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The Gig Economy: How Uber impacted the London taxi industry

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Abstract

This research project assesses the impact that the gig economy (specifically Uber) has had on the London taxi industry. This is a highly contentious and current problem that is affecting various stakeholders in the market. Uber has generated various controversies, with workers' rights, regulation, unfair competition and their pricing strategy being key issues that are investigated in this project. This research project will focus on how the London Black Cab and consumers have been effected by Uber. Through the use of interviews and questionnaires the key issues that these stakeholders face are addressed.

Research found that the entrance of Uber has significantly increased the overall number of taxis in the market, causing a reduction in the market price. The impact on consumers is that there is now more choice when requiring a taxi, as well as cheaper fares for journeys. Black Cab drivers, on the other hand are incredibly frustrated by the introduction of Uber that has eroded the amount of business that is available and has increased congestion in parts of London. This research contributes to current literature by addressing the issues surrounding Uber in London from the point of view of both the consumer and from Black Cab.

Keywords: Gig Economy; London Taxi Industry; Competition; Disruption

1. Introduction

The past decade has seen a new found competitor in the London taxi industry; this has been as a result of the 'gig economy' (Kenney and Zysman, 2016). The structure of the taxi industry has shifted, no longer if you live in a metropolitan area do you have to wait longer than 10 minutes for a taxi. This change is because of the introduction of Uber, as well as other ridesharing companies (Chen, Mislove and Wilson, 2015).

Uber's business model is based on the gig economy. The gig economy (arising from the sharing economy) consists of consumers and workers both using "online technology and apps to contract for specific on-demand services" (Dokko, Mumford and Schanzenbach, 2015, p.1). The gig economy (propelled by new technologies) has allowed companies to enter new markets and disrupt the traditional way that these markets work.

Since 2009, Uber has moved from strength to strength, branching out into many nations and changing the workings of the global taxi industry. Uber's growth has been exponential with a predicted value of \$68 billion in 2016, making the company worth more than General Motors, Honda and Ford - without even owning a single taxi (Chen, 2015). This research project is investigating how other elements of the taxi industry (specifically the London Black Cab) have been impacted as a result of their new found competition with Uber. It is also looking into the affect that the gig economy (specifically Uber) has had on the consumer.

The London taxi industry is made up of Black Cabs (or Hackney carriages) and Private Hire Vehicles (PHVs) which includes minicabs as well as companies such as Uber. Uber entered into the London taxi market in June 2012 and initially had 50 cars working for the company. London was seen as a very challenging market to enter into because it was the size of New York, yet its road network is far more complicated and the market was more highly regulated. Nevertheless, this did not halt Uber from penetrating into this market and becoming one of the leaders.

Uber's main competition when penetrating into London was the Black Cab. The Black Cab has for long been a quintessential feature of London's heritage. However, the introduction of Uber has forced disruption upon their trade. The basic principles of the Black Cab (some of which date back to 1635) are that they have to adhere to a large number of strictly enforced regulations (such as driving a specific car and passing the knowledge test) and in return they receive benefits (such as being able to use taxi ranks, being hailed by people on the street, the use of a meter, and having access to bus lanes). These benefits are exclusive to them, which has protected the Black Cab for decades and stopped less regulated competitors (e.g. PHVs) from significantly impacting their trade.

Uber has generated much controversy, with workers' rights (Chakraborty, 2016), corporation tax (Hellier, 2016), unfair competition (Fleisher, 2014) and regulation (Ranchordás, 2014) being key pejorative issues surrounding Uber. Impact of the gig economy on the US market – for example in San Francisco and New York - with regards to Uber has been extensively researched (Hall and Krueger,

2015; BSG, 2015; Manyika et al., 2016; Chen, Mislove and Wilson, 2015). However, to date, far less research has been conducted for the London market (Noulas et al., 2017). This project aims to make a contribution to the current body of knowledge by addressing the issues surrounding Uber in London from the point of view of both the consumer and the Black Cab.

Motivation to write on this topic area developed from its consistent presence in the media. It is a highly contentious and current topic, yet there is little conclusive evidence to argue in either the traditional taxi or Ubers' favour. London has been chosen to research as it is the largest taxi market in the world (Davidson, 2015b). The city is accessible for conducting primary research and there is a huge amount of controversy surrounding the topic here. The desire to face the challenge of unsolved problems has motivated this research (Kothari, 2009).

To meet the above research aims, both primary and secondary data will be used. The primary data will give a first-hand account of London Black Cab drivers opinion of Uber. It will also allow examination of what the impact on consumers has been. The primary data will be collected through the use of interviews with Black Cab drivers and questionnaires to consumers. Secondary data will then be used to critique findings. The data will allow this paper to answer the following research questions:

- How has the London taxi industry changed as a result of Uber?
- What impact has Uber had on taxi consumers?
- How has the London Black Cab been impacted by Uber?

2. Literature review

2.1 The gig economy

The gig economy was originally identified in 2009 at the peak of the global recession. It allowed those who were made unemployed by the crisis to acquire casual work but not in the traditional way (Kenney and Zysman, 2016). If someone has a spare room they can now effortlessly rent it out through AirBnb. If someone has a bike they can now make money delivering food from restaurants with Deliveroo and most fruitfully, if someone has a car then they can simply sign up and become a taxi driver for Uber.

There are other factors that have driven the growth of the gig economy. Uber's success can also be credited to the "ubiquity of internet and associated information communication technologies" (Cohen and Kietzmann, 2014, p.279) that have allowed Uber to grow to its current scale. Furthermore, an increasing number of individuals who would not have considered using these platforms in the past now prefer such models to the traditional alternatives.

Development of the gig economy can be credited to low-fixed costs models whereby technological start-up companies have been able to develop their business through smartphone technology (Manyika et al., 2016). In the case of Uber this is allowing consumers to have a fast and reliable service that can be co-ordinated from their smart phone (Au and Kauffman, 2008). Speculation has occurred over the past few years over whether the gig economy is having a positive or negative impact on the future of work. However, as yet there is little hard evidence to argue either way (Hall and Krueger, 2015).

2.1.1 Benefits of the gig economy

The gig economy provides a platform for employment for almost anyone that wishes to be a part of it, in the case of Uber all that is needed is a car. This is beneficial for unemployment figures as jobs are created for low-skilled workers (BSG, 2015). Companies within the gig economy such as Uber could arguably also be creating unemployment at the same time when Black Cabs are going out of business, even though drivers are frequently reluctant to work for Uber (BSG,2015).

As cities grow in population, there is increasing pressure on the reliability of transportation systems (Noland and Polak, 2002). Single occupancy vehicles exacerbate congestion and increase air contamination and have adverse effects on people's health (Dijkstra and Pucher, 2003). They also increase the pressure on transport systems generally (e.g. buses, taxis and cars). Bannister (2008), promotes a 'sustainable mobility paradigm', whereby fewer trips, increased efficiency, distance reduction and modal shift will have a positive effect on transport systems. Uber supports this theory with UberPOOL, which allows for lift sharing with strangers travelling in the same direction. This reduces the impact on the environment whilst also reducing congestion.

A taxi spends an average of between one-third to half of its shift idle (Knight, 2016). This is a real problem to both taxi companies and its workers as no revenue is being generated during these times. However, Uber is able to reduce the impact of this on their business through its vehicle-dispatching algorithm which allows a driver to finish one job and to immediately be allocated the next one, rapidly reducing the amount of time that drivers spend waiting (Cramer and Krueger, 2016). This has increased the efficiency of their business.

2.1.2 Criticisms of the gig economy

Although the gig economy is providing some tangible benefits when moving into existing markets for both workers and consumers, it is clear that they are also having negative effects to some stakeholders, especially in the taxi industry. The growth of Uber is not expected to slow which could lead to the long-term disruption of long-standing taxi businesses (Morse, 2015), as well as replacing current incumbents (Zervas, Proserpio and Byers, 2015) such as London Black Cab. This is culturally as well as economically problematic as the Black Cab has been around for centuries and is seen as an intrinsic part of London's heritage.

Uber's disruptive innovation (Christensen, Birnbaum and Raynor, 2015) has caused a stir in the taxi industry. Taxi drivers who before were unable to compete with the Black Cab are now able to simply create an account and forego the minimum of 2 years of training that is required by Transport for London (TfL). Minicab companies have in the past struggled to impact the Black Cabs due to a lack of economies of scale which has stopped the companies from being able to charge the significantly lower prices that Uber is able to. Uber, however has made a historically expensive and inaccessible service completely change causing huge disruption to the market, as Uber undercuts both the minicab and the

Black Cab on price (The Telegraph, 2015; Noulas et al., 2017), making the company attractive to value conscious consumers.

Hall and Krueger (2015) argue that the gig economy provides benefits to employees too, with the flexibility to work the hours that they wish while earning stable pay. However, this statement can be disputed as there are cases of workers earning below the minimum wage for Uber (Jones, 2016), showing that exploitation is still possible.

The gig economy has created several 'unicorn' companies; Uber was valued at \$68 billion and Airbnb at \$30 billion (Austin, Canipe and Slobin, 2015). The European Parliamentary Research Service (2016) argues that the valuations are excessive for two companies that own very few tangible assets. The gig economy could therefore be creating a 'bubble' effect whereby these extravagant valuations are overstated and are creating value that does not actually exist. This could have huge implications if the bubble eventually 'bursts'.

2.2 The impact on the consumer

Uber was designed to be as efficient as Black Cab whilst being cheaper than minicab operations, with the added benefits of shorter waiting times, fare estimations, splitting the costs with your friends online and the rating system. Uber is able to offer advantages to the consumer that its competitors are currently not, which explains why it is so popular and achieving exponential growth (Knight, 2016). It has been able to become one of the worlds' largest taxi companies with very few tangible assets, a situation made possible through their price discrimination model. The differences in Uber compared to traditional taxi companies have not only created a new market of consumers that will now use taxis, but have also shifted consumer patterns towards loyalty to Uber (The Economist, 2014).

Surge pricing is where Uber matches the supply and demand of the current market to the price to be paid (Chen, Mislove and Wilson, 2015). This means that on weekdays when demand for the service is low Uber charges the lowest fare, which will almost always undercut traditional taxi companies. However, on a Saturday night for example, when demand in the market grows, Uber increases the fare that it charges. Consequently, more drivers will work as they are sensitive to price and are willing to work anti-social hours in order to receive a better wage (The Economist, 2014). This links the consumers to the workers and is known as a 'two-sided' market (Rochet and Tirole, 2006).

The two-sided market means that during off-peak times, when demand is less, the consumer is getting a good deal as the fare will be lower. The other side, means that when supply of the Uber cars is low during peak times, the Uber driver is getting a better deal, optimizing the demand and supply of the market. The effect of this price disparity can have both a positive and negative impact on Uber consumers (Chen, Mislove and Wilson, 2015). Sometimes the consumer will get better value for money and on other occasions the consumer will pay far more than they would to traditional taxi companies. This can be up to 8 times higher than a standard rate (Mohammad, 2013). This allows Uber to generate substantial revenue because Uber capitalises on the consumer surplus that exists in the market.

Uber's surge pricing has come under fire because it is not particularly transparent, i.e. they do not provide any data about supply or demand and it is not clear how they control their surge pricing mechanisms. This lack of transparency has led to speculation that Uber could be manipulating the price in order to provide unfair company advantage (Chen, Mislove and Wilson, 2015). Uber also operates with a second type of price differentiation. In addition to surge pricing, Uber also has six different types of car that you can travel with, such as larger and executive vehicles. This allows Uber to charge at different rates depending on which car is required. This, in turn, means that Uber can tap into this added consumer surplus. It also leaves traditional taxi companies as "sitting ducks" (Mohammad, 2013). These do not take advantage of the consumer surplus when demand is high and charge a consistent fare. Additionally, when demand is low Uber undercuts the Black Cab who then lose customers who seek to travel with Uber for the cheaper price.

This price discrimination though can be beneficial to the consumer. Those that have higher levels of income may prefer to travel in more comfortable cars and so will pay extra for an UberEXECUTIVE, whereas others will prefer the cheapest option and will happily travel in the cheapest option (UberX).

2.3 The impact on the Black Cab

In June 2014, chaos was caused in Central London when approximately 4,000 Black Cab drivers protested against Uber and the impact that it was having on the taxi industry. Black Cab drivers were claiming that Uber drivers do not 'compete on a level playing field' (Fleisher, 2014) and that they are bypassing rules that traditional taxi companies are required to adhere to. Since this date, further protests have taken place and these have been growing in size.

Traditional taxi companies are subject to a large amount of regulation; for example, to become a London Black Cab driver a minimum of a 2-year knowledge test has to be taken. They are restricted on which cars they can drive (Toner, 1992), they have to provide full insurance coverage, and they have to provide wheelchair access to their vehicles (TfL, 2017b). Drivers of PHVs such as Uber are not subject to this regulation and as a result are able to enter the market just by signing up online. As a result, barriers to entry are far smaller for Uber and its drivers.

London has seen the regulation of its transport systems highly contested as Uber is able to push the boundaries of laws and regulations (Ranchordás, 2014). October 2015 saw Uber being taken to court over claims that their smartphone application could be classed as a taximeter (this challenge was defeated). This is a privilege that only Black Cab drivers have (Topham, Hellier and Gani, 2015). Black Cab drivers though claim that it is a meter and that Uber is able to access the market without meeting the regulations that Black Cabs have to adhere to. This is just one example of the many issues that Uber are being challenged on globally (see Hellier, 2016; Jones, 2016; Osbourne, 2016).

Further, Uber pays an incredibly low amount of corporation tax, as it is able to avoid standard regulations because of its nature as a multinational company. During the 2015 financial year Uber paid just £22,134 in tax on its £866,000 UK profit. This figure is incredibly low with any 4 London Black Cab drivers collectively paying more tax than this (Hellier, 2016). By avoiding standard regulations Uber is

able to keep far more of its revenue, giving the firm competitive advantage over the Black Cab. However, it can also be argued that Black Cabs are able to avoid declaring some of their income as it is handed to them in cash, whereas all money is paid to Uber electronically meaning that all of it is accounted for.

Uber has applied pressure on the Black Cab to compete given that the way the Black Cab is run now appears outdated. For example, the need for a minimum 2-year knowledge test when GPS is available can be seen as unnecessary (Holt, 2016). Cumming (2014) states that he would “rather be driven by a cheery expert who spent three years mastering London's backstreets - but not enough to pay 30 per cent more”. This will be a view shared by many other consumers, who would rather not pay a premium price just to have a driver who is not reliant on technology (Holt, 2016).

2.4 The issue of regulation

The taxi industry has for long been seen by analysts as an untapped transit opportunity in metropolitan areas (Trudel, 1999; Arnott, 1996). This may be due to the fact that most taxi markets are highly regulated and entry barriers are high (Ranchordás, 2014). Moore and Balaker (2006) concluded that the effect of deregulation on taxi markets would be beneficial when considering waiting times, fares, safety and quality. Regulation could therefore be stifling the taxi industry and impacting the service that customers receive.

Williams (1980) argues that there is little need to regulate price or entry into the market, reasoning that markets would be more efficient without it. Other scholars disagree with taxi deregulation. They claim that price would stay at the same level without it and it would result in more vacant cabs, causing further issues for the market (Flath, 2002). Further, recent innovations in the gig economy pose challenges to regulators and law makers, given that the current “regulatory environment is in flux” (Niemietz and Zuluaga, 2016, p.45). The nature of Uber and similar companies means that they do not fit into standard categories. Uber is part of the largely unregulated gig economy, and although this is changing this allows the company to bypass many of the laws and regulations that traditional taxi companies are subjected to by TfL (Ranchordás, 2014).

Different companies in the gig economy exert varying levels of control over factors such as the worker's schedule, the equipment used by the worker and the prices charged to the customer (Hagi, 2015). This makes the issue of implementing regulation in the gig economy more complex, as one regulation may not be appropriate for all of the differing types of business. Many companies in the gig economy claim that they are a platform for employment and that they aren't the employer, this is where the ambiguity lies (Dokko, Mumford and Schanzenbach, 2015).

Uber, until October 2016 was able to class its workers as self-employed in the UK, meaning that they are not eligible for certain benefits that other companies have to provide their workers such as holiday pay, pensions and the national minimum wage (Osbourne, 2016). Uber now though has to give its workers these basic rights, and this is just one example of the increasingly complex issues that characterise Uber's business model. Ranchordás (2014) reasons that the gig economy should have

new regulation and laws that are specific to it. This could stop companies from avoiding laws that other operations have to abide by and may make markets more equitable (Stallibrass and Fingleton, 2016).

3. Research methodology

The issues in the London taxi industry have been addressed in the previous section. The literature review critiques the gig economy and the impact that it is having on the consumer and the Black Cab. This next section will follow on to detail how the research was carried out for this project.

3.1 Research design and methodology

A mixed-methods approach (Ivankova, Creswell and Stick, 2006) was used to research consumer preferences and opinions of the taxi industry, as well as the impact that Uber was having on the Black Cab. The research instruments used were two separate surveys; one a self-completion questionnaire (quantitative) and the other a number of one-to-one qualitative interviews (Quinlan et al., 2015; Cresswell, 2003). Secondary data is additionally used to reinforce primary findings, as well as to critique them.

3.1.1 Quantitative data research instrument

A questionnaire was compiled to explore consumer's preferences when choosing transport in London. This allowed for research into a sample of the overall population. The questionnaire consisted of 8 multiple choice questions (see Appendix 1). The questions were developed by the researcher to derive an understanding of how often the consumer used transport in London and to then explore the type of taxis that they preferred to use, as well as the factors that impact their choice of taxi.

3.1.2 Qualitative data research instrument

Semi-structured interviews were used to investigate the impact that the gig economy was having on the Black Cab. This was achieved by interviewing a range of taxi drivers, using questions developed by the researcher to ascertain opinions on Uber's entrance into their market. The research followed Keats' (2000) interview structure, consisting of an opening phase, the main interview section and a closing phase (see Appendix 2). The researcher had a list of open questions to ask (see Appendix 3), providing for exploratory research that allowed for the interviewer to probe further if necessary (Blumberg, Cooper and Schindler, 2008; Saunders, Lewis, and Thornhill, 2009).

3.2 Data collection

The quantitative questionnaire data collection was opportunistic (Teddie and Fu, 2007), targeting responses from consumers that live or work in London. Survey questionnaires used to elicit consumer preferences were posted online using the questionnaire website 'Survey Monkey'. In total, 51 consumers took part in this research. This was considered a sufficiently representative number given time/resource constraints and allowed for a fair degree of generalisation across the London market.

The interviews were conducted in person at taxi ranks in Zone 1 of Central London (three in total). This allowed the researcher to talk to participants whilst they were at the rear of the taxi rank, meaning that the drivers would not currently be seeking clientele, and would be willing to participate in the research.

The interviews were recorded using a digital recorder. This removed observer bias from taking place. Additionally, the same interviewer was used each time, meaning that “true and real variation” (Bryman and Bell, 2011, p.202) occurred instead of variation resulting from the interview context.

3.3 Data analysis

Once the quantitative data had been collected, simple descriptive statistics were generated using ‘Minitab’ statistical analysis software. In addition to this, graphs were created for each of the questions to create a broad picture of the results. This was simple and characterised the sample. For the qualitative data each of the interviews were transcribed. This allowed for additional observations to be made as each interview had to be listened to multiple times. Thematic analysis (Braun and Clarke, 2006) was then used to extrapolate recurring themes from the data. This produced a clear picture of factors Black Cab drivers perceived as being of major impact on them.

3.4 Justification of research design

The mixed-methods approach is more time-consuming and multiple research methods have to be understood in order to mix them appropriately. However, the use of both qualitative and quantitative research allows for a more insightful analysis, taking the strengths of each method rather than relying on those from just one (Tashakkori and Teddie, 2003; Green and Caracelli, 1997). This in turn provides stronger evidence for conclusions (Burke Johnson and Onwuegbuzie, 2004) representing a broad picture of two of the key stakeholders in the market.

Research into consumers’ opinions and preferences could have alternatively been performed through focus groups, observations or interviews. This would have allowed for richer results. However, the use of questionnaires provided an “inexpensive, efficient and accurate means of assessing information” (Zikmund et al., 2013, p.186) about a broadly representative group of taxi consumers, which was suitable for the scope of this research.

The interviews were conducted face-to-face rather than via email or telephone as it allowed for additional observations to be made such as changes in body language and tone of voice (Keats, 2000). This provided for an in-depth insight into the emotions of the Black Cab drivers. Alternatives to interviews (focus groups or observation) were considered, however these would have been more difficult to set-up and drivers would have been less willing to participate (Blumberg, Cooper and Schindler, 2005). Conducting interviews whilst the drivers were in the rank meant that they were not overly inconvenienced. Questionnaires also could have been used to examine the Black Cab drivers’ opinions. However, this would have produced far less detail, and the drivers’ emotions on the topic were considered of main importance.

3.5 Ethical considerations

Steps were taken to ensure that participant anonymity and confidentiality were preserved. In addition to this, participants were all over the age of 18 years. A participant information form had to be read and accepted before a respondent could take part in the research (this applied for both the Black Cab driver

interviews and the consumer questionnaire). The form explained the benefits of the study, the participant's rights and protection, as well as obtaining informed consent (Blumberg, Cooper and Schindler, 2005).

The nature of the topic is highly contentious and so care was taken when approaching the Black Cabs drivers for interviews. This ensured that the researcher could conduct the interview in a safe manner. All of the questions were open and the interviews were kept casual. The researcher added extra questions where appropriate, thus enabling the participants to feel relaxed and to speak freely on the topic (Lee, 1993).

3.6 Limitations of research methodology

This project is not without its limitations, chiefly due to its small-scale nature and time constraints. A potential issue with the results is reliability. If another researcher approached different taxi drivers or spoke to other stakeholders in the taxi industry, then the results may differ. However, the issues that were identified by the participants drew parallels with the literature and were considered valid.

A further limitation of this research is how much it can be generalised to other markets. As this research is specific to consumers and drivers in London the scope is limited, and therefore it would not be appropriate to assume that these issues are common to other cities. Nonetheless, lots of the issues discussed in the literature review section will mirror those of other cities. For example, regulatory problems in Washington D.C. (Ranchordás, 2014) are similar to those in London.

4. Findings

This section reports findings of the research that has been conducted. This is derived a) from customer survey data (8 questions - see Appendix 1), b) from seven themes extrapolated from driver interviews (see Appendix 4), and c) from personally researched secondary data. For each of the interview themes a minimum of two (but more often three) drivers raised relevant issues. Findings are organised as follows. Firstly, details on how the London taxi industry has been effected by Uber is focused on using secondary data only (4.1). After this the scope is narrowed. Impact on the consumer is demonstrated via results from the questionnaire (4.2) and then impact on Black Cab drivers is discussed using evidence from interviews and from secondary sources (4.3). Finally, using further secondary data and further evidence from driver interviews, additional impacts on the industry (self-employment, crime and regulatory issues) are explored (4.4).

4.1 Changes in the London taxi industry as a result of Uber

London is one of the most important business and tourist destinations in the world, with a large population spread over a wide area. As a result of this, consumers rely heavily upon London's infrastructure, and expect the smooth running of transport at all times. The market for taxis is huge, with a total of 85,000 Black Cabs and PHVs. This equates to more than a quarter of the total number of registered taxis in England (DfT, 2015). Decades ago the market would have comprised Black Cabs only, though recent years have seen the market disrupted, first by minicabs and subsequently by Uber.

4.1.1 The number of taxis

The influx of Uber has led to an increase in the supply of workers in the taxi market (see Figure 1). Data acquired by the Department for Transport (2015) shows that the number of taxis (Black Cabs) has stayed relatively constant over the past decade (an 8% increase between 2005-2015). On the other hand, the number of Private hire vehicles (PHVs) has had significant growth over the period (an increase of 57%), most significantly the growth of almost 13,000 cars between 2013 - 2015. This was at a time when Uber was beginning to expand in London (Knight, 2016) but also the number of minicab companies were decreasing (Davidson, 2015a). Uber therefore accounted for the rise in the number of PHVs and not the minicabs.

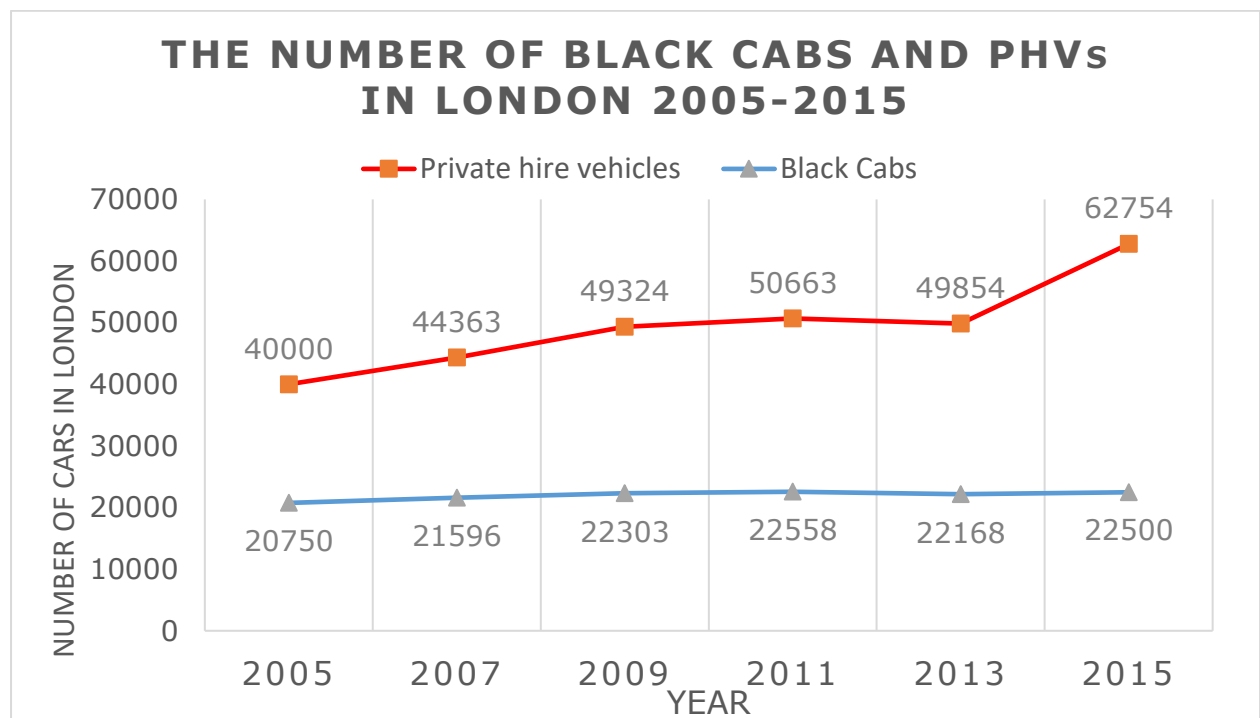


Figure 1: The number of Black Cabs and PHVs in London 2005-2015 (Source: DfT, 2015)

4.1.2 The market price

Uber's entrance into the market through the use of new technologies has shifted the demand and supply of taxi drivers (see Figure 2). This has moved the market equilibrium, in turn having an impact on price and causing this to fall.

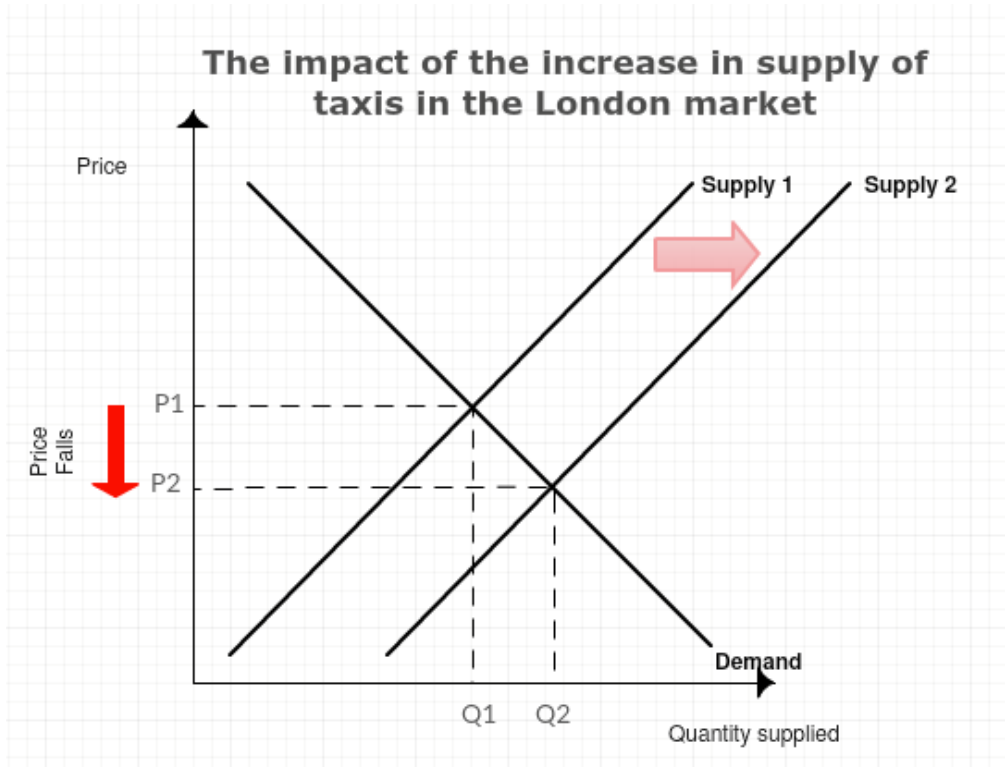


Figure 2: Shift in the supply of the taxi market

Uber's penetration pricing has succeeded in undercutting competitors, causing them to lose money in the short-term but focused on reducing market competition in the long-term. There are claims that the price that passengers are paying is only 41% of the actual cost of the trip, which is dependent on subsidies provided by investors (Kaminska, 2016). This has adverse implications for competitors as they are unable to compete with this price, mainly because they do not have the substantial financial backing that Uber has. This is clearly problematic for present incumbents, and a substantial increase in car supply has reduced the amount of business that drivers can obtain.

4.1.3 Technology

The gig economy has forced incumbents to introduce more technology into the industry. Every Black Cab now accepts credit and debit cards as well as contactless payments (TfL, 2017a), making the Black Cab more accessible for consumers who do not carry cash. Additionally, 'My Taxi' and 'Hailo' (two ride hailing apps for the Black Cab) have recently merged in order to increase market share, thus creating Europe's largest taxi app. This should increase their economies of scale, allowing the Black Cab to compete more effectively with Uber on these platforms. In times of rapid change and the ever-increasing use of smartphone applications to purchase services, movements towards more technology should allow incumbents to reduce their costs and compete more effectively with Uber.

4.2 How Uber is affecting taxi consumers

This section details findings from questionnaires administered to consumers. Uber's entrance to the market has brought about mixed reactions. Some consumers now have loyalty to Uber, whereas others

dislike the corporation and will go out of their way to avoid it, continuing to use the Black Cab as they try to preserve it (see Figure 3). Uber is asking questions of the Black Cab and forcing it to compete, which in turn is providing benefits for consumers.

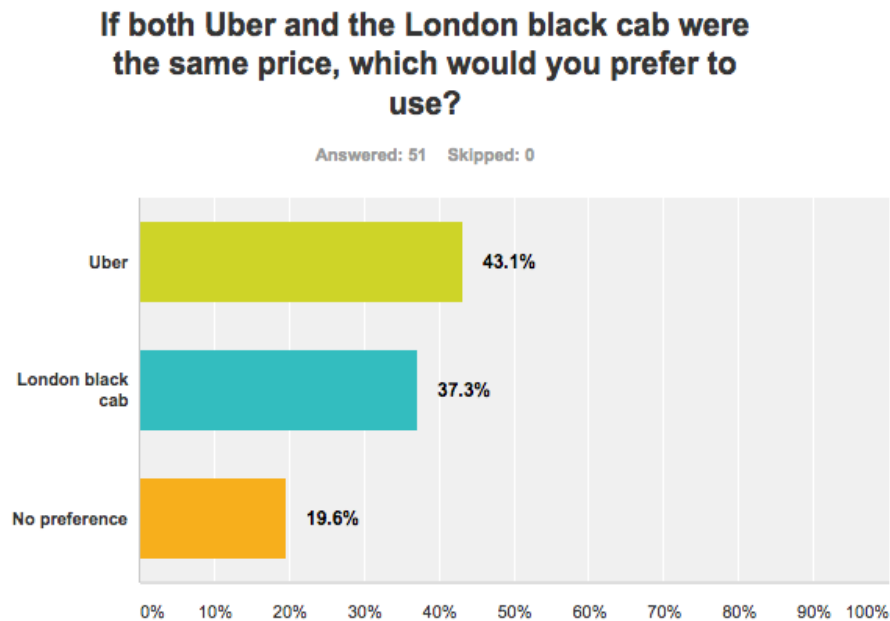


Figure 3: Consumer preferences when price is the same

4.2.1 Consumer preferences

Research conducted with consumers of taxis in central London found that 60.8% of participants used the underground most frequently, whereas only 5.9% used taxis most frequently (see Figure 4). 47.1% of participants use a taxi 21 times or more annually, showing that the taxi is still used fairly often even if it is not the most common mode of transport.

Which mode of transport do you use most frequently in London?

Answered: 51 Skipped: 0

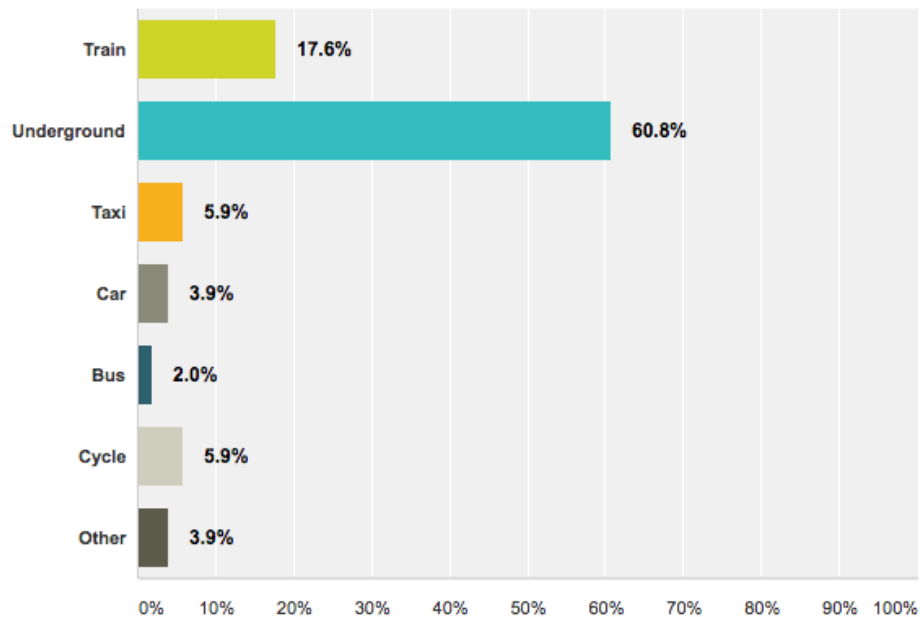


Figure 4: Consumer preferences of London transport

18 out of the 31 participants who use the underground most frequently also stated that price was most important to them when choosing a taxi (58%). This shows that consumers who most frequently use the underground may avoid the taxi as it is the most expensive alternative to travelling around London. The introduction of the night tube and Uber may have impacted these statistics as there is now more choice for affordable transport in the early hours of the morning. This has had a positive impact on consumers as they have more options to choose from.

Of the total 51 participants surveyed, 76.5% had used Uber in the past and 68.6% had used Black Cabs (participants were able to select that they have used both). This data demonstrates that consumers have been willing to try out Uber as a new concept, but it may also imply that Uber have created a new market of taxi consumers and not just taken custom away from Black Cabs.

4.2.2 Price

One clear impact that Uber has had on the taxi industry is to drive down the price that consumers can expect to pay for a taxi. This, according to present findings, is the most important factor when choosing a taxi (see Figure 5). This is beneficial to Uber as they are the cheapest provider in the market (Noulas et al., 2017) and so consumers are likely to be attracted to use them.

When choosing a taxi, which of the following is most important to you?

Answered: 51 Skipped: 0

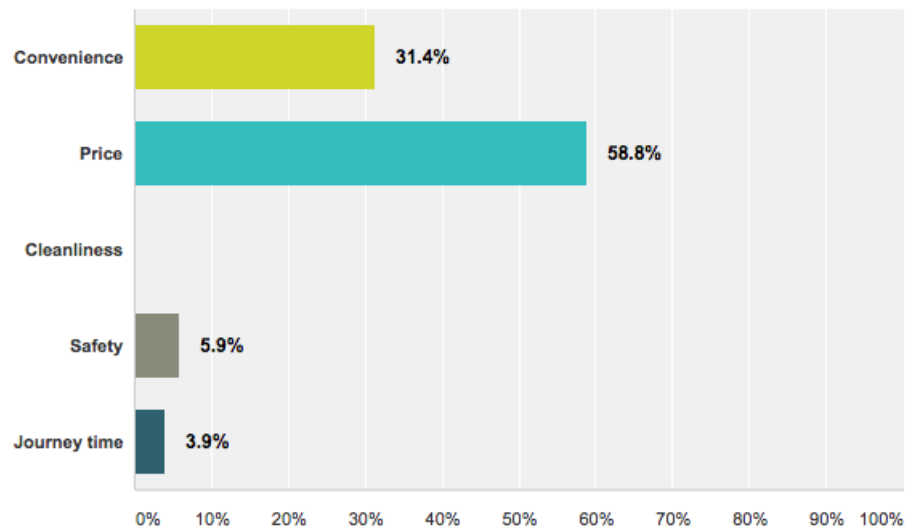


Figure 5: Consumer preferences when choosing a taxi

Data from Transport for London (2016), shows that a 13-minute, 1-mile trip in a Black Cab can cost up to £9. In comparison, data from the Uber app show that this same trip with Uber would cost around £5.70, providing the same service for less than two thirds of the price (supported by Noulas et al., 2017). This is changing consumers' perceptions of how much a taxi should cost and could make them avoid the Black Cab for being considerably more expensive. This has in turn impacted the Black Cabs as they are now comparatively expensive and, as revealed in interviews, consumers now think that the Black Cab is overpriced and believe that the fare should be lower.

4.2.3 Convenience

Price is not the only reason why consumers use Uber however. Participants were asked 'If Uber and the London Black Cab were the same price, which would you prefer to use?' 43.1% answered "Uber", compared to 37.3% answering with the Black Cab (see Figure 3). Although this is not a significant difference, it does suggest that consumers like the concept of Uber as well as the company's pricing (Cohen and Kietzmann, 2014). The fact that consumers can order an Uber; that it will arrive in a matter of minutes; and that they can see that it is coming towards them on a map, is more convenient for many customers (31.4% of participants stated as being the most important factor when choosing a taxi; see Figure 5). This has resolved the issue of having to wait for long periods when calling a traditional minicab company and/or not being able to find a Black Cab to hail.

4.2.4 Competition

70.6% of participants believed that the introduction of Uber has increased the overall quantity of taxis in London (see Figure 6). This opinion is reinforced by earlier findings (DfT, 2015). The impact of this has

several implications for consumers, meaning that it should be more convenient and quicker to find a taxi due to more being readily available. It also means that there are more options for the consumer; for example, if consumers choose to travel in comfort they can request an UberEXECUTIVE. On the other hand, the increase in the number of taxis and minicabs could cause more congestion which would in turn increase journey times and probably fares also.

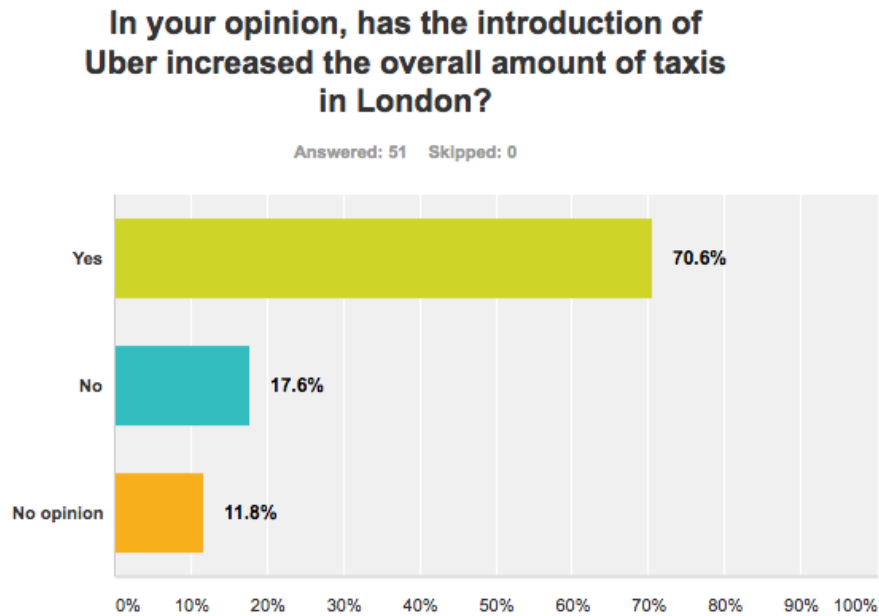


Figure 6: Increase in the number of taxis in London

4.2.5 Cleanliness

When consumers were asked what the least important factor was when choosing a taxi (see Figure 7), the majority answered with cleanliness (60.8%). This may not suggest that consumers are happy to sit in a dirty vehicle but instead that they prioritise all of the other factors (price, convenience, journey time and safety) above cleanliness, and that this hasn't emerged as an issue for them as yet. Out of the 30 participants that answered that price was the most important factor to them, 22 of these people also answered that cleanliness was the least important, showing clearly their priorities.

When choosing a taxi, which of the following is least important to you?

Answered: 51 Skipped: 0

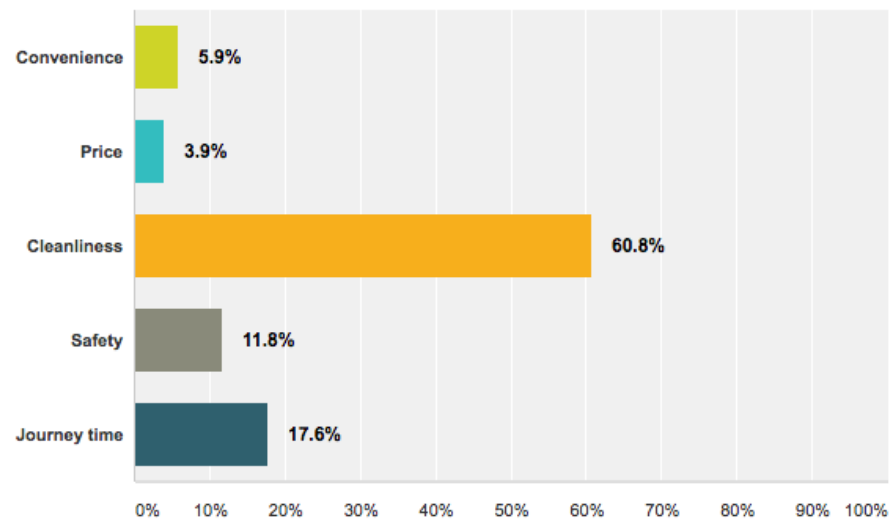


Figure 7: Consumer preferences when choosing a taxi

4.3 The impact on the London Black Cab

This section draws on some of the themes emerging from interviews with drivers (see Appendix 7) and from associated secondary data. Sub-sections 4.3.1 to 4.3.5 illustrate both the key issues that are impacting the Black Cab and what the drivers see as being the key issues with Uber. When interviewing each of the three drivers, what became immediately apparent was their frustration towards Uber. Their tone of voice and body language showed that they are exasperated by the fact that Uber is impacting their trade so significantly. All participants initially were reluctant to offer insights, however as the interviews progressed they became more expressive and explained their irritations.

4.3.1 The erosion of business

Each of the participants drew reference to the fact that Uber is taking their business away. One driver angrily stated “we are going out of business, there is just no work” (Participant 1). This is because Uber is able to undercut them on price, and many consumers are now waiting for an Uber when they would otherwise be hailing a Black Cab (supported by Zervas, Proserpio and Byers, 2015). This in turn is impacting levels of pay for Black Cab drivers. Survey participants claimed a reduction of between 30-60% on their wages, though it is worth noting that there are currently no published statistics to substantiate this.

4.3.2 Choice of cars

A further frustration for the participants was that Uber drivers are able to choose from cars that are half the purchase price of a Black Cab. To buy a new Black Cab the capital cost would be almost £43,000 (The London Taxi Company, 2015) compared to a Toyota Prius (the most common car used by Uber drivers) costing £24,000 (Toyota, 2016). In addition to this, the Prius has far lower running costs (better

fuel economy and less road tax) than a Black Cab. This has the net effect of there being far higher running costs for Black Cab drivers compared to Uber drivers.

4.3.3 Congestion increase

The Black Cab drivers also claim that congestion has increased since the introduction of Uber, especially in areas that are popular for taxis such as Covent Garden (Participant 1) and Shaftesbury Avenue (Participant 3). From Figure 1, it is clear that there has been a significant increase over the past decade in the amount of PHVs in the market. This is obviously having an adverse effect on the Black Cab of not only taking away their trade due to increased supply but also burgeoning congestion. One driver explained that customers were getting out of his vehicle and walking the rest of the journey because the congestion was so severe. Participant 2 added that “when there is traffic no one gets in a taxi either”, showing the impact that congestion is having on their trade. However, they add that Uber is not solely to blame, stating that road closures, an increase in the amount of cycle lanes and more cars on the road are also factors that impact their trade significantly.

4.3.4 Journey time

Noulas et al., (2017) conducted research into the differences in price and journey times around London. They concluded that Black Cabs were faster, taking on average 88% of an Uber’s journey time. On the other hand, the research also found that an Uber would cost on average 74% of the price of a Black Cab to operate. The difference in time may not be as a result of the Black Cab driver having a better knowledge of the streets and then choosing a faster route, but instead it could be because the Black Cab is able to use bus lanes whereas Uber is not. It is suggested that instead of the knowledge test Black Cab drivers could use a ‘sat nav’, and because they are able to use the bus lanes their journey times would be even quicker. This could reduce one of the barriers that it takes to be successful as a Black Cab driver and may also make it easier for them to compete with Uber.

4.3.5 The knowledge test

When questioned about whether the knowledge test was outdated all three participants were very defensive. Participant 1 stated that it is now “too easy, far too easy”. The participants clearly pride themselves on the knowledge test that gives them superior understanding of the London topography. This enables them to navigate through the streets quickly and arguably allows for more efficient routes to be used. The knowledge test is nonetheless a barrier to entry, and this can be seen as both beneficial and disadvantageous. It is hugely time consuming as well as expensive to pass (a view shared by Participant 2). However, once passed, it is looked upon fondly and sets London Black Cabs apart from the rest of the competition in terms of quality. However, Noulas et al’s., (2017) findings somewhat contradict the Black Cab drivers’ opinions, showing that the difference in journey time is actually relatively slim (12%), and that the Black Cabs perception of being considerably faster than Uber is not entirely correct.

4.4 Additional impacts on the taxi industry

As well as the factors identified thus far in this article, there are several more issues that are important to address. These draw further on the themes emerging from interviews (see Appendix 7) and, as with 4.3 above, are further supported by secondary data. These issues are classed as negative externalities deriving from the gig economy, and have caused controversy in London since 2012.

4.4.1 Self employment

The past decade has seen increasing self-employment in the UK (Parliament, 2015). The gig economy is responsible for some of this growth given the ease and attractiveness of working with online platforms. It is far more simple to become freelance and work as 'self-employed', and this allows workers the flexibility to "work as much or as little" (Uber driver¹) as they want (supported by Hall and Krueger, 2015). This may be very useful for an older semi-retired worker, as they can work as much as they wish. However, for a younger worker with a family to support this may prove problematic. The gig economy provides few structural benefits, and neither holiday pay nor job security exist (Dokko, Mumford and Schanzenbach, 2015).

4.4.2 Crime

One of the key themes identified from interviewing Black Cab drivers was that amount of crime in the taxi industry, particularly sexual assaults, has increased since the emergence of Uber (Participants 1 and 2). The Black Cab drivers claim that it is far less safe to travel in an Uber as cars are not subjected to the same rigorous checks as theirs. Secondary data from the Metropolitan Police (2016) confirms an increase in the number of sexual assaults in the period 2011-2015 of 18.9% (20 more cases). However, crime overall for this period reduced by 16% suggesting there were a wide range of issues at play and that Uber's emergence may be coincidental.

4.4.3 Regulatory issues

The issue of regulation was highlighted by Black Cab participants. Their argument is that it is unfair that they have to "jump through hoops for TfL" (Participant 3), whilst Uber is able to enter their market with very few barriers and negatively to influence their trade (Ranchordás, 2014). Black Cabs want to see more restrictions put in place to help preserve their trade. A minimum call out time of 5 minutes for PHVs, for example, would hinder Uber and may push more consumers to hail a Black Cab instead.

Secondly, the Black Cabs want a minimum standard of English for minicab drivers, which would prevent those who cannot speak the language adequately annoying and confusing passengers, as well as reducing the poor driving that results from a lack of local road sign understanding. In response, in March 2017, the UK high court imposed minimum language standards (Murgia, 2017). Naturally, Uber

¹ Uber driver interviewed on Newsnight, BBC 2, 27th Jan 2017

is arguing against this and wants to see deregulation in the taxi industry generally to assist its current growth (Moore and Balaker, 2006).

5. Conclusion

The purpose of this article was to investigate how Uber has impacted the London taxi industry. Three research questions were developed from this:

- How has the London taxi industry changed as a result of Uber?
- What impact has Uber had on taxi customers?
- How has the London Black Cab been impacted by Uber?

A lot has been said in the media since Uber's entrance in 2012 about the effect that Uber is having on stakeholders of the taxi industry (Chakraborty, 2016; Hellier, 2016; Fleisher, 2014), much of which is negative. However, a significant number of these articles are based on opinion or anecdote. By contrast this article has delivered empirical evidence through which to evaluate some of these claims.

After conducting a critical literature review on the subject it was found that innovative growth in taxi markets was leading to disruption; affecting existing operators and consumers alike (Morse, 2015; Zervas, Proserpio and Byers, 2015; Christensen, Birnbaum and Raynor, 2015; Chen, Mislove and Wilson, 2015). Evidence was gathered to evaluate these claims via two complementary surveys; a questionnaire to secure consumer opinions and interviews with Black Cab drivers to ascertain how Uber has impacted their industry. This research adds to current literature by analysing and reporting on the views of these two stakeholder groups. This report is concluded by summarising the answers to each of the research questions, as well as acknowledging the research limitations.

5.1 Changes in the London taxi industry resulting from Uber

As a result of Uber's entry into the London taxi market, the number of PHVs increased by 13,000 cars between 2013 - 2015, thus causing a significant rise in competition in the market. Consequently, this has led to a reduction of the price charged to customers. This article also found a shift in the use of technology, whereby incumbents are trying to compete with the new entrant by adopting similar technologies for card payments and using apps for taxi requests.

5.2 The impact on consumers

Questionnaire analysis found that price is the most important factor when choosing a taxi for 58.8% of consumers. This indicates why Uber is so successful in London, as the company is cheaper than the Black Cab. Convenience was also a factor identified as being important, with 31.4% of consumers saying this was the most important factor for them. Consumers believe that the introduction of Uber has increased the number of taxis in London and that, consequently, there is more choice when a taxi is required. This may also come with the cost of increased congestion though, impacting journey time, but Uber is mainly perceived as positive by consumers as there is more choice, as well as a lower market price.

5.3 The impact on the London Black Cab

Firstly, Black Cab drivers have been left frustrated by the new entrant in the market. Uber has undercut them when it comes to price, and this has led to erosion of the amount of business that they obtain as well as increasing the amount of congestion on roads.

Secondly, this article found that whilst the Black Cab has shorter journey times than an Uber, this was not significant (Noulas et al., 2017). Whether this small difference warrants a 2-year knowledge test is highly debatable, but Black Cab interviewees strongly believe that it is still necessary.

Thirdly, regulation is causing problems in the market given that the Black Cab is subject a set of rules that Uber is able to bypass. These result in Uber drivers having far lower running costs for their vehicle and means they are able to keep a higher proportion of their fares. Regulation needs to be addressed to ensure the future of a key part of London's heritage whilst also encouraging fair competition for new entrants.

5.4 Limitations and recommendations for further research

A key limitation to this project was the lack of data about Uber (Chen, Mislove and Wilson, 2015). There are no exact figures to indicate how many cars the company has in London, nor is there information on the amount of revenue that is being generated from fares. This hindered the ability to ascertain the exact impact that Uber has made on the market.

Another constraint of this project is time. If there were a longer period in which to conduct the research, it would have allowed for a larger sample size, which would improve generalizability and enhance validity of these results. Sample sizes are however justified given the nature of this project.

Further research into the effect that regulation has on consumers as well as Black Cab and Uber drivers would be beneficial. It would allow an evaluation of what could be done to make the market more equitable. This would prove a useful follow up from this research project now that the impact on these stakeholders has been assessed.

A qualitative approach to consumers' views may be beneficial (e.g. focus groups or interviews), as many unexplained patterns were observed in the data. However, although it may have been of use, it was not possible to explore the consumer rationale as time and resources were limited. However, this would be beneficial for future studies.

The gig economy is growing at an exponential rate globally. Despite how current the topic is though, there is a relatively small amount of research in the field and this doesn't yet cover the full complexity of the various issues. It is hoped that this research project will prompt further research into the impact that the gig economy is having on different markets across the globe.

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7. Appendices

7.1 Appendix 1: Consumer questionnaire questions

1. Which mode of transport do you use most frequently in London?

- Train
- Underground
- Taxi
- Car
- Bus
- Cycle
- Other

2. In the past 12 months, approximately how many times have you used a taxi?

- I haven't used a taxi in the past 12 months
- 1-5 times
- 6-10 times
- 11-15 times
- 16-20 times
- 21-25 times
- 26 and above

3. Which of the following have you used in the past?

- Uber
- London black cab
- Mini cab
- None of the above

4. When choosing a taxi, which of the following is most important to you?

- Convenience
- Price
- Cleanliness
- Safety
- Journey time

5. When choosing a taxi, which of the following is least important to you?

- Convenience
- Price
- Cleanliness
- Safety
- Journey time

6. If both Uber and the London black cab were the same price, which would you prefer to use?

- Uber
- London black cab
- No preference

7. In your opinion, which is most likely to get you to your destination the quickest?

- Uber
- London black cab
- No opinion

8. In your opinion, has the introduction of Uber increased the amount of taxis in London?

- Yes
- No
- No opinion

7.2 Appendix 2: Interview structure for Black Cab driver research

Adapted from Keats, 2000

<p>Stage 1- Opening phase</p>	<ul style="list-style-type: none"> • Approaching the taxi drivers and asking them if they would be willing to take part in research. • Establishing research credentials- Handing the participant a participant information and consent form, to give them all of the relevant information and to allow for informed consent. • Introducing the methods to be used- explaining to the participant that the interview would be recorded on a digital recording device.
<p>Stage 2- Interview questions</p>	<ul style="list-style-type: none"> • Open questions were asked to the participant. • The first questions were general, and moved on to specific points. • The questions concluded by asking if there were any other issues that were appropriate, which allowed the participant to talk about anything that they may have missed out.
<p>Stage 3- Closing the interview</p>	<ul style="list-style-type: none"> • The participant is thanked for their help in the research and casual talk about general topics were discussed to leave the participant with a sense of satisfaction. • Researcher details were handed to the participant and they were briefed that if they wished to withdraw from the research at any point they were able to.

7.3 Appendix 3- Black Cab interview questions

1. How has Uber affected the black cab?
2. What are the key issues with Uber?
3. Do you think that the black cab needs to change to compete with Uber?
4. Do you think that the 'knowledge test' is outdated?
5. In your opinion, has the introduction of Uber affected the pay levels of black cab driver?
6. Are there any other aspects of Uber that you consider to have had an impact on black cabs?

7.4 Appendix 4: Thematic analysis of Black Cab driver interviews

Themes		Interview quotes
Theme 1	Claims that Uber is taking business away from the Black cabs.	<p>"We are going out of business, there is no work." (Participant 1)</p> <p>"It's just taken a big chunk of the work that we do." (Participant 2)</p> <p>"Because they've been given a chance to come in and take business but really they shouldn't have been given a license." (Participant 3)</p>
Theme 2	Drivers claiming that congestion has increased.	<p>"They've flooded the market they are on every corner we can't get around town because they are everywhere. So if you go to Covent Garden at night, you can't move cos they are parked outside of every nightclub waiting for their phones to bleep". (Participant 1)</p> <p>"The traffic increase." (Participant 2)</p> <p>"It's added traffic to get to places where we would normally get jobs. When you are trying to get into Shaftesbury Avenue, the traffic increase has been massive cos there's loads of Uber's trying to get in as well." (Participant 3)</p>
Theme 3	All drivers were defensive about the knowledge test.	<p>"No, not at all. I think it's too easy now. Far too easy." (Participant 1)</p> <p>"No." (Participant 2)</p> <p>"You will get lost in London or you will take someone on the wrong route if you don't know the streets that well and that intimately. No I don't</p>

		<p>think it should be easier, I think if we're going to keep providing a great service to London then it needs to be like that." (Participant2)</p> <p>"No, because I know when I go somewhere, how to get into a different intricate part of London and I know where places are." (Participant 3)</p>
Theme 4	Black cabs claiming that their pay level has decreased.	<p>"No money, 60% down on our wages, easy."</p> <p>"We're losing money left, right and centre, from every angle!" (Participant 1)</p> <p>"I think so" (Participant 2)</p> <p>"Yeah, it has impacted, it has changed. I'd say probably about a 30% reduction." (Participant 3)</p>
Theme 5	Poor quality of driving from Uber drivers.	<p>"Regularly, on a daily basis, I'll see an Uber driver going up a one-way street the wrong way because their satnav tells them to do it." (Participant 1)</p> <p>"The quality of their driving – it's shocking." (Participant 2)</p>
Theme 6	Uber is able to get around rules and regulations where the Black Cab is not	<p>"I drive a vehicle that I have to drive. I can't pick and choose like they can." (Participant 1)</p> <p>"They seem to get around every rule and regulation that we can't." (Participant 2)</p> <p>"Therefore, we've been undermined by the people who really put us here in the first place. TFL ask us to jump through hoops to get our license and then they've undermined our trade" (Participant 3)</p>
Theme 7	Claims that Uber drivers sexual assault passengers.	<p>"I said be careful because you could end up being sexually assaulted and this, that and the other! He said the driver did actually ask her out." (Participant 1)</p> <p>"I've heard about sexual assaults but I've never seen anything." (Participant 2)</p>

Note: not all participants passed comment on each theme.