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## **The Role of Incentives on the Success of Multi-Sided Platform Start-ups**

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Author: Irem Nayman

Student ID: 452373

Supervisor: Dr. Nuno Almeida Camacho

Co-reader: Drs. Dasha Kolesnyk

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## **Abstract**

Entrepreneurs who are starting a new venture face various challenges which often may lead to the failure of a promising start-up. According to the data taken from U.S. Census Bureau; more than 50% of the start-ups founded between 1977 and 2005 in the U.S. failed within five years (Artinger & Powell, 2015). In the recent years, a particular type of start-up has emerged and risen in popularity: start-ups offering a multi-sided platform (MSP). These new ventures operate through a platform where buyers and sellers are gathered together (think of Airbnb, Uber, OpenTable, TaskRabbit etc.). However, the failure rates of these start-ups are not very low. One of the main reasons leading to the failure of these new ventures is the so-called “chicken & egg problem”; where buyers are unwilling to join the platform before the platform has enough sellers and sellers are unwilling to join the platform before it has enough buyers (Evans, 2003). New ventures who are performing in a MSP mainly face this issue where they are also subjected to the indirect network effects. One way to overcome this paradox is to present incentives to the demand side while letting the supply side grow gradually. This paper aims to test the effectiveness of the monetary and non-monetary incentives on the success of the newly established MSP start-ups by providing an example from an application. Success of the new MSP is measured by two determinants; likelihood of joining the app and the use intentions of the app. Furthermore, the number of suppliers is also considered to have an impact on the success of the app which is also examined in this paper. This research aims to find the relationship between incentives and the success of the new app, taking the moderating effect of number of suppliers into account, using an empirical study. The outcome suggests that monetary and non-monetary incentives motivate customers more than no incentives during customer acquisition however when the willingness to use the app is examined the incentives lose their significance.

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## 1. INTRODUCTION

Starting a new venture; whether it's a start-up, a small company or an enterprise in a big firm is a hit or miss situation (Blank, 2013). Unfortunately for entrepreneurs wanting to establish their own businesses, the survival rates do not depict a promising picture; data demonstrates that more than half of the new ventures fail in the first three years (Artinger & Powell, 2015). According to the data taken from U.S. Census Bureau; more than 50% of the start-ups founded between 1977 and 2005 in the U.S. failed within five years and the failure ratio increased after 2000 (Artinger & Powell, 2015). The situation does not change when U.K. was examined; one out of three start-ups launched after 2000 failed in the first three years (Artinger & Powell, 2015).

Considering the severity of the situation, new ventures have to bear in mind various challenges before jumping into a new adventure since there are quite a few reasons increasing the mortality risk. Artinger and Powell (2015) studied the importance of excess entry on start-up survival where the reasons were compiled under two groups; statistical and psychological explanations. Statistical explanations see market entry risky due to uncertainty and incomplete information; thus, even if all actions taken by the entrepreneur are accurate they are still subjected to random errors leading to an excess entry. Psychological explanations argue that entrepreneurs centralize their own competence, ignoring market condition and competition; thus, their overconfidence leads to excess entry (Artinger & Powell, 2015). Other explanations studied by scholars are; human and financial capital, amount of experience of the entrepreneur, timing of market entry, liability of newness, insufficient planning by the entrepreneur and even the entrepreneurs' personality (Cooper, Gimeno-Gascon, & Woo, 1994; Bruno & Tyebjee, 1985; Green, Barclay, & Ryans, 1995; Shepherd, Douglas, & Shanley, 2000; Venkataraman, Ven, Buckeye, & Hudson, 1990; Ciavarella, Buchholtz, Riordan, Gatewood, & Stokes, 2004). Even though scholars studied the reasons of failure for new ventures, when it comes to start-ups with multi-sided platforms (MSP) there are numerous more conditions that are vital to take into consideration.

It is imperative to state that platform based entities are influenced by network externalities which are examined into two groups; direct network effects and indirect network effects. Direct network effects occur when users receive more utility if there are more users on the same side of the platform (Evans, 2009). An example would be e-mail; where users would receive higher value from the product when there are more people using e-mails since they can communicate with more users. Indirect network effects occur when the utility of the participants

on one side of the platform depends on the number of the users on the other side (Stremersch, Tellis, Franses, & Bincken, 2007). An example would be, unlike a platform based entities, hardware and software where consumers would be less willing to adopt hardware if there is less software available, and software manufacturers would produce less until more people start adopting hardware (Stremersch, Tellis, Franses, & Bincken, 2007). Indirect network effects are observed at MSPs, where each party must participate for the existence of the platform (Hagiu & Wright, 2015).

This paper focuses on two-sided platforms where there are two distinct group of users dependent on each other for the exchange of services or goods. These two groups can be identified as the demand and the supply side; for instance, Uber company is a two-sided platform where drivers are the suppliers, delivering transportation service, and customers, receiving the service, are the demand side. Furthermore, OpenTable operates in the similar approach which enables users (demand) to make online reservations from the restaurants (supply) on the platform. In these kind of platforms, users receive higher value when the number of participants on the other side of the network is high (Eisenmann, Parker, & Alstyne, 2006). Other examples would be dating apps (men and women) and payment systems (cardholder and seller) (Evans, 2003).

New ventures performing on two-sided platforms should not only take into consideration the challenges all new ventures face but should also be aware of a major drawback affecting MSPs. For these platforms to operate successfully; there must be a sufficient number of users on both sides as neither side would join the platform without sufficient demand from the other side which is also called as the chicken and egg paradox (Evans, 2003). For instance, when start-ups such as AirBnb and OpenTable were founded, they had to convince both sellers (hosts with free rooms/houses and restaurants) and buyers (tourists and restaurant patrons) to join the network to satisfy their need for more business (sellers) or for a specialized product or service (buyer). The problem is that buyers are unwilling to join the platform before the platform has enough sellers and sellers are unwilling to join the platform before it has enough buyers. Thus, the existence of demand affects supply and the existence of supply affects demands leading to a problem of which comes first (Stremersch, Tellis, Franses, & Bincken, 2007). This chicken and egg paradox is considered to be one of the most troublesome issues that MSPs face (Hagiu, 2014).

One way to overcome this problem is to present monetary incentives to the demand side while letting the supply side grow gradually. Evans (2003) states that, monetary incentives such as; no subscription/service fee or even paying the customers to enter the platform at the early stages of new ventures are crucial to unlock demand on both sides and avoid the "chicken-and-egg paradox". Furthermore, delivering a price advantage as an entry strategy is beneficial to reach a large user group, increase penetration and reduce time-to-takeoff (Lee & O'Connor, 2003). For instance, Deliveroo which is an online platform offering food delivery service; used this strategy to increase the number of consumers. To attract the first-time users into trying their platform, company offered 20\$ promo codes. Since an average lunch cost was calculated as 25\$, Deliveroo charged their initial customers only 5\$ for a meal. This approach not only enabled the company to attract new customers but also created a referral effect too (Lee S. , 2016).

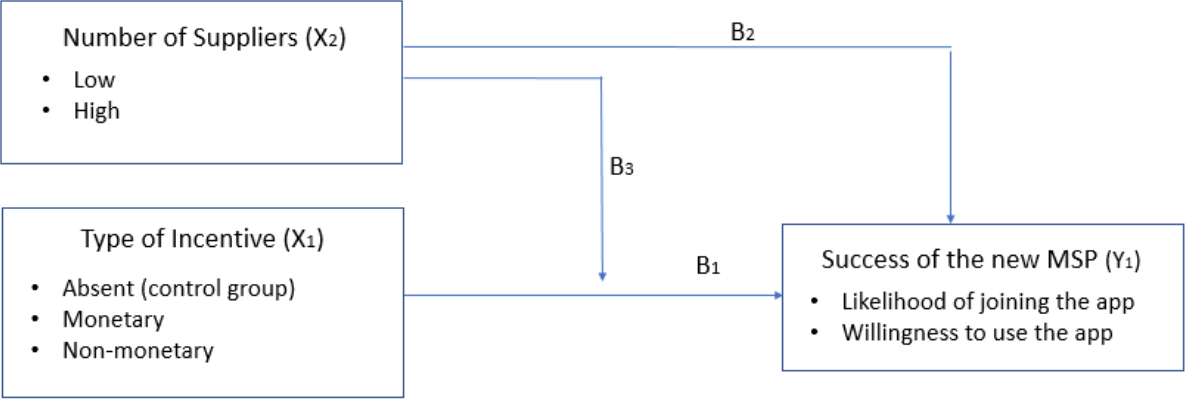
Besides monetary incentives, non-monetary incentives are considered to be an important tool in customer acquisition too. In non-monetary incentives consumers are not interested in the level of compensation they receive; meaning that the effort to complete a task does not depend on monetary reward (Heyman & Ariely, 2004). These incentives can be listed as; becoming a premium/gold (privileged) customer, rewards or gifts.

Despite some anecdotal evidence, there is no formal empirical confirmation that monetary or non-monetary incentives - on the firms with MSPs - will increase the likelihood of users adopting the offering, thereby leaving the paradox unsolved. This paper aims to investigate the effectiveness of monetary and non-monetary incentives on the success of the app with different number of suppliers.

## **2. THEORETICAL BACKGROUND**

As mentioned in the introduction, start-ups face a serious problem of attaining initial users. Figure 1, below, depicts my conceptual framework. Since the existence of both parties are crucial for the existence of the platform, new ventures must have a strategy for solving the chicken and egg problem. Presenting incentives to the demand side while letting the supply side grow incrementally is one way to overcome this problem. The objective of this research is to identify the effectiveness of the monetary and non-monetary incentives for digital platforms in customer acquisition and engagement with the app with different number of suppliers. The research's conceptual framework presents the success of the new MSP as the dependent variable. The success of the app is measured by two determinants; the likelihood of joining the

app and the usage of the app. The type of incentive is selected as the independent variable with three different segments; absent (control group), monetary incentive and non-monetary incentive. Finally, this research will also take into consideration the effect of the size of the suppliers on the success of the app as the second independent variable with two different components; low and high.



**Figure 1. Conceptual Framework**

The effectiveness of incentives has been a topic of interest for scholars for many years. Numerous field studies have been carried out in academic literature regarding this topic. The foundation of this research is Heyman and Ariely's (2004) theory on the difference between social and money markets where they aimed to uncover the effects of monetary incentives and non-monetary incentives on the motivation to complete a task. They commenced by dividing the market into two segments: money market and social market since the type of compensations presented in these markets differ from each other. In the money market; monetary incentives are used as a compensation whereas in the social market; no incentives or non-material incentives such as gifts are presented. They differ from each other where money markets are sensitive to the amount of compensation, on the other hand social markets are not. The hypothesis is tested by calculating the willingness to help (WTH) in carrying a sofa in both markets. According to the outcome; WTH increased when the amount of monetary incentive rose from low to medium. On the other hand, WTH stayed stable when monetary incentive was absent or non-monetary incentives increased from low to medium (low being candy bar and medium being a chocolate box). However, the WTH was higher when there were no monetary incentives compared to the situation with low monetary incentives (Heyman & Ariely, 2004). Thus, showing that there are different motives in different markets, making it crucial to expand more on the definition of these monetary and non-monetary incentives.



## **2.1. Acquiring the Demand Side: Monetary Incentives**

Monetary incentives are used as a tool to increase the motivation and the performance of an individual. Mainly it increases the effort due to a monetary gain which leads to an improvement in the performance (Bonner & Sprinkle, 2002). Since it brings higher financial utility, it leads to higher motivation compared to other reward systems (Jin & Huang, 2014).

According to classical economic rationale, if the monetary incentive to complete a task is increased, performance is relatively increased since the incentive acts upon the extrinsic motivations of the people (Gneezy & Rustichini, 2000). Extrinsic motivations lead individuals to engage in activities due to the outcome or the reward they receive (Ryan & Deci, 2000). In such cases, the satisfaction is obtained through the monetary gain rather than the task itself. Companies implement these “pay for performance” (Osterloh & Frey, 2000) strategies to match employee motives to the company targets. Furthermore, a rather more extreme case is observed when the transaction cost theory is examined; suggesting that people are opportunistic and pursue self-interest by deceiving others (Osterloh & Frey, 2000).

Moreover, besides academical experiments and boosting employee performance; monetary incentive mechanisms are offered to consumers in managerial perspective too. Marketers present incentives for consumers in forms of; price discounts, promotions, paybacks and so on. The goal of these incentives is to direct consumers to behave in favor of the company (Tercia & Teichert, 2017). Like well-established companies, start-ups also use these incentives to increase the number of participants. For example, Airbnb gives travel credits to new customers who join the platform via referral. Subscribers of the platform can send a link to their network or share it on their social media, inviting them to join the platform. As a result, referred friend can enjoy the discount on their first trip. Furthermore, when the referred friend completes their first trip, the referring Airbnb user also receives a travel credit for their next trip (Airbnb, 2017)

Monetary incentives are considered as an extrinsic motivation since the particular action taken by the individual is linked to the monetary reward they are promised to receive (Ryan & Deci, 2000). Thus, it is proposed that:

H<sub>1</sub>: Monetary incentives have a positive effect on the success of early stage start-ups compared to no monetary incentives.

## **2.2. Acquiring the Demand Side: Non-Monetary Incentives**

Although it is undeniable that monetary motivations have a remarkable effect on individuals' behavior, the power of non-monetary incentives on human action are too strong to be neglected (Fehr & Falk, 2002). Ignoring these non-pecuniary incentives can alter the understanding of human motivation since the performance also differs when non-monetary incentives are presented (Fehr & Falk, 2002; Gneezy & Rustichini, 2000). They differ from monetary incentives due to the altruistic behavior of an individual, where the amount of the monetary reward is insensitive to the motivation or the effort (Heyman & Ariely, 2004). Even though economists have been arguing that monetary incentives increase the effort users put in, psychologists argue that non-monetary incentives also improve the performance (Gneezy & Rustichini, 2000).

In cases of moral actions, presenting monetary incentives can destroy the feeling of doing good and lower the amount of participation or the effort. For instance, donating blood is considered to be a social act in favor of the whole community that everyone should contribute to. However, when monetary incentives are presented the feeling of doing good for the community is altered and the donation number is expected to decrease (Gneezy & Rustichini, 2000). The theory was tested by Mellstrom and Johannesson (2008) where one group of participants were presented monetary incentives whereas the others were not, for the blood donation. The number of blood donation decreased when monetary incentives were offered showing a negative effect between acting good for the community and the monetary compensation (Mellström & Johannesson, 2008). According to cognitive psychologists, this lack of motivation is driven from the decrease in the intrinsic motivation (Gneezy & Rustichini, 2000).

Intrinsic motivation occurs; when people engage in an activity for the sake of doing the activity regardless of any monetary or external rewards (Anghelcev, 2015). These activities are internal to the individual and they bring joy and satisfaction, such as running a marathon (Anghelcev, 2015; Ryan & Deci, 2000). From a managerial perspective, the motivation should be integrated in the work content so that employees can achieve the intrinsic motivation. Transaction cost theory critics emphasize that employees should empathize with company targets and mutual gains for the existence of intrinsic motivation. In addition, it is suggested that intrinsically motivated individuals perform better at the tasks that demand creativity; since extrinsically motivated individuals are prone to deliver similar results that is proven to work (Osterloh & Frey, 2000).

Even though numerous economic researches argue that customers mainly prefer the monetary incentives, managerial practices show different executions. Alongside with financial advantages, loyalty programs also present non-monetary benefits such as; exclusive invitations, special events for meeting with other members, gifts and priority in the waiting line (Mimouni-Chaabane & Volle, 2010). For instance, Hard Rock Café offers priority seating for their All Access Members where they do not have to wait in the line to be seated at a table (Jang & Mattila, 2005). Many companies started benefiting from these non-monetary incentives mainly because monetary incentives negatively affect the intrinsic behavior leading to a probable decline in the performance (Gneezy & Rustichini, 2000). Thus, it is proposed that;

H<sub>2</sub>: Non-monetary incentives have a positive effect on the success of the early stage start-ups compared to no monetary incentives.

### **2.3. Considering the Supply Side: The Main Effect and Moderating Role of Number of Suppliers**

As previously discussed, network effects have a large impact on the success of a product or a service. These network effects can be studied under two dimensions; direct network effects and indirect network effects. Direct network effects occur when the utility of a product or a service increases due to an increase in the number of other users adopting the product or the service (that are on the same side of the platform) (Lee & O'Connor, 2003). An example would be fax machines, as more people own the product utility would be greater because it enables users to communicate with more people (Goldenberg, Libai, & Muller, 2010). On the contrary indirect network effects occur when the utility of the product or service increases as the number of the complementary products increase. For instance, hardware and software industry is an example for indirect network effects. As the availability of software (supply side) for a particular technology increase, not only the whole hardware and software industry benefits, but also the sales of the hardware products (demand side) increase too. Consequently, as the number of hardware products increase, software companies benefit more and the variety of products they offer increase (Stremersch, Tellis, Franses, & Bincken, 2007). Another example would be the smartphone operating systems vs. apps where, as the number of apps increase the benefit received by the smartphone operating systems increase. Therefore, as the number of participants on one side of the platform increase, the utility received by the other party increases as well as

the new customer participation. This situation also applies to the start-ups operating in a MSP. It is suggested that if the number of supplier at a start-up is low, the success of the platform will also be low. Since the amount of offers delivered to the consumer will be low, they will receive little benefit. However, as the variety of suppliers increase, consumers will receive higher utility thus the app success will increase:

H<sub>3</sub>: Number of suppliers on the platform will have a positive effect on the success of the new MSP.

It is expected that both monetary and non-monetary incentives will have a more powerful positive effect on the success of the new MSP than no incentives. After observing that both strategies are beneficial for start-ups, this paper aims to determine which of the two is superior in motivating the consumers to download and use the app. Since the extent of the benefits consumers receive will vary under different number of suppliers, it is suggested for start-ups to follow different strategies when they have few, versus when they already have many suppliers.

At the early stages of MSP start-ups, potential consumers possess very little information about the service they will receive in terms of quality, usefulness, ease of use of the platform and so on. Since very little or no feedback exists due do the small size of the early adopters, uncertainty regarding the new service is very high. Consequently, consumers are hesitant against joining a platform where very little information is available. On top of that, when these platforms are subjected to indirect network effects, number of participants on the supply side becomes an important determinant in customers' participation to the platform. Under low number of suppliers where uncertainty is high, potential customers prefer to "wait and see" for others to join the platform which is defined as the "chilling effect" by Goldenberg, Libia and Muller (2010). Furthermore, potential customers also apply this approach to avoid adopting a service that might not be supported by the supply side or preferred by other users in the future (Goldenberg, Libai, & Muller, 2010). This effect is expected to have a larger impact on the MSP start-ups where the number of suppliers is low. Since the platform delivers limited offers to the consumers, they receive little benefit. Lee and O'Connor (2003) argues that the success of a product is not only dependent on the intrinsic benefits they deliver, but also on the extrinsic benefits too. New ventures must deliver sufficient extrinsic benefits to potential customers to

convince them into joining the platform (Lee & O'Connor, 2003). Since start-ups with low number of suppliers deliver limited service or option to the early adapters, they consequently deliver limited extrinsic benefit. However, delivering monetary incentives which feed the extrinsic behavior could be one way to compensate that shortage. Therefore, it is suggested that;

H<sub>4</sub>: When the number of suppliers is low monetary incentives will have a more powerful effect than non-monetary incentives on the success of the new MSP.

On the other hand, once the number of suppliers reach a certain level, consumers start receiving extrinsic benefits. At this point since extrinsic benefits are delivered due to the operations of the platform, it is believed that intrinsic benefits would motivate users more. Furthermore, as discussed earlier monetary benefits not always lead to an increase in the performance since they decrease the intrinsic motivation. Once a person's participation at an activity is rewarded, the intrinsic motivation they receive from that activity decreases (Gneezy & Rustichini, 2000). Thus, it is believed that delivering monetary incentives would decrease the altruistic motives of the users in the platform and decrease the performance. Since the platform already delivers extrinsic motivation due to the high number of suppliers, it is suggested that intrinsic motivations would have a greater positive effect on the likelihood of joining as well as using the platform.

Furthermore, it is suggested that when a start-up is newly launched; people may want to help the new venture and be intrinsically motivated into join the platform. They might want to contribute to the growth of the start-up, seeking lower extrinsic benefits. However, as the start-up grows, their reason for joining could be seen as a pure commercial endeavor (extrinsic benefit). Hence, delivering non-monetary incentives to feed the altruistic behavior of the potential consumers; could compensate the intrinsic benefits platforms lacks to deliver when they have high number of suppliers. Therefore, it is argued that;

H<sub>5</sub>: When the number of suppliers is high, non-monetary incentives will have a more powerful effect than monetary incentives on the success of the new MSP.

### **3. OVERVIEW OF THE STUDY**

This paper aims to test the above mentioned hypotheses empirically, hence an online survey was conducted. A total of 103 responses were collected using a within subject design technique. Furthermore, to avoid any biases and obtain the most concrete results the manipulation of the key dependent variable was shown in randomized order. Besides demographics part and the final two questions, all answers were collected in a Likert scale for the ease of the measurement.

To better explain the case to participants a real-life example was chosen. The company OpenTable is selected as a benchmark since the business model of the company is highly relevant to what is discussed in this research.

#### **3.1. OpenTable**

OpenTable is an online platform which enables users to make reservations for restaurants (OpenTable, 2017). The company was launched in 1999 in San Francisco with just a small number of restaurants where participants could choose from. Now the company has more than 40,000 restaurants in its portfolio in cities such as New York, Montreal, Berlin, Tokyo, Amsterdam, Zurich and so on (OpenTable, 2017). OpenTable grew from being a small start-up serving to a handful of people to helping more than 21 Million people each month (OpenTable, 2017).

OpenTable is not only chosen as an example because of their success story, but due to the relevance of the problem this paper aims to contribute to. The start-up also faced a chicken & egg problem where they not only had low number of suppliers but also customers too. However, they managed to overcome this challenge and they still operate successfully. On the other hand, the operations of OpenTable is highly adaptable to the situation presented in this research.

#### **3.2. Variables**

The ultimate goal of this survey is to evaluate the success of the newly launched applications which also corresponds to the dependent variable. Two measures drive the success of these apps; likelihood of joining the app and willingness to use the app. Initially to gain users, the app has to be downloaded by the customers, that is the first component of the dependent variable. However, downloading the app is only useful to a certain point if it is not used actively, there are millions of apps in various operating systems and their product life cycle is likely to

be very short. Thus, to evaluate the success of the new MSP's; willingness to use the app must be examined too (Gerlich, Drumheller, Babb, & De'Armond, 2015).

Furthermore, two independent variables are selected as they are expected to have an important effect on the dependent variable and manipulations on these variables are performed. Firstly, participants are exposed to two different profiles where the number of suppliers vary. As shown in the conceptual framework, these number of suppliers are manipulated as high and low. However, to make the survey more realistic and easy to relate to, real number of suppliers are assigned to each profile rather than communicating high and low. These numbers are chosen as 1,000 for the high number of suppliers and 20 for the low number of suppliers. The benchmark for these numbers are taken from OpenTable operating in European countries. OpenTable operates with highest number of restaurants in Berlin with 996 and lowest number in Zurich with 17 (Berlin Restaurants, 2017; Herrliberg Restaurants, 2017). The numbers are rounded to 1,000 and 20 in the survey to make it easier for participants to comprehend.

The second independent variable affecting the success of the app is the incentives delivered to the customers. For these incentives, the business model of OpenTable is fitting to what is proposed in the conceptual framework. OpenTable is a free platform for the users and they do not demand or deliver any monetary or non-monetary rewards, however in this case the respondents are introduced with 3 different incentive scenarios offered by ReserveTable; no incentive (control group), monetary incentive (6€ cash that can be used at the restaurant) and non-monetary incentive (free dessert in the approximate valuation of 6€). Thus, three different plots are created to manipulate the incentives. It is imperative to state that the amount of the monetary incentive and the approximate valuation of a free dessert is determined according to the dessert prices in the restaurants of Rotterdam. 10 restaurants have been researched and most expensive two dessert prices are gathered to evaluate the most accurate price. 20 dessert prices are collected in total where Figure 2 shows the data from different restaurants. After the data is compiled the mean and the standard deviation of the prices are taken to calculate the final price (Figure 3). Since the mean is calculated as 6,035; 6 Euros is chosen for the monetary incentive and the approximation value for non-monetary incentive. Lastly, the incentive prices are kept equal intentionally, so that respondents won't prefer one over the other to receive a higher gain. Otherwise, it could alter the accuracy of the effectiveness of different incentive types.

Restaurant	Most Expensive	2 <sup>nd</sup> Most Expensive
Aloha	7,50	7,50
Brasserie Pierre	6,50	6,50
De Ballentent	6,50	5,50
Thuis Bij Schell	6,50	5,50
Cafe 't Fust	6,50	6,00
GYS	6,00	6,00
Alan & Pim's	6,00	5,00
De Hemel op Aarde	5,95	5,95
Leaf Vegetarian	5,50	5,50
De Ballentent	5,50	4,80

**Figure 2. Dessert prices obtained from restaurants in Rotterdam**

	N	Minimum	Maximum	Mean	Std. Deviation
Dessert Prices	20	4.80	7.50	6.0350	.70414

**Figure 3. Mean and Std. Deviation table for dessert prices**

### 3.3. Method & Data Collection

To evaluate the success of an app under different incentives and number of suppliers, a questionnaire is formed to obtain the primary data. Respondents are guided through the survey initially by explaining the aim and presenting a background information of the case (see Appendix 1A). The first profile is presented to the respondents with a screenshot of the new imaginary app “ReserveTable” which contains 1,000 restaurants in their portfolio (see Appendix 1B). Afterwards, three different scenarios are shown where incentives are manipulated to capture the key dependent variable (see Appendix 1C). The aim of this section is to measure the dependent variable. These questions are shown in a randomized order to avoid the ordering bias. For these randomized incentive questions, a 5-point Likert scale is used. The same procedure is repeated for the second segment of the independent variable, number of suppliers. Once more, a screenshot of an imaginary app is presented to participants but this time the number of restaurants they can choose from is reduced to 20 (see Appendix 1D) which is followed by the three scenarios where the independent variable is manipulated at a randomized order (see Appendix 1C).



Moreover, a series of demographic questions were presented to obtain the socio-demographic characteristics of the sample set. Lastly, to guarantee that 1,000 restaurant offers are perceived as high and 20 as low; two questions were included at the end of the survey which inquired participants if they considered 1,000 restaurant options as high or low and 20 restaurant options as high or low (see Appendix 1E).

#### **4. DATA ANALYSIS AND RESULTS**

After completing the survey and gathering the relevant data, this chapter will present the analysis and the interpretation of the relevant dataset for the hypotheses. Initially demographics is presented to depict a more detailed picture of the sample set. Secondly, five hypotheses are tested in two different studies. Model 1 aims to compare the monetary and the non-monetary incentives on the success of MSP to the control group whereas Model 2 aims to test the remaining hypotheses. In both studies, linear regression is chosen as the most convenient statistical test.

##### **4.1. Participants**

A total of 103 responses were gathered where 53% of the attendees were male and the remaining 47% were female. Furthermore, the majority of the respondents were aged below 36 with 62% between 18 to 25 and 36% between 26 to 35. Income of the respondents is considered to be an important detail in this experiment since the incentives also include monetary benefits. 46% of the respondents were either students or they did not have an income, whereas 38% earned a maximum of 2,000 € a month. The remaining portion in respect was; 11% 2,000-5,000 €, 3% above 5,000 € and 3% preferred not to answer.

##### **4.2. Model 1**

To observe the effects of monetary and non-monetary incentives on the success of the new MSP a linear regression analysis is conducted via SPSS. Monetary and non-monetary incentives are introduced as the independent variable whereas likelihood of joining a new app is taken as the dependent variable. From the two dependent variables that are measured - likelihood of joining and willingness to use a new app- the former is analyzed initially. Furthermore, dummy variables are included in order to compare the impact of the incentives to the control group. Figure 4 shows the results of the model. Both independent variables have a significant effect on the dependent variable ( $p = .000$  and  $p = .001$  both smaller than 0.05). It can be concluded that both of them have a positive effect on the likelihood of joining a new app. Thus, when the monetary incentives are present, the likelihood of joining a new app is

increased by .424 compared to the situation where no incentives are delivered (Figure 4). This is also valid for the non-monetary incentives; when the respondents are given a non-monetary incentive, likelihood of joining a new app is increased by .332 in comparison to the control group.

	B	Standard Error	t	Significance Level
(Constant)	3.164	.078	40.536	.000
Monetary	.424	.110	3.839	.000
Non-monetary	.332	.101	3.295	.001

**Figure 4. Coefficients table for Model 1 (dependent variable: likelihood of joining the app)**

Secondly, to increase the accuracy of the results, control variables are introduced to the analysis. Age, gender and income of the respondents are controlled in the second test. The results yield that only gender has a significant impact on the independent variable of likelihood of joining a platform (Figure 5). Furthermore, while the impact of non-monetary incentives stayed the same, the impact of the monetary incentives increased to .431.

	B	Standard Error	t	Significance Level
(Constant)	3.744	.198	18.884	.000
Monetary	.431	.108	3.976	.000
Non-monetary	.332	.099	3.358	.001
Gender	-.259	.085	-3.061	.002
Age	-.092	.087	-1.061	.289
Income	-.124	.053	-2.349	.019

**Figure 5. Coefficients table for Model 1 with control variables (dependent variable: likelihood of joining the app)**

Moreover, when the adjusted R square is examined, the results show a low value of .023 (see Appendix 2A). This means that the two independent variables explain only a limited part of the dependent variable. Adding more variables to the model could have a positive effect on the adjusted R square and increase the value. Thus, the outcome is examined when the control variables are introduced and the result shows an increase in the adjusted R square, .060 (see Appendix 2B).

However, when the second dependent variable is tested, results depict a different picture. The regression analysis aims to present the effect of monetary and non-monetary incentives on the second dependent variable, willingness to use the app. It can be seen from Figure 6 that the independent variables do not have a significant effect on the dependent variable ( $p = .641$  and  $p = .310$  both greater than 0.05) showing that delivering incentives does not increase or decrease respondents' willingness to use the new app.

	B	Standard Error	t	Significance Level
(Constant)	3.186	.060	53.203	.000
Monetary	-.040	.085	-.467	.641
Non-monetary	.079	.077	1.017	.310

**Figure 6. Coefficients table for Model 1 (dependent variable: willingness to use the app)**

It can be concluded that the first two hypotheses are partially proven. Regarding the likelihood of joining a new app, it is observed that both monetary and non-monetary incentives motivate the customers more than not delivering any incentives. Thus, both intrinsic and extrinsic motivations have an impact on people's decision in joining a new platform. On the other hand, these motivations lose their effect when the engagement with the new platform is tested. The incentives do not influence consumers when they are required to use the new MSP.

### **4.3. Model 2**

Model 2 aims to test the remaining hypotheses with a multiple regression with interactions. Number of suppliers is introduced as an independent variable. Firstly, this study tests the sole effect of the number of suppliers on the success of the MSP followed by the impact of monetary and non-monetary incentives under high and low number of suppliers. For the accuracy of the research; gender, age and the income variables are controlled. With the introduction of a new variable, number of suppliers, an increase in the model fit is observed. In the first Model, with control variables, adjusted R square was calculated as .060 whereas now, it is increased to .113 (see Appendix 2C)

Figure 7 presents the results for the remaining hypotheses, we will first start with the 3<sup>rd</sup> hypothesis where it is expected that number of suppliers will have a positive effect on the likelihood of joining a new app. It was stated in 4.2 Model 1 that monetary and non-monetary incentives have a significant effect on the likelihood of joining a platform. The multiple regression analysis conducted with the control variables and the interaction effects; delivered

the similar results where monetary incentives and non-monetary incentives have a significant effect on the dependent variable. According to the analysis, number of suppliers not only have a significant effect on the likelihood of joining a new platform ( $p = .000$ ), but also a positive one ( $\beta = .733$ ). When the number of suppliers is high, the likelihood of joining a new platform increases by .733 units (Figure 7).

Secondly, to test the 4<sup>th</sup> and the 5<sup>th</sup> hypotheses, interaction of the two independent variables are introduced to the regression. The model for the first linear regression analysis is demonstrated below:

$$\text{Likelihood of Joining a New App } (y_i) = \beta_0 + \beta_1 \text{ Monetary Incentives}_i + \beta_2 \text{ Non-monetary Incentives}_i + \beta_3 \text{ Number of Suppliers}_i + \beta_4 \text{ Number of Suppliers}_i * \text{ Monetary Incentives}_i + \beta_5 \text{ Number of Suppliers}_i * \text{ Non-monetary Incentives}_i + \varepsilon_i$$

	B	Standard Error	t	Significance Level
(Constant)	3.391	.205	16.508	.000
Monetary	.563	.149	3.780	.000
Non-monetary	.586	.129	4.542	.000
Number of Supp	.733	.149	4.933	.000
Gender	-.262	.082	-3.192	.001
Age	-.102	.084	-1.209	.227
Income	-.118	.051	-2.318	.021
Numberofsupp*Mon	-.263	.210	-1.252	.211
Numberofsupp*Non-mon	-.389	.197	-1.974	.049

Figure 7. Coefficients table for Model 2 (dependent variable: likelihood of joining the app)

The model is tested via a multiple regression analysis with interactions which can be seen in Figure 7. After stating that independent variables; monetary incentives, non-monetary incentives and number of suppliers holds an impact on the likelihood of joining a new platform, gender and income as control variables are seen to have an influence on the dependent variable as well. Controlling for the effects of these variables on the dependent variable, it is observed that the effect of monetary incentives does not increase or decrease as the number of suppliers increase ( $p = .211$ ), showing no moderating effect.

Research's 5<sup>th</sup> hypothesis aims to disclose that non-monetary incentives will have a more powerful effect than monetary incentives when the number of suppliers is high. However, according to the outcome, it is observed that monetary incentives does not hold an impact on the dependent variable. The outcome shows that as the number of suppliers increase, the impact of the non-monetary incentives decrease ( $\beta = -.389$ ).

In order to check the second component of the independent variable, willingness to use, another multiple linear regression is performed. The results yield that only the independent variable, number of suppliers, have an impact on the dependent variable (Figure 8). As mentioned in 4.2 Model 1, the effect of monetary and non-monetary incentives is insignificant due to the level of the p-value, thus the interaction effects are also observed to be insignificant (respectively;  $p = .841$  and  $p = .608$ ). As for the 3<sup>rd</sup> hypothesis, it is can be said that the second determinant of the hypothesis is rejected according to the results; since as the number of suppliers increase the willingness to use the new app decreases ( $p = .000$  and  $\beta = -.442$ ).

	B	Standard Error	t	Significance Level
(Constant)	3.148	.160	19.735	.000
Monetary	-.060	.116	-.519	.604
Non-monetary	-.022	.100	-.220	.826
Number of Supp	-.442	.115	-3.833	.000
Gender	.183	.064	2.882	.004
Age	.035	.065	.531	.596
Income	.045	.040	1.128	.260
Numberofsupp*Mon	.033	.163	.200	.841
Numberofsupp*Non-mon	.078	.153	.513	.608

**Figure 8. Coefficients table for Model 2 (dependent variable: willingness to use the app)**

Lastly in order to make sure that number of suppliers given to the respondents are perceived as high for 1,000 and low for 20; an additional block of questions are included at the end of the survey. According to the results; 97% of the respondents recognized 1,000 restaurant options as high and 98% of the respondents perceived 20 restaurant options as low. This outcome aims to strengthen the accuracy of this research.

## 5. CONCLUSION

### 5.1. Discussions

The objective of this research was to assist early staged MSP start-ups in solving their chicken & egg paradox. As start-ups face many problems during the early stages of their launch, acquiring customers is crucial not only for their survival but also for their continuity. In addition to acquiring the initial user base, obtaining suppliers is vital for their success too. Many scholars agree that one way to overcome this issue is by presenting monetary incentives to trigger the extrinsic behavior. On the other hand, scholars propose that offering non-monetary incentives could also be used as a strategy to unlock the demand. Thus, this research aimed to prove that incentives motivate customers more than no incentives. Furthermore, while unlocking the demand, the number of suppliers is imperative to take into consideration since it alters the decision making of the consumer. Hence, it is researched that the motivation that monetary and non-monetary incentives bring, will differ according to the number of suppliers.

In order to respond to research questions, an empirical study was carried out by creating an online survey-based experiment. The research discovered that consumers' motivations vary when they are expected to download a new app vs. when they use it. The results suggest that; monetary incentives and non-monetary incentives have a positive effect on consumers' willingness to join to a new platform compared to no incentives. Furthermore, people are more likely to join to a new platform when the number of options they can choose from is high. However, when the willingness to use the app is researched, the results are different than expected. The research yields that presenting incentives to consumers does not increase or decrease their willingness to use the platform since the outcome was insignificant.

Furthermore, to study the impact of non-monetary incentives for the first component of the dependent variable, likelihood of joining a platform, a marginal effect is calculated. The calculations are applied by taking the derivative of the equation presented in 4.2 Model 2 with respect to the independent variable, non-monetary incentives. It is computed that when the number of suppliers is low, the effect of non-monetary incentives is 0.586 whereas; when the number of suppliers is high, the effect decreases to 0.197. It shows that non-monetary incentives have a larger impact on consumers' willingness to join to a platform when the number of suppliers is low.

## **5.2. Likelihood of Joining a New MSP versus Willingness to Use the New MSP**

The results show that people's motives differ when they decide to install an app, versus when they decide to use the app. This outcome holds a great importance for the app developers as well as start-ups which operates in the app space. In the end, most business models depend on having users actually using the app rather than simply joining or downloading it. This outcome was supported by a study where among the 30 million paid apps which were installed through Apple's App Store; the ratio of the installers who used the app the next day was only 30%. In addition, among the users who downloaded or purchased an app, only 5% of them still kept the app on their device three months after the download or purchase (Gerlich, Drumheller, Babb, & De'Armond, 2015). Thus, it is important to further examine and study the reasons why consumers seek different motives while joining a new platform versus interacting with the new platform.

Consumers value the quality of engagement they have with the app where they seek a flawless process (SmartBear Software, 2013). However, before joining the platform, users have limited information about the quality of the service they will receive. After joining the platform their experience becomes an important source in deciding whether to continue interacting with the app. According to a research carried out by SmartBear Software, among more than 1,040 software developers, testers and users; product quality is seen to be the biggest challenge faced by the app developers at being successful in the mobile world. Moreover, more than 50% of the respondents stated that they would delete the application from their device if they see a bug (SmartBear Software, 2013). This emphasizes the significance of the quality in the usage frequency of apps for consumers. The most important attributes which signals quality to the consumers are: functionality (26%), speed (20%), simplicity (16%), practicality (12%) (SmartBear Software, 2013). Furthermore, defective experiences with apps can also lead consumers to delete their apps. When consumers were asked of their negative experiences with an app; 22% reported that the app stopped working or showed error, 22% reported that the app did not work as it was supposed to, 16% stated it took too much time and 13% reported that it consumed too much of their battery (SmartBear Software, 2013). Therefore, while monetary and non-monetary incentives can attract consumers into a joining a new platform when interaction with the app is examined, product related attributes might hold a greater impact.

Another reason for the difference in motives could be explained by the different expectations consumers have from these two activities. David (1989) emphasizes two constraints that shape people's adaptation of information technology; perceived usefulness and

perceived ease of use. Perceived usefulness is the extent in which users find the system advantageous and thus leads to an increase in their performance (Davis, 1989). This constraint can be linked to the initial dependent variable tested in this research; likelihood of joining a platform. Consumers are more willing to join the platform if they believe they will benefit from it. Thus, companies and start-ups must generate platforms that will enhance the performance of users as well as create ease in their life if they seek to acquire more consumers. The second segment, perceived ease of use, is believed to have an impact on the willingness to use the new app. Perceived ease of use is defined as the extent where one believes using the system would not be difficult. He also suggests that, all else being the same, consumers would be more likely to engage with the app if it is easier to use. The characteristics of a system which is free of effort in use can be explained as; time to finish a task and the amount of the errors in the system (Davis, 1989). It differs from willingness to join the app since it is harder for consumers to signal the ease of use without actually joining the platform. A start-up can achieve large initial user base however, if the platform requires great amount of effort to use, it can easily be abandoned by the user (Davis, 1989). Hence, a user-friendly platform is suggested to motivate participants into using the app.

### **5.3. Academic Implications**

Even though previous literature pays great attention to the types of incentives and how they motivate consumers as well as employees, there are shortcomings when incentives are examined for the early staged start-ups. This research contributes to the theories of money market and social market by Heyman and Ariely (2004). Similar to their predictions, consumers in the money market (receiving monetary incentives) and social markets (receiving non-monetary incentives) are more willing to join a new platform. Extending their theory, number of suppliers is introduced in this paper and observed to have a positive relation with the motivation to join a platform.

Furthermore, as mentioned in the first section, MSP's are dependent on indirect network effects for their survival. Stremersch, Tellis, Franses, and Bincken (2007) stated that indirect network effects as well as the chicken and egg problem exists in sectors such as hardware & software, HD TV sets and HD broadcasting, CD and DVD players. As the number of participants or the products on one side grows, the other side increases too (Stremersch, Tellis, Franses, & Bincken, 2007). This research contributes to their work with an example from a mobile app industry performing in a MSP. It is shown that as the number of suppliers increase,



demand side will be more willing to join the new platform, stating the importance of indirect network effects once again.

#### **5.4. Managerial Implications**

For entrepreneurs aiming to start a new business, attracting demand holds great significance and it is yet to be discovered. Companies such as Airbnb, Uber and OpenTable had to acquire customers to establish a successful platform. This research can help entrepreneurs in establishing a strategy for their customers acquisition. There are managerial examples of incentives such as Uber; when they were newly established they provided free rides during the Austin SXSW Conference where due to the large number of attendance, transportation was a problem. In return, instead of implementing a large marketing campaign, the start-up gained huge awareness and initial customers via monetary incentives (Holiday, 2013).

This research supports the above mentioned example and provides more suggestions that are expected to be beneficial for entrepreneurs. Firstly, it can be advised that entrepreneurs need to get the attention of the consumers and attract them towards joining their platform. To do so, they are advised to deliver monetary or non-monetary incentives. For instance, if participants need to pay to receive the service or join the platform; a discount can be offered to create extrinsic motivation or if it is a free platform; a gift or a voucher can generate intrinsic motivation. This will lead consumers into taking the first step towards joining the new platform. However, this strategy is advised to the entrepreneurs solely at the stage of acquiring customers but not when the engagement is expected. Additional strategies are necessary to increase the frequency and the usage of the app since monetary incentives does not hold an importance.

Another strategy which could increase the frequency of use for MSP's, could be obtained by offering a trial period. Especially for platforms that are charging entry costs, allowing customers to test the product would decrease the uncertainty. For instance, Netflix; an entertainment streaming and production company, is delivering a free trial opportunity for its initial users which lasts for a month (Netflix, n.d.). This would help start-ups to attract new customers as well as achieve a larger user base. Furthermore, delivering a little taste of the product might lead consumers to come back asking for more which would eventually contribute to the likelihood of using the platform (Yoon, 2013).

Moreover, MSP start-ups not only have to obtain adequate number of consumers and suppliers, but also make a revenue to sustain its operations too. After stating the importance of monetary incentives, deciding on which side of the platform to charge follows as another

challenge to be solved. Even though presenting monetary incentives is shown to motivate consumers into joining a new platform, one side of the platform must be charged to generate revenue. For platforms where no price transaction takes place, it is suggested that the side which benefits more from the existence of the other side should be charged. On the other hand, when there is a price transaction between two parties; the side which receives more monetary utility from the existence of the other side is suggested to be charged. For instance, OpenTable is charging the restaurants for a commission since they already benefit from customers coming to their restaurants (Hagiu, 2014). In conclusions, since monetary motivations are important in joining a platform, new ventures must pay great attention to which side to charge. It is suggested that generating the revenue from the side which benefits more from platform would be more beneficial for the MSP start-ups (Hagiu, 2014).

### **5.5. Limitations and Directions for Future Research**

The first and the main limitation of this paper is the sample size. 103 Respondents participated in this research however, improving this number could alter the findings of the research in a positive manner. In addition, the experiment was conducted via a simple online survey including hypothetical examples. The application used in this research (ReserveTable) was an imaginary app; created only for the purpose of this study. For future research, a real-life app could be used and tested on real users (i.e., a randomized controlled field experiment) to increase the external validity.

Furthermore, in the initial regression analyses where the effects of monetary and non-monetary incentives on the likelihood of joining a new app was tested, the value of the adjusted R square was 0.023. This value only increased to 0.113 when additional variables were introduced. This shows that the independent variables explain only a limited part of the dependent variable. One of the reasons might be due to the small sample size of the research. Moreover, there could be other variables that have an impact on the success of the new MSP which could result in the low model fit. This suggests an issue with omitted variables which might bias the parameters, thus the results should be interpreted cautiously. Therefore, future researchers are advised to collect a larger sample set since the dependent variable is expected to be explained by the independent variable in a greater magnitude.

Secondly, as shown in 4.2 Model 1 and 4.3 Model 2; the type of incentives failed to explain the dependent variable of willingness to use the app. Therefore, for future research other variables should be introduced in order to explain the motives in app usage for customers. For

instance, among millions of apps offered to the consumers, every individual has a different choice of apps as well as different usage habits. According to a study, diversities in personalities and the psychological state can lead to different type of interactions with apps. The personal attributes can be listed as; extraversion, agreeableness, conscientiousness, emotional balance, and being open to new experiences which can lead to different technological habits (Kim, Briley, & Ocepek, 2015). The relation between personality traits and the adaptation of the newly established MSP start-ups could be interesting to examine for the future research.

Furthermore, the quality of the app is recognized as an important attribute affecting consumers' interaction habits with the platform. Since users value a platform which is free of error, improving the consumer experience could result in the increase of willingness to use. Users seek a platform which is; practical, fast, simple and functional (SmartBear Software, 2013). Hence, for future research the relationship with these attributes with willingness to use the platform could be examined. In addition, the perceived usefulness of the platform could be an important factor in people's decision of adapting a technology. If they believe that joining the platform will increase their utility, they are more likely to join the platform. Additionally, the perceived ease of use of the app has an impact on consumers' willingness to use the app. If they see the platform free of effort to use, they are more likely to engage with it (Davis, 1989). On top of the independent variables presented in this research, above mentioned factors could also have an impact on the dependent variable which could be interesting to study.

Moreover, participants of the survey were given only two options for the number of suppliers. There could be a possibility that 1000 restaurants would be perceived as a small selection for respondents; however, when compared to the other option it could be perceived as high. Thus, it is a subjective matter which could alter the decisions of the respondents. For the future research, a larger sample of number of suppliers could be presented to the respondents to better understand how the amount of the suppliers is perceived.

The amount of the incentives is also considered to be an important element for the participants. As stated in 3.2 Variables section, the amount of the monetary and the approximation price of the non-monetary incentive is determined according to the average dessert prices in the restaurants of Rotterdam, 6€. However, how respondents perceive this amount was not questioned in this research. It is possible that some respondents regarded this amount as high whereas others regarded as low. This is an important aspect that could affect the respondents' likelihood of joining a platform as well as their willingness to use it. Even

though this research previously agreed that presenting monetary incentives motivates consumers more than no incentives, according to the experiment conducted by Gneezy and Rustichini (2000), presenting small amounts of monetary incentives can lead to a negative performance. Participants who were offered no payment performed better than the ones with the small payment; concluding that small payment is not necessarily better than no payment since very small payment can be perceived as an insult (Gneezy & Rustichini, 2000). Therefore, in this research the amount of the incentives delivered is not specified as high or low and it is unknown how the respondents perceived it. On the other hand, there is no rule demonstrating what is high and low, every individual has their own perception of the quantity presented, making it hard to label in real-life (Gneezy & Rustichini, 2000).

Furthermore, in this research presenting monetary incentives was stated as being in the money market whereas presenting non-monetary incentive was stated as being in the social market. However according to Heyman and Ariely's (2004) research, once the respondents are given the amount of the non-monetary incentive, it is considered to be a mixed market rather than a social one. They concluded that once the monetary value of the non-monetary incentive is communicated, participants deviate from social market to money market meaning that the non-monetary incentive presented in this research could belong to the money market (Heyman & Ariely, 2004). For future research, introducing another non-monetary incentive without communicating the price could enable researchers to cover all three markets presented by Heyman and Ariely (2004).

Lastly, this research tests the hypotheses with an example from the hospitality industry. The results obtained from the survey might be subject to change when other industries are examined. Since there are millions of apps belonging to various industries and feeding different needs of the consumers, the results can be limited to explain the new MSP's performing in the hospitality industry (Android, & Apple, & Google, & Microsoft, & AppBrain, & BlackBerry, & Various sources (WindowsCentral.com, & International Games Week Berlin), & Amazon, & VentureBeat, & CNET, n.d.)

## **5.6. Summary and Conclusion**

This study aims to present insight on the impact of incentives on the success of the newly established MSP start-ups through a quantitative approach. To offer a solution to the chicken and egg problem that new ventures face, monetary and non-monetary incentives are presented not only to acquire the initial user base but also to motivate them into using the platform. To

reach an empirical outcome, an online survey is carried out, presenting an imaginary MSP app. According to the results of the survey, monetary and non-monetary incentives have a positive effect on consumers' likelihood of joining the platform compared to no incentives. However, these incentives do not increase or decrease as the users' engagement with the platform is tested. Secondly, to examine consumers' reaction to the number of suppliers; low and high number of suppliers are presented to the respondents. The results yield that as the number of suppliers grow, consumers' willingness to join to a platform increase. The effect of monetary incentives does not increase or decrease as the number of suppliers increase. However, according to the marginal effect, non- monetary incentives have shown to have a greater impact on the likelihood of joining a new platform when the number of suppliers is slow, compared to the situation where the number of suppliers is high. It can be concluded that since presenting monetary and non-monetary incentives feed the extrinsic and intrinsic benefit respectively, it could be used as a strategy to acquire the initial user base.

## REFERENCES

- Airbnb. (2017, March 20). *Airbnb referral program terms & conditions*. Retrieved March 29, 2017, from Airbnb:  
[https://www.airbnb.com/referrals/terms\\_and\\_conditions?offer\\_name=NL\\_localized\\_v4](https://www.airbnb.com/referrals/terms_and_conditions?offer_name=NL_localized_v4)
- Alanenpims. (n.d.). *New menu Rotterdam*. Retrieved July 15, 2017, from alanenpims:  
<http://www.alanenpims.nl/en/menukaart/menukaart-rotterdam/>
- Aloha. (2017). *Menukaart diner*. Retrieved July 24, 2017, from Aloha:  
<http://1vm4tl1uhpxw30op0l20kxmf.wpengine.netdna-cdn.com/wp-content/uploads/2017/04/aloha-diner-2017.pdf>
- Android, & Apple, & Google, & Microsoft, & AppBrain, & BlackBerry, & Various sources (WindowsCentral.com, & International Games Week Berlin), & Amazon, & VentureBeat, & CNET. (n.d.). *Number of apps available in leading app stores as of March 2017*. In Statista - The Statistics Portal. Retrieved July 14, 2017, from: <https://www.statista.com/statistics/276623/number-of-apps-available-in-leading-app-stores/>.
- Anghelcev, G. (2015). Unintended effects of incentivizing consumers to recommend a favorite brand. *Journal of Marketing Communications, 21*(3), 210-223.
- Artinger, S., & Powell, T. C. (2015). Entrepreneurial failure: statistical and psychological explanations. *Strategic Management Journal, 37*, 1047-1064.
- Ballentent. (2017). *Menu*. Retrieved July 15, 2017, from Deballentent:  
<http://www.deballentent.nl/menukaart/>
- Blank, S. (2013). Why the lean start-up changes everything. *Harvard Business Review, 91*(5), 64-72.
- Bonner, S. E., & Sprinkle, G. B. (2002). The effects of monetary incentives on effort and task performance: theories, evidence, and a framework for research. *Accounting, Organizations and Society, 27*, 303-345.
- Cafe'tFust. (n.d.). *Eatery / eetcafe*. Retrieved July 15, 2017, from Cafefust:  
<http://www.cafefust.nl/eterij>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly, 13*(3), 319-340.
- Dehemelopaarde. (n.d.). *Diner*. Retrieved July 15, 2017, from Dehemelopaarde:  
<https://dehemelopaarde.nl/menus-2/menus-2>
- Eisenmann, T. R., Parker, G. G., & Alstyne, M. W. (2006). Strategies for two-sided markets. *Harvard Business Review, 84*(10), 92-101.
- Evans, D. S. (2003). Some empirical aspects of multi-sided platform industries. *Review of Network Economics, 2*(3), 191-209.
- Evans, D. S. (2009). How catalysts ignite: the economics of platform-based start-ups. *Platforms, Markets and Innovation, 4*16.
- Fehr, E., & Falk, A. (2002). Psychological foundations of incentives. *European Economic Review, 46*(4-5), 687-724.

- Gerlich, R. N., Drumheller, K., Babb, J., & De'Armond, D. (2015). App consumption: an exploratory analysis of the uses & gratifications of mobile apps. *Academy of Marketing Studies Journal*, 19(1), 69-79.
- Gneezy, U., & Rustichini, A. (2000). Pay enough or don't pay at all. *The Quarterly Journal of Economics*, 3, 791-810.
- Goldenberg, J., Libai, B., & Muller, E. (2010). The chilling effects of network externalities. *International Journal of Research in Marketing*, 27(1), 4-15.
- Gysrotterdam. (n.d.). *Menu*. Retrieved July 24, 2017, from gysrotterdam: <http://gysrotterdam.nl/>
- Hagiu, A. (2014). Strategic decisions for multisided platforms. *MIT Sloan Management Review*, 55(2), 71-80.
- Hagiu, A., & Wright, J. (2015). Multi-sided platforms. *International Journal of Industrial Organization*, 43, 162–174.
- Heyman, J., & Ariely, D. (2004). Effort for payment a tale of two markets. *Psychological Science*, 15(11), 787-793.
- Holiday, R. (2013, September 03). Growth hacker marketing: a primer on the future of PR, marketing, and advertising. United States. Retrieved February 19, 2017, from [https://books.google.nl/books?id=NZoiAwAAQBAJ&pg=PT26&lpg=PT26&dq=%22rides+during+Austin%E2%80%99s+SXSW+Conference+for%22&source=bl&ots=c8y3kzBPGV&sig=Cxsq1vi5OrAtq1-sf4XTiUZraAE&hl=en&sa=X&ved=0ahUKewiDnMi\\_gJDSAhWGXBokHU33DAIQ6AEIITAB#v=onepage&q&f=false](https://books.google.nl/books?id=NZoiAwAAQBAJ&pg=PT26&lpg=PT26&dq=%22rides+during+Austin%E2%80%99s+SXSW+Conference+for%22&source=bl&ots=c8y3kzBPGV&sig=Cxsq1vi5OrAtq1-sf4XTiUZraAE&hl=en&sa=X&ved=0ahUKewiDnMi_gJDSAhWGXBokHU33DAIQ6AEIITAB#v=onepage&q&f=false)
- Jang, D., & Mattila, A. S. (2005). An examination of restaurant loyalty programs: what kinds of rewards do customers prefer? *International Journal of Contemporary Hospitality Management*, 17(5), 402-408.
- Jin, L., & Huang, Y. (2014). When giving money does not work: the differential effects of monetary versus in-kind rewards in referral reward programs. *International Journal of Research in Marketing*, 31, 107–116.
- Kim, Y., Briley, D. A., & Ocepek, M. G. (2015). Differential innovation of smartphone and application use by sociodemographics and personality. *Computers in Human Behavior*, 44, 141-147.
- Leaf-vegetarian. (n.d.). *English menu*. Retrieved July 24, 2017, from leaf-vegetarian: <http://www.leaf-vegetarian.nl/Menuwebsiteengels082016.pdf>
- Lee, S. (2016, September). *What Deliveroo did to get traction and become a billion-dollar company*. Retrieved July 24, 2017, from ReferralCandy: <https://www.referralcandy.com/blog/deliveroo-marketing-strategy/>
- Lee, Y., & O'Connor, G. (2003). New product launch strategy for network effects products. *Journal of the Academy of Marketing Science*, 31(3), 241-255.
- MeatRotterdam. (2017). *Meat is art*. Retrieved July 24, 2017, from Meat-Rotterdam: [http://www.meat-rotterdam.nl/wp-content/uploads/2017/06/Meat\\_Krant\\_DEF.pdf](http://www.meat-rotterdam.nl/wp-content/uploads/2017/06/Meat_Krant_DEF.pdf)
- Mellström, C., & Johannesson, M. (2008). Crowding out in blood donation: was Titmuss right? *Journal of the European Economic Association*, 6(4), 845-863.

- Mimouni-Chaabane, A., & Volle, P. (2010). Perceived benefits of loyalty programs: scale development and implications for relational strategies. *Journal of Business Research*, 63(1), 32-37.
- Netflix. (n.d.). *About free trials*. Retrieved July 25, 2017, from Netflix: <https://help.netflix.com/en/node/16282>
- OpenTable. (2017). Retrieved June 08, 2017, from Crunchbase: <https://www.crunchbase.com/organization/opentable#/entity>
- OpenTable. (2017). *Berlin restaurants*. Retrieved May 29, 2017, from OpenTable: <https://www.opentable.com/berlin-restaurants>
- OpenTable. (2017). *Herrliberg restaurants*. Retrieved May 29, 2017, from OpenTable: <https://www.opentable.com/herrliberg-restaurants>
- OpenTable. (2017). *Make restaurant reservations the easy way*. Retrieved May 29, 2017, from OpenTable: <https://www.opentable.com/start/home>
- OpenTable. (2017). *Our story*. Retrieved May 29, 2017, from OpenTable: <https://www.opentable.com/about/>
- Osterloh, M., & Frey, B. S. (2000). Motivation, knowledge transfer, and organizational forms. *Organization Science*, 11(5), 538-550.
- Pierrerotterdam. (n.d.). *Desserts*. Retrieved July 15, 2017, from Pierrerotterdam: <http://pierrerotterdam.nl/le-menu#desserts>
- Pritschet, L., Powell, D., & Horne, Z. (2016). Marginally significant effects as evidence for hypotheses: changing attitudes over four decades. *Psychological Science*, 27(7), 1036-1042.
- Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: classic definitions and new directions. *Contemporary Educational Psychology*, 25(1), 54-67.
- SmartBear Software. (2013). *2014 State of mobile software industry report full report*. Beverly: SmartBear Software. Retrieved July 21, 2017, from <http://www2.smartbear.com/rs/smartbear/images/SmartBear-2014-Software-Industry-Survey-Testing.pdf>
- Stremersch, S., Tellis, G. J., Franses, P. H., & Binken, J. L. (2007). Indirect network effects in new product growth. *Journal of Marketing*, 71(3), 52-74.
- Tercia, C. Y., & Teichert, T. (2017). How consumers respond to incentivized word of mouth: an examination across gender. *Australasian Marketing Journal*. doi:<http://dx.doi.org/10.1016/j.ausmj.2017.01.003>
- Thuisbijschell. (2016). *Eten*. Retrieved July 24, 2017, from Thuisbijschell: <http://www.thuisbijschell.nl/eten/>
- Yoon, E. (2013, May 02). *The generosity strategies that help companies grow*. Retrieved July 25, 2017, from Harvard Business Review: <https://hbr.org/2013/05/netflix-reported-another-great>



## APPENDICES

### Appendix 1: Survey

#### 1A)

Thank you for agreeing to participate in this survey for my thesis.

The following questionnaire is aimed to understand the likelihood of joining a new online platform. Imagine there is a new application launched in your city which allows you to make online reservations for restaurants similar to the OpenTable application. In Europe, OpenTable operates with a high of **996** restaurants in Berlin and a low of **17** in Zurich.

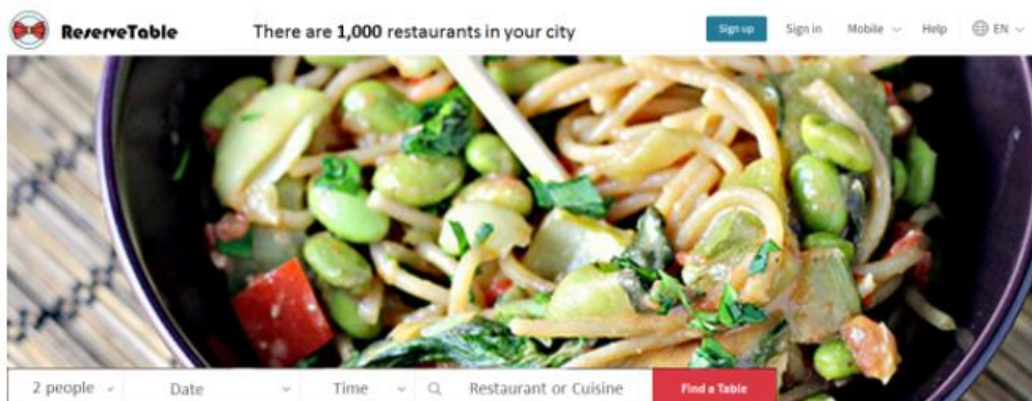
This survey will take no longer than 5 minutes, your answers will only be used for academic purposes and will remain confidential.

Thank you for your time.

#### 1B)

Imagine this app has just been launched in your city. The picture below shows a screenshot of the app in your city. You can see that you can make a reservation from 1,000 restaurants.

Now you will see a series of hypothetical scenarios regarding the download and usage of this app. Please imagine yourself in each of the scenarios and answer the corresponding question accordingly.



1C)

You can register by downloading the app, which is free.

	Definitely yes	Probably yes	Might or might not	Probably not	Definitely not
Would you download and install this new application in your smartphone?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

	Always	Very Often	Sometimes	Rarely	Never
If you had this app in your smartphone, how frequently do you see yourself using it to book a restaurant?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You can register by downloading the app, which is free. Moreover, if you register now you will receive a one time 6 € voucher that you can spend in a restaurant of your choice.

	Definitely yes	Probably yes	Might or might not	Probably not	Definitely not
Would you download and install this new application in your smartphone?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

---

	Always	Very Often	Sometimes	Rarely	Never
If you had this app in your smartphone, how frequently do you see yourself using it to book a restaurant?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

You can register by downloading the app, which is free. Moreover, if you register now you will receive a one time, free dessert (approximate value = 6€) at a restaurant of your choice.

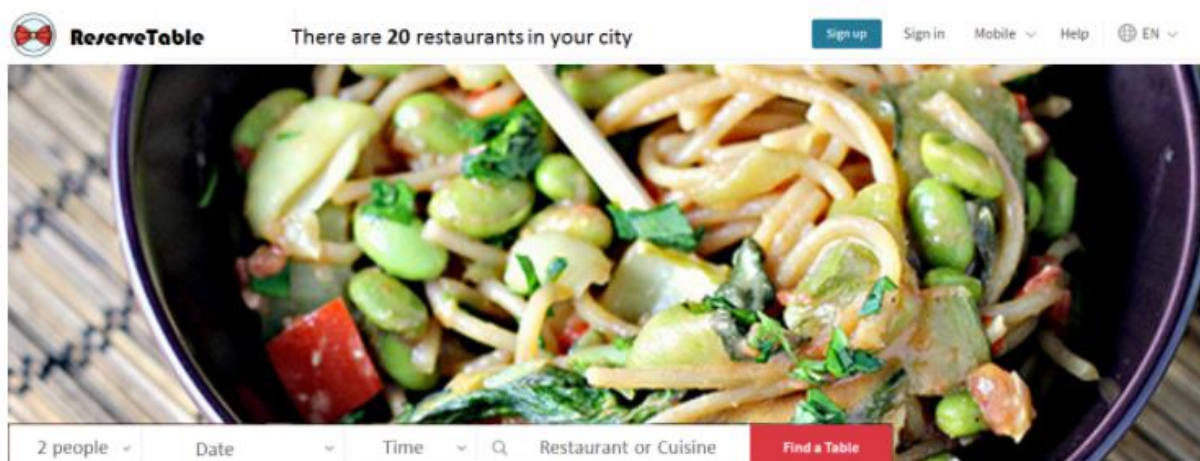
	Definitely yes	Probably yes	Might or might not	Probably not	Definitely not
Would you download and install this new application in your smartphone?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

	Always	Very Often	Sometimes	Rarely	Never
If you had this app in your smartphone, how frequently do you see yourself using it to book a restaurant?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

1D)

Now imagine the same situation but this time the app has 20 restaurants you can make a reservation from.

Please imagine yourself in each of the scenarios and answer the corresponding question accordingly.



**1E)**

1) Do you consider 1,000 restaurant options as high or low?

High

Low

1) Do you consider 20 restaurant options as high or low?

High

Low

**Appendix 2: Fit Statistics**

**2A)**

Model	R	R Square	Adjusted R Square	St. Error of the Estimate
1	.163 <sup>a</sup>	.027	.023	1.038

a. Predictors: (Constant), monetary, non-monetary

**2B)**

Model	R	R Square	Adjusted R Square	St. Error of the Estimate
1	.260 <sup>a</sup>	.068	.060	1.019

a. Predictors: (Constant), monetary, non-monetary, income, age, gender

2C)

Model	R	R Square	Adjusted R Square	St. Error of the Estimate
2	.348 <sup>a</sup>	.121	.113	.990

a. Predictors: (Constant), monetary, non-monetary, income, age, gender, number of suppliers