2.22 The Effects of Exchange Rate Changes on Trade and the Macroeconomy

AQA 7136 · Calculators not allowed · about 80 minutes · Write-in edition

Total Marks

Name: _____ Date: ____ / ____ / _____

Answer all questions. Full sentences are required for Question 4. A calculator is not allowed. Show working for calculations where asked.

1 Percentage calculation: The UK imports a commodity worth £10 billion pre-depreciation. After a 25% depreciation, the sterling price of that commodity rises in the short run by 25% if quantity is unchanged. Calculate the sterling value of imports of that commodity immediately after the depreciation, assuming no change in quantity. Show arithmetic.

(Total for Question 1 is 2 marks)

2 Define the price elasticity of demand for imports and explain briefly why a high elasticity of demand for imports makes a depreciation more likely to improve the current account.

(Total for Question 2 is 2 marks)

3 Data extract: UK trade with Restlandia surrounding a depreciation. The table shows quarterly values in GBP billion. Quarter 0 is just before the 10% depreciation; Quarter 1 is immediately after; Quarter 4 is one year later.

Table: Quarter	Exports to Restlandia (GBP bn)	Imports from Restlandia (GBP bn)
0	20.0	18.0
1	20.5	19.8
4	23.0	16.5

Using the data in the table, Explain how the figures illustrate the J-curve effect and the Marshall-Lerner mechanism. Use the data in your answer. (9 marks)

(Total for Question 3 is 9 marks)

4 Evaluate the view that a weaker pound would improve the United Kingdom's current account position.

(Total for Question 4 is 25 marks)

5 State the Marshall-Lerner condition as it applies to the UK current account after a depreciation of the pound, and explain briefly in words what the condition means in terms of export and import volumes.

(Total for Question 5 is 3 marks)

6 Calculation context: After a 10% depreciation of the pound, suppose UK export volume responds with price elasticity 0.6 and import volume responds with price elasticity 0.7. Use the Marshall-Lerner rule to determine whether the current account should improve or worsen in the long run, showing the arithmetic.

(Total for Question 6 is 4 marks)

7 Explain the J-curve effect for the UK current account after a sterling depreciation, naming the short-run reason for an initial worsening and the longer-run reason for later improvement.

(Total for Question 7 is 3 marks)

8 Numerical elasticity example: A 20% depreciation of sterling raises the foreign-currency price of UK exports so that foreign demand responds with price elasticity 0.4, while UK demand for imports responds with elasticity 0.8. Use the Marshall-Lerner condition to state the likely long-run effect on the current account. Show the sum of elasticities and your conclusion.

(Total for Question 8 is 4 marks)

Mark scheme · 2.22 The Effects of Exchange Rate Changes on Trade and the Macroeconomy

Question 1

calculate new value = £10 billion * (1 + 0.25) **M1**

equals £12.5 billion **A1**

Answer: £10 billion * 1.25 = £12.5 billion.

Question 2

definition: price elasticity of demand for imports measures the percentage change in the quantity of imports demanded in response to a 1% change in the price of imports in domestic currency **B1**

explanation: if import demand is highly elastic a depreciation raises import prices and leads to a large percentage fall in import volumes, reducing import spending and helping the current account **B1**

Answer: PED for imports is the percentage change in import quantity for a 1% change in import price. If import demand is highly elastic, a depreciation that raises import prices will cause a large fall in import volumes, reducing imports in value and making an improvement in the current account more likely.

Question 3

Level 1 Simple statements about the table with limited use of the data. May note either the short-run worsening or the later improvement but without clear linkage to economic mechanisms. **1-3**

Level 2 Accurate use of the data to show both an initial deterioration and later improvement, with some explanation of why volumes or prices changed, but with limited development of the Marshall-Lerner condition or timing issues. **4-6**

Level 3 Clear, accurate analysis using the data: identifies the small initial deterioration from Quarter 0 to Quarter 1 and the larger improvement by Quarter 4, explains short-run inelastic response and longer-run volume adjustments, and links the observed pattern to Marshall-Lerner showing how changes in volumes by Quarter 4 support an improved trade balance. **7-9**

Indicative content:

- use the data quantitatively: net exports at Q0 = 20.0 - 18.0 = £2.0bn; at Q1 = 20.5 - 19.8 = £0.7bn (net exports fall), at Q4 = 23.0 - 16.5 = £6.5bn (net exports rise above initial)
- short-run explanation: between Q0 and Q1 net exports worsen from £2.0bn to £0.7bn, illustrating the initial J-curve fall; possible reasons include contracts, slow volume response, and immediate rise in sterling cost of imports
- long-run explanation: by Q4 export volumes have risen to £23.0bn and import value fallen to £16.5bn, showing volume responses that more than offset price changes, consistent with Marshall-Lerner being satisfied over time
- link to Marshall-Lerner: the later large rise in exports and fall in imports implies combined elasticities were sufficient to improve the trade balance in the long run, as shown by the net export increase to £6.5bn
- evaluate timing and magnitude: mention that the size of the improvement depends on elasticities and that other factors (global demand, Restlandia growth, trade policies) could also explain the changes

Question 4

Level 1 A basic answer that identifies a small number of relevant points about how a weaker pound affects exports, imports and the current account, with little or no development or application to the UK context and limited or no conclusion. **1-5**

Level 2 A developing answer that applies the Marshall-Lerner condition and the J-curve, gives some UK-specific examples and reasons, and offers limited judgement. Some analysis of timing and magnitude is present. **6-10**

Level 3 A clear, well-reasoned evaluation that analyses both how and why a weaker pound could improve the current account using the Marshall-Lerner condition and the J-curve, considers opposing factors such as import price inflation, invoicing currency, commodity prices and structural inelasticities, and concludes with a balanced judgement on the likely net effect for the UK. **11-15**

Level 4 A detailed evaluation with strong application to the UK: discusses elasticities across goods and services, the role of global supply chains and imports of intermediate goods, monetary policy reactions, and distributional effects, and weighs evidence to reach a justified conclusion that recognises uncertainty and conditional outcomes. **16-20**

Level 5 A comprehensive, sophisticated evaluation that integrates economic theory, UK empirical and sectoral considerations, the timing of effects, practical complications such as invoicing currency and contracts, and policy responses. Presents a well-supported final judgement that sets out when and why a weaker pound would or would not improve the UK current account. **21-25**

Indicative content:

- theoretical mechanism: a weaker pound makes UK exports cheaper to foreigners and imports more expensive in sterling, which can raise net exports if Marshall-Lerner holds
- J-curve timing: short-run worsening due to price inelastic quantities and long-run improvement as volumes adjust, with discussion of typical lags and contract effects
- elasticities: consider that the UK exports many services which may be price-inelastic or invoiced in foreign currency, while imports include many intermediate goods, affecting combined elasticity
- import prices and inflation: depreciation raises import costs and can increase CPI, which may erode real incomes and dampen demand for exports; monetary policy may respond by raising interest rates, offsetting stimulus to net exports
- invoicing and global supply chains: many UK trade contracts and commodity trades are invoiced in US dollars or euros, reducing the pass-through of a weaker pound into export competitiveness
- commodity prices: if the UK imports commodities priced in dollars, depreciation raises input costs for UK firms and could worsen the trade balance in value terms
- composition of trade: services exports (finance, tourism, education) may respond differently to price changes than manufactured exports; sectoral analysis matters
- empirical considerations: mention recent evidence or plausible UK sector examples, for instance tourism gains but manufacturing may see limited volume response due to global competition
- distributional effects and policy: higher import prices hit consumers and firms dependent on imported inputs; fiscal or monetary policy responses could counteract or amplify effects
- judgement: balance the likelihood of improvement against countervailing factors, conclude conditionally that a weaker pound may improve the current account in some circumstances (if combined elasticities exceed 1, pass-through is sufficient and monetary policy allows demand to adjust) but may not if structural inelasticities, invoicing patterns and import-intensive supply chains dominate

Question 5

states the condition: price elasticity of demand for exports + price elasticity of demand for imports > 1 **M1**

explains that if the sum exceeds 1, the percentage increase in export volumes and the percentage decrease in import volumes together raise the value of net exports in domestic currency terms **A1**

alternative phrasing allowed that conveys the same idea, for example a depreciation will improve the current account only if the combined elasticities exceed unity **B1**

Answer: Marshall-Lerner: price elasticity of demand for exports plus price elasticity of demand for imports must be greater than 1; this means a depreciation will improve the current account only if the percentage responses of export and import volumes are large enough to offset the price effects.

Question 6

compute sum of elasticities: 0.6 + 0.7 **M1**

= 1.3, showing the sum exceeds 1 **A1**

apply Marshall-Lerner: since 1.3 > 1, the trade balance should improve in the long run **M1**

concludes that the current account is expected to improve after the 10% depreciation **A1**

Answer: 0.6 + 0.7 = 1.3 > 1, so Marshall-Lerner is satisfied and the current account should improve in the long run.

Question 7

explains the short-run worsening: trade volumes are relatively price inelastic in the short run, so import spending in sterling terms can rise while export volumes do not increase enough, making the current account worse initially **M1**

explains the longer-run improvement: over time volumes adjust, contracts are renegotiated and buyers switch to cheaper exports while import demand falls, so if Marshall-Lerner holds the current account improves **M1**

links the two phases into a coherent J-shaped path: initial deterioration followed by a later improvement **A1**

Answer: In the short run the current account can worsen because quantities respond slowly so more expensive imports raise import spending and export earnings do not rise sufficiently; over time volumes adjust, exports rise and imports fall and, if Marshall-Lerner holds, the current account improves, producing a J-shaped path.

Question 8

compute sum of elasticities: 0.4 + 0.8 **M1**

= 1.2, showing the sum exceeds 1 **A1**

apply Marshall-Lerner: since 1.2 > 1, the trade balance should improve in the long run **M1**

explicit conclusion that the current account is expected to improve eventually after the 20% depreciation **A1**

Answer: 0.4 + 0.8 = 1.2 > 1, so Marshall-Lerner is satisfied and the current account should improve in the long run.