

TEMASEK JUNIOR COLLEGE
Preliminary Examination 2016
General Certificate of Education Advanced Level
Higher 3

ECONOMICS

Paper 1

9808/01

21 September 2016
3 hours 15 minutes

Additional Materials: Answer Paper

READ THESE INSTRUCTIONS FIRST

Do not turn over until you are told to do so.

Write your name and CG number on all the work you hand in.
Write in dark blue or black pen on both sides of the paper.
You may use a soft pencil for any diagrams, graphs or rough working.
Do not use staples, paper clips, highlighters, glue or correction fluid.

Section A

Answer **all** questions.

Section B

Answer **two** questions.

Begin each question on a separate sheet of answer paper.
At the end of the examination, fasten your work for **each question separately**.
The number of marks is given in brackets [] at the end of each question or part question.

This document consists of **7** printed pages.

Section A

Answer **all** questions in this section.

1 Technology for a Better World?

Extract 1: The End of Asymmetric Information

Might the age of asymmetric information – for better or worse – be over? Market institutions are rapidly evolving to a situation where very often the buyer and the seller have roughly equal knowledge. Technological developments are giving everyone who wants it access to the very best information when it comes to product quality, worker performance, matches to friends and partners, and the nature of financial transactions, among many other areas.

Reputation is one very general way to think about solutions to moral hazard problems. Cheating becomes less valuable when the price is a loss of reputation. In recent times, information technology has made it easier to observe a seller's reputation and to contribute to the formation of a seller's reputation at low cost. Yelp, Angie's List, and Amazon Reviews all make it easy for past buyers to report their observations on seller quality and for future buyers to observe a seller's accumulated reputation. And of course it is not just sellers who are rated but workers too are evaluated in a variety of ways; for instance many employers check a worker's credit rating, or on-line history, before making a hire. Early reputation mechanisms were one-way, namely that buyers would generate reputations for sellers, but now the ratings often go both ways. Many of the exchanges in the sharing economy, including Uber (transportation), Airbnb (accommodations), and Feastly (cooks) use two-way reputational systems. That is the customer rates the Uber driver, but in turn the Uber driver rates the customer. With these techniques, the old school issues of asymmetric information are drying up rapidly. From these examples, however, we can see one major problem of the new information economy, namely a lack of privacy. More generally, online information often gives a fairly complete portrait of who we are. By no means is this all bad, because in large part we are able to project an image out into the world and match better with friends, partners, and jobs. Still, by no means does everyone feel privacy limits are set in the right place, and ours may become a world where second chances are harder to come by.

Source: Adapted from *Cato Unbound*, 6 April 2015

Extract 2: Buyer Still Beware

Has the Internet democratized information? The answer is yes, with an asterisk. While the Web has made information tremendously more accessible, it has also introduced problems of how to classify, rank, and evaluate that information. Filtering accurate information about drivers, hosts, restaurants, and products requires applying an informational filter that presupposes knowledge about how to determine which information is accurate. The asymmetric-information problem doesn't disappear; it merely regresses. More generally the Internet has caused society to experience a transition from a scarcity of signals to a surfeit of signals. More information means more good information but also more bad information. The amount available on any given transaction can be more than a single person or agent can possibly process. We are now in a world where there is vastly more to know, yet our cognitive capacities remain what they were in the Stone Age. Consequently, "perfect information" now requires perfect selection of information. Who does the selection? The information mafia — everything from popular bloggers to journalistic cliques to career reviewers to Reddit moderators, all organized collectives that advance their viewpoints with a variety of underlying agendas.

Source: Adapted from *Future Tense*, 15 April 2015

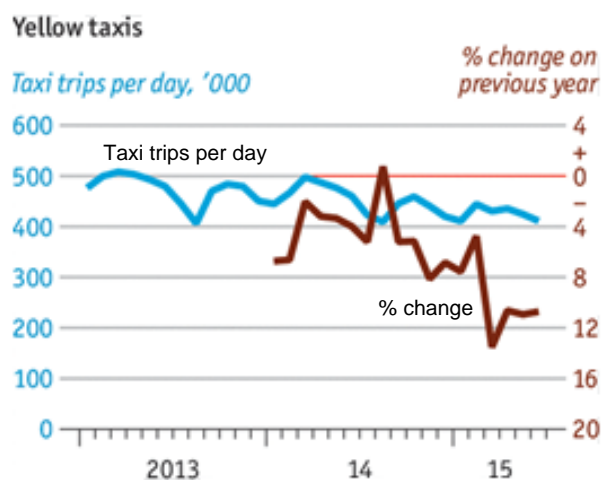
Extract 3: The Economics of Uber

Uber, a San Francisco company founded in 2009, is currently one of the fastest growing startups worldwide. Potential passengers can download a smartphone app that allows them to request the nearest available Uber car. But unlike a traditional taxi company, Uber does not operate its own cars. Instead it signs up private drivers willing to provide rides to paying passengers and passes the ride requests directly to them. Effectively Uber works as a matching platform for passengers and drivers and makes money by taking a 10-20% cut from each ride. The drivers can work in their leisure time and have to maintain a good rating, which is given by passengers after each trip. Uber was welcomed by the urban population and widely acclaimed for low prices, short waiting times, and good service. However, it faces numerous legal challenges across the world. Most of these charges were brought against Uber by the taxi industry on the grounds of non-compliance with local regulations, operating without licenses or putting taxis at an unfair disadvantage. The motivation of the taxi industry to undertake legal action is clear. The profits of taxis in cities where Uber became active decreased significantly. For example, over the past two years the cab use in San Francisco, Uber's home city, declined by 65% according to a recent report by the Metropolitan Transportation Agency. Appealing to regulation is one way for taxis to block Uber from market entry, and thus preserve their profits.

The solution to this situation is not straightforward. Banning Uber would massively disadvantage the consumers who are enjoying lower prices and better quality due to the increased competition in taxi services. Unlike taxis, Uber and other ridesharing companies were indeed subjected to few rules at the start of their operations. Nevertheless, such regulation is needed to protect customers and employees, and ensure a level playing field for ridesharing companies and taxis alike. Such regulation should also take the peculiarities of Uber's business model into account and aim to stimulate competition between companies, rather than restrict it. However, not all regulations benefit consumers and put companies on the equal footing. The recent regulation passed in France required Uber drivers to wait 15 minutes before picking up a passenger! This regulation was later replaced by a prohibition for Uber drivers to share their GPS location, thus effectively disrupting Uber's operations. While such steps indeed give the taxi industry a fighting chance, they handicap the competitor, reduce competition, deprive customers of choice and reduce service quality for passengers.

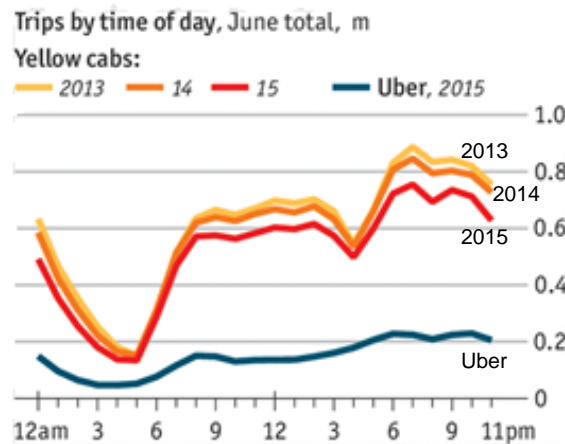
Source: Adapted from *Bruegel.org*, 30 September 2014

Figure 1: Changes in Yellow Taxi Trips



Source: *The Economist*, August 2015

Figure 2: Number of Yellow Taxis and Uber Trips by Time of Day



Source: *The Economist*, August 2015

Extract 4: How Big Data is changing insurance forever

The insurance industry works on the principle of risk. So wouldn't it benefit everyone if there was a way to more accurately assess risks? Well, it turns out that in the age of Big Data there is. Big Data refers to the ever increasing amount of digital information being generated and stored, and the advanced analytics procedures which are being developed to help make sense of this data. Predictive, statistical modelling basically means working out what will happen in the future by measuring and understanding as much as we possibly can about what has happened in the past. "Models" are then built to show what is likely to happen in the future, based on the relationships between variables from examining the collected data from the past.

In insurance, efficiency is an important keyword. Insurers must set the price of premiums at a level which ensures them a profit by covering their risk, but also fits with the budget of the customer – otherwise they will go elsewhere. A great example is motor insurance. While drivers (particularly younger ones) often complain about the high prices, this is a market where there is a huge amount of competition and shopping around on price comparison services is common among customers. As a result an insurance business is made or broken on its ability to accurately assess the risk posed by a particular driver and offer them a competitive, but profit-making premium.

Many insurers now offer telemetry-based packages, where actual driving information is fed back to their system to a personalized, highly accurate profile of an individual customer's behaviour can be built up. Using predictive modelling as mentioned above, the insurer can work out an accurate assessment of that driver's likelihood to be involved in an accident, or have their car stolen, by comparing their behavioural data with that of thousands of other drivers in their database.

A similar revolution is underway in the world of health and life insurance due to the growing prevalence of wearable technology such as the Apple Watch and Fitbit activity trackers, which can monitor a person's habits and provide ongoing assessment of their lifestyle and activity levels. John Hancock, an insurer, now offers users discounts on their premiums and a free Fitbit wearable monitor. Customers can work to reduce their premiums on a sliding scale by showing that they are improving on their unhealthy behaviors. Brooks Tingle, the company's SVP of insurance marketing and strategy, says "customers don't mind giving up some data if you're transparent about what data you're asking for, and they are getting real value back for it."

Of course, in both of these cases, ethical concerns, such as privacy, need to be taken very seriously. Most would probably agree that it is fair, or efficient, for people who make unhealthy lifestyle choices such as smoking or never exercising, to pay higher health insurance premiums. However science has shown that, unfortunately, the biggest decider of our state of health is often the genetic makeup we are born with. In an age where the human genome is mapped and genetic profiling is becoming more and more common, it would be more efficient for those of us unlucky enough to be born with bad genes to pay more, but would it be fair?

Source: *Forbes*, 16 Dec 2015

Extract 5: Big data could make people uninsurable

Philippa Kelly, ICAEW financial services assurance manager said, “Increasingly, technology means there is so much data about our own individual risk factors that it no longer makes sense for companies to group us together. But this means some people may be so high risk they are priced out of insurance altogether and we get ‘uninsurables’. This can easily be due to factors people can’t control. These might be to do with where you live, genetic conditions or new developments like cyber risk.”

A consumer may also become uninsurable if they won’t share their data or if they don’t generate enough data. Society needs to make the choice about when to intervene to ensure that those who are vulnerable are able to access insurance cover.

“With terrorism risk in major cities or the recent flood disasters, the government stepped in so insurance is still available to people who need it. Should the government intervene to ensure insurance remains accessible even to people who represent a higher risk?” Kelly asked.

Source: *Economia*, Sinead Moore, 03 February 2016

Extract 6: Crowdsourcing, Wikinomics, Mass Collaboration

Goldcorp’s outsourcing of the task of analyzing data to estimate the value and location of gold on its site is a classic example of crowdsourcing. A firm is said to be crowdsourcing if it outsources a task to the general public in the form of an open call to anyone who can perform the task, rather than outsourcing it to a specific firm, group, or individual. The task can be anywhere along any value chain — from design to refining algorithms to marketing. There are numerous other examples. Threadless, founded in 2000, depends on the public to design, select designs, market, and buy its T-shirts. InnoCentive, founded in 2002, acts as a B2B firm that outsources R&D for biomedical and pharmaceutical companies to other firms in other industries and other countries. Crowdsourcing has several advantages:

Public May Be Better: If the best solution to the problem whose solution is being sought requires radically different ways of doing things, there is a good chance that the public may hold a better solution than the firm seeking the solution. Why? The public is not handicapped by prior commitments, mental frames, and the not-invented-here¹ syndrome of the outsourcing firm that might prevent it from taking the radical approach. The public is comprised of lots of people with different backgrounds, mental models, and disciplines, and one of whom may be the right one for the radical approach needed.

¹ Not-invented-here is a stance adopted by social, corporate, or institutional cultures that avoid using or buying already existing products, research, standards, or knowledge because of their external origins and costs. The reasons for not wanting to use the work of others are varied, but some can include fear of patent infringement, lack of understanding of the foreign work, an unwillingness to acknowledge or value the work of others (jealousy), and forming part of a wider turf war. As a social phenomenon, this philosophy manifests as an unwillingness to adopt an idea or product because it originates from another culture, a form of tribalism.

Breadth and Depth of Talent: Depending on the task and industry, the breadth and depth of talent out there in the public may be better than what is available within the outsourcing organization or within a specific entity chosen by a firm to solve the problem. Even the best firms cannot hire everyone that they need. Some of the best talent may prefer to live in another country, state, or city. Some people may thrive among a different set of people than that available at the firm. Some may prefer to work only when there is a challenging and interesting problem to solve, and therefore find the confines of the outsourcing firm inhospitable.

Cheaper and Faster: The firm gets to pay only for the best solutions. It is effectively paying only for results. It does not have to pay for any deadwood. For this reason and the others outlined above, the firm's cost of crowdsourcing is likely to be lower than that of internal development or cooperation with a specific firm or individual. The solution is also likely to be arrived at in a much shorter time. In some cases, the solution to a problem may already exist outside there, or someone is already very close to solving the problem. Thus, going outside not only saves time and money, it can save the firm from reinventing the wheel.

Crowdsourcing also has disadvantages. First, it is more difficult to protect one's intellectual property when one opens up to the public as much as one has to when crowdsourcing. There are no written contracts or nondisclosure agreements. Second, crowdsourcing may not be suitable for tasks that require tacit knowledge since such knowledge cannot be encoded and sent over the Internet. Tacit knowledge is best transferred in-person through learning-by-doing. Crowdsourcing may not be ideal for long and complex tasks such as designing and building an airplane. Such tasks require monitoring, continuous motivation, and other long-term commitments. Third, it may be difficult to integrate the outsourced solution into an organization that suffers from not-invented-here syndrome. Fourth, opportunistic competitors can target your calls with malicious solutions that they know will not work, hoping that you will not be able to catch them. These disadvantages can be mitigated through the right management.

Source: Allan Afuah, *Strategic Innovation: New Game Strategies for Competitive Advantage*

Questions

- (a) Explain how two-way reputational systems may improve efficiency in the free market. [6]
- (b) Discuss the extent to which the data support the view that the introduction of Uber has adversely impacted the taxi industry. [8]
- (c) Assess the desirability of government regulation in the taxi industry and insurance markets. [8]
- (d) Globalisation, intensified by disruptive innovations such as crowdsourcing, has made the world a better place. Discuss. [8]

[Total: 30]

Section B

Answer **two** questions from this section.

- 2 The lack of agreement and consensus amongst economists invalidates economics' status as a true science. Discuss. [35]

- 3 The study of strategic interactions among firms has enabled a better understanding of firms' behaviour and hence rendered the traditional analysis of it irrelevant. Discuss. [35]

- 4 Somali waters have become the site of an international "free for all," with fishing fleets from around the world illegally plundering Somali stocks and freezing out the country's own rudimentarily-equipped fishermen. According to another U.N. report, an estimated \$300 million worth of seafood is stolen from the country's coastline each year. "In any context," says Gustavo Carvalho, a London-based researcher with Global Witness, an environmental NGO, "that is a staggering sum."

Assess the contribution economics has made to the tackling of such transnational environmental problems. [35]

- 5 Imperfect and asymmetric information affect efficiency in markets and lead to welfare losses. Explain this statement and assess alternative policies that governments can employ for such markets. [35]

- 6 The principle of comparative advantage is perhaps one of the most important insights in international trade theory.

Assess the extent to which comparative advantage theory explains trade patterns in the world today. [35]

- 7 There is no place for governance in an increasingly globalised world economy. Discuss. [35]