Contractions and the Government Budget
Econ 202/Haworth

Let's consider the effect of decreasing output (real GDP) on the government's budget. First, let's recall some basic information regarding the output of an economy (real GDP) and that economy's potential (potential GDP). We'll say that our current output is Y* (the same Y* you calculated in a previous set of material on the AE model) and that our potential output is Yp.

If Y* < Yp, then we are not producing enough output to put us at our potential, and a likely cause is that demand is too low to get us to our potential. I.e. consumers aren't buying a lot of goods and services, which means suppliers aren't producing as much, and the result is called recession – or as we also call it, a recessionary gap. Entering into that recession involves the economy contracting (i.e. what we call a contraction, as contraction leads to recession).

If Y* > Yp, then we are producing more output than we would normally produce at our potential, and a likely cause is that demand is too high, pulling us beyond our potential. I.e. consumers are buying a lot more goods and services than normal, which means suppliers have a hard time keeping up with demand and they must start raising prices in order to prevent running out of goods and services. The result is called inflation – or as we also call it, an inflationary gap. Entering into that inflation involves the economy expanding (i.e. what we call an expansion, but an expansion that is too strong, which is what leads to inflation).

Next, let's recall what we mean by the government's budget. When we refer to the government budget, we're talking about any supposed "gap" between government spending (G) and taxes (T). G is spending and T is revenue, and so when you spend more than you take in with revenue, the result is a budget deficit. When you bring in more revenue than the amount you spend, it's a budget surplus. Of course, when G = T, we have a balanced budget.

With all of this in hand, let's look at how sliding into a contraction affects the government's budget. Note that although we may have discussed various approaches to balancing the budget, the effect we discuss here is always what we expect prior to any budget-related or economy-related policy response. What we'll discuss here is what happens as the economy suddenly heads into recession.

Assume that we are in a situation where the budget is balanced. I.e., G = T. Let's assume further that although government spending is a constant (e.g. G = 5000, just as we discussed in a previous section), taxes have both a constant component, and also relate to income. In other words, there's an income tax. E.g., a flat 10% income tax rate on all income, then the tax equation might look like this, $T = 4000 + 0.1Y$. Let's make this more concrete and say that G and T are as follows:

$G = 5000$
$T = 4000 + 0.1Y$

Now, if $Y = 10,000$, then what would be the situation with this economy's government budget? Plugging in 10,000 for Y in the T equation, we get:

$T = 4000 + 0.1(10,000)$

Therefore, when we are producing $10,000 worth of goods and services in this economy, the government's tax revenue will be $T = 5000$. Since $G = 5000$ as well, we know that this government's budget is balanced. I.e. $G = T$.

Suppose this economy begins heading into a recession (i.e. experiences a contraction). If so, then we know that Y would decrease. Let's say that Y decreases to 9000. If so, then how is the budget affected?

$G = 5000$
$T = 4000 + 0.1(9000)$

We know that $T = 4900$. Therefore, a decrease in Y leads to $G > T$ and we have a government budget deficit. Further decreases in Y would lead to an even bigger government budget deficit.

This allows us to say the following: contractions lead the government's budget toward deficit. If we start out with a budget surplus, then we may still have a budget surplus after the contraction, but the budget surplus will be smaller. If we start out balanced before the contraction, then the contraction will push the government budget into deficit. If we start with a budget deficit before the contraction, then the contraction will worsen the budget deficit.