Will charging based on content come to the internet? The history of transportation offers clues

ON THE Beverley Beck waterway in northern England in the early 18th century, tolls were the same for almost any cargo: four pence per ton. In 1744, however, came a dramatic change. Thenceforth, shippers had to pay 12 pence per ton to send iron or lead, but six pence for the same weight of timber, stone or salt. There have been similar developments in transport networks many times since, be they railways, roads or telephone systems. Charges are usually uniform at first, but later, network operators introduce more complicated price structures based on what is carried. Sometimes these are based on cost. Often, though, they reflect price discrimination: charging based on differences in customers' willingness to pay.

So far the internet has been free of such discrimination. Indeed, some believe that is one of the chief reasons for its success. The system was designed to be decentralised and “open”: it carries all digital traffic, be it song or spam, for the same price. Yet many telecoms companies, which control the wires over which most consumers are connected to the internet, want to change this. They claim that charging different prices for different uses, such as telephone calls or downloading films, will give them the means and incentive to invest in better-engineered networks. So will price discrimination catch up with the internet too?

In a recently published paper,* Andrew Odlyzko, a professor at the University of Minnesota, divines lessons from the history of transportation to explain the telecoms industry's attraction to price discrimination, and what it may mean in future. Of course, in general telecoms, companies already exploit variations in what customers are willing to pay for digital bits, depending on whether they take the form of a cable television programme or an SMS text message (see chart). On the internet, however, charging according to content would mark a big change.

In transport, this has been the norm for centuries. On England’s canals, prices by cargo varied widely by the 1790s, according to both content and ultimate use: for instance, transport was free for manure for adjacent fields and stone for road repairs. To some extent, regulation limited canal operators' ability to exploit their market power: until 1845, they were barred from offering transport service themselves, in a “structural separation” of the sort sometimes proposed in telecoms today.

Turnpikes followed the same pattern. “Traditionally, the King’s Highway was open to all,” Mr Odlyzko notes. “The problem was how to keep it in good condition.” In 1663, the first turnpike was authorised to collect tolls. Though protests were frequent and occasionally violent, turnpikes flourished. Later, complaints over canal prices helped the development of the railways. On the rails, too, wear (and thus maintenance costs) depended on weight, yet costs were soon based on what was transported. Eventually, price differences led to an outcry and, ultimately, regulation.
To some extent, price discrimination seems to have been beneficial. It allowed the Beverley Beck waterway, which had been making a loss, to stay in business. Early turnpike tolls led to improved road conditions so that transport eventually became cheaper. On the other hand, price discrimination causes resentment: many people think charging on the basis of willingness to pay unfair. It also encourages evasion, and requires frequent inspections to ensure that people pay the correct price.

**Road map for the internet**

On the net, discrimination might mean one price for web and e-mail traffic, another for instant messaging and still others for telephone calls, music and films. Is it likely? Mr Odlyzko hopes not, although history strongly suggests that the temptation exists. He thinks that price discrimination might not be in telecoms companies' interests after all. Unlike on canals, toll roads and so forth, internet capacity is abundant. Internet service is therefore a commodity. Simpler, flat-rate pricing, he argues, is likely to increase usage: discrimination would turn some users away.

Indeed, he says, distinguishing between different types of traffic would mean so much technical rejigging that the openness of the internet would be destroyed. Because the internet is decentralised and simply priced, it is cheap for many other networks—run by big companies, universities and telecoms firms—to connect to it. This in turn gives the internet a great capacity for innovation. Price discrimination could jeopardise all this. "While content delivery does lend itself to a closed network, connectivity does not. Open networks are likely to win because they can attract more revenues from users," Mr Odlyzko says. Is this wishful thinking? History, as he shows, is full of examples of successful price discrimination. The telecoms companies may yet think it worth a try.