week 6:

model with trade:

PAE=C+ I^P +X-M

→X—demand for export is determined by competiveness of our products and economic conditions in the foreign market such as barriers to trade

    =independent on Y= exogenous expenditure in PAE

→M—determined by needs and wants and domestic income/Y

     =not all import expenditure is on C but also I and G

 =M+mY (m=marginal propensity to import/mpm=portion of income spent on import, 0<m<1)

(assuming all M is on Consumption product→ PAE= C^d+ I^P +G+X

C^d=spending on domestically produced Consumption products [C= C^d +M]→should not have this assumption because M is not only on C)

so, PAE= C+ I^P +G+X-M (where M is subtracted completely regardless of whether they are on C or G or I)

to find the equilibrium: PAE=Y

Y=PAE→Y=C+cY+ I^P +X-(M+mY)→$\frac{1}{1-c+m}$ $(C + I^P + X - M)$

$$Ye=\frac{1}{1-c+m} (C + I^P + X - M)$$

Where $\frac{1}{1-c+m}$ is a import multiplier that indicates how much change in Y to Ye with unit change in import→how much times of each additional import drive reduction in Y.

1. m increases/leakages increases→$\frac{1}{1-c+m}$ decreases→less multiplier effect on increasing Y

2. m decreases/leakages decreases→$\frac{1}{1-c+m}$ increases→greater multiplier effect on increasing Y

model with government:

PAE=C+ I^P+G

G=government expenditure on final products=exogenous expenditure

T=government revenue=T(tax from sources other than income)+tY(tax from income)

PAE=C+ I^P+G=C+c(Y-T)+ I^P+G= C+c[Y-(T+tY)]+ I^P+G=C+cY-cT-ctY+ I^P+G

So, PAE= C+cY-cT-ctY+ I^P+G

To find the equilibrium, PAE=Y

Y=PAE= C+cY-cT-ctY+ I^P+G=$\frac{1}{1-c(1-t)}(C - cT + I^P + G)$

Ye=$\frac{1}{1-c(1-t)}(C - cT + I^P + G)$

$\frac{1}{1-c(1-t)} < \frac{1}{1-c}$ as 0<(1-t)<1→making c(1-t) smaller than c

#so, with t, less income can be used for C and therefore reduce the change in Y. (no matter how small t is, it acts to reduce C by a certain amount)

#Where $\frac{dY}{dI^p} = \frac{dY}{dG} = \frac{1}{1-c(1-t)}$ is a "government expenditure" & "private investment" multiplier that indicates how much change in Y to Ye with unit change in government spending & private investment

#$\frac{dY}{dT} = \frac{-c}{1-c(1-t)}$ **(comes out with a negative number)** is a taxation multiplier—how much reduction in Y if additional tax unit is added

#$\frac{1}{1-c(1-t)} > \frac{-c}{1-c(1-t)}$ →multiplier effect of government spending is greater than that of taxation

#a rise in G spending can be used to offset the effect of a drop in I^P and hence, based on all "#" above, reducing taxation is not as efficient as increasing G spending on the purpose of boosting the economy as the amount increase in C <the amount of reduction in taxation 少收了税但少收的部分不能全部拿来消费 那么就没办法提升 output. BUT! When there is reduction in I^P, it can be completely corrected by increasing G as they have the same multiplier effect. 政府花费可以抵消所有经济上少了的 output

1. t increases/leakages increases→$\frac{1}{1-c(1-t)}$ decreases→less multiplier effect on increasing Y

2. t decreases/leakages decreases→$\frac{1}{1-c(1-t)}$ increases→greater multiplier effect on increasing Y

model with all sectors:

PAE= C+ I^P+G+X-M

    =C+cY-cT-ctY+ I^P+G+X-M-mY+mT+mtY

to find the equilibrium output level, Y=PAE:

Y=PAE= C+cY-cT-ctY+ I^P+G+X-M-mY+mT+mtY

Then Ye=$\frac{1}{1-c(1-t)+m(1-t)}$ $(C-(c-m)T+I^p+G+X-M)$

$\frac{dY}{dG}=\frac{1}{1-c(1-t)+m(1-t)}$=multiplier for government expenditure

then **the value** of actual increase in G=actual increase in G*$\frac{1}{1-c(1-t)+m(1-t)}$ assuming

c,m,t are all known

this assists to find out the actual G needed in order to boost the economy by [actual

increase in G*$\frac{1}{1-c(1-t)+m(1-t)}$] 为了达到一些经济目的比如说减少失业率 你想要

增加 x 那么多的钱到这个经济上 那么真正的政府花费并不需要 x 这么多 因为

有 multiplier effect 知道 c,t,m 的话能够得到 multiplier 这个倍数 代表着真正花

费$\frac{x}{multilier}$就能够有 x 的效果

Fiscal policy=a government is deliberately varying the level of G relative to T in order
to influence the aggregate level of activity

-budget balance=(G+Q)-T   where G=government spending, Q=transfer payment, T=taxation

*(G+Q)-T<0→(G+Q)<T→ outflow usage<tax revenue→surplus

*(G+Q)-T=0→(G+Q)=T→ outflow usage=tax revenue→balance

*(G+Q)-T>0→(G+Q)>T→outflow usage>tax revenue→deficit

--slow economic growth→low tax revenue→less to spend →cause of deficit

--need to *borrow* as debt or *sell securities* to obtain money inflow

--return with interest later, the interest is cost of borrowing

--**intergenerational effect**: borrowing for current spending = cost of future spending

--borrow to spend as Gov spending and transfer payment and also the interest paid
back to previous debt [debt=G+Q+interest/rB_{t-1}, where r=interest rate]

--debt should be covered by tax revenue and net borrowing/$(B_t- B_{t-1})$

  [debt=T+$(B_t- B_{t-1})$]

G+Q+ rB_{t-1}= T+$(B_t- B_{t-1})$ **→ $(B_t- B_{t-1})$= (G+Q-T)+ rB_{t-1}**

                    net borrowing=budget balance + interest

Debt/GDP →affect the interest rate/cost of borrowing for fiscal policies:

interest rate, amount, loan period… are dependent on a country's ability to return

*debt/GDP high→dependent on debt is high→ability to return is low→high IR

#to reduce debt/GDP:

1. Ask lenders for low IR and longer loan-repayment period

2. Borrow from IMF (multilateral development assistant) with low IR but also with conditionality

3. sell governmental asset in return for money

4. Austerity Measures=cut G and Q, raise T   →to reduce $(B_t - B_{t-1}) = (G+Q-T) + rB_{t-1}$

injections and withdrawals:

Y=C+I+G+X-M   in terms of production

Y=disposable income + T   in terms of income

  =C+S+T

C+I+G+X-M= C+S+T

→ I+G+X= S+T+M

→injections back to the local economy=withdrawals out of the economy

*(I-S)+(G-S)=(M-X)   →excess private I+excess government spending=excess import spending

*(S+T)-(G+I)=(X-M)

*(G-T)+(I-S)=(M-X)

-(G-T)=+VE →G>T→increasing borrowing

-(G-T)=-VE →G<T→decreasing borrowing

-(I-S)=+VE →I>S→increasing borrowing

-(I-S)=-VE →I<S→decreasing borrowing

-(M-X)=+VE →M>X→increasing borrowing

-(M-X)=-VE →M<X→decreasing borrowing

(all the expressions above are just for you to know the balance between money come back into the economy and the money flows out)

RELATIONSHIP between borrowing and lending:

If you are to borrow, there must be someone lending to you!

*the borrowing of one sector must be matched by lending from other sectors

-net borrower=sector that has debt in overall/sector that borrow more than lend

-net lender=sector that lend more than borrow

-if we are to find out whether a country is a net borrower or a net lender, we need to look at all sectors' situation→net borrowing in one sector might be covered by net lending in another one:

*if net borrowing cannot be covered with other net lending=borrow>lend→net borrower

*if net lending cannot be covered with other net borrowing=lend>borrower→net lender

the GFC analyst:

1. the development of financial imbalances at the sector level within a country
2. the implications of increased saving rates on the part of the households sectors
3. the development of financial imbalances across countries
4. the growth and sources of financing public debt

in general, people are more careful to decide whether to lend. People who need to borrow cannot have access and people who have money are not willing to lend→drive imbalances between funds.

Additional note:

*if a country has debt problem, it might impose the usage of Austerity programs which requires decreasing government spending and increasing taxation so that money can be used to cover he debt and as result, output/GDP level will be driven down→the good news may come, which is, as the debt problem is solved and more taxation is generated, later the government can use the extract revenue for transfer payment, driving the GDP back to the original level again.

*Automatic stabilisers—policy that offsets fluctuations in economic activity without direct intervention by policymakers. When incomes are high, tax liabilities rise and eligibility for government benefits falls, without any change in the tax code or other legislation. Conversely, when incomes slip, tax liabilities drop and more families become eligible for government transfer programs, such as food stamps and unemployment insurance that help buttress their income.

当经济好的时候自然人们的工资就多了交的税也就多了 同时政府不用担心经济所以不用花费太多 当税收多了政府花费少了 根据以上所讲到的 GDP 会有所减少 而当经济发展慢下来的时候人们就少缴了税而政府也会多花费 再次让经济回到原来的位置 这中间没有任何部门插手管理 就是自动地对经济作出调整