I. Private and Public Income
   A. Private disposable income: the amount of income the private sector has available to spend. This is given by:

   \[ \text{Private Disposable Income} = Y + TR + INT - T = GDP + TR + INT - T \]

   B. Net government income: taxes net of transfer payments and payment of interest on the national debt. This is available to the government for purchase of goods and services. Thus:

   \[ \text{Net Government Income} = T - TR - INT \]

   C. The sum yields GDP:

   \[ \text{Private disposable income} + \text{Net government income} = GDP. \]

II. Saving
   A. Private saving: current private disposable income minus consumption. (Conceptually, “consumption” should be thought of as “spending on current needs.” However, in practice, in the national income accounts, consumption includes consumer durables such as autos, [though not houses]. Also, as noted earlier [Handout 2], spending on education is treated as purely consumption, although it is surely at least partly investment in human capital.) This is given by:

   \[ S_{\text{pvt}} = (Y + TR + INT - T) - C \]

   B. Government saving: net government income minus government purchases (the latter in the national income accounts sense). This is given by:

   \[ S_{\text{govt}} = (T - TR - INT) - G \]

   C. National saving: the sum of private saving and government saving. This is given by:

   \[ S = S_{\text{pvt}} + S_{\text{govt}} = Y - C - G = GDP - C - G. \]

   Thus, national saving is equal to an appropriate concept of an economy’s income, (in the case at hand, \( Y \)), minus consumption (private + government) in that economy. Note that
this interpretation depends on treating all of government purchases as consumption, (something that we shall do for the sake of simplicity). In regard to this, see pp.37-38. It is also somewhat deficient conceptually in that, as noted earlier, the national income accounts treat “household investment” in, for example, autos and white goods (washing machines, etc.) as consumption. Finally, as noted earlier, spending on education is treated purely as consumption.

Example. (a) Let GDP = $1,000 billion, INT = 0, T = $200 billion, TR = $100 billion. Private disposable income = ________________

Net government income = ________________

(b) Suppose that, in addition to the figures in (a), one has C = $700 billion, and G = $200 billion. Then: $S_{gov} =$

Alternatively: $S =$

NOTE. In any given context, saving is the part of the relevant income flow that is not consumed.

III. The government budget surplus: government receipts minus government outlays. “Government outlays” includes both “government purchases” in the sense of the national income accounts, and the sum of transfers and interest on government debt. “Government budget surplus” is an alternative name for government saving. When receipts are less than outlays, the difference, (usually specified in absolute value), is known as the government budget deficit. Thus, when the government runs a deficit, government saving is negative.

IV. National Saving and Investment
   Making use of the equation at the bottom of page 1, one has the very important relationship:

   $S = I$.

This equation is an equation showing the uses of national saving, to which we shall return.

To obtain an equation for the uses of private saving, remember that national saving is the sum of private saving and government saving. Using this, and rearranging, we have:

   $S_{pvt} = I + (-S_{gov})$.

V. The uses of private saving
   Private saving is used in two ways.
A. To fund new (domestic) physical capital investment (including inventory investment).
B. To finance the government budget deficit, (when the government is running a deficit, government saving is negative, so that \(- S_{gov} > 0\)).

VI. The uses of national saving
A. Adding government saving to both sides of the preceding equation, one gets back to:

\[ S = I. \]

B. National saving is used to increase the stock of domestic physical capital through investment.

VII. National wealth: results from the accumulation of national saving over time
A. Stocks and flows
   1. Bathtub example
   2. Macroeconomics example: entrants into the labor force
   3. Saving represents an accumulation (decumulation) flow of assets or a decumulation (accumulation) flow of liabilities. Saving thereby is part of the rate of change in wealth.
B. National wealth is the total wealth of the residents of a country. National wealth consists of the country’s (domestic) physical assets, such as capital equipment (and consumer durables) and land. (In this context, it is important that you read footnote 15 on p.40 regarding human capital. Some estimates suggest that if one defines national wealth to include human capital as part of national wealth, then it constitutes considerably more than 50% of national wealth.)
C. If one includes government as an entity with a balance sheet, then (domestic) financial assets held by domestic residents are not part of national wealth. This is because the value of any domestic financial asset is offset by either the value of a domestic financial liability, or by a balance-sheet net worth entry (in which case to include it as part of national wealth would amount to double-counting). For purposes of macroeconomic theory, one sometimes wants to exclude government – in particular, the federal government – in this accounting; in which case “private” net worth – the aggregate of net worth across individuals – exceeds national wealth as computed above (presuming that the national debt is positive).
D. National wealth can change in two ways.
   1. The value of the existing assets or liabilities can change. Example: Overall, the U.S. stock market increased in value dramatically in the late 1990’s. These shares represent claims to physical assets.
   2. The second way in which national wealth can change is through national saving. To repeat the equation above for national saving: \( S = I \).

Holding fixed the value of existing assets and liabilities, each dollar of national saving becomes a dollar of national wealth.

VIII. Final points
A. It is very important that you understand the difference between personal saving and private saving. Beginning in the early 1980’s, both the personal saving rate and the private
saving rate exhibited a negative trend, but the personal saving rate much more so. It is the private saving rate that is the more important.

B. For our purposes, other than being aware of the fact of ongoing, sometimes significant revisions in estimates of various variables as more data come in, you need not be concerned with the ongoing (generally upward) revisions in estimates of the personal saving rate.

C. The ongoing downward trend in the personal saving rate, which continued into late 2005, reflected the ongoing upward trend in household wealth. The personal saving rate for the U.S. rose and then fell, remaining quite low, during the period from late 2005 until the latter part of 2007. Beginning early in the second quarter of 2008, possibly in part connected to tax rebates beginning in May of 2008, as well as to the drop in housing prices, the personal saving rate has been moving in a jagged fashion, sometimes quite steeply, upward. It is currently a bit below six percent.

The private saving rate has been rising since early 2007 but with a more moderate trend than that of personal saving, reaching 17% – 18% at the present time.