

Slides for Chapter 2: Current Account Sustainability

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These are the slides for the textbook, "International Macroeconomics: A Modern Approach," by Stephanie Schmitt-Grohé, Martín Uribe, and Michael Woodford, Princeton University Press, 2022, ISBN: 9780691170640.

Motivation

A natural question that arises from our description of the recent history of the U.S. external accounts is whether the observed trade and current account deficits are sustainable in the long run. In this chapter, we develop a framework to address this question.

Can a Country Run a Perpetual Trade Balance Deficit?

It depends on whether the country is a net debtor or a net creditor. If it is a net debtor, that is, if its net international investment position (NIIP) is negative, then the answer is no. For in this case, the country will have to run a trade balance surplus at some point to service its debt.

If the country is a net creditor to the rest of the world, that is, if its net international investment position is positive, then it can run a perpetual trade deficit and finance it with the interest generated by its net investments abroad.

Let's analyze this issue more formally.

Consider an economy that lasts for two periods. It starts period 1 with NIIP of B_0 . Let r denote the interest rate. Then, the country's net investment income in period 1 is given by

$$\text{Net investment income in period 1} = rB_0.$$

Let the trade balance in period 1 be denoted TB_1 . Then, the country's NIIP at the end of period 1 is*

$$B_1 = (1 + r)B_0 + TB_1 \quad (1)$$

A similar expression holds in period 2

$$B_2 = (1 + r)B_1 + TB_2 \quad (2)$$

At the end of period 2, the country cannot hold assets or debts because no one will be alive in period 3 to collect (the world ends in period 2). This means that

$$B_2 = 0. \quad (3)$$

*In what follows, we assume that the income balance is equal to net investment income and that net unilateral transfers and valuation changes are zero.

Combining (1), (2), and (3) yields

$$(1 + r)B_0 = -TB_1 - \frac{TB_2}{(1 + r)}, \quad (4)$$

which states that initial NIIP including interest, $(1 + r)B_0$, equals the present discounted value of trade deficits. It is clear from this expression that if the country starts out as a net debtor, $B_0 < 0$, then it must run a trade balance surplus at some point. However, if the country starts out as a net creditor, $B_0 > 0$, then it can afford running trade deficits in both periods.

One can show that this result holds not just for two-period economies, but for economies lasting any number of periods, including an infinite number of periods.

Since the United States is a net debtor, the present analysis implies that it will have to revert its trade balance deficits at some point in the future.

Can a Country Run a Perpetual Current Account Deficit?

The answer to this question is, again, yes, provided the country's initial net international investment position is positive. To see this, recall that the change in the NIIP is the current account

$$CA_1 = B_1 - B_0.$$

Similarly, in period 2 we have

$$CA_2 = B_2 - B_1$$

Combining these two expressions to eliminate B_1 and recalling that $B_2 = 0$, we obtain

$$B_0 = -CA_1 - CA_2,$$

which implies that the country can run current account deficits in both periods only if the initial NIIP is positive. This result holds for economies lasting any finite number of periods.

The Current Account: Gap between Saving and Investment

In any period, say period t , saving, investment, and the current account are linked by the identity

$$CA_t = S_t - I_t.$$

This expression is intuitive. The country's saving in excess of what is needed to finance domestic investment must be allocated to purchases of foreign assets—where else could those resources go? But the change in the net foreign asset position is precisely the current account.

To derive the above identity more formally, recall that a country's aggregate supply of goods and services in any given period t is the sum of gross domestic product, denoted Q_t , and imports, denoted IM_t . The aggregate demand for goods and services is the sum of private consumption, C_t , government consumption, G_t , investment, I_t , and exports, X_t :

$$Q_t + IM_t = C_t + G_t + I_t + X_t$$

Now add net investment income, rB_{t-1} , to both sides of the previous expression and recall that the trade balance is the difference between imports and exports, or

$$TB_t = X_t - IM_t,$$

to get

$$Q_t + rB_{t-1} = C_t + G_t + I_t + TB_t + rB_{t-1}$$

The sum of GDP and net investment income is known as national income (or gross national income, GNP), denoted Y_t .

$$\text{national income, } GNP_t = Q_t + rB_{t-1}$$

Also, recall from slide 4 that the sum of net investment income and the trade balance is the current account,

$$CA_t = rB_{t-1} + TB_t.$$

Thus, we can write

$$Y_t = C_t + G_t + I_t + CA_t \tag{5}$$

Finally, the difference between national income and private and public consumption is national saving, or

$$S_t = Y_t - C_t - G_t.$$

Combining this expression with (5), we get the expression we were looking for

$$CA_t = S_t - I_t,$$

which says that the current account is the gap between saving and investment.

The Current Account as the Gap between National Income and Domestic Absorption

Domestic absorption is defined as the sum of private consumption, government consumption, and investment. Letting A_t denote domestic absorption, we have

$$A_t = C_t + G_t + I_t.$$

Combining this expression with (5), we can express the current account as

$$CA_t = Y_t - A_t,$$

which states that the current account is the gap between national income and the domestic absorption of goods and services.

Summing Up

- A country that is a net external debtor cannot run a perpetual trade balance deficit.
- A country that is a net external debtor cannot run a perpetual deficit in the current account. This result applies to economies that last for any finite number of periods. For infinite horizon economies, perpetual current account deficits are possible even if the country is an external debtor, if the economy is growing and dedicates a growing amount of resources to pay interest on its external debt.
- The current account can be expressed as the gap between saving and investment, $CA_t = S_t - I_t$, as the gap between national income and domestic absorption, $CA_t = Y_t - A_t$, as the change in the country's net foreign asset position, $CA_t = B_t - B_{t-1}$, or as the sum of net investment income and the trade balance, $CA_t = rB_{t-1} + TB_t$. All four expressions are identities that must hold at any time in any country.

The Road Ahead

- All four of the above expressions for the current account are accounting identities. They do not provide any explanation, or theory, of the determinants of the current account.
- To understand what determines the current account we need a model, that is, a story of the economic behavior of households, firms, governments, and foreign residents. This is the focus of the following chapters.