The lemon market theory

This paper emphasizes the consequence of an unbalanced information known as asymmetrical information proposed by George A. Akerlof in 1970 in his seminal paper, " The Market for Lemons: Quality Uncertainty and the Market Mechanism". Information asymmetry deteriorates the existence of market selling good quality products because the unbalanced information rendered to the buyers during their purchase provokes them to acquire the ownership of it. Incentives were obtainable by the sellers to sell these poor quality products (" lemons" by (A. Akerlof, Aug 1970)) which were also the reason that washed away the good quality businesses from the markets. To sketch out these issues, the Lemon Market Theory (LMT) introduced by (A. Akerlof, Aug 1970) is explained here. The paper also discusses the areas of market standards that ware affected by the lemon problem because the lemon problem highly influenced the main concern of any market, Trust. We finally wrap up with the applications where the LMT is used.

INTRODUCTION

The Lemon Market Theory (LMT) explained by (A. Akerlof, Aug 1970) in his paper describes how markets that sell good products is never identified because of poor quality supplying markets, as sellers of the poor quality products are provided incentives to sell their products. Incentives such as guarantees, warranties and brand names oppose the quality uncertainty issue. The LMT also focuses on the information asymmetry or unbalanced information between the buyer and seller, where the entire set of sellers take the credit for the quality of the product or service rather than granting the individual quality reward to the appropriate seller who provides the good quality ones. This result in extinguishing the existence of good quality sellers

from the market because their product's quality or service is never recognized or identified and they are not rewarded either (Devos, Landeghem, & Deschoolmeester, 2011).

(A. Akerlof, Aug 1970) in his theory also talks about " Cost of dishonesty" where the cost includes the dishonesty exercised by the lemon sellers to sell their products to buyers who know certain statistics of the market and consider average market quality. The cost also includes the demanding force that drives away the innocent good quality businesses from the market (Devos, Landeghem, & Deschoolmeester, 2011). He considers the cost of dishonesty to support the framing of " Business in underdeveloped countries is difficult" (A. Akerlof, Aug 1970)

(A. Akerlof, Aug 1970) Exemplifies the used car market to explain the LMT; majority of the data derived to investigate the LMT was from the used car market. " This theory gained importance in the e-commerce research area with research topics such as e-markets and auctions (Dewan & Hsu 2004; Lee et al. 2010; Pavlou & Gefen 2004)" (Devos, Landeghem, & Deschoolmeester, 2011).

Index Terms - Lemon Market Theory, quality uncertainty, information asymmetry, market quality

LITERATURE REVIEW

Automobiles Market as an Example:

(A. Akerlof, Aug 1970) Used the market for used cars to portray the lemon market problem. The problem finds its way by considering four kinds of car: new car, used car, good car and bad car (" lemons"). The buyer of a new car

buys without any prior knowledge of the car and thus the car maybe a lemon or it may not be a lemon. A used car could also be a good car or a lemon (A. Akerlof, Aug 1970).

To explain how innocent buyers fall into the trap by the trader, two probabilities are used. Probability p denotes the good quality and probability (1-p) denotes the lemon. After a span of time, the owner of the car assigns a new probability on a bad experience note. An asymmetry arises because the trading of the purchased lemons with the same price or even an equivalent amount spent during its purchase was impractical. (A. Akerlof, Aug 1970)

The lemon problem investigates using two types of information: asymmetrical information and symmetrical information. (A. Akerlof, Aug 1970) Assumes that the demands of a used car depend on the price of the used car as well as its quality and both the supply of the used car and the quality of the car depends on its price. Thus as the price falls, the quality suffers. From the utility theory, two type of traders, trader type 1 and trader type 2 are considered. By observing the income of the two types of traders, demands for the used cars will be the sum of the demands of both types of traders. On a contrast note, the symmetrical information proves that utility wins the contest and the income of the traders are not enough to buy automobiles. With several assumptions and conditions, quality is only half times the price of the car and trades take place when traders of one type (type 2) are capable of paying the price offered by type 1 traders. (A. Akerlof, Aug 1970)

Measurement of the theory:

In the paper SMEs and IT: Evidence for a Market for " Lemons" by Jan Devos, Hendrik Van Landeghem and Dirk Deschoolmeester Ghent University, Belgium, Devos et al derives a structure that was used to measure and verify and affirm the LMT. The figure below sketches out the basic network framework. (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for " Lemons", 2012)

Figure 1: Nomo logical network for LMT

Information Asymmetry: The unbalanced information between two communicating people of different backgrounds is Information Asymmetry. It is an " independent construct" because the skills of either of the two communicating people play a drastic role. Within the areas of trading, the buyer or the seller compromises on the trade based on the information exchanged between them. The information may be inappropriate or unbalanced attracting lemons into the market. (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for " Lemons", 2012)

Trust: Trust can be defined as, " Trust is a dependent construct and can be been seen as a coordinating mechanism based on shared moral values and norm supporting collective co-operation and collaboration within uncertain environments". It is a connecting dependent construct between information asymmetry and reputation. Information asymmetry destroys the trust among traders and thus spoiling the reputation of the trading company. Often trust is the key element between several successful businesses. (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for "

Lemons", 2012). Akerlof too describes trust in terms of dishonesty in his paper. (A. Akerlof, Aug 1970)

Reputation: Wilson (1985) defines reputation as " a characteristic or attribute ascribed to one person (or organization) by another (or organization)". Reputation is the reward to honesty. When a market lacks reputation, the traders use institutions to sell products of low quality, thus reputation could be a solution to the lemon problem; however, Yamagishi & Matsuda (2002) contradicted this. Reputation is never a one-man property; a group of traders who try to gain success out of it always inherits it. (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for " Lemons", 2012)

Adverse selection: The most common mistake all buyers do is selecting the wrong seller. The buyer has no prior knowledge about the product purchased and thus trusting the tactics the sellers impose, the buyers fall into their trap. From the seller's perspective, adverse selection results in loss in reputation and a prominent decline in the quality of the product. (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for " Lemons", 2012)

Moral hazard: Many a times, the seller does not meet the standard quality requirements of the buyer. He tries to hide information about the defect and problems in the product on sale, which gives rise to moral hazards. (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for " Lemons", 2012)

Validating the theory:

The Lemon Market Theory proposed by (A. Akerlof, Aug 1970)was validated to check if there really exits a lemon market in used vehicles (Hoofer & Pratt, 1987) and whether or not, bad products drive out the good ones in a used pick up truck market. (Bond)

Bond aims to disagree with the Lemon Market Theory, while Hoffer and Pratt aim to prove Bond incorrect.

Eric W. Bond in his paper " A Direct Test of 'Lemons' Model : The Market for Used Pickup trucks", argues that there is no appropraite information that proves, lemons empower the used car markets. Bond choose maintenance, a key to measure and evaluate the quality of a truck with high maintenance vehicles as lemons. These lemons drive out the non-lemons from the markets. It is natural that used vehicles have higher maintenance costs when compared to new vehicles, if it did not then all lemon owner would trade their vehicles for a new one. Nevertheless, if the " age and mileage was controlled, there would be no difference in the two categories". Reputation eliminates the chances of lemon entering the market, because rendering a bad quality may affect the reputation adversely. Information asymmetry disappears with the fact that buyers gain the required information and knowledge of the quality of the product thus there is no chances of buying a lemon. The market would result in trading the good quality vehicles obstructing or obscuring the entry of lemon. This contradicts with the (A. Akerlof, Aug 1970)'s Lemon Market Theory. However, Bond's finding did not last true for a very long time. Pratt and Hoffer proved him wrong. (Bond)

The paper, " Used Vehicles, Lemon Markets and Used Car Rules: Some empirical evidence" by George E Hoffer and Micheal D Pratt critiques on whether or not vehicle market was a lemon. According to (Bond), the used pickup truck market was a lemon as he proved from his theory that the maintenance costs of the non-traded pick-up trucks and traded pick-up trucks were same. (Bond). (Hoofer & Pratt, 1987) Verified this by using the information and the source of the information collected by Bond. They assembled cars prior to one year of purchase and cars owned for years into separate groups and discovered that the maintenance cost for the cars owned prior to a year was higher. Moreover, just incentives alone cannot drain out information asymmetry. (Hoofer & Pratt, 1987)

Solution to the Lemon Problem:

Lemon Markets results impacts of two kinds, which may be good or bad. A good impact may prevent the growth of a lemon market but a bad impact establishes a firm lemon market and thus the bad quality ones force the good quality products out. Thus, fresh traders finding their way into the markets can prevent the further growth of a lemon market. Innocent buyers save themselves from falling into trap of the sellers by being more aware of their purchase. This would comparatively reduce information asymmetry. Nevertheless, sellers can also contribute to the decline in information asymmetry by discussing the mechanical issues and problems of the used automobile thus saving an entry of new lemon into the market. (A. Akerlof, Aug 1970)

ADDITIONAL THEORIES AND THEIR RELATIONSHIPS

Figure 2: The links of the LMT with Agency Theory, Prospect Theory and Trust Theory (Devos, Landeghem, & Deschoolmeester, SMEs and IT: Evidence for a Market for " Lemons", 2012)

Agent Theory:

Agent Theory or Principal Agent theory (PAT) investigates the cause for the issues in an " outsourcing environment". It comprises of a Principal (owner) and an Agent (vendor). PAT being the basis for all IS research however does not contribute much towards the research. Goal difference, Risk behavior difference and Information Asymmetry are the three causes for the issues in the outsourcing environment. The Principal is hidden certain information and the Agent tries to act according to his will. This results in " opportunistic behavior" which further leads to adverse selection problem and moral hazards. (Jan, Landeghem, & Deschoolmeester, 2009)

Markets for the " lemons" theory:

LMT provides a description for lemons in a market. Vendors sell these products obtaining incentives and the reputation is been shared by not just a single vendor, rather the entire group. Adverse selection also results due to the existence of lemons in the market. (Jan, Landeghem, & Deschoolmeester, 2009)

Prospect Theory (PT):

PT defines the stages of decision-making. During the first stage, the editing stage, a tender is laid out, which may or may not be of great success.

However, it is in the second stage where the success of the tender plays a vital role within the constraints of risk. This stage solely depends on the ways of laying out the tenders. (Jan, Landeghem, & Deschoolmeester, 2009)

Trust Theory or Organizational Trust Theory (OTT):

According to Devos, Deschoolmeester and Landeghem, " Trust is crucial in business interactions characterized by mutual dependency combined with a lack of mutual control." (Jan, Landeghem, & Deschoolmeester, 2009) " As stated by Reed, his definition for trust was '[...] the essential character of all trust relations is their reciprocal nature. Trust tends to evoke trust, distrust to evoke distrust.... As trust shrinks, distrust takes over.'" (Reed, 2001)

Incomplete Contract Theory (ICT):

A contract is set between the principal and the agent with information asymmetry as its main rivalry. The contract is incomplete when the agent hides the future consequences of the product in trade and when the principal are no prior knowledge about the wiliness planned for him. However, a complete contract is a transparent one, which is not practical in a field like trading markets. (Jan, Landeghem, & Deschoolmeester, 2009)

APPLICATIONS

Insurance:

By associating the LMT to a medical insurance allowances, people over 65 years find it demanding to obtain a medical coverage for themselves. This is because of the price hike to acquire one. On the other hand, employees working in companies are offered insurance prior to their work to meet the company's policies and regulations. Therefore, there is more room for

lemons in the insurance field and less chances for the aged who require it more. This results in adverse selection by the insurance companies. (A. Akerlof, Aug 1970)

Employment of minorities:

Several companies disagree with the fact that certain positions open to the general public are also available to people of lower minority groups, here caste and racism plays its role. The background of a person judges his capabilities and working standards and thus the person hiring an individual refuses to hire one from the minority group. The company thus attracts lemons and minorities with higher working qualities and skills are restricted to opportunities to prove their technical and physical talents. (A. Akerlof, Aug 1970)

Cost of dishonesty:

Cost of dishonesty not only highlights the cost where the dishonest dealers sell products of low quality with warranties and discounts but the cost at which the high quality dealers disappear from the market. Underdeveloped countries suffer from this severe dishonesty problem as well fluctuations in the quality of the products sold. (A. Akerlof, Aug 1970)

CONCLUSION

The paper discusses the model for 'lemons' market where trust is of main concern. Information asymmetry results in several losses to the markets' reputation and trust is highly influenced by the dishonesty among traders. Cost of dishonesty describes the crucial terms of driving good quality sales

out of the markets. Adverse selection also results to empowering lemons in the markets, where the buyer is at fault.

Several guarantees offered stood as the main reason for production and trades to occur. An uncertainty encounters since, the guarantees are not permanent and the markets might suffer depreciation at any point. (A. Akerlof, Aug 1970). The rewards that belong to an individual vendor for producing a high quality product result in sharing among the entire group rather than the individual himself. The aspect of uncertainty includes the difficulty in differentiating the good quality products from the " lemons". (A. Akerlof, Aug 1970)