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# MARKET MECHANISMS FOR SPECTRUM MANAGEMENT

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# INTRODUCTION

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- **Spectrum pricing is an important tool for spectrum management**
- **High licence fees can persuade users to:**
  - **release surplus spectrum**
  - **use spectrum efficiently**
- **Price setting is the problem**
  - **regulators must guess the value of spectrum**
  - **users know more than regulators**
- **Let the market decide . . . .**
  - **but users may not know the value of spectrum**

# NEUTRALITY

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- **Regulators are reluctant to pick winners**
  - **technology neutrality**
  - **service neutrality**
- **Good principles**
  - **often used as an excuse by regulators to “do nothing” and “let the market decide”**
- **Regulators have a very difficult task, but is it always right to “let the market decide”?**
- **How can regulators take account of other public policy objectives?**

# BROADCASTING

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- **Most European countries have strong commitments to public service broadcasting, which involves:**
  - **encouraging national culture & social cohesion**
  - **providing reliable, unbiased information**
  - **producing high quality content**
  - **providing varied and balanced programming for all segments of the population**
- **The obligation to provide near-universal coverage requires significant allocations of spectrum**
- **Broadcasting is not simply about maximising profit**

# DIGITAL BROADCASTING IN EUROPE

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- **Digital broadcasting (radio & TV) has enhanced competition in Europe by allowing many new entrants (competing with incumbent broadcasters)**
  - unlike the USA, where terrestrial digital TV and radio has been limited to existing broadcasters
- **Importance of terrestrial TV varies around Europe**
  - 2% homes in Belgium and Netherlands
  - 54% homes in UK
  - 75% homes in Spain and Italy
  - 94% homes in Greece
- **Growing importance of digital terrestrial TV**

# HEALTH CARE

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## Public system

- “Free” to everybody
- Costs covered by some form of taxation

## Private system

- Users pay fees for each “transaction”
- Fees set by commercial providers

## Which system is best?

- If you are healthy, “private” = best for you
- If you are NOT healthy, “public” = best for you
- In practice, most developed countries operate a MIXED system – usually with insurance schemes to provide basic health care for all

# UK COMMERCIAL TV (1991)

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- Officially NOT an auction for spectrum
  - an auction for licences to operate regional TV services on terrestrial spectrum
- Bidders had to pass a “quality threshold” in terms of programme content
  - franchise awarded to highest bidder
- Most franchises attracted bids of £20-40m, but some franchises were unopposed
  - most of the winners could not afford to make good programmes → lower audiences & profits
- In retrospect, auction was a disaster for TV in UK
  - even Margaret Thatcher regretted the results

# 3-G SPECTRUM AUCTIONS

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- **European mobile operators paid \$100 billion for access to 3-G spectrum**
  - **UK & Germany = \$650 per head of population**
- **Governments welcomed this “tax windfall”**
- **Why did operators pay so much?**
  - **collective madness?**
  - **last opportunity for 3-G spectrum?**
- **Proves that telcos did NOT know the value of spectrum . . . .**
  - **or were they were too rich to care?**



# LOOKING TO THE FUTURE . . .

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- **Lessons must be learnt from the 3-G auctions**
- **Auctions must be designed to**
  - **avoid governments maximising their profits**
  - **avoid over-bidding to “stay in business” (e.g. replace cash bid by % of revenues)**
- **As you learn more about a subject, the more you realise that you do not understand**
  - **many discussions about spectrum allocation are too theoretical**
  - **practical issues (such as interference) are often under-played and not understood by economists**

# CONCLUSIONS

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- **Ignoring market forces is foolish**
  - but making decisions based solely on market forces is very dangerous
- **We are not blessed with “perfect markets” or “perfect information”**
- **Find ways to include non-financial factors**
- **Too many debates about spectrum management are led by economists and lawyers**
  - If you are ill, you go to a doctor
  - If you want spectrum efficiency, you should ask a frequency planning expert