ST ANDREW'S JUNIOR COLLEGE
JC 1 H2 ECONOMICS 2023
Market Failure and Government Intervention (Part 2)

In the previous topic, Firms and Decisions - Market Structures, we have learnt that the characteristics of the different types of market structure determine a firm's behaviour or conduct. This behaviour in turn affects the firm's performance. You may have observed the negative impacts that firms exhibit because of their market power.

In this topic, we will learn how the following market imperfections cause markets to fail:

- Factor Immobility; and
- Information Failure

Market failure provides the justification for government intervention in the free market.

The decision-making process with the government as the main focal point can thus be used as an approach to gain a better appreciation of the complexities of decision-making at the governmental level.

Learning about market failure will deepen our understanding of the complexities in the real world, equip us with the tools to analyse how the real world works and predict the impact that decisions have on firms, industries and the nation. We will be equipped as informed citizens to critically examine the impact of market operations from multiple perspectives and recommend checks for public interest.

MARKET FAILURE AND GOVERNMENT INTERVENTION

Reading List and Reference

1. Akerlof (1970), The Market for Lemons: Quality Uncertainty and the Market Mechanism, Quaterly Journal of Economics 84, Pages 488 -500
2. Nyman (2004), Is Moral Hazard Inefficient? The Policy Implications of A New Theory, Health Affairs Sept 2004, Vol 23, Pages 194 - 199

Learning Objectives

By the end of this series of lectures and tutorials, you should be able to:

Efficiency in relation to markets:

- Understand that market efficiency is achieved when allocative efficiency is attained.

Market Failure and its causes

- Understand that markets may not operate ideally and may fail due to market imperfections.
- Explain the meaning of market failure and the possible causes of market failure, in particular those arising from information failure and factor immobility.
- Understand that factor immobility is a constraint experienced by producers when making production decisions and that this can cause markets to fail.
- Explain occupational and geographical immobility and the reasons behind these types of factor immobility,
- Understand that information failure and the concept of asymmetric information, in the form of moral hazard and adverse selection, can result in market failure.
- Illustrate information failure and the concept of asymmetric information through the use of real-world examples.

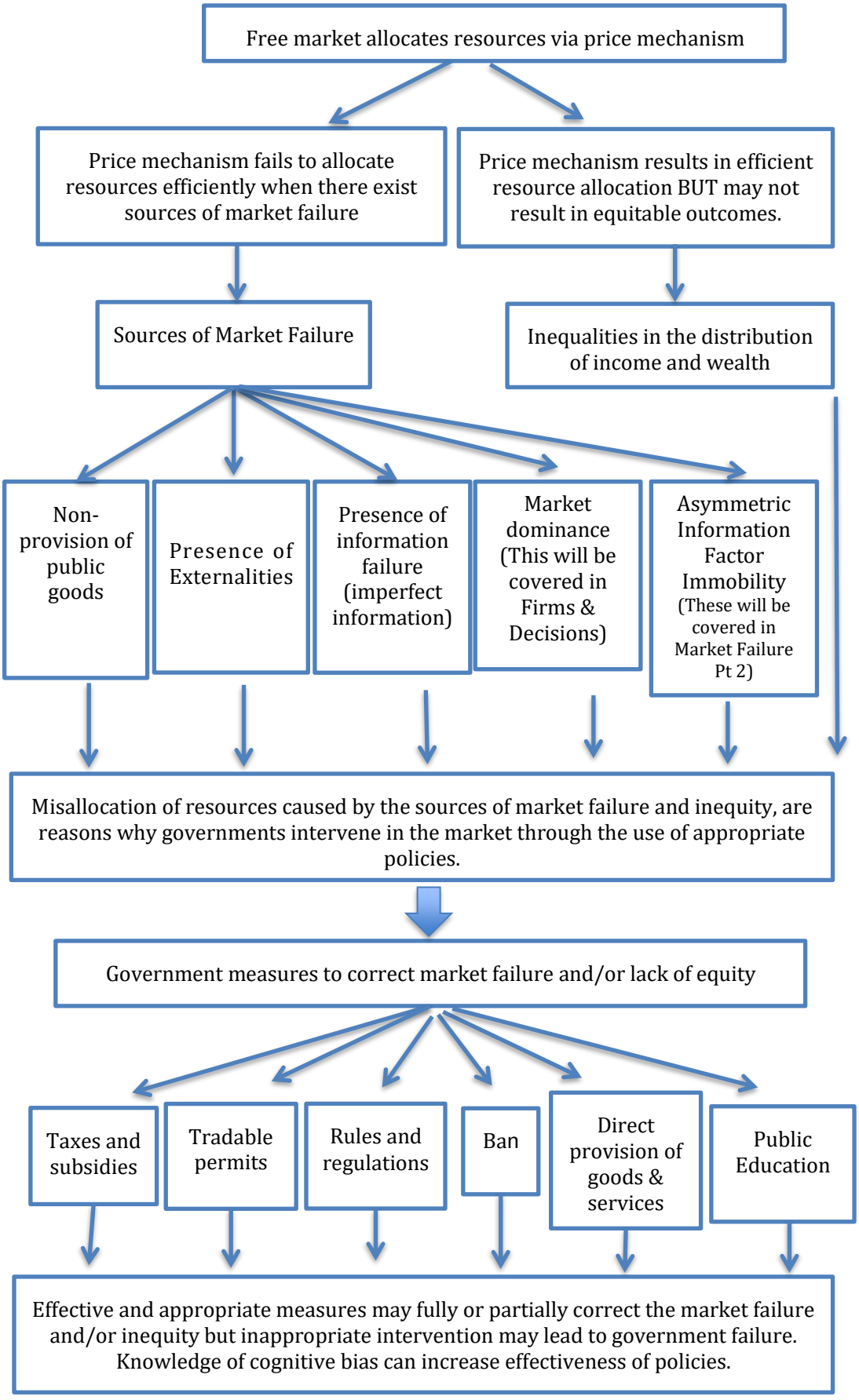
Government intervention in markets

- Explain why governments intervene in the markets to correct market failures.
- Examine and evaluate the various methods by which governments intervene in markets.
- Explain how governments make decisions in real-world contexts and would take into account non-economic considerations, such as policy acceptability, as well.

Concepts and Tools of Analysis

- Market Failure
- Allocative Efficiency
- Deadweight Loss
- Factor Immobility
- Information Failure:
  - Imperfect Information
  - Asymmetric Information: Moral Hazard, Adverse Selection

CONCEPT MAP ON MARKET FAILURE AND INEQUITY



1. MARKET FAILURE AND GOVERNMENT INTERVENTION IN THE MARKET

Recall : What is market failure?

Definition: Market failure is a situation in which the market does not provide the right mix of goods or optimal amount of a particular good. As a result, the market is not allocating resources efficiently and society's welfare is not maximised.

Left to the free working of the price mechanism and assuming that the economy is a perfectly competitive market with no externalities, the resulting equilibrium in the economy will be economic efficient. Adam Smith stressed that the "invisible hand" leads people with self-interest to act in such a way that promotes overall welfare for the economy.

However, in reality, the market economy does not always achieve optimum allocation of resources due to the following sources of distortions that lead to market failure.

Market Failure can arise from the following causes:

- Non-provision of public goods;
- Presence of externalities in the consumption or production of goods and services;
- Under-consumption of merit goods and over-consumption of demerit goods;
- Market dominance;
- Immobility of factors of production
- Information failure – imperfect and asymmetric information;

In Market Failure Part 2, we focus on **immobility of factors of production** and **information failure, in particular asymmetric information**.

1.1 Immobility of Factors of Production

Under perfect competition, factors of production such as labour and capital are assumed to be perfectly mobile. For instance, workers laid off in one industry can easily be hired by another industry.

However, in reality, factors may be highly immobile. The immobility can result in unemployment of labour which causes market failure.

There are two main types of factor immobility:

(i) Occupational Immobility and
(ii) Geographical Immobility

(i) Occupational Immobility

This occurs when there are factors that impede the movement of factors of production from one industry to another. As a result, these factors remain unemployed or are not used in productively efficient ways. Hence market failure results.

Labour often experiences occupational immobility.

For example, due to globalisation, employers in some industries, such as the electronics, would find Singaporean workers costlier to employ than those from neighbouring developing countries whose workers command lower wages.

In September 2020, Singapore Airlines (SIA) Group announced that it would cut around 4,300 positions as the aviation industry continues to be hit by the impact of COVID-19. For workers who were retrenched, they might possess skills that were not necessarily transferable to other industries. This means that there is a mismatch between the skills offered by the unemployed and those required by the employers.

This is also known as structural unemployment. To be re-employed, they have to be re-skilled or re-trained to take up jobs in other sectors. However, a lack of ability or training opportunities may prevent these workers from picking up new skills.

The Singapore government provided support to affected workers retrenched by SIA. NTUC worked with SIA Group and industry partners to provide training opportunities and help affected workers transit to other industries or enrol them in suitable industry attachment and traineeship programmes.

(ii) Geographical Immobility

This occurs when factors of production cannot be moved from one geographical location to another to find employment.

Factors which contribute to geographical immobility include the following:

- Family and other social ties;
- Financial costs of relocating e.g. cost of new house, moving expenses;
- Higher costs of living in some countries/states;
- Cultural and linguistic differences;
- Labour and employment laws, etc.

Geographical immobility hinders movement of labour to areas where there are labour shortages while perpetuating the high unemployment rates in other areas.

Impact of Immobility of Factors of Production

Unemployment results in a loss of output. Thus, an economy's actual output is less than its potential output.

If labour remains unemployed for a long period of time, their skills may become obsolete and the output they are able to produce over time will be reduced.

Hence, unemployment represents a waste of scarce resources as these **unemployed resources are not efficiently used to produce goods and services. Therefore, market failures arises.**

In countries where the economy is transitioning between industries e.g. from secondary industries such as the manufacturing of machine parts to tertiary such as financial services, the income gap between workers in declining industries and growing industries is likely to grow.

This is because demand for labour will be rising in the expanding industries thus driving up the wage rate while demand for labour in the contracting industries will be falling, pushing down wage rate.

As long as labour is immobile, the wage gap will not be able to narrow.

If workers are immobile, lacking the necessary skills or willingness to find jobs in growing industries, they may earn less and be less able to afford goods and services.

Unemployment may also result in a less equitable distribution of goods and services within a country.

1.1.1 Government Intervention to Deal with Immobility of Factors of Production

To reduce occupational immobility, the government can increase its investment in training programmes for the unemployed or improve the quality of education.

The government can also encourage private firms to provide job training either through grants or subsidies.

An example will be the Singapore Workforce Skills Qualifications (WSQ) which is a national credentialing system managed by the Workforce Singapore (WSG). The WSQ system trains, develops, assesses and recognises individuals for the skills that companies are looking for.

Based on national standards developed by WSG in collaboration with various industries, WSQ comprises industry sectoral frameworks which:

- Professionalise the industry through Continuing Education and Training (CET) qualifications.
- Help workers become more flexible and better able to transfer their skills.
- Reduce occupational immobility and avoid massive unemployment while ensuring sufficient time for workers to acquire new skills through education and training for jobs in sunrise industries, the government may shield sunset industries from foreign competition.

To reduce geographical immobility, the government can improve transportation networks, introduce reforms to the housing market to lower the price of new houses to lower the cost of relocation, facilitate movement of labour via family-friendly re-entry policies, etc.

The objective would be to reduce the cost of travelling or re-locating to a new workplace.

SkillsFuture

SkillsFuture, first announced in 2015, is a national movement to provide Singaporeans with the opportunities to develop their fullest potential throughout life, regardless of their starting points.

Through this movement, the skills, passion and contributions of every individual will drive Singapore's next phase of development towards an advanced economy and inclusive society.

Investment in human capital through education and training has been at the heart of Singapore’s progress, and has also helped Singaporeans develop and maximise their potential.

By enabling a highly skilled and competitive workforce, it has allowed Singaporeans to secure better jobs, higher incomes and enjoy higher standards of living.

Continuous education and training remains core to our society and economy today and for the future. With the fast pace of technological advancements and stronger global competition for jobs, skills upgrading and deepening are essential for Singaporeans to maintain a competitive edge.

As our economy restructures and companies find ways to innovate and enhance productivity, the demand for higher-skilled workers will also increase.

Given these trends, the workplace must be a major site of learning, where every Singaporean is able to continue to develop themselves throughout their careers and through life.

The tripartite SkillsFuture Council, led by Deputy Prime Minister Tharman Shanmugaratnam, will coordinate and drive a national effort to help Singaporeans develop skills relevant to the future, and build a future based on the mastery of skills in every job.

Four key areas of focus under the SkillsFuture Council are:

- Helping individuals make well-informed choices in education, training and careers.
- Developing an integrated, high-quality system of education and training that responds to constantly evolving industry needs.
- Promoting employer recognition and career development based on skills and mastery.
- Fostering a culture that supports and celebrates lifelong learning.

SkillsFuture encapsulates the impetus for Singapore to move towards an advanced economy and society, where individuals go beyond competence to attaining expertise and mastery of skills, motivated not just by current demands of their job but by a dedication to excellence and passion in each individual's own area of strength and interest.

It also embodies the spirit of lifelong learning, respect for skills in every job, and celebrating the skills and growth of every individual, no matter their background, age or qualifications.

1.2 Information Failure

Under perfect competition, every individual economic agent such as a firm or a consumer has perfect knowledge about costs and benefits of selling or buying a good/service.

1.2.1 Imperfect Information in Imperfect Competition

Unlike the case of perfect competition where there is assumed to be perfect information, in reality firms may be unaware of the most efficient production methods.

Consumers also do not have perfect knowledge about the prices and quality of goods and services in the market.

In the factor market, factor owners may not have all the necessary information to make rational decisions. For example, workers may not have complete and accurate information regarding job opportunities and the wage rates being offered.

In Market Failure Part 1, we studied how decisions made with imperfect information may result in scarce resources being misallocated. Hence, market failure results.

Now in Market Failure Part 2, we look at a special type of information failure, arising from asymmetric information.

1.2.2 Asymmetric Information

One of the most common information problems occurs when the participants in a transaction are not equally well informed about the product or service that is offered for sale.

Economists use the term **asymmetric information** to describe these situations. Asymmetric information is a type of imperfect information.

Definition: Asymmetric Information is the situation when the economic agents (e.g. consumers and producers) involved in the transaction do not have the same amount of knowledge (either the consumer or producer possesses more information than the other party), resulting in a distortion of incentives and hence, inefficient market outcomes.

Two important concepts related to information asymmetry are:

1. Moral Hazard
2. Adverse Selection

Moral Hazard

Definition: Moral hazard is the situation in which the economic agents take greater risks than they normally would because the costs that would result would not be borne by the economic agents themselves.

Moral hazard occurs when the risk-taking party to a transaction knows more about its intentions than the party bearing the consequences of the risk. In other words, there are **"hidden actions"**. The party with more information about its actions or intentions has a tendency or incentive to behave inappropriately from the perspective of the party with less information.

"Is Moral Hazard Inefficient? The Policy Implications of a New Theory"

When people become insured, insurance pays for their healthcare.
In economists' view, insurance reduces the price of healthcare to zero.

When the price is reduced in this way, consumers purchase more health care than they would have purchased at normal market prices—this is known as the moral hazard problem.

But because consumers purchase healthcare when the price drops to zero that they would not have purchased at the market price, economists interpret this behaviour as revealing that the value of this healthcare to consumers is less than the market price.

The additional care, however, is still costly to produce.

The difference between the high cost of the resources devoted to producing this care (reflected in the high market price) and its low apparent value to insured consumers (reflected in the low insurance price) represents inefficiency.

Thus, health care spending increases with insurance, but the value of this healthcare is less than its cost, generating inefficiency that economists call the "moral-hazard welfare loss."

Example #1 of Moral Hazard: Insurance

The owner of a bicycle is more likely to prevent theft if his bicycle is not insured. He would lock the bicycle and not leave the bicycle unattended.

However, when the bicycle is insured for its full value, the bicycle owner will not have to bear losses in the event of theft. As a result, the bicycle owner has less incentive now to protect and take care of his bicycle against theft.

This is an example of asymmetric information because the bicycle owner is more likely than the insurance company to know whether the insurance

coverage will cause him to act more carelessly. In other words, he is able to hide his actions from the insurer.

This is a problem with all kinds of insurance. People will buy insurance and then feel falsely protected by it and act in a way that is dangerous. For instance, if a person purchases health insurance for himself, he might not be as careful in watching out for his health as he was prior to obtaining insurance.

There is moral hazard involved as when the item is insured, by offering a pay-out to protect against loss or damages, it may actually encourage risk-taking behaviours from individuals resulting in more claims of insurance.

Moral hazard is a source of market failure because when insurance firms have to make more pay-outs, their costs will rise and this may raise the price of insurance that would lead to a fall in quantity demanded for insurance. There may then be an **underconsumption of insurance** as the amount of insurance cover taken out by potential buyers may then be reduced to a level that is lower than the socially optimal level.

Furthermore, there might be an **overconsumption of healthcare** as **individuals with insurance request for excessive medical care**, knowing that they do not have to bear the full costs of this care. This additional healthcare spending generated by insurance represents a welfare loss to society. **This also results in market failure.**

There are also equity issues in insurance: Those who behave carelessly as a result of being covered raise insurance premiums, even for those who continue to behave in a responsible careful manner. If insurance firms could observe the behaviour of these individuals, the problems associated with moral hazard would not exist. This is because each individual could then be charged a premium that reflects the riskiness of their behaviour. They would then have an incentive to be responsible and be careful for their bicycle or health.

Firm Intervention to deal with Moral Hazard:

Co-payment system

Insurance firms can introduce a co-payment system to prevent insured individuals from undertaking more risk-taking behaviours as they will not be fully covered. The amount of co-payment could be a percentage of the total cost which would mean that the higher the cost of the loss/ healthcare bill, the larger the amount the insured individual would have to fork out. This provides the incentive for the individual to behave responsibly.

For example, instead of fully compensating the individual for the loss of the bicycle or for their healthcare cost, insurance firms can ask the insured individual to co-pay a portion of the cost of replacing the bicycle or the cost of

the treatment. Since he would have to pay a portion of the payment, he would be more incentivised to behave more responsibly. Sometimes insurance companies also make the process of filing for claims difficult so that insured individuals are reluctant to make claims and would behave responsibly to lower the risk of losing their bikes or falling sick.

Limitations of Co-payment:

The portion of co-payment must be high enough to reduce risk-taking behaviour. In the event that the portion of co-payment is too low, consumers will continue to undertake excessive risk-taking behaviour.

Example #2 of Moral Hazard: Principal-Agent Problem

Moral hazard also arises when one person, called the agent, is performing some tasks on behalf of another person, called the principal, in a principal-agent relationship. If the principal cannot perfectly monitor the agent's behaviour, the agent has "hidden actions" and tends to undertake less effort than the principal considers desirable.

The employment relationship is the classic example where the employer is the principal and the employee is the agent. As the employer is not able to monitor the productive efforts of his employee, imperfectly monitored workers may shirk their responsibilities. For example, the employer might aim to maximise profits but the employee may exhibit profit-satisficing behaviour. This results in higher costs and lower profits for the firm.

Firm Intervention to deal with Moral Hazard: Principal-Agent Problem

Performance Related Wages or Bonus

Firms can introduce performance related wages or bonuses to prevent this Principal-Agent Problem. As employees are rewarded for their performance, it gives the employees more incentive to work hard.

Advantages of Performance Related Wages or Bonus:

Employers would have less need to monitor the day to day effort of employees as they can evaluate their final performance at regular intervals instead. Monitoring costs are reduced. Wages and bonuses can also be easily adjusted to motivate and incentivise employees to behave in ways that the employers desire.

Limitations of Performance Related Wages or Bonus:

The strategy will not be effective if the amount of performance related wages or bonus is too low. It might also create tension in the workplace and reduce co-operation resulting in higher costs due to miscommunication. Also, this

strategy is not suitable for jobs with performance indicators that are difficult to measure effectively or consistently.

Other types of firm intervention

Better monitoring: Parents hiring nannies may plant hidden cameras in their homes to record the nanny's behaviour when parents are away from home. This aims to catch irresponsible behaviour.

Delayed payment: Firms can delay a part of a worker's compensation so that if the worker is caught shirking, he is not paid and suffers a penalty. For example, some workers may get a larger year-end bonus and would thus have to wait till the end of the year to get his full compensation. This would incentivise the worker to behave responsibly for the rest of the year.

These various mechanisms reduce the problems of moral hazard and employers can use a combination of them.

Example #3 of Moral Hazard: Government Bail-Outs

Moral hazard happens when an economic agent is given an implicit guarantee of support in the event of making a loss – for example the guarantee of a bail-out.

Government bailouts increase moral hazard by engendering a business climate in which companies feel they will be protected from the consequences of poor decisions and risky behaviour. Because they no longer fear these consequences – at least not to the level they should – they often fail to take the proper precautions to guard against unnecessary risk.

In the commercial banking industry, some institutions may be deemed "too big to fail", leading to the belief that the government will absorb the losses that bank creditors would otherwise bear can lead to moral hazard.

This may lead banks to take on more risk than is optimal, since they believe they receive private benefits from the risk taking (i.e. higher profits) while the government will bear the cost of failure (funded eventually by the tax payer).

This is an example of how government intervention (in the form of bail-outs) leads to the problem of moral hazard.

Government Intervention to deal with Moral Hazard: Government Bail-Outs

Penalise Bad Behaviour:

Governments could continue to bail out banks in times of crisis but penalise bank management and those responsible for making reckless decisions which put the bank at higher than necessary risks. Fines could also be imposed when the bank is out of crisis.

Fearing punishment by the government, the bank management would take a less risky approach during their decision making-process.

Limitations of Penalising Bad Behaviour:

It is difficult to determine the appropriate level of riskiness or recklessness during a decision making process. Some banks might continue to embark on risky investments as the profits could exceed the penalty.

Put in place a Regulatory Framework:

Governments could put in place regulatory frameworks to ensure that information on households' credit risk is considered before banks give out loans. The framework could prevent banks from giving out loans to high risk customers and reduces the risk of loan defaults.

Such a framework deals with the root cause of the problem i.e. asymmetric information, since it forces borrowers to reveal their credit risk. Once the government is sure that whenever banks are in crisis, it is not due to loose loan policies but because of random external shocks, then it can bail out banks and rescue them without encouraging over-risky behaviour on the part of banks.

Limitations of a Regulatory Framework:

In practice, such regulation is neither easy nor cheap. There may be high costs of monitoring required in order to ensure there is compliance to the regulations.

Adverse Selection

Definition: Adverse selection occurs when a product or service is predominantly demanded by a certain group of economic agents who could offer the lowest level of return to other economic agents.

Adverse selection can occur when buyers have better information than sellers or when sellers have better information than buyers. If the seller knows more than the buyer about the attributes of the good being sold, then the buyer runs the risk of being sold a good of low quality. The "selection" of the goods being sold may be "adverse" from the standpoint of the uninformed buyer. In other words, adverse selection occurs when there are **"hidden characteristics"**.

Products of different qualities could be sold at a single price because buyers or sellers are not sufficiently informed to determine the true quality at the time of purchase. **This problem can lead to missing markets as firms do not find it profitable to sell a good. This leads to market failure.**

There are 2 mechanisms to reduce the effects of adverse selection: Signalling and Screening. **Signalling is an action taken by an informed part to reveal private information to an uninformed party. Screening is an action taken by an uninformed party to induce an informed party to reveal information.**

Example #1 of Adverse Selection: Used Cars Market

The classic example of adverse selection is the market for used cars.

For example, used car dealers often have more information regarding the condition of the used cars being sold than the buyers.

Assume that sellers know what kind of car they have, but buyers can't tell. In order to profit from the sale of used cars, used car dealers might hide some of the information they have about the condition of used cars from potential buyers.

Potential buyers of used cars know some of the used cars are lemons (i.e. cars of a lower quality) and take this into consideration in the decision-making process.

Based on the probability that a given car is a lemon, consumers tend to lower the price that they are willing to pay for used cars in view of the possibility that they could be purchasing used cars of a lower quality.

At this lower price, sellers with used cars in good condition (often referred to as a gem) are unwilling to offer the cars for sale, resulting in a used car market where only lower quality used cars (lemons) are sold.

Asymmetric information thus results in the used car market adversely selecting against higher quality used cars in favour of used cars of a lower quality.

Market failure arises, therefore, because there are owners of high-quality cars who value their cars less than potential buyers of high-quality cars and both parties can enjoy gains from trade. Unfortunately, the asymmetric information problem, resulting in adverse selection, has prevented this mutually beneficial trade from occurring.

Firm Intervention to deal with Adverse Selection: Used Cars Market

Screening to induce information revelation

A person buying a used car could request that the car be checked by a car mechanic before the sale. A seller who refuses this request reveals his private information that the car is a lemon. The buyer may then decide to offer a lower price or look for another car.

Signalling to convey private information

Signalling can be done by the sellers to suggest that their cars are of high-quality. For signalling to be effective, the signal must be costly that the owners of lemon cars are unable to use it. If a signal was free, everyone would use it and it would convey no useful information. *The signal must be less costly, or more beneficial, to the person with the higher quality product.*

A person selling a high quality used car could signal that their car is not a lemon by providing guarantees and warranties. *Guarantees and warranties* effectively signal product quality because an extensive warranty is more costly for the seller of a low-quality car than for the seller of a high-quality car since the low-quality car is more likely to require servicing and repairs under the warranty, which the seller has promised to pay for. As a result, in their own interest, the seller of a lemon would unlikely offer extensive warranties. Thus, buyers can correctly view an extensive warranty as a signal of high quality, and will be willing to pay more for a high quality car.

Government Intervention to deal with Adverse Selection: Used Cars Market

Fair Trading Legislation

Fair trading legislation such as Singapore's Consumer Protection (Fair Trading) Act (CPFTA) was enacted to protect consumers against unfair practices and to give them additional rights in respect of goods that do not conform to contract. Such legislation would protect both consumers and businesses by making the playing field more level.

One of the legislations under CPFTA is the Lemon Law, which took effect on 1 September 2012 (**Appendix 4**). It is a law that protects consumers against goods that do not conform to contract or are not of satisfactory quality or performance standards at the time of delivery. Under the Lemon Law, businesses are obligated to repair, replace, reduce the price or provide a refund for a defective good. For defects that occurred within a period of six months from the date of delivery, it is presumed that the goods failed to conform to the implicated condition of satisfactory quality at the time of delivery.

By invoking such a law, it can prevent adverse selection in both first hand and second-hand goods market, preventing sellers from defective goods to consumers. It can cover a wide range of consumer goods and provide protections for consumers against "lemons". Consumers will be more willing to purchase higher quality goods at higher price as they are protected in the event that these goods do not match the descriptions provided by the seller. There will thus be an increase in the availability of high quality goods as sellers can sell these goods at a higher price. Sellers will also be incentive to reveal truthful information about the quality of their products, for fear of having to compensate consumers, in the event that their products do not meet the expectations of consumers.

Limitations of 'Lemon Law':

Reporting a case of defective goods to the relevant authority may incur a transaction cost such as the costs of time and transport. Buyers may also be reluctant to report the case, especially if the value of the good is low relative to the transaction cost that would be incurred.

Enforcement of the Lemon Law would also result in costs as authorities might have to investigate consumers' claims about the defects of the product. Some consumers might abuse the law and make claims about defects that could have come about due to misuse of the product. Hence, authorities would have to ensure that claims are genuine and that sellers provide the appropriate compensation to buyers.

Example #2 of Adverse Selection: Insurance

Another example of adverse selection occurs in markets for insurance. Consumers of health insurance might not divulge sufficient and accurate information about their health condition to insurance companies.

Insurance companies are often unable to adequately monitor the behaviour of those who seek insurance coverage, and thus risk providing insurance coverage to those with higher health risks.

In the absence of limiting conditions (commonly based on age and pre-existing medical conditions), consumers with higher risks are more likely to buy health insurance and opt for higher levels of coverage.

Adverse selection forces insurance companies to raise their premiums, which makes buying insurance less attractive to low-risk individuals. **There would thus be under-consumption of health insurance** since low-risk individuals may choose to remain uninsured because the insurance policies that are offered fail to reflect their true characteristics. This means that the premiums they have to pay are higher than what they should be, given that they are low-risk individuals. **The market experiences a deadweight loss, resulting in market failure.**

Firm Intervention to deal with Adverse Selection: Insurance

Screening to induce information revelation

Insurers could screen their customers by requiring them to go for medical check-ups before they purchase health insurance. Those with medical problems or who are at high risk of falling ill could be offered different insurance plans which have higher premiums. Those who have a low risk of falling ill could be offered plans with lower premiums. This would then reduce the under-consumption problem as low-risk individuals would now not be deterred from purchasing insurance.

However, this can create other problems as private health insurers will tend to "cherry-pick" the low-risk clients. This means that they may choose not to offer insurance to high-risk clients completely. The higher-risk group who are in greater need of healthcare may then end up being left out of the health insurance market entirely.

Another example is when firms induce consumers to reveal information about themselves through their choice of different insurance policies.

Take for an example, a firm that offers car insurance. The firm would like to charge a low premium to safe drivers and a high premium to risky drivers. But how could it tell them apart?

Drivers would know whether they are safe or risky but the risky ones would not admit to it. Firms could use a driver's history to check if there were accidents in the past but because of the intrinsic randomness of car accidents, history is not a perfect indicator of future risks.

One way for the insurance company to sort out the two types of drivers is to offer different insurance policies. One policy could have a high premium and cover the full cost of any accidents that occur while another policy could have low premiums but would have a high deductible of $1000 (in other words, the driver would be responsible for the first $1000 of damage, and the insurance company would cover the remaining risk.) The deductible will be more of a burden for risky drivers because they are more likely to have any accident. Therefore, with a large enough deductible, the low-premium policy with a deductible would attract safe drivers while the high-premium policy without a deductible would attract risky drivers. This is an example of how offering different insurance policies induces drivers to reveal their private information.

Government Intervention to deal with Adverse Selection: Insurance

Legislation: Compulsory Consumption

Legislation to ensure compulsory universal consumption will cause the consumption of healthcare insurance to increase. This will resolve the problem of under-consumption of healthcare insurance. At the same time, because everyone purchases the insurance, the premiums can be lowered as people with lower-risk will join the "insurance pool". This is also known as "risk-pooling" as the higher costs of the less healthy can be offset by the relatively lower costs of the healthy.

For example, the Singapore government has made it compulsory for its citizens to purchase the basic health insurance plan, MediShield Life[1] (**Appendix 1**).

MediShield Life will offer:

- Better protection and higher payouts, so that patients pay less Medisave/cash for large hospital bills
- Protection for all Singapore Citizens and Permanent Residents, including the very old and those who have pre-existing conditions
- Protection for life

MediShield Life is a basic health insurance plan (administered by the Central Provident Fund (CPF) Board) which helps to pay for large hospital bills and selected costly outpatient treatments, such as dialysis and chemotherapy for

[1] Singapore has a 3Ms framework for healthcare financing. **MediSave** is a national medical savings scheme that helps individuals set aside part of their income into their MediSave Account to help pay for hospitalisation, day surgery and certain outpatient expenses. **MediShield Life** is a basic health insurance plan, administered by CPF Board, which helps to pay for large hospital bills and selected costly outpatient treatments, such as dialysis and chemotherapy for cancer. **MediFund** is an endowment fund set up by the Government. It provides a safety net for patients who face financial difficulties with their remaining bills after receiving Government subsidies and drawing on other means of payment including MediShield Life, MediSave and cash. For more info, refer to **Appendix 2.**

cancer. The Government will also provide significant support to keep premiums affordable, including those who need to pay Additional Premiums.

The Singapore Government has also accepted the recommendations of the ElderShield Review Committee to enhance the ElderShield scheme into the new "CareShield Life" scheme (**Appendix 3**). CareShield Life will feature higher payouts that increase over time with no cap on payout duration, to provide better protection against the uncertainty of long-term care costs if one becomes severely disabled.

Limitations of Compulsory Consumption:

To enforce compulsory consumption, the Singapore government provides premium subsidies to help keep premiums for Medishield Life affordable. The financial assistance from the government would put a strain on the government budget. This would represent an opportunity cost incurred as the expenditure could have been placed in the area of education or national defence instead.

In addition, many individuals would already have a private health insurance plan and this mandatory scheme may lead to an overconsumption of health insurance.

Example #3 of Adverse Selection: Labour Markets

Workers vary in their abilities and they may know their own abilities better than firms that hire them. In this case, the workers (the "sellers" of labour) know much more about the quality of the labour they can provide than the firm (the "buyer" of the labour). For example, they know how hard they tend to work, how responsible they are and what their skills are. The firm will only learn these things after the workers have been hired and have been working for some time.

While firms may simply hire the workers, see how well they work and then fire those with low productivity, this policy is costly because in many countries, it is difficult to fire someone. There could be accusations of unfair employment practices or the firm might be required to pay severance pay. Hence, firms would be better off knowing how productive potential employees are *before* they hire them.

The problem of adverse selection in the labour market can be seen in the following example. Suppose an employer has a large number of employees involved in producing bags, but the employer has no way of monitoring how many bags each worker is producing. If there are 100 bags produced per hour and a total of 10 employees, the employer will pay each worker the wage equivalent for 10 bags per hour.

However, some workers could be more productive than others. A talented worker producing 19 bags per hour may find the wage too low for his skill level, and may therefore seek other employment. Thus, the employer loses his most productive worker. With the loss of the most productive worker, an average of 81 bags is produced per hour. The employer hence reduces the pay of each worker to a rate equivalent to 9 bags per hour. Another talented employee producing 12 bags per hour now finds the wage too low and chooses to leave. This pushes the average production down further.

Since adverse selection is self-perpetuating, the employer is likely to lose several of the best workers because of an inability to determine which workers are most productive. The problem here is not just that employers have a poor idea of the individual productivity of workers, but also that workers are likely to have a better idea because they know how many bags they are capable of producing.

Firm Intervention to deal with Adverse Selection: Labour Markets

Signalling to convey private information

How can potential employees convey information about their productivity? Dressing well for the job interview may convey some information but it is a weak signal as even unproductive people can dress well to get a job. A strong signal must be easier for high-productivity people to give than for low-productivity people to give, so that high-productivity people are more likely to give it.

For example, education is a strong signal in labour markets. A person's educational level can be measured by the number of years of schooling, degrees obtained, the reputation of the university that granted the degrees and the person's grades. While it is true that education can improve a person's productivity by equipping the person with skills and knowledge to be productive, even if education did not improve productivity, it would still be a *signal* of productivity because productive people find it easier to attain high levels of education.

Screening to induce information revelation

Firms can also administer aptitude tests to assess the knowledge and skills of potential employees. They may also provide internships which would then be an opportunity for them to assess the productivity of the interns while they are on the job.

While such screening measures could be costly, firms might find it worthwhile to obtain more accurate information about the potential employee's productivity before deciding to hire them.

Example #4 of Adverse Selection: The Market for Credit

By using a credit card, consumers can borrow money without paying any collaterals. Most banks and credit card companies allow credit card holders to run a debit of several thousand dollars, and many people hold several credit cards. Credit card companies earn money by charging interest on the debit balance. But how can a credit card company or bank distinguish between high-quality borrowers (who pay their debts) from low-quality borrowers (who don't pay their debts)?

Borrowers have more information than lenders about whether they will pay their debts. The lemons-problem arises here as credit card companies charge the same high interest rate to all borrowers (since they can't distinguish them) to achieve loan profitability. However, this deters high-quality borrowers from using credit cards and only low quality borrowers are willing to use these credit cards. The overall loan profitability will fall since low quality borrowers might not be able to pay their loans, which would force the bank to raise the interest rate further. This in turn further increases the number of low-quality borrowers.

Firm Intervention to deal with Adverse Selection: The Market for Credit

Screening to induce information revelation

Credit card companies and banks can collect the credit history of borrowers before issuing them credit cards. They can use computerised credit histories, which are often shared amongst banks, to distinguish between low-quality and high-quality borrowers. Information on the borrowers' incomes is also collected before deciding the maximum amount of loan the borrower can take. These screening measures eliminate or greatly reduce the problem of asymmetric information and adverse selection, which might otherwise prevent credit markets from opening. Without these histories, even the high-quality creditworthy borrowers would find it extremely costly to borrow money.

However, there are concerns about the invasion of privacy when banks and credit card companies keep credit histories and share them with other lenders.

Conclusion

Moral Hazard	**Adverse Selection**
When an informed person has an advantage through an unobserved *action* i.e. there are **"hidden actions"**	When an informed person has an advantage through an unobserved *characteristic* i.e. there are **"hidden characteristics"**
Presence of hidden action **AFTER the transaction is completed**	Presence of hidden characteristics **BEFORE the transaction is completed**
the situation in which the economic agents take greater risks than they normally would because the costs that would result would not be borne by the economic agents themselves	occurs when a product or service is predominantly demanded by a certain group of economic agents who could offer the lowest level of return to other economic agents
Examples: 1. Insurance 2. Principal Agent Problem 3. Government Bail-Outs	*Examples:* 1. Used Car Markets (Lemons Market) 2. Insurance 3. Labour Markets 4. Market for Credit

Asymmetric information leads to market failure and may call for government intervention in some cases.

However, government may not always have to intervene because as seen above, the private market can sometimes deal with information asymmetries on its own through signalling and screening.

Furthermore, the government rarely has more information than the private parties involved. Policymakers may find it hard to improve upon the imperfect market outcomes. Hence, even if the market's allocation of resources is not the first-best, it may be the second-best.

Check-out

Now that you have reached the end of this section, you should be able to

Market Failure and its causes

- Understand that factor immobility is a constraint experienced by producers when making production decisions and that this can cause markets to fail. ☐
- Understand that information failure and the concept of asymmetric information, in the form of moral hazard and adverse selection can result in market failure. ☐

Government intervention in markets

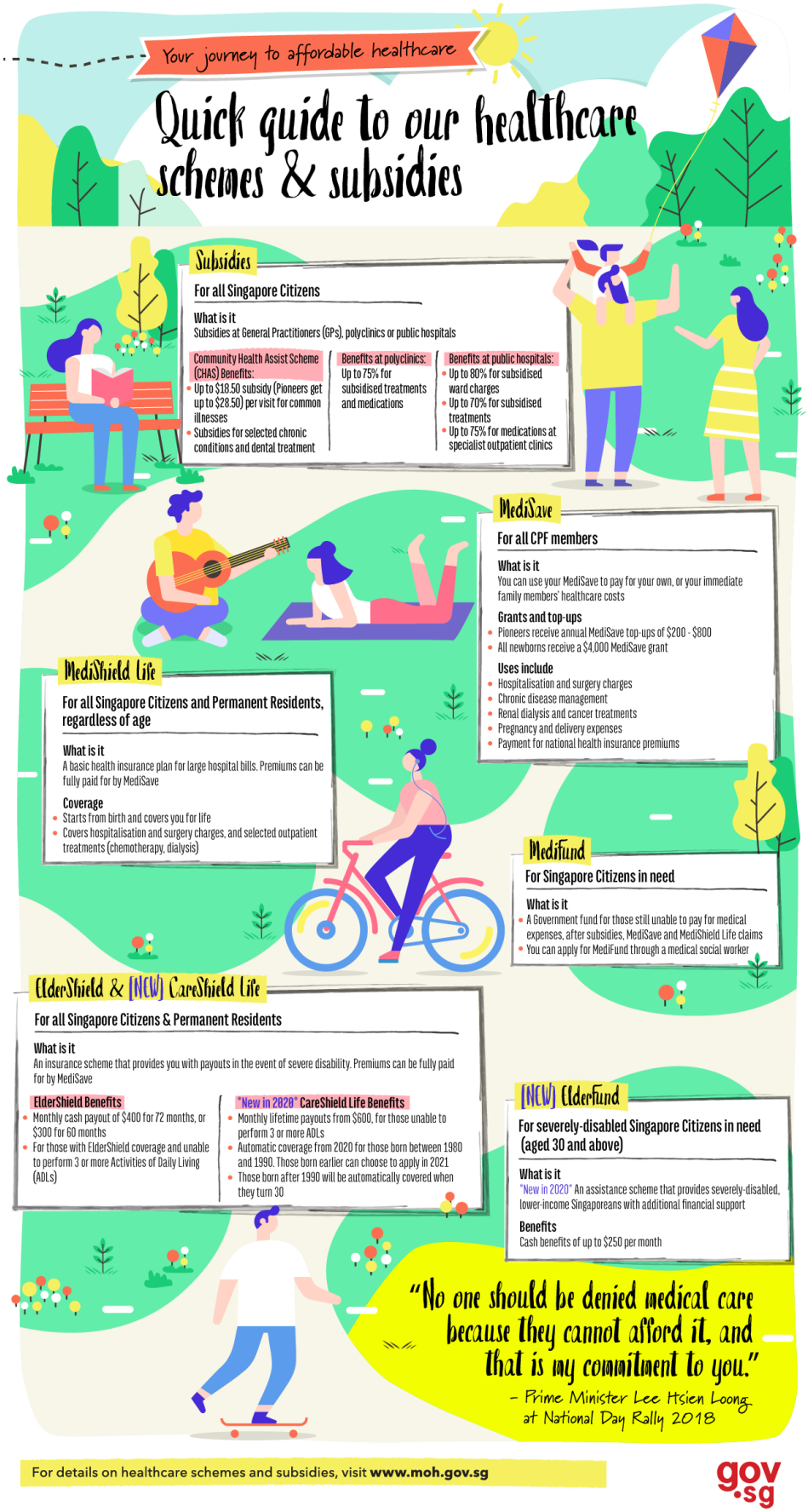
- Explain why governments intervene in the markets to correct market failures. ☐
- Examine the various methods by which governments intervene in markets. ☐

Important note: Please consult your tutors if you have not met any of the above.

2. APPENDIX

2.1 Appendix 1: Medishield Life

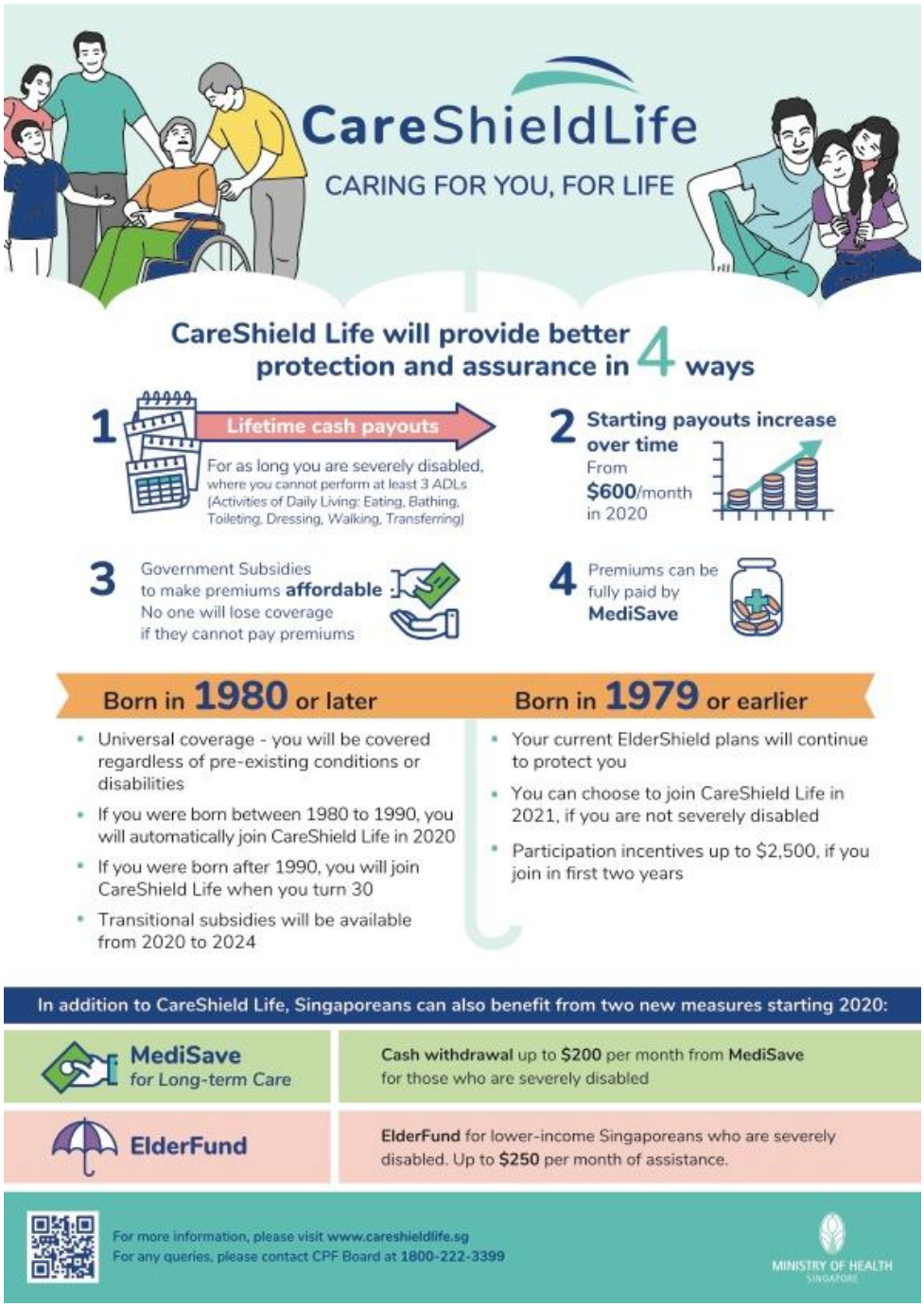
2.2 Appendix 2: More about the 3Ms



2.3 Appendix 3: Singapore's CareShield Life

The Singapore government has accepted the recommendations of the ElderShield Review Committee to enhance the ElderShield scheme into the new "CareShield Life" scheme.

CareShield Life will feature higher payouts that increase over time with no cap on payout duration, to provide better protection against the uncertainty of long-term care costs if you become severely disabled.



2.4 Appendix 4: Singapore's Lemon Law