**Question 1: China’s livestock industry**

**Table 1: Income elasticity of demand for meat products by urban households in China**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Meat** | **Low Income** | **Lower Middle Income** | **Upper Middle Income** | **High Income** |
| Pork | 0.44 | 0.13 | 0.09 | 0.03 |
| Poultry | 0.78 | 0.38 | 0.33 | 0.28 |

Source: Economic Research Service, US Department of Agriculture

**Table 2: Price elasticity of demand for pork in China**

|  |  |  |
| --- | --- | --- |
|  | **Urban Households** | **Rural Households** |
| Pork | -1.59 | -0.66 |

Source: Economic Research Service, US Department of Agriculture

**Extract 1: China’s pork industry trends**

China’s pork market, the world’s largest, is expected to sustain a steady growth of 1.3 to 1.4 per cent annually going forward. Growing income, along with a rising middle class and continual urbanisation, would drive Chinese consumers towards a diet based more heavily on animal protein. In addition, with an expanding population, China’s demand for pork is estimated to increase an additional 3.5 million tonnes in the next five years.

By 2026, an average Chinese citizen is expected to consume 55 kilograms of meat per year, up 10 per cent from 2017. While pork will remain the Chinese people’s favorite meat in the years to come, making up about 60 per cent of all meat consumption, there are other options like poultry, beef, veal, mutton and lamb.

The country’s insatiable appetite for pork has made it heavily dependent on imports of soybeans, a key feed for China’s farmed pigs. The soybean has found itself on the front line of the escalating trade dispute between the US and China. China accounted for 60 per cent of its total soybean exports in the 2016-17 crop year, according to the US Department of Agriculture.

While the higher pork demand would mean opportunities for domestic players, it has also created more demand for pork imports, which have been surging since late 2015. Widening price disparity between domestic and overseas prices in recent years has made this an increasingly attractive option. While pork imports are only 3 per cent of total demand in 2016, this ratio could swell to 7 per cent by 2020.

The Chinese government is looking to move pig farms away from urban areas and water sources, with many farms located in the restricted areas being forced to close down or relocate. The stricter environmental laws have also led to closure of smaller and outdated pig farms, to the benefit of large- scale pig rearing enterprises. Apart from market consolidation, opportunities for large-scale players would be in increasing efficiency. Unit cost of pig production, despite the rising scale of some players, is still higher in China than overseas, largely due to inherently high feed costs and less efficient farm management.

Another key trend in fresh meat consumption is the shift towards chilled and frozen pork. Pork in China is sold under three major formats - warm fresh pork, chilled fresh pork and frozen pork. While warm fresh pork, typically sold in traditional wet markets, remains the largest category representing

* 1. per cent of domestic consumption in 2015, demand for it has been on a declining trend. As modern trade channels continue to expand, demand for imported chilled and frozen pork is expected to rise rapidly.

Source: DBS Bank, 4 July 2017, and Caixin Global, 12 October 2018

**Extract 2: China’s war on pollution roils world’s biggest livestock sector**

Hundreds of thousands of small pig and poultry farmers across the country have been forced to close as the Chinese government wages a three-year campaign to clean up the world's biggest livestock sector. Tough new pollution standards will ban livestock production near water sources or heavily populated areas.

After years of complaints about foul smells and filthy water from unregulated farms, many rural villages are now celebrating their pig-free status. In the long term, however, the policy will reshape the nation's scattered livestock industry with a whopping 1.1 billion pigs, squeezing out smallholders and boosting the share of industrial-scale farms as the government aims to develop more modern and efficient agriculture. Backyard family-run operations each with fewer than 50 pigs account for 90 per cent of China's hog farms, but only a third of supply.

With this push, big players like Guandong Wens Foodstuff Group and New Hope Liuhe, which are building mega-farms, stand to grab a larger share of the pork market worth about 7 billion yuan. "Pig farming in China will gradually develop into a semi-monopolistic structure, with major companies dominating the market and competing with each other," said researcher Zhu Zengyong from the Agricultural Information Institute of the Chinese Academy of Agricultural Sciences.

Source: The Straits Times, 6 November 2017

**Extract 3: African swine fever hits Chinese pork industry**

A deadly and highly contagious virus is threatening pork production in China in the run-up to Chinese New Year, when demand for the country’s most commonly eaten meat is at its highest level. China consumes about 55 million tonnes of pork a year, with most of it sourced internally.

Over the past three months, African swine fever has spread to 12 Chinese provinces, an area home to more than half the country’s pig population. On Monday, officials identified two new cases in the south, the first in that region. About 70,000 pigs have been culled so far to prevent the spread of the virus, according to the ministry of agriculture, and much of the country’s pig-producing provinces are on lockdown.

Chinese officials have been quick to report and act on outbreaks, and have advised residents that the virus poses no threat to humans. The true scale and risk of the virus’s spread is still unknown, according to a US Department of Agriculture report. The industry is still dominated by small producers and farms, where biosecurity measures are more lax and contagion is more likely. With the devastation from this outbreak, some pig farmers have started considering switching to raising chickens instead.

Source: The Guardian, 24 October 2018

**Extract 4: Chinese pork demand stagnates over health and food safety concerns**

Chinese pork consumption grew year-over-year for decades, reaching a record 57 million tonnes in 2014. Since then, China’s booming population decelerated and pork consumption stabilised. Chinese consumers may now be demanding quality over quantity.

Food safety remains a major national issue in China, and for good reason. In 2006 and 2007, Chinese pigs suffered multiple porcine reproductive and respiratory syndrome outbreaks, known as blue-ear pig disease. In 2010, disease killed over one million piglets across 10 provinces, only to be followed by foot-and-mouth disease cases in both 2012 and 2013. Chinese citizens have become wary of domestic food source as a result of these disease outbreaks and food concerns. While the government enacted better food safety laws in October 2015, the general population remains wary of domestic pork products.

Source: Gro Intelligence, 1 November 2017

**Questions**

* + 1. Using Table 1, explain what can be inferred about how urban households in China perceive pork as compared to poultry. [2]
    2. From Extracts 1 and 3, identify and explain two relationships between pork and poultry. [4]
    3. With reference to the data, explain how the culling of pigs due to the swine fever outbreak in China might affect
       1. revenue earned by urban and rural sellers of pork in China. [3]
       2. China’s trade balance with the US. [3]
    4. Using the case evidence, assess how the profits of the large pork producers in China might be expected to change in the future. [8]
    5. Discuss the appropriateness of the Chinese government’s decision to close down the pig farms located near urban areas and water sources. [10]

[Total: 30]