Case – Candidate Preparation Materials

This document is intended to help prepare you for the case portion of a McKinsey & Company interview. While interviewers at McKinsey have a good deal of flexibility in creating the cases they use in an interview, we believe that the following case is a good example of the type of case many of our interviewers use.

The example below is set up to teach you how to approach a typical case. The italicized sections are descriptions or instructions to help you navigate through this document. The words in plain bold font are the descriptions and questions an interviewer may give to you during the interview. The sections in regular (non-bold) font are possible answers.

Example Case: <u>Great Burger</u>

Context

The interviewer will typically start the case by giving a brief overview of the context, ending with a question that is the problem definition. At the end of the description you will have an opportunity to ask any questions you might have to clarify the information that has been provided to you.

Our client is Great Burger (GB), a fast food chain that competes head–to-head with McDonald's, Wendy's, Burger King, KFC, etc.

GB is the fourth largest fast food chain worldwide, measured by the number of stores in operation. As most of its competitors do, GB offers food and "combos" for the three largest meal occasions: breakfast, lunch and dinner.

Even though GB owns some of its stores, it operates under the franchising business model with 85% of its stores owned by franchisees (individuals own & manage stores, pay franchise fee to GB, but major business decisions e.g., menu, look of store controlled by GB).

As part of its growth strategy GB has analyzed some potential acquisition targets including Heavenly Donuts (HD), a growing doughnut producer with both a US and international store presence.

HD operates under the franchising business model too, though a little bit differently than GB. While GB franchises restaurants, HD franchises areas or regions in which the franchisee is required to open a certain number of stores.

GB's CEO has hired McKinsey to advise him on whether they should acquire HD or not.

Questions

In most McKinsey & Company cases the interviewer will guide you through the case with a series of questions that will allow you to display a full range of problem solving skills. Below is a series of questions and potential answers that will give you an idea of what a typical case discussion might be like.

<u>Question 1</u>. What areas would you want to explore to determine whether GB should acquire HD?

A good answer would include the following:

There are a number of things I would want to look at here:
–I would want to consider what the value of Heavenly Donuts would be to Great Burger.
–I would also want to look at the strategic fit of the companies. Do they complement each other? Can they achieve further benefits (or synergies) from combining their operations?

A very good answer might also include the following:

–I would want to look at the cultural similarities/differences, to see if the management/employees of the companies would fit in well together
–I would like to have a sense of how well positioned GB is to execute a merger with another company. Have they done this before, for example.

You may choose to dive deeper into some of these issues, of your interviewer may ask you to do this, for example:

To understand the value of HD to GB, I would want to look at a number of things
–Growth in market for doughnuts
–HD's past and projected future sales growth (break down into growth in number of stores, and growth in same store sales)
–Competition – are there any other major national chains that are doing better than HD in terms of growth/profit. What does this imply for future growth?
–Profitability/profit margin
–Investment required to fund growth (capital investment to open new stores, working capital)

Question 2. The team started thinking about potential synergies that could be achieved by acquiring HD

Here are some key facts on GB and HD.

Stores	GB	HD
• **Total**	5,000	1,020
– **North America**	3,500	1,000
– **Europe**	1,000	20
– **Asia**	400	0
– **Other**	100	0
• **Annual growth in stores**	10%	15%

Financials	GB	HD
• **Total store sales**	$5,500M	$700M
• **Parent company revenues**	$1,900M	$200M
• **Key expenses (% sales)**		
– **Cost of sales***	51%	40%
– **Restaurant operating costs**	24%	26%
– **Restaurant property & equipment costs**	4.6%	8.5%
– **Corporate general & administrative costs**	8%	15%
• **Profit as % of sales**	6.3%	4.9%
• **Sales/store**	$1.1M	$0.7M
• **Industry average**	$0.9M	$0.8M

*Variable costs, mostly food costs

What potential synergies can you think of between GB and HD? For your information, a synergy is an area where additional benefits can be captured over and above the sum of the two companies (such as cost savings or additional revenue).

A good answer would include the following:

There appear to be opportunities in cost savings and in revenue gains.

In cost savings:
– There may be an opportunity to save on General & Administrative Expenses through combining management locations/functions
– There may be decreased Cost of Sales (per unit) because the companies are purchasing greater volumes together

In revenues:
– Additional sales can be achieved through selling Donuts in GB stores
– Also GB have a greater global presence which HD could leverage in order to grow outside the US

A very good answer might also include the following:

– GB appear to manage their property and equipment costs better, which means that they may be able to transfer this skill to HD
– Since GB has greater Sales per Store, they may have better skills in finding good locations for stores, and could transfer this skill to HD
– Since GB is bigger, it probably has more investment capital available to help HD grow at a more rapid rate.

Question 3. The team thinks that, with synergies, it should be possible to double HD's US market share in the next 5 years, and that GB's access to capital will allow it to expand number HD of stores by 2.5 times. What sales per store will HD require in 5 years in order for GB to achieve these goals? You should assume:

- **Doughnut consumption per head in the US is $10/year today, and is projected to grow to $20/year in 5 years**
- **For ease of calculation, assume US population is 300M**
- **Use any data from the earlier table that you need**

A good answer is as follows:

HD will require a sales per store of $1.2M
– Today's market share is $700M/$3B = ~25%. *This is available from the earlier table, and you are encouraged to make sensible, round estimates in a calculation.*
– Expected US market in 5 years = $20 *300M = $6B
– If HD double today's market share, the will have a market share of 50%, so their sales will be 50% x $6B = $3B
– They are also expect to have 2,500 stores (= 2.5 x 1,000)
– So sales per store = $3B / 2,500 = $1.2M
A very good observation to make is that this seems like a realistic growth target, because we are requiring stores sales to less than double, while we already know that per head consumption of donuts is likely to double.

Question 4. **One of the synergies that the team thinks might have a big potential is the idea of increasing the businesses' overall profitability by selling doughnuts in GB stores. How would you assess the impact of this move on overall profitability?**

A good answer is as follows:

I would try to work out the incremental impact this move would have on profits. To do this I would:
– Calculate the incremental revenues we would get from selling donuts in GB stores (how many, at what price, etc)
– Calculate the additional incremental costs that would be incurred from doing so (for example, additional staff, additional training, additional marketing, additional distribution and purchasing costs)
– I would also look at the additional store investment we would have to make (for example, extra space, new equipment, etc).

A good answer would also include:

–We should also investigate if the additional donut sales would mean lower sales of traditional GB products. For example, breakfast products might be affected as many people have donuts for breakfast. *In case you are unfamiliar with the term, this concept is known as "cannibalization".*

Question 5. **What would be the incremental profit per store if we think we are going to sell 50,000 doughnuts per store at a price of $2 per doughnut at a 60% margin with a cannibalization rate of 10% of GB's sales? Note that the cannibalization rate is the percentage of GB products which we think will not be sold because they have been replaced by donut sales. Here is some additional information which will help you:**

Current units of GB sold per store   300,000
Sales price per unit $3 per unit
Margin   50%

A good answer is as follows:

There will be $15,000 incremental profit per store:
– Donut sales will bring in an additional $60,000 in profit ($2 price x 50,000 x 60% margin)
– However, we will lose $45,000 in the original profit from GB sales (10% cannibalization rate x 300,000 products x $3 price x 50% margin).

Question 6. You run into the CEO of GB in the hall. He asks you to summarize McKinsey's perspective so far on whether GB should acquire HD. Pretend I am the CEO - What would you say?

A good answer would include the following:

Early findings lead us to believe acquiring HD would create significant value for GB, and that GB should acquire HD
− US Growth targets seem achievable given the expected growth in Donut consumption in the US
− There are other opportunities to capture growth from international expansion of HD
− We also believe there are other potential revenue and cost synergies that the team still needs to quantify.

A very good answer might also include the following:
− We believe HD can add $15k in additional profit per GB store simply by selling donuts in GB stores. This represents a ~25% increase in store profit from this move alone
− We will also provide you with recommendations on the price you should pay for HD, as well as any things you need to think about when considering integrating the two companies.

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Example Case: <u>Magna Health</u>

Context

The interviewer will typically start the case by giving a brief overview of the context, ending with a question that is the problem definition. At the end of the description you will have an opportunity to ask any questions you might have to clarify the information that has been provided to you.

> **Our client is Magna Health, a health care company in the Midwest. It both insures patients and provides health care services. Employers pay a fixed premium to Magna for each of their employees in return for which Magna covers all necessary health services of the employee (ranging from physician care, and medications to hospitalization)**
>
> **Magna currently has 300,000 patients enrolled in its plan. It has 300 salaried physician employees who provide a broad range of services to patients in 6 centers. These physicians represent a wide range of specialty areas, but not all areas. When a patient needs medical treatment in a specialty area not covered by a Magna physician, they are referred outside of the Magna network for care, and Magna pays all referral costs on a fee-for-service basis. Magna doesn't own any hospitals itself, instead contracting services from several local hospitals.**
>
> **Over the past six months, Magna has been experiencing declining profitability. Magna's CEO has retained McKinsey to help determine what is causing the problem and how Magna might fix it.**
>
> **How can Magna Health improve its financial situation?**

Questions

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Question 1. What key areas would you want to explore in order to understand Magna's decline in profitability?

A good answer would include the following:

I would want to consider Magna's revenues and costs (variable and fixed). In thinking about Magna's main cost components – I would want to consider administrative (or non-medical) and medical costs (e.g. hospital, drugs, outpatient care)

A very good answer might also include the following:

You may choose to dive deeper into the different costs, for example:

Outpatient costs could be further split into internal physician costs versus external referral costs.

Or you may decide to explore other factors that affect cost, for example:

I would also want to understand how Magna's patient base demographics/overall risk profile might affect medical costs

Question 2. After reviewing the basics of Magna's business, your team believes that one of the root causes of Magna's financial problems is how it manages medical costs, particularly the cost of referrals to specialists outside its physician network.

Your team has gathered the following information on Magna and its primary competitor, Sunshine HMO:

	Number of patients	**Average cost of referral (per member per month)**
Magna Health	300,000	$20
Sunshine HMO	500,000	$15

What are the most likely reasons that the average cost of referral at Magna is higher than at Sunshine? Remember you should feel free to offer hypotheses and ask questions to clarify this information.

A good answer would include the following:

<u>Referral Pricing</u>. Magna might be paying more than Sunshine for specialist services (e.g., its outside contracts with oncologists might be at higher rates than Sunshine's contracts).

<u>Number of referrals</u>. Magna's physicians might have different practice patterns than Sunshine physicians, i.e. they may be less comfortable treating heart disease patients or have different training/ protocols.

A very good answer might also include the following:

<u>Mix of specialties</u>. Magna's mix of specialties that require referrals (cardiology and neurosurgery) are probably more expensive specialties (than cardiology and psychiatry, Sunshine's referral specialties).

Mix of patients. Magna has sicker or older (>65) patients (individuals over 65 are more likely to need medical care in the specialty areas outside of Magna's network, particularly cardiology).

Question 3. **Magna's CEO has a hypothesis that Magna is paying too much in cardiology referral costs for its patient population. He asks the McKinsey team to look at Magna's cardiac patient population more closely and tell him how many referrals he should expect on an annual basis. Assume the following:**

> **- Magna has 300,000 patients in any one year**
> **- 20% of its patients are age 65 or older**
> **- In the U.S. patients with serious heart disease visit specialists (cardiologists) on average 5 times per year**

At this point you should realize that you need to know the difference in prevalence rate (percentage of the population that has a disease at any one point in time) of serious heart disease in the 65 and over population and the less than 65 population. When you find that you need additional information or clarification of the information you have received, you should not hesitate to ask the interviewer. When asked, the interviewer would provide you with the following data:

> **- The prevalence rate of serious heart disease in the 65+ population is 30%**
> **- The prevalence rate of serious heart disease in the under age 65 population is 10%**

A good answer is as follows:

Magna should expect 210,000 cardiac referrals annually based on its patient population

> 300,000 total patients
> 20% x 300,000 = 60,000 patients age 65+
> 60,000 x 30% = 18,000 patients age 65+ with serious heart disease
> 18,000 x 5 = 90,000 referrals per year
> 240,000 Magna patients under the age of 65
> 240,000 patients x 10% = 24,000 patients under age 65 with serious heart disease and 24,000 x 5 visits per year = 120,000 visits per year total
> 90,000 + 120,000 visits per year = 210,000 total Magna patient external cardiology visits

Question 4. **When the team tells Magna's CEO that based on Magna's patient population he should expect about 210,000 cardiology referrals a year he exclaims, "We currently pay for 300,000 annual cardiology referrals for our patient population!"**

Why might Magna's annual cardiology referrals be significantly higher than U.S. averages?

A good answer is as follows:

The prevalence rate of heart disease in Magna's patient population is higher than average

The interviewer might ask a follow on question at this point:

Why would a physician refer a patient who does not have serious heart disease to a specialist?

A good answer would include the following:

Patients are demanding referrals

A very good answer might also include the following:

Primary care physicians are not comfortable (e.g., they are poorly trained or inexperienced) treating cardiac patients, even those with minor problems; they want to avoid malpractice suits

Magna doesn't have clear guidelines on when physicians should be referring patients to specialists (or if guidelines exist, physicians are not complying with them)

There are no incentives or penalties to prevent physicians from referring patients with less serious problems to specialists.

Question 5. After some additional investigation, your team thinks that changing the behavior of Magna's primary care physicians has potential to reduce cardiac referral costs while maintaining high quality care. The team believes that introducing some sort of incentive plan for physicians might help reduce the referral rate:

- The team's idea for a pilot plan is to increase overall fees that Magna pays to primary care physicians to handle more of their patients' basic cardiology needs. Overall fee increases would total $1million
- In addition to the team's proposal, Magna's Medical Director wants to pilot the following idea: Magna pays bonuses of $100,000 per year to each of the 10 primary care physicians with the lowest cardiac referral rates consistent with good patient outcomes.

Although the team mentions to the Medical Director that there are other issues to consider relating to the pilot that are not financial, such as the ethical impact of incentivizing physicians not to refer patients to specialist treatment, he wants the team to do the first calculation including both ideas:

Part A. How many fewer cardiology referrals will Magna need to have in order to recoup the cost of the pilot incentive plan (including the team's and the Medical Director's ideas)? For simplicity's sake assume:

> - The cost of a cardiology referral is $200
> - Magna currently has 300,000 cardiology referrals per year

A good answer is as follows:

If the incentive plan reduces cardiology referrals by 3.3% or 10,000 referrals, Magna will recoup the cost of the incentive plan. One potential approach to the calculation is as follows:

> $1 million + (10 * $100,000) = $2 million for incentive plan
> $2 million/$200 =10,000 referrals
> 10,000 referrals/300,000 total referrals = 3.3%reduction would pay for incentive program

Part B. Your team projects that the incentive plan has the potential to reduce referrals by 5% in its first year, and an additional 2% in its second year. If these projections are correct, how much referral cost could Magna save in total over the first two years of the incentive plan?

A good answer is as follows:

Referral costs would be $4.14 million lower in the second year. Over the two years Magna would save $7.14 million. One potential approach to the calculation:

Year 1 Savings with Program
300,000 total referrals
5% reduction in referrals =15,000 referrals
15,000 x $200 = $3.0 million in savings in year 1

Year 2 Savings with Program
285,000 total referrals
2% reduction in referrals = 5,700 referrals
5,700 x $200 = $1.14 million in savings
$3 + $1.14 = $4.14 million in savings

Total cumulative savings over 2 years = Year 1 + Year 2 savings = $3M + $4.14M = $7.14M

Question 6. Your team presents its physician incentive proposal to Magna's CEO. The CEO, in consultation with his Medical Director, agrees that this is feasible and says that they will definitely pilot the overall higher fees to primary care physicians to handle more of the basic cardiology needs and they will think about the idea with the bonuses again due to the ethical concerns the team raised.

At the end of the meeting the CEO says, "I like the work you've done, but even if we did implement the bonus payment it's not enough to address our current financial situation. Physicians are professionals who care deeply about patient care and I think there's a limit to how much cost we can expect to reduce utilizing financial incentives exclusively. Besides cardiac financial incentive programs, what other ideas should we consider to reduce the cost of Magna's specialist referrals?"

Based on what we have discussed today, and any other ideas you might have, how would you respond to the CEO?

A good answer would include the following:

I would pursue additional ways to change physician behavior.   For example:
- Provide training on how to treat patients with minor or stable medical problems
- Define and clarify medical guidelines for referrals (e.g., establish a medical committee to define the difference between "serious" and "minor" heart disease)
- Institute peer review committee charged with approving a subset of referrals (e.g., those that are considered "high cost,").

A very good answer might also include the following:

Other ideas outside of changing physician behavior might include:
- Spend time investigating "outlier" physicians (i.e., those who seem to refer patients to specialists at much higher rates than others) to determine how widespread the referral problem is and whether simply focusing on a few physicians will dramatically reduce referral costs
- Determine whether Magna can reduce referral costs in the other medical areas where it does not have specialists (i.e. neurosurgery)
- Look at the contracts Magna has for specialist services to determine if it is paying too much relative to competitors
- Consider whether bringing cardiology, neurosurgery, and oncology specialists in-house (i.e., within Magna) might reduce cost
- Educate patients
- Publicize physician referral rates

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Example Case: <u>Airport Taxi</u>

Context

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> **You are the operator of a taxi in New York City. You have just dropped off a passenger at LaGuardia Airport, which is approximately 12 miles from Manhattan – the centre of New York City. Taxis queue to pick up passengers at LaGuardia, so you have two choices – enter the two hour queue for a passenger, or leave the airport empty to go looking for a fare in Manhattan.**
>
> **Which option would you choose ("stay" or "leave"), and how would you decide?**

Questions

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Question 1: **Before getting into the details, what factors would you consider in making your decision?**

A good answer would include several of the following:

The profit on the airport fare ("stay" scenario) vs. the profit that could be earned from other passengers in the same amount of time ("leave" scenario).

Stay scenario:
 - The average length of an airport fare
 - Costs incurred on the airport fare
 - What you would do during the waiting time

Leave scenario:
 - The amount of time you would have to spend
     searching for a non-airport fare
 - The average length of a non-airport trip

A very good answer might also include the following:

In both scenarios
 - The difference between the "flag drop" charge (i.e., initial fare) and the run-rate fare
 - Tips, whether they are higher in-city or in airport trips
 - Distance, fuel efficiency in city driving versus highway driving, gas price
 - How close to shift end is the trip (if regulated by law)
 - Time of the day (rush hour or not)
 - Car ownership costs
 - Tolls
 - Relative risks, like heavy traffic, construction in some highway areas, stops due to speed or bumper-to-bumper highway accidents

Question 2: **Let's look at the two scenarios separately. How would you think about the "stay" scenario?**

You may find that you need additional information or clarification of the information you have received. You should not hesitate to ask the interviewer.

In this example, when specifically asked, the interviewer would provide you with the following data:

Time: Time in queue is 2 hours – learned from experience. Time from the airport to Manhattan is irrelevant, but it is **constant.** Average time spent searching for a passenger in Manhattan is **10 minutes**

Fare structure: **$4 for the 1st mile** or fraction thereof + **$2 per additional mile** or fraction thereof

Tips: The average passenger pays a tip of approximately **15% of the fare**

Tolls: Passenger pays all tolls (assume there is a **$3 toll** for any of the bridge/tunnel options between LaGuardia and Manhattan)

Distances: As discussed in case setup, **12 miles from Manhattan to LaGuardia** (and vice versa). Assume that airport-Manhattan passenger lives right off of the highway, so trip is exactly 12 miles. Average trip length downtown is 2 miles

Speed: Average speed from the airport to downtown is irrelevant, but it is **constant.** Average speed downtown, whether searching for or driving a passenger, is **12 mph**

Car ownership costs: The cab is leased by the driver from the cab company on a variable cost basis. Driver pays **50% of metered revenue** to the cab company with no opportunity to cheat.

In this example you make assumptions about the necessary values and use the numbers above for numerical simplicity.

A good answer would include the following:

Stay scenario:

 - **Time**. Total time incurred would be the wait time (given as two hours) plus the amount of time required to drive to Manhattan with the passenger. As specified in the case setup, the distance is twelve miles

 - **Metered revenue**. The cab's fare structure is $4 for the first mile of fraction thereof, plus $2 for each additional mile or fraction thereof. There are no charges for stopped/slow traffic, extra passengers or luggage. For this 12 mile trip the metered revenue is $26, which is $4+ (11x$2)

 - **Tip revenue.** At 15%, the tip would be $3.90, so the likely tip would be $4 – bringing total revenue to $30

A very good answer might also include the following:

 - **Fuel**. Assuming the cab, like most cabs, is a fairly large vehicle and be relatively old with lots of miles, which means that it would have mediocre fuel efficiency. For numerical simplicity, let's assume 24 MPG highway and 12 MPG city and that gas prices in NYC are approximately $2 per gallon. Because the engine doesn't run while

waiting in the queue, the cost of fuel for this trip is 12 highway miles / 24 MPG x $2 per gallon = $1

 - **Car ownership costs**. The cab driver leases the cab from the cab company on a variable cost basis. He must pay the cab company 50% of metered revenue, and there is no opportunity to cheat. For this trip, he would pay $13

 - **Tolls**. Customer pays the $3 so this has no impact on the driver. (If the passenger tips on the toll, it could increase the driver's tip revenue by ~50 cents)

Question 3: How would you think about the other scenario, where you leave the airport empty and go looking for passengers in Manhattan?

A good answer would include the following:

Leave scenario:

 - **Empty time**. Empty time would be the travel time trip to Manhattan. As specified in the case setup, the distance from the airport to downtown is twelve miles. It will depend on traffic also.

 - **Search time**. Once reaching Manhattan, there is no guarantee that the driver would find a passenger immediately

A very good answer would include the following:

 - **Trip distance.** Assuming the average (and vast majority) of trips originating in Manhattan are to other destinations in Manhattan, therefore will be an intra-Manhattan trip, probably less than 2 miles

 - **Revenue.** For each intra-Manhattan trip, the metered revenue would be $6 ($4 for the first mile and $2 for the second mile). A 15% tip would be $.90, so the passenger is likely to tip $1, bringing total revenue per intra-Manhattan trip to $7

 - **Fuel**. Assuming the cab, like most cabs, is a fairly large vehicle and be relatively old with lots of miles, which means that it would have mediocre fuel efficiency. For numerical simplicity, let's assume 24 MPG highway and 12 MPG city and that gas prices in NYC are approximately $2 per gallon. The cost of fuel to drive downtown empty is 12 highway miles / 24 MPG x $2 per gallon = $1. The cost of fuel for driving around Manhattan is $2 per hour, because all downtown driving is at an average of 12 mph. This equates to $.66 per trip assuming 10 minutes of searching and 10 minutes of driving for each trip

 - **Car ownership costs**. The cab driver leases the cab from the cab company on a variable cost basis. He must pay the cab company 50% of metered revenue, and there is no opportunity to cheat. He would pay $3 per intra-Manhattan trip

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- **Tolls**. Because the cab returns to Manhattan empty, the driver must pay the $3 toll out of pocket

Question 4: **As a cab driver, what profit would you make on the two scenarios?**

Good answers would include the following:

Stay scenario economics
 - $26 metered revenue
 - $4 tip revenue
 - $1 gas cost
 - $13 car ownership cost
 - **Net profit = $16**

Leave scenario –
number of trips
 - Total time under two scenarios must be equal (two hours + constant LGA-Manhattan drive time)
 - Each intra-Manhattan trip cycle takes 20 minutes (assume 10 minutes of search, 10 minutes driving a passenger)
 - **In two hours (120 minutes), driver can complete 6 cycles**

Leave scenario economics
 - 6 passenger trips (as above)
 - $36 metered revenue
 - $6 tip revenue
 - $5 gas cost
 - $18 car ownership cost
 - $3 toll cost
 - **Net profit = $16**

Comparison
 - Identical cash profit
 - "Stay" scenario probably preferable due to externalities (i.e., easier to sit than to drive, can do other activities such as reading while waiting, less risk of being robbed by an airport passenger than in the city)

Question 5: So the profits of the two scenarios are equal. What would you conclude from this?

A good answer would include the following:
 It is counterintuitive that cab driver who "wastes" two hours in the cab queue will earn the same profits as a competitor who spends the entire time working; the reasons why

include are because of how the taxi system operates: e.g., length of wait at the airport cab queue will adjust to guarantee that the two profits will be equal. If the profits of the airport trip were higher, the airport queue would be longer. If the profits of the airport trip were lower, the airport queue would be shorter and airport passengers would continuously wait for a taxi

A very good answer would include the following:

In addition to the observations above, this is an indication that there is a near- perfect competition in the Taxi system in New York. In industries where there is perfect competition, options tend to converge upon the same level of benefit, so that no one option is better than another.