

Wikipedia org on Akerlof, "The Lemon Market"

Asymmetrical Information

The paper by Akerlof describes how the interaction between quality heterogeneity and [asymmetrical information](#) can lead to the disappearance of a market where guarantees are indefinite. In this model, as quality is undistinguishable beforehand by the buyer (due to the asymmetry of information), incentives exist for the seller to pass off a low-quality good as a higher-quality one.

The buyer, however, takes this incentive into consideration, and takes the quality of the good to be uncertain. Only the average quality of the good will be considered, which in turn will have the side effect that goods that are above average in terms of quality will be driven out of the market. This mechanism is repeated until a no-trade equilibrium is reached.

As a consequence of the mechanism described in this paper, markets may fail to exist altogether in certain situations involving quality uncertainty. Examples include the market for used cars, the dearth of formal credit markets in developing countries and the unavailability of health insurance for the elderly (that is, in the absence of government programs such as [Medicare](#)).

However, not all players in a given market will follow the same rules or have the same aptitude of assessing quality. So there will always be a distinct advantage for some vendors to offer low-quality goods to the less-informed segment of a market that, on the whole, appears to be of reasonable quality and have reasonable guarantees of certainty. This is part of the basis for the idiom, [buyer beware](#).

Ironically, there is no reciprocal danger of a market for a good product collapsing in this manner when the asymmetry is in favour of the buyer, that is to say, when the buyers can assess more accurately the quality of the products than the sellers. In this case, regular market forces of supply and demand will prevail, the sellers will get the highest price paid, and the trend will be to weed out products with prices in excess of their quality. This is likely the basis for the idiom that an [informed consumer](#) is a better consumer. An example of this might be the subjective quality of fine food and wines (beyond just safety and freshness issues). Individual consumers know best what they prefer to eat, and quality is almost always assessed in fine establishments by smell and taste before they pay. However, a definition of 'highest quality' for food and wine eludes providers. Thus, a large variety of better quality and higher priced restaurants are supported.

[\[edit\]](#) Used cars: a "lemons market"

Akerlof's paper uses the [market](#) for used [cars](#) as an example of the problem of quality uncertainty. There are good used cars and defective used cars ("lemons"). The buyer of a car does not know beforehand whether it is a good car or a lemon. So the buyer's best guess for a given car is that the car is of average quality; accordingly, he/she will be willing to pay for it only the price of a car of known average quality.

This means that the owner of a good used car will be unable to get a high enough price to make selling that car worthwhile. Therefore, owners of good cars will not place their cars on the used car market. The withdrawal of good cars reduces the average quality of cars on the market, causing buyers to revise downward their expectations for any given car. This, in turn, motivates the owners of moderately good cars not to sell, and so on. The result is that a market in which there is [asymmetrical information](#) with respect to quality shows characteristics similar to those described by [Gresham's Law](#): the bad drives out the good.

- Suppose we can use some number, q to index the quality of used cars, where q is uniformly distributed over the interval $[0,1]$. The average quality of a used car on the market is

- therefore $1/2$.
- There are a large number of buyers looking for cars who are prepared to pay their reservation price of $(3/2)q$ for a car that is of quality q . There are also a large number of sellers who are prepared to sell a car of quality q for the price q . If quality were observable, the price of used cars would therefore be somewhere between q and $(3/2)q$, and the cars would be sold and everyone would be perfectly happy.
 - If the quality of cars is not observable by the buyers, then it seems reasonable for them to estimate the quality of a car offered to market using the average quality of all cars. Based on this estimation, the willingness to pay for any given car will therefore be $(3/2)(q_{\text{avg}})$, where q_{avg} is the average quality of all the cars.
 - Now, assume that the equilibrium price in the market is some price, p , where $p > 0$. At this price, all the owners of cars with quality less than p will want to offer their cars for sale. Since quality is uniformly distributed over the interval from 0 to p , the average quality of the cars offered for sale at p will be $p/2$.
 - We know however that for an expected quality of $p/2$, buyers will only be willing to pay $(3/2)(p/2) = (3/4)p$. Therefore we can conclude that no cars will be sold at p . Because p is any arbitrary positive price, it is shown that no cars will be sold at any positive price at all. The market for used cars collapses when there is asymmetric information.

George E. Hoffer and Michael D. Pratt state that the “economic literature is divided on whether a lemons market actually exists in used vehicles.” The authors’ research supports the hypothesis that “known defects provisions,” used by US states (e.g., Wisconsin) to regulate used car sales have been ineffectual, because the quality of used vehicles sold in these states is not significantly better quality than the vehicles in neighboring states without such consumer protection legislation. [\[1\]](#)

The term "[lemon](#)", in connection with cars, did not enter the language of economics as a result of this paper. Rather, it came from a "Lemon" Volkswagen advertisement from the 1960s. [\[2\]](#)

[\[edit\]](#) Criteria for a lemon market

1. Asymmetry of information
 - no buyers can accurately assess the value of a product through examination before sale is made
2. all sellers can more accurately assess the value of a product prior to sale
3. An incentive exists for the seller to pass off a low quality product as a higher quality one
4. Sellers have no credible disclosure technology (sellers with a great car have no way to credibly disclose this to buyers)
5. Deficiency of *effective* public quality assurances (by reputation or regulation)
6. Deficiency of *effective* guarantees / warranties

[\[edit\]](#) Other "lemons markets"

There are other markets where buyers face the problem of quality uncertainty and information asymmetry. In reality, no existing market can be accurately described as a complete lemon market, because if the above criteria were met entirely, the market would not exist. In reality, any market might exhibit a trend towards decreased quality and decreased sale value, due to the lemon market principle, if the consumer is less informed and empowered than the seller. Below are described some of the worst-case scenarios where markets fail to exist or have demonstrated extremely low quality products due to uncertainty.

[\[edit\]](#) Used computers

There are good used computers and defective used computers ("lemons"). Computers are one of the

most defect-prone consumer products[citation needed]; hundreds of computers or computer components are recalled each year due to defects, and many of these products still end up in the marketplace (e.g. LCD monitors with dead pixels)[citation needed]. Assessing the value of a used computer can be technically challenging or impossible for most consumers, but a computer expert selling the used machine may know better the true value of their product. This asymmetry causes the same series of events described for automobiles above, where sellers can't get a fair price for their good products, with the net effect of a non-existent or low-quality used computer market[citation needed].