

EE 452 International Monetary Economics

5. Macroeconomy, Internal Balance and External Balance under Fixed Exchange Regime
(Part 1)

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Outline of the Topics

- ☞ Quick revision of Macroeconomics
- ☞ Revision of Mundell-Fleming Model
 - ☞ Domestic Product Market (IS)
 - ☞ Money Market (LM)
 - ☞ Foreign Exchange Market (Balance of Payments)

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Objectives

- Students should understand and be able to explain the following:
 - The dependence of imports on the level of income
 - What determines the equilibrium level of income in an open economy
 - The spending multiplier for a closed economy versus an open economy
 - The impact of various economic changes on domestic product and on the balance of trade
 - The two goals of internal balance and external balance
 - Price movements in the macroeconomy in the short-run and in the long-run, and the relationship of price competitiveness to international trade

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FRAMEWORK OF MACROECONOMIC ANALYSIS

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National Macroeconomic Performance Goals

- Internal Balance
 - Full employment, or an acceptably low unemployment rate
 - Price stability, or an acceptably low inflation rate
- External balance
 - Sustainable composition of the country's balance of payments with the rest of the world
 - Useful indicator: Official settlements balance approximately equal to zero (so that the country is not losing official international reserves or acquiring unwanted official international reserves)

Domestic Production depends on Aggregate Demand

- In the short-run, a major performance goal for an economy is to achieve production of goods and services that is close to the economy's potential.
- The economy's potential for producing is determined by the supply-side capabilities of the economy.
- Supply-side capabilities include both the factor resources (labour, capital, land and natural resources) and the intangible influences such as technology, resource quality, climate and motivation. The intangibles determine the productivity of the resources.

Domestic Production depends on Aggregate Demand

- In the short-run, domestic production is determined by aggregate demand:
- $Y = AD = C + Id + G + (X - M)$,
- $E = C + Id + G$
- where Y = domestic production, national income
- E = national expenditure on goods and services

Domestic Production depends on Aggregate Demand

- $C = C(Y)$
- Consumption is a positive function of Y (inclusive of the effects of taxes T)
- $Id = Id(i)$
- Real domestic investment Id is a negative function of the interest rate i .
- Higher interest rates increase the cost of financing the capital assets, thus reducing the amount of real investment undertaken.

Trade depends on Income

- $M = M(Y)$
- Imports M are a positive function of Y .
- Two explanations:
 - Imports are often used as inputs into the production of goods and services that constitute domestic product.
 - Imports respond to the total real expenditure, or “absorption” (E) in our economy. The more we spend on all goods and services, the more we tend to spend on the part of them that we buy from abroad.
- We can estimate the amount by which our imports increase when our income goes up by one dollar. This amount is called the marginal propensity to import.
- Marginal propensity to import (m): The ratio of a change in import volumes to the change in real national income causing the import change. Graphically, it is represented by the slope of the import function.
- Here, we implicitly assume that export volumes are independent of this country’s national income.

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EQUILIBRIUM GDP AND SPENDING MULTIPLIERS

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Equilibrium GDP

- If interest rate and price level are constant, then the equilibrium is the level of real GDP that equals desired AD at that level of income. Equivalently, the level of real GDP for which the desired national saving S equals desired domestic and foreign investment ($Id + If$), given that $X - M$ is (approximately) equal to If .
 - $S = Id + If$, given $X - M = If$ (Balanced overall balance in Topic 1)
- Holding interest rates constant, our desired national expenditure depends on national income as does our volume of imports.
- These relationships indicate that the value of AD itself depends on national income. The equilibrium condition is:
 - $Y = AD(Y) = E(Y) + X - M(Y)$
 - Although our export depends on foreign income, we initially ignore this (or assume that foreign income is constant).

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How the nation’s trade and investment relate to the process of achieving the equilibrium domestic production

- To underline the role of the foreign sector, it is convenient to convert the equilibrium condition into a different form.
- Since $S = Y - C - G$ and $Y = E + X - M$,
 - $(Y - C - G) = (E - C - G) + (X - M)$
 - Or $S = Id + (X - M)$
 - Recall from Ch 16 that net exports are (approximately) equal to the country’s CA balance, which in turn equals its net foreign investment If .
 - If we replace $(X - M)$ by If , we see that this equilibrium condition is the same as saying that a country’s desired national saving must match its desired domestic investment in new real assets plus its desired net foreign investment.

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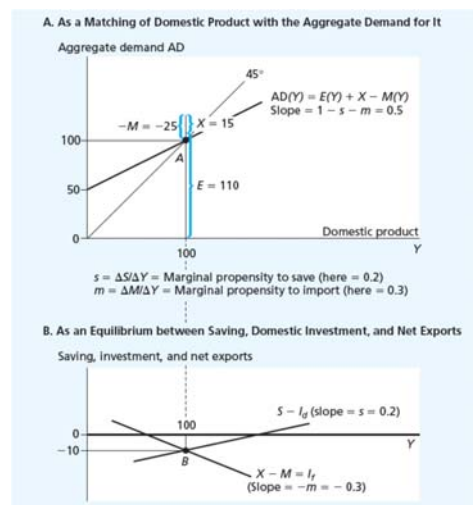
Spending Multiplier

- When national spending rises in an economy in which actual production initially is below the economy's supply side potential, this extra spending sets off a multiplier process of expansion of domestic production and income, whether or not the country is involved in international trade or not.

Spending Multipliers in a Small Open Economy

- The spending multiplier shows how equilibrium GDP responds to exogenous changes in any component of aggregate demand.
- The spending multiplier in a small open economy is $1/(s+m)$, where s is the marginal propensity to save (including any forced saving" caused by the tax system). The multiplier is smaller than in a comparably closed economy (in which m is zero).

Figure 22.1 Equilibrium Domestic Production in an Open Economy



Source: Pugel (2012), p. 554

Foreign Spillovers and Foreign-Income Repercussions

- For a large country, the change in its imports has spillover effects on foreign GDP.
- A change in this large country's income changes its imports, which changes foreign exports by enough to alter foreign production and income.
- In turn, the change in foreign income changes foreign imports, which changes the first country's exports, leading to a further change in this country's production and income!
- Foreign income repercussions increase the size of the spending multiplier for a large country.

Figure 22.2 Foreign Spillovers of Changes in Domestic Product and Income

The Effect of a 1 Percent Increase of Real Domestic Product In	On Real Domestic Product In					
	Canada	Other Industrialized	Mexico	Other Latin America	Developing Asia	Africa
United States	0.5%	0.2%	0.4%	0.2%	0.1%	0.1%
Euro area	0.0	0.2	0.0	0.1	0.1	0.3

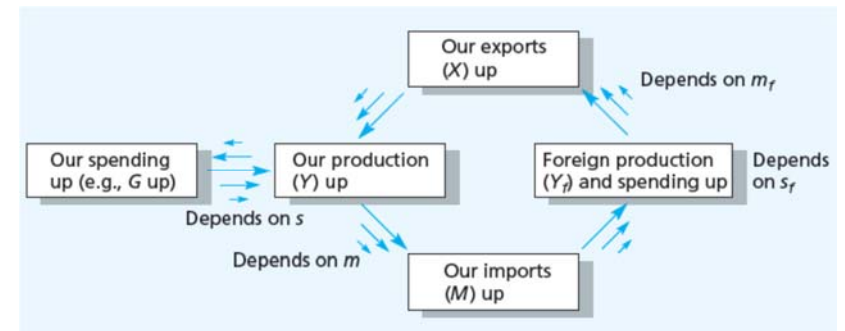
Each number gives the *percent* rise in the domestic product of the country or area whose column is named along the top that is caused by a 1 percent rise in the real domestic product of the country or area whose row is named on the left of the table.

Source: Pugel (2012), p. 558

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Figure 22.3 Foreign Trade and Income Repercussions Starting from a Rise in Our Spending



Source: Pugel (2012), p. 558

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Foreign-income Repercussions

- *The more our country's imports affect foreign incomes, and the more the foreign countries have a propensity to import from our country, the more our true spending multiplier exceeds the simple formula $1/(s+m)$.*

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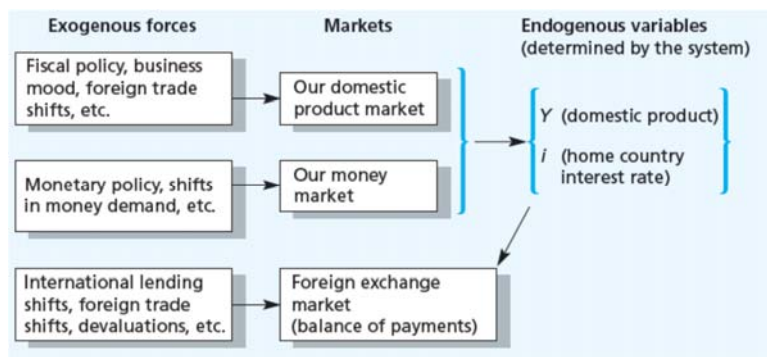
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A MORE COMPLETE FRAMEWORK: THREE MARKETS

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Figure 22.4 An Overview of the Macromodel of an Open Economy

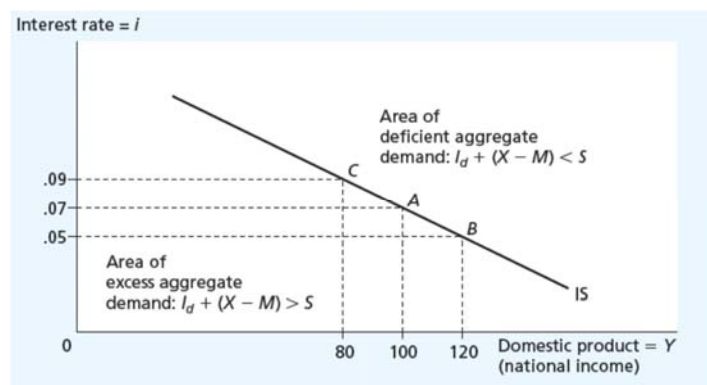


Source: Pugel (2012), p. 559

IS-LM-FE model

- The IS-LM-FE model provides a more complete framework for analyzing the open macroeconomy.
- It shows the determination of the short-run equilibrium levels of the country's real GDP and interest rate while also indicating the state of the country's official settlements balance (ie., the pressure on the exchange rate value of the country's currency.)
- We are relaxing the assumption that the interest rate is steady.

Figure 22.5 The IS Curve: Equilibriums in the Domestic Product Market

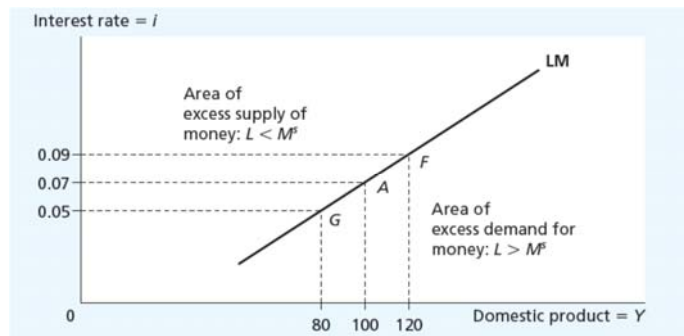


Source: Pugel (2012), p. 561

IS Curve

- The downward-sloping IS curve shows all combinations of Y and I that represent equilibrium in the domestic product market.
- A change having an influence on AD other than Y or i results in a shift in the IS curve.

Figure 22.6 The LM Curve: Equilibriums in the Money Market



Source: Pugel (2012), p. 563

LM Curve

- The upward-sloping LM curve shows all combinations of Y and i that represents equilibrium in the money market.
- A change in the MS or a change in an influence on money demand other than Y or i results in the shift in LM curve.
- The intersection of the IS and LM curves shows the short-run equilibrium values for real GDP and the interest rate.

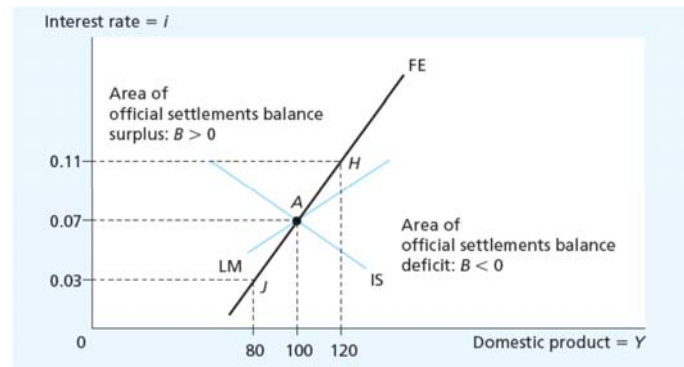
FE Curve

- The FE curve shows all combinations of Y and i that result in a zero official settlements balance.
- If the country's CA is a negative function of Y (because of import demand), and the country's (nonofficial) financial account FA is a positive function of i (because of the incentive for international capital flows), the FE curve generally slopes upward.
- A point above or to the left of FE curve indicates that the country's official settlements balance is in surplus; a point below or to the right indicates a payments deficit.
- Given marginal propensity to import, how flat or steep the FE curve depends on how responsive international capital flows are to interest rate changes.
 - The more responsive, the flatter FE curve. In the extreme, with perfect capital mobility the FE curve is a horizontal line.
- A change in an influence on the current or financial accounts other than Y or i causes a shift in the FE curve.

Beyond the Short-run

- As the economy moves beyond the short-run, the product price level does change.
- Why?
 - Most countries have some amount of on-going inflation
 - Strong or weak AD (relative to the economy's supply capabilities) puts pressure on the price level – strong demand causes overheating and weak demand causes a “discipline” effect.
 - Price shocks, including oil price shocks and large, abrupt changes in the exchange rate value of the country's currency, can change the price level.

Figure 22.7 The FE Curve: Balance-of-Payment Equilibriums



Source: Pugel (2012), p. 566

Trade also depends on Price Competitiveness

- A country's exports and imports depend on international price competitiveness, in addition to depending on national income.
- The price of foreign-produced traded products relative to the price of home-produced substitute products is
 - $P_f \cdot e/P$, where e is domestic currency over foreign currency.
 - This ratio is the real exchange rate introduced earlier.
- The country's demand for imports is a negative function of this price ratio, while demand for the country's exports is positive function.
- A change in price competitiveness causes a change in net exports, so that both the IS and FE curves shift.