THE NOBEL PRIZE

Speaker's manuscript – Economic Sciences Prize 2020
Research that improves auctions in practice

Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel

- In 1901 the Nobel Prize was awarded for the first time. It is a prize in five categories, established by Swedish inventor and industrialist Alfred Nobel (1833-1896).
- The Nobel Prize categories are Physics, Chemistry, Physiology or Medicine, Literature and Peace. Alfred Nobel thus did not choose economic sciences as one of his prize categories.
- Instead Sveriges Riksbank, at its 300th anniversary in 1968, established an Economic Sciences Prize in memory of Nobel. It was awarded for the first time in 1969 and is called the Sveriges Riksbank Prize in Economic Sciences in Memory of Alfred Nobel.
- The prize is presented at the same ceremony as the Nobel Prize, on 10 December each year.

Who is rewarded with the Economic Sciences Prize?

- The prize is awarded to a person or persons who have produced works of outstanding importance in the field of economic sciences. The Laureates have analysed various economic problems and found ways to solve or understand them.
- Examples of Economic Sciences Laureates are Daniel Kahneman (2002), who used research in both psychology and economic in order to understand human decision-making, and Elinor Ostrom (2009), who analysed economic governance by the commons: community-owned natural resources. Ostrom showed that it may be better for the people that use the commons to manage them jointly than to have them under public sector control or sell them to an individual.

The 2020 Economic Sciences Prize

- An auction is a way to sell something through bidding. What's being sold can be an object of some sort, but even homes can be sold through bidding. Municipal contracts, such as waste collection services for a particular area, may also be awarded by auction.
- The Economic Sciences Laureates have clarified how auctions work and why bidders act as they do. They have studied various bidding strategies to determine which is the best way to avoid paying too much and getting a bad deal. The laureates have also invented new and better auction formats that make auctions of public goods and services result in better outcomes for taxpayers.

2020 Economic Sciences Laureates

- The 2020 Prize in Economic Sciences is awarded to Robert B. Wilson and Paul R. Milgrom. They both work at Stanford University in California, USA.
- The two laureates have both developed theories of auctions and have themselves used their research results in practical applications that have spread all over the world.

Different types of auctions

- The auctions we usually see in movies and on television are called English auctions. Here the participants can see everyone else's bids and choose whether they want to place a higher one.
- Another format is the Dutch auction. In this case the bidding starts with a high price, which is then gradually lowered until the object is sold. The first one to make an offer wins the auction.
- Sometimes the bids in an auction are kept hidden. One example could be companies bidding for the contract to provide cleaning services for a school. The company that offers the lowest price for cleaning the school wins the auction.
- But which form of auction is best? That depends on what we mean by "best". Private sellers usually want to get as much money as possible. Public sellers often have other, more long-term objectives. One example could be finding the bidder that provides the most reliable service and the best outcome for taxpayers.

Private values

- In auction theory, it is common to distinguish between private values and common values.
- *Private values* are when the different bidders have values that are entirely independent of each other. An example could be a charity auction in which dinner with a celebrity is auctioned off. The highest bidder gets to go to the dinner. What the bidders are willing to pay is entirely subjective and is not influenced by how much other people value the dinner.

Common values

- When part of the value of what is being sold is equal to all the bidders, we use the term *common values*. One example of a good with a common value might be a piece of property or land.
- While they share a common value, the bidders in such an auction run the risk that other bidders have better information about the true value of the good. That means that whoever wins the auction risks losing on the deal, since other bidders with better information may assign it lower value. This phenomenon is known as *the winner's curse*.
- Robert B. Wilson's analysis of common values demonstrates that the greater the uncertainty about the value, the more cautious the bidding and the lower the final price will be.

Both private and common values

- In most auctions, the bidders have both private and common values. Imagine you want to buy a house. How much you're willing to pay depends both on your own private values (how much you like the house) and on its future value (what it might be worth when you want to sell it in the future).
- Paul R. Milgrom demonstrates in his analyses that it is important for the seller to give the bidders as much information as possible about what they are selling. For example, the seller can get a higher final price by providing the bidders with an independent expert valuation before the bidding starts.

Better auctions in practice

- In the 1990s, wireless communication became increasingly common. Wireless communication uses radio frequencies that are owned by the government.
- Private mobile operators wanted to use the same kind of frequencies used by radio stations.
- It turned out to be difficult to find a fair way to sell licenses for these frequencies.
- The two laureates came up with a way to auction off the frequencies that maximises the income for the government, which is very good for taxpayers.
- The laureates' research on how auctions work laid the groundwork for the new auction formats they developed together. Today these new formats are used in a number of different areas, including the trading of emission allowances and electricity markets.