

Note: Consumption (APC, MPC), Present Value, Economic Integration, and the effects of exchange rate volatility on price competitiveness(Paper)

Net Present Value

A dollar today is worth more than a dollar tomorrow, because the dollar today can be invested to start earning interest immediately. Thus, the present value of a delayed payoff may be found by multiplying the payoff by a **discount rate**, which is less than 1. If C_1 denotes the expected payoff at period 1, then

$$\text{Present value (PV)} = \text{Discount factor} \times C_1$$

This discount factor is the value today of \$1 received in the future. It is usually expressed as the reciprocal of 1 plus *rate of return*.

$$\text{Discount factor} = \frac{1}{1+r}$$

The rate of return, r , is the often referred to as the **discount rate**, **hurdle rate**, or **opportunity cost of capital**.

In general,

$$PV = \sum_{t=1}^n \frac{C_t}{(1+r)^t}$$

where n is life of the asset, C_t is cash flow at t and r is the discount rate.

Therefore, Net present value (NPV) = PV - required investment

Net present value rule. Invest in any project with a positive net present value.
Rate of return rule. Invest as long as the return on the investment exceeds the rate of return on equivalent investments in the capital market.

Question What is the impact of increasing the interest rate?

Consider Table below

Year	2006	2007	2008	2009	2010	2011	2012	NPV	
Net profit	-10000	-8000	3000	6000	8000	8000	8000		
Present Value	r = 5%	-10000	-7619	2721	5183	6582	6268	5970	9105
	r = 10%	-10000	-6926	2356	4274	5169	4688	4252	3812
	r = 15%	-10000	-6023	1781	2810	2955	2331	1838	-4307

The project costs \$18,000 in the first two years. It then starts to make a profit and by 2012 makes \$8,000. This is the last year of the projects life. If the interest rate is either 5% or 10% then the project should be undertaken. Nevertheless, if it is 15% the firm would be better off putting \$18,000 in the bank and collect the rate of interest.

When interest rates are high firms find it more costly to borrow, and this makes them more reluctant to invest in expanding their business.

The effects of exchange rate volatility on price competitiveness and trade volumes in the UK. Author(s): Cheong C, Mehari T, Williams LV

Source: Journal of Policy Modelling 27(8):961-970 Nov 2005

The paper has investigated how exchange rate uncertainty affects price competitiveness and trade volumes, using UK data. The authors applied system-based VAR models. The empirical results show that exchange rate volatility positively affects prices and negatively trade volumes, thus depresses overall international trade.

One of the benefits for a country joining the EMU is the trade-enhancing effects of reduced exchange rate risk. The key implication for UK macroeconomic policy is that if the country adopts the euro, there will be a positive impact on the UK's trade and economic performance. However, the full extent of this impact will be limited by the existence of inherent uncertainty elsewhere in the global economic system, and in particular in the euro/dollar exchange rate.

Economic Integration

When countries form economic coalitions, their efforts represent a partial movement to free trade and an attempt by each participating country to obtain some of the benefits of a more open economy without sacrificing control over the goods and services.

The third level of economic integration is referred to as a **common market**, in which all tariffs are removed between members, a common external trade policy is adopted for nonmember, and all barriers to factor movements among the member countries are removed. The free movement of labor and capital between members represents a higher level of economic integration and, at the same time, a further reduction in national economy.



The Treaties of Rome in 1957 the established a common market within **European Community (EC)**, which became the **European Union (EU)** in **1993**.

The dark blue areas are the current members.

Discuss the implication of the following tables.

	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Variance	Mean	CV	Growth
--	------	------	------	------	------	------	------	------	------	------	----------	------	----	--------

Value of Export Share

EU

UK	95,694	94,819	94,489	96,821	106,230	108,623	108,933	104,714	105,609	81,536	1086909	95,456	11.39	10.36%
SW	5,504	4,239	4,761	4,923	4,997	5,644	5,162	5,533	5,840	4,400	271368.3	4,857	55.87	6.10%
Share	5.75	4.47	5.04	5.08	4.7	5.2	4.74	5.28	5.53	5.4	0.158227	5.12	0.03	

NON EU

UK	72,276	76,959	69,758	69,498	80,928	80,753	78,045	83,668	84,938	69,125	33437598	77,425	431.87	17.52%
SW	2,213	2,147	2,276	2,371	2,557	2,519	2,373	3,587	3,897	3,001	399539	2,660	150.20	76.10%
Share	3.06	2.79	3.26	3.41	3.16	3.12	3.04	4.29	4.59	4.34	0.415932	3.51	0.12	

Number of Exporters

EU

UK	20,687	20,062	19,120	18,194	18,191	18,041	19,420	19,740	20,250	19,201	960688.5	19,301	49.78	-2.11%
SW	1,256	1,226	1,183	1,146	1,149	1,155	1,250	1,263	1,327	1,232	3946.444	1,217	3.24	5.65%
Share	6.07	6.11	6.19	6.3	6.32	6.4	6.44	6.4	6.55	6.42	0.023732	6.32	0.00	

NON EU

UK	57,291	58,906	63,085	61,337	61,586	64,622	65,562	70,372	71,607	66,004	23214417	63,819	363.76	24.99%
SW	3,701	3,833	4,243	4,086	4,159	4,404	4,548	5,055	5,180	4,827	254221.8	4,357	58.35	39.96%
Share	6.46	6.51	6.73	6.66	6.75	6.82	6.94	7.18	7.23	7.31	0.090117	6.86	0.01	

SW stands for Sough West region of the UK-including Bath and down to Cornwall

It shows that there is a slow growth in exports to Europe. Also the large number of firms who export do not export to EU. From 1996-2004, top 10 trading partners-Non-EU export are US, Japan, Switzerland, Canada, Hong Kong, Australia, Norway, Saudi Arabia, India, and Singapore respectively.

It could be the Eurozone has not been growing rapidly, UK does not adopts the euro. They must be exporting to N.America, etc. It might because of language barriers or different legal systems (N. America, Australia,etc, are based on the British legal system)

Average and Marginal Propensities

APC and APS The fraction, or percentage, of any total income, which is consumed is called the **average propensity to consume (APC)**. The fraction of any total income, which is saved is the **average propensity to save (APS)**. That is,

$$APC = \frac{\text{consumption}}{\text{income}}, \quad APS = \frac{\text{saving}}{\text{income}}$$

Because disposable income is either consumed or saved, the fraction of any disposable income consumed plus the fraction saved (not consumed) must exhaust that income. Mathematically, $APC+APS=I$ at any level of disposable income.

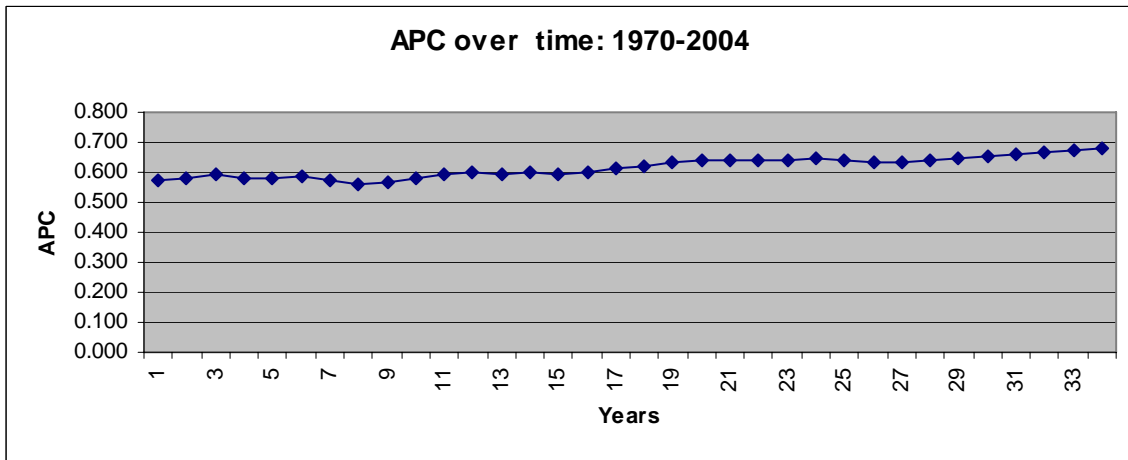
MPC and MPS The fact that households consume a certain proportion of some total income does not guarantee they will consume the same proportion of any change in income they might receive. The proportion, or fraction, of any change in income consumed is called the **marginal propensity to consume (MPC)**. Similarly, the fraction of any change in income saved is the **marginal propensity to save (MPS)**.

$$MPC = \frac{\Delta consumption}{\Delta income}, MPS = \frac{\Delta saving}{\Delta income}$$

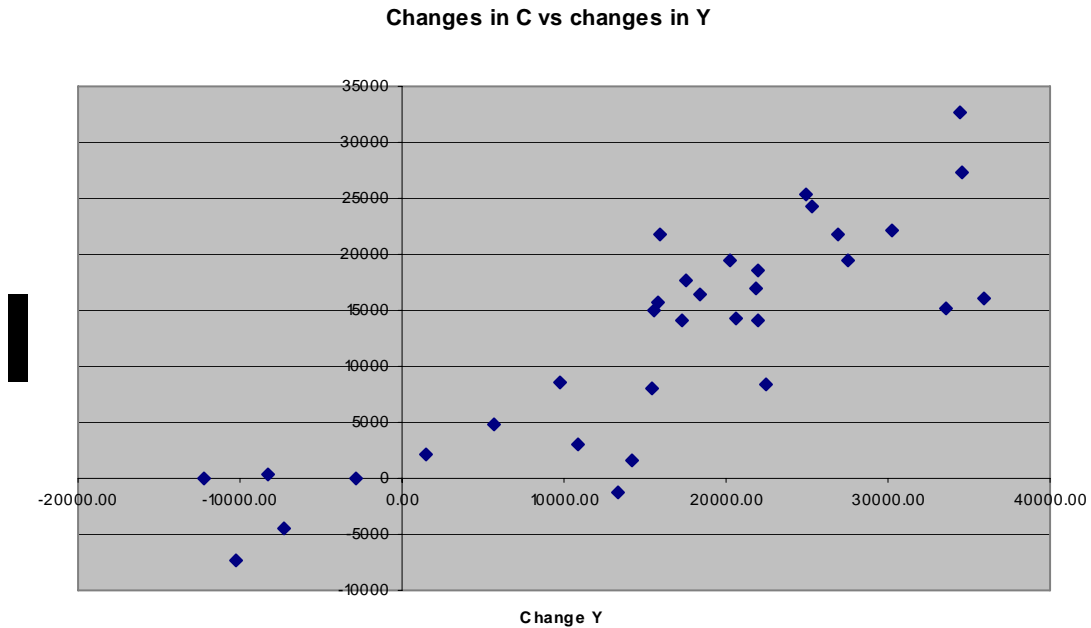
The sum of the MPC and the MPS for any change in disposable income must always be 1, $MPC+MPS=1$.

MPC and MPS as Slopes The MPC is the numerical value of slope of the consumption schedule, and the MPS is the numerical value of the slope of the saving schedule. The slope of any line is the ratio of the vertical change to the horizontal change involved in moving from one point to another on that line.

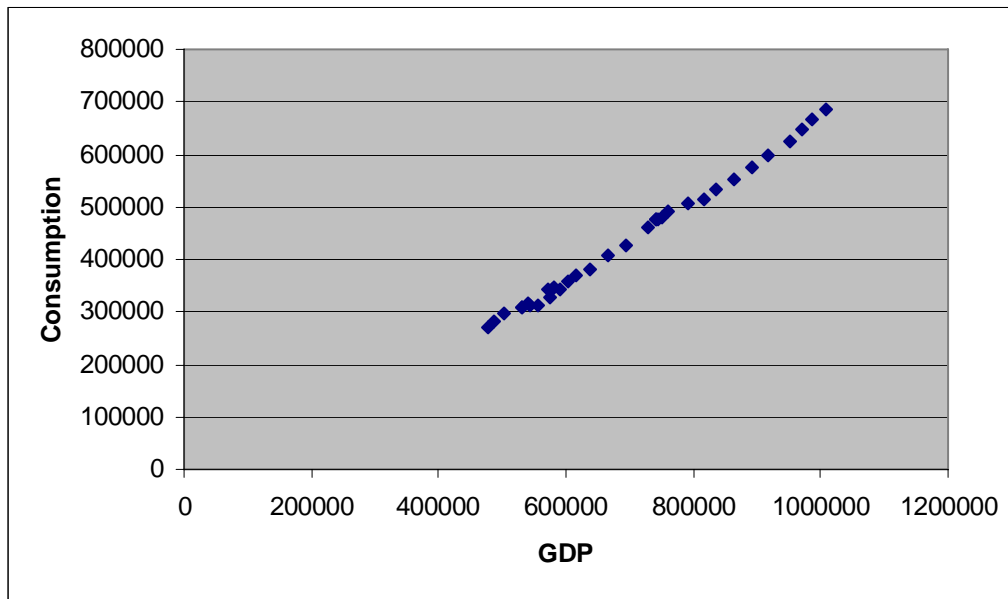
UK



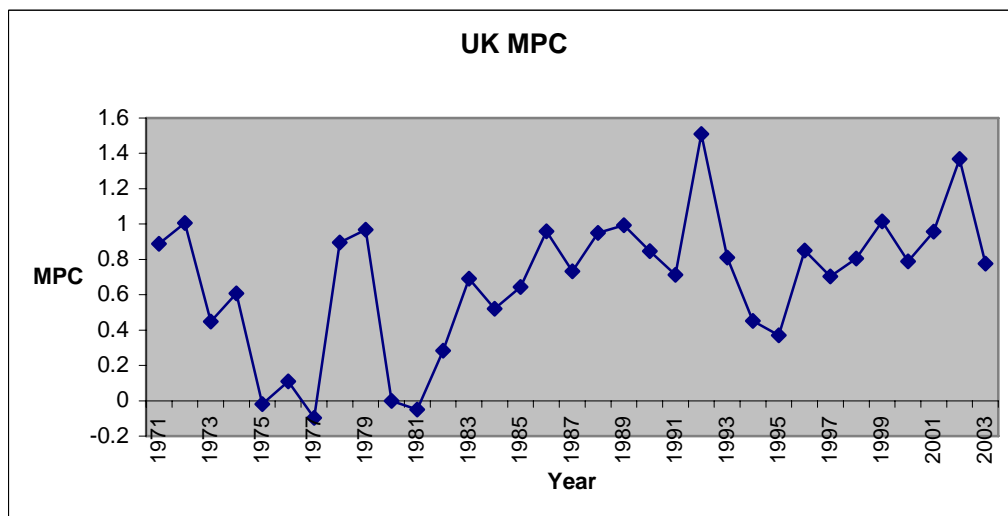
APS has been rising steadily overtime. Two possible reasons, one could reflect a switch from direct to indirect taxation and the consumers expenditure figure might include VAT which has not been deducted. Another could be people really are spending more of their income on average.



An **indirect tax** is levied on a transaction and is paid by an individual by virtue of being involved in that transaction. Taxes and stamp duties on the transfer of assets from one owner to another are indirect taxes. The most important indirect taxes today's world are those on sale of currently produced products, called **value added tax (VAT)**. VAT is an indirect tax because it depends on the value of what is made and sold, not on wealth or income of the maker or seller. Direct taxes are levied on people and they vary with the status of the taxpayer. The most important direct tax is the **income tax**.



Calculate the MPC by guessing the slope of the line. MPC approximately is 0.767.



Since we do not have disposable income, we use the GDP to calculate MPC.