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## Business Information Systems

### Unit 2

### Economics for Computer Science Students



Dr. Martin Hepp

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## Logistics

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- **Classes**
  - **Oct 3:** Unit 1
  - **Oct 10:** Unit 2
  - **Oct 17:** *needs to be rescheduled* (no classes)
  - **Oct 24:** *needs to be rescheduled* (no classes)
  - **Oct 31:** Unit 3 (13.00-15.00)
  - **Nov 7:** *needs to be rescheduled* (no classes)
  - **Nov 14:** Unit 4
  - **Nov 21:** Unit 5
  - **Nov 28:** Unit 6
  - **Dec 5:** Unit 7
  - **Dec 12:** *needs to be rescheduled* (no classes)
  - **Dec 19:** Unit 8 + 9 (13.00-17.00 make-up#1 and #2)
  - **Jan 9:** Unit 10
  - **Jan 16:** Unit 11
  - **Jan 23:** Unit 12
  - **Jan 30:** Exam during class time (13.00-15.00)
- **Classroom:** HS 11
- **Office Hours:**
  - By appointment only
  - please contact me by e-mail, [martin.hepp@deri.org](mailto:martin.hepp@deri.org)

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## Additional Resource




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- Robert Schenk: CyberEconomics
  - <http://ingrimayne.saintjoe.edu/econ/mainmenu.htm>
  - Great text!



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## What is Economics?



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- Economics
  - The discipline that analyzes how humans deal with limited resources attempting to satisfy their unlimited wants.
  - A core aspect is the exchange of good, e.g. what do people offer to other people, which quantities of goods they buy from others,...
- Two major branches
  - **Macroeconomics:** Economics from the perspective of a whole economy (e.g. nation)
  - **Microeconomics:** Economics from the perspective of an individual actor or regarding individual goods



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# Economics is Everywhere




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- A big part of our daily interactions is about the exchange of goods
- We go to work and sell our workforce (labor market)
- We go to the grocery and buy food (goods market)
- We give money to the bank and earn interest (capital market)



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# Scarcity



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- Scarcity means that there are limited resources and unlimited wants.
- Example: Time
  - We want to do so many things on a given day, but only have 24 hours available per day.
- Example: Wheat
  - We want cake and bread but only have 1 kg of wheat
- Example: National Amount of Labor
  - Austrian labor force: 3.45 million (2004 est.) \* 8 hours: What should they do? How many should drive a taxi, how many should repair houses?



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## Choice and Cost



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- Scarcity requires choice
  - If you go climbing on Sunday, you cannot go skiing on the same day
  - If you put all wheat in the cake, you cannot make bread anymore
- Choice introduces costs: If you decide for one option, you give up another
  - E.g. for each additional pound of cake you give up a pound of bread
  - So the cost for 500 g of additional cake is a pound of bread



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## Problem of the Allocation of Goods



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- How much of which resource should who have available?
  - e.g. bread, cars, books, coal, oil,...
- Which resources and in which quantities should actors use in order to produce new goods?
  - e.g. how much wheat should the bakery use in order to produce bread, how much for baking cakes,...



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## Two fundamental mechanisms for allocation



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- **Hierarchy:** „Somebody“ (e.g. the government) decides upon the allocation of resources.
- **Market:** We allow people to trade resources on markets based on their own preferences.
  - E.g.
    - you work for two hours as a waiter in order to afford one hour of ski instruction
    - you give away 500 g of wheat in order to get two eggs



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## Choice



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# Utility




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- An utopia for measuring an individual's well-being, based on the contribution of the consumption of goods
  - E.g.
  - $U_{\text{Peter}} = 2 \cdot \text{Quantity of Chocolate} + 3 \cdot \text{Number of Cappucino}$
  - Usually not linear (If you already have a lot of chocolate, additional chocolate is less attractive)



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# Economic Models



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- All models aim at **simplifying** a phenomenon, so that we can better understand the most important relationships and determinants.
- Models are a core part of Economics research.
- They abstract from the peculiarities of the individual case.
- It is thus very natural that one can find individual counterexamples for principles found in economic models.
- However, this is no valid criticism, since this is a feature and not a bug of models.
- Models are always defined for a limited purpose; their fitness can only be evaluated against this purpose.
- Valid criticism of models can only claim that a model does not properly reflect the core aspects of the original phenomenon.



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## Economic Models (2)



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### Examples:

- Standard economic models assumes that if prices drops, producers would offer lower quantities of goods.
- Also, they assume that the cheaper a good is, the more we consume. However, there are luxury goods for which part of their attractiveness comes from the fact that not everybody can afford them.



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## Markets are not perfect, but quite efficient



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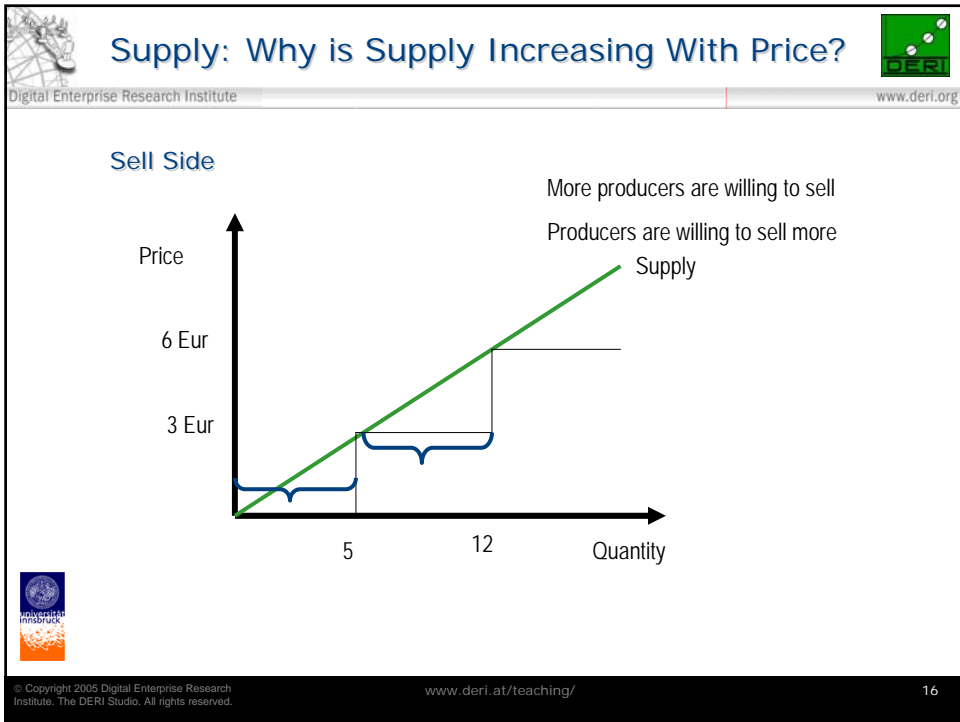
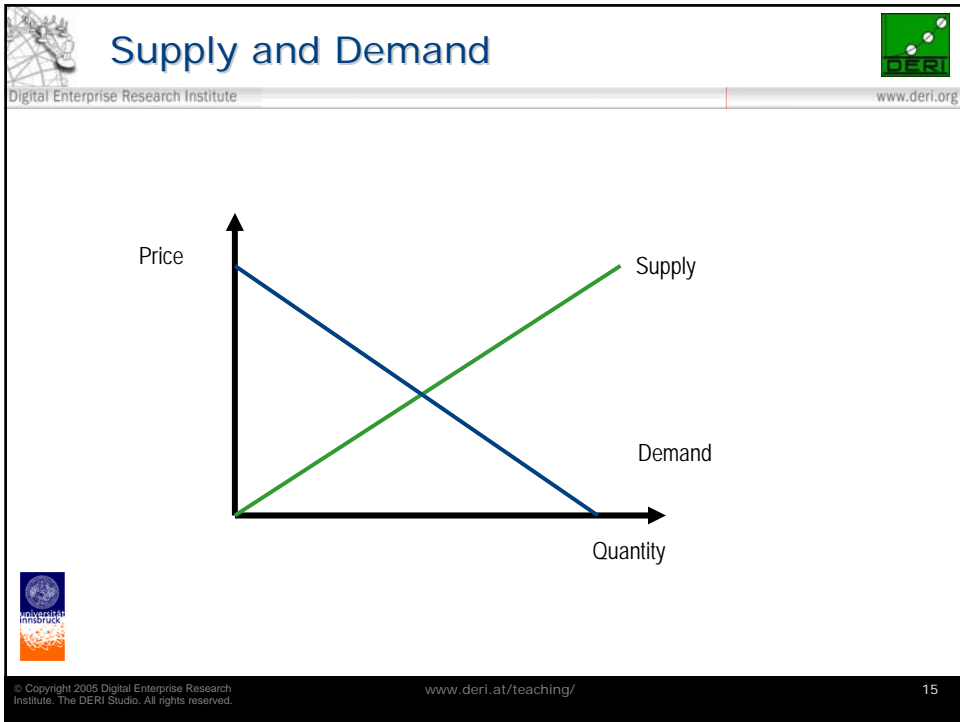
- If you go to a supermarket, almost everything is available in the quantities you want them (what you buy is mainly limited by your budget)
- People can specialize on what they are better at than others and thus improve their wealth
  - E.g. we do not have to produce everything on our own
  - Learning effects
  - Productivity gains (Economies of Scale)



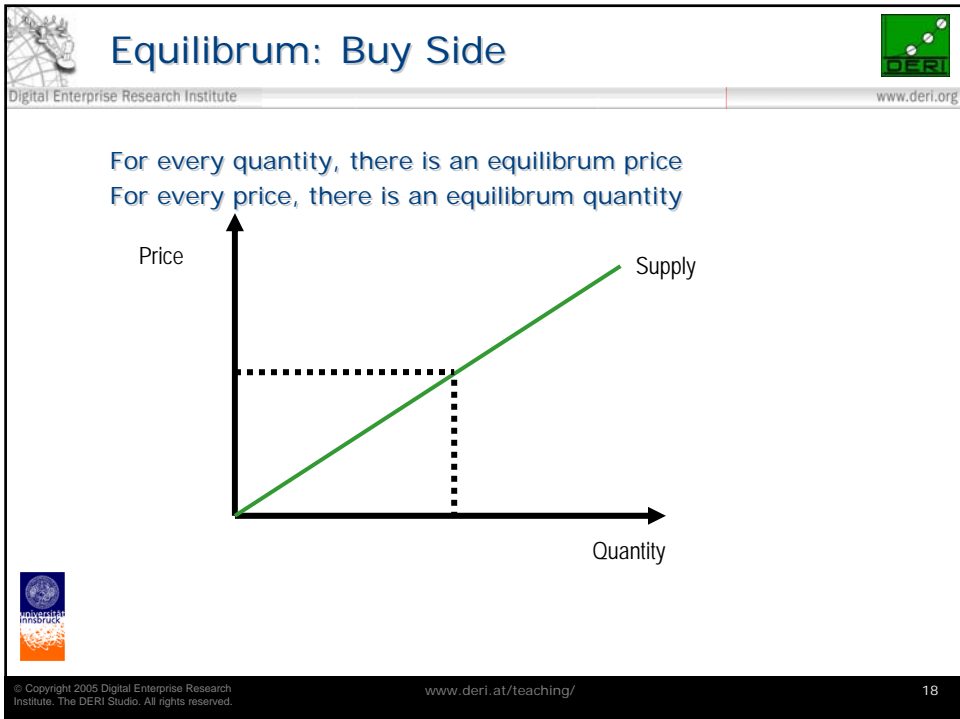
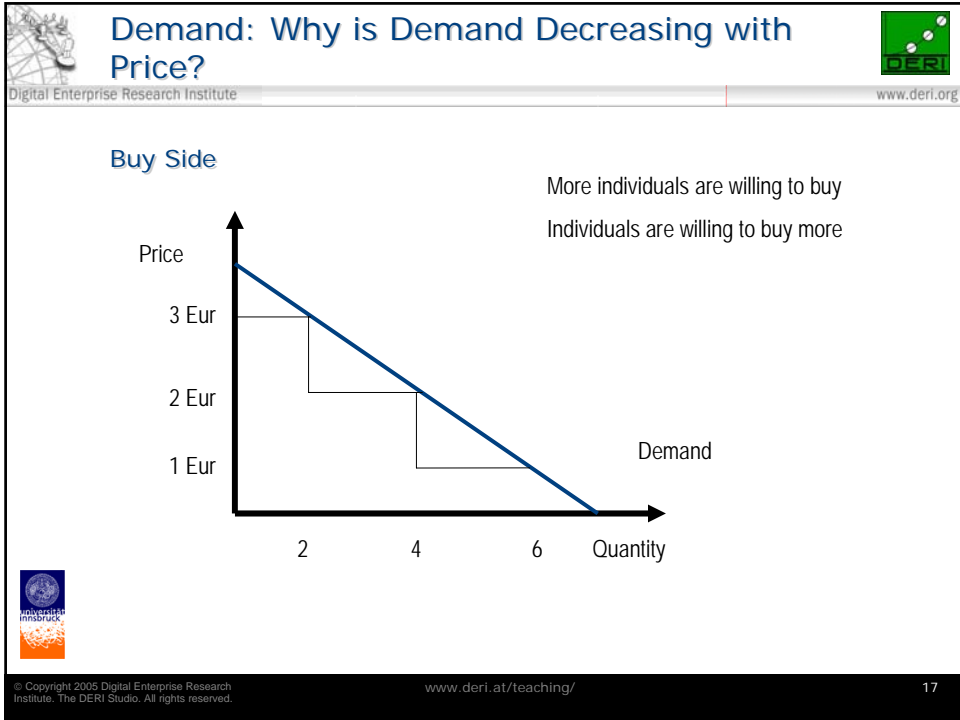
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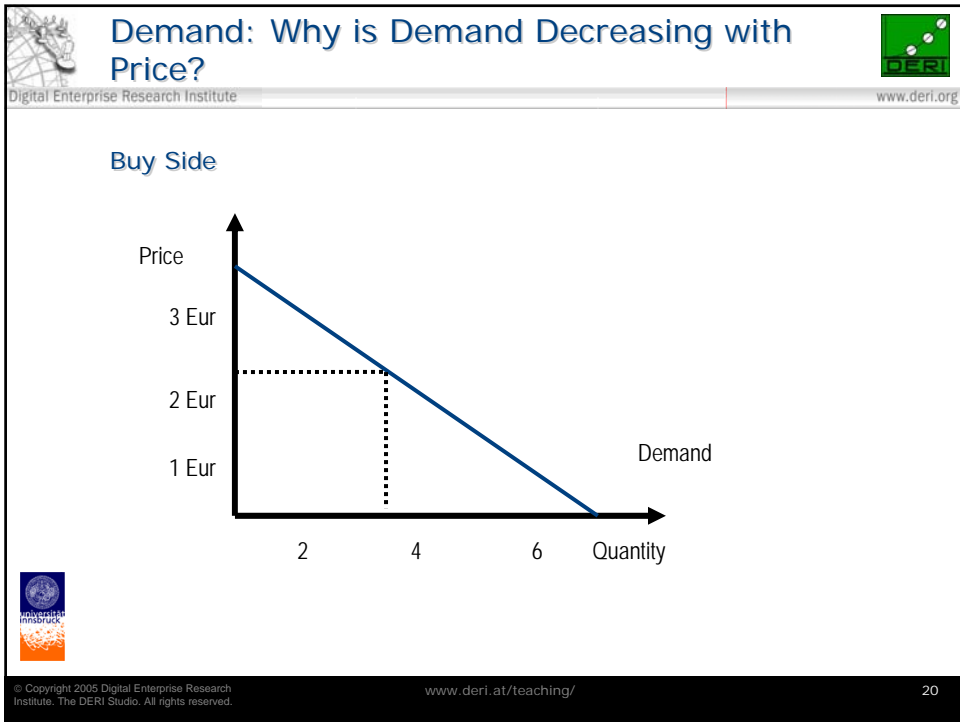
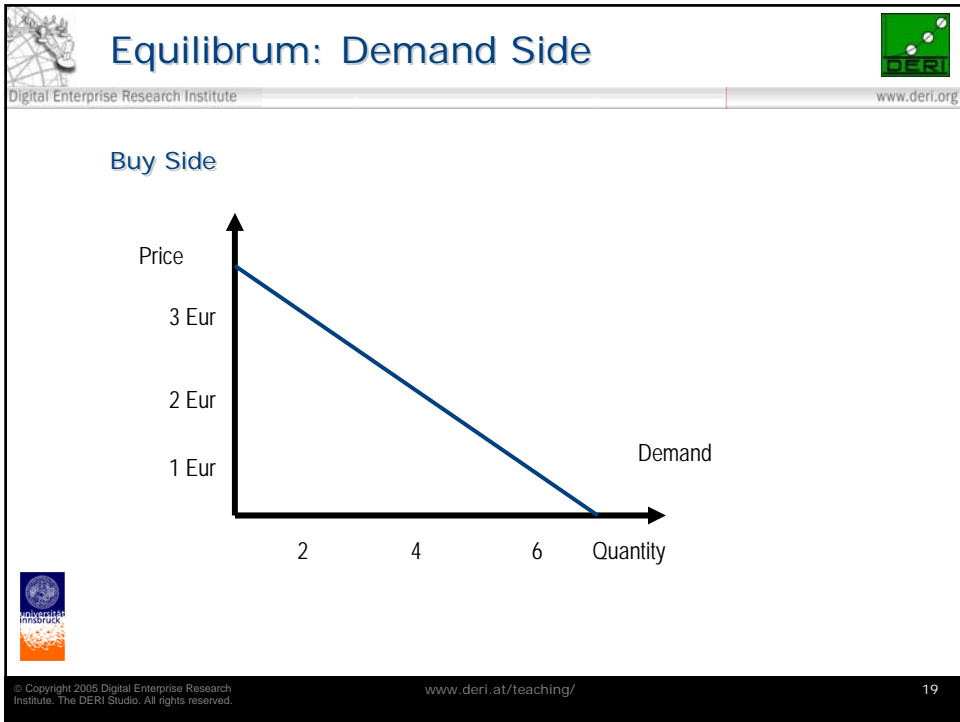
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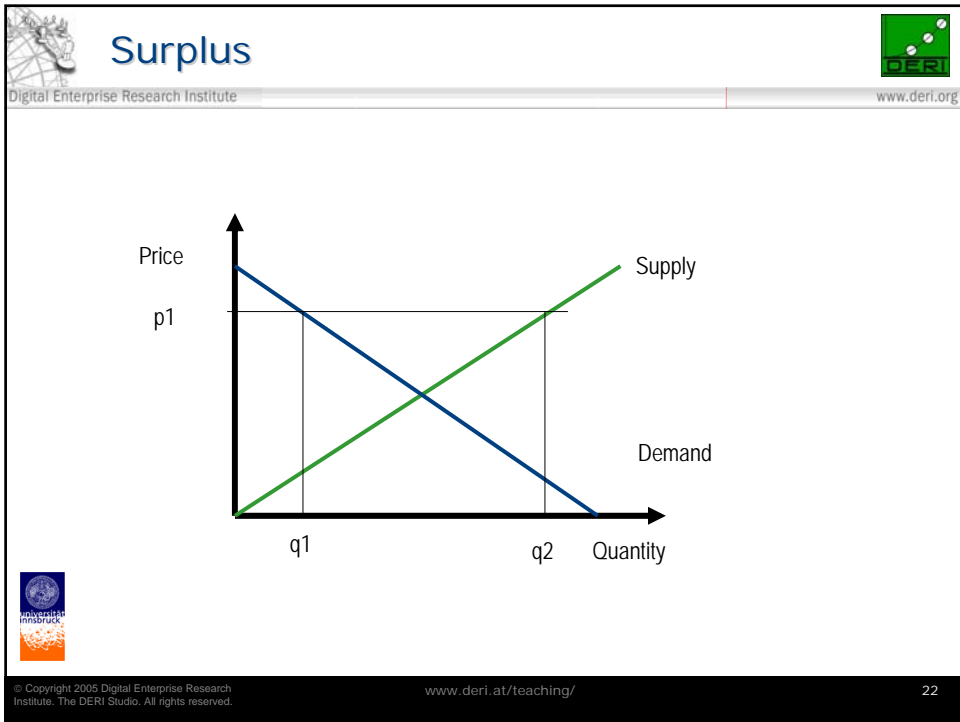
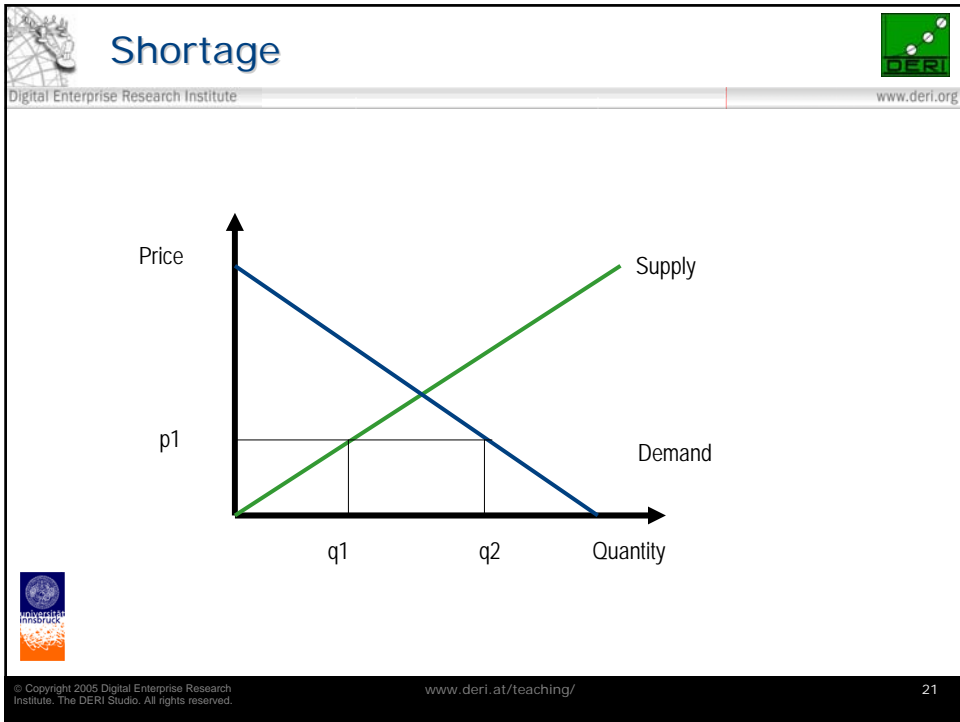
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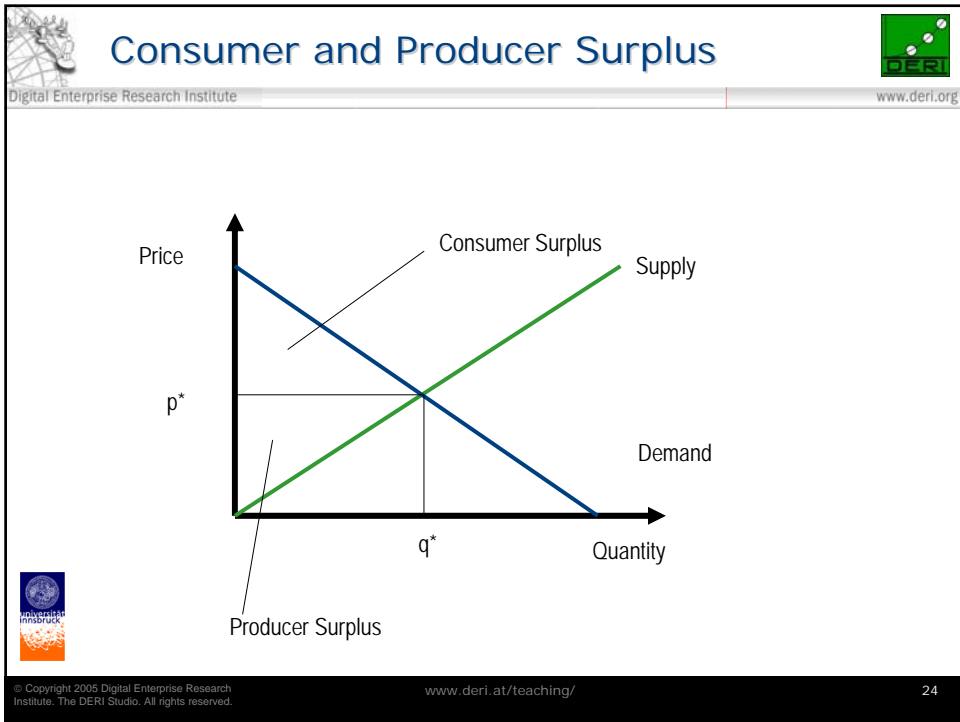
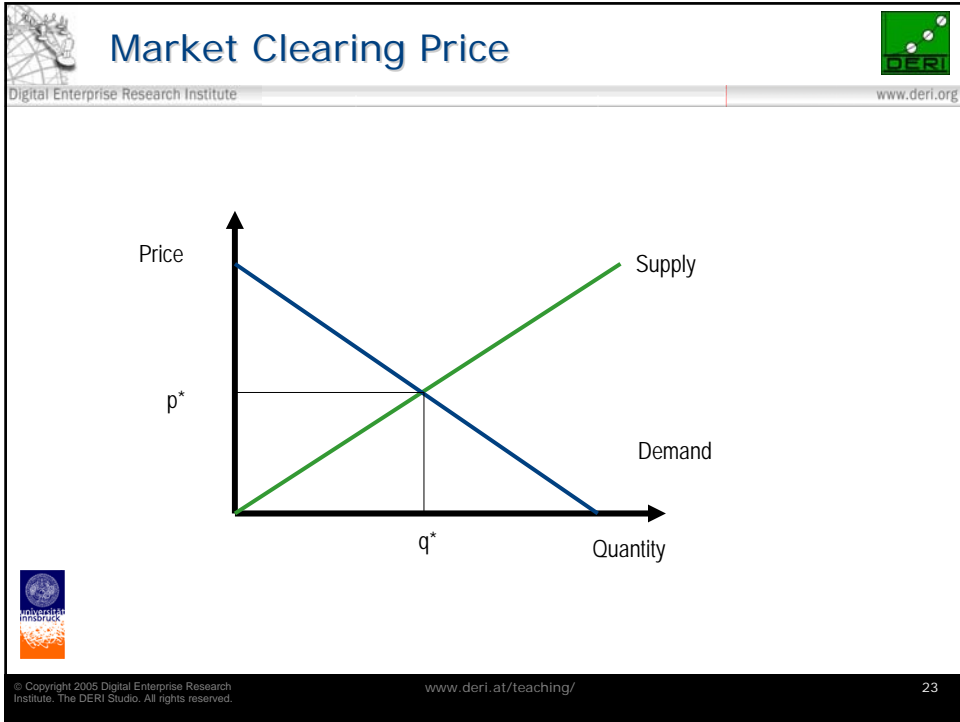














## Goods: Substitutes and Complements




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- Substitutes: Such goods that can be substituted by each other
- Complements: Such goods that can only be consumed together



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## Core Macroeconomic Questions



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- Measuring Inflation
- Measuring Unemployment
- Comparing policy options
- Monetary policy

„Economists: Medical Doctors of Market Economies“  
(Peter Bofinger)



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## Incomplete Markets



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- Transport costs
- Incomplete information
- Information costs
- Regulations
- Taxation
- Resources have no costs (e.g. Environment)



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## The Theory of the Firm



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- Transaction cost theory
- Hierarchy vs. Market
- Impact of IT



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Thank you!

The slides will be available on the internet at  
<http://www.heppnetz.de/teaching/bis>