

Principles of Economics
Macroeconomics
Doing Problems with AD-
AS

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Income-Expenditure Monetary-Policy Setup

- Suppose that as of June 2014, the baseline forecast is for a year-2016 level of GDP of \$18.5 trillion (2016).
- Federal Reserve is still keeping the short-term safe nominal interest rates it controls at zero...
- Remember:
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
 - $d(c_w W)/dr = \$50B/\%-pt.$; $dI/dr = \$100B/\%-pt.$; $dX/dr = \$50B/\%-pt.$

Ladies and Gentlemen, to Your iClickers...

- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$...
- What will this rise in the risk premium ρ do to r ?
 - A. r will stay constant as the Federal Reserve reduces i in order to rebalance the economy
 - B. r will rise by 3%-points as the increase in ρ lowers the value of risky assets
 - C. r will rise by 6%-points as the financial accelerator μ kicks in
 - D. Cannot be determined from the information given
 - E. None of the above
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
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Ladies and Gentlemen, to Your iClickers...: ANSWER

- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$...
- What will this rise in the risk premium ρ do to r ?
 - A. r will stay constant as the Federal Reserve reduces i in order to rebalance the economy. **B. r will rise by 3%-points as the increase in ρ lowers the value of risky assets.** C. r will rise by 6%-points as the financial accelerator μ kicks in. D. Cannot be determined from the information given. E. None of the above
- **I am looking for (B)**
- **With i already at zero, the Federal Reserve cannot easily respond, so not (A)**
- **Already said that rise in ρ does not alter $E(\pi)$ or $E(\Delta i)$**
 - **But out there in the real world, it probably would...**
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\text{-pt.}$
- $dI/dr = \$100B/\text{-pt.}$
- $dX/dr = \$50B/\text{-pt.}$

Ladies and Gentlemen, to Your iClickers...

- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$, and so r rises by 3%-pts. What does this change your baseline forecast of real GDP to?
- A. Y (2016) stays at \$18.5T (2016). B. Y (2016) declines to \$17.9T (2016). C. Y (2016) declines to \$17.3T. D. It cannot be determined. E. None of the above.
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\text{-pt.}$
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- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$, and so r rises by 3%-pts. What does this change your baseline forecast of real GDP to?
 - A. Y (2016) stays at \$18.5T (2016). B. Y (2016) declines to \$17.9T (2016). C. Y (2016) declines to \$17.3T. **D. It cannot be determined.** E. None of the above.
- **I am looking for (D)...**
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\text{-pt.}$
- $dI/dr = \$100B/\text{-pt.}$
- $dX/dr = \$50B/\text{-pt.}$

Ladies and Gentlemen, to Your iClickers...: ANSWER II

- Remember the setup:
 - $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
 - We are pushing r up by 3%-pts...
 - Each 1%-pt. rise in r pushes $c_w W + I + X$ down by \$200B...
 - A 3%-pt. rise in r would push $c_w W + I + X$ down by \$600B...
 - But there's a multiplier μ out in front...
 - The multiplier applies not just to government purchases, but to everything...
 - And we haven't told you what μ is...
 - Hence (D): It cannot be determined.
- Baseline year-2016 forecast GDP: \$18.5T (2016).
 - $i = 0$
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
 - $d(c_w W)/dr = \$50B/\text{-pt.}$
 - $dI/dr = \$100B/\text{-pt.}$
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Ladies and Gentlemen, to Your iClickers...

- Add: $c_y = 0.5$
- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$, and so r rises by 3%-pts. What does this change your baseline forecast of real GDP to?
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- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50\text{B}/\%-\text{pt.}$
- $dI/dr = \$100\text{B}/\%-\text{pt.}$
- $dX/dr = \$50\text{B}/\%-\text{pt.}$
- $c_y = 0.5$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- Add: $c_y = 0.5$
- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$, and so r rises by 3%-pts. What does this change your baseline forecast of real GDP to?
 - A. Y (2016) stays at \$18.5T (2016). B. Y (2016) declines to \$17.9T (2016). C. **$Y$ (2016) declines to \$17.3T.** D. It cannot be determined. E. None of the above.
- **Yep. Now I am looking for (C)**
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
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- $c_y = 0.5$

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- Remember the setup:
 - $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
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- Each 1%-pt. rise in r pushes $c_w W + I + X$ down by \$200B...
- A 3%-pt. rise in r would push $c_w W + I + X$ down by \$600B...
- And there's a multiplier μ out in front...
- The multiplier $\mu = 1/(1 - c_y) = 2$
- So the 3%-pt. rise in r would push $c_w W + I + X$ down by \$1.2T...
- Hence (C): $\$18.5T - \$1.2T = \$17.3T$
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\text{-pt.}$
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Ladies and Gentlemen, to Your iClickers...

- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$...
 - Suppose further that the estimate of year-2016 potential output is \$20T.
 - How large a fiscal stimulus program—how large an increase in government purchases—would you need for 2016 to return the economy to potential output/full employment?
 - A. \$1.35T. B. \$2.7T. C. \$0.75T. D. \$0.6T. E. None of the above
- Baseline year-2016 forecast GDP: \$18.5T (2016).
 - $i = 0$
 - $r = i + E(\Delta i) + \rho - E(\pi)$
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 - $dX/dr = \$50B/\text{-pt.}$
 - $c_y = 0.5$
 - $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$...
- Suppose further that the estimate of year-2016 potential output is \$20T.
- How large a fiscal stimulus program—how large an increase in government purchases—would you need for 2016 to return the economy to potential output/full employment?
 - **A. \$1.35T.** B. \$2.7T. C. \$0.75T. D. \$0.6T. E. None of the above.
- **I am looking for (A)**
- **The baseline was \$18.5T**
- **The knock-on effects from the financial crisis abroad pushed the forecast down to \$17.3T**
- **There is now an output gap of \$2.7T**
- **With a multiplier μ of 2, you need a fiscal stimulus to G of \$1.35T to close it...**
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\%-pt.$
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Ladies and Gentlemen, to Your iClickers...

- A fiscal stimulus of \$1.35T is fearfully large...
- What else would you do instead of or in addition to boosting G?
 - A. A “weak dollar” policy to boost exports X
 - B. Various forms of loan guarantees to reduce risk spreads and so boost investment
 - C. Non-standard monetary policies of various sorts to affect expectations of future interest rates and inflation
 - D. Cuts in taxes
 - E. All of the above
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
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Ladies and Gentlemen, to Your iClickers...: ANSWER

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 - B. Various forms of loan guarantees to reduce risk spreads and so boost investment
 - C. Non-standard monetary policies of various sorts to affect expectations of future interest rates and inflation
 - D. Cuts in taxes
 - E. All of the above
- **I say (E): tax cuts, bank bailouts, talking the dollar down, other loan guarantees, and attempts to commit to lower interest rates and higher inflation over the long term...**
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
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- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Now Let's Change the Baseline

- Suppose that as of June 2014, the baseline forecast is for a year-2016 level of GDP of \$19.2 trillion (2016).
- Federal Reserve believes that \$19.2T (2016) is potential output
- Federal Reserve has set the short-term safe nominal interest rate it controls at 3%...
- Remember:
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
 - $d(c_w W)/dr = \$50B/\%-pt.$; $dI/dr = \$100B/\%-pt.$; $dX/dr = \$50B/\%-pt.$; $c_y = 0.5$

Ladies and Gentlemen, to Your iClickers...

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 - B. r will rise by 3%-points as the increase in ρ lowers the value of risky assets
 - C. r will rise by 6%-points as the financial accelerator μ kicks in
 - D. Cannot be determined from the information given
 - E. None of the above
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\%-pt.$
- $dI/dr = \$100B/\%-pt.$
- $dX/dr = \$50B/\%-pt.$
- $c_y = 0.5$
- $\mu = \frac{1}{1 - c_y}$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- The outbreak of a large emerging-market financial crisis in China (cf. Mexico, 1994-5; Malaysia etc., 1997-8; USA, 2007-9) pushes ρ up by 3%-points without altering $E(\pi)$ or $E(\Delta i)$...
- What will this rise in the risk premium ρ do to r ?
 - **A. r will stay constant as the Federal Reserve reduces i in order to rebalance the economy.** B. r will rise by 3%-points as the increase in ρ lowers the value of risky assets. C. r will rise by 6%-points as the financial accelerator μ kicks in. D. Cannot be determined from the information given. E. None of the above
- **I say (A)**
- **But this is based on a particular model of the Federal Reserve—the the (post-1970s) Federal Reserve pursues full monetary offset unless it finds itself trapped at the zero nominal lower bound to the safe short-term interest rates it controls...**
- **It's also based on a belief that Federal Reserve jawboning by itself does little to alter $E(\pi)$ or $E(\Delta i)$...**
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\text{-pt.}$
- $dI/dr = \$100B/\text{-pt.}$
- $dX/dr = \$50B/\text{-pt.}$
- $c_y = 0.5$
- $\mu = \frac{1}{1 - c_y}$

Ladies and Gentlemen, to Your iClickers...

- Suppose that while the Federal Reserve thinks that potential GDP is \$19.2T (2016), you think potential GDP is \$20T (2016)
 - By how much should you raise government purchases G ?
 - A. \$400B. B. \$0B. C. \$200B. D. \$800B. E. Cannot be determined from the information given
- Baseline year-2016 forecast GDP: \$19.2T (2016).
 - $i = 3\%$
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
 - $d(c_w W)/dr = \$50B/\% \text{-pt.}$
 - $dI/dr = \$100B/\% \text{-pt.}$
 - $dX/dr = \$50B/\% \text{-pt.}$
 - $c_y = 0.5$
 - $\mu = \lambda / (1 - c_y)$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- Suppose that while the Federal Reserve thinks that potential GDP is \$19.2T (2016), you think potential GDP is \$20T (2016)
- By how much should you raise government purchases G?
 - A. \$400B. **B. \$0B.** C. \$200B. D. \$800B. E. Cannot be determined from the information given
- **I would say (B)...**
- **But it depends on what the Federal Reserve does...**
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
- $dX/dr = \$50B/\% \text{-pt.}$
- $c_y = 0.5$
- $\mu = \frac{1}{1 - c_y}$

Ladies and Gentlemen, to Your iClickers...: ANSWER II

- Suppose that while the Federal Reserve thinks that potential GDP is \$19.2T (2016), you think potential GDP is \$20T (2016)
- By how much should you raise government purchases G?
 - A. \$400B. B. \$0B. C. \$200B. D. \$800B. E. Cannot be determined from the information given
- **What are the effects of (A)?**
 - **G up by \$400B...**
 - **Federal Reserve engages in full monetary offset and raises r by 2%/pts....**
 - **$c_w W$ down by 100B**
 - **I down by \$200B**
 - **X down by \$100B**
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
- $dX/dr = \$50B/\% \text{-pt.}$
- $c_y = 0.5$
- $\mu = \frac{1}{1 - c_y}$

Ladies and Gentlemen, to Your iClickers...: ANSWER III

- Suppose that while the Federal Reserve thinks that potential GDP is \$19.2T (2016), you think potential GDP is \$20T (2016)
- By how much should you raise government purchases G?
 - A. \$400B. B. \$0B. C. \$200B. D. \$800B. E. Cannot be determined from the information given
- **What are the effects of (A)? G up by \$400B... Federal Reserve raises r by 2%/pts.... $c_w W$ down by 100B... I down by \$200B... X down by \$100B**
- **Y is unchanged...**
- **C is changed only by the $c_w W$ term...**
- **Shifting spending out of X, I, C, and into G...**
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
- $dX/dr = \$50B/\% \text{-pt.}$
- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Let's Go Back to Our Original Baseline...

- Only explicitly say:
 - Potential output: \$20T (2016)
 - $c_y = 0.5$
 - $\mu = 1/(1 - c_y)$
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu[c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
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- $dX/dr = \$50B/\% \text{-pt.}$

Ladies and Gentlemen, to Your iClickers...

- You are President Obama and have finally gotten your infrastructure bank through the Congress...
- How much should it spend in 2016?
 - A. \$750B
 - B. \$1.5T
 - C. \$900B
 - D. \$500B
 - E. None of the above
- Potential output: \$20T (2016)
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
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- You are President Obama and have finally gotten your infrastructure bank through the Congress...
 - How much should it spend in 2016?
 - **A. \$750B.** B. \$1.5T. C. \$900B. D. \$500B. E. None of the above
 - **I say (A)**
 - **Multiplier of 2**
 - **Close the gap**
 - **The Fed cannot do anything**
- Potential output: \$20T (2016)
 - Baseline year-2016 forecast GDP: \$18.5T (2016).
 - $i = 0$
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
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 - $c_y = 0.5$
 - $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...

- You are President Obama and have surrendered to the Republicans in congress...
 - How much should you cut taxes in 2016?
 - A. \$750B
 - B. \$1.5T
 - C. \$900B
 - D. \$500B
 - E. None of the above
- Potential output: \$20T (2016)
 - Baseline year-2016 forecast GDP: \$18.5T (2016).
 - $i = 0$
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
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Ladies and Gentlemen, to Your iClickers...: ANSWER

- You are President Obama and have surrendered to the Republicans in congress...
- How much should you cut taxes in 2016?
 - A. \$750B. **B. \$1.5T.** C. \$900B. D. \$500B. E. None of the above
- **If you want to close the gap, you need to do (B)**
- **Why (B) rather than (A)? Because people spend only half of any tax cut they receive:**
 - $C = c_0 + c_y(Y - T) + c_w W$
- **If you worry about the long-term sustainability of the national debt, then rebalancing the economy via tax cuts gets very expensive very quickly...**
- **Why would people advocate it, then?**
- Potential output: \$20T (2016)
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\text{-pt.}$
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- $dX/dr = \$50B/\text{-pt.}$
- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...

- Suppose: total exports in 2016 are forecast at \$3.0T
 - A 1% decline in the value of the dollar will boost exports by 1% of their total.
 - If the Treasury Secretary goes on TV and says "a weaker dollar is in America's interest" that the value of the dollar, the exchange rate, will fall by 10%.
 - What would be the effect of such an announcement on Y in 2016?
 - A. Boost Y by \$600B. B. Boost Y by \$300B. C. Leave Y unchanged. D. Reduce Y by \$300B. E. None of the above
- Potential output: \$20T (2016)
 - Baseline year-2016 forecast GDP: \$18.5T (2016).
 - $i = 0$
 - $r = i + E(\Delta i) + \rho - E(\pi)$
 - $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
 - $d(c_w W)/dr = \$50B/\% \text{-pt.}$
 - $dI/dr = \$100B/\% \text{-pt.}$
 - $dX/dr = \$50B/\% \text{-pt.}$
 - $c_y = 0.5$
 - $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- Suppose: total exports in 2016 are forecast at \$3.0T
- A 1% decline in the value of the dollar will boost exports by 1% of their total.
- If the Treasury Secretary goes on TV and says "a weaker dollar is in America's interest" that the value of the dollar, the exchange rate, will fall by 10%.
- What would be the effect of such an announcement on Y in 2016?
 - **A. Boost Y by \$600B.** B. Boost Y by \$300B. C. Leave Y unchanged. D. Reduce Y by \$300B. E. None of the above
- **I say (A):**
 - **No Federal Reserve offset...**
 - **X up by \$300B**
 - **Multiplier of 2**
- Potential output: \$20T (2016)
- Baseline year-2016 forecast GDP: \$18.5T (2016).
- $i = 0$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
- $dX/dr = \$50B/\% \text{-pt.}$
- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...

- Change the baseline...
- Suppose: total exports in 2016 are forecast at \$3.0T
- A 1% decline in the value of the dollar will boost exports by 1% of their total.
- If the Treasury Secretary goes on TV and says "a weaker dollar is in America's interest" that the value of the dollar, the exchange rate, will fall by 10%.
- What would be the effect of such an announcement on Y in 2016?
 - A. Boost Y by \$600B. B. Boost Y by \$300B. C. Leave Y unchanged. D. Reduce Y by \$300B. E. None of the above
- Federal Reserve forecast of potential output: \$19.2T (2016)
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
- $dX/dr = \$50B/\% \text{-pt.}$
- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- Change the baseline... Suppose: total exports in 2016 are forecast at \$3.0T. A 1% decline in the value of the dollar will boost exports by 1% of their total. If the Treasury Secretary goes on TV and says "a weaker dollar is in America's interest" that the value of the dollar, the exchange rate, will fall by 10%.
- What would be the effect of such an announcement on Y in 2016?
 - A. Boost Y by \$600B. B. Boost Y by \$300B. C. Leave Y unchanged. D. Reduce Y by \$300B. E. None of the above
- **I say (C).**
 - **Federal Reserve offset. Federal Reserve is eager to keep output from falling below or rising above potential, and has the tools to do it...**
- Federal Reserve forecast of potential output: \$19.2T (2016)
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\% \text{-pt.}$
- $dI/dr = \$100B/\% \text{-pt.}$
- $dX/dr = \$50B/\% \text{-pt.}$
- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Ladies and Gentlemen, to Your iClickers...: ANSWER II

- Change the baseline... Suppose: total exports in 2016 are forecast at \$3.0T. A 1% decline in the value of the dollar will boost exports by 1% of their total. If the Treasury Secretary goes on TV and says "a weaker dollar is in America's interest" that the value of the dollar, the exchange rate, will fall by 10%.
- What would be the effect of such an announcement on Y in 2016?
 - A. Boost Y by \$600B. B. Boost Y by \$300B. C. Leave Y unchanged. D. Reduce Y by \$300B. E. None of the above
- **I say (C).**
 - **Federal Reserve offset. Federal Reserve is eager to keep output from falling below or rising above potential, and has the tools to do it...**
 - **X up by \$225B**
 - **C down by \$75B**
 - **I down by \$150B**
 - **Bob Rubin's "strong dollar policy" in reverse...**
- Federal Reserve forecast of potential output: \$19.2T (2016)
- Baseline year-2016 forecast GDP: \$19.2T (2016).
- $i = 3\%$
- $r = i + E(\Delta i) + \rho - E(\pi)$
- $Y = \mu [c_0 + (G - c_y T) + (c_w W + I + X)(r)]$
- $d(c_w W)/dr = \$50B/\%-pt.$
- $dI/dr = \$100B/\%-pt.$
- $dX/dr = \$50B/\%-pt.$
- $c_y = 0.5$
- $\mu = 1/(1 - c_y)$

Aggregate Supply Setup

- Suppose that the aggregate supply curve for 2016 is given by:
 - $P = 1.00$ for $Y < \$20.0T$ (2016)
 - $P > 1.00$ for $Y = \$20.0T$ (2016)
 - No possibility of $Y > \$20.0T$ (2016)
- With the price level in 2015 being 0.98 so that expected inflation over the year from 2015 and 2016 is 2.04%.

Aggregate Supply Setup II

- You are working in New York forecasting the 2016 economy for Medium-Sized Hedge Fund Named After a Local Geographic Feature. Your baseline forecasts--which you get via a painfully-expensive subscription to Mississippi Valley Forecasters--are that for 2016 real GDP and its components will be:
 - X: 3.0T (2016). G: \$3.3T (2016). I: \$3.6T (2016). C: \$9.2T (2016). Y: 19.2T (2016)
- and your estimate of the marginal propensity to consume $c_y=0.667$.
- Federal Reserve $i = 0\%$

Ladies and Gentlemen, to Your iClickers...

- What do you tell your bosses to tell the politicians to do for 2016 when they call?
 - A. Boost G by \$300B. B. Boost G by \$500B. C. Cut T by \$500B. D. Cut T by \$300B. E. Nothing.
- $P = 1.00$ for $Y < \$20.0T$ (2016)
- $P > 1.00$ for $Y = \$20.0T$ (2016)
- No possibility of $Y > \$20.0T$ (2016)
- Baseline:
 - X: 3.0T (2016)
 - G: \$3.3T (2016)
 - I: \$3.6T (2016)
 - C: \$9.2T (2016).
 - $c_y = 0.667$
 - $i = 0\%$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- What do you tell your bosses to tell the politicians to do for 2016 when they call?
 - **A. Boost G by \$300B.** B. Boost G by \$500B. **C. Cut T by \$500B.** D. Cut T by \$300B. E. Nothing.
 - **I will take either (A) or (C)—depending on whether you think our government is too small or too large, and depending on whether you think the long-term debt is a threat or a nothingburger**
- $P = 1.00$ for $Y < \$20.0T$ (2016)
 - $P > 1.00$ for $Y = \$20.0T$ (2016)
 - No possibility of $Y > \$20.0T$ (2016)
 - Baseline:
 - $X: 3.0T$ (2016)
 - $G: \$3.3T$ (2016)
 - $I: \$3.6T$ (2016)
 - $C: \$9.2T$ (2016).
 - $c_y = 0.667$
 - $i = 0\%$

Ladies and Gentlemen, to Your iClickers...

- Suppose the government boosts G by not \$300B but \$500B for 2016. What happens?
 - A. Real GDP rises to \$20.7T.
 - B. Real GDP rises to \$20T, and the price level is not the baseline 1.00 but 1.035—we have not 2.04%/year inflation but 5.6%/year inflation.
 - C. The Federal Reserve raises interest rates from 0% to 1%, and real GDP rises to \$20T with inflation still at its baseline forecast 2.04%/year.
 - D. Real GDP remains unchanged because the Federal Reserve offsets the effect of fiscal policy on real GDP.
 - E. Inflation accelerates to well beyond 5.6%/year because it is clear that the government is no longer serious about price stability
- $P = 1.00$ for $Y < \$20.0T$ (2016)
- $P > 1.00$ for $Y = \$20.0T$ (2016)
- No possibility of $Y > \$20.0T$ (2016)
- Baseline:
 - $X: 3.0T$ (2016)
 - $G: \$3.3T$ (2016)
 - $I: \$3.6T$ (2016)
 - $C: \$9.2T$ (2016).
 - $c_y = 0.667$
 - $i = 0\%$

Ladies and Gentlemen, to Your iClickers...: ANSWER

- Suppose the government boosts G by not \$300B but \$500B for 2016. What happens?
 - A. Real GDP rises to \$20.7T. B. Real GDP rises to \$20T, and the price level is not the baseline 1.00 but 1.035—we have not 2.04%/year inflation but 5.6%/year inflation. C. The Federal Reserve raises interest rates from 0% to 1%, and real GDP rises to \$20T with inflation still at its baseline forecast 2.04%/year. D. Real GDP remains unchanged because the Federal Reserve offsets the effect of fiscal policy on real GDP. E. Inflation accelerates to well beyond 5.6%/year because it is clear that the government is no longer serious about price stability.
- **I won't take (A)—real GDP cannot rise above \$20T (2016). I won't take (D)—not without a theory of why the Federal Reserve offsets the entire fiscal stimulus. I won't take (E)—the anchoring of inflation expectations does not break down that quickly. I would prefer (C), but I would accept (B)...**
- $P = 1.00$ for $Y < \$20.0T$ (2016)
- $P > 1.00$ for $Y = \$20.0T$ (2016)
- No possibility of $Y > \$20.0T$ (2016)
- Baseline:
 - $X: 3.0T$ (2016)
 - $G: \$3.3T$ (2016)
 - $I: \$3.6T$ (2016)
 - $C: \$9.2T$ (2016).
 - $c_y = 0.667$
 - $i = 0\%$