The final segment of your analysis deals with the financing of government activities in your country. You will look at the pattern of government spending and net taxes to assess how they behave over the business cycle, then consider the overall deficit and debt position of your country both historically and at present.

Some data issues

All countries collect data on government finance because their governments have to know what is coming in and what is going out. (Sometimes the data that they publish are "embellished" to reflect political goals, though. A famous case is Greece fudging its deficit numbers in order to meet criteria set for entrance into the Euro Zone.) You'll have to use what you can find.

Most countries have **multiple levels of government**. In the United States, the federal government coexists with state, county, and city governments, plus school districts, regional governments such as Portland's Metro, and other similar authorities. Be aware of whether the data you are using include only "central government" (which would correspond to the U.S. federal government) or "general government," which includes all levels of governments. It is probably best (if you have a choice) to use general government numbers for most countries, but central government is also fine if that is all you can find. Make sure that you describe this aspect of the data clearly in your report.

Be careful about **taxes and transfer payments**. Transfer payments are amounts given by the government to individuals or companies for which no goods or services are exchanged. In the United States, this includes interest payments on the federal debt (which may be separated out as an additional category), Social Security payments, veterans' benefits, and other similar programs. What we call T in our models is actually net taxes, or taxes minus transfer payments. What we call G in our models is government purchases of goods and services (which do not include transfers). The data sets often separate total government purchases into "government consumption" and "government investment/capital formation," depending on whether the government is paying salaries and buying non-durable goods and services (consumption) or buying durable goods such as roads (investment).

We often want to distinguish between a country's overall government deficit and its **primary deficit**. The latter excludes interest payments on the government's debt, so it reflects the balance between current spending and current net income, neglecting the payments required

by past deficit spending. If you can find a primary deficit series, get it. If not, try to find a component of transfer spending for interest payments. Deducting this from overall spending will allow you to calculate a primary deficit.

The ideal measure of government debt is **net debt** rather than **gross debt**. In some countries (notably the United States), government agencies such as the central bank hold considerable quantities of government bonds. These assets reflect government borrowing from itself, so they are not really a burden in the same way as government debt held by others. Gross debt includes these bonds; net debt excludes them.

Also be careful about **units of measure**. As with other components of national accounts, government variables exist in both nominal ("current prices") and real ("constant prices") forms, and there is often a deflator or price index that converts one to the other. You always want to use real measures. It is often useful to express government deficits and debt as a percentage of GDP. This scales the variable to the country's overall level of income and allows for easy comparisons across countries.

There will be other questions and ambiguities that will arise in looking at the data for your country. I cannot examine all 12 countries and anticipate what these might be, so if is very important to get an early start looking for data on this project and bring your questions to me early enough that I can help you. In your report, be sure to include the exact title, label, and/or description of every data series you use, as well as its source.

Data series you'll need for this project
- Total real government purchases, including both consumption and investment
- Total real government revenues, including all categories of taxes, "social contributions," income from government enterprises, and other sources of revenue
- Total real transfer payments, including subsidies (unless these are already netted out of taxes)
- Real GDP, in same units, to use in normalizing deficits and debt
- Real government surpluses/deficits, which should correspond to total government purchases minus taxes net of transfers (at least approximately). This should also correspond to net government borrowing, if such a variable is present.
- Real primary surpluses/deficits, either obtained directly or calculated by adding government interest payments to the surplus (or deducting them from the deficit)
- Real government debt outstanding, net if possible

Government budgets over the business cycle
The goal of this part is to understand the degree to which government spending, net taxes, and therefore deficits respond to fluctuations in domestic economic activity. Has fiscal policy seemed to be countercyclical or procyclical in your country? In other words, do taxes go down and spending up in recessions?

The GDP gap series that you developed (and perhaps refined in accordance with my comments) a few weeks ago would be a useful measure of the business cycle. Since the GDP gap is expressed as a percentage of GDP, you should express your government variables as percentages of GDP as well so that everything is comparable.

There are several tools that you could use to express this relationship: use the ones that seem most descriptive for your economy. You could plot each government variable as a share of GDP over time along with the GDP gap to give a visual representation of the relationship. You could use a scatter plot with the government variable as percentage of GDP on the vertical axis and the GDP gap on the horizontal axis. You could even run regressions using the SLOPE function with the government variable as the dependent variable (the first argument of the function) and the GDP gap as the independent variable, which would give you an estimate for the response of the government variable to GDP over the cycle.

Whatever graphical and analytical tools you use, be sure that your narrative tells the story about the cyclical behavior of government finances that is reflected in your pictures and numbers.

Government deficits and debt
In this section of the project you are to assess the behavior of your country's government deficits and debt over time.

A time plot of the real primary deficit, the total real deficit, and the real government debt—all as shares of GDP—would be a good place to start. What are the patterns and how do they reflect business cycles and other historical events? Has your country tended to run primary surpluses or deficits consistently? Has the debt been rising or falling?

Assess your country's current deficit and debt position. Although a 3% deficit (adjusted for the business cycle) and 60% debt are often used as benchmarks for acceptable government finance, some countries are able to borrow a lot more readily than others. How does your country's current position compare with these benchmarks?

Real government debt as a share of GDP increases even in the presence of a balanced primary budget if the real interest rate exceeds the growth rate of real GDP. Looking at the past few years, are real government bond interest rates higher or lower than real GDP growth rates? (Or, equivalently, are nominal government bond interest rates higher or lower than the growth rate of nominal GDP, which is real growth plus inflation?)

Does your country borrow in its own currency or in another currency (euros, dollars, etc.)? If it borrows in its own currency, to what extent does it use "inflationary finance" (printing money) as a source of revenue to cover its deficit?

Taking all of these considerations into account, do you think that the current government budget situation (adjusted for the business cycle) is sustainable or will there need to be some degree of "fiscal consolidation" in the near future to reduce deficits? If there needs to be some consolidation, will that be highly detrimental to the macroeconomy given its current state?