Efficiency, Entrepreneurship, and the Market for Lemons

Ethan Bunn*

February 1, 2020

Akerlof first brought to prominence the issue of asymmetric information to illustrate the apparent market failure in the market for lemons. While his analysis is true under constrained conditions, it does little to explain how this problem can be solved. Akerlof's conclusion regarding the car market are very pessimistic and antithetical to the general idea behind competition in a free market. Akerlof falls into the trap of failing to recognize the process of competition, and he postulates assumptions that leads him to his untenable conclusion. Not only will we see why Akerlof's analysis is flawed, but also how competition and entrepreneurship can mitigate this asymmetry of information.

JEL-Classification:

Keywords: asymmetric information, entrepreneurship, efficiency

*University of Minnesota, Department of Economics, 1925 Fourth Street South, Minneapolis, MN 55455. Email: bunnx030@umn.edu.

I would like to thank Jackson Mejia and Divya Goel for helpful comments and conversations. All remaining errors are my own.

1 Introduction

In the context of Akerlof, the lemons market refers to the used car market.[1] Akerlof was analyzing the problem of quality uncertainty and the market mechanism that functions in this particular area of the economy. However, as we will see later on, the supposed market mechanism Akerlof claims to exist is not there at all. Akerlof, like all economists do when formulating theories regarding competition, makes assumptions about the level of knowledge both agents have and then simply draws conclusions from it without explaining where these agents obtained this knowledge.

I will present a new interpretation of the used car market through a Kirzner-Hayek point of view regarding the role of competition, entrepreneurship, and knowledge in this market. Specifically, I will address the problem that Akerlof's paper presents. Assumptions are necessary when an individual is attempting to explain any economic phenomenon such as the effect minimum wage laws have on the labor market. While there are several other contributing factors involved, if we assume all other things are equal or approximately the same then an increase in minimum wages tends to hurt the labor market rather than help it. However, we will see later on that Akerlof's assumptions are not only incredulous, they also fail to stay true in a dynamic model.

We will also discuss the importance of efficiency and how the Austrian view of efficiency can be integrated into the lemons market problem and assist the consumers in their journey to find a reliable used car. It is almost impossible to find a used car that runs for less than one hundred dollars, and even if such a car does exist it is probably not a good car. Nevertheless, most individuals when buying a used car need it to get them from point A to point B on a daily basis. Therefore, they need something that is reliable and affordable. We will also discuss how efficiency and knowledge can be used together

1. Used cars that always have problems are usually referred to as lemons.

in a dynamic model. This model will illustrate how consumers obtain knowledge from purchasing cars and can use this knowledge for future car purchases, and subsequently pass that obtained knowledge on to the younger generations.

Entrepreneurship will also be discussed in great detail. Specifically, we will discuss the entrepreneurial role sellers have when competing with other used car dealerships. The sellers engage in entrepreneurship by utilizing vital information in the competitive market that will incentivize consumers to buy from them rather than from their competition. This entrepreneurial trend will then cause something similar to a leader-follower effect to occur whereby the competitors of the new entrepreneur will now follow the same entrepreneurial path as the leader. We will show that if Akerlof's assumptions about knowledge are relaxed, this dynamic model will help diffuse knowledge and allow consumers to utilize their newly obtained knowledge to maximize their utility, instead of simplifying the agents in the model down to the point of mere automatons who cannot think or learn from their daily experiences. Humans are not programmed machines. Humans are rational beings that have end goals and achieve those end goals by utilizing certain means. I will later show that the process to achieve these goals are a process of trial and error when uncertainty is involved.

Finally, I will conclude this paper by combining all of the above mentioned ideas into a different explanation of the lemons market. This will integrate competition, efficiency, information, and entrepreneurship. Additionally, it will show how the seller can become an entrepreneur by utilizing information in his possession and dispersing it to his consumers which allows him to benefit from an arbitrage opportunity. Similarly, the consumer will become knowledgeable about the used car market and will pass this information on to the younger generations both directly and indirectly.

2 Akerlof's Model

When Akerlof wrote this essay, he was addressing a specific aspect of asymmetric information: quality uncertainty. While this phenomena certainly pervades every market in the economy, Akerlof was deeply concerned with the used car market. Akerlof begins his essay by arguing that sellers have an incentive to sell poor quality vehicles "since the returns for good quality accrue mainly to the entire group whose statistic is affected rather than to the individual seller" (Akerlof 1970, pp. 488). Akerlof argues that since social and private returns differ in this market due to the reduction of high quality vehicles, "in some cases governmental intervention may increase the welfare of all parties" (pp. 488). Akerlof then proceeds to postulate his assumptions about the quantity of knowledge each party has. First, he assumes that the buyer has no knowledge pertaining to the used cars and he cannot obtain any knowledge of the used cars either; the consumer only knows the proportion of good cars to lemons (pp. 489). Second, he assumes that the seller has perfect knowledge about the quality of the used cars that he has on his sales lot (pp. 489).

Since the consumers have no knowledge about the quality of cars, all cars must sell at the same price since consumers only know the proportion of good cars to bad cars (pp. 489). Consumers give an expected value or average value of the used cars as their buying price. The price given in this market is then on an interval of possible prices. [2] As the story goes, the buyer approaches the car salesman and offers a maximum price he is willing to pay. There are two possible outcomes after this purchase is made. It could be the simple case where the buyer's maximum price he is willing to pay is greater than or equal to the price of the high quality used car. Here, the seller will simply sell the high quality car, according to Akerlof, and the buyer will be on his way. [3]

2. Akerlof never mentions if all consumers have identical preferences, however, he seems to be arguing as if they do.

3. While he never clarifies this completely, Akerlof is likely assuming that the seller will only sell the high quality car to the buyer and not deceive the buyer by selling him a lemon for the price of a high quality car.

The other case is more relevant. When the buyer's maximum buying price is less than the seller's price for a high quality car, the seller is forced to offer the buyer lower quality cars or lemons. This is where the supposed lemons market problem begins to appear. Akerlof claims that since consumers maximum buying price is too low, this will have a downward spiral effect on the used car market. He argues that eventually all the good cars will be driven out of the market due to consumer preferences. Used car salesmen will stop selling high quality cars due to his inability to sell them. Thus, he will only sell lower quality cars to consumers. This process will eventually drive out all good cars and leave consumers with only lower quality cars and lemons. Akerlof goes even further, however, and even says that not only will consumers be left with low quality cars; this process will eventually destroy the market altogether (Akerlof 1970, pp. 489-490).

3 Competition

Competition plays a pivotal role in every market of the economy. However, Akerlof unfortunately failed to recognize this pivotal role in his essay. I will show here why competition is so important in this market in particular. As Hayek once said, "the function of competition is here precisely to teach us who will serve us well: which grocer or travel agency, which department store or hotel, which doctor or solicitor, we can expect to provide the most satisfactory solution for whatever particular personal problem we may have to face" (Hayek 2016, pp. 364). In other words, consumers decide who provides the best product and producers compete to provide the best product in the most effective way. Of course, the consumers only decide who wins if there are no manipulations of the market by the government.[4]

Akerlof assumes that, like many other economists, the data for the prices are simply

4. For more on this, see *Bottleneckers: Gaming the Government for Power and Private Profit* by William Mellor.

given. That is, he never discusses the process by which these prices came about in the first place. He does of course discuss how the price will change in the used car market as the supposed lemons take over, however, he fails to explain where the prices came from in the beginning. This is important because when we have prices, this means that a competitive process occurred to bring them about. This implies that knowledge has already been obtained by some consumers and transferred to other consumers as well. Thus, it is unlikely that the consumer has no knowledge and cannot obtain any and as I will show later, it is unlikely that the seller will withhold information from the consumer. Akerlof also commits the same error many other economists have done: he sees competition as a situation rather than as a process (Kirzner 1973, pp. 89-94). Akerlof ignores the competitive process that occurs prior to prices arising. Nevertheless, we can fix this by giving a good explanation as to why competition is important in this market and what role it plays. First, when taking prices as given, rather than modeling their evolution, one may be left with an improperly descriptive model. I will argue that the competitive process is the main reason why these prices exist in the first place.

When dealing with the used car market, sellers have to be very competitive just like in many other markets. Individuals are purchasing these cars in hopes that they are reliable and durable vehicles. Sellers of these cars are always trying to offer great deals or provide as much information as possible when dealing with customers. However, sellers also have to worry about their competitors. Not only are they constantly testing their competitors with price drops and new offers, they are also dealing with their competitors offering similar opportunities to incentivize consumers to purchase their good over others (pp. 12). However, like most other markets low prices is not the only thing that incentivizes consumers to purchase producer A's car over producer B's. It is also about the credibility of the salesman. If salesman A is known for his "slick talking" and selling tricks, but his promises of a great used car never deliver, eventually word will spread both through the internet and daily interactions between individuals that salesman A is a liar.

If we take an introspective approach, we can see that service quality is another important factor that plays a role in the competitive process. When salesman B tries to give a consumer as good of a deal as he can on a used car, this consumer will likely tell their friends and family about the car they purchased from salesman B. This news tends to spread around until almost everyone knows that salesman B provides high-quality service to his customers. This process will bring about prices that sellers can utilize in their business-making decisions. While this may not seem important at first, think about what this process does to the buyers. Even if we assume that buyers have absolutely no knowledge regarding the quality of these used cars, it is quite obvious that as the competitive process begins to bring about prices buyers will inevitably gain some knowledge about the quality of the car they have purchased. This will help the buyer when purchasing their next car. We will elaborate on this more later on.

Thus, competition is the only reason why we have these prices in the first place. Without competition, it is impossible for the seller to know what the absolute lowest price he can charge for any car because he has no idea what his competitors are charging (Hayek 2016, pp. 363). This process necessarily reveals some amount of information to the consumer not only after he purchases the car but before it as well. Sellers will try to provide more information and more quality assurance than their competitors. This occurs because of the competitive process. As mentioned earlier, those sellers who provide the best product will win. Providing information and good customer service is a way to create a good reputation and keep long-term customers. An example of this might be one year of free oil changes for the consumer who purchases a car, or maybe the company will pay the interest on a used car for the first sixty months of the car loan that the consumer purchases. However, information will be revealed to the buyer in this process. Salesmen will have to explain to consumers why their cars are better than their competitors.

4 Entrepreneurship

Entrepreneurs are individuals who "are able to perceive opportunities for entrepreneurial profits; that is, they are able to see where a good can be sold at a price higher than that for which it can be bought" (Kirzner 1973, pp. 14). The economist Israel Kirzner argued that entrepreneurs are neither would-be sellers nor buyers, however, in this market the entrepreneur is a potential or current seller. These sellers can either have perfect information regarding the quality of the used cars as Akerlof assumed, or they can have incomplete information regarding the used cars as is normally the case. That is, while sellers usually have a substantial amount of knowledge regarding their used cars, it is almost impossible for them to have perfect knowledge about their used cars. Since our previous analysis covered the competitive process that brings about our prices in the market, let us now start at the point where the prices are not given, but rather arrived at.

As mentioned earlier, this lemons market problem is a problem of asymmetric information. The seller almost always has more knowledge about the cars they are selling compared to the potential buyers knowledge. However, we will not assume here as Akerlof did that sellers have perfect knowledge since "the introduction of ignorance opens up the possibility of such unexploited opportunities" (pp. 67). These unexploited opportunities are arbitrage or profit opportunities that current market participants are unaware of. In particular, the sellers will make a profit by selling higher quality cars to buyers, and buyers will benefit by obtaining knowledge about what constitutes a high quality car and they will obtain a reliable used car. Current or non-current sellers will see this opportunity to convince the buyers to purchase a higher quality car. As mentioned earlier, if the buyer is completely ignorant of the quality of the cars and only has an average value that is less than the price of the high quality car, then the seller cannot sell that car to buyers unless he uses information to give the buyer a quality revelation regarding the car.

There are many ways to show the buyers which cars are high quality. One of them is by using the online resource known as Kelley Blue Book (which will be referred to as KBB). KBB compiles data regarding most of the relevant specifications of cars and shows what the average range of prices are for that car. By using this, the seller can convince the buyer that he is charging the same price, or a potentially lower price, than his average competitor. However, KBB does not convey a lot of information about the quality of the car, it simply shows what the price is. One good tool to show the quality of the car is CarFax. This online resource provides information about a car regarding accidents, maintenance issues, and numerous other important details. The seller can use this to his advantage and convince the buyer that this car is indeed a high quality car. However, one of the best modern economic innovations to assist every market is the rating system. Car salesman with high ratings typically achieve this by being honest, knowledgeable, and as helpful as possible. If a seller uses this to his advantage, he can reveal the quality of the cars to buyers and potentially make a profit. For example, suppose that the prices for low, middle, and high quality cars are respectively 100, 200, and 300 dollars. Now, suppose that since the buyer doesn't know anything about the quality of the car, he is only willing to pay 250 dollars for any car, but if the quality is revealed he will be willing to pay 350 dollars for a high quality car. Now, if a large portion of the buyers going to used car lots are similar to this consumer, obviously there is an arbitrage opportunity to be made; however, even if they are not the same, there is still an arbitrage opportunity to be made in this particular case. If any seller uses his knowledge and reputation as a good salesman correctly, he will reveal information to the consumer about the quality of the car in order to achieve this arbitrage opportunity.

The seller has no incentive in the long run to hide this information from the buyers.

Even if we assume that the seller knows that the buyers value he places on the high quality car is less than the price being charged, he still benefits in the long run due to the aforementioned rating system. Honesty will help the salesman build up a reputation for future customers and this will help him in expanding his economic power in the used car market. Even without a rating system, the seller still has an incentive to produce this information, whether good or bad, in an open and honest way. As an analogy, economist Murray Rothbard wrote about criminals and voluntary courts in his book For a New Liberty. In it, he discussed how a criminal in a voluntary society who fails to comply with a judges decision would be ostracized from society almost entirely, leaving him with no job, friends, or potentially the ability to buy goods (Rothbard 1978, pp. 277-278). Similarly, the seller who refuses to reveal information or even worse, deceives his customers will inevitably lose his business due to a similar reason why the criminal loses everything. Word will travel fast about this salesman and people will warn others of his deceptive or dishonest selling tactics, which will leave him with nothing.

As you can see, this entrepreneurial opportunity in this market is far more subtle than other markets, and is slightly more nuanced. Rather than simply recognizing the disequilibrium of supply and demand and acting on it, the entrepreneur here recognizes an arbitrage opportunity as usual but he has to have the knowledge necessary to obtain this arbitrage opportunity. These knowledgeable sellers are similar to what Kirzner called the "producer-entrepreneurs" because they "are not only engaged in producing commodities for the consumers to purchase, they are concerned also *to make the consumer know* of the existence of these purchase opportunities" (Kirzner 1973, pp. 148). The purchase opportunities here are the high quality cars that the sellers want to sell due to profit motives. Even if after the buyer receives his quality revelation and the price is still too high, competition may drive the seller to charge a lower price for the high quality car in order to increase his reputation and test his competitors.

5 Knowledge and Efficiency

Since Akerlof assumed that the buyers had no knowledge and the sellers had all knowledge, we will now do the same here. We will also assume that the buyer cannot obtain any knowledge regarding the quality of the used cars *prior* to the purchase of the first car. However, Akerlof never mentioned anything about buyers obtaining knowledge about the cars after the purchase. Here, we will show that a dynamic model is required to explain how buyers use knowledge from previous used car purchases and use it not only to help themselves, but also to assist friends, family, and younger generations in purchasing high quality used cars. Tied up with this is efficiency. Since individuals have end goals, efficiency can be defined as individuals utilizing their best available means to achieve these ends (Cordato 1980, pp. 396-397). As individuals gain knowledge about their car after they purchase it, they can employ certain means to achieve their end goal of purchasing a reliable used car such as asking more questions about the car before purchasing it, checking the CarFax, checking KBB, and of course checking the reliability and credibility of the car salesman before making any final decisions.

Since buyers have no ability to gain knowledge of the first car they purchase, then they will simply go to a random car salesman, tell them what they are willing to pay, and then purchase a car. Now, we can generalize the quality of cars into three categories again here: high, middle, and low or lemon. If the buyer purchased a high quality used car, then he will likely have few, if any, problems with his car other than routine maintenance. He will rarely bring his car to the repair shop due to non-routine issues. Thus, it is likely here that the buyers price he offered to the seller was greater than or equal to his high quality car price.[5] The buyer will gain knowledge from this car and conclude that this is

5. Of course, not all cars with the same level of quality will have the same price, however, we can reasonably say that there is a lower bound of prices for high quality cars and here the buyer's price was greater than or equal to that lower bound.

a high quality car. Of course, the reasons why it is a high quality car are more difficult to determine at this point for the buyer, however, future cars will help him discover those reasons. Similarly, if the buyer purchases an average or middle quality car, he will also gain knowledge about the car and possibly some reasons why it is only a middle quality car.

However, if the buyer purchases a lemon, then he will definitely gain insight into the reasons why it is a lemon. He will have to bring his car to the repair shop all the time and the mechanics will always tell him what is wrong with his car. In this case, the buyer actually gains more knowledge about the quality of used cars than he would have had he purchased a middle or high quality car. Once the buyer gains this knowledge, he will be able to ask more questions when he goes to buy a different car. He can ask questions about engine quality, car mileage, who were the previous owners, how many accidents the car has been in, etc, and this is the buyer utilizing his available means, i.e. his knowledge obtained from previous cars, in order to achieve his end goal as efficiently and effectively as possible. Thus, instead of being in a inefficient "guessing game" when purchasing a different car, the buyer is now in a position to know what to look for in a used car and what actually qualifies as a high quality used car.

This obtained knowledge is not exclusive to individual buyers only. Instead, the buyer can choose, and likely will to benefit his friends and family, to disperse this knowledge to other individuals. For example, if Murray has bought several used cars in the past, all of which have been a variety of different qualities, then Murray's friend Walter may ask him to assist him in purchasing a used car. Murray being a good friend, decides to assist him and help his friend find a good used car. Since Walter lacked the knowledge to purchase a high quality used car, he is essentially in the same position as the original ignorant buyer. However, this problem of ignorance is alleviated through the introduction of obtained knowledge from his friend Murray. Similar to this situation, buyers who obtain this knowledge after purchasing used cars can also help family members and their own children. This knowledge of efficiently and effectively purchasing a high quality used car will then pass itself down to the younger generations both directly and indirectly. If Murray has a son named Tom and wants to help him purchase a used car, then he will use his knowledge to do so. Incidentally, Tom will both learn directly from Murray by instructions and lessons from Murray himself, and by listening to what Murray is saying to the salesman during the searching process.

Thus, as time goes by, this knowledge is dispersed among the general population more and more. This diffusion of knowledge will facilitate more efficient purchases of used cars, and will do the opposite of what Akerlof claimed the used car market will do. Instead of driving out the good cars and leaving only lemons left and eventually destroying the market altogether, knowledge among the buyers will increase and individuals will be able to differentiate more efficiently between different quality levels of used cars. This is a quality revelation moment that the buyer can have just by his own doing.

6 Conclusion

We have seen that competition, knowledge, entrepreneurship, and efficiency all play a salient role in this market. When we combine all of these elements together, we begin to see the errors of Akerlof and answer the question he sought to answer in his original essay. The competitive process brings about prices that we can use in later analysis. Also, prices themselves are used in competition as a tool by sellers to test their competitors. Competition drives sellers in this market to provide high quality service to their customers through honesty and quality assurance of the car they are attempting to sell. Modern sellers can effectively sell their used cars to buyers by utilizing modern technology such as KBB, CarFax, and the rating system. This allows them to convey information to their buyers that they are being honest and are trying to give them a good deal on their car. Finally, buyers can utilize knowledge gained from purchasing used vehicles and spread this knowledge both to individuals from their generation and to the younger generations as well.

As mentioned earlier, the buyers can obtain this knowledge all by themselves. However, the rate at which knowledge of used cars is being diffused can be increased when the entrepreneurial role of sellers enters the picture. Sellers will assist buyers by accelerating the quality revelation process by revealing information about the car to the buyer, and by providing evidence for it through the aforementioned tools at their disposal. All of this causes the used car market to provide high quality cars and drive out the bad cars or lemons. This diffusion of knowledge happened in the twentieth century. Before cars become a normal good for individuals to own, almost no one had knowledge about cars and the combustion engine. However, through this process of knowledge diffusion and entrepreneurship, quality revelations have been occurring since the introduction of the vehicle. Thus, the market is not going to destroy itself. Instead, it is functioning like most markets do: the bad products are driven out due to lack of demand, and the good products win the consumers over due to high demand.

References

Akerlof, George. 1970. "The Market for Lemons': Quality Uncertainty and The Market Mechanism." *The Quarterly Journal of Economics* 84:488–500. (Cited on pages 4, 5).

Cordato, Roy E. 1980. "The Austrian Theory of Efficiency and the Role of Government." *The Journal of Libertarian Studies* 4 (4): 393–403. (Cited on page 11).

Hayek, Fredrich. 2016. "The Meaning of Competition." *Econ Journal Watch* 13 (2): 359–372. (Cited on pages 5, 7).

Kirzner, Israel. 1973. *Competition and Entrepreneurship.* First Edit. 246. Chicago, Illinois: The University of Chicago Press. (Cited on pages 6, 8, 10).

Rothbard, Murray Newton. 1978. *For a new liberty: The libertarian manifesto.* Second Edi. 420. Ludwig von Mises Institute. (Cited on page 10).