

### **Credence goods and the problem of fraudulence through overtreatment**

In markets that specialize in expert services, the provider can typically observe the quality of the good or services that the consumer needs while the consumer cannot. Such markets that are characterized by an asymmetry of information, where the expert sellers interact with uninformed buyers are known as markets for credence goods. The major problem that transpires in said markets is provision of goods or services that do not fit the needs of the customers, either through i) undertreatment where customers are charged for goods or services that have not been provided or by ii) overtreatment where more sophisticated than needed services are provided, creating a supplier induced demand. Markets for credence goods are thus susceptible to moral hazards such as frauds.

While the issue of undertreatment can be tackled by creating a liability and/or verifiability clause that expert service providers have to abide by, the issue of overtreatment is more nuanced. There needs to be a certain level of trust that the providers are serving to the best of their abilities but that leaves room for a possibility of exploitation. This problem is widely experienced in the healthcare sector where it is difficult to establish whether the treatment prescribed is a correct fit for the patient or if tests and complications that are not required are advised to increase the practitioner's financial gains. In a 2020 research paper titled *Health services as credence goods: a field experiment*, Gottschalk et al. provide direct evidence of physician's treatment decisions and their determinants. The researchers had a single patient visit 180 randomly chosen dentists for a checkup. The field experiment had a 2x2 design condition. The patient either undertook a standard visit (condition ST) or he informed the dentist that he had uploaded his X-ray to an internet dentist platform, signaling a second opinion (condition SO) and he simply asked for a diagnosis, a treatment recommendation, and a cost estimate. Further, measures of market, practice and dentist characteristics were also collected to establish a complex role of socioeconomic status and competition intensity on overtreatment recommendation. As the physicians did not know that they were being recorded, the researchers were also able to eliminate experimenter demand effect, which refers to changes in behavior exhibited by experiment subjects that adhere to cues of what an appropriate behavior would be in a study. As the experiment was a field study, it had a number of notable advantages. By employing only one test patient, they controlled for variation in patient characteristics, which allowed them to establish overtreatment as a result of the variation in the conditions. By using a healthy patient who did not actually require any treatment at all, the researchers were able to establish the level of overtreatment from all the dentists the patient visited. The field experiment also allowed for the researchers to objectively establish the patient's illness and the appropriate treatment

The findings of the study were robust. The researchers reported an overtreatment recommendation rate of 28%, 50 out of the 180 dentists advised overtreatment in the healthy patient. Of the overtreatment recommendations, the average overtreatment cost was around \$550 and the median around \$455. They also observed fewer overtreatment recommendations when the test patient displayed a high socioeconomic status rather than a low socioeconomic patient. This finding exposes the exploitative nature of overtreatment recommendation as

those with lower SES may have been perceived to be more vulnerable to doctor recommendation. While the findings did not demonstrate the influence of competition intensity, the researchers made an interesting association between the waiting time for the next possible appointment and overtreatment. A shorter waiting time was associated with a significantly higher level of overtreatment recommendations. This finding suggests that dentists that are freer and therefore more in need of patients are more likely to propose unrequired treatments.

An aspect of credence goods is the idea of moral hazard. Moral hazard is the tendency for people to make less effort to minimize the costs or risks connected with their activities when they are not fully responsible for those costs or risks. In the case of a patient visiting the doctor, it would be when they do not hesitate to take on extra tests if they are covered by an insurance and therefore don't need to cover their medical costs themselves. The moral hazard hypothesis states that people with a more comprehensive insurance coverage have weaker incentives to avoid exposure to risk. Insurance, however, may also influence how the practitioner behaves. If the doctor assumes that the patient is unconcerned with cost minimization because they have insurance, the doctor might be more likely to recommend or prescribe more expensive treatment. This behavior exhibits a second-degree moral hazard, where the knowledge of the receiver's lack of incentive to cost minimize in turn incentivizes the provider to profit maximize by increasing the cost for the receiver.

Balafoutas et al. explored the second-degree moral hazard in 2017 with a field experiment in the Greek market for taxi-riders as a follow up to their 2013 study where they revealed that when customers reveal that they are not familiar with the destination, more detours are taken, and riders are overcharged. The 2017 study examined how the perception of an existing moral hazard between the consumer and the reimbursing employer effected the seller of the service. Four research associated took rides between 8 am and midnight on 11 different routes throughout the city of Athens 15 days in March 2013 and July 2014, covering each day of the week at least once. Data on each route were collected on several days and the researchers collected a total of 400 observations. The main experimental variation that made the 2017 study different from the 2013 one was that the passengers indicated that they needed a receipt in order to have their expenses reimbursed by their employer. This condition was referred to as the moral hazard treatment. In the control treatment, the passenger simply asked for the receipt and made no mentions of reimbursement. The researchers hypothesized that passengers would be overcharged, showing more prevalent and pronounced fraudulent behavior on the part of the drivers in the moral hazard treatment.

Their findings showed a statistically significant and economically pronounced likelihood of overcharging of passengers in the moral hazard treatment. Passengers were 17% more likely to pay a higher price than was justified for a ride. However, the rate of overtreatment did not actually differ across the control and the moral hazard, therefore showing that while second degree moral hazard does not increase the degree of overtreatment, it doesn't still significantly raise the extent of it. The drivers who did not overcharge, didn't do so in both conditions but the ones that did overcharge made the passenger pay a lot more.

Both the studies are reflective of the role of human psychology when it comes to exploitation, fraudulence, and corruption. In *Animal spirits*, Akerlof discusses that while Adam Smith's thought experiment correctly identifies that a rational man pursues economic interest, it fails to take into account the extent to which people are also guided by noneconomic motivation. The two papers show that there is a tendency to overtreat when given the opportunity and a pronounced motivation to do so when providers can see that their fraudulent behavior does not actually directly affect the person availing the service. Knowing how the psychological nudge of non-accountability creates fraudulence is relevant because we are all consumers of the credence goods market, and it creates awareness for institutions and policymakers to pay attention and create policies that can reduce exploitation.