

Microeconomics with Ethics

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Chapter 4

Exchange and Market Ethics

The pure exchange model incorporates the standard assumptions of self-interest motivation, mutually voluntary exchange, and perfect information. What many people fail to recognize, including many economists, is that these assumptions imply that the trading individuals comply with a set of moral or ethical principles. This is a very important point because many people incorrectly imagine that the economic agent assumed in models (sometimes called homo-economicus, or, economic man) is so greedy that he is allowed to do anything to advance his own interests. In other words, people often say that the economic agent can act with unfettered self-interest. This view is a misconception. In actuality, individuals must adhere to a simple set of ethical principles in order to assure mutually beneficial outcomes. This section explains what those principles are.

4.1 Self-Interest and Cooperation

Learning Objectives

1. Learn why self-interest is necessary for trade to occur.
2. Learn why trade requires cooperation and a willingness to rely on others.

The self-interest assumption for Smith and Jones is an important one because without it trade is unlikely to occur. If either one did not care about increasing his utility through trade then there would be no reason to bring products to the market. Perhaps people would come together to converse and share stories, but if there were no goods and no trade then there also would be no market.

Raising one's own utility is the motivation that leads Smith and Jones to trade. However, trade also requires a willingness on the part of both to cooperate. To understand why, we can revise the story of the model by assuming that one of the participants (say, Jones) was raised to believe in self-sufficiency. Perhaps he was taught that reliance on others is risky and so one should always provide for oneself rather than cooperate with others. In this case Jones is still self-interested, except his interest is satisfied only if he does not come to rely on Smith for his happiness.

If this were the case, then Jones would have no desire to trade with Smith if they ever were to meet in a market. Although Smith may try to convince Jones that his happiness can rise with trade, Jones would refuse since it goes against his principle of self-sufficiency. Presumably, the value of Jones's self-sufficiency conviction outweighs the utility he would get from consuming an otherwise more satisfying mix of apples and oranges. We can still contend that Jones is self-

interested, except that now Jones derives utility not only from consumption but also from the mechanism by which the goods are secured.

In this case, Jones's desire for self-sufficiency is an ethical constraint on his behavior; one that would prevent the realization of any gains from trade. Smith's willingness to cooperate and strike a deal with Jones can likewise be considered an ethical conviction. As such, a set of ethical principles that includes a requirement for self-sufficiency is inconsistent with markets. Instead, a market consistent set of ethical principles must include cooperation and a willingness to rely on one another; both traders must share this conviction. That means markets require social cooperation to function.

Key Takeaways

1. If individuals are not self-interested and do not pursue greater utility, then trade will not occur.
2. An ethic of self-sufficiency is incompatible with trade.
3. A market consistent set of ethical principles must include cooperation and a willingness to rely on one another.

4.2 Honesty and Markets

Learning Objectives

1. Learn why the perfect information assumption implies the traders act honestly.
2. Learn why dishonest behavior can result in win-lose outcomes.

Perhaps one reason Jones's parents would teach a principle of self-sufficiency is because they may have had bad dealings with traders in the past. Jones's father may have tested markets in his time only to learn that traders invariably would claim to be selling high quality products when in actuality the products were of low quality, or, would promise to deliver goods in the future but would fail to do so. Most of us have had incidents in our life where the products we purchased were not what we thought we were buying.

For example, suppose Smith is interested in maximizing utility by all possible means. Suppose his endowment of 10 oranges in the previous example is partially of poor quality. He may know that some of the oranges are bruised, tasteless and are mostly inedible. However, to maximize his utility, it is in his self-interest to withhold that information from Jones. One possibility is to package the oranges and wrap them in plastic, thereby making it impossible for Jones to inspect the oranges but at the same time suggesting they are easier to carry away. By placing the best oranges on the top of the package, Jones might infer that all the oranges are of the quality of those exposed. Smith might also prevent his customers from opening the package for inspection by arguing that it would ruin the packaging.

If Jones asks Smith whether all the oranges are of the same quality as the ones in view, Smith could respond dishonestly and say that all the oranges are all of the highest quality. By being deceptive, Smith is seeking a higher price for his oranges in exchange for apples with Jones. He is trying to get Jones to trade on the basis of information that Smith knows is false. In this way

Smith's utility will be higher after trade but Jones will be worse off after he learns the true quality of the oranges. It is even possible he will be so much worse off that he will regret that he even made the trade.

In many real-world situations, consumers do have perfect information, especially for goods purchased infrequently. In contrast, when products are purchased regularly, the consumer learns how to identify good quality from bad quality. She may also learn which companies, or which stores, sell products that more closely match her preferences. In these types of situations, the perfect information assumption is probably valid. However, in many other situations, especially when trades occur only occasionally, the consumer usually does not have perfect knowledge.

In the pure exchange model, we assume that traders have perfect information about the products they are buying and that the products are homogeneous. The latter assumption is made so that the terms of trade do not vary depending on which apples are traded for which oranges. Homogeneity assures that all goods are of identical quality. The assumption of perfect information assures that traders know everything they need to know to make the decision about whether to trade and what terms of trade are acceptable. Both high and low quality goods may be brought to the market, but perfect information assures that the price of lower quality goods will be lower.

Perfect information also means that Smith or Jones is not deceived. Successful deception would result in a terms of trade that is negotiated on the basis of false information. Consequently, Smith or Jones may be worse off after trade than before, once they later realize the deception. Thus, to guarantee that trade is mutually advantageous, we must rule out the negative outcomes that can arise via trickery and deceit.

Sometimes the lack of knowledge in the real world inspires entire businesses that do nothing more than acquire and transmit information about products to potential consumers. Examples include Consumer Reports, CNET.com, Expedia.com, Hotels.com, and Progressive Insurance. The presence of these types of market activities help achieve a market outcome that is closer to the assumptions made in standard economic models.

Alternatively though, we can say that the assumption of perfect information in the pure exchange model is equivalent to assuming honest behavior on the part of the traders. Traders are expected to make full disclosure of the features and qualities of their products. Individuals are also presumed to know precisely how much utility a product of that quality will yield. Honesty also means that promises (or contracts) are fulfilled. If a trader promises to ship a product to someone later, then the product that arrives must be what was expected and in the period of time offered. If promises cannot be fulfilled for reasons outside the control of the traders, then honesty requires traders make reasonable amends. (e.g., returning money or providing a discount)

Honesty is a moral and ethical principle that most everyone is taught from an early age. Our parents teach us to always tell the truth and not to hide information from others. Religions around the world impart the same moral teachings. In economics, honesty helps assure that trades are mutually advantageous.

Honesty is sufficient to guarantee mutual benefits, but it is not a necessity. For example, consider a merchant who is just a little dishonest and hides the fact that several units of a large

product shipment are defective. Full knowledge of the defective products would alter the purchaser's willingness to pay (i.e., the terms of trade) for the product. Once the purchaser discovers the defective products she will surely feel the trade was less favorable than expected, however, she may still be better off relative to not having traded at all. In this example, deception shifts the surplus value created through trade from the buyer to the seller, but both might still be better off than before trade. For this reason, markets may continue to function and lead to mutual benefits as long as dishonesty is not too severe.

Key Takeaways

1. The assumption of perfect information and homogeneous goods in the pure exchange model is equivalent to assuming that the traders are honest, fulfill their promises and do not engage in deception.
2. Deceiving another about the quality of a traded product or failure to fulfill a promise to deliver the expected products may result in a loss to the deceived trader.
3. If misinformation about a product is minor, a trade may still be mutually beneficial, however, the allocation of the surplus value will shift in the direction of the deceiver.

4.3 Property Protection and Markets

Learning Objectives

1. Learn how the assumption that trades are mutually voluntary implies an ethical principle involving the respect for property.
2. Learn that a respect for property rules out theft, threats and violence against others.
3. Learn how theft, threats and violence are alternative mechanisms to trade that can improve the well-being of a person, but not without simultaneously reducing well-being of another.

In the pure exchange model individuals are assumed to seek maximum utility via mutually voluntary trade. However, within the context of the model it is possible that a much higher utility can be obtained than through trade. For example, Smith's utility would be at the ultimate maximum if he could obtain all of Jones' apples while simultaneously keeping all his oranges.

To obtain all of the goods, Smith would need an alternative mechanism instead of trade. One possible method is via force. Smith could hit Jones over the head and rush off with all of his apples. A second method is a threat of violence. Smith could threaten to hit Jones over the head if Jones doesn't give him all his apples. Finally, Smith could obtain all the apples via stealth. When Jones leaves his apples momentarily unattended, Smith takes the apples and flees.

No one would hesitate for a moment to call these actions theft. Smith is clearly stealing the apples from Jones in all three cases. It is also clear that mutually voluntary trade is not occurring. Smith will become better off through these actions but Jones will clearly be worse off. Nonetheless, it is worth considering why Smith or Jones would not resort to these actions if their motivation were indeed to maximize their own utility.

Utility maximization *by all means possible* must include the use of violence as a mechanism. Indeed, if Smith considers the use of force against Jones to obtain all the apples, Jones may

equally consider the use of force against Smith to acquire all of Smith's oranges. The result could be an all-out battle between the two to gain sole possession of the available goods.

The use of force against others to obtain valuable commodities is a common occurrence. Warfare generally involves armed conflict to acquire control of another nation's resources. Indeed, warfare has such a prominent position in the historical record that history often seems to be mostly about the sequence of wars among peoples and the leaders who led these battles. Although modern people decry the use of violence against others, violence and theft continue to be widespread around the world.

In the pure exchange model, the assumption that exchange is mutually voluntary is critically important and worthy of further discussion. Its importance is best seen by considering how much more difficult trade would be if violence, theft and coercion were a more common occurrence. For example, if Smith or Jones were regularly attacked or threatened and had their items taken away from them then they might respond in several possible ways. First, the traders might decide to stay away from the market. Why go to a market to trade if your safety is threatened and your goods are stolen? A second response would be protection. If others threaten you with a big club, then bring a bigger club. If items are regularly stolen away secretly, then hide them or secure them so no one else can find them or take them. A third response is to develop a mutual respect for the property of each individual. If individuals had a moral code that proscribed violence, coercion and theft; if individuals believed that what's mine is mine and what's yours is yours to do as you like with it; if people would refrain from the urge to satisfy their self-interest by taking; then markets could function and trade would lead to mutual benefits. Clearly this option is difficult to obtain because it requires shared sentiments and cooperation.

In other words, the existence of a market and its effectiveness depends on people adhering to a simple set of ethical constraints respecting the personal property of others. If we also imagine that each person is an individual who is free to exercise control over his or her own person (i.e., a person owns herself), in which case any act of violence against another person can be seen also as a violation of the moral principle of respect for property. Thus a respect for property proscribes both theft of objects as well as violence or injury to another person.

Where these moral constraints come from is subject to further discussion and debate. One might believe that God communicated the moral code by commanding humans not to steal or kill each other. Alternatively, one could imagine that once surpluses began to arise during the agricultural revolution in the early Neolithic age, early humans also discovered that mutual gains and improvement of living standards were possible, but only if people cooperated with each other in markets and followed a new ethical code of behavior. The code of market ethics includes respect for the property of others, proscribes violence, theft and coercion, and promotes honesty and trustworthiness. With these features in a model of exchange, traders have the incentive to come together in markets, exchange to their mutual benefit, and repeat the process over and over again.

Reality Check

In the pure exchange model we assume that the traders who come to the market have perfect information and that all exchanges are mutually voluntary. These assumptions imply moral or ethical constraints on the behavior of the traders. In particular, we are assuming that individuals are honest and trustworthy. They do not deceive each other about the nature of the

products. They fulfill their promises. They respect the property of the other and do not steal. They do not use force or violence to injure each other or to coerce an exchange that is not acceptable. If an individual wishes not to trade, he has the freedom to leave the market without relinquishing his possessions.

These assumptions may seem quite strong because violence, theft and deception are clearly a part of the world we live in. Some even claim that the behavioral assumption of self-interest does not match reality because humans have social sentiments that include altruism, compassion and concerns about fairness. This contention is somewhat misguided though since, as shown in this section, the basic behavioral assumption in economics is not unmitigated self-interest, but rather self-interest constrained by a set of moral or ethical principles. Furthermore, the ethical constraints are not just a part of the pure exchange model, but are a feature of every economic model in which producers and consumers come together in a market and voluntarily exchange one thing for another. Thus, every time we analyze a market using supply and demand curves, traders are assumed to be following the ethical principles unless an assumption is otherwise explicitly relaxed.

In addition, economic models are developed to simplify the world while shedding light and understanding on economic phenomenon. A model is never a perfect depiction of the real world and we should not expect it to be. What the pure exchange model demonstrates is the conditions that are necessary and sufficient to assure that market exchange will benefit all participants. The model says that mutually beneficial outcomes for all traders will arise if the ethical principles are fulfilled. If the ethical constraints were not satisfied, then exchange might generate mutual benefits occasionally, but that outcome would not be logically assured.

Key Takeaways

1. The code of market ethics includes respect for the property of others, proscribes violence, theft and coercion, and promotes honesty and trustworthiness.
2. The existence of a market and its effectiveness depends on people adhering to a set of ethical constraints respecting the personal property of others.
3. If the ethical principles are not followed, then mutually beneficial outcomes cannot be guaranteed.

4.4 Self-Interest vs. Greed

Learning Objectives

1. Learn a method to distinguish between self-interest and greed.
2. Learn why greed, when applied in markets, results in negative outcomes.

Greed is generally viewed as a vice that is responsible for many of the problems that human society faces. Indeed, greed is listed as one of Christianity's seven deadly sins. And yet, it is not uncommon for economists to suggest that greed is a good thing. In the movie *Wall Street* (1987), Michael Douglas' character makes an impassioned speech that many accept, arguing that greed has marked the upward surge of mankind. How can we account for such an extreme difference of opinion?

Greed is defined in the dictionary as an intense selfish desire especially for wealth and power. Alternatively, we might say that greed is extreme self-interest. However, in defining it this way, it would be useful to establish criteria for when self-interest is extreme and when it is not. The above discussion provides a method for doing so.

The pure exchange model highlights that self-interest of the traders is a necessary condition to inspire trade; without it there would be no trade. In addition when traders meet in a market and adhere to the ethical constraints proscribing violence, coercion and theft, while maintaining honesty and trustworthiness, then trade is win-win. Both sides leave happier than before trade. However, if Smith or Jones violates the ethical constraints, then they may be able to raise their own well-being even more, but only at the expense of the other person. Self-interest without ethics may generate a win-lose outcome.

Ethics then can be applied to distinguish self-interest from greed. Self-interest becomes extreme, that is, it turns into greed, whenever one's self interest is satisfied via unethical means. If a person betters him or herself using violence, theft, or deception, then self-interest has gone too far. However, if a person satisfies his or her self-interest in a market while always adhering to these ethical principles, then all gains for oneself are simultaneously generating gains for others in mutual win-win trades. Self-interest is indeed necessary for markets to work; but self-interest without market ethics goes too far and thus can be classified as greed.

Key Takeaways

1. If a person pursues her self-interest while adhering to the ethical constraints described in this chapter, then market, or trading, outcomes are win-win.
2. If a person pursues her self-interest, while violating one or more of the ethical principles described in this chapter, then mutually favorable market outcomes are unlikely to arise. In this case outcomes will likely be win-lose.
3. Self-interest becomes greed when it is satisfied by violating one or more of the ethical principles. In other words, greed involves securing self benefits via deception, non-fulfillment of promises, theft, violence, or threats of violence.

4.5 Ethics Enforcement

Learning Objective

1. Learn some of the private and public mechanisms that are used to help enforce ethical behavior in modern society.

Although the ethical constraints assumed in the pure exchange model are not always fulfilled in the real world it is worth exploring the wide variety of mechanisms and institutions that have developed to induce compliance with these principles. The mechanisms can be categorized in two ways: private and public. Private mechanisms involve rules of behavior developed within households and communities to induce particular behaviors. Religions are perhaps the most important of these private mechanisms. Public mechanisms involve to use of government, or state-power, to induce certain types of behavior among its citizens.

First, in the private realm, there are self-protections. One way to prevent theft is to erect fences and walls, put valuable commodities into locked storage chambers, and hire guards with advanced weapons to defend the products. To defend against deception one could inspect all items carefully before purchasing and develop long term trading relationships with trustworthy merchants. Merchants can attest to the quality of their products by offering guarantees and warranties. They may also provide free samples or have independent external organizations evaluate and report the quality of their products to customers.

Secondly there are moral codes often propagated by religions. One way to prevent theft is to instill a belief among peoples that theft is wrong. If parents, or elders, or authoritative figures in a community, would teach the value of ethical behavior, then perhaps people would conform to these behavioral constraints. However, these lessons may be difficult to instill especially if those who lie, steal and cheat could consistently raise their own well-being by behaving unethically. So how could the wise elders convince others to comply with a code of ethics?

One way might be to turn ethical behavior into morality and to imagine that the moral code is commanded by a higher authority. Perhaps religion developed as a method to induce people to act in more socially advantageous ways. In a simple rendition of modern religion, God is a being, external to society, who lives forever. He is omnipotent and all knowing which implies that one can never hide one's actions from Him. He provides a moral code for people to follow that includes commands not to kill, steal or lie to each other. He demands respect, adoration and obedience to Himself and the moral code He provides. And finally any violation of God's wishes can lead to eternal damnation and suffering. In other words, any temporary benefit on earth that arises from immoral behavior will be more than made up for negatively in the afterlife. Viewed in this way, religion is an ingenious system to induce social cooperation. When religious beliefs are strong in a community, it may help raise the well-being of society by stimulating the conditions needed for markets to thrive.

A third way to induce ethical behavior is via the power of the State. States can establish rules or laws and develop mechanisms to enforce them and to prosecute those who would violate them. For example, all modern States have established property rights systems that determine who can own what and how to register and track ownership of valuable property. Laws prohibit individuals from stealing or damaging the rightful property of others. Laws also prohibit violence against each other including murder, assault, and rape. In addition, laws are established to prevent dishonesty including prohibitions against fraud and other deceptions.

Domestically, police forces are established to monitor and arrest violators of national laws. Judicial systems are put into place to assess the guilt or innocence of suspected violators and to determine punishments. Punishments are either established by the law itself or determined at the discretion of judges. These punishments depend on the seriousness of the crime and can range from monetary fines to incarceration or even to the death penalty.

The protection of property and the infringements on individual freedom by foreign nationals are protected through the establishment of military forces.

Thus, much like religions, legal systems are another ingenious method to induce social cooperation. When effective, they can help raise the well being of society by stimulating the conditions needed for markets to thrive.

All three methods - private protections, religious codes and legal systems - work together to help maintain compliance with the system of ethics that help markets function more effectively. Although violation of these principles is common, it is also remarkable how often they are adhered to. One test is to imagine for yourself how many of the purchases you made in the last week, or month, yielded positive benefits? How many times were you satisfied with the trades you made? In contrast, how many times did you feel swindled? How afraid were you of your personal safety in markets? How often did you have something stolen?

Although most people could tell stories of market thefts and deceptions, whether to themselves or other acquaintances, most of the time trades are made in safe conditions, with good knowledge about the products being purchased. When the ethical conditions are not satisfied though, markets do not thrive. Nonetheless, the private, public and religious institutions that have developed over a long period of time play a crucial role in making markets work more effectively.

Key Takeaways

1. There are two types of mechanisms used to instill compliance with the ethical principles: private and public.
2. Private mechanisms include religions, community standards, and private protection schemes such as fences, safes and guards.
3. Public mechanisms include all state laws prohibiting unethical behavior and the judicial system mechanisms designed to enforce those laws.
4. Both mechanisms, private and public, work together to help markets function more effectively.

4.6 Application: The Role of Market Intermediaries

Learning Objective

1. Learn to evaluate the ethics of market transactions through examples such as those that occur with market intermediaries.

Case 1: Market Intermediaries in Foreign Exchange

As discussed above in section 3.7, market intermediaries can help solve information problems in markets and can improve the outcome. For their services, intermediaries receive a portion of the surplus value that accrues to the producer and the final consumer so that all three parties can benefit from the transactions. However, consider the following examples where intermediaries may overstep the boundary into potentially unethical behavior.

First consider a bank that provides currency exchange services for its customers. A bank serves as an intermediary between buyers and sellers of one currency in exchange for another. The buyers and sellers themselves would have a difficult time trying to find a counterpart to trade currency with, but a large bank has the ability to match large numbers of sellers with large numbers of buyers and in exchange for this service is entitled to receive a portion of the surplus

value arising out of trade. As you will see, some currency exchanges make their fees very explicit while others attempt to hide them.

Case 1) For example on Jan 21, 2022, one online company offered to sell a customer Canadian dollars (CAD) for US dollars (USD) at the rate 1.255 CAD/USD. In addition they charged an explicit fee that totaled \$1.27. To do the calculation, subtract \$1.27 from \$100 to get \$98.73 and then multiply by the exchange rate 1.255 to get \$123.91. This means that USD100 would result in CAD 123.91 in your pocket after making the exchange. In this case the customer can clearly see that a fee is being collected and knows the amount of the fee.

Case 2) On the same day, another currency exchange company offered to make exchanges at the following rates. They would sell Canadian dollars (CAD) to a customer in exchange for US dollars (USD) at the rate 1.23036 CAD/USD. But at the same time and on the same page they also offered to sell USD for CAD at the rate 1.27759 CAD/USD. These exchange rates differ from each other because the company is collecting a fee on every trade that is made. The central exchange rate at this time was 1.255 CAD/USD, which is the same as the rate the company in case 1 reported for its exchanges. This is also the rate at which a large customer, someone selling more than a million dollars, would be able to exchange currencies.

To illustrate how the fees work in this case, assume you exchanged US\$100 for CAD with this company. In this case you would receive $100(1.23036) = \text{CAD } 123.04$. Suppose you immediately sold the CAD back to this company in exchange for USD. In this case you would receive $(123.036)/1.27759 = \text{USD } 96.30$. At the end of two trades you will wind up with less money than when you started. The total cost to you of the two trades was $100 - 96.30 = \$3.70$ or \$1.85 per trade. This is not deceitful, or a trick; it is simply the way in which the company charges a fee to its customer for the exchange service it is providing. Although fees are not mentioned by this company, most consumers who deal with currency trades regularly should recognize that the difference between the buy and sell exchange rates means that they are collecting a fee for the transaction. [Note, at airport currency exchanges you will almost always see a buy and a sell exchange rate posted as in this example. If a fee is also being collected, that is on top of the fee already being paid with the different buy-sell exchange rates]

Case 3) Finally, again on the same day, a third currency exchange company advertises that they will exchange currencies with no fees and at competitive exchange rates. However, after connecting to their website, the only way to find out the rate was to open a free account. After doing so, their deal was an exchange rate of 1.2241 CAD/USD so that USD 100 → CAD 122.41. Thus, no fees and competitive exchange rates turned into either a relatively high fee or the least competitive exchange rate among the three examples given here.

These examples are useful in understanding how companies sometimes manipulate information in their advertising to attract more customers. The most transparent company, from the examples above, is clearly case 1. That company reports the central current exchange rate, which is the most competitive available, and it explicitly lists its transactions fee. It also turns out to offer the best deal among the three cases. The second case is perhaps slightly deceptive, especially for any consumer that doesn't understand why two different exchange rates are listed for trades. However, for anyone with a little background knowledge, like all of you now have after reading this section, the fact that a fee is collected should be obvious. In my experience though, the spreads between the buy and sell rates for currency are often quite wide, especially at airport exchanges, indicating that there are usually hefty fees being charged here despite no explicit mention of transactions fees. Case 3 is clearly the most ethically egregious case. This

company claims it is not charging a fee, but is really hiding the fee by offering the least competitive exchange rate among the three companies profiled here.

There are several important lessons here. First, one should never believe a company's claim that they can offer you a service with no fee. Although that may occasionally occur, (for example as a temporary promotion) it is not a sustainable business practice and usually means that the company is making money from you in some other way. Second, notice how deceptive business practices can sometimes be "mild" or only slightly egregious. Case 2 is an example where some people may be fooled into thinking that since no fee was charged, it must be a good deal. However, case 2, with no explicit fee, is worse than case 1, with an explicit fee. Also, although case 3 is the most egregious, because they claim there is no fee when there actually is one, this case is still only mildly deceptive. Any person with a little understanding of currency exchanges will not be fooled by this. However, many other people will be fooled and this will enable the deceptive company to take more surplus away from its consumers.

Finally, note that even if the consumer in case 3 is fooled into dealing with this company, the consumer is still better-off after making the exchange. If not, they would not have accepted the trade. The consumer does not lose in an absolute sense. They lose only relative to the better deal that was available, but not taken, and this occurred primarily because of the lack of perfect information. The deceptive business benefits itself by being able to take a greater portion of the consumer surplus that otherwise would have accrued to the consumer. If in contrast, information were perfect, as is often assumed in economics models, then the consumer could not be tricked into an inferior deal.

Case 2: Market Intermediaries in the Stock market

The following is an example of financial businesses that have arisen who claim to be serving market interests as a market intermediary. However, as you will see, what is actually occurring is extremely complicated and more akin to sophisticated theft.

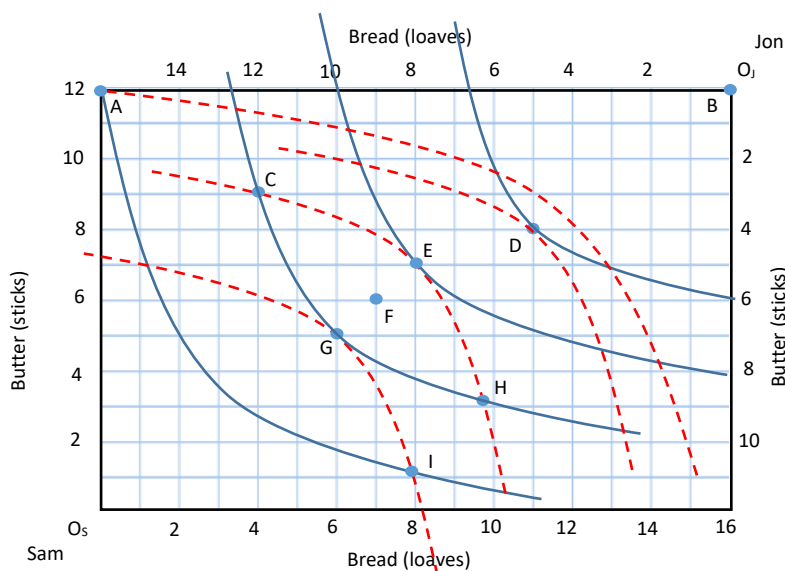
High-Frequency trading (HFT) in the stock market is a phenomenon that began in the early 2000s and is well-documented in [Michael Lewis'](#) book, *Flash Boys*. In the book he argues that some of what HFT firms do is similar to the notion of stock front-running. Wikipedia offers the following description of front-running,

For example, suppose a broker receives a market [order](#) from a customer to buy a large block—say, 400,000 shares—of some stock, but before placing the order for the customer, the broker buys 20,000 shares of the same stock for his own account at \$100 per share, then afterward places the customer's order for 400,000 shares, driving the price up to \$102 per share and allowing the broker to immediately sell his shares for, say, \$101.75, generating a significant profit of \$35,000 in just a short time. This \$35,000 is likely to be just a part of the additional cost to the customer's purchase caused by the broker's [self-dealing](#).

In other words, because the broker knew an order large enough to affect the price was about to be executed, the broker ran in front of the order (frontrunning) so as to buy low before the price was bid up, and sell immediately after the price was bid up by the large order. In doing so, the broker used inside information, meaning info only known to a small number of insiders, to make a personal gain. This situation is an example of unethical behavior because it would enable someone who is merely processing a transaction, to take advantage of information known only to him because of his position. This is illegal and violators can be, and have been, prosecuted for this.

Keeping this story in mind, let's switch to an simplified example of HFT by recalling some hypothetical trades of bread for butter by Sam and Jon, shown again in Figure 4.1. Suppose Sam and Jon know nothing about Axel's presence in the marketplace. But suppose Axel has a way of discerning the information about Jon and Sam's willingness to exchange bread for butter from the endowment at point A to point F. Suppose when Jon and Sam are on their way to the market to make that exchange, Axel jumps in front of them and offers to deal with each of them separately. He quickly offers to buy butter from Sam at the price of six loaves of bread for seven sticks of butter, trading with him to point G. Believing this to be the best deal possible at the moment, and because it will raise Sam's utility, Sam makes the trade. Axel then turns around and sells the butter to Jon at the higher price of eight sticks of butter or five loaves of bread at point E. Jon also believes this is the best deal available at the moment and the trade will also raise Jon's utility. Similar to the story told in section 3.9, Axel leaves the market with two loaves of bread and two sticks of butter. The difference here, relative to the trades described in section 3.9, is that Axel is not offering any real services to Sam and Jon. Had Sam and Jon been left alone they would have found each other in the market (we are presuming) and would have traded to point F resulting in higher utility for both of them.

Figure 4.1 Intermediation in an Edgeworth Box



In essence this is what HFT forms are doing, albeit in a very sophisticated way. Michael Lewis explains how high frequency traders (HFT) on Wall Street were able to use characteristics of how buy and sell orders are executed to quickly “jump in front” of trades that were about to happen within the electronic stock trading marketplace. However to use this information profitably, HFT traders would have to act very fast (and by fast we mean within microseconds, i.e. millionths of a second).

Here is how it works. Suppose a broker executes a buy order of 400 shares of a stock. Traditionally, this quantity of a trade is too small to move the market price sufficiently for frontrunning to be effective. However what HFT firms recognized is that for New York city brokers, the electronic stock exchanges where the buy and sell orders are executed occur on

many different computer systems that are located in different places, mostly somewhere in New Jersey. Furthermore, when a buy or sell order is sent from a broker's computer in New York city, that request will be known to one of the trading computers (eg. New York Stock Exchange) exchange, microseconds before it the request is known to the computers of other exchanges (eg. NASDAQ). What the HFT firms have learned to do is to monitor the requests that come into the first exchange, and then race ahead of that order to another exchange and buy the requested stock from someone wishing to sell and before the original trading order arrives. Once the original order arrives the HFT firm will sell the stock to the purchaser. The outcome is similar to the story of Axel jumping in between the trade of Sam and Jon. By jumping in front of a stock trade, the HFT firm can take a little bit of the surplus away from the stock traders. That profit might be as little as a few pennies on each trade, but by programming computers to automatically step in front of most of the trades that occur, the HFT firms can turn pennies per trade into billions of dollars in firm profit. Indeed, in the early 2010s, HFT firms were making over \$10 billion per year.

Of course the process is complicated and requires the brainpower of a lot of smart people to make this work. The process is also ingenious because the HFT firms have discovered a way to take a very small amount of surplus away from stock traders in a way that is almost completely unnoticed. That's because the two stock traders, (like Sam and Jon), are still happy to have engaged in the trade they made. They still receive surplus. However, the amount of the surplus is just a little bit less than what they would have received if the HFT firm were not jumping in between them.

The HFT firms, when asked to justify their practices argue that they are performing a valuable intermediary function because more trades are occurring with their presence. It is true that HFT firms eventually accounted for as many as half of the trades that were recorded in the exchanges in some years. In a simple sense, if mutually voluntary exchanges always result in surplus gains, then it seems reasonable that more trades means more surplus. Except that is not what is occurring here. Yes there are more stock trades with HFT firms present, but their presence is merely skimming surplus value away from others, not creating new value.

For an intermediary to be providing a valuable service, the primary traders, (Sam and Jon) have to welcome the presence of the intermediary and be willing to pay the intermediary a fee for their services. In the currency exchange example above, currency traders would be willing to pay a fee because the bank is helping them find a foreign person with whom to trade currency. However, as documented and explained in Flash Boys, the HFT firms presence was at first not understood by stock traders, and ultimately traders worked to devise methods to prevent the HFT firms from continuing their practices. This strongly suggests that the HFT firm are not providing a valuable service and thus are undeserving of their reward. Another simpler way to describe this process is that it is an example of sophisticated theft.

Key Takeaways

1. Market intermediaries can provide a valuable service to traders by correcting a market imperfection caused by a lack of perfect information.
2. Market intermediaries earn money from the surplus value created via trade.
3. Service intermediation is a fair and ethical business practice when it provides such a valuable service.
4. High-frequency trading offers an example of intermediary behavior that does not provide the traders with information they lack and would not be purchased willingly by the traders.

5. HFT is not an ethical business practice, but probably due to its sophistication, there are no explicit laws against it and it remains legal.