Surname	StemUp Model Solution	Centre Number	Candidate Number
First name(s)			2

GCE A LEVEL

S23-1520U30-1

1520U30-1

MONDAY, 5 JUNE 2023 – MORNING

ECONOMICS – A2 unit 3
Exploring Economic Behaviour

2 hours

	For Examiner's use only		
	Question	**Maximum Mark**	**Mark Awarded**
Section A	**1.**	**8**	
	2.	**10**	
	3.	**10**	
	4.	**12**	
Section B	**5.**	**4**	
	6.	**6**	
	7.	**10**	
	8.	**8**	
	9.	**12**	
	Total	**80**	

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ADDITIONAL MATERIALS

In addition to this paper you may require a calculator and a ruler.

INSTRUCTIONS TO CANDIDATES

Use black ink or black ball-point pen. Do not use gel pen or correction fluid.

You may use a pencil for graphs and diagrams only.

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

Answer **all** questions.

Write your answers in the spaces provided in this booklet. If you run out of space, use the additional page(s) at the back of the booklet, taking care to number the question(s) correctly.

INFORMATION FOR CANDIDATES

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

You are reminded of the necessity for good English and orderly presentation in your answers.

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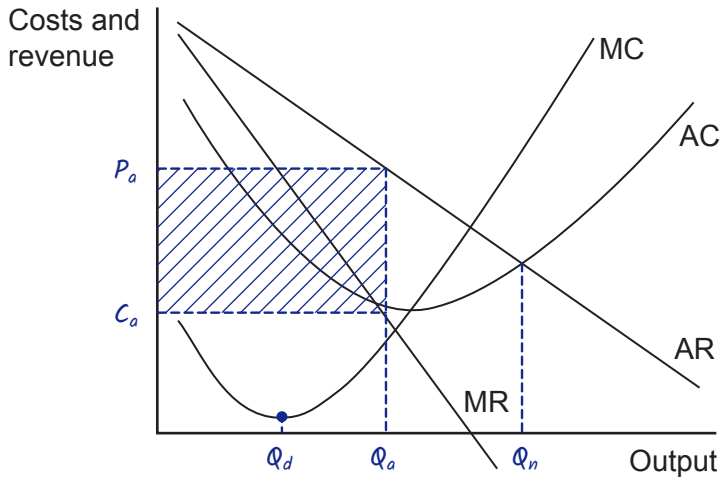
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SECTION A

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

1. The diagram below represents the costs and revenues of a price-making firm.



(a) Using the diagram, outline the difference between normal profit and abnormal profit. [4]

Normal profit is the minimum profit needed to keep a firm in the industry; economic profit is zero because TR = TC, i.e. AR = AC. On the diagram this occurs at output Q_n, where AR cuts AC. Abnormal profit is any profit above normal profit, where TR > TC, i.e. AR > AC. At the profit-maximising output Q_a (MC = MR) price P_a is above average cost C_a, so the firm earns abnormal profit, the shaded area $(P_a - C_a) \times Q_a$. So normal profit is a cost included in AC, while abnormal profit is a surplus above all costs.

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(b) Using the diagram, explain the law of diminishing marginal returns. [4]

The law of diminishing marginal returns states that in the short run, as extra units of a variable factor (labour) are added to a fixed factor (capital), the marginal product of each extra worker eventually falls. At first MP rises due to specialisation, so MC falls. Beyond output Q_d, where MC is at its minimum, diminishing returns set in: each extra worker has less capital to use, so adds less output than the previous one. Since MC = wage ÷ MP, falling MP means each extra unit costs more to make, so the MC curve rises (and later pulls AC up).

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2. The table below provides cost and revenue information for a small firm making wedding dresses.

Daily output	Total revenue (£)	Total cost (£)
0	0	400
1	500	800
2	950	1100
3	1350	1350
4	1700	1500
5	2000	1800
6	2250	2300
7	2450	3000
8	2600	4000

(a) Calculate the following. You are advised to show your working.

(i) Average fixed cost at the 4th unit of output. [2]

AFC = TFC ÷ output

= £400 ÷ 4 = £100

(ii) Marginal revenue for the 8th unit of output. [2]

MR = TR_8 − TR_7

= £2600 − £2450 = £150

(iii) Total variable cost when output is 2 units. [2]

TVC = TC − TFC

= £1100 − £400 = £700

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(b) The firm's production manager has set a target of 6 units of output each day. Assuming that the firm has the objective of profit maximisation, explain whether or not the production manager has made the correct decision. [4]

No. For the 6th unit MR = £2250 – £2000 = £250 but MC = £2300 – £1800 = £500, so MC > MR and the 6th dress makes a marginal loss of £250. At 6 units profit = £2250 – £2300 = –£50, a loss, whereas at 5 units profit = £2000 – £1800 = £200, the maximum, and the 5th unit is where MR = MC = £300. A profit maximiser produces where MR = MC, so 5 units is the correct target: 6 units is too high and cutting output by one dress raises profit by £250.

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3. Table 1: The price of a school uniform

	Nominal price of an average school uniform	Consumer Price Index (CPI)
2015	£316	100
2020	£337	108

UK Government guidance advises schools to make their uniforms as easy and as cheap to buy as possible. Despite this, UK schools are increasingly choosing to brand their uniform with logos and unusual colours. These items have to be bought in specific shops, and a report from The Children's Society suggests that the absence of competition in the school uniform market has pushed up prices.

As a result, a new law has been proposed that would prevent schools from relying on a single uniform provider and would also require them to reduce the number of items of uniform with a logo. A government advisor said that monopolies are "simply not compatible with… supporting children from less well-off backgrounds". In response, uniform providers argue that if one retailer supplies school uniform then it can make sure all items are always available. When no single retailer has that responsibility, then supplies may be less certain and children may end up in school uniform that is mismatched or the wrong size.

Source: https://www.economist.com/britain/2020/08/29/bringing-down-the-cost-of-school-uniforms

(a) Calculate the real price of a school uniform in 2020. You are advised to show your working. [2]

Real price = nominal price × (100 ÷ CPI)

= £337 × 100 ÷ 108 = £312.04

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(b) Assess whether the UK Government should intervene in the school uniform market. [8]

Government intervention means action such as regulation, information provision or taxes to correct market failure. Here the failure is monopoly power: branded items with logos and unusual colours can only be bought in specific shops, so the single supplier faces inelastic demand and can restrict supply and set price above MC, causing allocative inefficiency and a loss of consumer surplus. The nominal price rose from £316 to £337, a 6.6% rise, supporting the Children's Society. A law banning single suppliers would increase competition and push prices down. As uniform takes a larger share of a poor family's income, high prices are regressive and are "not compatible with supporting children from less well-off backgrounds", so intervention would also improve equity. However, in real terms the price fell to £312.04, 1.3% below £316, weakening the case. Guidance already exists, so a new law may add little and has administrative costs (risk of government failure). A single supplier can guarantee availability and matching sizes, may gain economies of scale, and busy parents may value convenience; more suppliers could cause confusion. On balance, intervention is justified only where prices are well above cost; the least costly form, limiting logo items while schools still choose suppliers, is best as it cuts costs for poorer families without losing reliability.

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4.

Figure 1: US inflationary expectations (%) 2014 – 2020

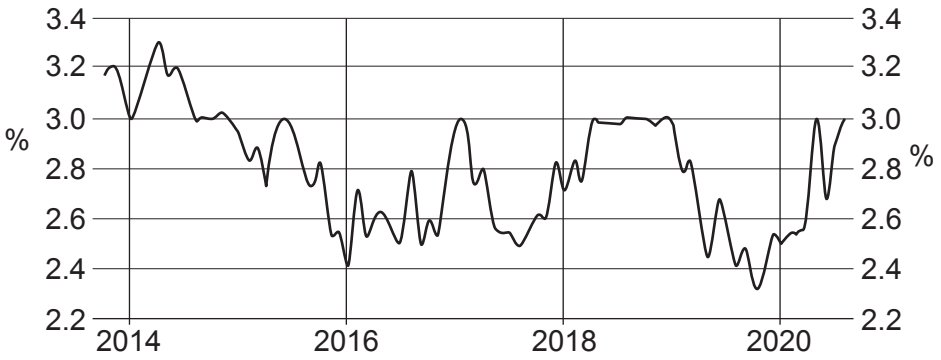


Figure 2: US wage inflation rate (%) 2014 – 2020

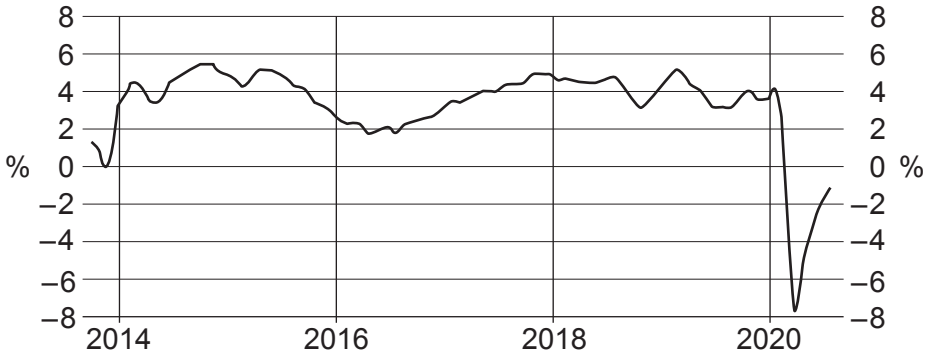
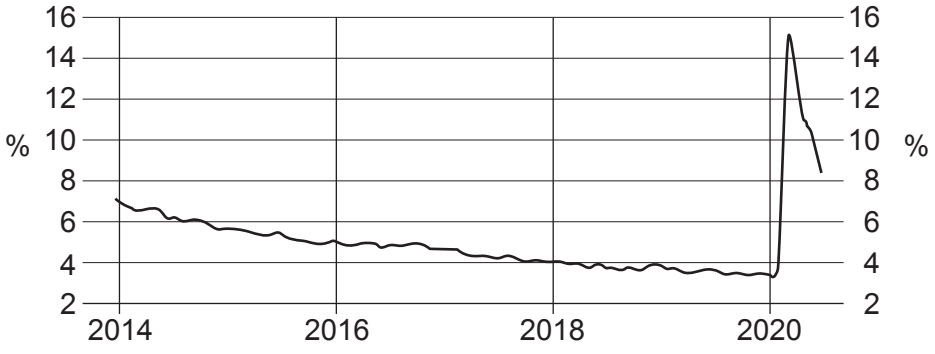


Figure 3: US unemployment rate (%) 2014 – 2020



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(a) Define the term "inflationary expectations". [2]

Inflationary expectations are the rate of increase in the general price level that households, firms and workers anticipate in the future, e.g. over the next 12 months.

(b) "The Phillips curve relationship no longer exists." To what extent does this appear to be true in the US? [10]

The short-run Phillips curve (SRPC) shows an inverse relationship between unemployment and wage inflation: as unemployment falls the labour market tightens, firms compete for scarce workers and wage growth accelerates. Friedman's expectations-augmented view says this is only short run: if workers expect higher inflation they demand higher wages, shifting the SRPC up, so the long-run curve (LRPC) is vertical at the NAIRU with no trade-off. As the diagram shows, a fall in unemployment below the NAIRU to U_2 moves the economy along $SRPC_1$ from A to B; once expectations adjust, $SRPC_1$ shifts to $SRPC_2$ and unemployment returns to U^* at C with higher inflation.

The US data partly supports the SRPC. From 2014 to early 2020 unemployment fell steadily from about 7% to 3.5% (Fig 3) while wage inflation rose from about 1% to 4% to 5% (Fig 2), a movement up a SRPC. In 2020 unemployment jumped to about 15% and wage inflation collapsed to about −7.5%; as unemployment fell back to about 8.5%, wage inflation recovered to about −1.5%. This strong inverse movement suggests the relationship still exists.

However, for much of the period it is weak. Wage inflation fluctuated between about 2% and 5.5% from 2015 to 2019 with no clear trend, even falling to about 2% in 2016 while unemployment kept falling, so the curve looks very flat. Wage inflation is also far more volatile than unemployment. One reason is that inflationary expectations stayed anchored between about 2.4% and 3.3% (Fig 1) due to the Fed's credible

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SECTION B

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

The European Union and its wider roles

Extract 1: the EU's expansion

There are 27 member countries of the European Union (EU), and a further 7 countries have 'candidate status' for joining the EU, including Turkey and Albania. Of the 27 member countries, 20 are also part of the Euro Area; this is also known as the Economic and Monetary Union, or EMU. These 20 countries use the euro as their currency and have shared monetary policy managed by the European Central Bank (ECB).

The most recent member state to join the Euro Area is Croatia, which joined in January 2023 after meeting all of the necessary criteria. The Croatian prime minister said, "The introduction of the euro will make our economy more resilient and raise the standard of living of the population in the long term." The response of the media in Croatia has also been largely positive, as commentators believe that interest rates will be low and credit ratings will be high.

Euro Area countries are meant to follow some fiscal rules, such as keeping budget/fiscal deficits and government debt below certain thresholds. Many Euro Area economies have failed to do so, however, and there is no mechanism for removing them from the EMU for this failure. Some economists argue that this increases economic instability in the Euro Area, and makes it more difficult for the ECB to set an interest rate that meets the needs of all Euro Area countries.

Extract 2: financial support within the EU

Whilst there is monetary union between the 20 Euro Area countries, these countries and the other EU member states have each traditionally managed the fiscal policy for their own country – there is currently no official "fiscal union" i.e. shared fiscal policy. However, following the sudden and deep recession in the EU in 2020/21, leaders of EU member states agreed that the EU could carry out additional borrowing of around €800bn on behalf of its member states. This additional borrowing scheme is known as NextGenerationEU. The majority of this borrowing is to be spent on loans and subsidies to member states to help them with economic recovery, with a focus on "climate action" and green investment projects. Reports suggest that significant proportions of the NextGenerationEU grants will be spent on the poorest areas of the EU, many of which are in the newest member states.

The EU already has a programme to support its poorest areas, called the European Regional Development Fund (ERDF). This fund provides grants for very small projects (for example, beekeeping equipment for rural areas) as well as much larger projects. Some of these grants are detailed in the figure opposite.

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Figure 1: Selected ERDF projects

Country	Project	Cost
Hungary	Improving the railway network across the whole country	€61m
Bulgaria	Improving access to emergency medical care across the whole country	€85m
Croatia	Supporting redevelopment of the airport in the city of Dubrovnik to promote tourism growth in the area	€95m
Poland	Building a waste incineration plant in the city of Gdansk	€145m
Greece	Installing faster broadband across the whole country	€286m

Extract 3: EU aid for non-EU countries

In 2015, many of the world's most developed economies signed up to the United Nations' Sustainable Development Goals (SDGs) in which they promised to spend 0.7% of GNP to help developing economies meet certain goals by 2030. In 2020, just 6 countries had met that goal – all were European. In 2021, the EU also committed to increasing its financial support from €25bn to €29bn to help developing economies deal with the effects of climate change. Overall, the EU is the world's largest provider of international aid. Data from the OECD shows that in 2021, the EU provided $81.3bn in aid, equivalent to 45% of all global development aid. $9bn was donated for healthcare alone. The United States was the 2nd largest donor, providing around 24% of all global development aid.

However, in EU budget discussions during the global health pandemic, a proposal to support developing economies also suffering as a result of the pandemic was abandoned. The original plans included extra spending of €10.5bn on development funding and €5bn on additional humanitarian aid, on top of the already-planned €70.8bn of spending on developing economies. This would have amounted to over 6% of total EU spending.

However, leaders of EU member states decided that any additional borrowing should be spent on EU economies. A spokesperson for the European Centre for Development Policy Management said that the decision was disappointing in light of "much talk about an enhanced partnership with Africa". An economist with the Center for Global Development said, "in terms of… [the] solidarity of Europe with the rest of the world… the picture is not good".

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Figure 2: 10 largest recipients of EU overseas development aid, 2020, €bn

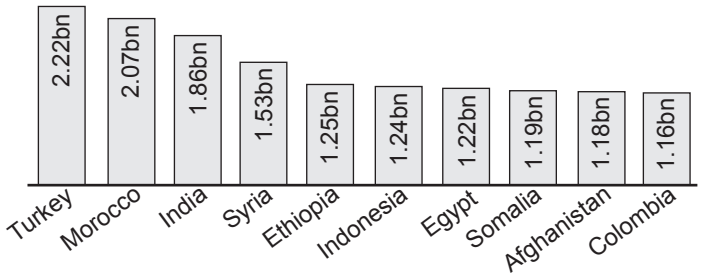
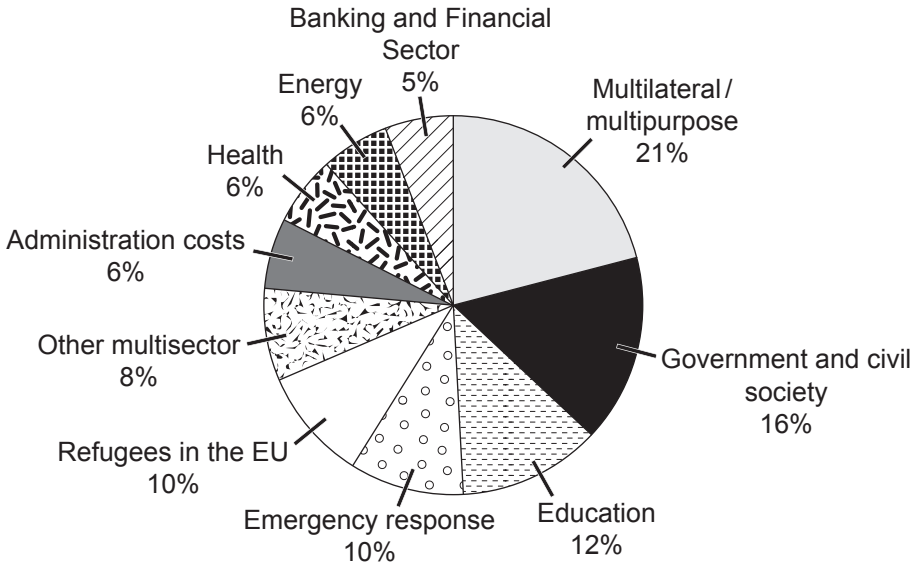


Figure 3: Recipients of EU foreign aid, by sector, 2007–2022



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5. With reference to the EU, outline what is meant by economic integration. [4]

Economic integration is the process by which two or more economies become more closely linked by removing trade barriers and unifying policies. Stages run from a free trade area to a customs union, a single market and economic and monetary union. The EU is a customs union and single market of 27 members; 20 also share the euro and an ECB monetary policy (lines 5 to 7). There is no fiscal union, but €800bn of joint borrowing (NextGenerationEU) shows deepening, and it will widen if Turkey and Albania join.

6. With reference to the data, describe what is meant by an optimal currency area. [6]

An optimal currency area (OCA) is a geographical region where economic efficiency is maximised by having one currency and one monetary policy. Features: high labour (factor) mobility so workers can move away from high unemployment areas; flexible wages and prices so imbalances correct without exchange rate changes; synchronised economic cycles so one interest rate suits all; and fiscal transfers to regions hit by asymmetric shocks. The Euro Area has 20 countries using the euro, with rates set by the ECB (lines 5 to 7). Fiscal rules on deficits and debt aim to keep cycles similar (line 13), but many members break them, making it hard to set one rate for all (lines 14 to 17), so it is not fully optimal. The EU's free movement of labour helps, and transfers exist via the ERDF and NextGenerationEU grants to the poorest areas (lines 24 to 28), though there is no fiscal union (line 21).

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7. Discuss the extent to which Croatia will benefit from being a member of the Euro Area (lines 8–9). [10]

Joining the Euro Area means Croatia gives up its own currency and monetary policy, now set by the ECB (lines 6 to 7).

Benefits: much of Croatia's trade is with Euro Area countries, so the euro removes transaction costs and exchange rate risk. Greater price transparency increases competition and efficiency, and exporters, especially tourism, can plan with certainty, raising exports and employment. Commentators expect low interest rates and high credit ratings (line 12): the ECB is a credible central bank with a record of low inflation, so borrowing costs for the government and firms should fall. Higher investment raises AD in the short run and productive capacity (LRAS) in the long run, supporting the PM's claim of a "more resilient" economy and higher living standards (lines 9 to 11). Croatia's lower factor costs than e.g. Germany may improve price competitiveness and attract FDI.

Drawbacks: "one size fits all" monetary policy. If Croatia's cycle differs, e.g. a tourism boom with high inflation while Germany is in recession, the ECB rate will be too low for Croatia. Many members break the fiscal rules with no mechanism for removal, increasing instability and making it "more difficult for the ECB to set an interest rate that meets the needs of all" (lines 14 to 17). Croatia also loses the option to devalue: if its unit labour costs rise faster than others', it can only regain competitiveness through internal deflation (wage cuts and unemployment). The fiscal rules limit fiscal policy, and there is no fiscal union to provide transfers (line 21). Joining in 2023,

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8. Assess the likely impact of the European Regional Development Fund (ERDF) on the development of poor areas within the European Union (lines 29–30). [8]

Development means a sustained rise in living standards: higher incomes, better health, education and access to services (as in the HDI). The ERDF targets the poorest areas with small and large grants. Hungary's €61m railway upgrade raises geographical mobility of labour, so people in poor rural areas can reach jobs, raising incomes; Bulgaria's €85m emergency care project raises life expectancy, a key HDI component. Infrastructure also has a multiplier effect, as construction incomes are re-spent locally, and better transport and broadband (Greece, €286m) cut firms' costs and attract investment, raising productivity and long-run growth.

However, the sums are small for whole countries, e.g. €61m for a national railway. The largest grant, Greek broadband, may be a "nice to have" with less effect on poverty than health, and Dubrovnik airport (€95m) helps an already prosperous tourist city. The Gdansk incinerator may create negative externalities such as air pollution. Impact depends on whether funds are grants or loans, the size of the multiplier, whether the ERDF works alongside NextGenerationEU, and whether funding is cut in a recession; we also lack outcome data. Overall the impact is likely positive but modest, greatest where projects target health and mobility in the poorest regions.

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9. Discuss the view that the "the picture is not good" (line 52) in terms of the European Union's impact on global development. Refer to **Figures 2** and **3** in your answer. [12]

Global development means improving living standards in developing economies: incomes, health, education.

The picture is good: the EU is the largest aid donor, giving $81.3bn in 2021, 45% of global aid, nearly double the US share of 24% (lines 39 to 42). All 6 countries meeting the 0.7% of GNP target were European, and climate support rose from €25bn to €29bn, helping protect crops and homes from floods. Figure 3 shows 12% of aid goes on education and 6% on health: 18% raising human capital and life expectancy, key HDI components, which raises productivity and long-run growth. 10% goes on emergency response, saving lives, and 16% on government and civil society, improving governance so aid is used efficiently.

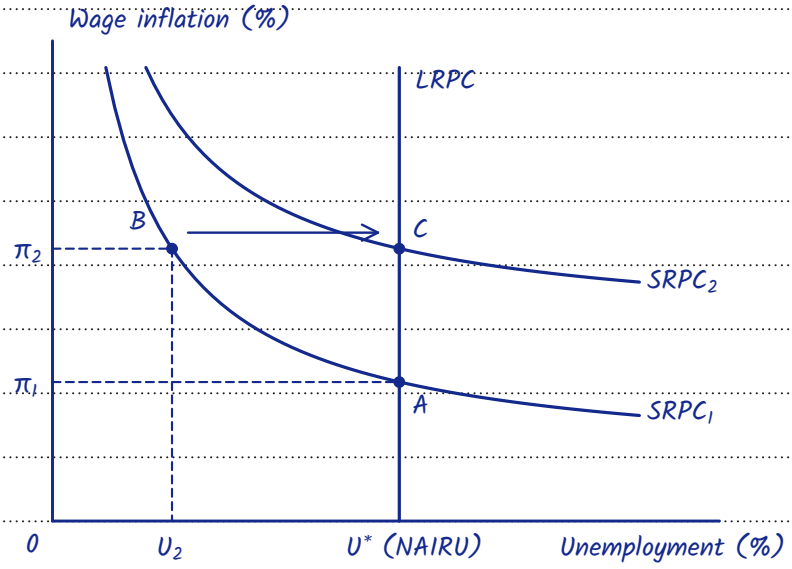
The picture is not good: in the pandemic the EU abandoned €10.5bn of extra development funding and €5bn of humanitarian aid, spending its borrowing on itself (lines 43 to 48). Figure 2 shows the largest recipients are Turkey (€2.22bn), an EU candidate, Morocco (€2.07bn) and India (€1.86bn), mostly middle-income countries probably chosen for strategic and trade reasons rather than need; only Ethiopia (€1.25bn) and Somalia (€1.19bn) are among the poorest. The top 10 receive only about €14.9bn in total. 10% of aid goes on refugees already in the EU and 6% on administration, so 16% never reaches developing countries, and 21% is an unclear "multipurpose" category.

Evaluation: the abandoned €15.5bn is under a fifth of the planned €86.3bn, so the cut was modest. The 45% share partly reflects the EU being 27 countries; aid as a % of GNI matters more. Middle-income countries like India contain many of the world's poor, aid to Turkey supports Syrian refugees, and refugees in Europe may send remittances home. Impact also depends on aid effectiveness: corruption, tied aid and

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Question number	Additional page, if required. Write the question number(s) in the left-hand margin.
4(b)	target, so the SRPC did not shift; globalisation and weaker unions may also have cut workers' bargaining power. Wage inflation was usually above expected inflation (about 5% vs 3% in 2019), suggesting real wage gains rather than an expectations-driven shift. Evaluation: Figure 2 shows wage inflation, not CPI inflation, which would be more useful, and it is unclear how expectations are measured. Figure 1's axis only runs from 2.2% to 3.4%, exaggerating its volatility. The 2020 data reflect an exceptional pandemic shock, so the inverse movement may reflect a sudden collapse in AD rather than a stable curve. Overall the statement is only partly true: a short-run inverse relationship still appears, especially in 2020, but it is much flatter than the original Phillips curve and there is no stable long-run trade-off. 

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Question number	Additional page, if required. Write the question number(s) in the left-hand margin.
7	amid high global inflation, the ECB may be unable to act effectively. Evaluation: the benefit depends on how synchronised Croatia's cycle is with the Euro Area, its productivity relative to other members, and whether it keeps its own public finances in order. The kuna was already pegged to the euro, so little exchange rate flexibility is actually lost. On balance Croatia is likely to benefit in the long term, gaining lower costs of trade and borrowing, but only if it controls unit labour costs, as a small tourism-dependent economy is vulnerable to asymmetric shocks.
9	dependency reduce it, and EU trade barriers may matter more than aid. Overall the view is overstated: the EU remains the biggest contributor to global development, with significant health, education and climate spending. But in solidarity terms the picture is "not good": in a crisis it put members first, and much aid goes to strategic neighbours, refugees in Europe and administration rather than the poorest countries. Its impact is positive but would be greater with better targeting.

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