Revision on Natural Monopoly

There are several interpretations of what a natural monopoly is:

1. It occurs when one large business can supply the entire market at a lower price than two or more smaller ones.
2. A natural monopoly is a situation in which there cannot be more than one efficient provider of a good. In this situation, competition might actually increase costs and prices.
3. It is an industry where the minimum efficient scale is a large share of total market demand such that there is room for only one firm to fully exploit all of the available internal economies of scale.
4. An industry where the long run average cost curve falls continuously as output expands.

Each of these definitions is linked. **The key point is that a natural monopoly is characterized by increasing returns to scale at all levels of output** – thus the long run cost per unit (LRAC) will drift lower as production expands. LRAC is falling because long run marginal cost is below LRAC. This can be illustrated in the diagram below:

For the LRAC to fall over such a wide range of output levels there must be many different internal economies of scale available to be exploited – for example:

- Technical (production) economies
- Managerial economies
- Financial economies
- Marketing economies

Typically industries that edge close to being 'natural monopolies' are those where there exist huge overhead costs associated with building and then maintaining national or regional infrastructure networks. The ratio of fixed to variable costs of supply is exceptionally high i.e. overhead costs are enormous, but the marginal cost of supplying to one extra user/customer is tiny in comparison.
Examples?

Because there is no single definition of a natural monopoly, none of the examples below are purely national monopolies – but it is suggested that their cost structure does stake them close to a common-sense interpretation:

1. **British Telecom** building and maintaining the UK telecommunications network for the broadband industry – especially the ‘final mile’ copper wiring from the local exchanges to each household
2. The **Royal Mail’s** postal distribution network – collection / sorting / delivery
3. **Virgin Media** owning and running the cable telecommunications network
4. **Camelot** operating the national network for the UK lottery
5. **National Rail** owning, maintaining and leasing out the UK rail network
6. **National Grid plc** which owns and operates the National Grid high-voltage electricity transmission network in England and Wales. Since April 1, 2005 it also operates the electricity transmission network in Scotland. Owns and operates the gas transmission network (from terminals to distributors).
7. **London Underground, Tyne and Wear Metro**
8. **Microsoft** and computer operating systems (?)
9. **National Air Traffic Services**

An important point is that a natural monopoly does not mean that there is only one business operating in the market or that only one firm can survive in the long run. Indeed there may be many smaller businesses operating profitably in smaller ‘niche’ segments of a market (however that is defined).

**Possible conflicts between efficiency and welfare**

It is often said that a natural monopoly raises difficult questions for competition policy because

- On the one hand – it is more **productively efficient** for there to be one dominant provider of a national infrastructure e.g. a rail network or electricity generating system
- Natural monopolies often require enormous investment spending to maintain and improve the networks e.g. who is going to pay for making our broadband network faster?
- On the other hand – businesses with such deep-rooted monopoly power (huge barriers to entry) might be tempted to **exploit that market power** by raising prices and making huge **supernormal profits** – damaging **consumer welfare**

It is certainly true that to make profits, a natural monopolist will have to price well above the marginal costs of supply – we can see that in the next diagram.

The **profit-maximizing price** is $P_1$ at an output of $Q_1$. Price is well above the marginal cost of supply and high supernormal profits are made – but output is high too and there is still a sizeable amount of **consumer surplus** because of the internal economies of scale that have brought down the unit cost for all consumers. (*We are ignoring the possibility of price discrimination here.*)
Options for competition policy in industries that resemble a natural monopoly

1. **Nationalization**: Bringing some of these industries into state ownership
   a. **Network Rail** is a not-for-profit business (formerly Railtrack plc) – taken back into public ownership in 2001
   b. **National Air Traffic Services** – currently owned by the UK government (49%); The Airline Group (42%) which is a consortium of British Airways, bmi, easyJet, Monarch Airlines, Thomas Cook Airlines, Thomsonfly and Virgin Atlantic; BAA (4%); and NATS employees (5%).

2. **Price controls**
   a. For many of the major utilities, the government introduced industry regulators to oversee these businesses when they were privatized in the 1980s and early 1990s
   b. For many years utility businesses such as British Telecom and British Gas were subject to price capping – most of these have now finished although some remain – [for more details – see this link](#)

3. **Introducing competition into the industry** – this has been a favoured policy
   a. Basically involves separating out **infrastructure** from the **final service to the consumer** – for example:
   b. **British Telecom** was eventually forced to open-up local telecom exchanges and allow other businesses in to install equipment (unbundling the local loop) – who then sell services such as broadband to households – competitors pay BT an access charge designed to give BT a 10% rate of return from running the network
   c. **National Rail** runs the network – but train operating companies have to bid for the franchise to run passenger services – and the industry regulator can take their franchise away if the quality of service isn’t good enough
   d. **Camelot** has successfully bid to operate the National Lottery until 2017
   e. The **Royal Mail** now faces competition in the mail market – mainly from established logistics companies – who tend to focus on collection and sorting rather than final delivery. The Royal Mail charges for the final delivery of mail
   f. Increased competition between **gas and electricity suppliers**