Macroeconomics Class 2. Aviation Economics & Finance

Macroeconomics II: Growth & Fluctuations

Aggregate Income and Expenditure

By adding up all the expenditures:

GDP = C + I + G + (X-M)

C = consumption
I = investment
G = government spending
X = exports
M = imports

excluded: home production, externalities, illegal activity

By definition Aggregate Income = Y = GDP but GDP = P•Q

Potential GDP = full employment GDP → output gap = potential GDP - real GDP

This is enough to provide us with an illustration
of aggregate equilibrium.

In equilibrium: Y = C+I+G

Enter Keynes:

A theory of aggregate consumption spending :
Assume that I, G do not vary with Y

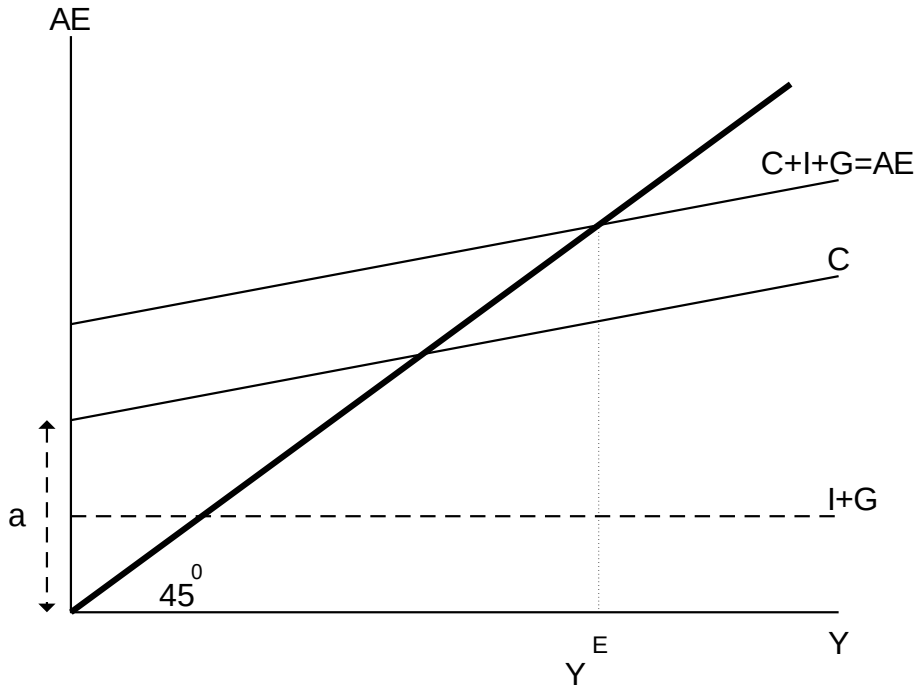
$C = a + bY$

a = the fixed "autonomous" component of consumption spending

b = the "marginal propensity to consume out of income"

$0<b<1$

so (1-b) is the marginal propensity to save



now by substitution, we have:

$a + bY + I + G = Y$

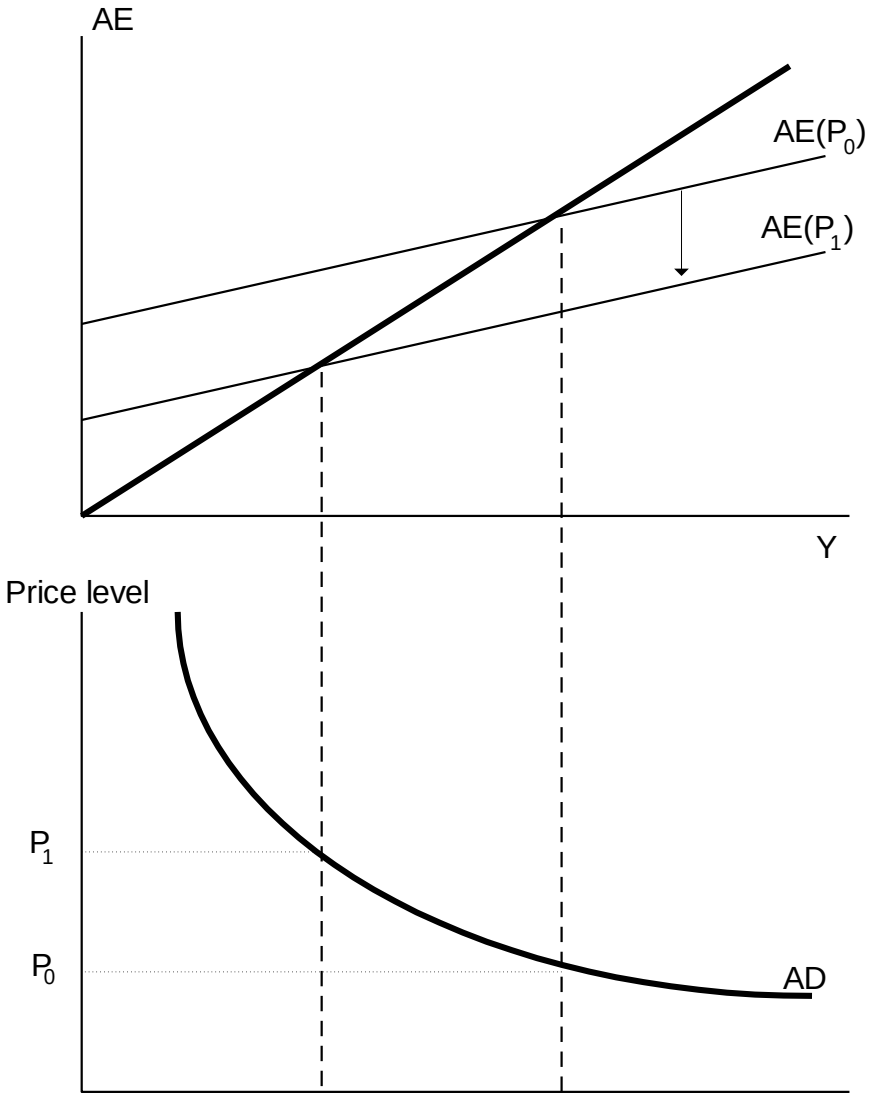
$a + I + G = (1-b) \cdot Y$

So in equilibrium: $Y = 1/(1-b)[a+I+G]$

Aggregate demand

GDP = Y = C + I + G *<u>for a given price level</u>*

Aggregate demand illustrates the relationship between the price level and real domestic output ***(the aggregate demands/expenditures of consumers, investors, government and the net effect of exports and imports)***



What happens as we move along the AD curve?

Suppose P increases (moving up the AD curve)

Why does domestic output fall?

1. The interest rate effect:

The AD curve is drawn for a particular money supply.
When P increases, consumers, businesses need more money
demand for money increases
(i.e. money D curve shifts out)
interest rate increases (i.e. the cost of borrowing)
and investment spending goes down

2. The wealth effect of an increase in P:

When P increases , the real value of fixed return assets
(e.g. cash under the mattress, bonds with a fixed rate of return)
will decrease

Households feel less secure financially - rainy day savings are diminished
in value so they reduce consumption expenditures.

What causes the AD curve to shift?

Remember: holding the price level constant: any increase in C, I or G will increase GDP.

1. A change in buying confidence: consumer/business expectations

2. A change in wealth not due to a change in P
e.g. if stock prices increase then stock holders experience capital gains
- they are wealthier although the price level has not changed

3. A change in taxes on businesses or consumers
(ceteris paribus)

4. A change in interest rates not caused by a change in P:

eg. Suppose the money supply is increased:
As Ms is ↑ , money is easier to get ⇒ i ↓
⇒ investment spending ↑

5. Changes in the level of government spending
(holding taxes/ i constant) : e.g. a govt. rainy day fund

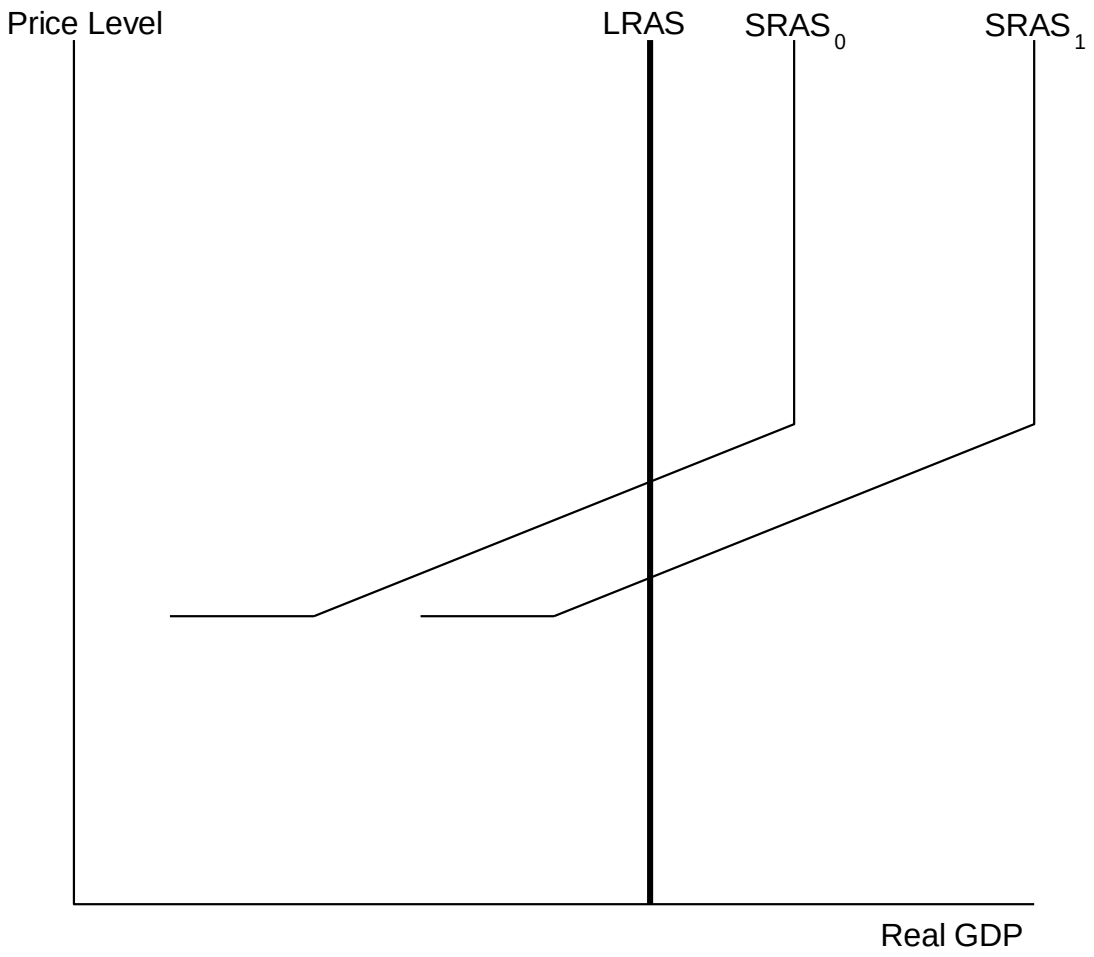
6. A change in exchange rates

7. A change in foreign GDP

Aggregate supply in the short run

AS represents the relationship between the price level and the level of domestic output that will be available at each price level.

<u>The Shape of the AS curve:</u>



The "Keynesian" region:

Relatively Flat indicating a low stable price level when the economy is producing well below full employment (capacity). If output is expanded, inputs are plentiful and will not increase the costs of production. Demand for goods is weak and there is little pressure for prices to rise.

The "intermediate" region:

Upward sloping indicating that as real output is expanded, the price level starts to rise. Why? Simple answer: as we move closer to full employment resources become more scarce with the result that bottlenecks and shortages begin to occur. Also as some sectors expand while others remain static or decline, there are delays in transferring resources from one sector to another. E.g. retraining periods for skilled labor.

Resources that are less suitable for a particular use are used by necessity due to shortages - this creates higher costs

What shifts the AS curve?

Shifts have to be caused by something other than a change in the price level.

Changes in costs of production

Changes in the size of the labor force or capital stock
Changes in raw material access
Technological change

Market power - monopolies can more easily raise prices

Expectations

Changes in business taxes or government regulations

Cost of imported resources: e.g. Oil!

SRAS and LRAS shift 'right if:

1. L increases
2. K increases
3. Human capital increases
4. new discovery of raw materials
5. technology advances
6. incentives strengthened

SRAS shifts down if:

1. wages decrease
2. material prices decrease

Equilibrium exists where AS = AD

What if AS and AD are not equal?

A price level where AD > AS :

firms selling out...inventories decline signal that producers should - production and - price competition for the available output will push up prices until AD = AS.

A price level where AD < AS :

firms will accumulate larger inventories than expected and firms would reduce their production levels and their prices.

Changes in equilibrium output

What happens to the equilibrium output when AD Shifts?

What happens when the short-run AS curve shifts?

Aggregate supply in the long run

In the long run, the AS curve will be vertical at a level of GDP which indicates a sustainable productive capacity for the economy.

Recessions, growth and policy

The general pattern of economic growth has seen real GDP increasing over time

If real GDP is declining then we are in a recession

i.e. if the economy stops growing when there is positive inflation (usually the case) then the economy is in recession.

The pattern of growth and recessions over time is sometimes referred to as "Business cycles"

.....sounds like something that is understood/predictable

In fact it is the unpredictability of growth rates that generates problems in a recession: disappointed expectations

Macroeconomic Policy:

stabilization

shorten recessions
counteract inflation

Built-in Stabilizers:

taxation: the effects of changes in
autonomous spending dampened by taxation

Timing of discretionary fiscal/monetary policy

how well do we understand the fluctuations of the "business cycle"?
Can the government respond at the appropriate time?

Other policy goals

- growth
- "full" employment

- redistribution

budget management:

deficits must be financed by: creation of money or borrowing

Fiscal Policy

- government spending
- taxation
- borrowing

Increases in spending:

The multiplier effect :income multiplier = 1/(1-b)

a portion of any increase in autonomous spending becomes income for the producers whose goods and services have been purchased.
...these producers pay wages, interest payments which become income for workers, owners of capital.
...these workers spend a portion of this "new" income on goods and services, which becomes new income for those producers...

Money

What is money?

Unit of account , store of value, medium of exchange

Demand for money:

transactions
"liquidity preference"
money is used to invest in interest bearing assets (bonds for example)

Suppose you buy a bond that offers a fixed rate of interest. Now suppose that after your purchase, the interest rate rises, this means the price you could sell your bond for goes down ...your wealth has fallen

speculation

When people expect that interest rates will rise they will want to sell bonds and hold their wealth in money.

Monetary policy and the central bank:

Monetary Policy

- controlling the supply of money
- influencing the money market
- influencing private investment

Open market operations:

tight money: central bank sells securities to chartered banks, reserves go down at CB's and this is multiplied through the system....fewer loans.....fewer banks deposits.....money supply falls and interest rates rise. AD shifts in as investment, consumption declines.
easy money: central bank buys government securities from chartered banks.... reserves go up, banks lend out more cash, which ends up as a deposit in other accounts.....multiplied through the system.

money supply increases, interest rates fall, investment, consumption increase, AD shifts out to the right.

The "Keynesian Approach to macro policy

- Firms won't hire workers when they expect demand to be sluggish
- Savers and Investors are different groups:
    - savers are concerned about holding money versus interest bearing assets...wealth effects and speculation
    - Investors care not only about the interest rate but also expected profits, expected price of capital assets
- Markets do not operate perfectly... markets can remain in disequilibrium for long periods of time.
- The price level does not adjust quickly to changes in aggregate demand.

The "Classical" / "monetarist" approach to macro policy:
Investment is sensitive to changes in interest rates when savings go up, we can expect significant adjustments in interest rates and a corresponding change in investment
Markets are efficient (reach equilibrium). If there is excess supply of labor, then wages must fall until equilibrium is reached in the labor market

If consumption is low, (recession) this means that savings is high, which means that investment will increase....the interest rate is simply the reward for not buying consumer goods today.

Any decline in AD (shifting in) will be offset by a fall in the price level (AS shifting out)

AS- AD interpretations of Inflationary phenomena:
Two types of inflation:
Demand pull inflation: AD shifts out along SRAS past Y*
caused by all the things that shift out AD

Cost push inflation AS shifts up: caused by increased production costs, wage settlements, wage price spirals, indexed wage settlements

Stagflation
The Phillips Curve: An apparent statistical relationship between

inflation and unemployment:

A "Keynesian" interpretation
The AS is upward sloping as we approach (and exceed?) productive capacity (the full employment level of GDP). An apparent trade-off between inflation and unemployment; Even if Y* is undesirably low, we can increase output (employment) past Y* at a cost of increasing the price level

The "Monetarist" interpretation
In the long run, the AS curve is vertical at the full capacity level of GDP...any increase in GDP beyond this cannot be maintained and will have damaging side effects: accelerating inflation

Demand-Side Fiscal Policy:
Goal = shift out the AD curve
tools:
* increase G paid for by:
* increase in MS?
* increase in borrowing?
* increase in taxes?

What will happen to Y, P?
What will happen to the SRAS curve?

The supply side of things:

- taxes are incorporated into costs of production
- taxes are inflationary
- taxes provide a disincentive to work, invest
- government intervention via regulation of
- markets: creation of monopolies is inflationary

Supply-side Policies:
"Reaganomics" (early 1980's)
- decrease government spending
- decrease the money supply
- decrease tax rate

The Laffer curve: as tax rate gets high,
tax revenue falls

problems:

cuts rejected by congress
→ large deficit → contractionary

tax cuts outweighed by tight money

→ contractionary

no observable incentive effects

Friedman and Monetarism

The quantity theory of money

MV = PY

Friedman: Y = "permanent income" or real GDP

M is the money supply
V is the velocity of circulation
P is the price level

expectations play a role in the effects of monetary policy:

if individuals have rational expectations their expectations of the price level will reflect any announced government policies. The only way fiscal policy can work is if workers are fooled into thinking that real wages are rising

Deficits and the national debt

The government can finance a deficit by

- printing money
- borrowing

When the government borrows:

- supply of bonds increases
- price of bonds fall
- interest rates rise
- investment, consumption fall
- there is a "crowding out effect"

The National Debt

Current debt = accumulated deficits

1975-76: Debt = 33.4% of GDP
1985-86: Debt = 62.3% of GDP
1992-93: Debt = 87.5% of GDP

Are we burdening future generations?

will we have a smaller capital stock?

high interest rates → lower investment

"its not a problem because it is money we owe to ourselves"

"Ricardian equivalence"... borrowing today means higher taxes tomorrow...

If Canadians own the debt then to some extent the debt is less of a problem...future generations will not be burdened by the debt because they will also be the ones receiving the interest payments.
However, as of 1992, the foreign owned portion of the National Debt was $300billion = $11000 per capita
Note the analogy that the government is like a family is not correct:
...governments exist in perpetuity but people do not....it is more appropriate to think of the government as being in a similar position as a corporation....some level of debt is always maintained and indeed is a desirable thing
the debt is a promise to Canadian dollars ....something the government can print!

Macroeconomics III: Canada and the Open Economy; International Trade & Exchange Rates

Trade: Canada's trade:

- cars (We import and export more cars than anything else: the auto pact)
- Staples: next comes forestry and forestry products
- Chemicals
- Travel

The Balance of Trade:

The value of exports <u>less</u> the value of imports
Canada has traditionally been a net exporter

Comparative advantage and the gains from trade

Why trade with anyone?

Gains from trade arising from production in which you have a comparative advantage

If we assume the individuals/regions/countries who trade are self-interested, there must be <u>mutually beneficial gains</u> in order for trade to occur.

Absolute advantage: the ability to produce more of a good per unit of resource than a prospective trading partner:

example:
Traders Scotland (S) and Belgium (B)
goods: whiskey (w), chocolate (c)
suppose we can normalize the resources required to produce either good (labor, machines, raw materials etc..) into "units" of resource:

how much whiskey/chocolate can be produced with one unit of resource?
If Scotland produces 10 bottles of whiskey with one unit of resource and Belgium produces 1 unit, then Scotland has an absolute advantage in the production of whiskey.

An example:

If two traders each have an absolute advantage in the production of a good, they can benefit by specializing and trading.

prior to trade

	w	**c**
S	10	6
B	5	10
total	15	16

Now suppose that each country specializes in the good it has an absolute advantage in:

	w	**c**
S	20	0
B	0	20
total	20	20

Total output of both goods has gone up which means that there is a set of trading prices which will make both traders better off.

Suppose that Scotland exchanges 6 w for 8 c:
then we have:

	w	**c**
S	14	8
B	6	12
total	20	20

Suppose that Scotland is better at producing both goods: does this mean that the two countries cannot profit from trade?
Answer: no.

Comparative advantage: the ability to produce a good <u>at a lower opportunity cost</u> than a potential trading partner.

Example:

	w	**c**
S	100	60
B	5	10
total	105	70

Scotland is relatively superior in the production of whiskey
i.e. twenty times better compared with six times better in the production of chocolate.

Thus Belgium has a comparative advantage in chocolate production: to produce 60 boxes of chocolate it is giving up 30 bottles of whiskey. By comparison, the production of 60 boxes of chocolate in Scotland means giving up 100 bottles of whiskey.

Trade with comparative advantage

Each country should specialize in producing the good in which they have a comparative advantage.

	w	**c**
S	110	54
B	0	20
total	110	74

Once again, there is a set of prices (rates of exchange) at which both countries are made better off as a result of specialization and trade:

	w	**c**
S	102	63
B	8	11
total	110	74

Trade restrictions:

Why restrict trade?

- Protect domestic industries from foreign competition (the “infant” industry argument)
- diversification: risk, future markets
- retaliation
- generate revenues for government
- interest groups

Intervention in trade

Tariffs : a tax on imports

- increase the purchase price of imports
- raise tax revenue

examples: clothing, cars

Quotas

limitations on importation quantities
- restrict the supply of imports
- raise the price of imports
- increase rents to sellers
More intervention

Subsidies:

lower costs for domestic producers
change the relative price of domestic goods

Countervailing duties:

retaliatory tariff on imported goods that are subsidized in the country of origin:
hogs (US on Canada)
corn (Canada on US)

Dumping

Selling a good on a foreign market at a price lower than in its domestic market
butter mountains
sticky apples

The threat of intervention

Voluntary Export Restrictions (VER's) are the same as a quota except the profits remain with the exporting country. Only legal trade restriction under GATT

Globalization and trade agreements

The GATT:

- Founded 1947: objective liberalization of international trade
- Kennedy Round (60's)....large tariff cuts
- Tokyo Round (70's)
- Uruguay Round (80's, 90's)

Canada-US FTA.....1989

- Tariffs to be phased out by 1999
- Non-tariff barriers to be reduced
- Free trade in energy....energy sharing
- Freer trade in services
- Future negotiations to eliminate subsidies
- Dispute settling mechanism
- Huge changes in trade volumes as a result of FTA:

NAFTA - Do we hafta? NAFTA.....Canada, Mexico, US free trade area

The Balance of Payments

The Balance of payments records the flow of dollars in and out of the country.

The B of P must balance.

Foreign exchange markets effect the balance of trade
Gains from trade depend upon the volume of trade

Two parts to the balance of payments:

the current account
the capital account

Balance of Payments for Canada, 1983.

Current Account	
merchandise exports	91.3
merchandise imports	(73.2)
balance of merchandise trade	18.1
service exports	12.0
service imports	(16.6)
balance of trade	13.5
net investment income	(11.7)
transfers	(0.2)
current account total	1.6
Capital Account	
new direct investment	0.2
other long term capital flows	2.6
short term capital flows	(3.8)
capital account total	(1.0)
current plus capital account	0.6
use of official reserves (increase)	(0.6)
Net Balance	0

If Current plus capital accounts give a negative (positive) number: the balance is made zero by use of official reserves...increase (decrease) foreign borrowing or decrease (increase) foreign exchange reserves.

There is nothing inherently good about a Balance of Payments surplus:

e.g. Canadian investments abroad contribute to a deficit

Permanent deficits/surpluses cannot be maintained...finite reserves

The exchange rate

The exchange rate is the Canadian dollar price of one unit of a foreign currency:

e.g. $1.51 = price of 1 US dollar. It is determined in the currency market by the demand for and supply of Canadian dollars

Who supplies Canadian dollars?

- Anyone who needs foreign currency
- imported finished goods
- imported raw materials, intermediate goods
- financial investment in foreign assets (e.g. Bonds).
- travelers
- the bank of Canada

Whoever is supplying foreign currency to the exchange market is demanding some foreign currency

Inflation and the exchange rate:

Foreign inflation will decrease the exchange rate
Domestic inflation will increase the exchange rate (depreciate the currency)

Purchasing power parity

In theory, the exchange rate between any two countries (if determined by market forces) will always adjust to reflect differences in the price level between the two countries.

E.g. If Canadian steel costs $200 per tonne and Swedish steel costs 1000 krona, on the world market, then the exchange rate must be 20¢ per krona.

PPP theory is used to predict the long-term effects of inflation on exchange rates.

If one country has a faster rate of inflation than another, its exchange rate must be depreciating.

Shorter term effects are less easy to predict

markets do not operate free from intervention (tariffs, quotas etc..)
some goods and services are not traded across international borders (land, buildings, haircuts)
if the source of the inflation is due to non traded goods, then the exchange rate is not effected.
Products are rarely homogeneous

Exchange rate uncertainty:

Speculation and hedging:

Speculators can be a stabilizing force in a flexible exchange rate system. In a fixed exchange rate system, speculation of a devaluation makes it more likely.

Hedging:

purchasing currency from speculators reduces exchange rate risk.

Fixed versus flexible Exchange rates:

1. Freely floating exchange rates: exchange rates determined purely by market forces
2. Fixed rate: central bank buys and sells dollars to maintain a set exchange rate.
3. Managed float: central bank maintains plays a stabilizing role?

Monetary and fiscal policy in a small open economy

Near perfect capital markets...any differential in real interest rates (e.g. US versus Can) will generate capital inflows/outflows.

Maintaining a fixed exchange rate necessitates giving up an independent monetary policy:

capital outflows (higher US interest rate) requires that the Bank purchase Canadian dollars to maintain the exchange rate...
a decrease in the money supply until interest rates equalize
capital inflows (higher domestic interest rates) requires that the Bank purchase foreign exchange (with Canadian dollars)...
an increase in the money supply until interest rates equalize

Flexible exchange rates: the government loses some control over aggregate demand: capital outflow results in a devaluation....lower imports and higher exports giving a net effect of shifting out of the AD curve.

Capital inflow results in appreciation of the dollar...higher imports and lower exports, giving a net effect of shifting in the AD curve.
1950'S...flexible exchange rates
1960's...fixed exchange rate
1970's ...a mixture of the two
currently....supposedly a flexible exchange rate but one that is subject to heavy intervention form time to time.

Monetary policy:

Under fixed exchange rates:

the ability to use monetary policy to effect AD is lost because the requirement of defending the exchange rate causes capital inflows/outflows which reverse desired

changes in the money supply. If the Bank wants to resist/fight inflation by decreasing (or reducing the rate of increase of) the money supply, domestic interest rates rise causing a capital inflow which puts upward pressure on the Turkish Lira...in order to maintain the fixed rate of exchange the Bank must purchase foreign currency with Turkish Lira...the money supply increases!

Under flexible exchange rates:
in a small open economy monetary policy works through the sensitivity of net exports to changes in the exchange rate rather than through the sensitivity of investment spending to the interest rate A decrease in the money supply to combat inflation causes a capital inflow which puts upward pressure on the value of the dollar.
The Turkish lira appreciates and net exports decline...aggregate demand shifts in so that output and the price level are further reduced.

Fiscal Policy

Under fixed exchange rates:

Changes in government spending intended to shift the AD curve will be reinforced by the resulting capital flows and the required increases and/or decreases in the money supply necessitated by a pegged exchange rate. If the government increases spending, this shifts out the AD curve. As national income increases the transaction demand for money increases....money demand shifts out , putting upward pressure on the interest rate.
Capital inflows put upward pressure on the dollar which requires that the government buy up foreign exchange ...the money supply increases until the interest rate is equalized with the rest of the world.
Thus the offsetting effect of an increase in interest rates that would otherwise have accompanied this policy is negated....

Under flexible exchange rates:

Changes in government spending will be counteracted by the effects of capital flows on net exports. That is government spending replaces (is replaced by) export demand when spending increases (decreases) If government spending increases in an attempt to shift out aggregate demand, upward pressure on the interest rate (money demand shifts out) results in capital inflows so that the exchange rate appreciates.
Exports decline and imports increase so that AD shifts back.

Exchange rates and Aggregate Supply

A change in exchange rates causes a shift in aggregate supply to the extent that some imports are intermediate goods. Appreciation of the dollar means cheaper imports so that AS shifts out. Depreciation of the dollar means imported intermediate goods are more expensive so that AS shifts back

In the AS-AD framework:

Expansionary fiscal policy:

fixed exchange rate - no effect on AS - AD shifts out

flexible exchange rate - AS shifts out - no effect on AD

Expansionary monetary policy:

fixed exchange rate - no effect on AS - no effect on AD

flexible exchange rate - AS shifts back - AD shifts out