Problem Set 6: Aggregate Demand with Answers

It is the winter of 2008-2009, and the economy has just crashed. It is too late to do much to boost spending and reduce unemployment for 2009, but there is a chance for the government to take action to stop a lengthy depression in 2010 and thereafter. A full employment economy in 2010-2012 would have a spending level of $16 trillion. You forecast that, given the Federal Reserve's monetary policy and if the government undertakes no additional expansionary policies, actual spending will be significantly lower than full employment for those three years—and then in 2013 the normal equilibrium-restoring forces of the market will restore full employment. Suppose that household consumption spending C in the economy for the years 2010, 2011, and 2012 is given by the equation:

$$C = \$1.3333T + (2/3)Y$$

where spending numbers are in trillions, and where Y is GDP—total income and spending in the economy. And remember that:

$$Y = C + I + NX + G$$

where I is investment spending by businesses and NX is net exports.

1) Suppose that you forecast that in 2010 I will fall short of the level consistent with a full-employment economy by $0.4 trillion, and that NX will fall short of the level consistent with a full-employment economy by $0.2 trillion. How large a gap do you see in 2010 between actual and full-employment spending if the government does not boost its spending to further stimulate the economy?

Using the Greek letter capital Δ to indicate differences from values consistent with full-employment…

ΔY = ΔC + ΔI + ΔNX ΔG +

ΔY = ΔC - $0.4T - $0.2T + 0

And ΔC = (2/3)ΔY

ΔY = (2/3)ΔC - $0.4T - $0.2T

(1/3) ΔY = -$0.6T

ΔY = -$1.8T

2) Suppose that you forecast that in 2011 I will fall short of the level consistent with a full-employment economy by $0.3 trillion, and that NX will be $0.1T below the level consistent with a full-employment economy. How large a gap do you see in 2011 between actual and full-employment spending if the government does not boost its spending to further stimulate the economy?

Using the Greek letter capital Δ to indicate differences from values consistent with full-employment…

ΔY = ΔC + ΔI + ΔNX ΔG +

ΔY = ΔC - $0.3T - $0.1T + 0

And ΔC = (2/3)ΔY

ΔY = (2/3)ΔC - $0.4T

(1/3) ΔY = -$0.4T

ΔY = -$1.2T

3) Suppose that you forecast that in 2012 I will fall short of the level consistent with a full-employment economy by $0.2 trillion, and that NX will be at the level consistent with a full-employment economy. How large a gap do you see in 2012 between actual and full-employment spending if the government does not boost its spending to further stimulate the economy?

Using the Greek letter capital Δ to indicate differences from values consistent with full-employment…

ΔY = ΔC + ΔI + ΔNX ΔG +

ΔY = ΔC - $0.2T + 0 + 0

And ΔC = (2/3)ΔY

ΔY = (2/3)ΔC - $0.2T

(1/3) ΔY = -$0.2T

$\Delta Y = -\$0.6T$

4) What is the cumulative shortfall in spending below what is needed to maintain full employment that you see for 2010-2012 if the government does not boost its spending to further stimulate the economy?

**$0.6T in 2012, $1.2T in 2011, and $1.8T in 2010 = $3.6 T**

5) How large a fiscal stimulus—a government spending program, a Recovery Act—would you recommend that President-Elect Obama propose in order to fill in the projected output gap for 2010-2012.

 Since the MPC is 2/3, the multiplier μ is 3. To close a $3.6T output gap would require $1.2T in fiscal stimulus in the form of additional government spending.

6) Suppose that Larry Summers, in charge of coordinating economic policy for the Obama Administration to be, says that recommending a Recovery Act of more than $1 trillion is "non-planetary"—that such a large number would be rejected by the President-Elect and his senior political advisors as ludicrous, and would be rejected by congress, and that the maximum you can propose is $800 billion in additional spending over 3 years. How do you describe the impact of an $800 billion stimulus?

You say that it closes 2/3 of the output gap over 2010-2012, leaving a $1.2T cumulative output gap remaining and an economy significantly below full employment.

7) The graph below gives spending levels for net exports NX, government purchases G, and the two main components of I—business investment and residential investment—relative to the shares of potential GDP that they attained at the business-cycle peak in 2007, and as shares of potential GDP (so that today 0.01 = $200B/yr of spending):

Four Principal Components of Spending
Shares of Potential GDP, Relative to 2007 Peak
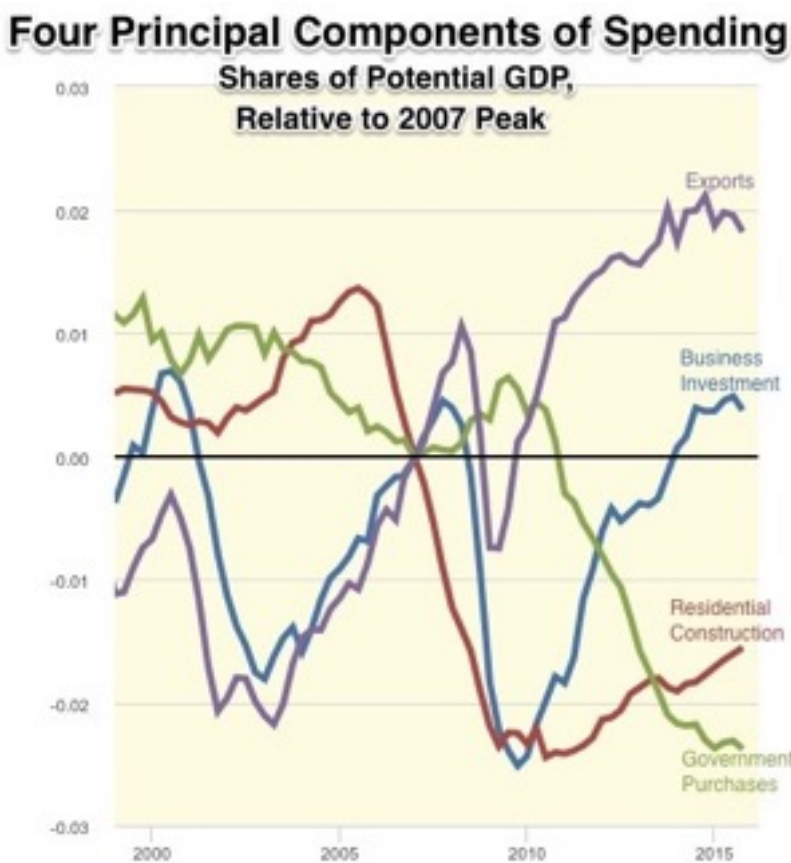
Suppose that if the economy were at full employment all of exports, business investment, residential investment, and government purchases would be at their 2007 shares of potential output—at 0.00 on this graph. By how much are these components of spending falling short of amounts consistent with a full-employment economy?

Exports are up relative to the full-employment-economy baseline values by .019—1.9% of potential GDP—business investment is up by 0.004, residential construction is down by 0.015, and government purchases are down by 0.024. Add those up and get -0.016. These components of spending are lower than consistent with a full employment economy by a net total of 1.6% of GDP, or $320B/yr.

8) Assuming that the multiplier µ is 3 and that nothing macroeconomically significant has been left out, how far is spending below the level consistent with full employment right now?

$320B/yr x 3 = $960B/yr

9) If you were advising either Hillary Rodham Clinton or Donald Trump and they asked you what government actions could create a full-employment economy, what would you tell them?

That boosting government purchases by $320B/yr would do the trick.

10) Read the first four pages of **https://web.archive.org/web/20120226122237/http://www.noamscheiber.com/wp-content/uploads/2012/02/Dec16memodraft4.pdf** and the first twenty pages of **http://delong.typepad.com/20091215-obama-economic-policy-memo.pdf**. How closely do you think the incoming Obama Administration's thinking tracks the calculations you made in problems (1) through (9)? How good a job do you think the incoming administration staff did in framing the issues for President-Elect Obama? How accurate do you think their analysis of the economy was?

A paragraph saying that the two track relatively well…

A paragraph giving their assessment—which could be positive or negative—of how well the administration staff did at framing the issues.

A paragraph pointing out that assuming that natural market equilibrating forces would restore full employment by 2013 was completely wrong.