

# Sample Question 1

## **A downturn for the economy on Arrakis**

Difficulty: Easy

Total Points: 5

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In the fictional world of Dune, civilisations on all planets within the galaxy engage in galactic free trade. One such planet, Arrakis, boasts a large supply of highly coveted “spice”, which is produced solely on Arrakis and is collected and refined by the natives – the Fremen – led by their supreme leader, Paul Atreides. There is a high demand across the galaxy for “spice” due to its many uses.

After Paul’s uprising, however, Arrakis faced two significant problems:

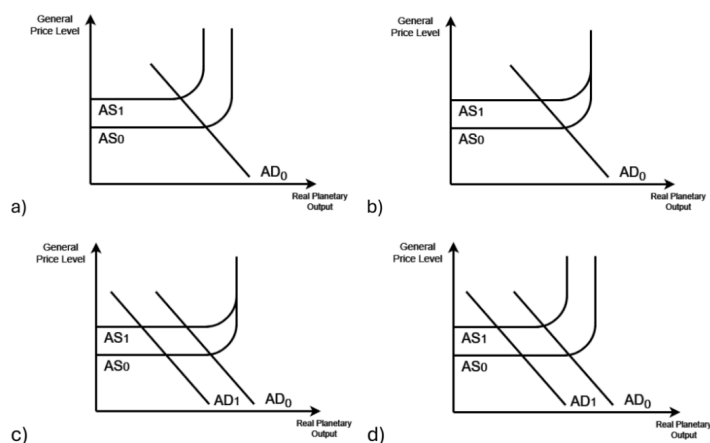
- The ownership of “spice” farms was divided into small plots and transferred from the Harkonnen’s main extractive firm (which owned the farms entirely without regulation) to Fremen families. Fremen family units are very large, and many younger Fremen were pressured by their family heads to switch over from their original jobs to help with farming to instead continue this new hereditary tradition.
- Following the downfall of the empire, many civilisations on the other planets were nearly destroyed, including the Harkonnens, who provided a large proportion of the refrigerants and storage systems which were used to store and transport the highly volatile “spice” via space travel.

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## Question

Score

- i. Which Keynesian AD-AS diagram best models the effect of these problems on the Arrakis economy?  
*(Assume that "spice" is a necessity that takes up a large proportion of the Arrakis economy and these problems have no other effects on other goods exported by Arrakis.)*



MCQ

(2)

- ii. With reference to these rising problems, ceteris paribus, Fremen economists predicted various changes in the following key economic indicators of Arrakis.

Fremen income inequality	
Domestic price of "spice"	
Currency in circulation	

Use the phrases "increase", "decrease", or "indeterminate" to describe these changes.

String set

(3)

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## Solution

### Solution to (i)

**Answer:** D

**Explanation:**

Aggregate Demand (AD) decreases as “there is a high demand across the galaxy for “spice” due to its many uses”, and “many civilisations on the other planets were almost completely destroyed”. Due to the destruction of civilisations (and a fall in the number of importers of spice) on other planets, demand for exports falls, leading to a fall in AD for Arrakis

Short-run Aggregate Supply (SRAS) decreases as “including the Harkonnens, who provided a large proportion of the refrigerants and storage systems which were used to store and transport the highly volatile “spice”. We can think of refrigerants and storage systems as inputs to produce spice. As the Harkonnens were mostly destroyed, there was a decrease in the supply of key inputs to produce spice, leading to higher input prices and imported inflation. Either way, all the options show that SRAS decreased anyway.

Long-run Aggregate Supply (LRAS) decreases as “many Fremen switched over from their original jobs to helping with spice farming, despite their presence being unnecessary for the farm’s operations.” This suggests that disguised unemployment has risen, reducing the productive capacity of the economy as less of the labour force is being productive.

### Solution to (ii)

**Answer:**

Fremen income inequality	Indeterminate
Domestic price of “spice”	Decrease
Currency in circulation	Increase

**Explanation:**

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Fremen income inequality could increase because certain families may be better at farming / have access to better farming equipment, but it could also decrease due to the redistribution of ownership.

Domestic price of spice would likely fall because of oversupply:

1. Rises in price of storage systems and transport systems would cause spice to be more expensive to export, so more spice is supplied domestically
2. Loss of monopoly power of spice due to transfer of ownership

Currency in circulation will likely rise due to inflation, as Fremen withdraw more money from banks to spend before prices rise further