

Economics 101: Basic Economic Principles
Professor Clark

In-class Exercises on Chapter 31: Applications of the Aggregate Expenditures Model to Historical Case Studies

Assignment: At the beginning of class on Friday, I will present the Case Study of the Great Recession, 2007-09, based on the final pages of chapter 31 (beginning with the section, "Equilibrium versus Full-Employment GDP"). I will take the lead on this case study and illustrate how to analyze the downturn that began in 2007 using our aggregate expenditures model.

We will then turn to the attached handout that describes four other case studies. **(Be sure to read through the handout in advance of class.)** We will start with the first case study, that of the Great Depression, and identify the key factors that explain the decline in economic activity. We will do this together as a class.

You will be responsible for the next two case studies for Monday. I have assigned each student to one of two groups: the first group will be responsible for the Vietnam Era Spending case study and the other group will be responsible for the case study on Japan and the End of a Miracle. Each group will be called upon to help me to present their case study. The fourth and final case study will be assigned as part of problem set #7.

Be sure to work through the handout and prepare preliminary answers to your assigned case study (including diagrams) for Monday.

Four Case Studies (Please read attached handout.)

For each case, please illustrate the effects on equilibrium GDP on an AE-Y graph (attached) and indicate where potential (i.e., full employment) GDP is in relation to equilibrium GDP. Be sure to fully and clearly label your graph. Explain your diagram in a paragraph.

1. **The Great Depression.** (Professor Clark)

There is a significant decrease in planned gross investment expenditures. (Why? _____)

In addition there is a drop in planned aggregate consumption expenditures.

(Why? _____)

2. **The Vietnam War Era.**

(10:00 am section: Vincent, Hunter, Michael, Oliver, Brendan, Ryan, Culin, Dane, Pete, Matt D., and Sean. 11:00 am section: Marley, Bangaly, Chase, Hayes, Carl, Fernando, Noah, Esmatullah, Lauren, Athena, and Erica)

There is an increase planned investment expenditures. (Why? _____)

In addition planned aggregate consumption expenditures increase. (Why? _____)

3. **End of the Japanese Miracle.**

(10:00 am section: Nil, Georgia, Elle, Diego, Aidan, Sam, Sebastian, Mia, Luke, Carson, Ty, and Davis.

11:00 am section: Matt T., Lincoln, Will, DJ, Madeleine, Katie, Abby, Tabby, Eliza, Charlie, and Julia)

There is a high level of saving on the part of households. Planned domestic investment expenditure is low in relation to saving. (Outcome? _____)

In addition, there is a separate decline in aggregate consumption expenditures. (Why? _____)

4. **The 2001 Recession in the U.S.** (Problem Set #7)

There is a decline in planned gross investment expenditures. (Why? _____)

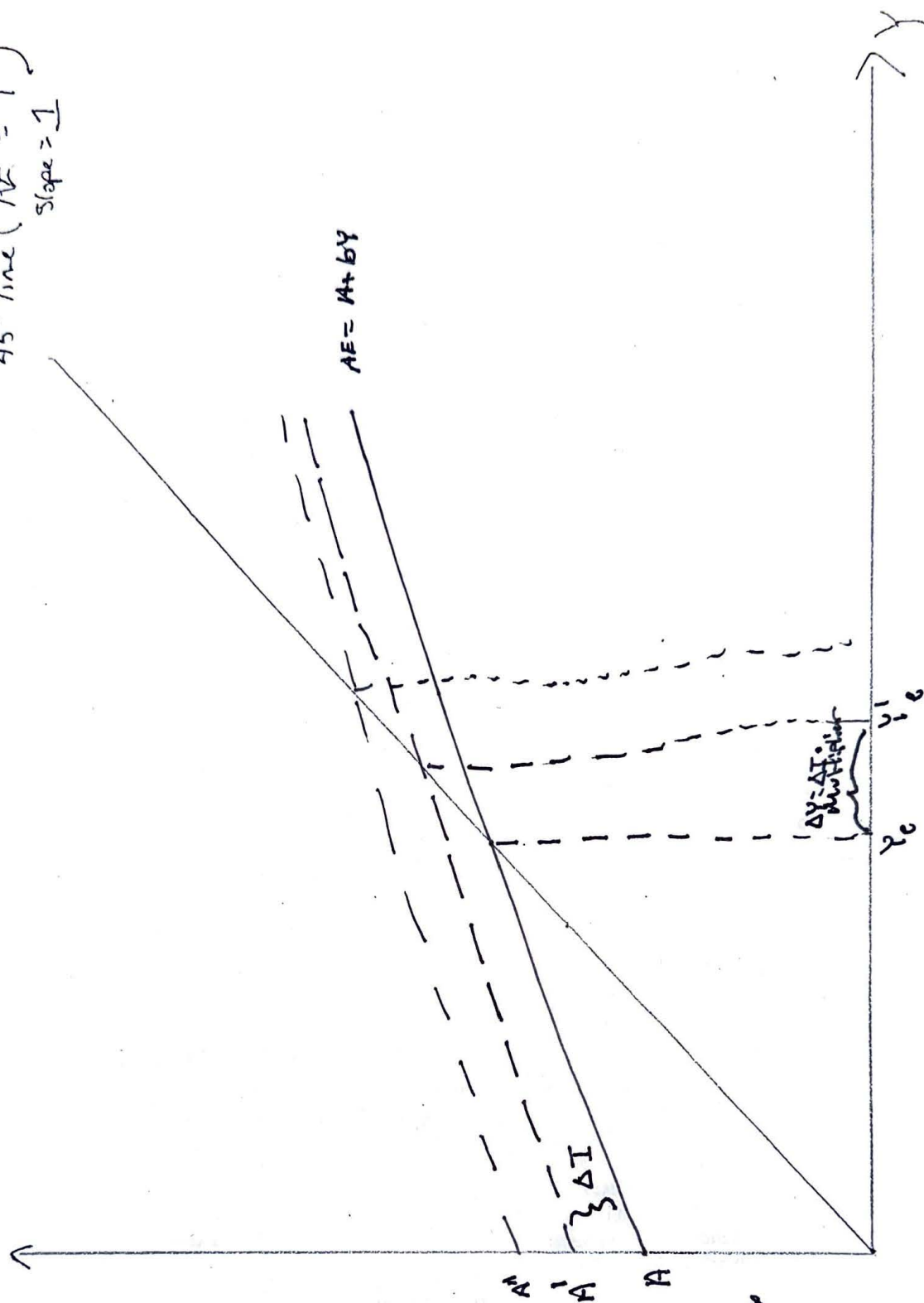
_____. There is a drop in planned consumption expenditures. (Why? _____)

Planned

AE

45° line ($AE = Y$)
Slope = 1

$AE = A + bY$



(real
GDP)

$$A = a + bT_0 + \bar{I} + \bar{G} + \bar{X}_N$$

1. Tax credit on \bar{I}
↓ Corp Income tax

2. ↓ Personal Income tax

↓ $T_0 \Rightarrow \uparrow Y_d$

3. ↑ C

Table 10.5**Determining the Recessionary and Inflationary Gaps****Steps:**

1. Determine the economy's full-employment GDP.
2. Look at the economy's current aggregate expenditures schedule, and from that schedule find the amount of expenditures that would be forthcoming at the economy's full-employment GDP.
3. Find the amount of expenditures just necessary to achieve the full-employment GDP.
4. Subtract the amount determined in step 2 from the amount determined in step 3. A negative difference reflects a recessionary gap; a positive difference reflects an inflationary gap.

QUICK REVIEW 10.3

- Government purchases shift the aggregate expenditures schedule upward and raise the equilibrium GDP.
- Taxes reduce disposable income, lower consumption spending and saving, shift the aggregate expenditures schedule downward, and reduce the equilibrium GDP.
- The balanced-budget multiplier is 1.
- A recessionary gap is the amount by which an economy's aggregate expenditures schedule must shift upward to achieve the full-employment GDP; the inflationary gap is the amount by which the economy's aggregate expenditures schedule must shift downward to eliminate demand-pull inflation and still achieve the full-employment GDP.

Applications of the Model

Let's see how the ideas of recessionary and inflationary gaps apply to three major historical events, two in the United States and the other in Japan.

1 The Great Depression in the United States

In 1930 the most severe and prolonged depression of modern times began. In the United States, real GDP plummeted by nearly 40 percent in the first several years of the 1930s, and the unemployment rate rose from 3 to 25 percent. As late as 1939, real GDP was still only slightly above its level of 10 years before, and the unemployment rate was still 17 per-

cent. (As shown in Global Perspective 10.2, the Great Depression was worldwide.)

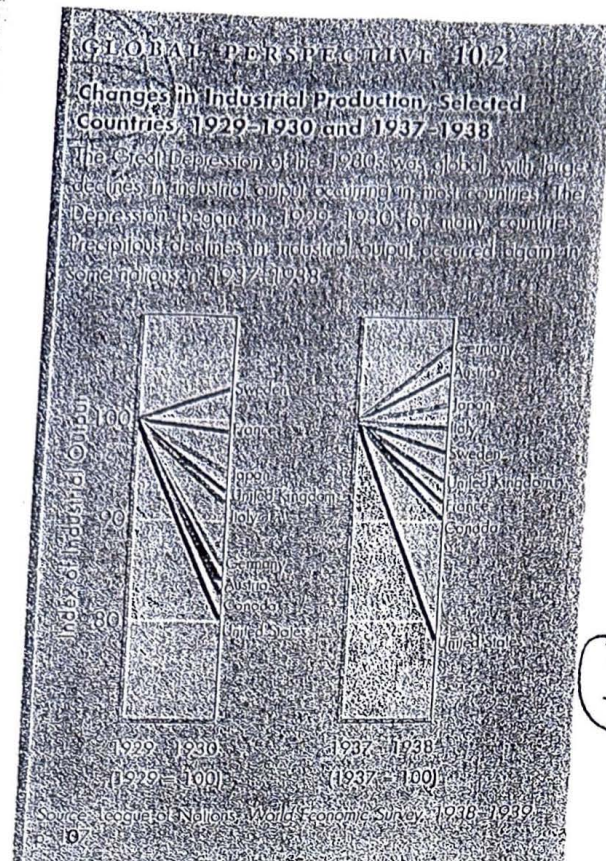
A sagging level of investment spending was the major factor that pushed the U.S. economy into the economic chaos of the 1930s. In real terms, gross investment spending shrank by about 90 percent. In Figure 10.8, we would depict this decline in investment as a large downward shift in the nation's aggregate expenditures schedule. The outcome in the 1930s was a historic decline in real GDP and a severe recessionary (depressionary) gap.

Several factors caused this steep decline in investment. Flush with the prosperity of the 1920s, businesses had overexpanded their production capacity. In particular, there was tremendous expansion of the automobile industry—and the related petroleum, rubber, steel, glass, and textile industries—that ended as the market for new autos became saturated. Business indebtedness also increased rapidly during the 1920s. So by the late 1920s much of the income of businesses was committed for the payment of interest and principal on past capital purchases and thus was not available for expenditures on new capital.

The 1920s experienced a boom in residential construction in response to population growth and to the housing demand that had been deferred because of the First World War. That investment spending began to level off as early as 1926, and by the late 1920s the construction industry had virtually collapsed.

The most striking aspect of the Great Depression was the stock market crash of October 1929. The optimism of the prosperous 1920s had elevated stock prices to the point where they did not reflect financial reality; they rose far beyond the profit-making potential of the firms they represented. A downward adjustment was necessary, and it came suddenly and quickly in 1929. The stock market crash did not *cause* the Great Depression—industrial production had begun its slide 2 months before the stock market crash. But the crash did have major repercussions. The falling stock market reduced household wealth and created a wave of consumer and business pessimism, which added to the decline in aggregate expenditures.

Moreover, the nation's money supply plummeted by 30 percent between 1929 and 1933. This shrinkage resulted from forces operating both abroad and at home, including inappropriate policies adopted by the Federal Reserve Banks. This drastic reduction c



the money supply contributed heavily to a sharp decline in aggregate expenditures, including investment, which occurred in the early 1930s.

2

Vietnam War Inflation

The 1960s in the United States were a period of prolonged expansion of real GDP, fueled by increases in consumption spending and investment. A factor in that expansion was the revolution in economic policy that occurred during the Kennedy and Johnson administrations. This new policy called for the government to manipulate its tax collections and expenditures in such a way as to elevate aggregate expenditures, increasing employment and real GDP. For example, in 1962 legislation was enacted that provided for a 7 percent tax credit on investment in new machinery and equipment, thus strengthening the incentives of businesses to invest. In 1964 the government cut personal and corporate income taxes, boosting consumption spending and further increas-

ing investment spending. The unemployment rate fell from 5.2 percent in 1964 to 4.5 percent in 1965.

At this time another expansionary force came into play. The escalation of the war in Vietnam resulted in a 40 percent increase in government spending on national defense between 1965 and 1967. There was another 15 percent increase in war-related spending in 1968. Simultaneously, the draft drew more and more young people from the ranks of the unemployed.

The unemployment rate fell below 4 percent during the entire 1966–1969 period. But the increased government expenditures, imposed on an already booming economy, also brought about the worst inflation in two decades. Inflation jumped from 1.6 percent in 1965 to 5.7 percent by 1970. In terms of Figure 10.8, the rising investment and government expenditures shifted the aggregate expenditures schedule sharply upward, creating a sizable inflationary gap.

3 The End of the Japanese Growth "Miracle"

In the 1980s Japan was showing signs of replacing the United States as the world's leading economic power. For example, it had surpassed the United States in production of automobiles, televisions, motorcycles, electronics equipment, industrial robots, and cameras. Japan's extraordinarily high saving rate of nearly 15 percent, compared to 4 percent in the United States, diverted substantial amounts of resources from consumption to investment. The resulting rapid expansion of plant and equipment produced growth rates averaging 9.7 percent annually between 1966 and 1974 and 3.9 percent annually between 1974 and 1990. Very low rates of unemployment accompanied Japan's fast-growing economy. Its high growth and low unemployment were all the more miraculous because its infrastructure was destroyed in the Second World War, its population is large relative to its landmass, and its natural resource base is very limited.

But Japan's rapid economic growth ended in the 1990s when its economy slowed to a near halt and then became mired in its longest and deepest recession since the Second World War. Japan's real GDP grew very slowly in the first half of the 1990s and fell by 2.8 percent in 1998.

What happened? Although the answer is multifaceted, the main reason relates to the same high saving rate that enabled Japan's earlier fast growth.

As explained previously, it is imperative that all savings be borrowed and spent on current output. If planned investment spending is less than saving (and there are no compensating increases in net exports or government spending), aggregate expenditures ($AE = C_n + I_g + X_n + G$) will be insufficient to purchase the output that is produced. Inventories will rise, firms will cut back production, and real GDP will fall. In short, there will be a recessionary gap such as that in Figure 10.8a.

That is exactly what happened in Japan. Although its high saving rates boosted long-run economic growth, they presented a short-run problem. Because of collapsing real estate prices, a failing financial system, and surging opportunities for investment in the United States and Europe, Japan was unable to sustain the high levels of domestic investment needed to "soak up" its large volume of saving. Hence, aggregate expenditures were insufficient to achieve the full-employment level of real output, meaning that a recessionary gap developed in the Japanese economy. Only in late 1999 did Japan show signs of recovery. Most economists believe that it will be many years before Japan can restore its historically high growth rates.

4 Application: The U.S. Recession of 2001

The U.S. economy grew briskly in the last half of the 1990s, with real GDP expanding at about 4 percent annually and the unemployment rate averaging roughly

4.5 percent. The economic boom and low rates of unemployment, however, did not spark inflation, as had been the case in prior business cycles. Exceptionally strong productivity growth in the late 1990s increased the economy's production capacity and enabled aggregate expenditures to expand without causing inflation. In terms of Figure 9.7b, it was as if the full-employment level of real GDP expanded from \$510 billion to \$530 billion at the same time the aggregate expenditures curve rose from AE_0 to AE_1 . So the inflationary expenditure gap of \$5 billion

never materialized. Between 1995 and 1999, inflation averaged less than 2.5 percent annually.

But the booming economy of the second half of the 1990s produced notable excesses. A large number of ill-conceived Internet-related firms were born, attracting billions of investment dollars. Investment spending surged throughout the economy and eventually added too much production capacity. A stock market "bubble" developed as stock market investing became a national pastime. Consumers increased their household debt to expand their consumption. Some unscrupulous executives engaged in fraudulent business practices to further their own personal interests.

The boom ended in the early 2000s. Hundreds of Internet-related start-up firms folded. Many firms, particularly those in telecommunications and aircraft manufacturing, began to experience severe overcapacity. The stock market bubble burst, erasing billions of dollars of "paper" wealth. Firms significantly reduced their investment spending because of lower estimates of rates of return. In March 2001 aggregate expenditures declined sufficiently to push the economy into its ninth recession since 1950. The unemployment rate rose from 4.2 percent in February 2001 to 5.8 percent in December 2001. In terms of Figure 9.7a, a recessionary expenditure gap emerged. The terrorist attacks of September 11, 2001, damaged consumer confidence and prolonged the recession through 2001. In 2002 the economy resumed economic growth, but the unemployment rate remained a stubbornly high 6 percent at the end of 2002. Even so, the recession of 2001 was relatively mild by historical standards and in view of the unusual set of circumstances.