I. Introduction
- A. In prior chapters, we explained consumption with a function that relates consumption to disposable income.
  1. $C = C(Y - T)$
- B. This chapter presents the views of four prominent economists:
  1. John Maynard Keynes
  2. Irving Fisher,
  3. Franco Modigliani and
  4. Milton Friedman.

II. John Maynard Keynes and the Consumption Function.
- A. Keynes's conjectures.
  1. First, the amount consumed out of an additional dollar of income, **Marginal propensity to consume**, is between zero and one.
  2. Second, the ratio of consumption to income, **Average propensity to consume**, falls as income rises.
  3. Third, income is the primary determinant of consumption and that the interest rates does not have an important role.
     - a. **Figure 16-1: The Keynesian consumption function, p. 436.**
     - b. $C = \acute{C} + cY$
       - (1) $\acute{C} > 0$
       - (2) $0 < c < 1$
     - c. $\acute{C}$ is a constant sometimes called autonomous consumption.
     - d. **Average propensity to consume**: $APC = C/Y$
- B. The early empirical successes.
  1. Confirmed by cross sectional data and data for the between war period.
- C. Secular stagnation, Simon Kuznets, and the consumption puzzle.
  1. There were two anomalies:
     - a. If dAPC/dY declines as Y increases, then we should experience secular stagnation as saving increases.
     - *b.* *APC/Y has remained family constant over long periods of time.*
  2. **Figure 16-2: The consumption puzzle, p. 438.**

III. Irving Fisher and Intertemporal Choice.
- A. IF developed the model with which economists analyze how rational, forward-looking consumers make intertemporal choices.
  1. His approach is the basis for the other modern theories.
- B. **The intertemporal budget constraint**: It relates to the decision of how much to consume today versus how much to consume tomorrow.
  1. $C_1 + C_2 / (1+r) = Y_1 + Y_2 / (1+r) = \text{Wealth}$
  2. $C_2 = (1 + r)W - (1 + r)C_1$

3. **Figure 16-3: The consumer's budget constraint, p. 441.**

C. Consumer preferences.
   1. **Indifference curve**: It shows the combinations of first-period and second-period consumption that make the consumer equally happy.
   2. **FYI: Present Value, or Why a $1,000,000 Prize is Worth Only $623,000, p. 442.**
   3. **Figure 16-4: The consumer's preferences, p. 443.**
   4. **Marginal rate of substitution:** The slope of the indifference curve. It tells the rate at which the consumer is willing to substitute second period consumption for first-period consumption.

D. Optimization.
   1. **Slope of the budget line***:*
      a. MRS= 1 + r
   2. **Figure 16-5: The consumer's optimum, p. 444.**

E. How changes in income affect consumption.
   1. *Present value of income* = $Y_1 + Y_2 / (1+r)$
   2. **Figure 16-6: An increase in income, p. 445.**
   3. **Normal good**: The good of which the consumer wants more when his or her income rises.
   4. In contrast to Keynes's consumption function, Fisher's model says that C does not depend primarily on current income.
      a. Instead, C depends on the resources the consumer expects over his or her lifetime.

F. How changes in the real interest rate affect consumption.
   1. **Figure 16-7: An increase in the interest rate, p. 446.**
      a. **Income effect**: The change in the consumption that results from the movement to a higher indifference curve.
      b. **Substitution effect**: The change in the consumption that results from the change in the relative price of consumption in the two periods.
   2. **Case-study: Consumption and the real interest rate, p. 447.**
      a. **Figure 16-8: A scatterplot of saving and the interest rate, p. 447.**
      b. There does not appear to be a relationship.

G. Constraints on borrowing.
   1. **Figure 16-9: A borrowing contract, p. 449.**
      a. **Borrowing constraint**: An additional constraint on the consumer, derived from the fact that consumption in a period is less than or equal to income in that period.
   2. **Figure 16-10: The consumer's optimum with a borrowing constraint, p. 449.**

3. **Case-study: The high Japanese saving rate, p. 450.**
   - **a.** It is harder to borrow in Japan.
   - b. Down payments on houses are higher.
   - c. Capital income is taxed lightly.
   - d. Cultural differences.

IV. Franco Modigliani and the Life-Cycle Hypothesis.
- A. *This is the approach that will be emphasized in class.*
- B. **Life-cycle hypothesis**: The interpretation of consumer behavior that emphasizes that income varies over people's lives and that saving allows consumers to move income from those times in life when income is high, to those times when is low.
- C. The hypothesis.
  1. **Consumption function:**
     - *a.* *C= (1/T)W + (R/T)Y or (W +RY)/T*
       - *(1)* where T is years left, W is wealth, Y is annual income and R is years until retirement.
     - b. C = áW + âY
- D. Implications.
  1. C/Y = á(W/Y) + â
  2. As wealth changes, the consumption function shifts.
  3. **Figure 16-11: The life-cycle consumption function, p. 452.**
  4. **Figure 16-12: How changes in wealth shift the consumption function, p. 453.**
  5. A key implication is that the young who are working save, while the old who are retired dissave.
     - a. **Figure 16-13: Consumption, income, and wealth over the life cycle, p. 454.**
  6. *A key implication is that the impact of fiscal policy is highly unreliable because the marginal propensity to consume out of a change in disposable income is very unpredictable.*
- E. **Case-study: The consumption and saving of the elderly, p 454.**
  1. People do not dissave to the level predicted by the model because of
     - a. precautionary savings and
     - b. bequests.

V. Milton Friedman and the Permanent-Income Hypothesis.
- A. *The conclusions of this hypothesis are similar to those of the Life Cycle Model.*
- B. Unlike the life-cycle hypothesis, which emphasizes that income follows a regular pattern over a person’s lifetime, the permanent-income hypothesis emphasizes that people experience random and temporary changes in their income from year to year.

C. The hypothesis.
   1. $Y = Y^p + Y^T$
   2. $C = \acute{a} Y^p$
   3. **Permanent income**: The part of income that people expect to persist into the future. It is an average income.
   4. **Transitory income**: The part of income that people do not expect to persist. It is a random derivation of that average income.

D. Implications.
   1. $APC = C/Y = \acute{a} Y^p / Y$
   2. **Case-study: The 1964 tax cut and the 1968 tax surcharge, p. 457.**

E. Rational expectations and consumption.
   1. If consumers obey the permanent-income hypothesis and have rational expectations, then only unexpected policy changes influences consumption.
   2. These policy changes take effect when they change expectations.
   3. It is often hard to know how and when changes in fiscal policy alter AD.
   4. It is difficult to know how and when changes in fiscal policy alter aggregate demand.
   5. **Case-study : Do Predictable Changes in Income Lead to Predictable Changes in Consumption?, p. 459.**
      a. Saving tends to rise before recessions and fall before booms.

VI. Conclusion.
   A. Keynes suggested
      1. Consumption = f(Current Income)
   B. Recent research suggests that
      1. *Consumption= f (current income, wealth, expected future income, interest rates)*

VII. Summary.