

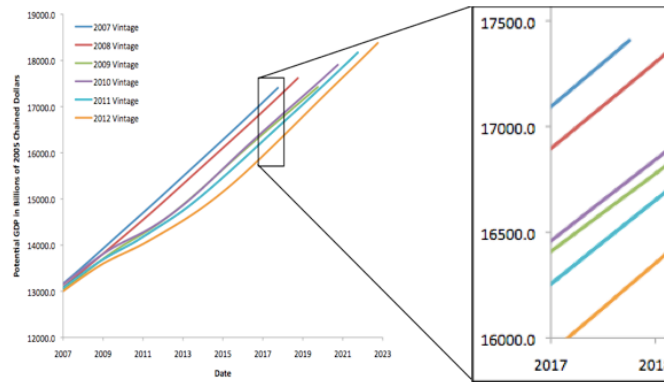
# Fiscal Policy in a Depressed Economy

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# Long, Deep Recessions Cast Shadows on the Future Economy

**Figure 4.5**  
**CBO Revisions of End-of-2017 Potential Output Forecasts, 2007-2012**

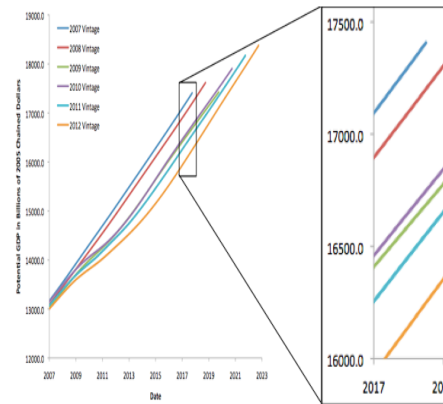


Source: U.S. Congressional Budget Office.

# Long, Deep Recessions Cast Shadows on the Future Economy

- Since the start of 2007, the Congressional Budget Office has repeatedly and substantially marked down its estimates of potential output
- For each percent that output falls below potential for a year, the CBO mark down its estimate of the long run potential of the economy by 0.2%.
- The CBO is not an outlier: other forecasters have done the same.

**Figure 4.5**  
CBO Revisions of End-of-2017 Potential Output Forecasts,  
2007-2012



Source: U.S. Congressional Budget Office.

## “Hysteresis”

- Higher output this year raises potential output in the future by a fraction  $\eta$  because:
  - it reduces the shadow cast by the downturn through:
    - discouraged workers,
    - lost skills,
    - broken organizations,
    - missing investment on future productivity
- With a policy-relevant multiplier  $\mu$ , boosting government purchases now boosts *future* real GDP by:
  - $\Delta Y_f = \eta\mu\Delta G$

## Hysteresis and the Financing of Expansionary Fiscal Policy

- Boosting government purchases now boosts future real GDP by:
  - $\Delta Y_f = \eta\mu\Delta G$
- Thus future total tax collections are boosted by:
  - $\tau\eta\mu\Delta G$
- The cost of amortizing the extra debt incurred from expansionary fiscal policy is:
  - $(r - g)(1 - \mu\tau)\Delta G$
  - where  $r$  is the real interest rate at which the Treasury borrows, and  $g$  is the long-term growth rate of the economy.

## The Self-Financing Condition

- If:
  - $\tau\eta\mu > (r - g)(1 - \mu\tau)$
- Or:
  - $r < g + \tau\eta\mu/(1 - \mu\tau)$
- There is, once again, no benefit-cost calculation to do: expansionary fiscal policy is self-financing:
  - no future tax increases are needed to amortize the extra debt
  - economic growth does it on its own
  - Rather, it is austerity that requires future tax increases.

## The Self-Financing Condition II

- $r < g + \tau\eta\mu/(1 - \mu\tau)$
- For a multiplier  $\mu = 1.0$ , a hysteresis shadow-cast-by-the-recession coefficient  $\eta = 0.1$ , a growth rate  $g = 2.5\%/year$ , and a tax share  $\tau = 1/3$ :
  - $r < 7.5\%$
  - The Treasury borrowing rate needs to be above 7.5%/year in real terms--above 9.5%/year in nominal terms--for fiscal expansion to be a bad deal.

## If the Self-Financing Condition Fails...

- Then there is a benefit-cost calculation to do: expansionary fiscal policy now does require raising taxes in the future, and those taxes impose costs in the future
- But reducing the shadow cast by the downturn on the future has benefits as well
- A net present value of future output calculation:

$$- \Delta V = [\mu(1 + \eta(1 + \xi\tau)/(r-g) - \xi(1 - \mu\tau)]\Delta G$$



# The NPV Calculation I

$$-\Delta V = [\mu(1 + \eta(1 + \xi\tau)/(r-g) - \xi(1 - \mu\tau)) \Delta G$$

Counterfactual difference  
in present value of output

Counterfactual  
temporary expansion  
of government purchases

## The NPV Calculation II

$$-\Delta V = [\mu(1 + \eta(1 + \xi\tau))/(r-g)] \cdot \xi(1 - \mu\tau) \Delta G$$

Output cost from raising taxes to amortize debt

Counterfactual difference in present value of output

Counterfactual temporary expansion of government purchases

# The NPV Calculation III

Present-period higher output via multiplier

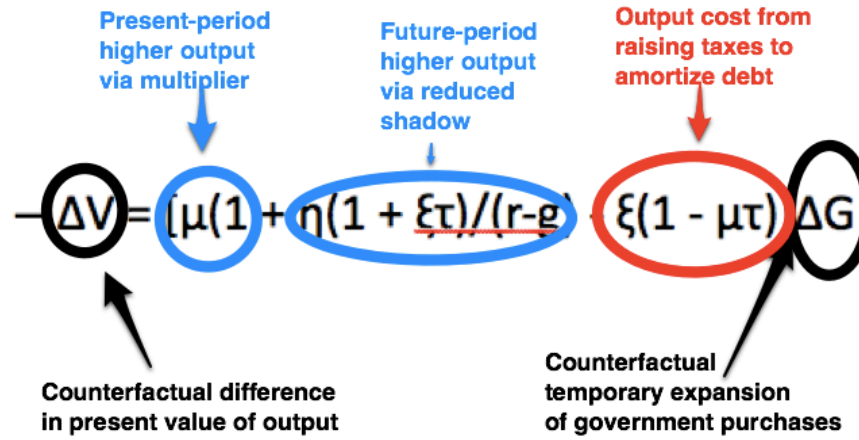
Output cost from raising taxes to amortize debt

$$-\Delta V = [\mu(1 + \eta(1 + \xi\tau)/(r-g)) \xi(1 - \mu\tau) \Delta G]$$

Counterfactual difference in present value of output

Counterfactual temporary expansion of government purchases

# The NPV Calculation IV



## The Net Present Value of Output Calculation

- The net present value of future output calculation:
  - $\Delta V = [\mu(1 + \eta(1 + \xi\tau))/(r-g) - \xi(1 - \mu\tau)]\Delta G$
- A reduced shadow cast on the future by the current recession is a very good thing by itself
  - It inserts the middle term
  - It plausibly doubles the benefits of expansionary policy above those of higher output from the multiplier  $\mu$  in the alone.
- The NPV calculation tells us:
  - For  $\mu = 0.5$ ,  $\eta = 0.05$ ,  $\tau = 1/3$ ,  $g = .025$ , and  $r = 6\%$ ...
  - Expansionary fiscal policy passes its benefit-cost test as long as raising \$1.00 in extra tax revenue reduces incomes by less than \$10.00
    - Compare to the \$0.30 estimate of Diamond and Saez or Romer

## Does This Prove too Much? No

- This applies only to a depressed economy
  - Only as long as the monetary authority cannot or will not--but in any case does not--carry out the government's stabilization policy mission all by itself.
- in normal times the logic of Taylor (2000), that stabilization policy should be left to monetary policy, holds.
- It is only in extraordinary times, like now, that this argument has force.

## In Normal Times Expansionary Fiscal Policy Flunks This Test

- $\Delta V = [\mu(1 + \eta(1 + \xi\tau)/(r-g) - \xi(1 - \mu\tau)]\Delta G$
- $\mu = 0$
- Perhaps the monetary authority has a view about how the economy should evolve and does not want its elbow joggled...
- Perhaps the monetary authority watches fiscal expansion raise output, disapprove of the resultant increase in inflation, and then creates an equal and opposite output gap later to reduce inflation back to its target.
- Either way the policy-relevant multiplier  $\mu$  is close to zero
- $\Delta V = [0 - \xi(1 - \mu\tau)]\Delta G$
- And there are no benefits, only costs, to fiscal policy as stabilization policy

## How Could This Calculation Go Wrong?

- The fear is that expansionary fiscal policy will lead to a collapse in confidence in the government and a spiking of interest and inflation rates to previously-unseen values.
- But if austerity is more likely to erode the government's fiscal room to maneuver than temporary expansion, this is backward.
- Failure to speed recovery, and so reduce the long-term shadow cast by the downturn--is also a very real threat to long-run fiscal stability
- Sovereign debt crises can be triggered by spending
- But they can also be triggered by austerity that produces growth declines and falls in tax collections