



## **Amazon v/s Flipkart – The ‘Nash’ Way**

In fulfillment of the **Project Course**

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### ***Abstract***

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*The purpose of this study is to study the different strategies deployed by Amazon and Flipkart in the E-commerce market and analyzing those moves in the game theory context. The study then introduces some modifications of game theory models and connects them back to a few real strategies employed by Amazon and Flipkart. The discussion thus serves to underline the importance of game theory in the E-commerce market. A particular focus of the research is also the identification of the transition of competition away from price-based wars towards competition deploying non-price methodologies as a form of competitive strategy. We also develop a three period model to understand the imitation and innovation strategies. The model highlights the importance of customer stickiness in both imitations as well as in innovation decisions.*

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## **1. Two-Sided Platforms**

There exists no universal definition for ‘two-sided platforms’ but we have defined them as firms operating with two different sets of customer groups and broadly displaying the following three characteristics:

1. Firstly, they allow two distinct groups of customers to come together in a way that allows them to generate value. The groups rely on the platform provider for transactions between them. The platform serves the two groups simultaneously
2. Secondly, there exist indirect externalities across groups of consumers, which essentially means that the worth of the platform for consumers on one side depends on the presence of number of consumers on the other side. For example, a payment system (E.g. Paytm, Freecharge, Mobikwik) is more valuable to the seller if the buyers use the payment system. Similarly, a payment system is more valuable to buyers if more sellers accept the mode of payment.
3. Thirdly, the pricing structure affects the level of transactions, meaning there is non-neutrality in the same. Pricing structure in a two-sided platform refers to the way prices are distributed between the two sets of consumers. It can affect the number of transactions by charging more than the average or marginal cost to one side of the customer and charging below the average or marginal cost to other side by an equal amount. The pricing structure should be designed in a way that induces participation from both the sides.

### **1.1 Economics of two-sided markets**

Two-sided markets are often characterized with interesting price points for the consumers, which are at a very low level and sometimes negative as well (for example cashback offers). These price levels are thus, below the marginal cost, which makes the principles of economics seem upside down. However, the economics of two-sided markets operate in a different way from a much simpler one-sided market.

In a traditional one-sided market, pricing is majorly governed by marginal cost of production and price elasticity of demand of the consumer. However, it is imperative to take note that there is only one party to interact with in these markets.

Two-sided markets play differently in the presence of parties on both sides. Pricing is governed not only by the marginal costs on each side, but also by parallel behaviour

of both parties and their responsiveness to each other. As stated above, in two-sided markets, participation on side depends on the participation from the other side. Low prices on one side of the market attract large number of participants on that side, which consequently attracts large participation on the other side as well. A firm can charge high prices on this side to cover the losses incurred on the other side and make profits over and above that. This precisely explains the exceptionality in the prices seen in two-sided markets (below marginal cost), and thus sets firm economics in place.

An important decision a firm has to make is from whom to charge lower markups? Here comes the role of price elasticities. The side with high price elasticity is charged lower prices, which attracts huge numbers on both sides. High markup can then be imposed on the price inelastic side where participation increased because of network effect. This would not be effective the other way round because lowering the markup for price inelastic side would not help in enticing large participation from them.

In a competitive scenario, this strategy becomes even more effective, because it helps in poaching buyers from the competition and network effect of which causes poaching of the players on the other side as well. This reduces the footprint of competition from both sides, and makes own platform stronger.

## **1.2 Competitive Strategies to Establish Dominance in Two-Sided Platforms**

1. **Willingness to Forego Profits (Predatory Pricing):** The majority of such two-sided platforms continue to suffer sustained losses to attain market leadership. The market is mainly penetrated through predatory pricing and heavily investing in operational efficiency as growth is placed to be of high importance than profits. This is in stark contrast with the previously held belief which renders predatory pricing as irrational.

One of the other motives behind such predatory pricing have been also to drive out the competition in the short-run and charge monopolistic prices later. This also has changed the dynamics in which entry and exit barriers are perceived in two-sided platforms.

2. **Presence across multiple business lines:** The firms try to make themselves indispensable by maintaining their presence across various business lines. For

example, Amazon has expanded not just across various product lines (books, electronics, apparel etc.) but also across related business lines like logistics and delivery services, market content and cloud services, payment services, auction houses etc. Such kind of vertical integration facilitates cross-sector advantages and helps the firm in leveraging dominance and expertise in one area to its other business lines. This ensures that the firm remains at the center of the Internet economy and enjoys business from even its competitors.

The above strategies also intend to increase the customer stickiness:

- Contrary to the popular belief that switching cost remains low in such markets, research drawing on behavioral tendencies shows that ‘switching cost’ of changing web services can be high.
- In addition to it, the firms also try to act as one-stop shop for all customer needs to ensure that they have no incentive to visit any other web-service provider.

## **2. E-Commerce in India - A Two-sided Market**

The Indian e-commerce market is a good example of two-sided platforms characterized by retail consumers as buyers on one side and small and large sellers on the other side. The current size of the market is USD 53 billion with two major players occupying more than 60% of the market share (as of 2018): Amazon (31.1%) and Flipkart (31.9%)

### **2.1 Amazon**

Incorporated in 1994, Amazon also emerged from an online bookseller. However, it launched with a large category of products in India in 2013 with the commencement of its website Amazon.in. However, Amazon could not replicate its business model of the sale of its own products along with other seller’s products in India due to restriction on the foreign direct investment in foreign multi-brand retail. Amazon’s initial investment also went in building its logistics as it recognised the distribution difficulties in India. The major differentiator for Amazon in the initial years was that it started with next day shipping for Amazon fulfilled products. The next important focus area was to acquire sellers on its platform for which it started offering first year membership free of cost for a two year membership contract. Further, it ran a variety

of initiatives to attract customers initially to its platform and replicated Cash on Delivery option it had offered in China.

## **2.2 Flipkart**

Flipkart was founded by Sachin Bansal and Binny Bansal as an online bookseller after they both decided to quit their jobs at Amazon Web Services in October 2007. Initial phases were tough and it was difficult to attract customers as the online payments continued to pose a problem for e-commerce in India due to low internet banking and credit card penetration. To tackle this, Flipkart introduced Cash on Delivery (COD) which became the preferred mode to transact in India. Later, Flipkart diversified into movies, music, games, mobile phones and accessories. The next task was to develop a sound logistics infrastructure for which, it adopted a hub and spoke model. After all the processes were streamlined, Flipkart shifted its focus to building volume and finally ended up adopting a marketplace model to bring infinite product selection to customers.

## **3. Strategies employed by Amazon and Flipkart**

The strategies employed by Amazon and Flipkart can be broadly divided into two categories:

1. Price-based strategies
2. Non-price strategies

### **3.1 Price based strategies**

#### **3.1.1 Predatory pricing**

Both firms, Amazon and Flipkart follow an aggressive pricing strategy, where they charge below their marginal cost in order to provide cheaper products to its consumers. The majority of the market is penetrated through predatory pricing and the consumers seem to gain as a result.

#### **3.1.2 Cash-Burn Strategy**

This has primarily been one of the reasons that e-commerce giants in India have adopted cash-burning strategy. Both Amazon and Flipkart burn cash in order to acquire customers. There are heavy discounts offered on the online websites, especially in the times of their respective festival days. Apart from it, the most of the



amount is invested on advertising, dealer promotions etc., i.e., primarily towards acquiring market share. The firms are backed by large investors, who are willing to bet big and invest insane amount of funds to gain supremacy in the market. Both the companies have been bleeding cash in operations and incurring millions of dollars in losses to keep acquiring more and more customers.

## **3.2 Non-price strategies**

### **3.2.1 One day delivery**

Amazon, in 2013, introduced a guaranteed one-day delivery for certain products in the Indian market. This meant an additional provision in the logistics for the customers, especially, ones who were ready to pay a premium for the same. Flipkart, soon, had to follow the ‘delivery in one day’ bandwagon to avoid losing out on the logistics game. They eventually introduced their version of the one-day delivery in 2014. In order to catch up with Amazon on the curve, they launched it at a lower premium.

### **3.2.2. Big sale days**

A huge flash sale was launched by Flipkart in the year 2014 to capitalize on the Indian buying behavior during the festive season and led to huge increase in sales and traffic on the Flipkart website. They recorded \$100 million in GMV in 10 hours of the sale. This sale allowed Flipkart to divert website traffic away from other ones during a time of the year when the purchases were high. Flipkart outshined all other competitors in the festive season and captured unreal sales. Henceforward, to match such strategies by Flipkart, Amazon also came up with its version of the ‘Big Billion Day’ and named it ‘The Great Indian Festival.’

### **3.2.1 Card on delivery**

Another major move that saw the ‘follow competitor’ strategy playing out was the introduction of card on delivery by Flipkart. This was a major move in the convenience of payment systems by Flipkart. This was not an easy game to implement since it required huge collaboration from the courier who were not only reluctant to go ahead with this strategy but also lacked to capability to implement the same. However, once instituted, Amazon had to follow Flipkart to ensure customer satisfaction on the ‘ease of payment’ front.

### **3.2.4 Omni-channel Retailing in Indian E-Commerce**

Among non-price competitive strategies, e-commerce firms can increase their business by expanding the market (Selling existing products in new markets, according to Ansoff's Growth Matrix). In the Indian retail market, 99% of the business is still offline as the customers want to get the touch and feel of the products, while some simply don't have the access and means to go online. Although the technological barriers is fading away with new developments, the socio-cultural taboos still prevail.

E-commerce firms are taking this as an opportunity to become omni-channel retailers which offer their products and services through numerous channels for the customer. With such ease, a customer can check out products from the comfort of their home via a personal computer or mobile, and then buy it at a physical store. Or, they can check the product offline, and then buy the same with a better deal online. With omni-retail setup, they are expanding the base to establish a competitive position in the market.

Amazon and Flipkart, both started it almost at the same time with Amazon in May 2015 and Flipkart in July 2015. Amazon launched its Project Udaan, which involves setting up physical stores in rural India has already come up with more than 1,000 outlets. While Flipkart on the other side, has opened its fulfillment stores in more than 19 cities, to primarily cater to those customers who were unavailable during delivery.

There is a huge scope of differentiation with Omni-retailing, unlike just e-commerce where differentiation is minimal. This brings out a new facet in the competition between these players, which is not based on prices, discounts and cash backs. The game to create their niche (competitive advantage) is at multiple levels, and not only on price. Thus, it is crucial for players to explore these possibilities to win 'profitably' in the market.

### **3.2.5 Investment commitment**

The landscape of Indian e-commerce changed dramatically with the entry of global giant Amazon Inc. Pre-amazon the e-commerce game in India was between Flipkart and Snapdeal, and a few other players who were fighting for a larger share of the market with discounts and cashbacks. Though they were able to raise funds from the investors with a possible forecast of breaking even, funding was almost getting

saturated as no attractive return was being foreseen in the cash burn game. Thus, a quest of profitability had been set up to prove to the investors.

This development got turned around with the entry of Amazon. Their parent has publicly communicated its will to back Amazon India until it wins in the Indian market, with announcements of investment of billions of dollars. The important thing is until it wins. Before this, it was easy for other e-commerce players to raise huge capital but with Amazon's announcement, it was not the same. The initial announcement of \$5 billion was to make this threat credible as it is common knowledge that Amazon has deep pockets. A major interest behind such announcement, was to signal to the investors of its Indian rivals, that the rough game is on, and it's going to push them to the deepest extent, that they should back off or lose all their money.

Now, it is not only a game of backing from investors, but also a game of signaling the intent. These funding announcements work as a signaling force communicating their intent to fight it till the end. Flipkart, recently being acquired by Wal-mart, was again a game-changer, which signaled that the battle is going till the end, Flipkart will also fight till it wins.

### **3.2.6 App-only strategy**

In July 2015, Flipkart decided to move to an application only platform by September 2015. Myntra, one of Flipkart's acquisitions had already made the transition to app-only platform. The shift was making sense as more than 70-75% of the demand traffic on e-commerce websites came from smartphones and mobile penetration was only set to increase exponentially in the coming years. Further, operating only on one-platform meant lot of operational efficiencies and thus, resulting in cost savings.

## **4. Linking the strategies to Game-theory models**

The strategies described above and the moves made by the e-commerce firms can be linked to certain game-theory models and their modifications. In the section below, we list out a few models to describe the same.

## 4.1 Pricing Models

### 4.1.1 Traditional Game Theory View on E-commerce - Prisoner's Dilemma

Economists have tried to use prisoner's dilemma to show that price war is nash equilibrium in online retail and is sustainable. The price war could mean suicidal for online retailers but could also lead to efficient outcomes in the market. The results could benefit customers in a large way.

The e-commerce game is seen in the following ways. The two firms sell homogeneous products and try to occupy market share in order to earn greater profits. If both of the companies charge higher prices, they can receive benefits of 300 and if both undercut prices, they end up receiving benefits of 100.

		<i>Company B</i>	
		<i>Low-price policy</i>	<i>High-price policy</i>
<i>Company A</i>	<i>Low-price policy</i>	<i>100,100</i>	<i>450,50</i>
	<i>High-price policy</i>	<i>50,450</i>	<i>300,300</i>

Both companies want to expand and can either charge high price or lower price and then repeat it. Consumers want price-wars as they benefit from it. Cartelization is not a possibility as no one firm has the power over the other firm to enforce cartels. Thus, the only rational choice in this game setting becomes to charge lower prices period after period. This dilemma is commonly seen in oligopoly firms where the firms have to follow if other firm cuts prices or cuts prices if the other firm is maintaining prices. Everyone knows about the benefits of collusion but still none of them has the power to enforce on the other.

The above game was also perceived in a sense that only the competitor with deepest pockets will survive in this business. It is one of the reasons that firms have committed to make huge investments in a market to signal the existing competitors to move out.

#### **4.1.1 Coordination Issues in e-commerce**

The major focus of the two-sided market has been to primarily to establish dominance as their scale affects their ability to attract the profits of the market. The primary reason is the more the number of users on a platform, the greater the degree of personalization and the better the interface of the platform, which in turn attracts even more users. So, with increase in users, the profits tend to increase at an increasing rate as the interface quality goes up along with the increase in volumes. This creates a coordination problem where every firm wants to attract more and more customers on its platform so it can provide better experience. So, the focus seems to be on increasing the customer base on the platform to attain leadership. As a result of this, more users tend to join the platform with already large customer base as their experience is better over there.

#### **4.1.3 Going beyond Bertrand Competition**

The e-commerce market can be seen similar to Bertrand competition, where the consumers only purchase the goods from the producer which sells at the lowest price. In e-commerce as well, consumers compare prices across platforms and purchase from the player who charges minimum. So, in Bertrand Competition, the best strategy becomes to charge at the marginal cost and earn zero profits.

However, E-commerce seem to have gone beyond Bertrand, where they are incurring losses in the current period in expectation to gain profits in future. Cash burn strategy is a prime example for this. The firms are investing huge amounts of money to discount the products (charging lower than the marginal cost), advertise and market that they end up running into losses. Operational losses have seemed to become a trend in the e-commerce space in India. So, the traditional Bertrand model does not seem to hold in case of e-commerce.

#### **4.2 Transitioning from the price wars**

Copying your competitor can always help shift the game in the market away from the price wars. Copying is the best form of flattery and the competitor copying expands the market, thus shifting away the focus from price wars. It creates a win-win situation with the company already ahead in the curve. Competition is not necessarily destructive and in order to be ahead on the curve, it is required for them to find their

own niche. If you're known for supreme customer support, that will give you loyal customers, if you're known for quick delivery, that'll get you another set.

This brings us to the next strategy prevalent in the e-commerce market – ‘follow the competitor.’ This holds particularly much value if a move by the competitor has led to a dynamic shift in the market thus taking away a large part of their shares. The important thing to be noted over here is that the companies are forced to copy their competitors because deviating from that strategy will only lead to them losing out on a segment of the market. This has been observed in e-commerce channels across borders and not just in India (although our focus here will be confined to the Indian geography). We will discuss a three period model below:

#### **4.2.1 Three-period model of Imitation Game**

The continuous diaspora of innovation and imitation in the e-commerce market is not an option, but necessary conditions for the firms to survive. This pans out well for the non-price moves by the players in the market. However, innovations always lead to an increase in market share, which is sustained over a period of time because of customer loyalty. The phenomenon of customer stickiness plays out when imitation by competitor is not sufficient to get back all the customers poached by the first-mover. The model phases out into three periods described as follows:

##### **Assumptions**

- Consider a duopoly with two players, Company A and Company B, in a market size  $2X$  (each customer buys 1 unit each), with 50% market share each. All metrics and strategies of these two companies are identical.
- Market Size is constant
- Customer Stickiness factor (proportion of customers staying loyal to the firm):  
 $\alpha$  ( $0 < \alpha < 1$ )

##### **Period 0:**

# Customers:

<b>Company A</b>	<b>Company B</b>
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X	X
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Now, suppose company A comes up with an innovative move to increase its market share by poaching customers of company B. Assume that this move leads to poaching of  $y$  customers.

**Period 1:**

# Customers:

Company A	Company B
$X + Y$	$X - Y$

Given the same market size, by innovating, company A acquired a larger market share than company B. If company B doesn't copy the move, the situation will stabilise here. But company B can do better by imitating the strategy of company A and getting back the customers it lost from period 0 to period 1. However, copying the move will not bring back all the customers that company A solicited during period 1. This is because of customer stickiness phenomenon. Some of the customers (measure by stickiness factor  $\alpha$ ) will stay with company A even after company B imitates the move.

**Period 2:**

# Customers:

Company A	Company B
$X + \alpha Y$	$X - \alpha Y$

The imitation move by company B leads to increase in the number of customers, but it fails to get back to the initial position because there would always be some customers who became loyal to company A after buying their products. However,

company B is better off in period 2 than in period 1 as it has managed to get some (less than  $y$ ) back from company A. Thus, company B will always follow the first mover as it is a sub game perfect Nash equilibrium for them.

It is important to note here  $\alpha > 0$  for the innovation decision to make sense, else in the third period (Period 2), payoffs of the firms would be equal to that in the first period (Period 0) thus making the innovation strategy redundant. This emphasizes the importance of customer stickiness in the three period model

The three-period model essentially demonstrates the following competitive advantages:

1. Increased market share in the short run (due to larger variety of services)
2. Staying ahead in the curve for some time before the competitor manages to catch up

This would mean that the competitors in the market are always on the lookout for a new move to be able to gain short-term advantages.

The three examples discussed above on non-price competitions touched upon the strategy 'follow your competitor' playing out in three different aspects of the e-commerce market – logistics, sales and payment.

*The model can be further demonstrated with the help of following example:*

### **Assumptions**

- Consider a duopoly with two players, Company A and Company B, in a market size 200 (each customer buys 1 unit each), with 50% market share each. All metrics and strategies of these two companies are identical.
- Market Size is constant
- Customer Stickiness factor (proportion of customers staying loyal to the firm):  
**0.75**

### **Period 0:**

# Customers:



Company A	Company B
100	100

Now, suppose company A comes up with an innovative move to increase its market share by poaching customers of company B. Assume that this move leads to poaching of 50 customers.

**Period 1:**

# Customers:

Company A	Company B
150	50

**Period 2:**

# Customers:

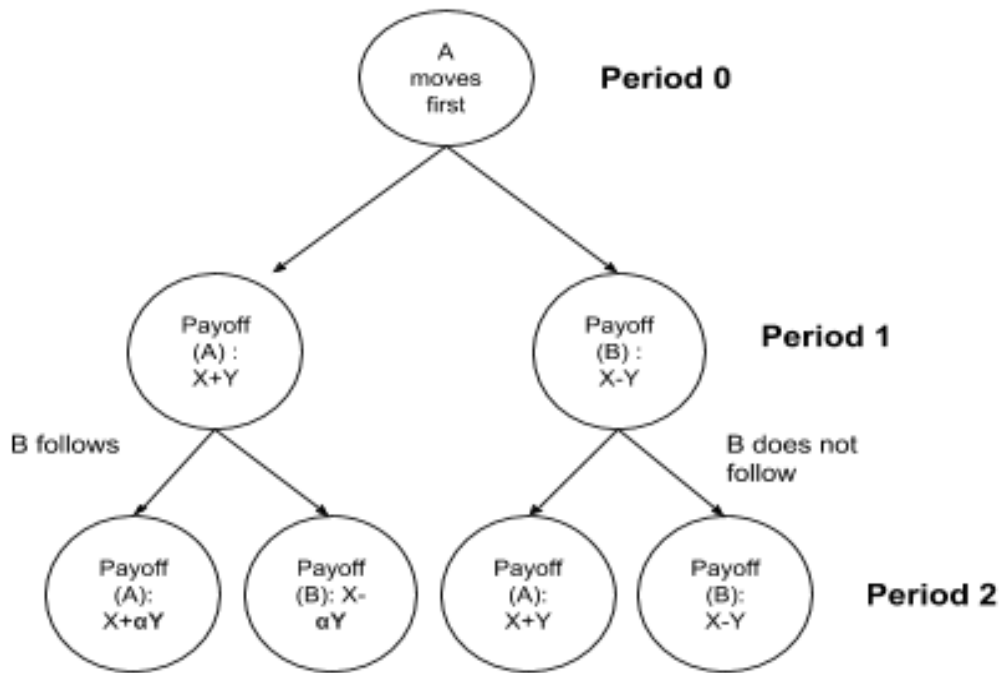
Company A	Company B
$100 + 0.75 \cdot 50 = 137.5$	$50 + (1 - 0.75) \cdot 50 = 62.5$

The above game gives two conclusions:

- A player can increase the market dominance by being the first mover with new initiatives and strategies, which is sustained to some extent even after competitors copy the move.
- A competitor will always follow the first mover to be better off than in the case of not following

**Thus, in such a market both innovation and imitation becomes a mandate for the competing players.**

To demonstrate the second point, we look at the tree form of the three period model. Not following the company A would lead to B earning lower profits subsequently in the years to come. Thus it is a dominant strategy for competitor B to follow company A.



### Introducing more components into the model

Diving further into the model, we also need to understand that there is a cost associated with the innovation. We analyze this aspect with respect to the “one day delivery” introduced by Amazon. There would be multiple costs associated with this innovation (transportation being the biggest cost - having to shift to airline based mode to effectively handle one day delivery). There would be other additional costs that they would have to incur for being the first movers in the market which would include cost due to uncertainty in the implementation of the strategy. Say the total cost associated with the innovation is  $c$ . This would change the associated payoff for Amazon in period 2 to  $X+\alpha Y-c$

where, as discussed above,  $\alpha$  is the set of consumers who stick to Amazon because they tried out their one day delivery first and don't see a reason to shift back to Flipkart as they trust Amazon's service.

Thus, for Amazon to go ahead with the innovation  $X+\alpha Y-c > 0$ , or  $\alpha Y > c$

To put it shortly, the gain due to stickiness should be greater than the cost associated with the innovation.

### **Limitation of imitation strategy**

The imitation strategy can also get constrained under certain conditions. To understand this better, let us go back to the one-day delivery strategy of Amazon. For Flipkart to follow Amazon, they also have additional costs. We call this the cost of imitation ( $i$ ). It is easy to see that  $i < c$  since the follower would be able to plug the inefficiencies that the first mover would have faced. But for Flipkart to follow,

$$X - \alpha Y - i > X - Y$$

$$Y > \alpha Y + i$$

$$i < Y(1 - \alpha)$$

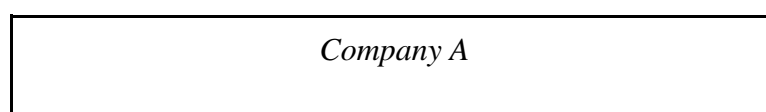
Thus, the cost of imitation and customer stickiness becomes an important factor in determining whether Flipkart would follow Amazon or not.

We can clearly see the importance of  $\alpha$  (customer stickiness) in the entire three-period model as it becomes a decision variable in both the innovation decision as well as the imitation decision.

### **4.2.2 Signalling through App-only Strategy**

An example of signaling can be the App only strategy that Flipkart adopted. An app only strategy was better because more than three-fourths of the demand traffic on e-commerce websites came from smartphones and it was only going to increase exponentially in the coming years due to the rising mobile penetration. In addition to it, operating only on one-platform meant lot of operational efficiencies and thus, resulting in cost savings.

In our view, the shift by Flipkart to an app only model was a signal to all other online firms to collude and be more profitable. Flipkart view the situation in the following way:



		<i>App only</i>	<i>App+Web</i>
<i>Competitor A</i>	<i>App only</i>	<i>100,100</i>	<i>50,70</i>
	<i>App+Web</i>	<i>70, 50</i>	<i>70,70</i>

If all the e-commerce firms could move to an app-only platform, the outcome could have been far more efficient than the current one. Everyone would have gotten a higher payoff of 100 than what they were earlier receiving (70). Flipkart saw it like a coordination problem and thought if it could credibly signal to other firms that it would move to an app-only platform, other e-commerce players would follow the suit.

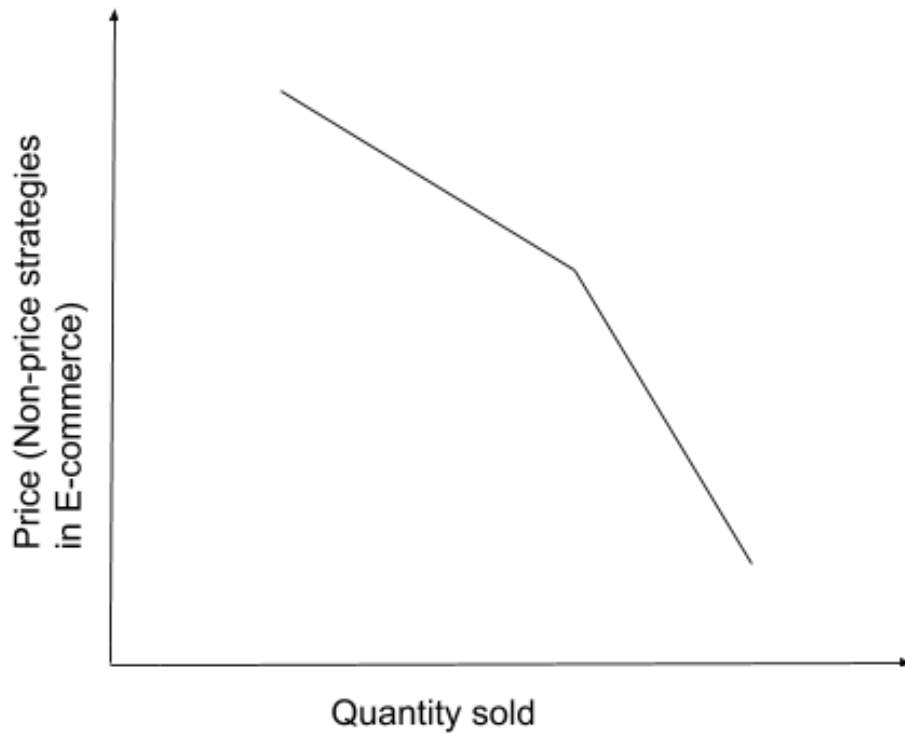
However, the other firms didn't follow Flipkart's footsteps. Both Amazon and Snapdeal wanted to stay on both the platforms to cater to all customers. It was because that there was a difference in which Flipkart and its competitors perceived the game. The competitor saw it as:

<i>Company A</i>			
		<i>App only</i>	<i>App+Web</i>
<i>Competitor A</i>	<i>App only</i>	<i>100,100</i>	<i>50,120</i>
	<i>App+Web</i>	<i>120, 50</i>	<i>70,70</i>

When Flipkart moved to app-only, both Snapdeal and Amazon had an incentive to stay on both the platforms as they could both gain the 20-25% of the customers that Flipkart lost and earn payoff of 120 rather than earning 100 if they both moved to app-only strategy. Hence, it was only optimal for them to stay at both the platform

rather than following Flipkart and hence, Flipkart was forced to start the website again.

All the above form of non-price strategies seen can be viewed similar to the kinked demand curve in Oligopoly, where firms only follow the strategies that might help the other firm capture high market share and not follow the strategies which might leave the other firm worse off.



Thus, we can see that signaling plays as equal a role as actual action in this market.

## 5. References

1. Game Theory and Indian E-Commerce market : Networks Course blog for INFO 2040/CS 2850/Econ 2040/SOC 2090. (2018). Retrieved from <https://blogs.cornell.edu/info2040/2016/10/21/game-theory-and-indian-e-commerce-market/>
2. Price-wars?, C. (2018). Can Game Theory help Indian eCommerce companies escape the ridiculous price-wars?. Retrieved from <https://yourstory.com/2013/01/can-game-theory-help-indian-ecommerce-companies-escape-the-ridiculous-price-wars/>
3. Sharma, S. (2018). Amazon's game theory is to starve competition of capital in India, says top Silicon Valley investor - Times of India. Retrieved from <https://timesofindia.indiatimes.com/companies/amazons-game-theory-is-to-starve-competition-of-capital-in-india-says-top-silicon-valley-investor/articleshow/62667258.cms>
4. (2018). Retrieved from [https://file.scirp.org/pdf/IB\\_2014122310482155.pdf](https://file.scirp.org/pdf/IB_2014122310482155.pdf)
5. Agrawal, S. (2018). Game Theory in Indian e-commerce. Really?. Retrieved from <https://www.livemint.com/Opinion/VLDrpQ0RsDvCvJTdnQ1jL/Game-Theory-in-Indian-ecommerce-Really.html>
6. Kejriwal, A. (2018). What E-Commerce needs is brains, not price wars & discounts. Retrieved from <https://therodinhoods.com/post/what-e-commerce-needs-is-brains-not-price-wars-discounts/>
7. Flipkart Follows Amazon.in; Announces Next Day Delivery For Select Cities. (2018). Retrieved from <http://www.techtree.com/content/news/5162/flipkart-amazonin-day-delivery-select-cities.html>
8. Ahmad, S. (2018). Indian e-commerce industry is expected to cross \$100 billion mark by 2020. Retrieved from [https://www.business-standard.com/article/companies/indian-e-commerce-industry-is-expected-to-cross-100-billion-mark-by-2020-118051801480\\_1.html](https://www.business-standard.com/article/companies/indian-e-commerce-industry-is-expected-to-cross-100-billion-mark-by-2020-118051801480_1.html)
9. Flipkart vs. Amazon. (2018). Retrieved from <https://www.fortuneindia.com/technology/flipkart-vs-amazon/101198>

10. Poovanna, S. (2018). Flipkart launches 20 stores across India. Retrieved from <https://www.livemint.com/Companies/3UVCMKpuBIzh3s6NX76BwO/Flipkart-opens-20-stores-across-India.html>
11. Variyar, M. (2018). Amazon India reportedly closing in on Flipkart. Retrieved from <https://economictimes.indiatimes.com/small-biz/startups/newsbuzz/amazon-india-reportedly-closing-in-on-flipkart/articleshow/63407725.cms>
12. Flipkart vs Snapdeal vs Amazon: Battle of the big boys. (2018). Retrieved from <https://www.businesstoday.in/magazine/cover-story/ecommerce-war-flipkart-vs-snapdeal-vs-amazon-in-retail-space/story/218862.html>
13. Amazon's Entry in India: How will it impact the Indian E-commerce Ecosystem? - Zyoin. (2018). Retrieved from <http://www.zyoin.com/amazons-entry-in-indian-e-commerce/>
14. Anderson, Simon P., and Jean J. Gabzewicz. 2006. "The Media and Advertising: A Tale of Two-Sided Markets." In *Handbook of the Economics of Art and Culture, Volume I*, ed. Victor A. Ginsburgh and David Throsby, chap, 18. Boston: Elsevier
15. Brodley, Joseph F., Patrick Bolton, and Michael H. Riordan. 2000. "Predatory Pricing: Strategic Theory and Legal Policy." *Georgetown Law Journal*, vol. 88
16. Caillaud, Bernard, and Bruno Jullien. 2003. "Chicken & Egg: Competition among Intermediation Service Providers." *The RAND Journal of Economics*, 34(2)