

Introduction to Environmental Economics (IKT3620)

MARKETS AND THE ENVIRONMENT

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MARKETS AND THE ENVIRONMENT

- MARKETS ARE POWERFUL
 - MOST USEFUL WAY TO ORGANIZE ECONOMIC ACTIVITY
 - THEY SEND SIGNALS; CHANNEL OF COMMUNICATION
- BUT MARKETS FAIL, TOO
- A WEDGE IS DRIVEN BETWEEN WHAT PEOPLE WANT AS INDIVIDUALS AND WHAT SOCIETY WANTS AS A COLLECTIVE

THE POWER OF MARKETS

- A MARKET SUCCEEDS WHEN IT ALLOWS FOR THE EFFICIENT ALLOCATION OF RESOURCES
- EFFICIENCY GAINS EXIST IF IT IS POSSIBLE TO TRADE GOODS AND SERVICES SUCH THAT AT LEAST ONE PERSON IS BETTER OFF AND NO ONE ELSE IS WORSE OFF:?
- WHAT IS THE KEY TO A SUCCESSFUL MARKET?
 - WELL-DEFINED PROPERTY RIGHTS

THE POWER OF MARKETS

- WELL-DEFINED PROPERTY RIGHTS SYSTEM IS BASED ON FOUR CHARACTERISTICS
 1. COMPREHENSIVE
 2. EXCLUSIVE
 3. TRANSFERABLE
 4. SECURE
- THESE FOUR CHARACTERISTICS REPRESENT AN IDEAL SCENARIO IN WHICH GAINS FROM TRADE ARE CREATED AND CAPTURED BY PEOPLE WHO TRADE
- COMPLETE SET OF MARKETS DOES NOT REFLECT REALITY
 - BUT THE NOTION OF COMPLETE MARKETS REPRESENT A THEORETICAL BENCHMARK

MARKET FAILURE

- MARKET FAILURE EXISTS WHEN RESOURCES DO NOT ATTAIN THEIR HIGHEST SOCIAL VALUE
- FOR ENV. GOODS AND NATURAL RESOURCES,
 - MARKETS FAIL WHEN BENEFITS AND COSTS CANNOT BE ALLOCATED WITH PRECISION ACROSS AND WITHIN NATIONS AND GENERATIONS
- MARKET FAILURE OCCURS WHEN PROPERTY RIGHTS ARE NOT DEFINED CLEARLY
- ACCORDINGLY, MARKETS FAIL WHEN
 - WE CANNOT TRANSFER RIGHTS
 - WE CANNOT EXCLUDE OTHERS FROM USING THE GOOD
 - WE CANNOT PROTECT OUR RIGHTS TO USE THE GOOD

MARKET FAILURE

- FREE EXCHANGE DOES NOT LEAD TO A SOCIALLY DESIRABLE OUTCOME
 - PRIVATE ACTIONS PROVIDE TOO MANY
 - **BADS:** POLLUTION
 - **TOO FEW GOODS:** OPEN SPACE
- THE MARKET SYSTEM IS INCOMPLETE
 - MISSING MARKETS
- FOR EXAMPLE, IF NO LEGAL AND INSTITUTIONAL BASIS EXISTS, PEOPLE WHO USE POLLUTED RIVER CANNOT RECEIVE COMPENSATION FROM UPSTREAM FARMERS WHOSE SEDIMENTS (TORTU), PESTICIDES (BOCEK ILACI), OR FERTILIZERS IMPOSE DOWNSTREAM COSTS IN THE FORM OF
 - CONTAMINATED DRINKING WATER
 - POOR FISHING
 - REDUCED RECREATIONAL OPPORTUNITIES
- FARMERS IMPOSE 'EXTERNAL COSTS' ON THESE OTHER USERS OF THE RIVER

MARKET FAILURE

- MARKETS FAIL FOR SEVERAL REASONS
 - EXTERNALITIES
 - PUBLIC GOODS
 - OPEN-ACCESS COMMON PROPERTY
 - HIDDEN INFORMATION
- OTHER TYPES OF MARKET FAILURE
 - MARKET POWER (MONOPOLY)

MARKET FAILURE

- MARKETS FAIL FOR SEVERAL REASONS
 - **EXTERNALITIES**
 - PUBLIC GOODS
 - OPEN-ACCESS COMMON PROPERTY
 - HIDDEN INFORMATION

EXTERNALITIES

- POLLUTION IS AN EXTERNALITY
 - WHEN A PERSON OR FIRM
 - DOES NOT BEAR ALL THE COSTS OR RECEIVE ALL THE BENEFITS FOR HIS/HER OR ITS ACTIONS
- AN EXTERNALITY CAN ARISE WHEN THE MARKET PRICE OR COST OF PRODUCTION EXCLUDES ITS SOCIAL IMPACT, COST, OR BENEFIT
- MARKETS FAIL B/C THE MARKET IS INCOMPLETE → IT'S MISSING
 - NO EXCHANGE INSTITUTION EXISTS IN WHICH PEOPLE PAY OTHERS FOR EXTRA BENEFITS OR RECEIVE COMPENSATION FOR EXTRA COSTS.
 - DRIVING YOUR CAR
 - BUILDING A HOUSE IN AN OPEN SPACE

EXTERNALITIES

- OTHER EXTERNALITIES
 - TOXIC WASTES THAT LEACH INTO DRINKING WATER
 - URBAN AIR POLLUTION DUE TO TRANSPORTATION, CURTAILING THE ACTIVITIES OF YOUNG CHILDREN
- THESE ARE **DIRECT** EXTERNALITIES
- WE SHOULD ALSO CONSIDER **INDIRECT** EXTERNALITIES
 - ECOSYSTEM EXTERNALITIES
 - AN ACTION CAN WORK ITS WAY THROUGH THE ECOSYSTEM, POPPING UP ELSEWHERE
 - KILLING PREDATORS TO PROTECT CHILDREN AND DOMESTIC ANIMALS...
 - DDT DOES NOT KILL BIRDS BUT...

MARKET FAILURE

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PUBLIC GOODS

- PUBLIC GOODS ARE A SECOND FORM OF MARKET FAILURE
- A PUBLIC GOOD EXISTS WHEN
 - A PERSON CANNOT BE EXCLUDED FROM ITS BENEFITS AND COSTS
 - **NON-EXCLUDABILITY**
 - ONE PERSON'S CONSUMPTION OF THE GOOD DOES NOT REDUCE ITS AVAILABILITY TO ANYONE ELSE
 - **NON-RIVAL CONSUMPTION (NON-RIVALRY)**

PURE AND IMPURE PUBLIC GOODS

- PURE PUBLIC GOODS
 - NON-EXCLUDABLE & NON-RIVAL
- IMPURE PUBLIC GOODS
 - EITHER NON-EXCLUDABLE OR NON-RIVAL; NOT BOTH!

PURE AND IMPURE PUBLIC GOODS

- PURE PUBLIC GOODS

- CLIMATE-CHANGE PROTECTION
- THE OZONE LAYER
- BIODIVERSITY (BIYOLOJIK CESITLILIK)

- IMPURE PUBLIC GOODS

- COMMON PROPERTY
- CLUB GOODS



RIVERS, LOCAL PARKS, LAKES... THE BENEFITS CAN BE EXCLUDED FROM NON-MEMBERS OF THE GROUP THAT OWNS THE RESOURCE

FREE-RIDING

- CAN LEAD TO PRISONER'S DILEMMA
- ALSO KNOWN AS SOCIAL TRAP OR TRAGEDY OF COMMONS
- IN REALITY, PEOPLE CONTRIBUTE TO THE PROVISION OF SOME PUBLIC GOOD. THIS IS NOT A QUESTION...
 - THE QUESTION IS WHETHER THEY CONTRIBUTE ENOUGH!..
 - DO PEOPLE CONTRIBUTE ENOUGH TO CREATE THE OPTIMAL LEVEL OF THE GOOD FOR THE SOCIETY? **MARKET FAILS IF NOT!**
- **LINDAHL EQUILIBRIUM:** THE PUBLIC GOOD SHOULD BE PROVIDED UP TO THE POINT AT WHICH MARGINAL SOCIAL BENEFITS EQUAL THE MARGINAL SOCIAL COSTS. THIS OPTIMAL LEVEL IS CALLED **L.Eq.**

MARKET FAILURE

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OPEN-ACCESS COMMON PROPERTY

- COMMON PROPERTY (COMMONS)
 - CAN BE MANAGED IN MANY WAYS DEPENDING ON HOW PROPERTY RIGHTS ARE DEFINED AND ENFORCED
- WHEN PEOPLE CANNOT BE EXCLUDED FROM ACCESSING A RESOURCE
 - OPEN-ACCESS COMMONS
 - ONE PERSON'S USE RIVALS ANOTHER'S USE
 - IF A PERSON'S USE ↓ THE AVAILABILITY TO OTHERS, EVERYONE HAS AN INCENTIVE TO CAPTURE THE BENEFITS BEFORE SOMEONE ELSE GETS THEM!
 - **OPEN-ACCESS-FREE-FOR-ALL LEADS TO INEFFICIENT USE OF THE RESOURCE**
- OVERHARVESTING: FISHERS HARVEST UNTIL MC EXCEED MR (THE MARKET PRICE)

COMMON PROPERTY (COMMONS)

- OVERHARVESTING (CTD.)
 - WHAT HAPPENS IN OPEN-ACCESS COMMONS?
 - EACH FISHER HAS AN INCENTIVE TO CATCH AS MANY FISH AS POSSIBLE BEFORE SOMEONE ELSE CATCHES THE SAME FISH
 - HIS DECISION TO LET THE FISH BE IS NOT RESPECTED BY OTHERS
 - B/C THEY HAVE AS MUCH RIGHT TO THE FISH
 - HE STARTS EXPENDING HIS EFFORT
 - IN DOING SO HIS MC END UP EXCEEDING HIS MR
 - VIOLATING THE EFFICIENCY CONDITION

COMMON PROPERTY (COMMONS)

- OVERHARVESTING (CTD.)
 - EFFICIENCY IS BREACHED B/C EACH FISHER IMPOSES AN EXTERNAL COST ON ALL THE OTHERS
 - EACH TIME A FISH IS COUGHT, IT MAKES IT MORE COSTLY FOR EVERYONE ELSE TO CATCH THE NEXT ONE
 - INFAMOUS 90-10 RULE OF DRE
 - A FISHER STOPS WHEN THERE ARE NO ECON. PROFITS
 - YET, NET SOCIAL VALUE IS NEGATIVE
 - THE SCARCITY VALUE OF THE FISH HAS BEEN IGNORED
 - EACH FISHER DOES NOT EARN THE ECONOMIC RENT, REFLECTING THE SCARCITY VALUE OF THE FISH TO THE SOCIETY
- **TRADEGY OF THE COMMONS**

TRADEGY OF THE COMMONS

- SINCE EVERYONE HAS ACCESS, ALL HAVE THE RIGHTS TO THE RESOURCE AND SCARCITY IS IGNORED
- THE REALITY IS THAT
 - MOST COMMONS HAVE A PROPERTY-RIGHT SCHEME –either formal or informal to allocate resources more efficiently
 - NUMEROUS EXAMPLES OF SELF-GOVERNING COMMONS IN WHICH PEOPLE WORK AS A COLLECTIVE UNIT AND RESPECT THE SCARCITY VALUE OF THE RESOURCE

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HIDDEN INFORMATION

- **MARKET FAILURE OCCURS WHEN ONE CANNOT OBSERVE**
 - THE ACTIONS OR
 - TYPES OF OTHERS
- **MORAL HAZARD**
 - LEADS TO MARKET FAILURE B/C ONE CANNOT OBSERVE THE HIDDEN ACTIONS OF OTHERS
- **ADVERSE SELECTION**
 - LEADS TO MKT FAILURE B/C ONE CANNOT OBSERVE THE
 - (HIDDEN) TYPE OF A PERSON
 - E.G. WHETHER A FARMER HAS HIGH OR LOW OPPORTUNITY COSTS FOR INCREASING BIODIVERSITY ON HIS OR HER LAND
 - HIDDEN QUALITY OF SOME GOOD OR SERVICE
 - E.G. WHETHER A LOAF OF BREAD IS ORGANIC
- **BOTH TYPES OF HIDDEN INFO. PREVENT MARKETS FROM ALLOCATING RESOURCES TO MORE EFFICIENT USE; E.G. REDUCTION OF ENV. RISK**

HIDDEN INFORMATION

- **EXAMPLES:**

- **MORAL HAZARD**

- **IMPLIES THAT A REGULATOR CANNOT PERFECTLY MONITOR POLLUTION ABATEMENT**

- **A FIRM THEREFORE CAN AVOID POLLUTION CONTROL IF IT BEARS ALL THE CONTROL COSTS IN RETURN FOR A FRACTION OF THE BENEFITS**

- **ADVERSE SELECTION**

- **IF A CONSUMER CANNOT DISTINGUISH THE SUSTAINABLE PRODUCT FROM A SIMILAR ONE PRODUCED USING STANDARD PRACTICES,**

- **SHE HAS NO INCENTIVE TO PAY THE PRICE PREMIUM**

- **VOLUNTARY APPROACH TO CERTIFICATION**

VOLUNTARY STANDARDS

- RULES, GUIDELINES OR CHARACTERISTICS ABOUT A PRODUCT OR A PROCESS.
- NOT MANDATORY
- USUALLY DEVELOPED BY PRIVATE SECTOR ACTORS, REPRESENTATIVES OF CIVIL SOCIETY, OR PUBLIC SECTOR AGENCIES.
- GROWING TREND IN GLOBAL MARKETS.
- THE CURRENT EVIDENCE OF THE IMPACT OF VOLUNTARY STANDARDS ON SMALLHOLDERS' ABILITY TO PARTICIPATE IN MARKETS
 - IT IS LIMITED MAINLY TO THREE STANDARDS:
 - GlobalG.A.P. (WORLDWIDE STANDARD FOR GOOD AGRICULTURAL PRACTICES)
 - FAIRTRADE (GOAL IS TO HELP PRODUCERS IN DEVELOPING COUNTRIES ACHIEVE BETTER TRADING CONDITIONS --HIGHER PRICES TO EXPORTERS, IMPROVED SOCIAL AND ENVIRONMENTAL STANDARDS)
 - ORGANIC.

MARKETS FOR THE ENVIRONMENT

- MKT FAILURE CAN CREATE ENV. PROBLEMS
- WE CAN USE IDEAS BEHIND MARKETS TO ADDRESS THE PROBLEMS THAT CAN EXIST
- NO NEED TO TURN TO COMMAND-AND-CONTROL GOVERNMENT INTERVENTION !
- MARKETS HAVE PROVED THEIR POWER FOR THE PAST CENTURIES
- WE CONSIDER THREE WAYS TO CREATE NEW MARKETS TO ADDRESS MARKET FAILURE ASSOCIATED WITH THE ENVIRONMENT

1- ASSIGN PROPERTY RIGHTS AND BARGAIN
OVER THE "P" AND "Q"