The Engineer in Business

Lecture 3

The regulation of the firm

Notes

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So, I am in business, how does the government influence my behaviour?

Markets and the Role of Government

Governments have views about what sort of outputs should be encouraged and which sort of outputs should be discouraged in the economy. About 20% of UK GDP is government procured goods (health, education, defence etc.), another c.10% is water, electricity, gas, transport, telecoms which is heavily regulated, even though it is mostly paid for by consumers. Much of the rest is subject to various degrees of health and safety, environmental etc. regulation aimed at reducing negative production externalities (i.e. social costs not directly reflected in the costs of production). All private firms and many public firms are potentially subject to competition policy which limits their ability to charge high (or sometimes low) prices.

Governments should have the objective of maximising social efficiency (rather than private profit). This occurs when marginal social benefits (MSB) equals marginal social costs (MSC), i.e. when the social benefit of one more unit of production = the social cost of one more unit of production (this is also true when thinking about how much consumption is desirable). If $MSB > MSC \rightarrow$ produce (or consume) more, because one more unit of production (or consumption) would increase total social welfare (the sum total of economic happiness!). Conversely if $MSC > MSB \rightarrow$ produce (or consume) less: reducing production by one unit would save more social costs than it would lose in social benefits. Governments should keep adjusting output (consumption) until the socially efficient level where $MSB = MSC$. A private firm will maximise profit by setting its MPB=MPC where marginal private benefit = marginal private cost (or simply where marginal revenue (MR) = marginal cost (MC)). For the private firm it just cares about whether the extra revenue it gets from one more unit of production is equal to the extra cost it incurs from one more unit of production.

In what follows we will look at the case for government regulation of firms using taxes / subsidies; and we will look at competition policy towards mergers, collusion and predatory pricing. Both of these sets of government interventions in market activity are motivated by the objective of raising social efficiency.

Types of Market Failure

Market failure arises where markets deliver a sub-optimal quantity of production or consumption from the perspective of social welfare (i.e. too much output (e.g. excessive air pollution) or too little output (e.g. under production of trees, healthcare, education etc.)).

Market failures arise in various situations (not just the ones above).

Public goods (e.g. national defence) exhibit non-rivalry and non-excludability in consumption. Thus my consumption does not affect your ability to consume the product (non-rivalry); and once the product is created it is impossible to prevent someone else from consuming it (non-excludability). This creates a free-rider problem (I could consume it for free) where the good will be under-supplied if left to the private sector. Governments often have to intervene to collect payment via taxes or compulsory charges.

Market power (e.g. in water supply) is a problem. Here monopolists can raise prices and profits, reducing output such that too little of a good is produced (the MSB>MSC). This is socially inefficient. There is what is known as a deadweight welfare loss under monopoly (of social welfare). If the government could stimulate output somehow this would raise social welfare and reduce deadweight losses.

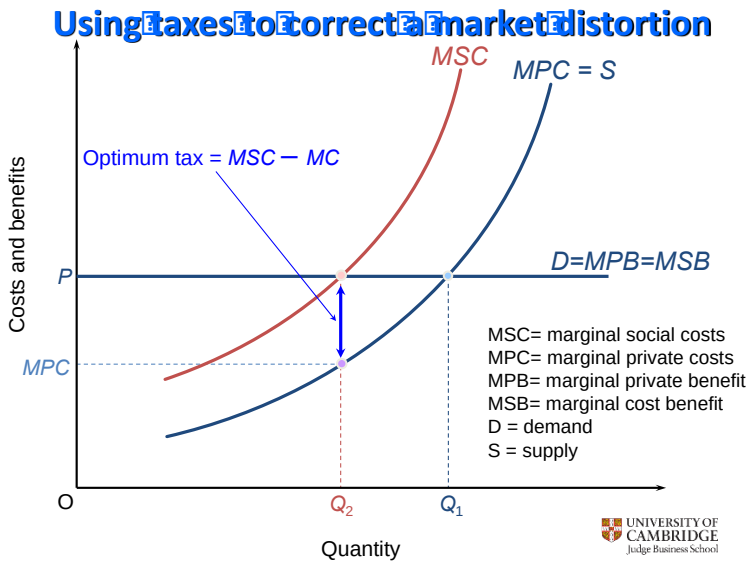
Ignorance and uncertainty (e.g. around financial products) exists among consumers. 20% of electricity and gas consumers switch to more expensive products even when they thought they were cheaper. Firms can be ignorant too (especially small firms), not knowing what the best price-quality combinations of products they buy are. This is partly due to missing markets for the correct information. Companies may have weak incentives to point out to consumers the truth about their product or to advise them of the best deal for them. Hence the need for compulsory information provision or regulation of advertising messages.

Immobility of factors and time lags (e.g. Northern industrial towns in England) are an issue in the market economy. Markets may work well in the very long run, but that may be a very long time. Labour and capital are not easily moved from place to place. So a rapid downturn in one industry located in one town may give rise to structural unemployment which may mean subsidising economic activity in that area is a good idea, with grants to new or remaining firms (e.g. Nissan in Sunderland).

Protecting people's interests (e.g. poor benefit recipients may buy cigarettes/lottery tickets not food for their children). Governments want to direct consumption to particular individuals (often children and mothers), but this may be frustrated by the fact that the benefit recipient is not the ultimate target. This may mean that some thought is given as to how to reduce consumption of some goods (making it difficult to gamble or buy cigarettes) and increase the consumption of others (lower VAT rates on children's clothes). Some goods are merit goods (have positive social desirability) and hence may be subsidised (such as primary healthcare and education).

Government Intervention in the Market

In line with the desire to maximise social efficiency, governments can use taxes and subsidies to reduce or increase production towards the social optimum. In the figure below, the steel plant example is one where a per unit tax on steel could be introduced to reduce steel production to the optimal level.



The figure above shows a divergence between social and private costs in the production of steel. The private steel company will ignore unpriced external effects of production and produce at Q_1, maximising its profit by setting its marginal private benefit (MPB) (which equals the price it receives along the Demand curve (D) as drawn) equal to its marginal private cost (MPC). However there are external costs on top of the purely private costs (of raw material, capital and labour). To maximise social efficiency MSC=D (=MSB, assuming all the benefits of steel production are private and there are no externalities on the demand side). This implies that socially optimal production occurs at Q_2, which is lower than Q_1. The way a government corrects this is to impose an optimal pollution tax which raises the private cost to the firm to the level of the social cost, then the private firm will have new private costs along the MSC curve and will profit maximise by reducing output to Q_2.

Taxes and subsidies can also be used to correct for the output reduction due to monopoly by subsidising each unit of production and taxing total profits (using a lump-sum tax). This is used sometimes to promote desirable activities in the firm (e.g. training and R+D). Taxes and subsidies are flexible and governments can vary the rate of tax or subsidy according to the size of the market distortion. The disadvantages of doing this are that it is often infeasible to use different tax and subsidy rates and there is a lack of knowledge to calculate the optimal amount (in theory we would need to know where the marginal curves are in real time).

Other options could work to promote or limit production to the socially optimal level.

There could be changes in property rights (e.g. rights to emit CO_2). Instead of companies having the right to pollute, citizens might have the right to clean air. This forces companies to pay to pollute. Indeed it is often limited or ill-defined property rights that give rise to externalities. This solution is partly limited by the ability of the rights holder to correctly value their rights and the enforcement costs around payment. However, emissions markets are a way of doing this in practice where the government defines and enforces the payment for the right to pollute.

Laws prohibiting behaviour that imposes external costs (e.g. liability for health and safety). This has the property that it often does not specify how exactly to avoid liability. It is left to firms to innovate and

safety check their production and its consumption, knowing that they are liable for damages. The disadvantage of this, is that bad behaviour can go undetected for years and that firms can be protected from big liabilities by financial bankruptcy.

Regulatory bodies (e.g. Ofgem in energy, Ofwat in water, Ofcom in communications) can often regulate prices and promote competition in order to limit overcharging by incumbent/monopoly firms in network industries.

Governments can use price controls to limit or increase production. One can have a high minimum price (or price increasing tax which actually increases prices, e.g. on sugary drinks). This would limit production to reflect the negative health externality with sugary drinks. Regulators of utilities set lower maximum prices which limit the exercise of monopoly power by utility companies (e.g. Ofwat regulate water supply companies).

Governments can require provision of information or product labelling in order to better reflect product risks (e.g. on tobacco).

Governments can directly provide goods and services. This can be justified on the grounds of social justice (universal access regardless of ability to pay), large positive externalities (e.g. a park), targeting dependants (such as children) or dispelling ignorance (e.g. health education).

Or governments can intervene in markets to stimulate competition, via competition policy on mergers, collusion and predatory pricing (discussed below).

The Case for Laissez-faire

Of course, the above are reasons for intervention. There are strong reasons for laissez-faire (leaving the market alone). There are drawbacks of government intervention: governments often end up producing shortages and surpluses in markets (due to miscalculation of the optimal level); poor information implies mistakes; civil service bureaucracy is often subject to inefficiency; there is a lack of market incentives (e.g. to minimise costs); shifts in government policy cause uncertainty and reduce private provision; voters' ignorance (they don't know what they want or ask for the wrong thing); unrepresentative government (don't always assume that governments give people what they want – whereas in some sense the market does); and a lack of freedom for the individual (freedom to choose is good in itself).

The free (unregulated) market has advantages. It automatically adjusts to changes in private costs and benefits: this is one of the dynamic advantages of capitalism. In reality there is a high degree of competition even under monopoly/oligopoly (with strong incentives to innovate). This is because of possible market contestability (outside entry is possible at scale – Microsoft may decide to compete with Apple on computer devices). There is competition from other closely related industries (if watching movies on Netflix gets expensive (because their monopoly of Video on Demand movies) people can change their viewing habits away from movies to YouTube content). There is the threat of competition from abroad for domestic monopolists. Buyers (such as supermarkets) might have countervailing monopoly power. There is competition for corporate control should monopolists under perform.

Overall, it is a matter of judgement as to the relative persuasiveness of interventionist and laissez faire arguments around leaving production to the market.

What is competition policy?

Competition policy consists of government measures aimed at stimulating competition and protection against monopoly. Competition policy may be regarded as a policy instrument which can be varied by the government. Thus, the government may vary strength of merger policy.

There are two main alternative premises of competition policy: the Structuralist view - lower concentration (lower firm level market shares) is better (f.Bain); and the Austrian view - process of competition is the issue (f.Schumpeter) not concentration per se. In the structuralist view the observance of monopoly in the market is bad, in the Austrian view it is the observance of a lack of opportunity for new entrants into an industry that would be bad (not mere monopoly).

There are three main approaches to competition policy enforcement. The **efficiency approach** which examines how social surplus is effected by actions of firms (Williamson, 1968). The use of **'Public interest' criteria**, such as the impact on employment, may be relevant (Fair Trade Act, 1973). The **competition test** approach, which examines the extent to which prices are reduced or choice is increased.

Competition is enforced by various institutions of competition policy. The most important of these in the UK is the Competition and Markets Authority (which used to be variously the MMC, CC, OFT). It does investigations and hears appeals about anti-competitive behaviour (now via the Competition Appeals Tribunal). It was co-ordinated with EU competition policy (!) which regulates pan-single market competition and sets the general stance on competition across the EU single market area. Other competition policies include: deregulation (and privatisation) which allows entry into former monopoly markets; reduction of tariffs (GATT rounds) which promotes international competition; and the stimulation of innovation (industrial policy aimed at improving competitive environment) as this often promotes start-ups and disruptive technologies.

We look at economic analysis in three competition cases. On the abuse of dominance (exploiting market power towards competitors), we examine the detection of predatory pricing by the competition authorities (ff.Myers, *OFT*, 1994). For mergers, we examine the efficiency analysis behind merger proposals (ff.Williamson, *American Economic Review*, 1968). This approach is standard in the US. On collusion, we look at how collusion can be detected and how (game) theory can be used to analyse its effects (ff. Rees, *Economic Journal*, 1993).

The Analysis of Abuse of Dominance

We look at the case of predatory pricing, which is an example of an abuse of dominance by an incumbent firm towards weaker rival firms.

'Predation is the deliberate acceptance of losses, with the intention of driving competitors out of business, and the expectation that it will be possible to earn supra-normal profits subsequently.' (DGOFT, 95)

The identification of predation in UK involves proving feasibility (that the predator has the ability to act in this way); the existence of financial losses to the predator; and the existence of an intent to predate. Getting your prices wrong by accident and accidently bankrupting a competitor would not be predatory pricing.

The steps in analysis include the identification of: the activity and action in question; an activity loss - alleged predator makes loss on activity; an incremental loss - alleged predator makes less profit than if did not pursue predatory action; and a deliberate loss – losses are not deliberate if they result whatever action alleged predator takes.

The bus industry provides a great example of predatory pricing. This is because the bus industry has very low entry costs in theory (any bus driver could rent a second hand bus, bus services are deregulated), but it is dominated by several large bus companies across the UK (e.g. Stagecoach, Arriva, First Bus).

There were 250 allegations of predation in the bus industry 1985-94, following deregulation.

One well documented example was Southdown Motor vs Easy Rider (OFT, 92 and MMC, 93). Southdown was the incumbent in Bognor since 1915. Easy Rider entered on two bus routes in Bognor in 1987. Southdown was acquired by Stagecoach in 1989. There was alleged predation by Stagecoach (Southdown) over 1991-92.

The analysis suggests that predation might have existed because there was: feasibility - yes, Southdown could cross subsidise; deliberate losses - yes, evidence in Table 1 (below); intent to predate Easy Rider - yes, expression of intent to drive Easy Rider out of business at meeting with OFT.

The MMC concluded that Southdown had abused its dominant position. The solution was minimum prices on routes in question. However, the postscript was that Easy Rider was acquired by Southdown (because the remedy was too late).

Table 1
Revenue and Cost Comparison from June 1991 to May 1992 (average weekly figures)
Costs in £

Average per week	*Southdown*	*Easy Rider*
Average Miles	1680	1671
Average operating hours	410	493
Revenue (R)	533	1191
Variable Costs (VC) Drivers wages Bus operating costs	935	702
Contribution to semi-variable costs (R-VC)	-403	489
Semi-variable costs (SVC) Maintenance Other operating costs Depreciation	707	384
Contribution to fixed costs (R-VC-SVC)	-1109	106
Fixed costs (FC) Depot overheads Company overheads	113	253
Operating profit (R-VC-SVC-FC)	-1222	-147

Source: MMC, 1993

Table 1 shows that Southdown (on the routes in question) and Easy Rider were offering a similar service, but that Easy Rider were much more efficient and had lower costs. Easy Rider were collecting more than twice the revenue of Southdown. Southdown were running a large loss and not even covering their variable costs (driver wages and fuel) so should have exited the market and left it to the more efficient firm. Instead Southdown were able to stay long enough in the market for the (much lower) losses at

Easy Rider to mean that the entrant had to leave (or sell out). This is classic predation by a well-resourced high cost incumbent towards a disruptive low cost financially weak entrant.

In July 2019 Qualcomm was fined 242m euros for predatory pricing. 'The European Commission found that between 2009 and 2011, Qualcomm abused its dominance by selling certain Universal Mobile Telecommunications System baseband chipsets at below-cost price to block rival Icera from the market. UTMS chipsets are key components that enable voice and data transmission in 3G mobile phones. Qualcomm held a dominant position in the UMTS chipset market, with market shares of around 60%...'[1]

The Analysis of Mergers

The presumption in the 1960s was that mergers that raised prices should be prevented. Williamson notes 'Scale economies as an anti-trust defence'. It should be the case that the consumer losses from higher prices are tradeable with the benefits to companies from lower costs. There is a naïve trade-off between company gains from efficiency and consumer losses from higher prices. Williamson conclusion is that a small fall in costs can justify a relatively large rise in prices in the absence of distributional concerns about the movement in economic welfare from consumers to producers.

There a number of important qualifications to the Williamson trade-off view. It is important to take due account of competition enforcement costs - investigations are costly. The timing of costs and benefits is important especially if prices go up immediately and the costs take time to be reduced - discounting of net present value of the stream of costs and benefits is needed. The incipiency - thin end of wedge – argument is important, if each merger can be individually justified, in the end we could have a monopoly - we have got to draw the line somewhere on mergers. In a merger if the prices go up for everyone, even the customers of non-merging firms, that has to be considered in the calculation. Rising prices likely worsen income distribution and some (negative) weight should be given to this. Mergers are not just about static benefits (one off cost reductions), a key issue is whether technical progress - productivity growth effect – speeds up or slows down as a result of the merger. Finally, mergers create large firms which may be powerful politically (engage in wasteful lobbying) or subject to managerialism (and hence not be efficient even for shareholders).

A good example of many of these points being played out is in the grocery market in the UK. A recent merger proposed between Sainsburys and Asda was blocked by the CMA (in April 2019) on the grounds that by combining the 2nd and 3rd largest firms in the market prices would rise significantly. The companies claimed that by combining that there would be large efficiency savings and that prices for customers would actually be reduced, especially in the face of rising competition from smaller retailers such as Aldi and Lidl.

The Analysis of Collusion

Collusion occurs when two or more firms try to coordinate on higher prices (and lower output) than would result from not co-ordinating. A famous and well documented case is that of White Salt (MMC, 86) producing sodium chloride (table salt) which is a classic undifferentiated product (with producers

[1] See: https://globalcompetitionreview.com/article/1195348/eu-hits-qualcomm-with-predatory-pricing-fine

producing an identical product). In 1986 there were 2 producers with most of the market - ICI (WP) and British Salt (BS) - which were investigated.

The competition authority (MMC) analysis found that they had rates of return on capital that were very high (BS=55%, WP=24%), that their price movements indicated price matching (the same firm always moved first) and that BS was the low cost firm but did not compete aggressively on price. BS made comments that indicated tacit collusion, with a manager commenting that undercutting ICI would 'lead to a long-term retaliation by ICI who would seek to take customers from British Salt.' (MMC 86, p.61, para.8.11). (This is a statement which Rees took to indicate evidence for understanding the nature of the collusive game they were playing.) The recommendation from the MMC was that monopoly situation did exist which was against the public interest (under FTA, 73). A 5-year price cap was imposed on BS from 1986 (which meant that the market price was reduced, as ICI had to match this).

Conclusions

Firms operate in a legislative environment which recognises that: firms may not produce the optimal amounts of each good and that firms are prone to anti-competitive behaviour.

We have discussed some of the different ways governments can intervene to direct or limit managerial decision making and hence attempt to increase or decrease firm output towards the socially (rather than privately) efficient level.