

Positive impact

An initial evaluation of the effect of the competition enforcement work conducted by the OFT

December 2005

OFT827

David Stallibrass

Fiammetta Gordon
Markets and Policies Division 1
Office of Fair Trading

evaluation@oft.gsi.gov.uk
020 7 211 8149

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EXECUTIVE SUMMARY

Introduction

- 1.1 This report describes an initial attempt to evaluate the impact of the competition enforcement (CE) work of the OFT. We estimate that *at least* **£750m** has been saved by consumers from CE market interventions conducted over the period 2000-2005.¹
- 1.2 We take as given that all market interventions conducted by the OFT, and not overturned on appeal, are warranted: we implicitly assume that the institutional structure is sufficient to ensure that any incorrect decisions or planned decisions are identified and corrected.
- 1.3 We adopt a *lower bound* methodology. We do not claim that our estimate of consumer savings is our best guess. Rather, under reasonable assumptions applied by other competition authorities or supported by recent academic literature, it is highly unlikely that *less* than our estimate has been saved.
- 1.4 Many of the beneficial outcomes of the OFT's CE work are not quantifiable in the time-frame available, and are not included.

Results

- 1.5 We estimate that consumers directly saved at least **£640m** as a result of mergers blocked or remedied by confidential guidance, undertakings in lieu of reference, or referrals to the Competition Commission (CC) following public investigation.
- 1.6 We estimate that consumers directly saved at least **£110m** from market interventions following CA98 infringement decisions.

¹ We are grateful for the help and advice of Peter van Bergeijk at the Dutch NMa, Gregory Werden at the US Department of Justice, Steve Davies at the University of East Anglia, and Amelia Fletcher, Gary Roebuck and David Ruck at the OFT. We also wish to thank Robert Zymeck for his assistance during his 2005 Summer internship at the OFT.

Conservatism of results

- 1.7 The picture painted by this exercise is not complete. We do not directly estimate the positive effects of CA98 work that does not result in a formal infringement decision and subsequent market intervention. These include:
- deterrence of anticompetitive practices
 - setting of legal precedent and establishment of regulatory stability
 - giving informal advice and guidance, and
 - obtaining commitments in lieu of infringement decisions.
- 1.8 We quantify neither the positive nor negative deterrent effects of the OFT's merger decisions.
- 1.9 We do not quantify the dynamic effects of increased competition on efficiency, innovation, and productivity.
- 1.10 A number of methodological issues also contribute to the conservatism of our estimate:
- when estimating consumer savings from price fixing and bid-rigging infringements we do not take account of the fact that the cartel would probably have raised prices even higher than it did in the absence of an active competition authority
 - we use a very simple lower bound methodology for estimating the impact of a blocked merger. More sophisticated 'point-estimates' based on simple simulation exercises are likely to increase our estimate of consumer savings substantially.

2 METHODOLOGY

Introduction

2.1 We apply internationally recognised methodologies, supplemented by recent academic literature, to estimate the consumer savings generated by competition enforcement (CE) work in the period 2000/01 –2004/5. We are confident that the figures presented in this report are a conservative estimate of the positive impact of the OFT's work.

Baseline assumptions

2.2 A number of assumptions underpin our evaluation of both CA98 and merger work. They build on the foundation laid in the OFT's Economic Discussion Paper 4.²

2.3 The OFT's goal is to 'make markets work well for consumers'. For this reason, and in line with other competition authorities around the world, we estimate the benefit to consumers of the OFT's actions. We do not estimate the potential loss to business of the OFT's decisions.

2.4 We focus solely on evaluating the *impact* of market interventions undertaken by the OFT. We take as given that all interventions not overturned on appeal are warranted. For this initial estimate we assume that the institutional structure is sufficient to ensure poor decisions, or planned decisions, are identified and corrected.

2.5 Where possible, we base our estimate on information obtained during our investigations. This information has already gone through a rigorous process of internal peer-review and the threat, and at times the actual procedure, of external review by the Competition Appeals Tribunal. Where the relevant information is not clearly contained in the case documents we have made assumptions based on international practice

² 'The development of targets for consumer savings arising from competition policy' S. Davies and A. Majumdar. *OFT Economic Discussion Paper 4*. June 2002. OFT386. In particular, this document deals with our focus on consumer savings.

and recent academic research. Where possible, our assumptions have been checked by the relevant case officers.

- 2.6 All of our general and case-specific assumptions are conservative. Our estimate is therefore a reasonable *lower bound*. We do not claim that *exactly* the estimated amount has been saved by OFT CE work, or even that it is our best estimate. Rather, under assumptions applied by other competition authorities or supported by recent academic literature, it is highly unlikely that *less* than our estimate has been saved.
- 2.7 We use the Consumer Price Index to take account of inflation, and all figures are in 2005 prices.
- 2.8 We discount future consumer savings at the Social Discount Rate of 3.5 per cent.³ We increase the stream of historical damages to consumers to take account of the time value of money, which we assume is equal to the real mortgage rate of approximately 3.5 per cent.

CA98 infringement investigations

Role of CA98 investigations

- 2.9 The OFT carries out a wide range of work in support of the implementation and enforcement of the Competition Act 1998 (CA98). This includes:
- *formally investigating* anti-competitive practices such as price-fixing, bid-rigging, predatory pricing, margin squeezes, and other abuses of dominant positions, and
 - giving *informal advice* to firms and other industry bodies concerning behaviour and conduct.
- 2.10 Investigations may stop anti-competitive actions and lead to measurable consumer savings. In addition, they may lead to fines that deter future

³ Treasury Green Book 'Appraisal and Evaluation in Central Government', Chapter 5.
<http://greenbook.treasury.gov.uk/chapter05.htm>

anti-competitive conduct. Some actions are cleared after formal investigation. These investigations also have significant benefit since they establish legal precedent and regulatory stability and transparency.

- 2.11 The deterrent effect of the OFT's CE work is likely to lead to decreased anti-competitive activity.

Evidence of direct consumer savings from formal CA98 infringement decisions

Approach

- 2.12 We directly estimate the consumer savings from damage averted from the prevention of anticompetitive practices by CA98 infringement decisions. We also estimate the damage already caused by these practices.
- 2.13 When information in case documents is insufficient we rely on assumptions that differ depending on the nature of the CA98 infringement.

Price fixing cases (CA98 Chapter 1)

- 2.14 Several of the CA98 infringements investigated by the OFT over the period 2000-2005 were price fixing cartels. We estimate the *annual impact* on consumers of price fixing cartels by multiplying the *turnover* of the affected goods or services by the *price increase* caused by the cartel. Mathematically:

$$a = t \cdot p \quad (1)$$

Where:

a = *annual impact;*

t = *turnover of affected goods or services;*

p = *price increase caused by the cartel.*

2.15 We estimate the *historical damages* of the cartel by multiplying the *annual impact* by the number of years the cartel had been in effect, adjusting for the time value of money. Mathematically:

$$h = \sum_{s=1}^y a \cdot (1+r)^s \quad (2)$$

Where:

h = *historical damages of the cartel;*

y = *number of years cartel had been in effect;*

r = *historical time value of money (3.5%).*

2.16 We estimate *future* consumer savings by multiplying the *annual impact* by the *number of years we believe the cartel may have remained operational*, but-for the OFT's intervention, and adjusting to take account of the *social discount rate*. Mathematically:

$$f = \sum_{s=1}^c a / (1+\rho)^s \quad (3)$$

Where:

f = *future consumer savings;*

c = *number of years cartel would have remained operational but-for the OFT's intervention;*

ρ = *forward looking social discount rate (3.5%).*

Turnover

2.17 It is likely that the price of strategic complements to the goods or services offered by the colluding firms will increase, independent of who produces them. In the interests of conservatism, unless there is strong evidence otherwise we assume that only the goods or services of the colluding parties are affected by the cartel, and that the price of the goods or services of other firms in the market are unaffected.

2.18 Where a cartel has a vertical aspect we use the turnover of the goods or services in the downstream market closest to the consumer.

Price rise

2.19 In some cases the price rise caused by the cartel has been identified in the investigation procedure. In other cases, price analysis immediately after the successful enforcement of an OFT investigation reveals the likely extent of the price increase.

2.20 The United States Sentencing Commission (USSC) assumes that 'the average gain from price-fixing is 10 percent of the selling price', and in the absence of case-specific evidence we assume the same.⁴ Academic evidence suggests that this is likely to be highly conservative. A survey of 13 recent cartels by Gregory Werden at the Department of Justice (DOJ) suggests a median increase of 18 per cent, and a mean of 21.3 per cent, though the lowest was only 6.5 per cent.⁵ A separate analysis of over 300 international cartels by Connor and Bolotova (2005)⁶ suggests that domestic EU cartels during the period 1991-2004 overcharged on aggregate between 13 per cent and 19 per cent, depending on the econometric specification used. The recent National Audit Office investigation into the OFT supported using a 10 per cent price increase to evaluate the consumer savings from price fixing investigations.⁷

2.21 Because of a deterrent effect, it is possible that recently observed price increases are less than the price increases that cartels would be pursuing in the absence of competition enforcement authorities. Since our aim is to estimate the consumer savings caused by the existence of the OFT, perhaps we should use an estimate of cartel overcharging explicitly increased to take account of the deterrent effect. While there is some

⁴ USSC guidelines for the United States courts, USSC Section 2R1.1, Bid-rigging, price fixing, or market allocation agreements among competitors, application note 3.

⁵ 'The effect of antitrust policy on consumer welfare: what Crandall and Winston overlook.' Greg Werden. *DOJ economic analysis group discussion paper*. 30. 2nd January 2003.

⁶ 'Cartel Overcharges: Survey And Meta-Analysis' John M. Connor and Yuliya Bolotova. *Purdue University working paper* 2005.

⁷ 'The Office of Fair Trading: Enforcing competition in markets.' National Audit Office, 17th November 2005. HC 593 Session 2005-2006.

theoretical merit to this position there are serious practical difficulties in estimating what the increase would have been absent effective competition authorities. It is not within the scope of this exercise to conduct such research.

Time

- 2.22 While it is possible to collect concrete evidence about the extent of cartel overcharging, estimating how long the cartel may have persisted but-for the OFT's investigation is a harder task.
- 2.23 For those cases where there is no better information from case officers, we assume that a price-fixing cartel would have lasted 6 years from *inception*, not detection. This is in line with the latest academic research on the subject (Connor and Zimmerman, 2005), which suggests an average duration over the period 1990-2004 of 6.3 years.⁸ It may be possible to explore more complex ways of estimating cartel duration using the econometric models specified in the Conner and Zimmerman paper. However, due to time constraints and in the interests of initial simplicity we have not attempted to do so in this exercise.

Bid-rigging (CA98 Chapter 1)

- 2.24 There is some evidence that collusive bid-rigging is less sustainable than a price-fixing cartel, but more effective at raising prices. In the absence of quantitative evidence of the net difference in impact of bid-rigging and price-fixing cartels we treat the two infringements in the same way.

Abuse of dominant position (CA98 Chapter 2)

- 2.25 There is little, if any, international precedent or academic guidance on how to estimate the consumer savings from market interventions regarding abuses of dominant position. For those cases where there is no better information from case officers then, in line with the recommendations

⁸ 'Determinants Of Cartel Duration: A Cross-Sectional Study Of Modern Private International Cartels' Jeffrey E. Zimmerman and John M. Connor. *Purdue University Working Paper*, April 2005.

contained in Davies and Majumdar (2002),⁹ we conservatively assume that the consumer savings resulting from OFT interventions are *at least* equal to 1 per cent of the relevant market turnover for one year.

Predatory pricing (CA98 Chapter 2)

- 2.26 We have developed a simple methodology for constructing a conservative estimate of the consumer savings from OFT interventions in predatory pricing cases.
- 2.27 Because prices actually decrease during the period of predating it can be hard to measure the cost to consumers of such activity. The proposed methodology exploits the difference in discount rates between consumers and firms to estimate a lower-bound to the consumer savings realised by stopping predatory pricing activities before they have had their desired effect and driven the competition out of the market.

The firm's decision

- 2.28 Predatory pricing is the act of reducing prices with the intention of forcing competitors to lose money and, eventually, quit the market. In particular, an act is normally considered predatory if it involves reducing price to below marginal cost. Once the competition has left the market the predating firm can exercise market power, and raise prices to above the competitive level. The predating firm 'buys' the ability to earn extra rents in the future by decreasing profits in the present.

⁹ *Supra*.

2.29 Rational firms will only embark on a project of predatory pricing if the present value of extra rents earned in the future is equal to or greater than the costs of the predatory exercise. Mathematically, a rational firm will predate if:

$$\sum_{t=1}^p \rho^t \cdot c \leq \sum_{t=p+1}^{p+1+e} \rho^t \cdot r \quad (4)$$

Where:

t = *time in years since start of predatory policy;*

p = *years of predating required for competition to leave market;*

ρ = *project discount rate;*

c = *cost per year of predatory pricing;*

e = *years extra rents are earned before market reverts to competition;*

r = *extra revenue per year during period of extra rents.*

2.30 If we know the historical costs to a firm of a predatory project then replacing the equal to or less than with a strict equality allows us to estimate the extra rents necessary to make the project worthwhile.

2.31 In calculating the extra rents necessary we make the following conservative assumptions:

- that profit drivers such as demand and costs remain constant
- the cost of predation is the difference between the loss made during the predating period and the average profit made prior to the predation
- the predatory exercise was just about to be successful at the point of OFT intervention (in other words, we do not assume that the firm would have to continue predating in order to capture the market)

- that the predating firm would be able to extract extra rents for a period after capturing the market equal to the length of the predatory exercise. After this period we assume that competitive pressures forces the predating firm to decrease their price
- the internal rate of return for the project was 10 per cent. This is a conservative estimate of the rate of return that a project would have to promise in order for it to get the go-ahead from a rational manager.

2.32 During the initial period of predation consumers benefit: the money lost to firms and their shareholders during the price war is the consumers' gain. After the predatory price war consumers lose out as the winning firm extracts extra rents from the market.

2.33 The consumer saving that arises from preventing predatory pricing is the discounted future stream of benefits and costs from the moment of prevention onwards.

2.34 In calculating this figure we assume that consumers benefited from losses made by all firms in the industry, not just the predating firm.

2.35 Table 1 details our calculations for a hypothetical example. If a firm spends £10m a year for three years on a predatory project and the OFT intervened in the third year, our methodology assumes that the savings to consumers of the intervention are £37m.

Table 1: Example of calculation of impact of predatory price

	Year	1	2	3	4	5	6
Predating firm							
Cost of predation (£m)	[1] <i>Historical data</i>	10	10	10			
Extra rents earned (£m)	[2] <i>Estimated to set [4] = 10%</i>				13	13	13
Project cash flow (£m)	[3] [1]+[2]	-10	-10	-10	13	13	13
IRR	[4] IRR [3]	10%					
Consumer							
Benefit of predating firms actions (£m)	[5] [1]	10	10	10			
Predating firm share of market	[6] <i>Historical data</i>	75%	75%	75%			
Benefit of rest of market actions (£m)	[7] [5] x (1-[6])	2	2	2			
Total Benefit (£m)	[8] [5]+[7]	12	12	12			
Future cost (£m)	[9] -[2]				-13	-13	-13
Consumer cash flow (£m)	[10] [8]+[9]	12	12	12	-13	-13	-13
NPV @ 3.5%	[11] NPV (3.5%, [10]t)				-37		

Mergers

Role of merger investigations

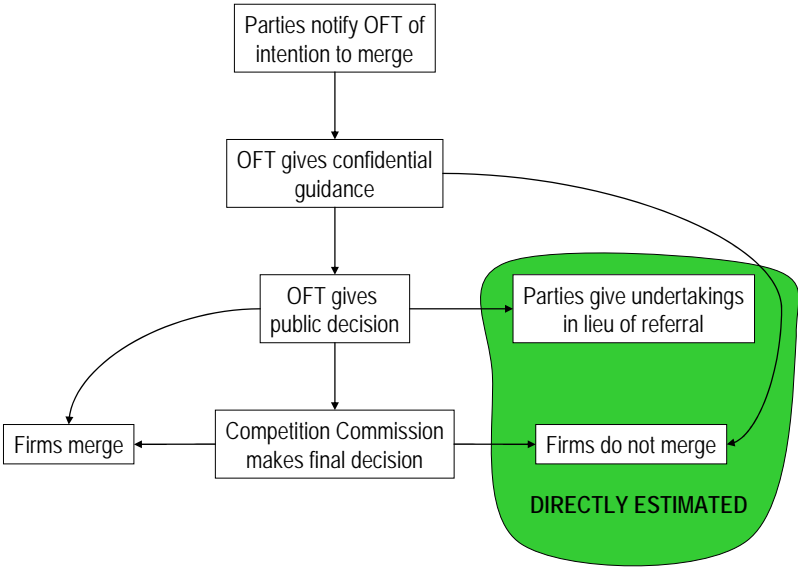
2.36 Under the Enterprise Act 2002, the OFT reviews all publicly proposed, announced, or completed mergers in the UK that meet published qualifying criteria. In most cases the merging parties ask the OFT for approval prior to the merger taking place. If the OFT believes that the merger may be expected to result in a substantial lessening of competition, and there are no other reasons why a reference should not be made, then it can either refer the merger to the CC for a more detailed review, or if appropriate accept undertakings in lieu of a reference from the merging parties that mitigate the anti-competitive elements of the merger. If the OFT decides that there is no realistic prospect of a substantial lessening of competition the merger is cleared. Prior to the Enterprise Act, the OFT's role under the Fair Trading Act 1973 (FTA) was to 'advise' on merger references with the 'decision' being taken by the Secretary of State for Trade and Industry, invariably accepting the OFT's advice.

- 2.37 Sometimes the parties ask the OFT for confidential guidance before going public.¹⁰ After a preliminary investigation the OFT decides (or under the FTA 'advised') if it is likely that the merger will eventually be referred to the Competition Commission (CC), and informs the potentially merging parties of its decision. The parties can then either call off the merger, or request a public decision. If a public decision is requested then the OFT consults relevant third parties and conducts an investigation into the proposed merger as above.
- 2.38 The OFT, therefore, has a direct impact when it prevents a merger, either as a result of (unfavourable) confidential guidance or through referral to the CC, or when it adjusts the terms of a merger by accepting undertakings in lieu of a CC referral. We estimate the consumer savings from this impact. It is not possible to identify what savings could be attributed to the OFT, or the CC (the Secretary of State under FTA mergers) individually, and we give a single figure that covers the merger investigation work of all these organisations.

¹⁰ Note: recent changes in OFT policy have temporarily removed the option of asking for confidential guidance. However, during the whole of the period 2000-2005 the system of informal guidance was in operation. See www.oft.gov.uk/Business/Mergers+EA02/default.htm for change in policy.

2.39 Figure 1 gives an example of a referral process under the Enterprise Act that starts with a request for confidential guidance.

Figure 1:: The OFT/CC referral process



2.40 There is a chance that the costs of the OFT / CC merger oversight procedure deter firms from applying for clearance in the first place. In some cases this may be because they know the merger will be blocked, and the deterrence has a positive effect that we do not pick up. In other cases it may be because the costs of the procedure are too high and deter welfare increasing mergers from taking place. This deterrence has a negative effect which we also do not pick up.

Evidence of consumer savings from blocked mergers

Approach

2.41 We estimate the savings to consumers of the increased competition engendered by OFT and CC decisions to block or amend proposed mergers. We assume that all market interventions taken by the OFT/CC are correct.

2.42 We treat undertakings in lieu of referral, mergers blocked by the CC, and mergers deterred by unfavourable confidential guidance in essentially the same way. Following the recommendations of the OFT's Economic Discussion Paper 4, we decrease by 30 per cent our estimates of consumer savings from mergers deterred by unfavourable confidential

guidance.¹¹ This reflects the chance that further investigation would have cleared the merger.

2.43 Our methodology follows standard international precedent wherever possible. Where we have good evidence that the standard methodology might over-estimate the impact of the merger we adopt an even more conservative approach based on case-specific analysis.

2.44 In some cases insufficient data is available for us to estimate relevant turnover. We assume that these cases are relatively small since otherwise it is likely that information would be available. We assume that each intervention for which we have insufficient data had the same average impact as a sample of the small and medium cases for which data is available.

Standard international precedent

2.45 Both the Federal Trades Commission (FTC) and the Department of Justice (DOJ) in the US have attempted to quantify the consumer savings of their merger work. They have both applied the same methodological structure, which is to multiply the *turnover* of the market in which the proposed merger was to take place by the averted *price rise* and the *number of years* that the price rise would have remained before erosion by competition.¹² They differ in how they calculate the inputs to this calculation. We use the most conservative combination of the two methodologies.

Table 2: Consumer savings methodology of the FTC and DOJ

	Price increase	Duration
FTC	1%	2 years
DOJ	Estimated from model. > 1%.	1 year
OFT	1%	1 year

¹¹ *Supra.*

¹² 'Consumer savings from merger enforcement: a review of the antitrust agencies' estimates.' Philip Nelson and Su Sun. *Antitrust law journal*, Vol 69 pp 921-960.

2.46 The Dutch competition authority (NMa) also uses a 1 per cent price increase rule of thumb when better information is not available.

3 RESULTS

- 3.1 All figures are in 2005 prices, and rounded to the nearest £5m.
- 3.2 We estimate that at least £750M has been saved by consumers as a direct result of the merger and CA98 enforcement actions undertaken by ourselves and the CC.
- 3.3 For confidentiality reasons we are not able to provide a case-by-case breakdown of our estimate.

CA98 consumer savings

- 3.4 Timely OFT intervention prevented £110m of the £750m saved. Anticompetitive practices had already cost consumers £70m by the time the OFT intervened. In addition, the OFT levied £48m in fines on the firms involved. We have not estimated the consumer savings from informal advice or deterrence, both of which are likely to be substantial.

Merger consumer savings

- 3.5 £640m was saved as a result of market interventions undertaken by the OFT or the CC as a result of their merger investigations. We include the effect of confidential guidance, but do not include either the negative or positive deterrent effects of merger control.

Costs

- 3.6 During the period 2000-2005 the OFT's CE division spent £71m: £7.2m on merger investigations; £27.3m on CA98 investigations; and £37.2m on policy formulation, quality control, administrative overhead and indirect costs such as buildings, and security.

3.7 Over the same period, the CC spent £27m on merger investigations. All figures are given in 2005 prices.¹³

¹³ CC costs estimated from merger case costs in CC annual reports from 2000 to 2004. Costs for 2004/2005 estimated directly by the CC at £10.6m.

4 CONCLUSION

- 4.1 Where it has been possible to quantify the impact of the OFT's CE work, a highly conservative methodology has been adopted. Our estimate of consumer savings is very much a lower bound.
- 4.2 The OFT's goal is to 'make markets work well for consumers'. CE market interventions by the OFT have saved consumers *at least* **£750m** over the past five years with combined costs with the CC of just **£98m**.
- 4.3 We have not included a number of related costs, such as the costs of the Competition Appeals Tribunal, or the legal, management, and consulting costs to firms. However, such costs would have to be almost *8 times* the costs of the OFT and the CC in order for them to outweigh our current, lower bound, estimate of the benefits.
- 4.4 Our estimate of the benefits is partial and lower bound. It does not include any of the benefits of the OFT's CA98 work other than those directly caused by the prevention of anticompetitive practices following a formal investigation resulting in an infringement decision.