

Surname <i>StemUp Model Solution</i>	Centre Number	Candidate Number
Other Names		2



GCE AS

B520U10-1



ECONOMICS – AS component 1
Introduction to Economic Principles

MONDAY, 14 MAY 2018 – MORNING

1 hour

For Examiner's use only		
Question	Maximum Mark	Mark Awarded
1.	10	
2.	12	
3.	4	
4.	4	
5.	10	
6.	10	
7.	10	
Total	60	

B520U101
01

ADDITIONAL MATERIALS

A calculator.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen.

Write your name, centre number and candidate number in the spaces at the top of this page.

Answer **all** the questions in the spaces provided.

INFORMATION FOR CANDIDATES

The number of marks is given in brackets at the end of each question or part-question.

Answer **all** the questions in the spaces provided.

1. According to the World Health Organisation, research into the elasticity of demand for tobacco products has produced the following data:

	Figures for Egypt
Price elasticity of demand	−0.47
Income elasticity of demand	+1.6

- (a) Outline what a price elasticity of demand of −0.47 means.

[3]

PED measures the responsiveness of quantity demanded to a change in price: $PED = \frac{\% \Delta Q_d}{\% \Delta P}$. The minus sign shows price and quantity demanded are negatively related. As 0.47 is less than 1, demand for tobacco in Egypt is price inelastic: quantity demanded changes by 0.47 times the % change in price, e.g. a 10% price rise cuts quantity demanded by only 4.7%.

- (b) Explain why price elasticity of demand for tobacco products might be at this level.

[4]

Nicotine is addictive, so smokers buy cigarettes out of habit and find it hard to cut back when the price rises, and there are few close substitutes for tobacco, so demand is inelastic. However, demand is not perfectly inelastic: −0.47 shows some response. Egypt has many low income households, so cigarettes take a larger share of their income; as price rises some lower income smokers are priced out of the market, some switch to substitutes such as cheaper brands or loose tobacco and some young people never start. So quantity demanded falls, but less than proportionately (by 0.47% for each 1% rise in price).

- (c) Suppose average incomes in Egypt rise by 5% and the price of cigarettes rises by 10%. Calculate the probable impact on the sales of tobacco products in Egypt. [3]

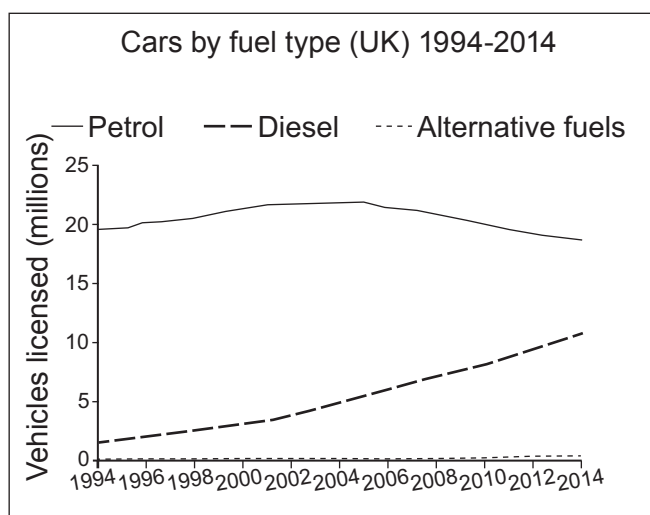
Price effect: $\% \Delta Q_d = PED \times \% \Delta P = -0.47 \times 10\% = -4.7\%$

Income effect: $\% \Delta Q_d = YED \times \% \Delta Y = +1.6 \times 5\% = +8\%$

Overall impact = $-4.7\% + 8\% = +3.3\%$, so sales of tobacco products in Egypt are likely to rise by about 3.3% (ceteris paribus).

2. Diesels are “literally killing people”.

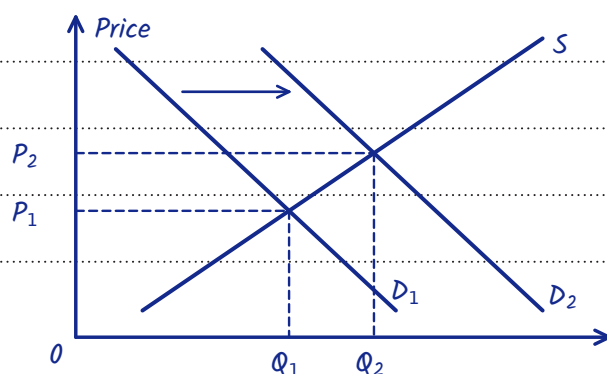
In 2001 vehicle tax was lowered for diesel cars in order to reduce the levels of air pollution that had been caused by petrol cars. Today, there are more than 10 million diesel cars on the roads of the UK – up from just 4 million in 2001.



However, following the Volkswagen emissions scandal of 2015, diesel cars have faced heavy criticism because they emit more harmful pollutants than petrol cars. Alternatives such as electric cars are rising in popularity supported by a government subsidy worth up to £4 500 per car. In 2016, electric cars took 1.3% of new car sales, with total sales of electric cars up over 100% compared with 2015.

- (a) With the aid of a diagram, outline why the data suggests that the number of diesel cars on the road grew between 2001 and 2015. [4]

Lowering vehicle tax on diesel cars in 2001 cut the cost of owning one relative to a petrol car (a substitute). As vehicle tax is paid by the consumer, demand for diesel cars shifted right from D_1 to D_2 , so the number of diesel cars rose from Q_1 to Q_2 . The chart supports this: diesel cars licensed rose from about 4m in 2001 to about 11m by 2014, while petrol cars fell from about 22m to 19m.



Lower vehicle tax in 2001 makes diesel cars cheaper to run, so D shifts right D_1 to D_2 ; the number of diesel cars rises from Q_1 to Q_2 (4m to over 10m).

- (b) Discuss how effective subsidies for electric cars are likely to be in reducing the number of petrol and diesel cars on UK roads. [8]

A subsidy of up to £4 500 per electric car lowers its price, so quantity demanded extends. Electric and petrol or diesel cars are substitutes with a positive cross elasticity of demand (XED), so the fall in the price of electric cars reduces demand for petrol and diesel cars, shifting their demand left and cutting the number bought. The data suggests this is working: electric car sales rose by over 100% in 2016, and tougher rules on diesels after the 2015 Volkswagen scandal will reinforce the trend.

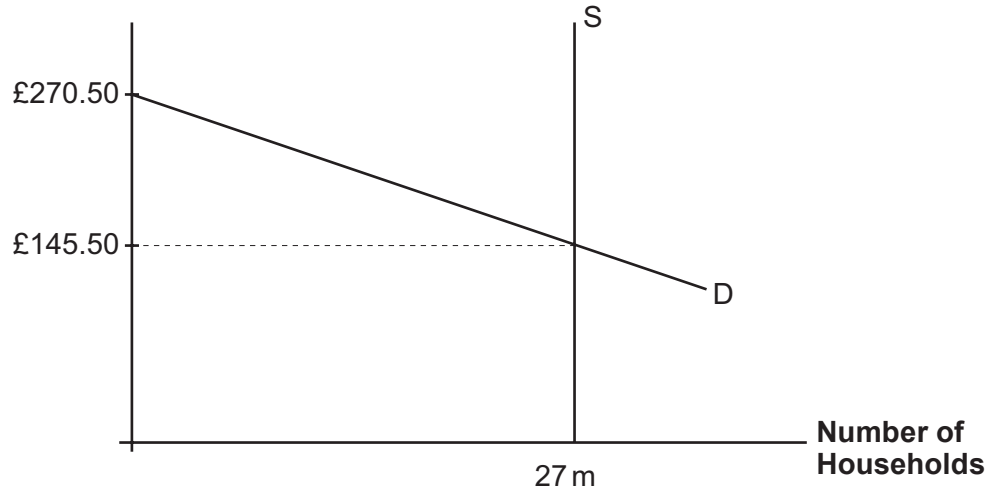
However, the effect is likely to be small in the short run. Electric cars took only 1.3% of new car sales in 2016, and the stock of about 19m petrol and over 10m diesel cars will not fall straight away, as owners keep long-lasting cars for years. It depends on XED: if it is low, because electric cars are a poor substitute due to limited range and few charging points, demand for diesels hardly falls. It also depends on PED for electric cars: even after the subsidy they remain dearer, so if demand is price inelastic sales rise little.

The subsidy also has an opportunity cost and risks government failure if fuel duty or pollution charges would cut diesel use more cheaply.

Overall, subsidies will be only partly effective: they speed up a growing trend, but charging points and slow car replacement mean the number of petrol and diesel cars will fall only slowly over the next 5 years.

3. The diagram below shows the demand for and supply of television licences in the UK.

Price of a television licence



D = Demand for television licences

S = Supply of television licences

In the UK the television licence fee is £145.50 and is a compulsory payment for all households with a television set. There are 27 million such households in the UK.

- (a) Define consumer surplus.

[2]

Consumer surplus is the difference between the total amount consumers are willing and able to pay for a good (shown by the demand curve) and the total amount they actually pay (the market price), i.e. the area below demand and above price.

- (b) Using the diagram above, calculate the consumer surplus for television licence holders in the UK when the licence fee is set at £145.50. Show your workings.

[2]

$$CS = \frac{1}{2} \times (£270.50 - £145.50) \times 27m$$

$$= \frac{1}{2} \times £125 \times 27m = £1\,687.5m \text{ (about £1.69 billion)}$$

4. It is estimated that every £1 spent on construction projects such as new roads in the UK generates £2.84 of economic activity, 90% of which stays in the UK.

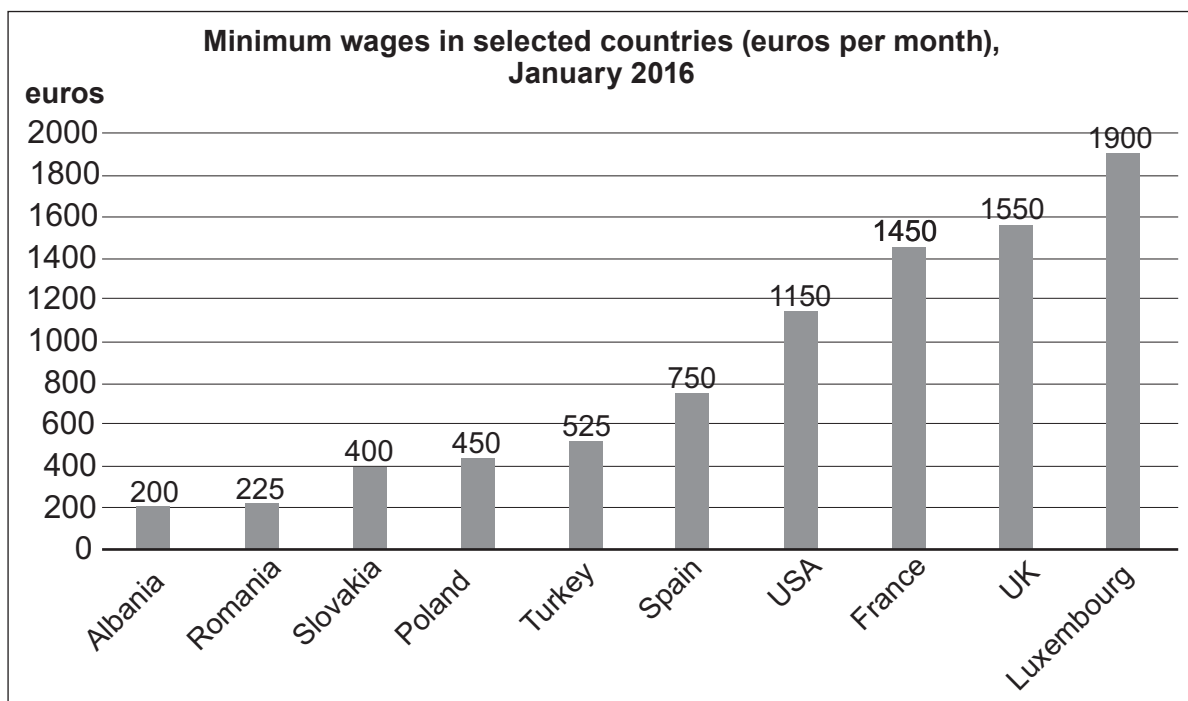
Outline the economic theory which would explain these statistics.

[4]

This is the multiplier effect: an initial injection into the circular flow, here £1 of spending on construction such as new roads, raises AD and causes a larger final increase in national income (GDP). The construction firm's spending on wages and materials becomes income for workers and suppliers, who spend part of it again, so one firm's spending becomes another's income. As money is spent and re-spent, each £1 generates £2.84 of activity (a multiplier of 2.84). Each round is smaller due to withdrawals (savings, taxes and imports): spending on imports is income for foreign firms, which is why only 90% (about £2.56) stays in the UK.

4

5. In 2016 the Government accepted the recommendations of the Low Pay Commission for the minimum wage rates affecting workers under the age of 25. The rate for 21-24 year olds rose by 3.7% to £6.95 per hour from October 2016.



(a) In percentage terms, approximately how much higher is:

- (i) Luxembourg's minimum wage compared to Albania? [1]

$$(1900 - 200) \div 200 \times 100 = 850\% \text{ higher}$$

- (ii) The UK's minimum wage compared to the USA? [1]

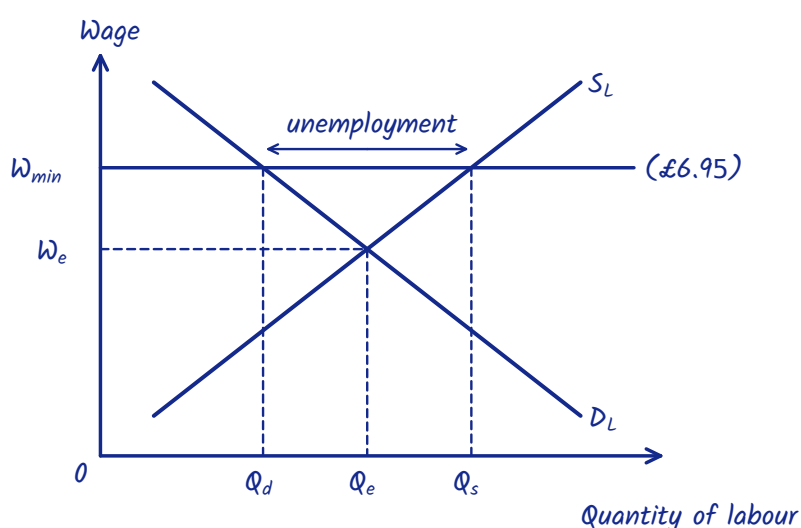
$$(1550 - 1150) \div 1150 \times 100 = 34.8\% \text{ higher}$$

- (b) With reference to the data and using appropriate economic theory, discuss the extent to which the decision to increase the UK's minimum wage for 21-24 year olds would have been likely to increase unemployment in the UK. [8]

A minimum wage set above the equilibrium wage creates excess supply of labour (see diagram). The 3.7% rise to £6.95 an hour was above 2016 inflation of about 1%, a real rise in firms' labour costs. As labour is a derived demand, firms may pass on costs as higher prices, cutting sales, or replace workers with machines, so labour demanded contracts from Q_e to Q_d . More 21 to 24 year olds are attracted into work, so labour supplied extends to Q_s ; the gap Q_d to Q_s is unemployment. The chart shows the UK rate is already high at €1 550 a month, above France (€1 450) and the USA (€1 150) and about eight times Albania (€200), so UK firms may lose competitiveness and move jobs abroad.

However, it depends on how many workers are affected: few 21 to 24 year olds are paid the minimum and the rise was small. If demand for labour is wage inelastic, e.g. in care and retail where jobs cannot be moved abroad, few jobs are lost; the rise in supply depends on the PES of labour and benefit levels. Higher pay raises spending, so AD and the demand for labour rise via the multiplier, and productivity and motivation may rise. With the UK economy growing in 2016 jobs could be created. We also lack data on other ages and living costs abroad.

Overall, the rise was likely to increase unemployment only slightly, mainly among low skilled young workers, as it was modest and the economy was growing.



6. Bank of England cuts interest rates to 0.25%

On the 4th August 2016, the Bank of England cut interest rates for the first time in more than seven years and warned high-street banks to pass on cheaper borrowing costs to customers, in a package of measures designed to prevent a post-Brexit recession. Early economic indicators suggested that confidence among businesses and households slumped after the June referendum on the UK's membership of the EU.

Mark Carney, the Governor of the Bank, argued that: "There is a clear case for stimulus, and stimulus now, in order to have an effect when the economy really needs it."

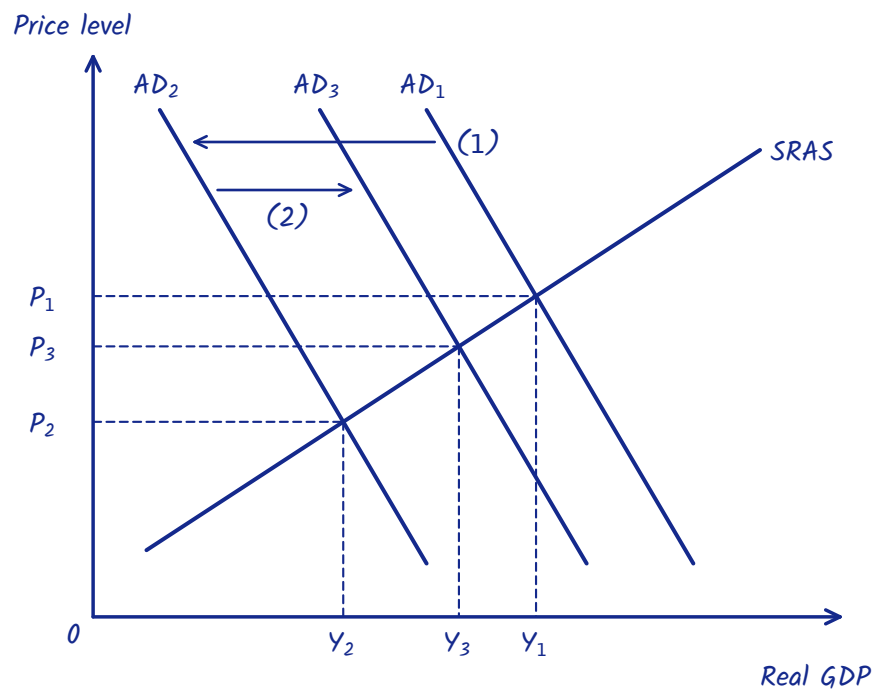
Source: *theguardian.com*

Using an AD/AS diagram, explain how the actions taken by the Bank of England were designed to prevent a post-Brexit recession. [10]

Monetary policy is the Bank of England's use of interest rates to influence AD. After the June referendum, confidence among businesses and households slumped, threatening falls in consumption and investment, so AD would shift left from AD_1 to AD_2 (diagram below), cutting real GDP from Y_1 to Y_2 and risking a recession (two consecutive quarters of negative growth).

Cutting Bank Rate from 0.5% to 0.25%, the first cut in over seven years, aims to shift AD back right to AD_3 . Households: if high street banks pass on the cut, as they were warned to, tracker and variable mortgage repayments fall, raising discretionary income, credit for cars and durables becomes cheaper and the reward for saving falls, so consumption rises. Lower rates also raise house and share prices, a wealth effect that boosts confidence. Firms: cheaper borrowing lowers the cost of investment, so more projects are profitable, and improves cash flow, reducing business failures; expected higher consumption also encourages investment. Trade: lower rates reduce hot money inflows, so the pound falls or stays low, making exports cheaper and imports dearer, so $(X - M)$ rises. As C , I and $(X - M)$ are components of AD, AD rises and the multiplier magnifies the effect, so real GDP only falls to Y_3 , or keeps growing, preventing recession. Carney stressed acting now because monetary policy works with a time lag of up to two years, so the stimulus must start early to affect the economy when it really needs it. The cut came in a package with £60bn more quantitative easing, £10bn of corporate bond purchases and a Term Funding Scheme giving banks cheap funds, so that they pass the

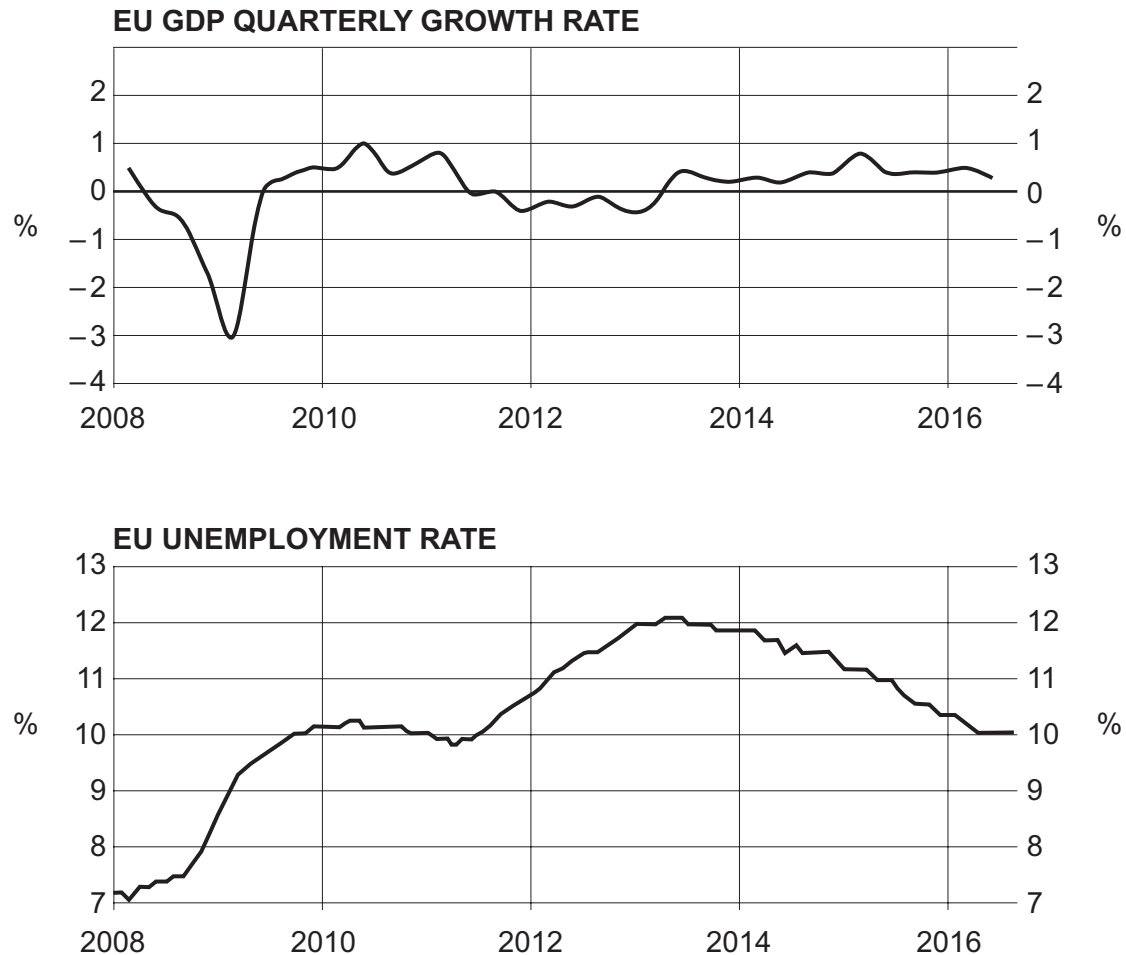
cut on to borrowers. However, with rates already low the effect may be limited if banks do not pass on the cut or confidence stays weak.



- (1) Post-Brexit slump in confidence: $AD_1 \rightarrow AD_2$, real GDP falls $Y_1 \rightarrow Y_2$.
 (2) Rate cut to 0.25% raises C , I and $(X - M)$: $AD_2 \rightarrow AD_3$, so real GDP falls only to Y_3 (or keeps growing), preventing a recession.

7. Using appropriate economic analysis and with reference to the data below, discuss the relationship between GDP growth and unemployment in the EU since the beginning of 2008.

[10]



Theory suggests an inverse relationship. GDP growth is the % change in real output; unemployment is a stock, the % of the labour force without a job. Labour is a derived demand: when GDP falls firms have fewer orders and cut costs by laying off workers, so cyclical unemployment rises; when GDP grows firms need more factors of production to expand output, so they hire and unemployment falls as the negative output gap closes.

The multiplier magnifies this, as job losses cut spending and GDP further.

The data largely supports this. In 2008 to 2009 quarterly growth fell from about 0.5% to -3% in early 2009 (recession) and unemployment rose steeply from about 7% to 10%.

Growth of up to 1% a quarter in 2010 to early 2011 saw unemployment level off and dip just below 10%. When growth turned negative again (about -0.4%) in late 2011 to

early 2013, a Eurozone mini-recession, unemployment surged from 10% to about 12%.

Steady growth of about 0.3% to 0.5% a quarter from 2013 saw it fall back to about 10% by 2016.

However, the relationship is not stable. Growth turned positive in late 2009 and in 2013

but unemployment kept rising for some time, a lag, as firms first use spare capacity

before hiring. The small GDP falls of 2012 brought a 2 percentage point rise in

unemployment, almost as large as after the much deeper 2009 fall, so other factors were

at work, e.g. delayed effects of earlier slow growth and austerity. From 2014

unemployment fell quickly although growth was modest, perhaps due to strong growth in some EU countries or more part-time jobs.

Overall, there is a clear inverse relationship between GDP growth and unemployment in

the EU since 2008, but with time lags and varying size, so growth is not the only cause of unemployment.

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