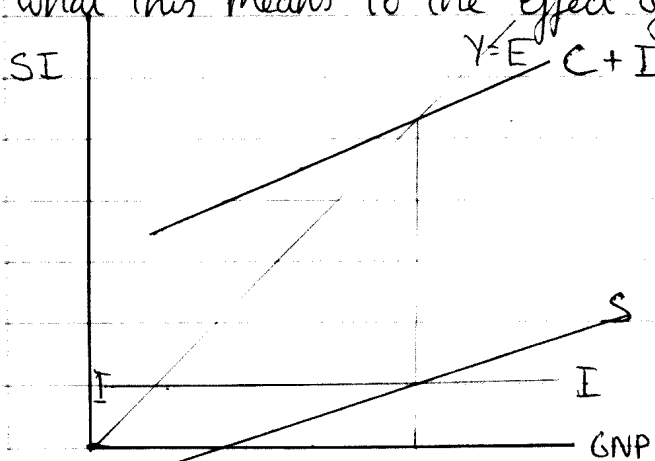


Discuss the effects upon the Multiplier of (A) Taxation (B) Induced Investment (C) International Trade.

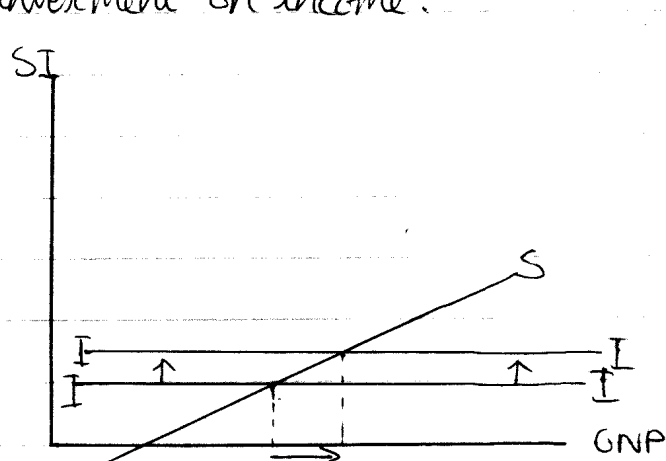
The Multiplier is a function which describes how much an injection into the economy will raise National Income.

The multiplier is derived as follows: If on average people save half of extra income received, then an injection of income will run through the system, each recipient passing on one half and saving one half. The process would continue until the full injection has been saved, and in the above case the increase in income would be twice the value of the injection when the process came to rest, and the multiplier is two. This figure, and the value of any multiplier, is the reciprocal of the Marginal Propensity to save. Other leakages are important and reduce the multiplier when they reduce the marginal propensity to consume.

Any increased injection would create the same multiple increase in National Income, but changes in leakages affect the value of the multiplier itself thus changing the effect an injection has on National Income. An increase in government spending (not financed by increased taxation or domestic borrowing) or a credit expansion would increase the injection of income into the economy and raise National Income by a fixed amount according to the multiplier, but would have no effect on the multiplier itself. What is of interest is those parts of taxation, induced investment and international trade which affect the value of the multiplier. The importance of this to economists is to see in the economy how the variables change the multiplier and what this means to the effect of investment on income.

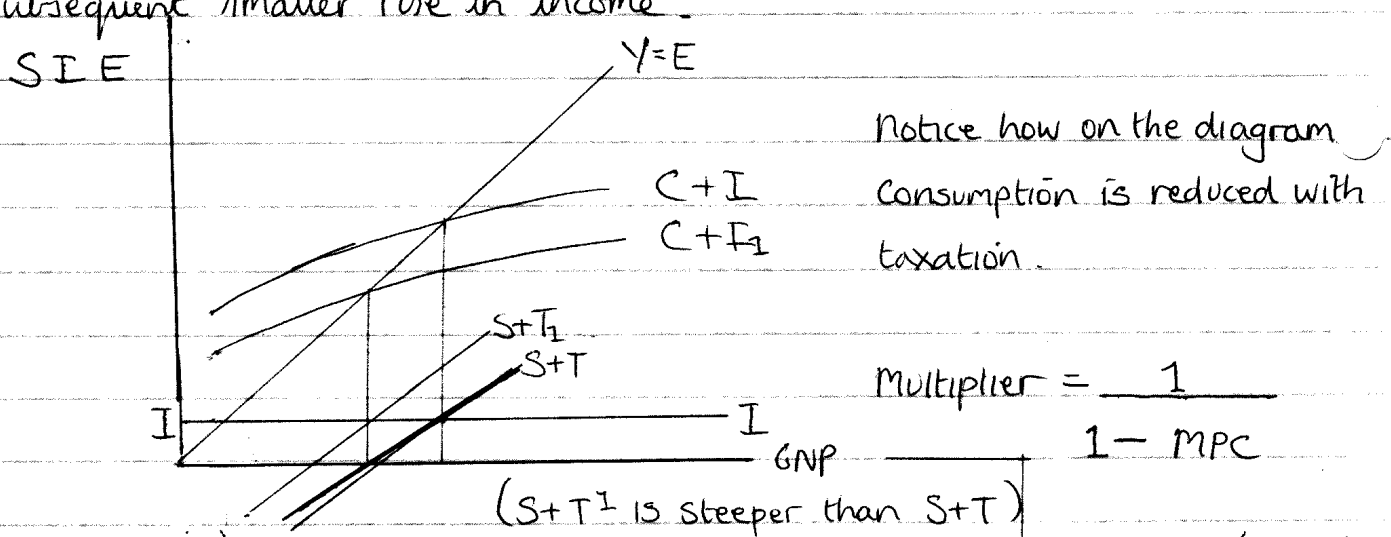


This diagram summarises the mechanism and equilibrium level of income



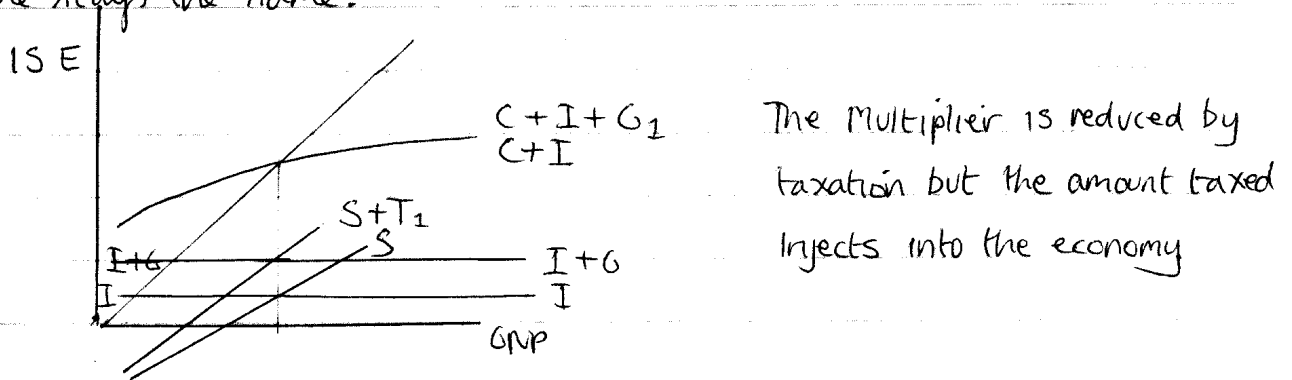
The Multiplier in action - The steeper is S the smaller the multiplier.

Taxation is a leakage from the circular flow of income and the higher the rate of taxation the greater is the leakage from the system. It is that part of taxation which reduces consumption which increases leakages, as taxing savings will have no effect. As the multiplier is the reciprocal of the marginal propensity to save with no government then an economy with taxation will probably change the multiplier as it is now the reciprocal of that fraction of extra income devoted to savings plus taxation. Taxation means less income will be passed down the system, and leakages will equal the initial injection much quicker with a subsequent smaller rise in income.



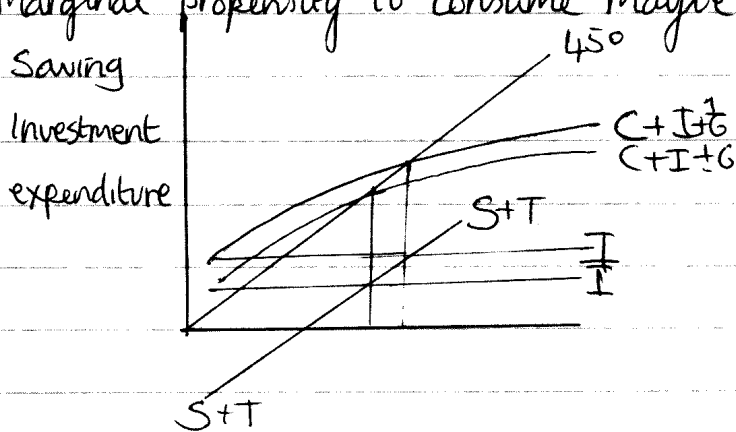
How taxation affects the savings function $MPC = \Delta Y - (\Delta S + T)$

If the government spends the taxed income, then the injection has no effect on the value of the multiplier. This assumes that the same proportion of the income would be spent, taxed and consumed for the person from whom it is taken ~~but~~ those who receive it and how are able to use it. The multiplier falls, there is an injection but National Income stays the same.



However, it is unlikely that the taxpayer has the same rate of consumption on the income extracted from him as the receiver has on his extra income. Progressive taxation has been seen as increasing national income,

other things remaining equal. The consumption of those who receive the injections is higher, and progressive taxation taxes proportionately more those with higher savings from income and also with higher wealth. In this case not only do government injections rise, but the savings function curve does not steepen as much as it otherwise would have done. This is because mps is smaller ^{in aggregate} and compensates for the leakage caused by taxation. As a result of this analysis the Government have seen it worthwhile to tax savings and transfer payments to use the wealth or income for consumption and hopefully raise national income. This assumes other things remain equal, but in reality interest rates could rise (reducing investment ^{and consumption} and increasing savings) and the increase in marginal propensity to consume maybe marginal.



Savings + total taxation = Govt spend + Investment assumed as this is equilibrium.

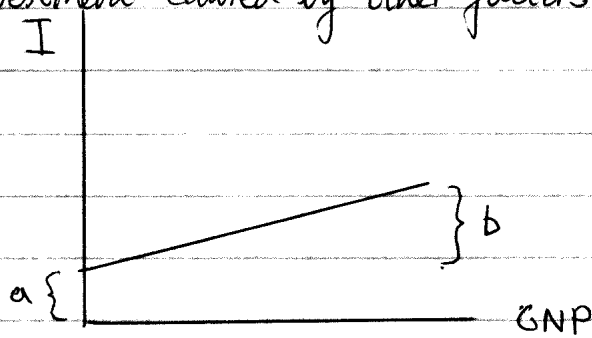
the transfer payments to people with high MPC compensate for leakage effect of increased taxation

PLUS ~~also~~ the injection effect.

To summarise there are three points. First taxation is a leakage and reduces the value of the multiplier. Second the multiplier is not returned to its pre-tax value if Government injects the leakage unless, third, the receivers of the taxed money have a higher MPC and the higher marginal propensity to consume rises by the leakage, which it will do if taxation affects savings which are leakages in the first place.

Injections through the multiplier do not alter the value of the multiplier and one injection which it is common to declare as being autonomous to allow analysis in investment. However investment is rarely autonomous and is connected in many ways to other outcomes in the economy. There are several analysis for how the level of investment comes about such as those based on the marginal efficiency of capital and interest rate and those showing income as a determinant and the ISLM curve which includes interest rates, income, the demand and supply of money. For this analysis, ~~investment~~ investment rises with national income and this is

induced investment. Induced investment is often allied with autonomous investment caused by other factors and replacement.

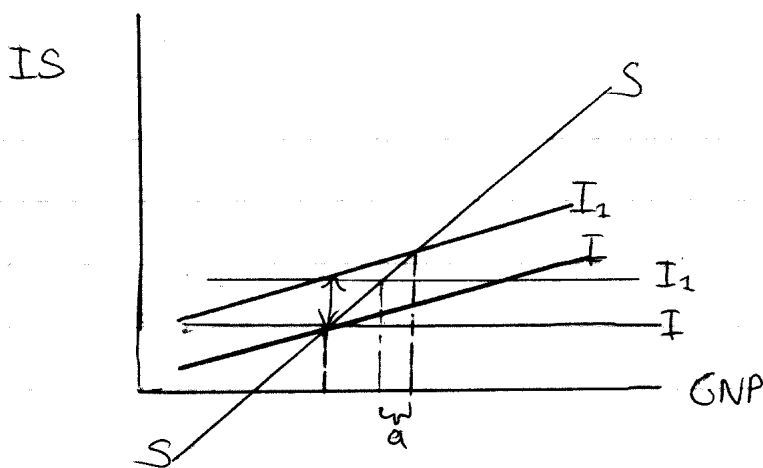


a = autonomous investment
b = induced investment.

Investment rises when income rises because new machinery is needed to produce the extra product. The amount of extra investment is determined by the incremental capital output ratio or the percentage increase investment needed to ~~produce~~ produce a one per cent rise in product. This assumes no excess capacity, permanent expectations of demand, that capital is available for investment and that the 'ICOR' does not change, which are some ^{rigid} stiff assumptions to overcome. (The Capital goods industry has frequent increases and decreases in demand compared with other industries in that if replacement investment is ten per cent and demand for the goods to the industry ~~strong~~ ^{causes demand for} machinery rises by ten per cent then output in the capital goods industry doubles.) Increasing income is likely to ^{have} affect ^{by} increasing investment. When measured, a certain rise in income will cause a certain rise in investment and therefore there is a marginal propensity to invest.

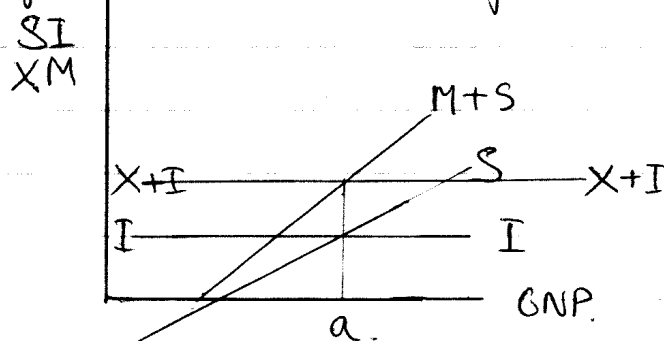
$$mp_i = \frac{\Delta I}{\Delta Y}$$

Therefore an increase in income will lead to an increase in consumption and an increase in investment thus reducing the amount of income not being passed on and income flows through the system farther and total income rises higher.

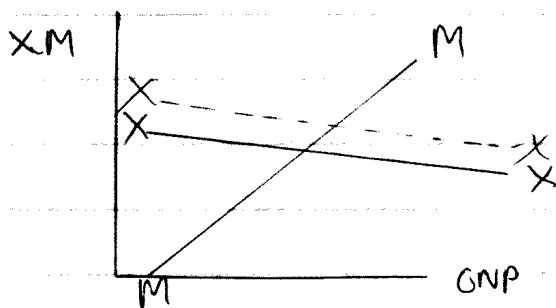


a = Shows the difference when investment is induced rather than totally autonomous. There is a greater increase in GNP to the same injection. Therefore the multiplier is higher.

International Trade opens up a country's economy to outside competition and a flow of goods and income between economies (which are thus interconnected). Imports require income to leave the country to enjoy the consumption here. Exports reduce consumption here but incomes rise. Looking at the circular flow of income of one country, there is a leakage from consumption with imports. Unlike taxation, where savings may be taxed so having a smaller effect in decreasing the multiplier, imports are financed by income put over for consumption but which leaves the circular flow. Exports, however, are an injection and they are determined by the income and thus imports of other countries. However, it must not be forgotten that goods destined for export markets are sold here. A country opened up to international trade will therefore experience a lower multiplier due to imports but higher injections due to income from abroad.



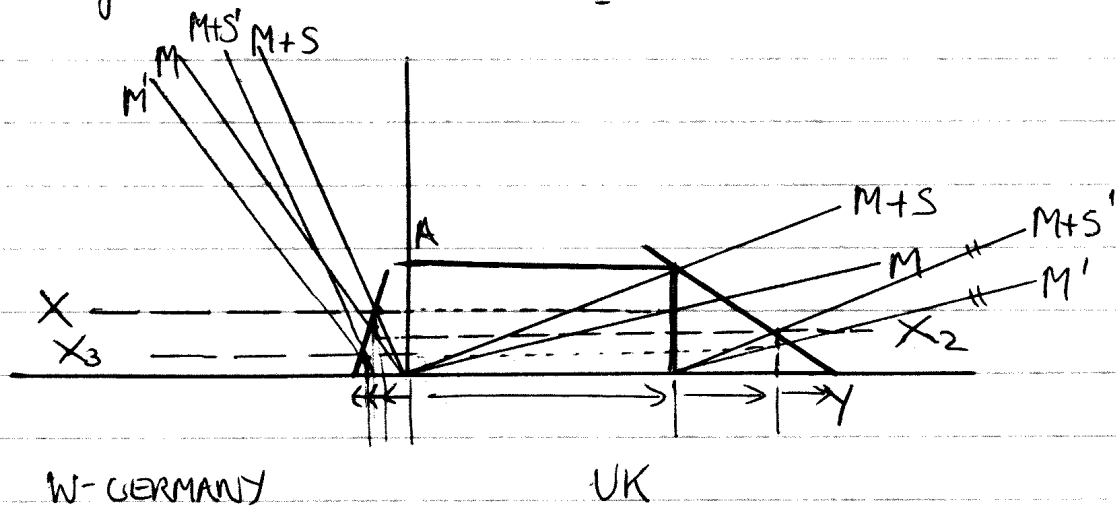
Notice that the higher level of leakages is matched by higher injections. Injections always equal leakages, but for GNP to be maintained the decrease in income due to a fall in the multiplier must be replaced by a rise in injections. Shown at a.



Exports may actually fall due to greater income. Thus a rise in exports will increase income but itself choke off a higher level of export activity. Imports rise with an increase in GNP. If X does fall with income Multiplier falls

In this model an increase in exports will increase savings and imports so that leakages equal injections at equilibrium (for income to stay at one level and stop changing). This has no effect on the multiplier, however. Also in this model an increase in investment abroad will increase exports from here and increase income here also. Multipliers do change in that a rise in

our exports is due to the foreign country importing more, ~~our multiplier rises~~ if their ^{margin} propensity to import rises, but our multiplier stays the same. Income will continue to rise due to continuing injections which decrease until the process stops. If our multiplier is higher then we will receive a greater final increase in income.



There is an injection at A creating a rise in income at $M+S$. The M curve depicts the level of exports from Germany and this is an injection increasing Y thus pulling in imports from the UK etc. With lower multiplier Germany has lower income increase. The value of the multiplier is the same,

On conclusion, taxation and imports are leakages and reduce the value of the multiplier. In return, Exports and government spending are injections increasing income according to the value of the multiplier. The multiplier rises and falls due to induced investment which has a relationship of rising or falling with income changes, and diagrammatically the investment line slopes upwards to the right and thus income has to rise greater for savings to equal injections of investment.

B +

Bibliography

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Notes

1. Assuming interest rates do affect consumption (various theories)