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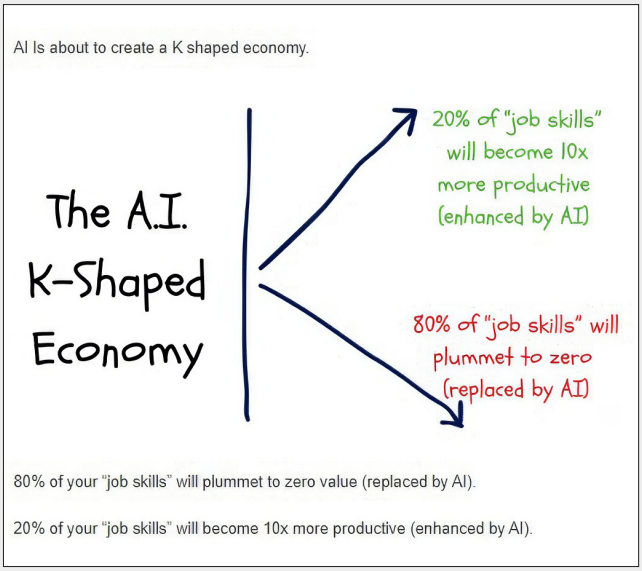
When artificial intelligence becomes a topic of conversation, many people express concerns about the future of their jobs. However, looking at the past shows that technological advances have rarely led to widespread unemployment. Innovations have often had the opposite effect, increasing productivity and creating new employment opportunities. However, it is clear that current job vacancies for software developers are significantly lower than before the coronavirus pandemic.

Recent advances in AI, particularly in large language models (LLMs), are drastically lowering the threshold for in-house developments. One example is the Swedish company Klarna, which is developing its own ERP system with AI support instead of relying on established solutions.

Sam Altman, a key figure in the AI industry, even predicts the emergence of the first "one-person unicorn" - a company valued in the billions run by a single person. Such developments could fundamentally change not only the corporate landscape but also traditional notions of work and value creation.

In a provocative tweet, Ryan Petermann recently presented the concept of a "K-shaped economy." He argues that the value of skills could become extremely fragmented: 80% of the skills valued today could soon become almost worthless, while the value of the remaining 20% could increase tenfold. This exaggerated view may be exaggerated, but it does make us think about how the labor market could change as a result of AI.



A common mistake when assessing technological innovations is prematurely viewing new developments as substitutes for existing solutions. In reality, many innovations initially prove to be complementary additions.

The current technological revolution is fundamentally changing the balance of power between different players. Access to information plays a key role in negotiations. Those with an information advantage can generally convert this into a negotiating advantage and thus achieve better results.

Large technology companies are constantly expanding their information advantage over individual consumers. By collecting and analyzing huge amounts of data, they are gaining deep insights into consumer behavior and preferences. At the same time, state actors are also stepping up their efforts to restrict citizens' privacy, often under the pretext of security or efficiency.

Applying game theory concepts enables a distanced and analytical view of such situations. This approach can provide valuable insights, particularly in purchasing. It helps to identify common errors in thinking that can have a detrimental effect on negotiating positions and results.

In the following articles, we will take a closer look at typical purchasing errors and how to avoid them, as well as the importance of asymmetric information in negotiations and everyday situations.

We hope that these analyses will provide you with useful perspectives for your daily work and look forward to a constructive exchange on these topics.

Six misconceptions in purchasing negotiations - and what game theory can do to counter them

Marcel Engelhardt

The Ultimatum game is one of the best-known examples of how a game-theoretical solution can deviate from experimental reality. The game is as simple as it is revealing: 10 euros can be split between two players. One of the players makes a one-time proposal for the division. The second player can either accept or reject the proposal. If he accepts, the 10 euros are split in the same way. But if he rejects it, neither player gets anything. In terms of game theory, the solution is obvious. To maximize his share, the proposer should offer the other player the smallest possible share. In the case of whole euros, this is exactly one euro. The other player can now choose between one and zero euros. A rational player prefers the single euro because one is better than zero. However, this solution does not stand up to the experiments conducted with real people (and real money). In real life, most splits occur when an average of four euros is offered. A split that is still somewhat removed from the "fair" 5/5 split, but even further from the game-theoretical 1/9 solution described above. The experiments thus demonstrate the field of behavioral economics, which essentially examines the basic assumptions of game theory in a reality check. Behavioral economics show that in real life, fairness, reciprocity, image, self-image, and much more also play a role in decisions.

At first glance, this makes game theory obsolete. Why derive abstract, mathematical solutions to a strategic interaction if these do not occur in reality anyway? However, to describe game theory as superfluous is a fallacy. After all, it is only through a mathematically derived "reference solution" that the deviations and their reasons can be researched. It can go even further: the game-theoretical solution still remains a solution in the realm of the theoretically possible. When you know how far you can go and where you want to go, you can resolve the reasons for the deviations. In the ultimatum game, for example, it is to be expected that the results will converge toward the game-theoretical solution if, for example, the players do not know each other, will never meet again, there is a spatial distance, or you manage to "educate" the second player towards the game-theoretical solution over time.

Contradictions between the game-theoretical reference solution and behavioral economics or psychologically anchored behavior can also be found in the preparation of purchasing negotiations. These contradictions can be attributed to errors of reasoning, incentive problems, or both simultaneously. Six widespread such errors of reasoning are explained below. First, however, one thing must be understood: The origin of negotiations, at

least in purchasing, is almost always based on asymmetric information. In simplified terms, this essentially concerns the location of the "zone of possible agreement" (ZOPA). This is the area between the maximum price that a buyer is willing to pay and the minimum price that the seller wants to achieve. Each price point within this range represents a possible agreement that would be advantageous and, therefore acceptable to both sides. The negotiation now decides how the ZOPA will be divided between buyer and seller. This is because each side naturally wants the final agreement to be as close to the other's limit as possible.

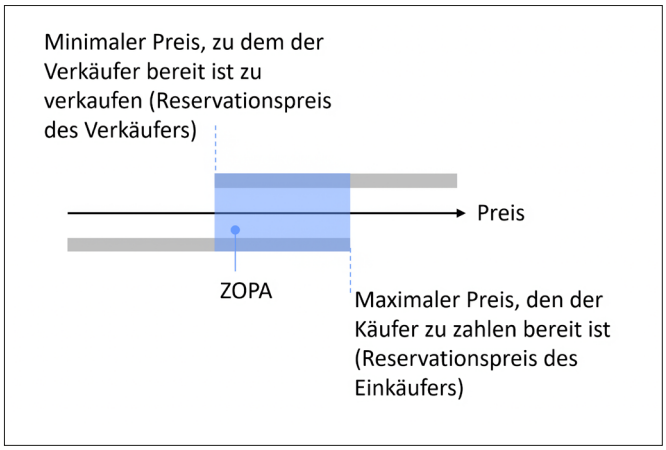


Figure 1: The "Zone of possible agreement" (ZOPA)

From a purchasing perspective, an attempt can be made to counter the information asymmetry by deriving the seller's minimum price from cost calculations. This can work well with the right tools and prior knowledge. However, even the best calculation will never totally eliminate a supplier's information advantage. This gives rise to the following errors in thinking, which can be exacerbated by underlying incentive conflicts.

1. **Achieving high margins is a negotiating lever:** Let's start by defining the term 'lever.' In contrast to an argument, a lever is the real possibility of influencing the negotiating partner's business case. The decision favoring a competitor is the best example: Purchasing therefore resolves the business case for all other suppliers. In the case of the "bundling" lever, the purchasing department gives the supplier more quantity so that the supplier can recalculate and optimize its overall business case. Proving to a supplier that they are adding a high profit to their cost price or hiding it within their costs is not yet a lever. At least not from a game theory perspective. The example of the real monopolist quickly shows that he does not set his optimum price by adding a fair margin to his costs. Rather, the price results from the optimization of the supply quantity. This means that customers will continue to demand the product if their business case continues to work out - i.e. the price is no higher than their reservation price. In practice, however, cost calculation can be effective. Monopolists rarely admit how adequate the margin truly is. An appeal to fairness or a reference to the fact that the supplier has also argued about cost structure in the past is effective. However, the mistake lies in believing that a cost calculation alone gives you negotiating leverage. From a game theory perspective, you learn that you must separate levers and arguments and channel your preparation efforts primarily into developing real levers.
2. **Higher offers from competitors justify the price of the existing supplier:** The aim of a broad tender is often for the purchasing department to get a feel for the current market prices or even to consider a change of supplier. This can be particularly useful if the prices of an individual supplier cannot be assessed well. When comparing the prices of alternative suppliers with those of the current stock supplier, it is easy to make a common mistake when competitors start offering more expensive prices. The current price level suddenly seems okay because

the other suppliers obviously can't offer lower prices either. The error in thinking arises from the comparison of apples and oranges. On the one hand, there is already an accurate offer from the existing supplier, who is already in business and can, therefore, estimate the costs of the order most realistically and whose price has a previously negotiated breakaway basis. On the other hand, there are the offers from competitors. Unlike the existing supplier, they often price in uncertainties or risks or have not yet fully understood the exact requirements. Initial offers are also non-negotiated. If you compare these with the current supplier's offer, the latter suddenly appears justified in a market comparison. However, game theory looks at the supplier's perspective and its pricing. This supports the hypothesis that the direct comparison is initially not complete.

3. **Only suppliers who have a realistic chance should be included in the negotiation process**: At first glance, this statement is not a mistake in thinking. Why should you keep a supplier who cannot win the contract anyway in the award process? The answer must be differentiated. If the supplier is out of the question due to its technical (substantive) offer, then the statement is correct. A supplier that cannot be approved even at zero euros because it does not meet the requirements must be excluded at an early stage for efficiency reasons. However, excluding a supplier because it is unlikely to be able to compete commercially is a classic error of reasoning from a game theory perspective. This is because, from a game theory perspective, the value of an additional supplier is not only measured by the direct savings made by switching to this supplier but also by its effect on the design options and the intensity of competition in the negotiations.
4. **A supplier who has already given 20% no longer offers any negotiating potential:** This error in thinking in purchasing is used by suppliers specifically when initiating negotiations. A supplier offers a price and gives a supposedly high discount relatively early on in the process, often combined with the comment that this really will be the final and last offer - and will not be valid for long. The hope is that the purchasing department will gratefully accept the 20% and not negotiate any further. If he does so anyway, the supplier can stubbornly point to the high savings already made and portray the purchasing department as unrealistic or even exploitative. However, we know from game theory that caution is always required when one side makes supposed gifts. The 20% discount does not mean the supplier could not offer a much lower price. As is often the case, the ideal solution here is a tough competitive mechanism that overrides the psychological effects of bilateral negotiations described above and deprives the supplier of such arguments.
5. **The supplier's new offer is justified if inflation is correctly priced in:** Due to the inflationary environment of recent years, the question of price drivers is becoming increasingly relevant. Especially when long-term contracts are to be renegotiated, it is difficult for the purchasing department to correctly assess current supplier prices. Let's assume that the price drivers could be derived correctly. Then, you could take the supplier's old price as a baseline and add it to the price development. But what if the historical baseline was already too high? By concentrating purely on the price trend, it is important to remember to scrutinize the level of the old prices as well. As is often the case, explicit competitive pressure is the best remedy here, too.

6. **Suppliers are always aware of competitive pressure:** This is a widespread statement made by purchasers who indirectly want to emphasize their negotiating skills. After all, what buyer is a good negotiator if he does not always emphasize competition as a lever in the entire supplier relationship. But salespeople have a mind of their own as well as their own perspective. Or, the job description of a good salesperson includes emphasizing the outstanding features of their product or service. For existing suppliers, this can lead to a misjudgment of their position in the market. Paradoxically, this lack of knowledge is a psychological or game-theoretical advantage in negotiations. You can only exert pressure (by announcing a change of supplier, for example) if the other side perceives it as such and takes it seriously - and the buyer must first succeed in doing this credibly. Explicit mechanism design achieves this through the so-called *indifference condition*. The process makes it credible with a maximum commitment that there is competition and that purchasing is indifferent between the offers in the sense of a TCO consideration via the delta evaluation.

Hidden Information, visible effects: An economic perspective on everyday phenomena

Christoph Pfeiffer

Asymmetric information in everyday life

Asymmetric information is an omnipresent phenomenon in our everyday lives. A classic example is a visit to a car mechanic for maintenance or repairs. In this situation, the mechanic usually has a much more extensive knowledge of the technical details and functioning of the vehicle than the average car owner. This information advantage can be exploited under certain circumstances by recommending unnecessary work or charging excessive prices for services and spare parts. Due to their limited technical understanding, customers often have limited opportunities to check the necessity and appropriateness of the proposed measures and costs.

A comparable example of asymmetric information used to be frequently found in cab rides. Traditionally, the cab driver had a clear information advantage over the passenger, especially if the passenger was not local. This advantage could be used to choose longer routes and thus achieve higher fares.

Technological Progress and its effects

In recent years, however, this problem has largely been alleviated. Technological progress, particularly the spread of smartphones with precise GPS-based navigation systems, has significantly reduced information asymmetry. Passengers can now track their chosen route in real time, view alternative routes, and independently assess the appropriateness of the journey.

Another factor contributing to reducing information asymmetry is the change in the qualifications of many cab drivers. Nowadays, many drivers rely on digital navigation aids themselves, as they no longer have the comprehensive local knowledge traditionally expected. On my journeys from Hamburg airport, I am now asked to enter the destination address into my smartphone on every second or third journey.

This is also reflected in the licensing requirements for cab drivers: in many cities, the extremely demanding tests that used to be required to obtain a driver's license have been relaxed. Just a few years ago, prospective cab drivers had to pass extensive tests that re-

quired detailed knowledge of street names, places of interest, and optimal routes. This rigorous testing practice is now a thing of the past in many urban areas, leading to a leveling of the information advantage over passengers.

"The Knowledge" in London

A notable counterexample to the general relaxation of qualification requirements for cab drivers is "The Knowledge", the legendary test for London cab drivers. It is considered one of the most demanding of its kind in the world and has survived to this day despite advances in technology. Introduced in 1865, the test requires candidates to memorize around 25,000 streets, 20,000 landmarks and countless routes within a 10km radius of Charing Cross. Preparation for this usually requires 3 to 4 years of intensive study.

Despite the availability of modern GPS technology, "The Knowledge" remains mandatory for anyone wishing to drive a traditional black cab in London. It is held up as a mark of quality and a central part of the professional ethos of London cab drivers. This contrasts with the significantly lower requirements for drivers of ride-hailing services such as Uber.

Economic consequences for cab drivers

This development on both sides has led to a significant reduction in information asymmetry. The previously substantial knowledge advantage of cab drivers has been vastly diminished. As a result, the opportunities for cab drivers to capitalize on their information advantage have been drastically reduced.

These changes are also reflected in the economic reality of the industry. In conjunction with the intensified competition from ride-sharing services, which has also been made possible by the popularity of smartphones, a stagnation or even a decline in the real wages of cab drivers can be observed. This development underlines the profound impact that technological progress and changing market structures can have on traditional service sectors.

The role of the tariff structure

But how was this problem of information asymmetry and a possible incentive for cab drivers to take detours addressed in the pre-smartphone era?

A key instrument here was the strategic design of the fare structure, in particular through the introduction of a flat-rate journey charge. This flat rate motivates cab drivers to complete more journeys instead of artificially lengthening individual journeys through detours. By promoting shorter, more direct routes, the overall efficiency of the cab system is increased. The flat rate covers part of the fixed costs incurred for each journey, regardless of the distance.

However, the effectiveness of this mechanism depends crucially on the relationship between the level of the travel allowance and the average waiting time between journeys. An optimally calibrated flat rate should be high enough to make detours unattractive but not so high that passengers reject it due to it being too excessive.

In addition to structural solutions, the individual strategies of passengers also play an important role in dealing with information asymmetry in the cab industry. This is particularly evident in cities where taximeters are not the norm and prices often have to be negotiated.

Experiences from Cairo: To negotiate or not?

A vivid example of this is my personal experience during a stay in Cairo, where I took a language course in Modern Standard Arabic. This was before the widespread use of smartphones,

and negotiating cab fares daily became an integral part of my everyday life.

My initial strategy to avoid becoming a victim of information asymmetry was negotiating the fare before starting the journey. However, this approach proved to be surprisingly challenging. The cab drivers were always prepared to engage in extremely emotional and intense negotiations - by European standards. These discussions were often time-consuming and energy-sapping but provided a fascinating insight into the local culture of negotiation.

This experience illustrates how passengers in environments with high information asymmetry must actively develop strategies to protect their interests. At the same time, it shows the cultural differences in the approach to such negotiation situations and the importance of adaptability in unfamiliar environments.

Negotiating prices before starting the journey certainly had advantages: it reduced the incentive for cab drivers to make detours as the price was already fixed. It also minimized the risk of unpleasant surprises when paying at the destination. This method initially appeared to be an effective solution for overcoming information asymmetry.

However, an alternative perspective opened up to me when I had the opportunity to travel with some locals I had met during my stay in Cairo. Their approach was fundamentally different from mine: they completely avoided pre-negotiations. Instead, they simply got into a cab, named their destination, and paid a price they considered reasonable on arrival. Surprisingly, the cab drivers accepted this amount without protest.

This observation was revealing in several respects:

- She showed that local knowledge and cultural familiarity can be information advantages that compensate for asymmetry.
- The local approach saved time and avoided the emotional strain of preliminary negotiations.
- It indicated an implicit understanding of fair prices that seemed to exist between local people and cab drivers.

This experience made it clear how different strategies for coping with information asymmetry can be and how strongly they are influenced by cultural context and local knowledge.

Inspired by the locals' observations, I decided to adapt my strategy and adopt their approach. From then on, I simply got into a cab, named my destination - for example, "Mouhandessin" - and paid an amount on arrival that I considered reasonable based on my previous experience.

This new approach proved to be surprisingly effective. In most cases, the price I chose was accepted without discussion, which made the whole process much easier and faster. Eliminating the often emotional pre-negotiations not only saved time but also mental energy, which made my daily cab rides much more enjoyable.

Interestingly, I discovered that the prices I paid this way were consistently lower than those I had previously achieved through pre-negotiation.

This method allowed me to behave more like a local, which possibly led to fairer treatment from the cab drivers. My initial information disadvantage was at least compensated for.

This experience illustrated how reducing perceived information asymmetries through an informed approach can lead to better outcomes. It also showed that sometimes, less negotiation can lead to fairer prices, especially if you understand the local context and usual pricing structures.

Emotion as commitment

Although my new strategy was largely successful, I did experience one notable exception. On one trip, the cab driver vehemently refused to accept my offered price. His reaction was unexpectedly violent: he threw the banknotes I had handed him on the ground in a fit of anger.

From a game theory perspective, this emotional escalation can be interpreted as a so-called "commitment strategy". Through his extreme reaction, the driver clearly signaled that he was not prepared to accept the offered price. At the same time, he increased the cost to himself of possibly giving in, as a return to the previous situation would now have meant a considerable loss of face. His action fundamentally changed the interaction dynamics and overrode the usual conventions.

The amazing thing about this situation was that the driver actually drove off in a rage without picking up the money from the ground. This underlines the strength of his commitment and shows how emotional reactions can override rational economic decisions.

The practice of negotiating the cab fare in detail before starting the journey unintentionally sends revealing signals to cab drivers. On the one hand, this behavior indicates limited local knowledge, which may lead the driver to believe that the passenger is unfamiliar with the usual prices and optimal routes. On the other hand, it signals a certain risk aversion - the desire to avoid uncertainty is clearly recognizable.

By agreeing to a fixed price, you set a clear upper limit for the cost of the journey. This protects against unexpected price increases resulting from longer routes or unforeseen circumstances.

However, it should be borne in mind that this protection against financial surprises comes with potential disadvantages. Cab drivers may be inclined to exploit this obvious lack of information and demand higher prices from the outset. The challenge is to find a balance between the desire for price certainty and the risk of being taken advantage of due to the signaled inexperience.

Information rent

Information asymmetries inherently characterize delegation relationships. This inequality in the distribution of information is an inherent feature of the relationship between client and contractor, with the latter typically enjoying an information advantage.

This advantage can have various origins. First of all, it often results from the contractor's specific expertise - the specialized knowledge and experience that qualify them for the task in the first place. Secondly, it results from the immediate proximity of the contractor to the work being carried out. He has more direct access to information about his own actions, decisions, and their consequences than the client, who can often only assess the end result.

This information gap can exist both before and during the execution of the contract. It makes it difficult for the client to fully assess the quality of the work performed or to effectively monitor the contractor's behavior. This creates a tension between the need for control on the part of the client and the freedom of choice that the contractor needs to carry out its tasks effectively.

The information asymmetry in delegation relationships enables the contractor to obtain information rent. This rent represents the economic advantage that the contractor gains from its information advantage over the client. It often manifests itself as higher remuneration, less work input, or greater freedom of action, which the client must concede due to its information deficit.

The amount of this information rent depends directly on the extent of the information asymmetry. The greater the contractor's knowledge advantage, the more difficult it is for the client to assess the actual performance or the appropriate price, which gives the contractor more scope for generating rents.

The role of information systems

Modern information systems can play an important role in this context. They can potentially reduce the existing information gap by providing the client with improved access to relevant data and process information. Through increased transparency and improved monitoring options, these systems can reduce the contractor's information advantage and thus lead to a reduction in information rents.

However, it should be noted that such systems must be carefully weighed up. While they can increase efficiency, they also risk straining the relationship of trust between the parties or impairing the contractor's motivation.

Ethical issues

The development of modern information systems has fundamentally changed the dynamics of delegation relationships, which can be clearly illustrated using the cab industry as an example. This change is taking place on several levels:

Firstly, as can be seen in the cab example, the specialist knowledge required by the agent (in this case the cab driver) to carry out their task is often reduced. GPS navigation systems make detailed local knowledge less necessary, reducing the driver's traditional knowledge advantage.

Secondly, information systems significantly improve the client's position. In the context of the cab ride, smartphone apps enable the passenger to follow routes in real time and compare prices. This facilitates the comparison between the information presented by the contractor (cab driver) and objectively available data.

Thirdly, new technologies open up extended possibilities for monitoring the contractor. In the cab industry, ride tracking systems and digital rating platforms can make drivers' behavior transparent and thus exercise a form of indirect control.

Overall, these technological advances lead to a significant reduction in information asymmetry. They strengthen the position of the client and potentially reduce the information rent of the contractor. At the same time, however, they also raise new questions regarding data protection, trust and the balance between control and autonomy in working relationships.

The increasing digitalization of the world of work has led to new forms of performance monitoring, particularly in the area of freelancer platforms. Some of these platforms implement far-reaching monitoring mechanisms, such as the ability to take automatic screenshots of contractors' screens at short intervals.

Proponents of such measures often argue with the idea of transparency: those who do their work properly have nothing to hide and therefore nothing to fear. However, this view simplifies the complex ethical and labor law issues that such practices raise.

From an economic perspective, this development leads to a significant shift in the balance of information. Increased IT-supported monitoring considerably reduces the information advantage of contractors. Consequently, it is to be expected that this will lead to a reduction in the information rents that contractors have traditionally been able to draw from their knowledge advantage.

This trend could intensify further if there is no regulatory intervention. Legislation could slow down or limit this development, for example through data protection regulations or employee rights. The challenge for legislators is to create a balanced framework that takes into account both the interests of clients and the protection of the privacy and autonomy of contractors.

It is essential to understand that the existence of an information rent does not necessarily imply unethical or fraudulent behavior on the part of the contractor. Rather, the annuity results from the inherent structure of information distribution in the principal-contractor relationship. Instead of obvious exploitation, such as taking detours in cab rides or idleness in unobserved moments, the information rent often manifests itself more subtly. It is reflected in the contractor's improved negotiating position, which enables him to negotiate more advantageous terms for himself.

This stronger position can have a variety of effects. For example, a specialist can demand higher fees due to their expert knowledge. Experienced employees could demand more autonomy in the organization of their work, while sought-after consultants could negotiate additional benefits such as improved travel comfort in addition to the fee. In some cases, the information asymmetry even allows the contractor to pass on certain risks to the client, as the latter is less able to assess the overall situation.

The information rent is therefore less an instrument of direct exploitation, but rather a structural advantage resulting from the contractor's privileged information position. It plays an important role in shaping labor relations and the distribution of resources and risks between the contracting parties, subtly but significantly influencing the negotiation dynamics.

The principal-agent model

In economic research, the complex relationship between principals and contractors has been analyzed in detail using the principal-agent model. This theoretical construct provides a valuable framework for understanding the dynamics and challenges that arise from information asymmetries in delegation relationships.

In the context of this model, the client is referred to as the "principal," while the contractor assumes the role of the "agent." A central assumption of the model is that the agent has an information advantage over the principal. This information advantage can manifest in two main forms: as a hidden action or as hidden information.

In the case of covert action, the principal cannot directly observe or assess the agent's actions. In the case of covert information, the agent has relevant knowledge that is not accessible to the principal. Both scenarios create scope for potential conflicts of interest and moral risks.

The principal-agent model helps to analyze the effects of these information asymmetries on contract design, incentive systems, and monitoring mechanisms. It forms the basis for developing strategies aimed at aligning the interests of the principal and agent and minimizing the negative consequences of information imbalances.

In economics, a distinction is made between two main forms of information asymmetry in principal-agent models: covert action and covert information. In the case of covert action, the principal can only directly observe the outcome, not the agent's actions. Concealed information, on the other hand, refers to characteristics or "types" of the agent that are unknown to the principal.

The "Market for Lemons"

A classic example of hidden information is George Akerlof's "Market for Lemons," which illustrates the problem of asymmetric information on the used car market. In this model, there are two types of used cars: high-quality cars with a value of €10,000 and low-quality cars (so-called "lemons") with a value of €5,000.

Let's assume that a potential buyer cannot distinguish between the quality of the vehicles and assumes that both types are equally common. His average willingness to pay would then be €7,500. However, this is where the dynamics of adverse selection come into play: Only owners of inferior vehicles would want to sell at this price, while suppliers of high-quality cars would leave the market.

A forward-thinking buyer would anticipate this situation and lower their willingness to pay €5,000. This leads to a market failure in which high-quality used cars are no longer traded - a phenomenon known as "adverse selection."

Adverse selection in the insurance market

The phenomenon of adverse selection, as observed in the used car market, can be applied to many other markets, particularly the insurance sector. A striking example of this is the market for term life insurance.

In this context, potential policyholders have privileged information about their state of health - a classic situation of private information. People who are aware of their poor health have an increased incentive to take out term life insurance. This information asymmetry can lead to similar market dynamics as in the case of used cars.

Without appropriate countermeasures, this situation would force insurance companies to drastically increase their premiums to cover the increased average risk of their policyholders. As a result, people with a low-risk profile would leave the market, as insurance would become unattractive. This would lead to a further increase in premiums, setting the vicious circle of adverse selection in motion.

To counteract this market failure, insurance companies have developed various screening mechanisms. These include extensive health checks before the contract is concluded, staggered tariffs, and waiting periods. These measures aim to reduce information asymmetry and enable a differentiated risk assessment.

This example illustrates how crucial it can be for the functioning of certain markets to reduce or manage information asymmetries. It also underlines the importance of regulatory frameworks that must ensure consumer protection and the stability of the insurance market.

An experiment

The "Market for Lemons" can be conceptually understood in a simple experiment:

1. Preparation: There are three sealed envelopes. Each envelope contains either a €5, a €20, or a €50 bill. The exact distribution is known to all participants.
2. Draw: Two participants draw one envelope each. The third envelope remains unopened.
3. Information: Each participant opens their envelope and sees the value of their banknote without the other participant knowing.
4. Swap phase: The participants now have the opportunity to swap their envelopes. An exchange can only take place if both participants agree.

Will there be a swap? Let's look at the process from a statistical perspective:

Participants with a €5 bill:

- Expected value on exchange: (50€ + 20€) / 2 = 35€
- Potential improvement: €35 - €5 = €30
- Conclusion: Always swap; can only improve

Participants with a €20 bill:

- Expected value on exchange: (50€ + 5€) / 2 = 27.50€
- Potential improvement: €27.50 - €20 = €7.50
- Conclusion: Exchange is only worthwhile at €50

Participants with a €50 bill:

- Expected value on exchange: (20€ + 5€) / 2 = 12.50€
- Potential deterioration: €12.50 - €50 = -€37.50
- Conclusion: swapping is never worthwhile

A closer look reveals how the dynamics of the experiment are changed by the participants' strategic thinking. A participant with a €50 bill will never swap, as every swap would mean a loss for them. This realization has far-reaching consequences for the other participants. A participant with a €20 bill now has to rethink their strategy. Originally, an exchange seemed advantageous for him, as he calculated an expected value of €27.50. However, assuming that the €50 participant never swaps, his expected value is reduced to just €5 if he swaps. This would mean a loss of €15, so the €20 participant will likely also refrain from exchanging.

The participant with the €5 bill remains willing to swap, as any swap would be an improvement for him. However, he finds himself in the awkward position of no longer being able to find an exchange partner, as both the €20 and the €50 participants refuse to exchange.

As a result, there is no exchange, regardless of the distribution of banknotes. This situation illustrates the concept of market failure in the "Market for Lemons." The information asymmetry, where everyone only knows the value of their own "good," leads to adverse selection. Only the owners of the "worst" goods, in this case the €5 bills, are willing to trade. This leads to the collapse of the market. Although there would be advantageous exchange opportunities for at least one side, for example, between a €5 bill and a €20 bill, these do not materialize due to mistrust and strategic considerations of the other participants.

This dynamic shows how asymmetric information and rational behavior of market participants can lead to a situation where no trading takes place, even if it would be beneficial for some participants. It emphasizes the importance of mechanisms to overcome information asymmetries in real markets to enable efficient transactions and prevent market failures.

Conclusion

The examples and concepts examined in this article illustrate the far-reaching significance of asymmetric information in various areas of our everyday lives and the economy. From a simple cab ride to complex insurance markets, it shows how the information imbalance can influence transactions and even bring entire markets to a standstill.

Technological developments, particularly digitalization and the spread of smartphones have led to a decrease in information asymmetry in many areas. At the same time, however, new challenges are emerging, for example, in data protection and the digital monitoring of employees.

Ultimately, considering asymmetric information shows how complex and multi-layered economic interactions are. It underlines the need to always consider the different levels of information and incentives of all parties involved, both when analyzing economic phenomena and when developing practical solutions.

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