

4 MACROECONOMIC AIMS

1. Low inflation
2. Sustained economic growth
3. Low unemployment
4. Balance of payments equilibrium

NY ACCOUNTING

Gross Domestic Produce refers to the value of all final goods/services produced within a given country during a given period of time

Gross National Produce refers to the value of all final goods/services produced by domestic factors of production during a given period of time

$$\text{GDP} = \text{GNP} + \text{NFIA}$$

USEFULNESS OF NY STATISTICS

Usefulness	Limitations
<p><u>Economic growth</u></p> <ul style="list-style-type: none"> ▪ Can measure changes in output as well as the rate of economic growth Gives an insight into living standards ▪ Is measured on a year-to-year basis on increases in national output 	<p><u>Inaccuracies</u> – output going unrecorded, figures understate output</p> <ul style="list-style-type: none"> ▪ Nonmarket activities Volunteer work, housekeeping etc. are not recorded in NY figures ▪ Underground economy Illegal – drug dealing, prostitution etc. Legal – moonlighting with double jobs etc. Hidden from government records
<p><u>Comparisons across countries</u></p> <ul style="list-style-type: none"> ▪ Measure economic strength of countries Determines countries' levels of development Determines whether countries are in need of aid ▪ Classification of countries Developed/developing etc. based on per capita income 	<p><u>International comparisons</u></p> <ul style="list-style-type: none"> ▪ Procedures differ from country to country ▪ Inaccuracies in data provided ▪ Conversion to common currency is required (PPP is sometimes used) ▪ Difference in culture ▪ Differences in population sizes ▪ Differences in size of underground economy ▪ May be in different phases of the business cycle – e.g. peak vs. trough
<p><u>Measures contributions from various sectors</u></p> <ul style="list-style-type: none"> ▪ Determines if income is fairly distributed 	<p><u>Measuring welfare/SOL</u></p> <ul style="list-style-type: none"> ▪ Leisure time As GDP increases, leisure time may have to be sacrificed – value placed on recreation may not be considered ▪ Environmental degradation Pollution not considered as costs to rise in output, finite resources may be depleted ▪ Income inequality Distribution of income, proportion on spending not reflected ▪ Higher output/production does not necessarily improve consumption – e.g. defence spending
<p><u>Formulating future policies</u></p> <ul style="list-style-type: none"> ▪ Can forecast, as well as interpret trends ▪ Economic planning, policymaking etc. 	
<p>Note</p> <p>Though GDP does not measure economic well-being, it is positively associated with many things people value including a higher material standard of living, better health and longer life expectancies, higher literacy rates and educational attainment</p>	

NOMINAL VS. REAL INCOME

Nominal income refers to income at ruling prices, with no account of inflation

Real income refers to income at base year prices and takes into account inflation rates

BALANCE OF PAYMENTS

In the BOP receipts from abroad are regarded as credits (inflows) and entered in the accounts as positive. Outflows are regarded as debits and taken as negatives. When the credits and debits are taken, they must sum to zero.

A **surplus** on the BOP refers to a situation in which international receipts (credits) are greater than international payments (debits) over a year. Conversely, a **deficit** on the BOP refers to a situation in which international receipts are less than international payments.

Current Account	Goods Balance <ul style="list-style-type: none"> ▪ Imports and exports of physical goods 	BOT
	Service Balance <ul style="list-style-type: none"> ▪ Import and exports of services (e.g., insurance) 	
	Income Balance <ul style="list-style-type: none"> ▪ Wages, interest and profits flowing into and out of the country 	
Capital Account	FDI <ul style="list-style-type: none"> ▪ Inflow and outflow of investments – investments overseas will be seen as outflows, investments from foreign MNCs (for example) will be seen as an inflow ▪ Note that <u>profits</u> from such investments are to be credited into the current account and not here. 	
	Overall Balance <ul style="list-style-type: none"> ▪ A positive currency flow indicates BOP surplus – increase in foreign currency available for adding to foreign reserves/paying off foreign debts ▪ A negative currency represents a BOP deficit 	
	Official Reserves (Net) <ul style="list-style-type: none"> ▪ Shows how monetary authorities deal with net currency flows, whether surpluses or deficits 	

AGGREGATE DEMAND

AD is defined as the total level of demand in an economy
In a four sector economy, it is given by $AD = C+I+G+(X-M)$

The AD curve is **downward sloping** due to three effects

- **Real wealth effect** – When prices go down, purchasing power goes up. Consequently, consumption goes up
- **Interest rate effect** – When price levels go down, demand for money goes down leading to a fall in interest rates. This means the cost of borrowing is lowered, increasing demand and subsequently, firms' level of investment.
- **International substitution effect** – When export prices go down, foreigners buy more. Likewise, when import prices are relatively higher, imports are substituted by domestic products.

SHIFTS IN AD

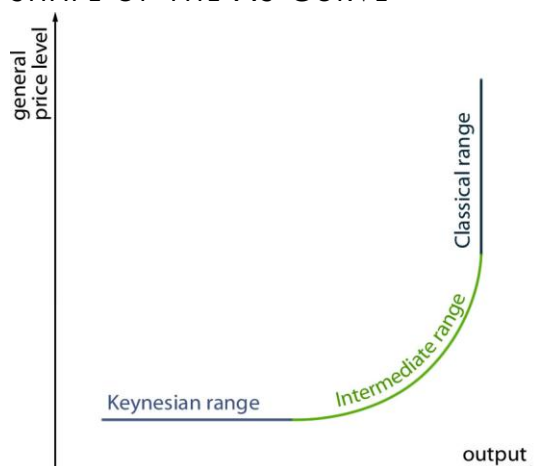
Shifts of the AD curve may be effected by a change in any of the following

Real Wealth	When real wealth increases, demand increases. AD shifts right.
Interest rates	When interest rates go down, price levels go down. Consumers are more likely to purchase now (as the opportunity cost of investment is lower). AD shifts right
Inflation	If there is an expected change in prices in the future, consumers will tend to purchase now. AD shifts right.
Income abroad	When income from abroad increases, demand for exports increases. AD shifts right.
Exchange rates	As local currency appreciates, there is an increase in imports and a decrease in exports. AD shifts left
Expectations	

AGGREGATE SUPPLY

AS is the total output of each good/service that firms would like to produce at each possible price level.

SHAPE OF THE AS CURVE



Keynesian range

- Supply is perfectly elastic
- Output is at a level less than full employment
 - i.e. there is spare capacity
- An increase in output doesn't reflect any changes in the general price level.

Intermediate range

- Level of output is approaching full employment
- An increase in output is reflected by an increase in general price levels
- Law of diminishing marginal returns sets in

Classical range

- Supply is perfectly inelastic
- Output is at full employment
- An increase in production has merely inflationary pressure – an increase in general price levels does not reflect any change in output

SHIFTS IN AS

Shifts of the AS curve may be effected by a change in any of the following

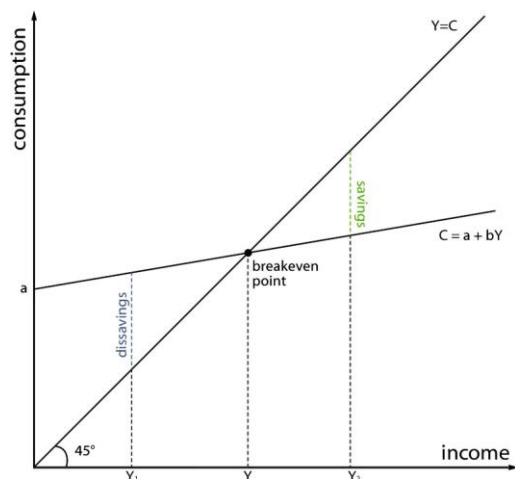
Government policies	Depending on type of policy, may affect either SRAS or LRAS.
Inflation	If prices are expected to rise, produces supply less. SRAS shifts left.
Factor prices	Lower factor prices mean lower costs of production. SRAS shifts right, LRAS may shift right if the decrease in price is permanent
Technology	Lowers costs of production, increases output. Both SRAS and LRAS shift right.
Supply shocks	Supply shocks are temporary increases/decreases in supply. Only SRAS is affected.

THE CONSUMPTION FUNCTION (C)

The **consumption function** maps the level of aggregate consumption desired at each level of disposable income.

Assumptions of the consumption function are that

1. Technology is constant
2. Potential output is constant (i.e., the PPC does not shift)
3. There is fixed general price level



Autonomous consumption (indicated by a) refers to the level of consumption that does not vary with income
Induced consumption (indicated by bY) refers to expenditure that varies directly in income ($b = \text{MPC}$)

Average propensity to consume (APC) refers to the proportion of total income spent on consumption.

$$\text{It is given by } \text{APC} = \frac{C}{Y} = \frac{a+bY}{Y}$$

Marginal propensity to consume (MPC) refers to the proportion of extra income spent on consumption.

$$\text{It is given by } \text{MPC} = \frac{\Delta C}{\Delta Y}$$

The **absolute income hypothesis** states that an increase in absolute income translates directly to a change in absolute consumption.

On the other hand the **permanent income hypothesis** states that consumption is dependent, to some extent, on one's expected income for the rest of one's life.

Savings refer to the residual of consumption.

The **APS** is given by $\text{APS} = \frac{S}{Y} = 1 - \text{APC}$

The **MPS** is given by $\text{MPS} = \frac{\Delta S}{\Delta Y} = 1 - \text{MPC}$

SHIFTS IN THE CONSUMPTION FUNCTION

The consumption function may shift due to changes in the following

Wealth	An increase in wealth shifts the consumption function upwards
Interest rates or availability of credit	An increase in interest rates shifts the consumption function downwards
Distribution of income	A more equal distribution of income shifts the consumption function upwards
Expectation of future prices or income	Expectations on future prices or income may shift the consumption function upwards or downwards.

AGGREGATE EXPENDITURE

AE is defined as the total level of spending in an economy.

In a four sector economy, it is given by $\text{AE} = C+I+G+(X-M)^*$

Consumption	Investments	Government expenditure	Exports	Imports
Autonomous and induced	Autonomous in the SR	Autonomous	Autonomous	Induced

* Do note that even though it is the same as AD, the axes of the AE graph are different

INVESTMENT (I)

Investment (I^m) refers to the act of acquiring fixed capital assets and accumulating stocks and inventories. In essence, it is the process of adding capital goods in an economy.

Autonomous investment refers to investment influenced by firms' long run profits outlook (under various influences) and is independent of NY . Investments are autonomous in the short run.

Induced investment refers to investment that varies directly with NY , and is a result of firms responding the changes in the flow of income.

The **marginal efficiency of investment** (or rate of return on investments) is a graph plotted on the axes investments against interest rates. The MEI curve is interest rate inelastic and downward sloping due to the inverse relationship between investments and interest rates.

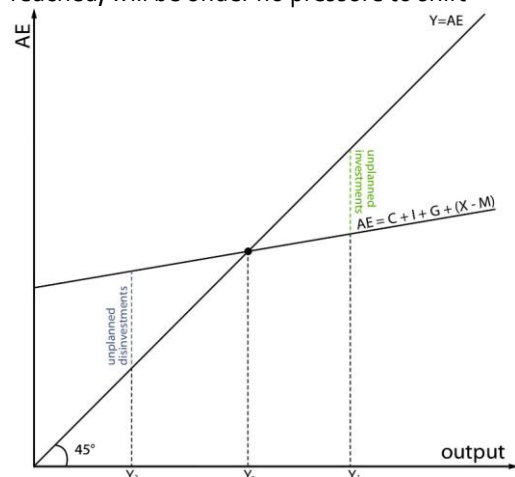
CHANGES IN INVESTMENTS

Investments may shift as a response to changes in any of the following

Business confidence	A higher business confidence (affected by many things) will increase investments.
Cost and availability of capital goods	The lower the cost of capital goods, the higher the rate of investments.
Rate of change of income	As the income increases at an increasing rate, investments will increase as well.
Government policies	Government policies (e.g. pioneer statuses, tax holidays) generally work to increase investments
Technology	Changes in technology shifts the MEI rightward

EQUILIBRIUM LEVEL OF INCOME

The equilibrium level of income is the level of income towards which the economy will tend, and, once reached, will be under no pressure to shift



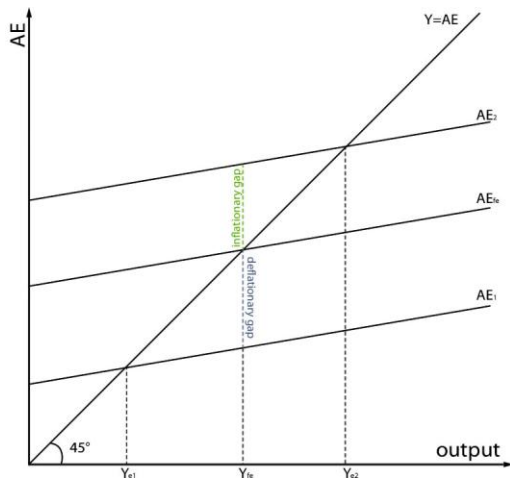
At Y_1

- There is unsold output
- Unplanned investments
- Firms reduce output in the next time period

At Y_2

- There is excess demand
- Firms draw on stocks
- Unplanned disinvestments
- Firms increase output in the next time period

EQUILIBRIUM AND FULL EMPLOYMENT



Full employment is defined as the level at which all economically active persons employed in the economy, not taking into account those that are structurally or frictionally unemployed. (Typically the unemployment rate at full employment lies between 4-6%)

The **deflationary gap** refers to the amount of AE that falls short of the level necessary to reach full employment

The **inflationary gap** refers to the amount of AE that exceeds the level necessary to achieve full employment. In real life, this hardly happens as there is very rarely cases of overemployment where $AE > AE_{fe}$

THE MULTIPLIER EFFECT

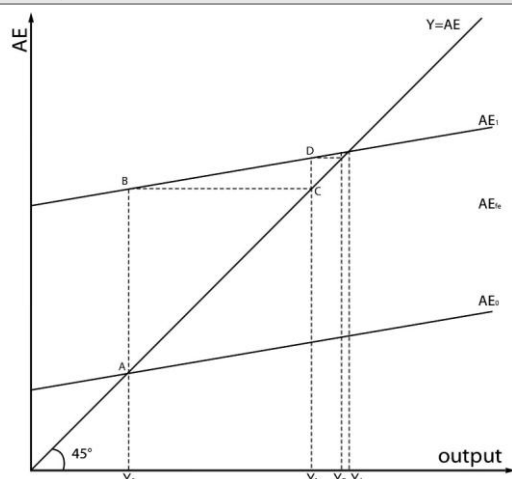
The **multiplier** is a numerical coefficient by which a the change in AE is multiplied to show the final change in NY.

$$\text{The multiplier is given by } k = \frac{1}{MPW} = \frac{1}{MPS+MPT+MPM} = \frac{\Delta Y}{\Delta AE} = \frac{1}{1-MPI}$$

THE MULTIPLIER PROCESS

When there is an rise in injections (say, firms decide to invest more), aggregate expenditure (C+I+G+X-M) will be higher. Firms will respond to this increased demand by using more labour and other resources and thus paying out more incomes (Y) to households. Household consumption will rise and so firms will sell more. Firms will respond by producing more, and thus using more labour and other resources. Household incomes will rise again. Consumption and hence production will rise again, and so on. There will thus be a multiplier rise in incomes and employment. This is known as the multiplier effect.

The process, however, does not go on forever. Each time household incomes rise, households save more, pay more taxes and buy more imports. In other words, withdrawals rise. When withdrawals have risen to match the increased injections, equilibrium will be restored and NY and employment will stop rising. (Sloman)



- At Y_0 , planned AE > planned output
- Unplanned disinvestments of AB
- Firms increase output by BC to match the higher AE, Y_0B
- NY increases from Y_0 to Y_a
- Consumption rises, AE rises to Y_aD
- Unplanned disinvestments of CD
- Firms continue to increase output until planned AE = output

ACCELERATOR THEORY

The **accelerator theory** relates investments to a change in NY. It states that firms will choose to invest when NY is rising at an increasing rate.

The accelerator process

1. Autonomous AE increases
2. Multiplier kicks in, NY increases – multiplier effect
3. If NY increases faster than before, firms respond by increasing investments
4. The increase in investments increases AE
5. 2nd multiplied increase in NY occurs – multiplier effect
6. 2nd increase in investments occurs – accelerator effect

INFLATION

Inflation refers to a situation in the economy where there is a general and sustained increase in prices, and is measured in terms of indices such as the CPI.

CONCEPTS

Inflation may be characterized as **moderate** (>10%), **galloping** (double- to triple-digit percentage increases) or in a state of **hyperinflation** (up to a million or a trillion percent).

Reflation refers to a period of mild inflation. **Disinflation** refers to the process of elimination or reducing inflation while **deflation** refers to a situation in which there are falling prices. **Slumpflation** refers to a period during which there is both inflation and unemployment. **Stagflation** refers to a period during which there is inflation with no or negligible growth in GDP/GNP/

CAUSES OF INFLATION

Demand-pull inflation (shifting AD) may be caused by

- Increased AD (anything that changes CIGXM)
 - Reduction in exchange rates
 - Reduction in taxes
 - Reduction in i/r
 - Rising consumer confidence
 - Faster economic growth externally
- Changes in money supply
 - Money supply growing faster than output
 - Increased bank borrowing

Cost-push inflation (shifting AS) may be caused by

- Higher costs
 - Wage-push inflation
 - Profits-push inflation - firms passing on costs to consumers by raising prices
 - Supply-side inflation - rise in prices of imported raw materials
 - Higher import/export prices
 - Increase in the level of indirect taxes
 - Structural inflation due to structural rigidities (like labour immobility)

COSTS OF INFLATION

<p>Effects of income redistribution</p> <ul style="list-style-type: none"> ▪ Fixed income earners lose out – Y_{real} falls ▪ Demand-pull inflation generally widens profit margins, cost-push inflation may squeeze profit margins. In general, consumers lose out if inflation causes Y_{real} to fall ▪ Savers lose out ▪ Debtors gain, creditors lose out. In general, inflation tends to encourage borrowing and discourage lending. 	<p>Effects on production and investment</p> <p>Mainly depends on the <u>extent</u> of inflation</p> <ul style="list-style-type: none"> ▪ Favourable to economic growth – profits rise, costs lag behind ▪ Sends the wrong signals to producers if inflation is unexpected ▪ Creates uncertainty ▪ Increases speculation
<p>Effects on balance of payments</p> <p>Depends on the extent of inflation with respect to other countries. Consider the situation in which the domestic market experiences greater inflation than foreign markets</p> <ul style="list-style-type: none"> ▪ Exports become less competitive in foreign markets, foreign imports become more competitive in domestic markets 	<p>Other effects</p> <ul style="list-style-type: none"> ▪ Wage spiral (higher prices → Dd for higher wages → higher wages → higher prices etc.) ▪ Stimulus: depends on the level of employment at which the economy is at <ul style="list-style-type: none"> ○ Consider the different effects of cost-push and demand-pull inflation

UNEMPLOYMENT

TYPES AND CAUSES OF UNEMPLOYMENT

Frictional	Structural
Arises when people are in between jobs – exists even when the economy is at full employment. 1. Imperfect labour market operations a. e.g. Imperfect information 2. Immobility of workers	Arises due to 1. Changes in the structure of the economy 2. Mismatch between skill/location of the labour force and those required for new jobs a. Changes in pattern of demand/supply
Classical (Real-wage)	Demand-deficient (Cyclical)
1. Monopoly power causing wages to be above market clearing level a. Role of unions	Involuntary unemployment 1. Due to lack of AD for goods 2. Associated with transitions of the economy through the business cycle

COSTS OF UNEMPLOYMENT

- Lost output
- Waste of resources – deskilling of workers over time
- Government finances
 - Lost of tax revenue
 - Direct – Unemployed do not pay income tax
 - Indirect – Unemployed consume less and hence pay less indirect taxes
 - Increased spending on welfare benefits
- Loss of profits
 - Firms lose profits from potential output at full employment
- Social costs

ECONOMIC GROWTH

Actual growth refers to the percentage annual increase in national output.

Potential growth refers to the speed at which the economy could grow should no resources be left idle.

FACTORS AFFECTING RATE OF ECONOMIC GROWTH

Productivity refers to the quantity of goods/services that a worker can produce for each hour of work

1. Natural resources
 - a. Increase in natural inputs
 - b. Increase in quantity of labour
 - c. Increase in population size of participation
2. Human capital
 - a. Knowledge/skills acquired
 - b. Education, training, retraining
3. Physical capital
 - a. Increase in stock of capital goods
 - b. Economic growth is fastest when the share of output devoted to capital formation is large
4. Technological knowledge
 - a. Innovation, new production methods

CAUSES OF SLOW/NEGATIVE ECONOMIC GROWTH

1. AD – if AD does not expand at the rate of supply increase, unemployment may exist and growth may be slowed
2. Low rate of I^m – may be due to low savings.
3. Capital accumulation – a lack of increase in capital would mean that growth has an upper limit. Technological change would then be necessary for economic growth
4. Lack of natural resources
5. Lack of human capital – education, training and retraining plays a part in preparing the workforce for growth.
6. Sociocultural factors – religious/social norms may impact the economy
7. Political factors – stability is essential for growth
8. Policy mistakes/external shocks

CONSEQUENCES OF SLOW ECONOMIC GROWTH

Unemployment/lost output	Less consumption/savings	Lower investment/LR growth
Less workers would be hired, capital accumulation falls.	Lower income means falling expenditure as well as savings. Borrowing may also be greater	Recession may lead to falls in investment via the accelerator effect. Long term economic growth is compromised

COST-BENEFIT ANALYSIS: ECONOMIC GROWTH

Benefits	Costs
<p><u>Increased levels of consumption</u> <u>Higher standards of living</u> Provided economic growth > population growth, it will lead to a higher Y/capita. This leads to an increase in consumption.</p> <p><u>Avoiding other macroeconomic problems</u> Without a growth in productive potential, a demand for higher Y may lead to higher inflation, BOP disequilibrium etc. Growth helps to meet these demands and avoid such crises.</p> <p><u>Income redistribution is easier</u> If Ys rise, governments find it easier to redistribute Y to the poor without the rich losing out. Also, government revenues rise (from increases in tax revenue) and such revenues can be used to alleviate poverty. Without a continual rise in NY, the scope for helping the poor is much more limited.</p> <p><u>Society feels it can afford to care more for the environment</u> As people grow richer, they may become less occupied with private consumption, and more concerned to live in cleaner environments. Likewise, the regulation of pollution tends to be stricter in DCs than in LDCs.</p> <p><u>Increase in government tax revenue</u></p>	<p><u>Present opportunity costs of growth</u> To achieve even faster growth, firms have to finance more investments etc. These finances come from savings, or retaining profits or taxes, and raising these means, in some way or other, a cut in consumption. In the SR high growth thus leads to less consumption and more.</p> <p><u>Growth may generate extra demand</u> "The more people have, the more they want" – higher consumption many not necessary lead to higher utility</p> <p><u>Social effects</u> Materialism, less caring society etc. May drive up violence, crime and related social problems</p> <p><u>Environmental costs</u> Society may be more concerned for the environment, but also more likely to destroy it. Higher levels of consumption translate to higher levels of pollution and waste.</p> <p><u>Non-renewable resources</u> Such resources are rapidly depleted, rather than used more efficiently.</p> <p><u>Effects on income distribution</u> While some people may gain from higher SOLs, other may lose. If the means to growth are greater incentive (such as cuts in progressivity of Y tax), then the rich get richer and the poor get poorer – no trickle-down is felt. Growth may also involve changes in production, which also means changes in the skills required. People may find their skills no longer relevant as a result of growth. Unemployment may rise.</p>

References: Sloman, RJC Economics notes.

BALANCE OF PAYMENTS

A BOP is in **equilibrium** if annual trade is in overall balance and the exchange rate remains stable

CAUSES OF DISEQUILIBRIUM

1. High MPM – caused by a preference for foreign products leading to trade deficits. In Singapore’s case may be due to lack of natural resources
2. Changes in pattern of demand
3. Changes in pattern of production – production may shift overseas
4. Changes in terms of trade – if DD_M is price inelastic, a fall in imported goods may mean that BOP improves
5. Exchange rates – appreciations of domestic currency means that imports are cheaper
6. Inflation
7. Cyclical and monetary changes – and increase in GDP due to higher AD means that imports become cheaper.
8. Institutional changes
9. Sociopolitical factors

CONSEQUENCES OF PERSISTENT DISEQUILIBRIUM

Persistent Deficit	Persistent Surplus
<ol style="list-style-type: none"> 1. Foreign reserves/exchange rates – foreign reserves decline, borrowing may be necessary to finance deficit, currency may depreciate and consequently, external purchasing power declines. External debts incurred, the servicing of which leads to further outflows of currency 2. Reduction investments – a persistent deficit implies problems in a country. This leads to a loss of confidence and thus investments 3. Employment – if deficit is due to higher cost of production, a persistent deficit may imply further job loss is a present threat 	<ol style="list-style-type: none"> 1. Other countries’ deficit – another country’s deficit may become a problem for the country with a surplus in the future 2. Dutch disease – short term capital flows may result in speculation, causing an appreciation in a country’s currency. Exports become uncompetitive 3. Inflation – if the surplus is due to an increase in AD, inflationary pressures may occur if the economy is close to Y_{fe}