CSQ - Unemployment

**Lesson 8 – Inflation, Unemployment, Aims of Government, Policies – CSQ Q2**

**Technology and the Economy**

**Extract 4: What is the Fourth Industrial Revolution?**

The First Industrial Revolution used water and steam power to mechanise production. The Second used electric power to create mass production. The Third used electronics and information technology to automate production. Now a Fourth Industrial Revolution is building on the Third. The Fourth Industrial Revolution includes development of digital services and robotics technology such as artificial intelligence and machine learning.

Our lives are being shaken to their very core by technological change, with the Fourth Industrial Revolution transforming economies as never before. To appreciate the changes at hand, two interrelated aspects of the economy are particularly illustrative: growth and productivity on one hand, and employment on the other.

Source: World Economic Forum, 2016

**Extract 5: Is technological change creating a new global economy?**

Productivity is the most important determinant of long-term growth. Yet productivity growth has stagnated around the world, particularly since the great recession. An important question is how the Fourth Industrial Revolution will drive productivity in the years to come.

In theory, the application of new technologies to existing problems should improve efficiency and thus productivity. Technological innovations tend to raise labour productivity by allowing the existing workforce to do more with less, and by replacing existing workers with technology. They also usher in new products and processes that open up new sources of growth.

However, there is much debate on the likely size of the impact of the Fourth Industrial Revolution. On one hand, some experts believe that the productivity impact of the current technological revolution is almost over. On the other hand, other experts believe that the world will soon be experiencing faster growth due to a major surge in productivity.

Perhaps there are such divergent views because the impact of technology is so difficult to measure. The Ubers and Airbnbs of the world are clearly providing efficiency and productivity gains. Yet many of the benefits of these new activities are not accounted for in the calculation of GDP in the same way that private housework and childcare are neglected.

Source: World Economic Forum, 2016

**Extract 6: What happens when robots turn white-collar?**

Throughout the ages, technology has replaced human effort, which while good for productivity growth and growth overall, is disruptive for those workers who lose their jobs.

And with the Fourth Industrial Revolution, this is no longer just about repetitive factory jobs: new computing and robotics technologies now threaten many “mid-skill” professions that had seemed “safe territory”, such as accountants, taxi drivers and paralegals.

It has always been the case that technological innovation destroys some jobs and replaces them in turn with new ones, in a different activity and possibly in a different place. As technological innovation forges ahead, one can expect that low-skill activities will be progressively replaced by tasks that require creativity and social intelligence. The Fourth Industrial Revolution is different in that it is primarily middle-skilled labour that has been affected. And as the disappearance of “mid-skilled” causes the job market to become increasingly segregated into a “low-skill/pay” segment with increasing numbers of people competing for ever fewer jobs and a “high-skill/pay” segment with few highly-demanded workers, social tensions will inevitably rise.

Sources: World Economic Forum, 2016 and International Monetary Fund, 2017

**Table 2: Job vacancies in Singapore by occupational group (in thousands)**

Source: Ministry of Manpower, 2017

**Extract 7: Technological disruption may push up unemployment rate**

Singapore’s labour market faces challenging times ahead, and not just because of the slowing global economy.

The lacklustre sentiment has stunted job creation and prompted a wave of layoffs in the hardest-hit sectors, but more worrying is the prospect that an unemployment rate higher than what Singaporeans are used to might become the new normal.

Singapore’s unemployment rate – which now stands at 2.1 percent – has for decades been low by international standards. But it might be on track to rise in the face of unrelenting technological change that leaves old skills outmoded. The ones relevant to new realities may take a while to acquire.

In the short run, the slowing global economy will remain a key contributor to downbeat labour market sentiment. Beyond the current downturn, however, some structural challenges will persist for a longer time – including the gulf between the skills workers have and the ones that employers want.

In its latest macroeconomic review, the Monetary Authority of Singapore said skills mismatches in the labour market are on the rise. These are leaving laid-off workers – especially professionals, managers, executives and technicians (PMET) – struggling to find new jobs, the central bank noted.

Disruptive change has hit almost every industry, and jobs are evolving faster than ever. In addition, the Singapore economy is increasingly moving towards higher value-added, niche sectors – such as medical technology and data analytics – in a bid to maintain its competitive edge. These provide good jobs, but require specialised skills that most retrenched PMETs do not have. They also offer fewer jobs, given their small, specialised nature.

This means Singapore might have to get used to a higher rate of structural unemployment – caused by a mismatch between workers’ skills and those demanded by employers.

Source: The Straits Times, 2016

**Questions**

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| (a) (i) | Define labour productivity. | [1] |
| (ii) | Using Extract 5, explain how technological development would affect the production possibility curve (PPC) of an economy. | [2] |
| (b) | Explain the statement that “many of the benefits of these new activities (from technological development) are not accounted for in the calculation of GDP in the same way that private housework and childcare are neglected”. | [3] |
| (c) | With reference to Extract 6, explain how the Gini coefficient is expected to change with technological advances. | [4] |
| (d) (i) | Describe the trend in job vacancies in Singapore. | [2] |
| (ii) | To what extent is the above trend a result of the Fourth Industrial Revolution? | [8] |
| (e) | As an economic advisor to the Singapore government, evaluate the possible options to reduce unemployment in Singapore. | [10] |

**[Total: 30]**