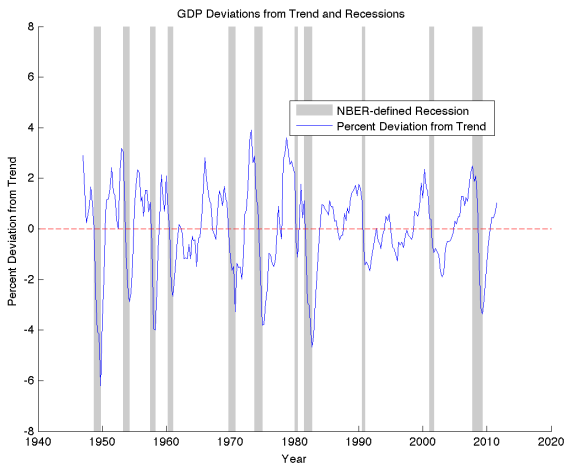
GDP-IV



LOG GDP PER CAPITA



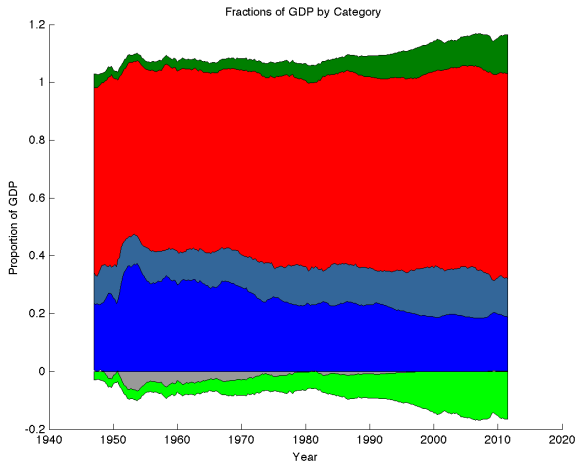
GDP-V



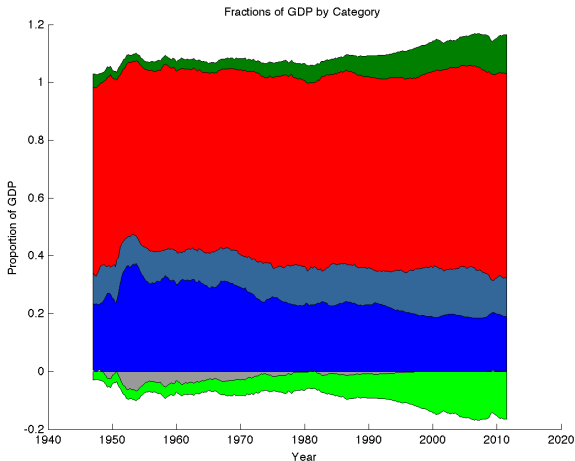
SOME STYLIZED FACTS

- ▶ GDP seems to fluctuate around a constant mean
 - ▶ Growth roughly constant
 - ▶ Permanent component of deviations seems small
 - ▶ (Deviations are persistent but mean-reverting)
- ▶ Advanced country growth rates pretty similar
- ▶ Some countries very different
- ▶ Want to understand growth rates and deviations

GDP SUBCATEGORIES

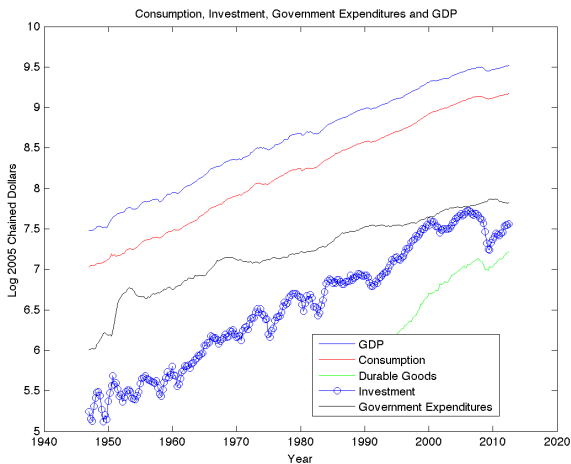


GDP SUBCATEGORIES

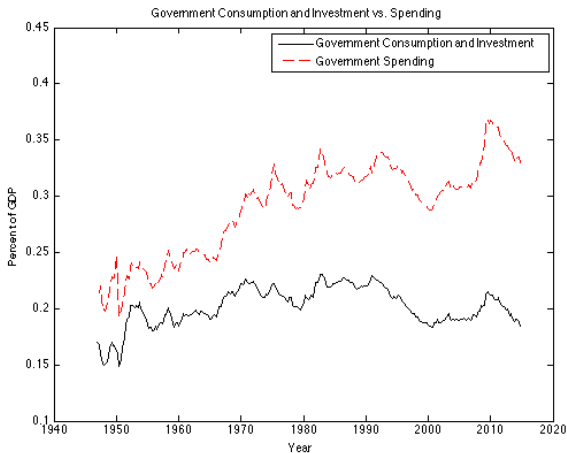


From top to bottom: 1) exports 2) consumption 3) investment 4) government spending 5) residual 6) imports.

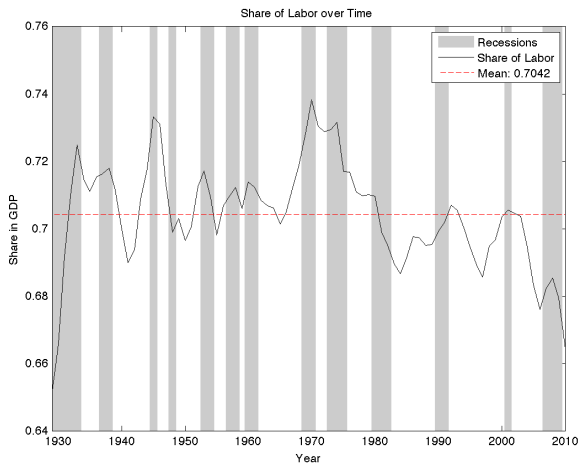
GDP SUBCATEGORIES-II



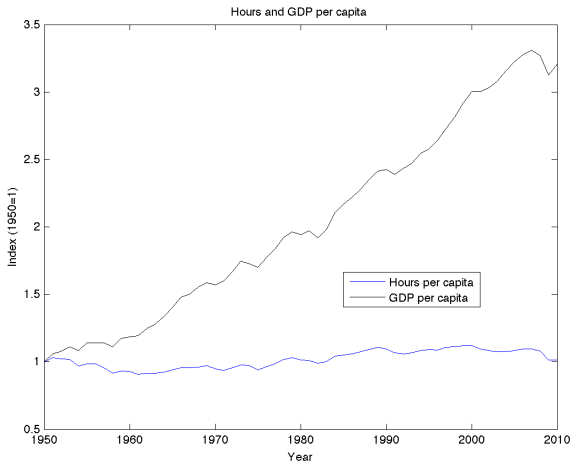
ASIDE: GOVERNMENT SHRINKING?



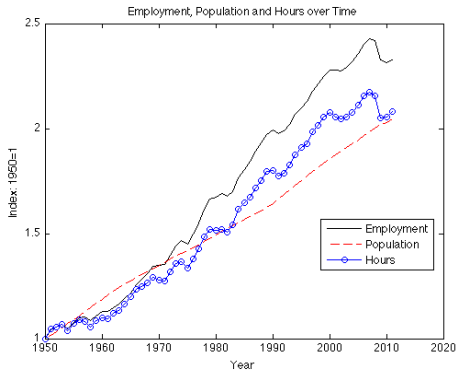
LABOR'S SHARE



GDP AND HOURS PER CAPITA



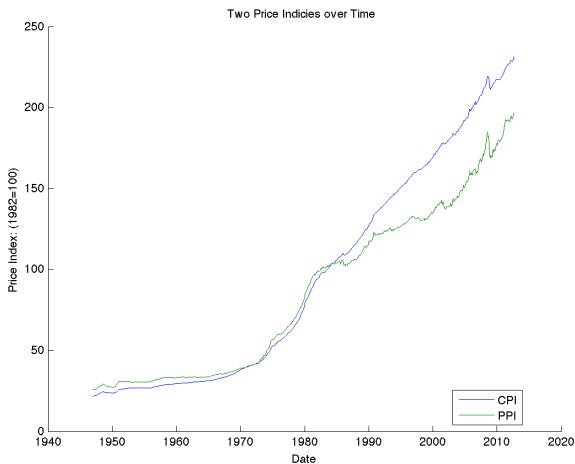
EMPLOYMENT AND HOURS



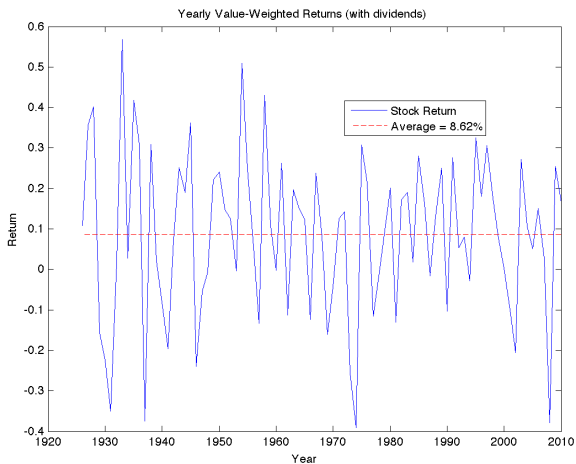
SOME MORE STYLIZED FACTS

- ▶ Government consumption and investment has declined a little
- ▶ Total government expenditures have increased quite a bit
- ▶ Labor's share of production has been relatively constant
 - ▶ GDP/capita increases 250%
 - ▶ Labor's share decreases by 4%
- ▶ Total hours have been roughly constant
 - ▶ Hours per worker decline
 - ▶ Workers per head increase
 - ▶ So what?

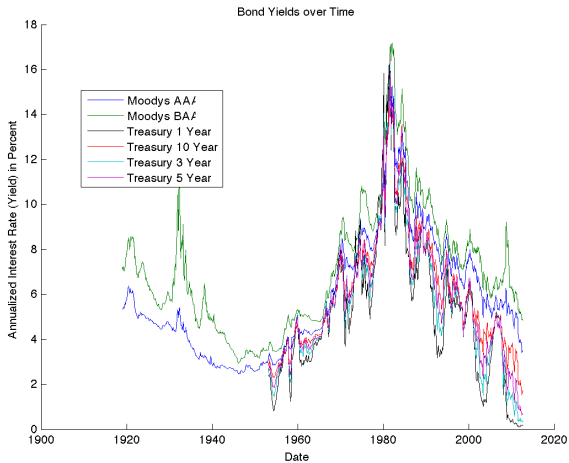
PRICE INDICIES



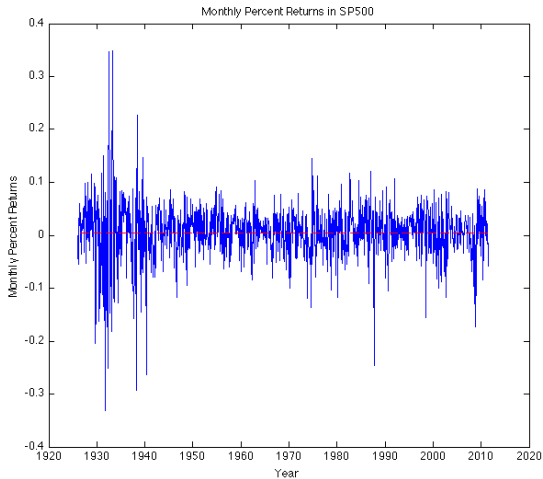
RETURNS-I



RETURNS-II



RETURNS-III



EVEN MORE STYLIZED FACTS

1. Interest rate is noisy!
2. Multiple interest rates
3. Interest rate fluctuated around same mean for long time
4. Fat tails in returns

We'll only really care about #2

UNEMPLOYMENT

