

## The Goods Market in an Open Economy

### CHAPTER 19

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19-1

### The IS Relation in the Open Economy

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Now we must be able to distinguish between the domestic demand for goods and the demand for domestic goods.

Some domestic demand falls on foreign goods, and some of the demand for domestic goods comes from foreigners.

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### The Demand for Domestic Goods

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In an open economy, the **demand for domestic goods** is given by:

$$Y^d = C + I + G - IM/\epsilon + X$$

Until now, we have only looked at  $C + I + G$ . But now we have to make two adjustments:

- First, we must subtract imports.
- Second, we must add exports.

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## The Determinants of C, I, and G

Domestic Demand:

$$C + I + G = C(Y - T) + I(Y, r) + G$$

(+)(+,-)

The real exchange rate affects the composition of consumption and investment, but not the overall level of these aggregates.

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## The Determinants of Imports

A higher real exchange rate leads to higher imports, thus:

$$IM = IM(Y, \mathcal{E})$$

(+,+)

- An increase in domestic income,  $Y$ , leads to an increase in imports.
- An increase in the real exchange rate,  $\mathcal{E}$ , leads to an increase in imports,  $IM$ .

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## The Determinants of Exports

Let  $Y^*$  denote foreign income, thus for exports we write:

$$X = X(Y^*, \mathcal{E})$$

(+,-)

- An increase in foreign income,  $Y^*$ , leads to an increase in exports.
- An increase in the real exchange rate,  $\mathcal{E}$ , leads to a decrease in exports.

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## 19-2 Equilibrium Output and the Trade Balance

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The goods market is in equilibrium when domestic output equals the demand – both domestic and foreign – for domestic goods:

$$Y = Y^d$$

Collecting the relations we derived for the components of the demand for domestic goods,  $Y^d$  we get:

$$Y = C(Y - T) + I(Y, r) + G - \varepsilon M(Y, \varepsilon) + X(Y^*, \varepsilon)$$

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## Increases in Demand, Domestic or Foreign

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There are two important difference you should note between open and closed economies:

- There is now an effect on the trade balance. The increase in output from  $Y$  to  $Y'$  leads to a *trade deficit*. Imports go up, and exports do not change.
- Government spending on output is smaller than it would be in a closed economy.

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## Increases in Foreign Demand

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The direct effect of the increase in foreign output is an increase in U.S. exports by some amount, which we shall denote by  $\Delta X$ :

- For a given level of output, this increase in exports leads to an increase in the demand for U.S. goods by  $\Delta X$
- For a given level of output, net exports go up by  $\Delta X$ .

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## Fiscal Policy Revisited

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We have derived two basic results so far:

- An increase in domestic demand leads to an increase in domestic output, but leads also to a deterioration of the trade balance.
- An increase in foreign demand leads to an increase in domestic output and an improvement in the trade balance.

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## Fiscal Policy Revisited

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The so-called **G-7** – the seven major countries of the world – meet regularly to discuss their economic situation; the communiqué at the end of the meeting rarely fails to mention **coordination**. The fact is that there is very limited macro-coordination among countries. Here's why:

- **Some countries might have to do more than others and may not want to do so.**
- **Countries have a strong incentive to promise to coordinate, and then not deliver on that promise.**

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## Depreciation, the Trade Balance, and Output

Recall that the real exchange rate is given by :

$$\mathcal{E} \equiv \frac{EP}{P^*}$$

In words:

The real exchange rate,  $\mathcal{E}$ , is equal to the nominal exchange rate,  $E$ , times the domestic price level,  $P$ , divided by the foreign price level,  $P^*$ .

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## Depreciation and the Trade Balance: The Marshall-Lerner Condition

$$NX = X(Y^*, \varepsilon) - IM(Y, \varepsilon) / \varepsilon$$

As the real exchange rate  $\varepsilon$  enters the right side of the equation in three places, this makes it clear that the real depreciation affects the trade balance through three separate channels:

- Exports,  $X$ , increase.
- Imports,  $IM$ , decrease
- The relative price of foreign goods in terms of domestic goods,  $1/\varepsilon$ , increases.

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## Depreciation and the Trade Balance: The Marshall-Lerner Condition

The **Marshall-Lerner condition** is the condition under which a real depreciation (an increase in  $\varepsilon$ ) leads to an increase in net exports.

### FOCUS

#### The French Socialist Expansion: 1981-1983

Table 1 summarizes the macroeconomic results of the policy of the Socialist party in the early 1980s geared at improving the economy.

	1980	1981	1982	1983
GDP growth (%)	1.6	1.2	2.5	0.7
EU growth (%)	1.4	0.2	0.7	1.6
Budget Surplus	0.0	-1.9	-2.8	-3.2
Current Account Surplus	-0.6	-0.8	-2.2	-0.9

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## The Effects of a Depreciation

Let's summarize: The depreciation leads to a shift in demand, both foreign and domestic, toward domestic goods. This shift in demand leads, in turn, to both an increase in domestic output and an improvement in the trade balance.

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## Combining Exchange-Rate and Fiscal Policies

If the government wants to eliminate the trade deficit without changing output, it must do two things:

- It must achieve a depreciation sufficient to eliminate the trade deficit at the initial level of output.
- The government must reduce government spending.

Initial Conditions	Trade Surplus	Trade Deficit
Low output	$\epsilon \uparrow \uparrow$	$\epsilon \downarrow \downarrow$
High output	$\epsilon \uparrow \downarrow$	$\epsilon \downarrow \uparrow$

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## Looking at Dynamics: The J-Curve

A depreciation may lead to an initial deterioration of the trade balance;  $\epsilon$  increases, but neither  $X$  nor  $M$  adjusts very much initially.

$$\uparrow \epsilon \rightarrow (\bar{X} - \epsilon \bar{IM}) \downarrow$$

Eventually, exports and imports respond, and depreciation leads to an improvement of the trade balance.

$$(X \uparrow, IM \downarrow, \epsilon \uparrow) \rightarrow (X - \epsilon IM) \uparrow$$

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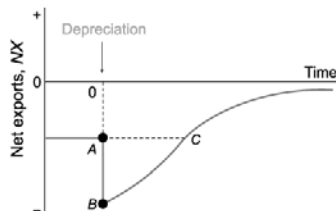
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## Looking at Dynamics: The J-Curve

Figure 19 - 6  
**The J-Curve**  
A real depreciation leads initially to a deterioration, then to an improvement of the trade balance.



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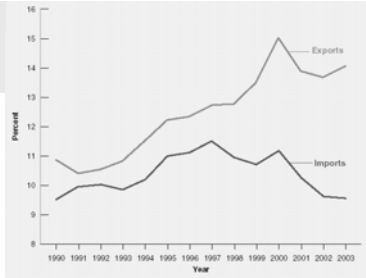
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Figure 1  
U.S. Exports and Imports as Ratios to U.S. GDP since 1990




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Table 1  
Average Annual Growth Rates in the United States, Japan, the European Union, and the World, 1991-2003 (percent per Year)

	1991-1995	1996-2000	2001-2003
United States	2.5	4.1	2.9
Japan	1.5	1.5	0.9
European Union	2.1	2.6	1.9
World (excluding U.S.)	3.2	2.8	1.5

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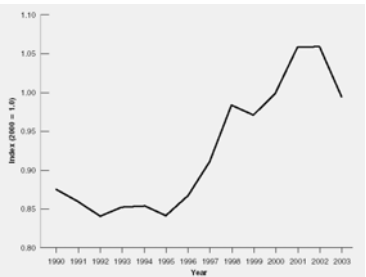
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Figure 2  
The Multilateral Real Exchange Rate since 1990




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## Key Terms

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| <ul style="list-style-type: none"><li>▪ <u>demand for domestic goods</u></li><li>▪ <u>domestic demand for goods</u></li><li>▪ <u>coordination, G-7</u></li></ul> | <ul style="list-style-type: none"><li>▪ <u>Marshall-Lerner condition</u></li><li>▪ <u>J-curve</u></li></ul> |
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