Evaluating the impact of the 2003 OFT study on the Control of Entry regulations in the retail pharmacies market

Prepared for the Office of Fair Trading by DotEcon

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1 EXECUTIVE SUMMARY

1.1 The Office of Fair Trading (OFT) has a public commitment to evaluate each year the impact of at least one of its previous market studies. This report, by DotEcon Ltd., evaluates the impact of the 2003 OFT study entitled 'The control of entry regulations and retail pharmacy services in the UK'.

1.2 The OFT’s study recommended that the control of entry regulations for community pharmacies should be abolished. It also rejected more modest alternatives, considering that they 'would add complexity to an already complex and time-consuming process'.

1.3 The Government preferred to 'move cautiously in the direction recommended by the OFT', adopting the following measures in England1 with effect from the 2005/06 fiscal year:

- a criterion of 'reasonable choice' for consumers was added to the 'necessary or desirable' control of entry test
- four classes of applicant were exempted from the test, of which the most important2 were pharmacies opening for at least 100 hours a week.

1.4 We measured the impact of the OFT study by assessing these reforms against a counterfactual of no change to the control of entry provisions. Estimating the impact of full deregulation, had it been adopted, was outside this remit. We sought to answer the following three questions:

- What goods and services do pharmacies provide to consumers and what attributes of provision do consumers value?

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1 The devolved administrations of Scotland, Wales and Northern Ireland rejected the OFT’s report.
2 The others were pharmacies in large out-of-town retail centres, wholly Internet or mail-order pharmacies and pharmacies in consortia to provide one-stop primary care centres.
How have the control of entry reforms changed pharmacy provision to consumers, and what is the value to consumers of those changes?

What has been the cost impact of the reforms?

1.5 NHS services reportedly provide 90 per cent or more of turnover for typical independent pharmacies but a smaller proportion for health and beauty multiples or in-store supermarket pharmacies. Pharmacies are paid for dispensing under a national remuneration and reimbursement scheme involving both fixed and volume-based components. There are also revenue top-ups for a small number of qualifying 'essential small pharmacies'.

1.6 Demand for prescription medicines typically derives from a consultation between doctor and patient and is unaffected by the number and characteristics of pharmacies. The 'choice' of product is prescribed, and prescription charges are nationally set.

1.7 For these reasons many of the conventional dimensions of retail competition – price, range, product differentiation and sales advice – either do not apply to the bulk of the business that pharmacies conduct, or do so less strongly than in other retail markets. Pharmacies compete largely for a fixed aggregate volume of prescription business, and do so primarily on location and convenience, and on service dimensions such as waiting times, opening hours and quality of advice and support.

1.8 Pharmacies also provide other NHS health services and sell over the counter (OTC) medicines. Purchases of OTCs are more likely to be driven by pharmacist advice (particularly for pharmacy-only medicines), price (particularly for General Sales List medicines, which can also be sold by non-pharmacy retailers), range and the convenience of shopping simultaneously for non-pharmacy goods.
1.9 Factors in the choice of pharmacy for health services are more akin to those that apply to visits to a GP. Payment for providing such services is mostly locally arranged and accounts for a very small but growing proportion of pharmacy turnover.

Changes in market supply since the reforms

1.10 An increase of 8.8 per cent in the number of pharmacies in England from a previously static level supports the OFT’s prediction that liberalisation would lead to net entry.

1.11 Market entry continues and so far has not been accompanied by an increase in exit.

1.12 Sixty-one percent of the net increase in the number of pharmacies is due to the 100 hour exemption. A further 25 per cent is due to non-exempt entry under the revised control of entry test.

1.13 With some exceptions such as supermarkets and edge-of-town stores, entry has been concentrated in localities of dense prescriptions demand already served by pharmacies, including around surgeries.

1.14 Average pharmacy dispensing has continued to rise due to trend growth in prescriptions, but more slowly than if entry had not occurred. Data analysis shows that new entrants take several years to converge to their long-run volume path, implying that the competitive effects of new entry are not yet fully played out.

1.15 Concerns about widespread disruption to pharmacy provision from a shortage of qualified pharmacists have not been borne out, perhaps reflecting the cautious pace of reform.
1.16 Testimonies from stakeholders highlight that new entry occurring near existing pharmacies has stimulated investment and improvements in service to prescription customers that would not otherwise have been made.

**Impacts on consumer welfare**

1.17 Monetising the impact on consumer welfare is challenging because the effects are primarily service- rather than price-related. We therefore took two approaches: **bottom-up calculations**, where possible, of the value of changes in pharmacy provision, and a supplementary ‘**holistic**’ **measure** based on a survey of prescription consumers. Our estimates are based at a mid-2009 snapshot.

**Bottom-up approach**

1.18 We estimate annual travel time savings of 2.60 million to 3.90 million hours, with a total value of between £16.4m and £24.5m.\(^3\) In localities affected by entry – 9.1 per cent of homes and 8.4 per cent of surgeries – the reductions in average distance are in the order of half a kilometre.

1.19 We estimate waiting time savings to consumers worth £3.3m a year as a result of prescriptions demand being spread across a wider pharmacy base.\(^4\)

1.20 We conservatively estimate a redistribution of 1.6 million visits from the hours between 9am and 5.30pm to earlier and later times, mainly to the immediate post-working day period between 5.30 and 7pm. We have not been able to monetise this benefit.

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\(^3\) Based on analysis of the spatial distribution of pharmacies pre- and post-reform, the dispensing volumes of entrant pharmacies, and information from our consumer research, public surveys, and Department for Transport guidance.

\(^4\) Our analysis indicates that, on average, reported waiting times decrease by about 12 seconds for a reduction in a thousand items dispensed per month by each pharmacy within the locality.
1.21 We also looked qualitatively at the impact of the reforms in improving consumer choice, convenience and service.

1.22 Entrant pharmacies provide similar or higher volumes of non-prescription healthcare services than pharmacies that pre-date the reforms. There is some indication that total provision may be higher in England as a result of market entry.

1.23 Lastly we looked at the impact of wider availability of supermarket pharmacies on spending by OTC consumers and conservatively estimated annual savings of around £5m.

### Holistic measure

1.24 Our survey-based approach yielded an estimate of the ‘holistic’ consumer benefit in respect of prescription-related pharmacy use in the range of £21.1m to £68.1m per annum\(^5\) at current levels of consumer adoption of the new pharmacies.

### Regulatory costs to businesses and the NHS

1.25 The OFT’s warning that partial liberalisation could actually increase regulatory costs is supported by our estimates of additional annual monetary costs to the NHS of £3.8m and to businesses of £8.7m at the end of the 2008/09 fiscal year.\(^6\) These are due to increased applications and appeals and strategic behaviour by applicants.

1.26 We understand that total funding for community pharmacies has so far not been increased by reference to the larger number of contractors. Additional

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\(^5\) Estimate based on consumers’ average willingness to pay (WTP) to use the pharmacy they chose in preference to the best alternative on their most recent prescription-related visit, multiplied by the volume of visits to post-2005 entrants.

\(^6\) OFT and Department of Health cost estimates applied to the volume of applications and appeals.
entitlements to fixed and other payments have been offset within this sum by fee rate adjustments,\(^7\) while locally commissioned pharmacy services, funded separately, have been unaffected. There has therefore been no attributable impact on other health expenditures.\(^8\)

Overall impact

1.27 Measured against a counterfactual in which the 1992 control of entry regulations were maintained, we estimate that the reforms have delivered quantifiable annual benefits to consumers of £24.7m-£32.8m against quantifiable financial costs to businesses and the NHS of £12.5m at mid-2009 levels of net entry and consumer adoption.

1.28 Additional benefits that we are not able to quantify by bottom-up calculation include:

- the value of increased availability and use of extended opening hours
- improved choice and convenience to consumers with diverse preferences
- increased availability of collection and delivery services and other service enhancements
- possible reductions in the general level of OTC prices
- improvements in travel times, waiting times, opening hours, choice and convenience to non-prescription customers

\(^7\) Impacts on producer surplus are not considered within OFT market study evaluations.

\(^8\) We thank the Department of Health for providing this information.
• a wider pharmacy base from which enhanced services can be locally commissioned and reduced public costs from less commissioning of access-related services.

1.29 Compared with the bottom-up estimate of £25m-£33m, our survey-based estimate of £21m-£68m of benefits per year additionally reflects the first three of the above but excludes OTC expenditure savings. It suggests that a comprehensive estimate of the benefits of the reforms could be significantly higher than the quantifiable sum.

1.30 The unquantified cost of the reforms is any indirect increase in the total sum of NHS pharmacy funding.

Lessons learned

1.31 Entry and competition in the pharmacies market as a result of the 2005 reforms have delivered benefits of choice and access to consumers and stimulated investments and improvements in service that would not otherwise have been made. None of the feared ill-effects – net exit of pharmacies, disruption of services, or reduced investment overall – have materialised so far.

1.32 The analysis highlights that an optimal market design for pharmacies must consider not only (de)regulation of entry but also the system by which pharmacies are rewarded.

1.33 A single remuneration scheme applied across differing local markets fails to provide the correct incentives for entry at least in some of them. Although perhaps not as dramatically as before 1987, entry has clustered in areas of existing provision while creating little incentive for entry in areas that are considered underprovided.
1.34 Because NHS pharmacy services are publicly funded, any market regime requires government and its agencies to express the social preference and willingness to pay. However, the combination of a uniform payment scheme and control of entry may not recover the full social costs of excess incentives where they occur.

1.35 The OFT study noted that a suitably structured payment system could eliminate the need for control of entry by providing the right incentives for contractors to enter and compete. Given the new requirement on PCTs to produce local pharmaceutical needs assessments (PNAs), it can be questioned whether, with careful design, the principle of locally specific payment terms, already applied to non-dispensing services to some extent, should not extend to dispensing services.
2 BACKGROUND AND SCOPE OF STUDY

2.1 The Office of Fair Trading (OFT) has a public commitment to commission each year an independent evaluation of the impact of at least one of its previous market studies. These evaluations focus on assessing the impact of OFT recommendations that have informed measures by the relevant bodies and government departments. The OFT relies on findings from such evaluations to learn lessons that can be applied to future comparable market interventions.

2.2 In this context, DotEcon has been commissioned by the OFT to evaluate the impact of the relaxation of the control of entry regulations that was introduced by Government in response to the recommendations derived from the OFT's 2003 market study into the retail pharmacy services market (the 'OFT study').

Background

2.3 In October 2001, the OFT launched a study into the retail pharmacies market. Its findings were published in January 2003. The object of the study was to examine whether the interests of consumers were best served by the control of entry regulations that had restricted, since 1987, the number and locations of National Health Service (NHS) contractor pharmacies based on an assessment of whether the entry of a pharmacy was 'necessary or desirable' for the adequate provision of pharmaceutical services in the local community. These entry restrictions were seen to be responsible for keeping the number of pharmacies essentially static even though demand for pharmacy services was growing steadily.

2.4 The 2003 OFT study concluded that:

'The regulations have acted to impede entry and expansion by pharmacies that offer consumers lower prices, more convenient opening times, or valued
and innovative services. Moreover, by limiting the numbers and location of pharmacies in a local area, the regulations have restricted competition between pharmacies, in terms of both prices and quality of service.'

2.5 In particular, the OFT found that the control of entry regulations:

- restricted consumer choice and convenience in terms of location of pharmacies and opening hours

- restricted access to lower priced OTC medicines resulting in consumers paying around £30m a year more than they would be expected to in a deregulated market, the largest portion of which (£25m) was accounted for by pharmacy (P) medicines, while the remainder related to medicines on the general sales list (GSL), which can be sold by other retailers

- reduced incentives for pharmacies to compete on additional consumer services

- cost businesses an estimated £16m in compliance costs annually

- cost the NHS around £10m annually in administration costs

- held back innovation and responsiveness to changing and growing consumer needs.

2.6 In view of its findings, the OFT recommended that the control of entry regulations for community pharmacies in the UK should be ended. It also rejected more modest alternatives than deregulation of entry, which it considered 'would add complexity to an already complex and time-consuming process'.
2.7 The Government published its final response to the OFT report in respect of England in July 2003.\(^9\) Citing 'wider NHS policy objectives, and the impact of changes in regulations on NHS services and patients' (which it noted had not been part of the OFT's remit) it decided against full deregulation:

'We do not believe that simple deregulation is the best way to achieve our aims. The OFT made a strong case that the current control of entry rules impede competition and reduce benefits for consumers. But given the current shortage of pharmacists, which will persist for some years until measures which we as a government are taking increase supply, and the Government's desire to see pharmacies given a new and strong role in the modern NHS, the Government does not believe that this is the time to move to a fully deregulated system. It therefore intends to move cautiously in the direction recommended by the OFT.'

2.8 The DH's Draft Regulatory Impact Assessment and Competition Assessment\(^10\) of August 2003, while acknowledging the benefits of increased choice and competition projected by the OFT study, considered that full deregulation might also have the following adverse consequences:

- a loss of control for primary care trusts (PCTs) over local service planning and provision
- possible localised worsening of access due to pharmacies clustering around sources of demand and driving out outlying pharmacies
- increased competition to dispensing doctors from more surgery-based pharmacies 'creaming off' NHS business

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\(^9\) House of Commons Written Ministerial Statement, Secretary of State for Trade & Industry, 17 July 2003

• exacerbation of the shortage of pharmacists and a bidding-up of pharmacists' pay

• a reduction in service quality as increasing entry consumed funding that would otherwise be spent on commissioning additional pharmacy services

• an undermining of incumbents' business confidence, profitability and ability to invest.

2.9 The Government therefore decided to relax, but not remove, the control of entry regulations in England by:

• introducing 'reasonable choice' of services and providers for consumers as a factor to be weighed in assessments of applications under the control of entry test

• creating exemptions from the control of entry test for four types of pharmacies, namely:
  - pharmacies undertaking to open for more than 100 hours a week
  - pharmacies in large shopping developments (excluding town centre developments)
  - pharmacies within a consortium to establish one-stop primary care centres
  - wholly internet/mail order based pharmacies.

2.10 These reforms were implemented in England with effect from April 2005 in the National Health Service (Pharmaceutical Services) Regulations 2005. The
devolved administrations of Scotland, Wales and Northern Ireland did not reform their control of entry arrangements.

2.11 Annex I to this report provides a detailed account of the history of the control of entry regulations, the background to the 2005 reforms, other key changes introduced simultaneously, and prospective changes to the entry regulations in England following the 2009 Health Act.

The scope of this report

2.12 The remit for this study was to evaluate the impact of the OFT's 2003 market study as reflected in the reforms to control of entry introduced in England in 2005 in response to the recommendations it contained. The relevant impacts to be considered were on consumers and on the monetary costs of the regulatory burden on business and the NHS. We were also asked to draw potential lessons for future OFT work.

2.13 Market entry and wider arrangements for the retail pharmacy sector have remained a lively area of policy development since the 2003 study and we should make clear what this report does and does not address:

1) Our report considers the effect of the entry reforms actually introduced as opposed to assessing what the impact of full deregulation (as originally proposed by the OFT) might have been. The latter task would require analysis that we have not undertaken. In drawing lessons at the end of this report we have nevertheless weighed the key contentions of the OFT study in the light of the reforms.

2) It is important to distinguish the specific impact of the entry reforms, which were influenced by the OFT's recommendations, from the effect of other changes to NHS pharmacy services that were introduced at the same time but were largely unrelated. The scenario
against which we have measured the impact of the OFT study – our 'counterfactual' – is therefore one in which those unrelated changes went ahead, but the changes to control of entry did not.\(^{11}\)

3) The analysis is retrospective and does not address the future withdrawal of the exemptions and introduction of a new system for controlling market entry, expected in April 2011. Again, however, in drawing lessons for future OFT work we have identified issues which, with hindsight, its 2003 study might have addressed, and these could have future policy relevance.

4) Resources for the research were focused on analysing the changes in provision from an end-user perspective. Effects on the level or distribution of economic returns to pharmacy owners are not in the scope of our impact calculations.

**Informing the evaluation**

2.14 We have drawn on a range of information sources in preparing our report including published statistics, specially constructed datasets, bespoke survey and questionnaire research, and interviews with stakeholders. In particular we have:

- analysed data from standard data sources published by the NHS Information Centre

- constructed and analysed an integrated dataset of business and geographical data on pharmacies and surgeries and geodemographic characteristics of consumers in England (described in Annex VII)

\(^{11}\) This corresponds to the situation in Wales, where the Community Pharmacy Contractual Framework was introduced in 2005 in common with England, but the new entry provisions were not.
• reviewed previous survey and other research on pharmacy use (see Annex III)

• commissioned a bespoke survey of 1000 pharmacy users (see Annex VI)

• sent an electronic questionnaire to all 152 English Primary Care Trusts (see Annex V).

2.15 A wide range of additional sources are referred to in the report.

2.16 We also interviewed pharmacy chains and associations. We thank representatives of Alliance Boots, Asda, the Association of Independent Multiple Pharmacies (AIMp), the Independent Pharmacy Federation (IPF), Lloyds Pharmacy Ltd., the National Pharmacy Association (NPA) and Sainsbury’s Supermarkets Ltd.

2.17 Our report has benefited from expert advice from Professor Stephen Davies of the University of East Anglia and advice and assistance with spatial and geodemographic analysis from Dr Maurizio Gibin of Birkbeck College, University of London, and Professor Martin Callingham, a visiting professor at Birkbeck.

2.18 We also thank the staff of the OFT and representatives of the Department of Health who formed the steering committee for this evaluation for their views and comments on earlier drafts.

**Structure of this report**

2.19 We conducted our evaluation by seeking to answer the following three questions:

• What goods and services do pharmacies provide to consumers and what particular attributes of provision do consumers value?
• How have the reforms to the control of entry regulations made following the 2003 OFT study changed pharmacy provision to consumers, and what is the value to consumers of those changes?

• What difference if any have the reforms made to funding and regulatory costs?

2.20 The rest of this report presents our findings in response to these three questions and sets out our conclusions:

• **Chapter 3 – The current pharmacy market in England** summarises the different goods and services that pharmacies supply to consumers and how consumers value them. It also describes the different types of pharmacy that exist and how pharmacies are currently remunerated for providing NHS services.

• **Chapter 4 – The impact of the reforms** contains the core empirical analysis and is in two parts. First it reviews the patterns of entry that have occurred in the market as a result of the reforms. It then analyses in detail the impacts on consumers and on regulatory and funding burdens to business and the NHS.

• **Chapter 5 – Conclusions and lessons** summarises the evaluation findings and looks to draw lessons for future market studies.

2.21 Our report is accompanied by seven annexes containing additional information and analysis referred to in the main text.
3 THE CURRENT PHARMACY MARKET IN ENGLAND

3.1 As a prelude to evaluating the impact of the control of entry reforms on consumers, this chapter identifies what consumers demand and value in their use of pharmacy services. It also looks at how current business models of pharmacies look to serve their differing demands and summarises the way in which pharmacies are remunerated for providing NHS services.

What pharmacies provide

3.2 Retail pharmacies with NHS contracts meet several distinct areas of consumer and public demand for pharmaceutical goods and services. They also sell other retail goods to different extents.

- **Prescription medicines** are dispensed by a pharmacist to a prescription from a doctor or other health professional and charged to the customer at the national prescription charge, (or provided free of charge if the customer is exempt).

- **Over-the-counter (OTC) medicines** are medicines that can be sold to consumers without a prescription and for which retailers have been free to set their own price since resale price maintenance (RPM) on branded OTCs was abolished in 2001. They are of two kinds:
  - **pharmacy (P) medicines**, which must be sold under pharmacist supervision
  - ’**General Sales List' (GSL) medicines**, which can be bought off the shelf and can be supplied by non-pharmacy retailers.
Increasingly, pharmacies are being funded by the NHS to provide clinical services to customers. Under the framework introduced in 2005 these are of two broad categories:12

- **Advanced services** are services that any NHS pharmacy can offer customers provided it undergoes accreditation. They currently comprise medicines use reviews (MURs) designed to review and improve an individual’s use of prescription medicines.

- **Local enhanced services (LES)** cover a variety of additional services commissioned electively by a PCT from particular pharmacies. They include stop smoking services, minor ailment schemes, and emergency hormonal contraception.

**Providers**

3.3 As at the end of July 2009 there were 10,578 retail pharmacies operating with NHS contracts in England. Table 3.1 below sets out a summary of the main chains and brands along with their estimated market shares by number of outlets.

3.4 Pharmacy multiples with more than 100 outlets account for just under 25 per cent of outlets, while those with fewer than 100 outlets account for just under 49 per cent.

3.5 The largest share of any one company is now that of Boots (18.3 per cent), following the merger with Alliance Unichem (owner of Moss Pharmacies) to form Alliance Boots in 2006. Boots and Superdrug offer a much wider

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12 See Annex I for further information. PCTs can also contract for specialised pharmacy services under local pharmaceutical services (LPS) arrangements, rolled out in 2006.
variety of health and beauty products than most other pharmacies and together account for about 20 per cent of NHS contracts.

3.6 The other main business model – in-store supermarket pharmacies – account for almost 7 per cent of the total.

3.7 Figure 3.1 plots the location of NHS retail pharmacies and GP surgeries in England. Provision of pharmacies established both pre- and post-2005 is densest in heavily populated areas while in rural districts surgeries may be located some distance from the nearest pharmacy.

3.8 Particularly in such cases, GPs at around 1,120 surgeries (as at 2009 Q1) are licensed to dispense prescription medicines to some or all of their registered patients. Consideration of these 'dispensing doctor' arrangements was largely outside the scope of the 2003 OFT study and they are not pursued further in this report.
### Table 3.1: NHS Retail Pharmacy Market Shares in England by Outlets, July 2009

<table>
<thead>
<tr>
<th>Outlet Description</th>
<th>Outlets</th>
<th>per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Boots UK Limited</td>
<td>1939 (1941)</td>
<td>18.3</td>
</tr>
<tr>
<td>Superdrug Stores Plc</td>
<td>194 (193)</td>
<td>1.8</td>
</tr>
<tr>
<td>Health and beauty total</td>
<td>2,133</td>
<td>20.2</td>
</tr>
<tr>
<td>Lloyds Pharmacy Ltd.</td>
<td>1368 (1387)</td>
<td>12.9</td>
</tr>
<tr>
<td>L Rowland &amp; Co (Retail) Ltd</td>
<td>402 (402)</td>
<td>3.8</td>
</tr>
<tr>
<td>National Co-operative Chemists Ltd.</td>
<td>314 (325)</td>
<td>3.0</td>
</tr>
<tr>
<td>Co-op Healthcare Ltd</td>
<td>152 (167)</td>
<td>1.4</td>
</tr>
<tr>
<td>Other Co-operative</td>
<td>207</td>
<td>2.0</td>
</tr>
<tr>
<td>Day Lewis Plc/Day Lewis Chemists Ltd</td>
<td>146 (159)</td>
<td>1.4</td>
</tr>
<tr>
<td>Multiple (100+) total</td>
<td>2,589</td>
<td>24.5</td>
</tr>
<tr>
<td>Tesco Stores Ltd</td>
<td>255 (276)</td>
<td>2.4</td>
</tr>
<tr>
<td>Sainsbury’s Supermarkets Ltd</td>
<td>220 (227)</td>
<td>2.1</td>
</tr>
<tr>
<td>Asda Stores Ltd</td>
<td>162 (163)</td>
<td>1.5</td>
</tr>
<tr>
<td>Wm Morrison Supermarkets Plc</td>
<td>80 (82)</td>
<td>0.8</td>
</tr>
<tr>
<td>Supermarket total</td>
<td>717</td>
<td>6.8</td>
</tr>
<tr>
<td>Gorgemead Ltd</td>
<td>62 (65)</td>
<td>0.6</td>
</tr>
<tr>
<td>H.I. Weldrick Ltd.</td>
<td>55 (56)</td>
<td>0.5</td>
</tr>
<tr>
<td>Paydens Ltd</td>
<td>51 (56)</td>
<td>0.5</td>
</tr>
<tr>
<td>W.R. Evans (Chemist) Ltd</td>
<td>49 (51)</td>
<td>0.5</td>
</tr>
<tr>
<td>PCTA Healthcare Ltd</td>
<td>48 (50)</td>
<td>0.5</td>
</tr>
<tr>
<td>Other</td>
<td>425</td>
<td>4.0</td>
</tr>
<tr>
<td>Multiple (10-99) total</td>
<td>690</td>
<td>6.5</td>
</tr>
<tr>
<td>Multiple (&lt;10) or sole owner total</td>
<td>4,449</td>
<td>42.1</td>
</tr>
<tr>
<td>Total</td>
<td>10,578</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Source: NHS BSA, RSPGB, DotEcon analysis
Notes: Main figures are from analysis of NHS BSA information (see Annex VII for explanations). Figures in parentheses are registered premises in England as at 1 October 2009 published by RSPGB.
Source: NHS BSA, DotEcon analysis (see Annex VII).
Pharmacy remuneration and reimbursement

3.9 According to the Pharmaceutical Services Negotiating Committee (PSNC) a survey of owners of around 2,800 community pharmacies in spring 2008 showed that NHS income accounted for 90 per cent of total turnover. This fraction is certainly much lower for pharmacies in the health and beauty and supermarket business models, which have a higher ratio of OTC sales and sell many other goods and services.

3.10 The system of payments to pharmacies for providing services on behalf of the NHS is described in Annex II of this report. Pharmacies derive most of their NHS revenue from dispensing prescription medicines. Payments for this service and for performing MURs are made from a fixed pool of annual funding at rates that are regularly adjusted, while payments for additional services commissioned by PCTs, such as LES, are made out of general PCT funds.

Revenues to pharmacies for dispensing prescription medicines are depicted in Figure 3.2 and can be characterised as follows:

- an annual fixed 'establishment payment' of up to £25,100 paid to every dispensing pharmacy provided it exceeds basic thresholds of dispensing volume, plus smaller fixed fees that do not vary with output

- fee elements that rise linearly with the volume of items dispensed

- a profit margin on each prescription medicine supplied, representing the difference between the amount reimbursed to the pharmacy by the NHS and the price at which the pharmacy is assumed to be able to source the medicine from the manufacturer or wholesaler.

Source: Drug Tariff (February 2010), PSNC, NHS IC, DotEcon calculations
Notes: Based on 2008/09 volumes. Assumes buying profit retained and MURs performed are proportional to prescription items dispensed. See Annex II.
3.12 The average pharmacy in England dispensed 6,138 items a month in 2008/09, which equates to around £209,000 a year in NHS revenue from dispensing and MURs after drug costs at current rates.\textsuperscript{14} Revenues from additional services commissioned by PCTs are not published.

3.13 Only 704 pharmacies (or 6.7 per cent of the total) dispensed fewer than 2,000 items a month. Some pharmacies that do not meet the threshold for receiving the establishment payment are funded instead via local pharmaceutical services (LPS) contracts. There were 200 such contracts in 2008/09 including 155 for 'essential small pharmacies' (ESPs).

\textsuperscript{14} See Annex II for calculations.
Pharmacy users and dimensions of consumer choice

### TABLE 3.2: DIMENSIONS OF CONSUMER CHOICE FOR PHARMACY GOODS AND SERVICES

<table>
<thead>
<tr>
<th></th>
<th>Prescription medicines</th>
<th>Pharmacy medicines</th>
<th>General Sales List medicines</th>
<th>Clinical services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Proximity</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓</td>
<td>⌀</td>
</tr>
<tr>
<td>Opening hours</td>
<td>✓</td>
<td>✓</td>
<td>⌀</td>
<td>⌀</td>
</tr>
<tr>
<td>Waiting times</td>
<td>✓ ✓</td>
<td>⌀</td>
<td>⌀</td>
<td>⌀</td>
</tr>
<tr>
<td>Convenience/one-stop shop</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>✓ ✓</td>
<td>⌀</td>
</tr>
<tr>
<td>Range</td>
<td>⌀</td>
<td>✓</td>
<td>✓ ✓</td>
<td>⌀</td>
</tr>
<tr>
<td>Price</td>
<td>⌀</td>
<td>✓</td>
<td>✓ ✓</td>
<td>⌀</td>
</tr>
<tr>
<td>Advice/expertise</td>
<td>✓</td>
<td>✓ ✓</td>
<td>✓</td>
<td>✓ ✓</td>
</tr>
<tr>
<td>Quality of Service</td>
<td>✓</td>
<td>✓</td>
<td>⌀</td>
<td>✓ ✓</td>
</tr>
</tbody>
</table>

Source: DotEcon analysis of consumer research (various sources; see Annexes III and VI).

Key to table: ✓ ✓ - important to many consumers, ✓ - important to some consumers, ⌀ - important to few consumers or not relevant

3.14 Table 3.2 summarises our framework for the evaluation of consumer impacts, presenting the dimensions of consumer choice against the four distinct areas of demand that pharmacies fulfil. A detailed review of consumer and academic research from which these observations are drawn can be found at Annex III, while summary findings of the additional consumer research undertaken for this report are at Annex VI.

3.15 The dimensions of consumer choice of pharmacy differ significantly according to the nature of the good or service being sought and the regulated or unregulated terms on which it may be supplied. We summarise these differences below.
Prescription medicines

3.16 Prescription medicines are a strictly standardised good charged at a nationally fixed price (zero for most prescriptions once exemptions are applied). Pharmacies are therefore not able or obliged to compete on the price, quality or variety of their core product. Aggregate demand for prescriptions also appears to be inelastic with respect to price and other factors.

3.17 Dispensing pharmacies therefore compete for share of prescription business based primarily on location. The majority of consumers report that the most important factors in their choice of pharmacy for collecting prescriptions are related to speed and shopping effort, although a relationship with the dispensing staff or pharmacist are also cited by some.

3.18 Prescription use is highest among lower income groups and the elderly. Those in areas with fewer pharmacies and those with long term limiting conditions are somewhat more likely than others to rely on a single pharmacy.

Pharmacy medicines

3.19 As with prescriptions, locality and convenience are the most important reasons for the choice of pharmacy for purchases of pharmacy medicines. However, advice from the pharmacist also plays a significant role. Relatively few consumers cite product range.

3.20 Unlike prescriptions, consumption of pharmacy-only medicines is actually highest among younger and higher income groups. This may reflect the lower relative cost of prescriptions to older, lower-income consumers who are exempt from charges, and the higher time-cost of surgery visits to younger or more affluent groups, in instances of minor ailments where either GP prescriptions or pharmacy medicines might be appropriate.
General Sales List medicines

3.21 Survey evidence on dimensions of pharmacy (or non-pharmacy) choice for GSL medicines and other off-the-shelf goods is more limited and the impact of pharmacy policy on consumers of these goods is less important as they are widely sold by other retail outlets.

3.22 The relevant dimensions for consumers of GSL medicines appear to be shopping convenience and price (which may militate against using pharmacies), as well as range and advice (which act in their favour).

Clinical services

3.23 The drive for wider pharmacy provision of clinical services is a recent innovation and consumers therefore report very low use of these services as distinct from traditional pharmacy dispensing and advice. Their importance is likely to grow.

3.24 The most important concerns for users of pharmacy services such as minor ailment schemes are those that traditionally apply to GP visits, namely prompt and expert medical attention backed up by record keeping. Convenience, proximity and expense are much less important than in the case of prescription or OTC medicines.
4 IMPACT OF THE REFORMS

4.1 This chapter contains our core empirical analysis of the 2005 reforms to the control of entry system for retail pharmacy in England and is in two parts. First we analyse patterns of entry and exit that have occurred in the market as a result of the reforms. In the second section, drawing on the framework introduced in the previous chapter, we look at the various ways in which consumers have been affected by these changes and the value of those impacts.

Entry and exit since the reforms

4.2 The reforms to the control of entry regulations were introduced in England (only) in April 2005. We begin by reviewing the patterns of market entry and exit witnessed in England since that time, contrasting them where possible with parallel developments in Wales, where the reforms were not adopted, and which provides a useful counterfactual to developments in England.
Net impact on the number of community pharmacies

FIGURE 4.1 INDEX OF NUMBER OF COMMUNITY PHARMACIES IN ENGLAND AND WALES, 1998-2009

Source: NHS Information Centre\textsuperscript{15}, DotEcon analysis
Note: 2008-09 data for Wales not available

4.3 The most obvious and easily quantified effect of the 2005 reforms has been a net increase in the number of retail pharmacies in England with NHS contracts relative to the previous situation, in which it was essentially flat. Thus, views expressed to the OFT and reported in its 2003 study that liberalised entry would displace an equivalent number of existing pharmacies or lead to net exit have so far not been borne out.

\textsuperscript{15} Data attributed to the NHS Information Centre in this chapter are sourced from ‘General Pharmaceutical Services in England & Wales 1998-99 to 2007-08’ (November 2008) and ‘General Pharmaceutical Services in England 1999-2000 to 2008-09’ (November 2009). As of 2008-09, data for Wales are due to be published separately by the Welsh Assembly Government.
Table 4.1 presents the number of NHS contracting pharmacies in England and Wales at the end of each of the eleven fiscal years from 1998-99 to 2008-09. The number of pharmacies in England changed negligibly in the six years leading up to the 2005 control of entry reforms, falling by 46 or 0.47 per cent, but increased by 739 to March 2009, or by 7.59 per cent compared with 2004-05 (Figure 4.1). Pharmacy numbers in Wales, where the control of entry system was not reformed, were virtually unchanged throughout the period. Since the number of pharmacies both in England prior to the reforms and in Wales throughout the period was essentially static, it is safe to attribute the increase in pharmacies in England to the 2005 reforms.

4.5 The NHS BSA data supplied to us for this evaluation show that pharmacy numbers in England rose further to 10,578 by the end of July 2009. This represents net entry of 855 pharmacies since March 2005\(^\text{16}\), the eve of the

\(^\text{16}\) In this dataset, the number of pharmacies in England at the end of March 2005 was 9,723.
reforms, or an increase of 8.79 per cent. Anecdotally, we believe the rate of net entry has increased since that time amid expectations that the control of entry exemptions will be discontinued after 2011, and this is mirrored in the responses we received to our survey of PCTs around the turn of 2010 (Figure 4.2), most of which foresee growth of at least 3 per cent in the number of pharmacies in their area over the next two years.

**FIGURE 4.2: PCTS’ EXPECTATIONS OF FUTURE CHANGE IN THE NUMBER OF PHARMACIES**

Source: DotEcon survey of English Primary Care Trusts, Nov 2009-Jan 2010
Gross entry and exit

FIGURE 4.3 PHARMACY OPENINGS AND CLOSURES IN ENGLAND, 1998-2009

Source: NHS Information Centre; DotEcon analysis
Notes: See footnote

4.6 While the data on the number of pharmacies in the previous section show that entry due to the 2005 reforms has exceeded exit, data on the gross

---

Footnote 17: Figures are sourced from Table 5a of 'General Pharmaceutical Services in England & Wales 1998-99 to 2007-08' (which contains combined figures for England and Wales) and from Tables 5 and 5a of 'General Pharmaceutical Services in England 1999-2000 to 2008-09' (which contains figures for England only for 2006-7 to 2008-09). The information is based on data returns from English PCTs and Welsh LHBs and the resulting figure for net openings does not correspond exactly with the net annual change in the number of pharmacies from the same publications (shown in Table 4.1 of this report), which are based on payments data from the Prescription Pricing Division (PPD) of the NHS Business Services Authority and the Health of Wales Information Service (HOWIS). Also, we have estimated the England-only figures prior to 2006-07 by deducting estimated openings and closures for Wales. This adjustment is very small: in the two overlap years for which distinct figures for Wales can be inferred (2006-07 and 2007-08) there were only three closures and two openings in Wales.
numbers of pharmacy openings and closures (Figure 4.3) suggest that new entry since the reforms has in fact not been accompanied by an increase in exit to any significant extent. The figures indicate the comparative rates of annual exit from the English market in the years before and since the control of entry reforms. The average rate of closures was virtually unchanged, actually falling slightly from 36.2 in 1998-2005 to 34.8 a year in 2005-2008 following the reforms.

4.7 Our own analysis for England, based on the NHS BSA data supplied to us for this evaluation, confirms that the pattern of stable exit has continued since the latest published data. Since the start of the reforms up to July 2009, we estimate that there was gross entry of 1154 pharmacies compared with 299 closures18.

<table>
<thead>
<tr>
<th>Year</th>
<th>Openings</th>
<th>Closures</th>
<th>Net openings</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005-2006</td>
<td>272</td>
<td>83</td>
<td>189</td>
</tr>
<tr>
<td>2006-2007</td>
<td>321</td>
<td>82</td>
<td>239</td>
</tr>
<tr>
<td>2007-2008</td>
<td>247</td>
<td>63</td>
<td>184</td>
</tr>
<tr>
<td>2008-2009</td>
<td>237</td>
<td>50</td>
<td>187</td>
</tr>
<tr>
<td>2009-2010*</td>
<td>77</td>
<td>21</td>
<td>56</td>
</tr>
<tr>
<td>Total</td>
<td>1154</td>
<td>299</td>
<td>855</td>
</tr>
</tbody>
</table>

* to July 2009
Source: DotEcon analysis of NHS BSA data

4.8 In other words, the rate at which pharmacies have closed since the 2005 reforms is no more than the rate of churn that existed previously. Assuming that a similar rate of churn would have occurred anyway, this evidence implies that pharmacies entering the market as a result of the 2005 reforms

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18 As explained in Annex VII, our figures may overestimate the number of gross openings and closures as the data available to us do not allow us to distinguish instances where a pharmacy undergoes both a change of ownership and a relocation in the same month from the combination of closure in the first location and a new opening in the second. However, our figure for net openings is unaffected and is consistent with the change in the number of pharmacies operating.
have so far not displaced existing pharmacies to any significant degree. This analysis is confirmed by the perceptions of PCTs in our questionnaire sample, shown in Figure 4.4.

FIGURE 4.4: PCTS’ ASSESSMENT OF THE IMPACT OF THE CONTROL OF ENTRY REFORMS AND EXEMPTIONS ON PHARMACY CLOSURES

Source: DotEcon survey of English Primary Care Trusts, Nov 2009-Jan 2010
Dispensing volumes

FIGURE 4.5  GROWTH IN PRESCRIPTION ITEMS DISPENSED BY PHARMACIES IN ENGLAND AND WALES, 1998-2008

Source: NHS Information Centre; DotEcon calculations
Note: 2008-09 data for Wales not available

4.9  As expected, the 2005 reforms do not appear to have affected total pharmacy dispensing volumes in England, which have grown similarly to volumes in Wales (Figure 4.5). This finding supports the view that prescription demand is driven by medical need and prescribing behaviour and is inelastic with respect to pharmacy provision (see Annex III). Likewise, the progressive reduction of prescription charges to zero for all people in Wales between 2004 and 2007 does not appear to have increased dispensing volumes relative to the trend growth.
4.10 The impact of the increase in the number of pharmacies in England has therefore been to reduce average dispensing volumes relative to the counterfactual in which the 2005 reforms did not occur. This is evident from the chart of average items dispensed per pharmacy (Figure 4.6). The dashed line represents the annual average volumes for English pharmacies if total items dispensed had risen as they did but the number of pharmacies had remained constant after 2005. This calculation implies that, without the reforms, English pharmacies would on average have dispensed 79,240 items in 2008-09 (or 6,600 a month) as opposed to the actual figure of 73,650 (or 6,140 a month).

Source: NHS Information Centre; DotEcon calculations
Note: 2008-09 data for Wales not available
4.11 The fact that entry into the market is continuing at high levels implies that the market is still some way from settling into a post-reform steady state, and this is reinforced by the observation that volumes of dispensing by pharmacies that have already entered the market have still to reach their long-term path.

4.12 Figure 4.7 shows the average volume of prescriptions dispensed per pharmacy over time for each quarterly cohort of entrants, expressed as a percentage of the average volume for pharmacies that existed before the reforms (to strip out the effect of general growth in prescription volumes). With the exception of the first influx of new pharmacies in the quarter after the reforms in April 2005, the average volume of prescriptions dispensed per pharmacy in each cohort has typically climbed from around 50 per cent of that of pre-2005 pharmacies in the first full quarter after entry towards 80 per cent or 90 per cent over a period of several years, suggesting that the
timescale over which consumers adapt their choice of pharmacy to the availability of new outlets is relatively long.

**Categories of entry (exempt and non-exempt)**

<table>
<thead>
<tr>
<th>Entry route</th>
<th>No.</th>
<th>per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Net exempt entry</td>
<td>555</td>
<td>75.1 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
<tr>
<td>100 hours</td>
<td>450</td>
<td>60.9 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
<tr>
<td>Out-of-town retail</td>
<td>46</td>
<td>6.2 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
<tr>
<td>One-stop primary care centres</td>
<td>3</td>
<td>0.4 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
<tr>
<td>Mail order/Internet</td>
<td>56</td>
<td>7.6 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
<tr>
<td>Net non-exempt entry</td>
<td>184</td>
<td>24.9 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
<tr>
<td>Total net entry</td>
<td>739</td>
<td>100.0 per</td>
</tr>
<tr>
<td></td>
<td></td>
<td>cent</td>
</tr>
</tbody>
</table>

Source: NHS Information Centre; DotEcon calculations

4.13 Although the reforms took effect in April 2005, figures for the number of exempt pharmacies in operation were not published until late November 2009. These are given in Table 4.3 along with net non-exempt entry under the revised control of entry test.

4.14 Of total net entry of 739 pharmacies in the first four years following the reforms, the 100 hours exemption accounted for 450 or 61 per cent. Thus, the 100 hour exemption has been the most significant avenue for new entry. However, it is notable that there was a net increase in pharmacies admitted under the revised (non-exempt) control of entry test: 184 pharmacies or 25 per cent of the net total entered by this route, rather than under the
exemptions. This finding implies that the additional criterion of 'reasonable choice' in the post-2005 control of entry test has permitted or obliged PCTs to approve a greater number of applications for NHS contracts than under the previous test, when numbers were held constant.

TABLE 4.4 GROSS ENTRY MARCH 2005-JULY 2009 BY CATEGORY AND BUSINESS TYPE

<table>
<thead>
<tr>
<th>Category of entry</th>
<th>100 hours</th>
<th>Out-of-town retail</th>
<th>Unidentified/ non-exempt</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and beauty</td>
<td>47</td>
<td>27</td>
<td>60</td>
<td>134</td>
</tr>
<tr>
<td>Supermarket</td>
<td>204</td>
<td>12</td>
<td>82</td>
<td>298</td>
</tr>
<tr>
<td>Multiple (100+)</td>
<td>18</td>
<td>-</td>
<td>118</td>
<td>136</td>
</tr>
<tr>
<td>Multiple (10-99)</td>
<td>4</td>
<td>-</td>
<td>71</td>
<td>75</td>
</tr>
<tr>
<td>Small chain (&lt;10) or sole owner</td>
<td>121</td>
<td>-</td>
<td>357</td>
<td>478</td>
</tr>
<tr>
<td>Total</td>
<td>394</td>
<td>39</td>
<td>688</td>
<td>1,121</td>
</tr>
</tbody>
</table>

Source: DotEcon analysis of NHS BSA, NHS Choices and DH data

4.15 Table 4.4 is our best attempt to identify entrant pharmacies indirectly both by ownership type and entry route based on the data available to us.\(^\text{19}\) Although we have not been able to assign all entrants to an entry route (due, for example, to gaps in the opening hours information), it is evident that supermarkets have been the main users of the exemptions, followed by pharmacies in small chains or sole ownership.

\(^{19}\) Entrants were identified as new pharmacies in the database that did not succeed an existing pharmacy at the same postcode (which we interpret instead as a takeover or other re-registration of ownership) or as pharmacies that succeeded such entrants. Exempt 100 hour pharmacies were identified as entrants whose total opening hours exceed 100 per week, while retail centre entrants are those whose postcode matches the list of approved out-of-town shopping locations published by DH. Ownership was coded by cleaning and analysing the fields for trading name and owner, with the help of desk research. See Annex VII.
Pharmacy types and ownership

4.16 There has been a longstanding trend towards consolidation of ownership in pharmacies. Table 3.1 in the previous chapter indicates that larger multiples (including health and beauty and supermarket chains) with over 100 stores accounted for 52 per cent of total outlets in England in 2009 as opposed to 39 per cent (for the UK as a whole) in 2002\textsuperscript{20}, with the largest market share for a single retailer being that of Boots, with 18 per cent of outlets.

\begin{figure}[h]
\centering
\includegraphics[width=\textwidth]{figure4.8.png}
\caption{INDEPENDENT' AND 'MULTIPLE' PHARMACIES, ENGLAND & WALES 1998-2009}
\end{figure}

Source: NHS Information Centre

Notes: 'Multiple' defined as 6 or more pharmacies owned, 'independent' as 5 or fewer. England-only figures unavailable before 2006-07. England & Wales figures unavailable after 2007-08.

4.17 Figure 4.8 shows published numbers of pharmacies in 'independent' and 'multiple' ownership, defined as chains of five or fewer and six or more pharmacies respectively. Between 1999 and 2005 (in England and Wales combined) the number of multiples rose by 1126 and the number of independents fell by 1175, as against 216 openings and 231 closures. This

\textsuperscript{20} OFT Pharmacies Market Study, p.11, Table 2.1.
fact indicates that consolidation was driven primarily by takeover activity rather than by independent pharmacies closing and multiple-owned pharmacies opening to replace them. As discussed in the 2003 OFT Market Study, under the control of entry regulations acquisition of existing independent pharmacies was a common means of entry by multiples in locations where an application for a new pharmacy had not, or would not have, succeeded.

4.18 In the three years prior to the control of entry reforms in 2005, the increase in multiple pharmacies at the expense of independent pharmacies slowed. We believe this hiatus in takeover activity was caused by the announcement of the OFT study into control of entry in 2001 and the prospect of potentially easier and less costly entry under the reforms proposed and later adopted by the Government in response to publication of the OFT’s findings in 2003. This interpretation was confirmed in conversation with stakeholders.

4.19 As discussed in previous sections, the 2005 reforms have led to a significant increase in pharmacy numbers overall which has included the entry of 478 pharmacies in chains of fewer than ten outlets (Table 4.4). The series in Figure 4.8, however, show that the number of pharmacies in chains of fewer than six outlets has continued to decrease, although it stabilised in England in the latest year. Entry by small independent pharmacies has therefore been offset by continuing takeovers by multiples.

4.20 Overall, against a background of long-term consolidation of the pharmacy sector since at least the early 1990s it is difficult to assess how the reforms have affected the ownership structure of English pharmacies as compared with a counterfactual in which the reforms were not introduced. The scope for exempt entry and a greater likelihood of approval under the revised control of entry test has presumably alleviated the need for pharmacy chains

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21 In some cases there may also be a numerical threshold effect whereby a chain of five pharmacies opens a sixth, causing the existing five to be reclassified from independents to multiples.
and owners looking to enter or expand in the market to pursue the costly route of acquiring (and if necessary, relocating) existing businesses for the sake of their NHS contracts. These observations are echoed in some responses to our questionnaire to PCTs (see Annex V). On the other hand it is conceivable that the outside threat of competitive entry under the 100 hour exemption may have weakened the bargaining position of existing contract holders. We have insufficient evidence with which to weigh these hypotheses.

**Locations of entry**

**FIGURE 4.9 PHARMACY OPENINGS AND CLOSURES BY DISTANCE TO NEAREST EXISTING PHARMACY**

4.21 The NHS Information Centre collects information from PCTs on openings and closures according to distance from the nearest existing pharmacy (Figure 4.9). These data permit an analysis of the effect of the 2005 reforms on the spatial distribution of pharmacies and in particular of the extent and effects
of clustering of new entry around existing pharmacies. The issue of clustering is important in determining the impact of new entry on access for consumers and some stakeholders expressed concern in the policy debate leading up to the reforms that it would lead to large-scale exit by existing pharmacies.

4.22 Before the reforms, the majority of closures (60.6 per cent) occurred within 500m of an existing pharmacy, while most openings (53.9 per cent) occurred over 1km away, although both trends were weakening over time. The distribution of pharmacies was therefore becoming more dispersed, although with an annual churn of only 0.4 per cent of pharmacies this effect was slow.

4.23 The trend in openings was reversed following the 2005 reforms, when the majority of new pharmacies opened within 1km of an existing establishment. Of 791 new pharmacies recorded as opening since the reforms, only 21.9 per cent did so further than 1km away from an existing pharmacy. These are likely to have included a disproportionate number of pharmacies opening under the out-of-town shopping centre exemption, as well as supermarket and edge-of-town health and beauty pharmacies that are less closely tied to high streets and secondary locations close to surgeries. Despite this clustering, however, the rate of pharmacy exit, as we have seen previously, did not rise. With the exception of a small spike in pharmacy closures between 500m and 1km of an existing pharmacy in 2006-07, which may be connected with the high rate of entry at that distance in the same year\(^\text{22}\), the number and pattern of closures is very similar pre- and post-reform.

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\(^{22}\) Inferring the direction of causality between entry and exit from annual data is problematic. The correlation in openings and closures at this distance could be due to competitive displacement of existing pharmacies by new entrants or to the replacement of pharmacies closing by 'natural causes', as under the more restrictive pre-2005 control of entry system. The fact that closure rates have not risen since the reforms suggests that competitive displacement has not been widespread.
Overall, this evidence suggests that an effect of the reforms has been to facilitate entry in areas already served by pharmacies. The lack of corresponding increase in exit suggests that demand for NHS prescriptions in these areas, combined with the level and structure of payments described in Chapter 3, is sufficiently high to sustain a denser concentration of pharmacies than permitted under the pre-2005 control of entry system.

The responses to our survey of PCTs (Annex V) suggest that this clustering is mainly due to entry under the 100 hour exemption in locations where it would not be approved under the control of entry test, often around surgeries. It is also less likely to involve in-store pharmacies in existing supermarkets and health and beauty outlets, and more likely to involve standalone pharmacies, for which the costs of 100 hour operation are widely reported to be prohibitive except in areas of high volume. Casual inspection of the maps on the following pages, which depict pharmacy entry in an area of north-central England, lends some support to these views.
FIGURE 4.10 ENTRY IN A SAMPLE AREA (S.W. YORKS)

Source: NHS BSA, ONS, DotEcon analysis (see Annex VII)
FIGURE 4.11 ENTRY BY ADMINISTRATIVE ROUTE (S.W. YORKS)

Source: NHS BSA, ONS, DotEcon analysis (see Annex VII)
FIGURE 4.12 ENTRY BY BUSINESS TYPE (S.W. YORKS)

Source: NHS BSA, ONS, DotEcon analysis (see Annex VII)
Availability of pharmacists

4.26 In addition to potential disruption to the established pharmacy base, a second reason cited for the Government’s decision to adopt a more cautious approach to liberalisation than advocated by the OFT was a potential short supply of pharmacists (see Chapter 2).

4.27 Some owners of new pharmacies we spoke to reported that they had been able to source pharmacists and pharmacy staff at market rates without particular difficulty. Others were more equivocal, and one association told us of a shortage of pharmacists in the South West of England, where 100-hour pharmacies had found it difficult to secure staff.

4.28 Overall, however, there does not appear to have been widespread disruption to pharmacy provision as a result of a short supply of qualified pharmacists due to the reforms, perhaps reflecting their relatively cautious pace.

Summing up

4.29 Between their introduction in April 2005 and July 2009 the control of entry reforms increased the number of pharmacies in England by 855 or 8.8 per cent from a previously static level.

4.30 Sixty-one percent of the increase is due to the 100 hour exemption. However, a quarter is due to non-exempt entry, possibly reflecting the introduction of the criterion of 'reasonable choice' in the control of entry test.

4.31 A significant effect of the reforms has been to facilitate entry in areas already served by pharmacies. However, there has been little or no displacement of existing pharmacies: the rate at which pharmacies have closed since the 2005 reforms is no more than the rate of churn that existed previously.
4.32 The lack of exit in response to the new entry in localities where pharmacies already exist suggests that demand for NHS prescriptions in these areas, combined with the structure and level of remuneration to pharmacies, is sufficiently high to sustain a denser concentration of pharmacies than previously permitted under the control of entry system.

4.33 The fact that dispensing volumes of new pharmacies appear to take several years to converge to their long-term volume trajectory suggests that the competitive effects of entry have yet to be fully played out.

4.34 The number of pharmacies in sole ownership or very small chains has continued to decline despite entry by pharmacies in this category. It is not clear whether the reforms have slowed or accelerated this decline.

4.35 There does not appear to have been widespread disruption to pharmacy provision as a result of a short supply of qualified pharmacists, perhaps reflecting the relatively cautious pace of the reforms.

The impact on consumers

4.36 The following sections contain our analysis of the impact of the above changes on consumer welfare. We have focused on the effects on distance and travel times, consumer choice and convenience, waiting times, opening hours, and OTC medicine prices.

4.37 In line with our brief from the OFT we have tried as far as possible to derive monetary-equivalent measures of these impacts against a carefully constructed counterfactual scenario through a series of bottom-up calculations. Such an exercise is challenging, however, because, with the exception of consumer expenditure on OTCs, the effects concern non-price dimensions of service, which are at best difficult to quantify monetarily and in some cases somewhat intangible.
4.38 We therefore also report a 'holistic' measure of consumer benefit based on surveying consumers' strength of preference for their chosen pharmacy on the occasion of their most recent visit.

'BOTTOM-UP' CALCULATIONS OF BENEFITS TO PRESCRIPTION CONSUMERS

Proximity and travel time to pharmacies for prescription-related visits

FIGURE 4.13: PCTS' ASSESSMENT OF THE IMPACT OF THE CONTROL OF ENTRY REFORMS AND EXEMPTIONS ON PHYSICAL ACCESS

Source: DotEcon survey of English Primary Care Trusts, Nov 2009-Jan 2010

4.39 Proximity is among the most important determinants of choice of pharmacy for many consumers, and a basic concern of health policy in respect of access to prescription medicines and other NHS pharmacy services. Over half of PCTs who responded to our questionnaire reported that the number of consumers with a pharmacy in easy reach had improved as a result of the reforms, although generally slightly rather than significantly, and none reported that access had worsened. This perception ties in with the fact that
entry to the market has not caused existing pharmacies to exit but on the other hand has been concentrated in areas of existing provision, with the result that access, in the barest sense of distance to the nearest pharmacy, has generally either stayed the same or improved moderately for consumers.

**TABLE 4.5: POINT OF DEPARTURE FOR PRESCRIPTION CONSUMERS (PER CENT OF VISITS)**

<table>
<thead>
<tr>
<th>Stratum</th>
<th>Doctor</th>
<th>Home</th>
<th>Work</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>18.0</td>
<td>73.9</td>
<td>5.0</td>
<td>3.1</td>
<td>100</td>
</tr>
<tr>
<td>Increase from zero</td>
<td>21.4</td>
<td>64.5</td>
<td>8.9</td>
<td>5.2</td>
<td>100</td>
</tr>
<tr>
<td>Decrease</td>
<td>31.1</td>
<td>59.5</td>
<td>4.6</td>
<td>4.8</td>
<td>100</td>
</tr>
<tr>
<td>Increase from 1+ (cluster 1)</td>
<td>29.7</td>
<td>63.6</td>
<td>4.5</td>
<td>2.2</td>
<td>100</td>
</tr>
<tr>
<td>Increase from 1+ (cluster 2)</td>
<td>25.7</td>
<td>66.4</td>
<td>5.9</td>
<td>2.0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>26.5</td>
<td>65.2</td>
<td>5.4</td>
<td>2.9</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis

Note: England only. Weighted within each stratum by frequency of pharmacy use for prescription cashing. Strata defined by change in number of pharmacies within postcode sector since the 2005 reforms (see Annex VI).

4.40 Table 4.5 shows the origin of pharmacy visits for prescription cashing reported in our consumer research. On average across the stratified sample for England, 65 per cent of visits originated from home and 27 per cent from the GP surgery. This presents a different picture from the UK survey conducted in 2002 for the OFT, in which the majority of visits were made from the doctor’s surgery.23

23 An increase in repeat dispensing since that time would partly account for this difference: in our survey 48 per cent of visits to collect non-repeat prescriptions originated from the surgery, as against 42 per cent from home. Another difference from the 2002 study is that our figures are weighted by reported frequency of prescription use, so that the unit of analysis is visits rather than individual consumers, although the unweighted figures are not very dissimilar.
### TABLE 4.6: MEAN DISTANCE IN METRES TO NEAREST PHARMACY FROM HOME AND SURGERY

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>If no reform</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>All consumers/surgeries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From home</td>
<td>986</td>
<td>1,025</td>
<td>-39</td>
</tr>
<tr>
<td>From GP surgery</td>
<td>432</td>
<td>474</td>
<td>-42</td>
</tr>
<tr>
<td>From GP surgery (weighted)</td>
<td>190</td>
<td>225</td>
<td>-35</td>
</tr>
<tr>
<td><strong>Affected consumers/surgeries</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>From home (9.1 per cent affected)</td>
<td>1,161</td>
<td>1,592</td>
<td>-431</td>
</tr>
<tr>
<td>From GP surgery (8.4 per cent affected)</td>
<td>583</td>
<td>1,088</td>
<td>-505</td>
</tr>
<tr>
<td>From GP surgery - weighted (8.1 per cent affected)</td>
<td>187</td>
<td>620</td>
<td>-433</td>
</tr>
</tbody>
</table>

Source: DotEcon analysis of NHS BSA and Census data

Note: Distance from 'home' (OA centroids) weighted by OA population. Distance from GP surgeries shown unweighted and weighted by surgery prescribing volume after deducting prescriptions dispensed by the surgery.

#### 4.41 Table 4.6 shows the estimated impact of the reforms on distances to the nearest pharmacy from these two main points of departure. On average over the whole of England the differences are modest, at around 40 metres. This partly reflects the fact that most visits have been unaffected by the 8.8

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24 In this analysis, 'home' is proxied by Census Output Area (OA) population centroids. OAs are Census-based areal units containing, on average, around 300 residents each. The distribution of distances from home is weighted by population volumes and therefore refers to consumers (regardless of their frequency of pharmacy use) rather than to pharmacy visits. The distribution from doctors’ surgeries is given both unweighted and weighted by the volume of items prescribed by each surgery, after deducting those that are dispensed to patients by doctors themselves under GP dispensing arrangements. Thus, while the average surgery is located 432m from the nearest pharmacy, the average surgery prescription is written 190m away. The no-reform scenario is based on locations of pharmacies in March 2005. GP surgery locations are from 2009 Q1. There was very little difference when we ran the same exercise on 2005 GP location data.
per cent increase in pharmacy numbers: 9.1 per cent of homes and 8.4 per cent of surgeries (or 8.1 per cent if the latter are weighted by prescribing volumes) have a pharmacy closer by as a result of the reforms. Within these affected groups the improvements in proximity are more substantial, in the order of half a kilometre.

4.42 Figure 4.14 below shows the distribution of distances to pharmacies from all homes and surgeries in England (upper pane) and from those affected by entry (lower pane). Since the reforms, 43.9 per cent of the population live within 500m of a pharmacy and 77.4 per cent live within 1km of one (as against 42.4 per cent and 75.9 per cent in the absence of the reforms). Almost a third (32.5 per cent) of prescriptions, excluding those dispensed at the surgery itself, are written at a surgery where a pharmacy is colocated (as against 28.5 per cent in the absence of the reforms), and 93.1 per cent are written within 500m of a pharmacy (as against 91.1 per cent without the reforms). Where a surgery has a pharmacy closer by as a result of the reforms (lower pane), this is due in over 50 per cent of cases to a new pharmacy colocating in the same premises or closely adjacent.
Pharmacy consumers are not mere ‘distance-minimisers’ but are responsive to the other characteristics of provision discussed in this evaluation. Thus they do not necessarily use the nearest pharmacy to home or doctor, and
will not necessarily gravitate to a new pharmacy that opens within shorter range. We can nevertheless expect the change in average distance to the nearest pharmacy to be a good approximation to the change in distances travelled by consumers as a result of the reforms.

4.44 We will also treat the following two effects as offsetting. On one hand, prescription volumes of new pharmacies are still somewhat below the average for pre-2005 pharmacies as their volumes are continuing to build (see Figure 4.7 earlier). The average change in local availability of pharmacies therefore overestimates the current level of consumer response. On the other, linear (crow-flies) distances significantly underestimate true distances travelled, and hence also the reductions in distance. Since these two factors counteract we have not attempted to adjust for them.

4.45 Finally it should be noted that we have not included the impact on travel times for non-prescription visits in our calculations, for example to purchase OTC pharmacy medicines, as we do not have firm data on the number of such visits and consumers’ choice of outlet for these purposes is less heavily distance dependent.
### TABLE 4.7: MODE OF TRAVEL TO PHARMACY FOR PRESCRIPTION CONSUMERS (PER CENT OF VISITS)

<table>
<thead>
<tr>
<th>Stratum</th>
<th>On foot</th>
<th>By car</th>
<th>By bus</th>
<th>Other</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>38.0</td>
<td>54.0</td>
<td>5.0</td>
<td>3.0</td>
<td>100</td>
</tr>
<tr>
<td>Increase from zero</td>
<td>31.0</td>
<td>62.0</td>
<td>3.0</td>
<td>4.0</td>
<td>100</td>
</tr>
<tr>
<td>Decrease</td>
<td>46.5</td>
<td>44.6</td>
<td>5.0</td>
<td>4.0</td>
<td>100</td>
</tr>
<tr>
<td>Increase from 1+ (cluster 1)</td>
<td>53.0</td>
<td>40.2</td>
<td>4.8</td>
<td>2.0</td>
<td>100</td>
</tr>
<tr>
<td>Increase from 1+ (cluster 2)</td>
<td>34.7</td>
<td>58.3</td>
<td>4.0</td>
<td>3.0</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>43.6</td>
<td>49.1</td>
<td>4.5</td>
<td>2.8</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis

Note: Weighted by frequency of pharmacy use for prescription cashing. Strata defined by change in number of pharmacies within postcode sector (see Annex VI). 'Other' primarily by bicycle or mobility device.

4.46 In order to translate these estimates of changes in proximity into estimated changes in travel times we need to take account of the mode of transport. The consumer research we commissioned for this evaluation found that, on average across our sample, 49.1 per cent of pharmacy prescription visits are made by car, 4.5 per cent by bus and 46.4 per cent on foot or by other means (Table 4.7). For the purposes of quantification we will therefore assume that 54 per cent of prescription visits are made by car or other road vehicle and that 46 per cent are made on foot.

4.47 According to the 2008 National Travel Survey, the average UK car trip is 7.0 miles and takes 22.7 minutes, implying an average travel speed of 29.8km/h. The national average walking speed according to the 2006 DH Progress Review is 4.8km/h. These averages are almost certainly overestimates for prescription visits to pharmacies, which are concentrated among sections of the population with higher than average healthcare needs, and who are more elderly, lower-income and more urban than average. We therefore take two-thirds of these values (20km/h and 3.2km/h respectively) for the purpose of range estimates.
Monetising the impacts of travel time savings requires estimates of consumers' value of time (VOT). The Department for Transport (DfT) provides estimates of VOT for the purpose of routine transport project analysis. These differ substantially between working and non-working time (£26.73 and £4.46 per hour respectively at 2002 prices), reflecting whether or not there are opportunity costs in terms of labour output. The age and income profile of prescription users and the fact that most prescriptions are repeat prescriptions implies that the displacement of work time is likely to be very low. According to our consumer research around 5 per cent of pharmacy visits by prescription customers originate from work, and 87 per cent of these occur during the working day, although we imagine that there are a significant number of lunch hour visits. On the other hand, some visits originating from home or the doctor's surgery will displace work time. In the absence of firm data we make the conservative assumption that no more than 2 per cent of incremental time travelling to and from a pharmacy displaces working time. This leads to an average VOT of £6.30 per hour for prescription customers once the values are adjusted for annual VOT growth since 2002 using the growth rates laid down by DfT in the same source.

Our estimate of the value of travel time savings to consumers as a result of the 2005 reforms is derived as follows. English pharmacies dispensed 771 million prescriptions in 2008/09. According to the consumer research conducted for the 2003 OFT study, the average prescription customer cashed 2.2 items per visit. These figures imply 350 million bundled instances of prescription redemption a year. Of these we will assume, based on conversations with stakeholders, that 50 million involve a delivery service to the consumer, leaving 300 million visits to pharmacies. Since these visits are two-way journeys this results in 600 million journey 'legs' to or from a pharmacy. Applying an average reduction in distance of 38 metres based on Table 4.5 and Table 4.6, and lower and upper average journey speed

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25 Department for Transport, Transport Analysis Guidance (TAG) Unit 3.5.6, Values of Time and Operating Costs, April 2009.  
26 Source: NHS Information Centre
estimates of 5.85 and 8.78 km/h respectively (calculated from the speeds in para. 4.47 on a 54/46 split of journeys by car and walking from para.4.46), we arrive at annual travel time savings of 2.60 million to 3.90 million consumer hours, with a total value (at £6.30 per hour) of between £16.4m and £24.5m.

4.50 Finally, as a check on our results we have compared them with the findings of the transport time impact analysis carried out for the DH 2006 Progress Review. This study compared travel times in England from home to the nearest pharmacy in 2003 and 2006 and found average savings of 4.0 seconds for public transport or walking (whichever was the faster) and 0.54 seconds for travel by car. Our comparable calculations, that is, using the upper journey speed estimate without adjusting for slower travel speeds of prescription consumers, imply average travel time savings of 28.5 and 4.6 seconds respectively, which are 7.2 and 8.5 times larger than in the DH study. However, net entry of pharmacies also grew by a factor of 7.2 between the two analyses, from less than 1.3 per cent compared with the base year of 2003 at the time of the study for DH in 2006 to just over 8.5 per cent by July 2009, the month of our data. Thus the difference in travel time impacts is in line with the difference in pharmacy numbers between the two analyses and suggests that the two approaches are closely in accord.

Disadvantaged groups

4.51 We were also asked by the OFT to look at the impact of the reforms on access for different population groups. Table 4.8 gives the pattern of current proximity to pharmacies and the impact of the reforms across deciles of the Health Deprivation and Disability Domain of the English indices of
Deprivation\textsuperscript{27}. The analysis is done at the smallest possible unit of analysis (Output Areas, with ID Health attributed at Lower Super Output Area level).

### TABLE 4.8: IMPACT OF CE REFORMS ON DISTANCE FROM HOME TO NEAREST PHARMACY BY HEALTH DOMAIN OF INDEX OF MULTIPLE DEPRIVATION

<table>
<thead>
<tr>
<th>IMD Health decile</th>
<th>HH with 1+ cars (per cent)</th>
<th>Mean distance to nearest pharmacy, July 2009 (m)</th>
<th>Mean distance impact (m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 (most deprived 10 per cent)</td>
<td>48.8</td>
<td>463</td>
<td>-24</td>
</tr>
<tr>
<td>2</td>
<td>57.7</td>
<td>497</td>
<td>-22</td>
</tr>
<tr>
<td>3</td>
<td>64.7</td>
<td>550</td>
<td>-21</td>
</tr>
<tr>
<td>4</td>
<td>71.1</td>
<td>637</td>
<td>-30</td>
</tr>
<tr>
<td>5</td>
<td>76.2</td>
<td>781</td>
<td>-30</td>
</tr>
<tr>
<td>6</td>
<td>79.6</td>
<td>1,001</td>
<td>-42</td>
</tr>
<tr>
<td>7</td>
<td>82.9</td>
<td>1,258</td>
<td>-43</td>
</tr>
<tr>
<td>8</td>
<td>85.4</td>
<td>1,424</td>
<td>-58</td>
</tr>
<tr>
<td>9</td>
<td>87.5</td>
<td>1,664</td>
<td>-62</td>
</tr>
<tr>
<td>10 (least deprived 10 per cent)</td>
<td>89.9</td>
<td>1,580</td>
<td>-59</td>
</tr>
<tr>
<td>England</td>
<td>74.4</td>
<td>986</td>
<td>-39</td>
</tr>
</tbody>
</table>

Source: NHS BSA, ONS, Department for Communities and Local Government, DotEcon analysis

\textsuperscript{27} The English Indices of Deprivation 2007 (ID 2007) are the Government’s official measure of multiple deprivation at small area level. (See Department for Communities and Local Government, ‘The English Indices of Deprivation 2007’, March 2008.) They are produced at the level of Census Lower Super Output Areas (LSOAs), which have an average population of 1500. We attributed the Health Domain index to Output Areas (average population 300) based on the LSOA in which they fall.
FIGURE 4.15: MAP OF HEALTH DEPRIVATION IN ENGLAND

Source: Department for Communities and Local Government (English Indices of Deprivation 2007), DotEcon analysis
4.52 The overall static picture as at July 2009 shows a high degree of correlation between ill-health and lack of car ownership on the one hand and existing pharmacy provision.

4.53 The reductions in distance to the nearest pharmacy since the control of entry reforms and exemptions are in fact larger for less disadvantaged groups, and range from 24m for the most deprived 10 per cent of the population to 59m for the least deprived 10 per cent, but the effect on travel time savings is ambiguous since the latter are on average in outlying areas situated further from pharmacies, and therefore more likely to use car transport.

4.54 Overall, there is no indication that the general average improvement in proximity to a pharmacy has benefited advantaged or disadvantaged groups to significantly different extents. The responses of PCTs to our questionnaire (Annex V) express a similar view.

4.55 However, a more refined geodemographic analysis suggests that certain identifiable segments of the population are underserved relative to others, despite the broad correlation between need and provision suggested above. We reached this conclusion by looking at the pattern of pharmacy access using the ONS Output Area Classification (OAC), which divides the population into categories based on their similarity across a range of Census data characteristics at the smallest areal level.\(^{28}\)

4.56 Figure 4.16 shows the relationship of health deprivation (upper chart) and lack of car ownership (lower chart) to the distance to the nearest pharmacy for these geodemographic groups.

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\(^{28}\) The OAC is a geodemographic classification of all 2001 Census Output Areas (area units with an average of 300 residents) in the UK. It assigns every OA to a category on the basis of cluster analysis of data from the 2001 Census. The categories are designed in a hierarchy of 7 'supergroups', 21 'groups' and 52 'subgroups' to which illustrative names have been attached by researchers for ease of reference.
4.57 The charts show that in general there is a correlation between need for close pharmacy access (health deprivation or lack of car ownership) and pharmacy proximity, evident in a downward sloping relationship in each chart.

4.58 In general, higher need and closer proximity are associated with more urban geodemographics (starting with the City Living and Multicultural categories listed first in the legends) while the most suburban or rural groups (Prospering Suburbs and Countryside at the bottom of the legends) are furthest away from pharmacies but have the lowest need. (The Countryside population are much further away from pharmacies but are the most likely to benefit from GP dispensing arrangements in rural areas). The Typical Traits population is intermediate.

4.59 However, the Constrained by Circumstances (grey) and Blue Collar (blue) populations are consistently 'behind the curve' of pharmacy access on both of these need and mobility measures, lying above and to the right of the neighbouring groups. For example, in the top chart, the Older Blue Collar group are worse off than the Prospering Semis group in terms of both health and closeness to a pharmacy. Similar observations can be made for the other groups in these two categories.
FIGURE 4.16: HEALTH DEPRIVATION AND LACK OF CAR VERSUS PROXIMITY TO PHARMACY FROM HOME BY OUTPUT AREA CLASSIFICATION GROUP (ENGLAND)

Source: NHS BSA, ONS, DotEcon analysis

Note: Area of data points proportional to share of English population
Waiting times for prescription collection

4.60 Aggregate prescription volumes are growing over time due to secular trends such as population ageing, but at any point in time can be taken as essentially fixed or inelastic with respect to the level and quality of pharmacy provision. Therefore one effect of the 2005 reforms has been to dilute a volume of prescriptions that would have been dispensed anyway across a wider pharmacy base (see Figure 4.6 earlier), which implies that pharmacy congestion and waiting times might be expected to be lower than they would have been otherwise.

4.61 We explored this hypothesis econometrically using our consumer research data. The model we sought to estimate was designed and agreed with OFT before we commissioned the research. We posited that at a given point in time and for a given state of dispensing 'technology' and practices there should exist a relationship between waiting times and pharmacies’ volume of operation, taking account of capacity factors such as their premises size, staffing levels, distribution of hours, local surgery times, etc. In the absence of direct data on these variables, we used areal and pharmacy-type indicators as controls or 'proxies' for these factors. In other words, we would expect, say, rural independent pharmacies or suburban health and beauty pharmacies to share broadly similar characteristics within their respective category, but to differ more strongly between categories. For the same reason we conducted the analysis at postcode sector level, looking at the relationship between waiting times and the average dispensing volume per pharmacy within the locality, controlling for these characteristics.

4.62 Despite the relatively small size of the consumer survey sample (851 respondents in England), the difficulty in expecting consumers to accurately report their waiting times on their last pharmacy visit, and the inherent simplification of treating postcode sectors as isolated geographical markets while ignoring cross-boundary effects, we were able to identify and measure the expected effect with a reasonable degree of statistical precision. We
found that on average, reported waiting times decrease by about 12 seconds for an average reduction of a thousand items dispensed per month by each pharmacy within the locality, after controlling for structural differences as described above\textsuperscript{29}. Of course, localised and pharmacy-level effects are likely to be very variable from case to case, but this is the implied average effect across all areas and permits a nationwide average calculation.

4.63 We use the same approach as with travel time savings to evaluate the impact of the reforms on waiting times. Pharmacies in England dispensed 771.5 million items in 2008/09. By July 2009, the number of pharmacies in England had risen to 10,578 from a level of 9,723 on the eve of the reforms. Thus, average pharmacy dispensing per month was around 6,078 items after four years of the reforms, as against 6,612 if the number of pharmacies had remained constant under the previous control of entry regulations, implying an average reduction in waiting times of just over six seconds per pharmacy visit\textsuperscript{30}. Assuming 300 million visits (as in the previous section), this implies a total annual waiting time saving of 0.53 million consumer hours, with a value of £3.3m at £6.30 per hour.\textsuperscript{31}

4.64 The existence of a relationship between pharmacy volume and waiting times across pharmacies at a particular point in time does not necessarily imply that waiting times are growing over time, despite long-run growth in prescription volumes of around 4.4 per cent a year, since technology and efficiency are also improving. Such trends include faster preparation techniques, increased use of ancillary staff, and collection services whereby both pharmacy and customer can arrange a collection time that is outside

\textsuperscript{29} This effect was statistically significant at the 10 per cent level using the most conservative measure of significance (standard errors clustered on postcode sector).

\textsuperscript{30} This is an average over a zero impact for the vast majority of visits and more substantial time savings in areas affected by post-reform entry and at peak times.

\textsuperscript{31} DfT guidance states that consumers tend to value time savings in different contexts differently, and may place a higher cost of time on waiting times for public transport. A similar phenomenon might be expected to apply to other queuing or waiting situations such as pharmacy service, but we do not feel it is worth complicating the analysis of what appears to be a relatively small impact.
the rush of acute prescriptions flowing from local surgeries during prescribing hours. GP surgery and prescribing hours have also widened, with the result that prescription demand is better smoothed across the day than in the past.

Opening hours

FIGURE 4.17: PCTS’ ASSESSMENT OF THE IMPACT OF THE CONTROL OF ENTRY REFORMS AND EXEMPTIONS ON THE AVAILABILITY OF PHARMACIES OUT OF WORKING HOURS

Source: DotEcon survey of English Primary Care Trusts, Nov 2009-Jan 2010

4.65 The 2003 OFT Market Study emphasised opening hours as an important dimension of pharmacy access and competition that could benefit from entry deregulation, and this informed the Government’s decision to exempt pharmacies undertaking to open for 100 hours a week from the control of entry test. Over 90 per cent of the respondents to our survey of PCTs reported improvements in the availability of pharmacies outside of normal working hours as a result of the 2005 reforms, and almost half reported that it had greatly improved (Figure 4.17). The comments and answers to subsidiary questions (see Annex V) overwhelmingly identify the entry of 100 hour pharmacies as the reason for this improvement.
4.66 Figure 4.18 shows the current distribution of pharmacy weekly opening hours in England based on NHS opening time information for 9,976 of the 10,578 pharmacies open as at July 2009. The impact of the 100 hours exemption is clearly evident in a spike at the top of the distribution at that number of hours. There is also a spike at the lower end of the distribution at 40 hours, reflecting the change in the minimum contractual weekly hours from 30 to 40 that was introduced at the same time as the control of entry reforms as part of the 2005 Regulations. We do not include the latter within our impact evaluation as it was unrelated to the OFT’s recommendation for relaxation of the entry regime.

FIGURE 4.18: TOTAL WEEKLY OPENING HOURS OF PHARMACIES IN ENGLAND, 2009?

Source: NHS BSA, NHS Choices, DotEcon analysis

4.67 Comparable information for the distribution of opening hours on the eve of the reforms is not available. In any case, the change in minimum contractual hours and changes in GP opening hours with which pharmacies are often aligned mean that this would not be the appropriate baseline for comparison.
4.68 Instead, to assess the impact of the reforms on the availability of wider opening times we have calculated an approximate counterfactual distribution by subtracting post-2005 entrant pharmacies from the data. Because of gaps in the opening hours information we have been able to identify only 401 100 hour entrant pharmacies as against the recently published total of 450,\textsuperscript{32} and our calculations are therefore underestimates of the true impact of their entry upon opening times. It should also be noted that the counterfactual estimates do not take account of additional out-of-hours services that would have been commissioned and paid for by PCTs if the influx of 100 hour pharmacies and other entrants had not occurred.

**TABLE 4.9: IMPACT OF THE 2005 CONTROL OF ENTRY REFORMS AND EXEMPTIONS ON WEEKLY OPENING HOURS AND NUMBER OF PHARMACIES OPERATING OUTSIDE NORMAL WORKING HOURS**

<table>
<thead>
<tr>
<th></th>
<th>Actual</th>
<th>If no reforms</th>
<th>Impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pharmacies</td>
<td>10,578</td>
<td>9,723</td>
<td>+855</td>
</tr>
<tr>
<td>Mean hours</td>
<td>53.6</td>
<td>51.5</td>
<td>+2.1</td>
</tr>
<tr>
<td>100 hours</td>
<td>413</td>
<td>12</td>
<td>+401</td>
</tr>
<tr>
<td>Early opening</td>
<td>889</td>
<td>445</td>
<td>+444</td>
</tr>
<tr>
<td>Late opening</td>
<td>365</td>
<td>45</td>
<td>+320</td>
</tr>
<tr>
<td>Sunday opening</td>
<td>1,671</td>
<td>1,150</td>
<td>+521</td>
</tr>
<tr>
<td>No hours information</td>
<td>602</td>
<td>674</td>
<td></td>
</tr>
</tbody>
</table>

Source: NHS Choices, NHS BSA, DotEcon analysis
Note: See text for definitions.

4.69 These actual and no-reform distributions of opening hours are summarised in Table 4.9. In addition to mean hours, the table reports the estimated impact of the reforms on the number of 100 hour pharmacies and on early, late and Sunday-opening pharmacies\textsuperscript{33}. The table shows increases in the number of

\textsuperscript{32} See Table 4.3 earlier.

\textsuperscript{33} Early-opening pharmacies are defined as those opening for 2.5 hours or more before 8.30am over the 5 weekdays, that is, typically daily from 8am or earlier. Late-opening pharmacies are defined as those open for 5 hours or more after 5.30pm over the five working days of the week, typically daily
early, late and Sunday-opening pharmacies that are similar to the number of (identified) new 100 hour pharmacies, suggesting unsurprisingly that it is these entrants who are largely responsible for the increased availability of longer hours to consumers. Weekly opening hours of non-100 hour entrants are also higher on average than the current hours of pharmacies that pre-dated the reforms, but only slightly: 53.7 as against 51.5.

4.70 As a check on the reasonableness of the counterfactual distribution we can compare the mean hours by pharmacy ownership type with the figures reported in the 2003 OFT Market Study, which were based on a questionnaire to pharmacies. Counterfactual average hours are estimated at 52.1 for large multiples, 49.1 for independents and small chains, 77.3 for supermarkets and 51.5 overall. These figures are very close to the respective estimates of 54, 49, 79 and 52 quoted in the 2003 study.

4.71 Clearly, then, the Government reforms of 2005 have had a considerable impact on the availability of extended opening to consumers. Indeed, the figures suggest that there would have been only a handful of pharmacies open for 100 hours a week or more in England in the absence of the 100 hour rule for exempt entry, as against over 450 now. Hundred hour opening equates to over 14 hours a day, seven days a week, for example, from 8am until 10.30pm including Saturdays and Sundays, and appears to have virtually no precedent among pharmacies free to set their own hours based on commercial considerations.

4.72 Measuring consumers’ use of these longer hours and evaluating the benefit they derive from them is a much harder exercise, however. In reviewing the available information we found there was a lack of published evidence for consumer demand for extended opening hours either in general or specifically adduced in support of the introduction of the 100 hour rule. Opening hours figured prominently in the OFT study as an area of service competition that...
would be enhanced by deregulation of entry, but the study did not attempt to quantify the likely expansion of hours as a result of increased competition or the degree of frustrated consumer demand that might underlie it. While the motivation behind the 100 hour exemption\textsuperscript{34} was to afford consumers, for lifestyle or other reasons, greater opportunity to access pharmacy services outside of conventional working hours, we are not aware of any additional research that informed the Government’s decision to set the qualifying threshold for exempt entry at 100 hours.

4.73 We therefore incorporated a set of questions in our consumer research that were designed to survey consumers’ time-of-day patterns of prescription visits to pharmacies, and to permit us to identify and model the additional consumer value created by the wider availability of longer hours, as well as the scale of any persistent frustrated demand. At the same time we were concerned about oversensitising respondents to this issue, and therefore posed indirect questions and relied on unprompted responses.

\textsuperscript{34} See the consultation document on the Government’s response to the OFT’s report: DH, ‘Proposals to reform and modernise the NHS (Pharmaceutical Services) Regulations 1992’, 29\textsuperscript{th} August 2003, para. 4.13.
### TABLE 4.10: PRESCRIPTION CUSTOMER VISITS TO PHARMACIES BY TIME OF DAY AND PHARMACY TYPE

<table>
<thead>
<tr>
<th>Pharmacy type (sample size)</th>
<th>7.30-9am</th>
<th>9am-5.30pm</th>
<th>5.30-7pm</th>
<th>After 7pm</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Health and beauty (132)</td>
<td>0.1</td>
<td>94.5</td>
<td>4.5</td>
<td>0.0</td>
<td>100</td>
</tr>
<tr>
<td>Supermarket (61)</td>
<td>0.7</td>
<td>70.6</td>
<td>21.6</td>
<td>7.2</td>
<td>100</td>
</tr>
<tr>
<td>Major chain (165)</td>
<td>1.2</td>
<td>92.9</td>
<td>4.4</td>
<td>1.6</td>
<td>100</td>
</tr>
<tr>
<td>Independent/smaller chain (310)</td>
<td>1.2</td>
<td>94.8</td>
<td>4.0</td>
<td>0.0</td>
<td>100</td>
</tr>
<tr>
<td>Other/unidentified/don't know (183)</td>
<td>2.9</td>
<td>87.6</td>
<td>6.7</td>
<td>2.8</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>1.5</td>
<td>91.1</td>
<td>6.0</td>
<td>1.4</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis

Notes: England only. Weighted by frequency of prescription cashing visits to pharmacies. Excludes 'don't know' responses (3.2 per cent of respondents).

4.74 Ninety-one percent of pharmacy visits to collect a prescription medicine in our sample took place between the hours of 9am and 5.30pm (Table 4.10). Six per cent occurred in the early evening, between 5.30pm and 7pm, while only three percent occurred outside these periods. It is important to note that our research oversampled areas with high rates of entry since the reforms, which are therefore more likely to contain 100 hour pharmacies; the time-of-day distribution of visits is actually even more compressed towards ordinary working hours if this oversampling is taken into account (see Table 4.11, discussed below).

4.75 Among types of pharmacy, the exception to the general pattern are supermarkets, who derive 29 per cent of their prescription business after 5.30pm, although visits before 9am appear to be no higher than for other store types. Three-quarters of these visits occur in the first hour and a half after 5.30pm. These figures correspond closely with figures quoted to us by one of the supermarket chains we spoke to that 20 per cent of their prescription volumes are dispensed after 6pm, but few after 9pm and virtually none after 9.30pm. Other stakeholders likewise reported that 100
hour pharmacies experience a second peak in volume at the end of the normal working day, which tails off almost completely by that time.

**TABLE 4.11: PRESCRIPTION CUSTOMER VISITS TO PHARMACIES BY TIME OF DAY AND AGE OF PHARMACY (EXCLUDING SUPERMARKETS) (PER CENT)**

<table>
<thead>
<tr>
<th>Reported age of pharmacy (sample size)</th>
<th>7.30-9am</th>
<th>9am-5.30pm</th>
<th>5.30-7pm</th>
<th>After 7pm</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 years (176)</td>
<td>5.4</td>
<td>85.8</td>
<td>6.7</td>
<td>2.1</td>
<td>100</td>
</tr>
<tr>
<td>More than 5 years (545)</td>
<td>0.5</td>
<td>94.9</td>
<td>4.1</td>
<td>0.6</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis
Notes: England only. Weighted by frequency of prescription cashing visits to pharmacies. Excludes 'don't know' responses to either question.

4.76 Table 4.11 shows the time-of-day distribution of visits to non-supermarket pharmacies according to whether, as reported by the respondent, the pharmacy opened before or after the reforms. Prescription visits to new pharmacies are more dispersed across the day, with 86 per cent occurring between 9am and 5.30pm as against 95 per cent for established pharmacies, which no doubt reflects the high proportion of 100 hour pharmacies among post-2005 entrants.
Table 4.12: Reported age of pharmacy used on last prescription visit (excluding supermarkets) (per cent)

<table>
<thead>
<tr>
<th>Stratum</th>
<th>&lt;5 years</th>
<th>&gt;5 years</th>
<th>Don’t know</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>No change</td>
<td>10.2</td>
<td>81.6</td>
<td>8.2</td>
<td>100</td>
</tr>
<tr>
<td>Increase from zero</td>
<td>25.5</td>
<td>70.2</td>
<td>4.3</td>
<td>100</td>
</tr>
<tr>
<td>Decrease</td>
<td>15.1</td>
<td>78.5</td>
<td>6.5</td>
<td>100</td>
</tr>
<tr>
<td>Increase from 1+ (Cluster 1)</td>
<td>23.7</td>
<td>72.2</td>
<td>4.1</td>
<td>100</td>
</tr>
<tr>
<td>Increase from 1+ (Cluster 2)</td>
<td>31.9</td>
<td>61.2</td>
<td>6.9</td>
<td>100</td>
</tr>
<tr>
<td>England</td>
<td>23.1</td>
<td>71.3</td>
<td>5.6</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis

Note: Strata defined by change in number of pharmacies within postcode sector since 2005 (see Annex VI).

4.77 Higher proportions of consumers in postcode sectors where the number of pharmacies has increased since the 2005 reforms report that they used pharmacies less than five years old (Table 4.12). However, respondents' reports do not correspond perfectly to our definition of post-reform entry because, in addition to the burden of recall, they do not distinguish operators under new NHS contracts from existing pharmacies that have undergone relocations or changes of ownership or branding. If we were able to distinguish true entrant pharmacies from existing pharmacies in new premises or under new ownership, it seems likely that the difference in time-of-day distributions would be wider than implied by Table 4.11, although we will not attempt to adjust for this possibility in the calculations that follow.

4.78 We thus have time-of-day patterns of prescription visits to supermarkets (Table 4.10) and to new and established non-supermarket pharmacies (Table 4.11). By applying different weights to these distributions we can reconstruct actual and no-reform time-of-day patterns and thus assess the shift in consumers' timing of pharmacy visits as a result of the reforms, relative to the situation that would have existed without them. As at July 2009, established non-supermarket pharmacies accounted for 92.6 per cent of items dispensed, non-supermarket post-2005 entrants for 2.2 per cent
and supermarkets for 5.1 per cent of items dispensed\(^{35}\). Subtracting entrant pharmacies from the database as an approximation to the distribution that would have obtained absent the 2005 reforms, the counterfactual weights are respectively 96.3 per cent, zero and 3.7 per cent.

**TABLE 4.13: ESTIMATED IMPACT OF THE 2005 REFORMS ON THE TIME DISTRIBUTION OF PHARMACY PRESCRIPTION VISITS**

<table>
<thead>
<tr>
<th>Scenario</th>
<th>7.30-9am</th>
<th>9am-5.30pm</th>
<th>5.30-7pm</th>
<th>After 7pm</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Actual</td>
<td>0.6 per cent</td>
<td>93.4 per cent</td>
<td>5.0 per cent</td>
<td>1.0 per cent</td>
<td>100 per cent</td>
</tr>
<tr>
<td>No reforms</td>
<td>0.5 per cent</td>
<td>93.9 per cent</td>
<td>4.7 per cent</td>
<td>0.9 per cent</td>
<td>100 per cent</td>
</tr>
<tr>
<td>Impact</td>
<td>+0.1 per cent</td>
<td>-0.5 per cent</td>
<td>+0.3 per cent</td>
<td>+0.1 per cent</td>
<td>0.0 per cent</td>
</tr>
</tbody>
</table>

Sources: NHS BSA; DotEcon/GfK consumer research; DotEcon analysis

4.79 The comparison of estimated time-of-day patterns of prescriptions with and without the reforms is shown in Table 4.12. Notwithstanding that the calculated impact in the bottom row of the table is probably an underestimate and that it can also be expected to grow as consumer take-up of the new pharmacies continues, it is nevertheless small by comparison with total prescriptions visits. Applying our previous assumption of 300 million pharmacy visits a year in England to collect prescription medicines, these figures imply a redistribution of 1.6 million visits a year from the hours between 9am and 5.30pm to earlier and later times, mainly to the immediate post-working day period between 5.30 and 7pm. There will also have been some improvement in the consistency of pharmacies' availability during the working day.

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\(^{35}\) DotEcon analysis of NHS BSA data.
In order to value the benefit experienced by consumers who have shifted the timing of their prescription visits in this way, we included questions in the consumer research that were designed to hone in on instances where an acute or urgent need to collect a prescription medicine out of hours was either satisfied by the availability of a late opening pharmacy or was frustrated by the lack of one, and to elicit the consumer’s valuation for this opportunity.

We found very few such instances, and too few to estimate average willingness to pay. Around 25 per cent of respondents said that on the occasion of their last pharmacy visit to collect a prescription medicine, they ideally needed the medicine as soon as possible as opposed to later the same day or on a later day. Of this group, 75 per cent said they got the medicine on the same day, as against 22 per cent who obtained it one or more days later (3 per cent could not recall). Yet the latter group reported the same, very high, level of satisfaction with the speed with which they obtained the medicine as other respondents, and of those who did not, none mentioned opening hours as the reason for their inability to do so. Indeed, only four respondents in the total sample of 1,001 reported that they were dissatisfied with the speed with which they obtained the medicine and spontaneously cited the lack of an open pharmacy or the fact that their regular pharmacy was closed as the reason.
TABLE 4.14: ESTIMATED IMPACT OF THE 2005 REFORMS ON THE TIME DISTRIBUTION OF PHARMACY PRESCRIPTION VISITS

<table>
<thead>
<tr>
<th>'After getting the doctor's prescription slip, were you able to get the medicine as quickly as you would have wanted?'</th>
<th>per cent</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td>93.7</td>
</tr>
<tr>
<td>NO</td>
<td>6.3</td>
</tr>
<tr>
<td>Medicine not in stock/error with order</td>
<td>2.4</td>
</tr>
<tr>
<td>Long waiting time</td>
<td>2.2</td>
</tr>
<tr>
<td>Pharmacy not open/no pharmacy open</td>
<td>0.8</td>
</tr>
<tr>
<td>Travel delay</td>
<td>0.5</td>
</tr>
<tr>
<td>Other/not specified</td>
<td>0.5</td>
</tr>
<tr>
<td>Total</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis
Notes: England only (636 responses, excluding 215 'don't know' to either question). Weighted by frequency of prescription cashing visits to pharmacies.

4.82 We thus find little empirical evidence that consumers were or are significantly deprived of access to pharmacies outside of standard hours for urgent needs, although again it must be noted that our sample was stratified so as to oversample areas of high entry. In the light of our conversations with stakeholders, this finding is not surprising. According to the industry sources we spoke to (several of whom were former pharmacists), people with an acute need for relief through a prescription medicine tend to travel straight from the surgery where it is prescribed to the nearest open pharmacy. Pharmacies link their opening hours to local surgery prescribing hours, since these are peak periods of demand, although we also heard that they are particularly likely to do so where there are competitive pharmacies in the vicinity to which they would otherwise lose custom. Acute need for prescription medicines outside of surgery hours is met either by doctors on emergency call-out providing patients with sample doses to carry them through until a pharmacy is open, or by patients presenting at hospital.

4.83 Thus, by all accounts, urgent demand for community pharmacy dispensing either late at night or very early in the morning is very low. The same applies
to weekends, especially Sundays, as few medicines are prescribed then, which is reflected in the pattern of days and times at which respondents in our survey reported they obtained the doctor’s prescription (Table 4.15).

**TABLE 4.15: DAY AND TIME OF OBTAINING PRESCRIPTION**

<table>
<thead>
<tr>
<th></th>
<th>7.30-9am</th>
<th>9am-5.30pm</th>
<th>5.30-7pm</th>
<th>After 7pm</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday-Thursday</td>
<td>3.1</td>
<td>73.7</td>
<td>2.4</td>
<td>0.9</td>
<td>80.0</td>
</tr>
<tr>
<td>Friday</td>
<td>0.3</td>
<td>16.8</td>
<td>1.4</td>
<td>0.0</td>
<td>18.5</td>
</tr>
<tr>
<td>Saturday</td>
<td>1.0</td>
<td>1.2</td>
<td>0.0</td>
<td>0.0</td>
<td>1.3</td>
</tr>
<tr>
<td>Sunday</td>
<td>0.0</td>
<td>0.2</td>
<td>0.0</td>
<td>0.0</td>
<td>0.2</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>3.5</td>
<td>91.9</td>
<td>3.8</td>
<td>0.9</td>
<td>100</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis
Notes: England only (636 responses, excluding 215 'don't know' to either question). Weighted by frequency of prescription cashing visits to pharmacies.

4.84 Rather, the benefit to prescription consumers of improved access to pharmacies out of hours appears primarily to come from the convenience of being able to make their visits to collect medicines at a convenient time outside of core working hours and, particularly in the case of supermarkets, to fold this purchase into a one-stop shop for groceries and other goods and services. This benefit is real and effective, although we are not able to quantify it with the information available. This is also not to say that in some instances the presence of a late opening pharmacy that would not have existed if it were not for the 2005 reforms does not make the difference between consumers obtaining a much-needed prescription medicine and having to wait for relief from pain or distress. Such instances are likely to be extremely valuable to the consumers involved, but are apparently relatively rare.
Choice, convenience and quality of service

4.85 The previous subsections have reviewed the impact of the 2005 reforms on the speed and accessibility of dispensing services in respect of travel times, waiting times and opening hours. The 2005 reforms were designed to improve the number, variety and incentives for service competition in ways that would improve consumer welfare in other respects identified by the OFT study. These included the choice of provider and retail format, convenience (such being able to combine visits for pharmacy services with other shopping and activities), and the quality of service and advice they receive.

4.86 Unlike the previous dimensions we have considered, the value of these aspects of provision to consumers differs greatly among consumers as a function of their lifestyle and individual needs and preferences, and as such are particularly difficult to evaluate quantitatively. The consumer research reviewed in Annex III shows a variety of consumer preferences for pharmacies, ranging from those for whom convenience is the most important factor to those who particularly value a relationship with 'their' pharmacist and his or her staff. Estimating the tangible and intangible effects of increased service competition, such as improved offering of collection and delivery services and, at least in some cases, improved quality of customer interaction would also require more extensive research resources than were available to us. Qualitatively, however, it is clear that the reforms have brought improvements to consumers in these regards.

4.87 One effect of the reforms (Table 4.4) has been to permit the further expansion of 'diversified' pharmacies in the health and beauty and especially the supermarket business models. These pharmacies are less likely than others to occupy high street locations or locations clustered around surgeries and, for example, are the main users of the out-of-town shopping centre exemption to control of entry. They cater instead to consumers who particularly value the ability to add their prescriptions collections and
purchases of pharmacy goods to a conveniently located and timed one-stop shop. The supermarkets we spoke to believed that the customers concerned valued this opportunity highly.

4.88 However, it was also acknowledged that other consumers prefer the familiarity and regularity of staff of a more traditional high street or neighbourhood outlet, and there have also been improvements within this segment. Our conversations with pharmacy owners and associations on both sides of the entrant/incumbent divide, and in some cases straddling it, confirmed that where more than one pharmacy serves a catchment area, competition is intense. One of our interviewees, an experienced pharmacist and business owner, described it as a matter of 'killing with kindness' – ensuring that medicines are in stock for the customer, that the medicine is ready and waiting, and by cultivating relationships of trust between staff and customers. Others we spoke to told us that, where new entry has occurred, it has been met by competitive reactions from nearby existing pharmacies with the aim of consolidating customer loyalty. Examples cited were increasing their offering of collection and delivery services or introducing them for the first time, reviewing their hours and staffing levels, or refreshing premises36. Entry to the market made possible by the 2005 control of entry reforms, as well as enlarging the network of pharmacies available to the public, has thus stimulated investments and improvements in customer service that would not otherwise have been made.

4.89 One critique of this trend was that it was primarily geared toward retaining repeat prescription business rather than improving the clinical environment within which pharmacies can offer non-dispensing services. This dimension of service is growing in significance as pharmacies, led by health policy, are becoming first ports of call for minor ailments, preventive health treatments.

36 Similar improvements reported by consumers are summarised in the DH Progress Review (DH, ‘Review of progress on reforms in England to the ‘control of entry’ system for NHS pharmaceutical contractors’, November 2006, para. 5.10)
and screening. The impact of the reforms on the provision of these services is considered in a later subsection.

**A holistic measure of consumer benefit for prescription-related pharmacy visits**

4.90 In the preceding sections we have estimated, where possible, the value of changes in the availability and quality of pharmacy services to prescription medicine consumers in several particular respects. As a complement to these 'bottom-up' calculations, our survey vehicle gave us the opportunity to derive an inclusive general measure of the change in consumer welfare due to the reforms.

4.91 We did so by: surveying the value of respondents' preference for the pharmacy they used on the most recent occasion compared with the next best alternative; looking specifically at responses from consumers who had used pharmacies that have joined the market as a result of the 2005 entry reforms; and then applying the results to the observed pattern of demand for these pharmacies.

4.92 The advantage of this approach is that it allows us to elicit from consumers themselves an overall monetary-equivalent measure of the benefit of the reforms on whatever dimensions of service matter to them, including those that are difficult to quantify by other means. The disadvantage is that it relies on consumers' subjective reports or 'stated preference'. We therefore

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37 That is, we used a contingent valuation (CV) rather than a choice modelling (CM) approach. (See for example, David Pearce and Ece Ozdemiroglu et al, 'Economic Valuation with Stated Preference Techniques – Summary Guide', Department for Transport, Local Government and the Regions, March 2002, for an accessible discussion.) The latter would have involved presenting respondents with a carefully designed set of hypothetical choices in order to elicit the value they attach to different aspects of provision, then projecting the results across the observed changes in provision due to the reforms. The approach we took instead was grounded in a specific and real instance of consumers' pharmacy use and an awareness of the alternatives that would have existed for them.
prefer present the results as a corroboration of the bottom-up calculations rather than as the main source of our impact estimates.

4.93 Two approaches can be used to elicit the 'contingent valuation' or monetary strength of preference between two outcomes, in this case the chosen pharmacy over the next best alternative. One is to survey individuals' willingness to pay for the superior choice (WTP), while the other is to survey their willingness to accept compensation for receiving the inferior one (WTA). Baseline economic theory predicts that unless the amounts involved are a significant proportion of income, the two measures should be approximately equal. However, a consistent empirical finding of contingent valuation studies is the 'WTP-WTA gap', whereby respondents are generally willing to pay less to receive a benefit than they demand to be compensated for losing it38.

4.94 We therefore took both approaches with all respondents, and randomly rotated the order in which they were presented. The scenarios we devised to elicit a monetary valuation were necessarily hypothetical and involved pharmacies either charging a premium to customers (for WTP) or offering them an inducement (for WTA) in return for cashing their prescriptions with them. In both cases respondents were asked what difference in monetary amount between their first and second choice of pharmacy would have induced them to trade up or down. We preferred an open-ended response format rather than prompting respondents to select from a predefined range of values, in order to avoid influencing their response. The wording of the questions is reproduced in Box 4.1 at the end of this subsection.

38 This finding is related to the wider phenomenon of 'endowment effects' in behavioural economics.
TABLE 4.16: WILLINGNESS TO PAY (WTP) AND WILLINGNESS TO ACCEPT (WTA) FOR CHOICE OF PHARMACY RELATIVE TO NEXT BEST ALTERNATIVE ON LAST PRESCRIPTION VISIT

<table>
<thead>
<tr>
<th></th>
<th>Mean</th>
<th>per cent zero</th>
<th>Mean</th>
<th>per cent positive</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Weighted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTP</td>
<td>£1.19</td>
<td>68.9 per cent</td>
<td>£3.82</td>
<td></td>
</tr>
<tr>
<td>WTA</td>
<td>£4.13</td>
<td>57.2 per cent</td>
<td>£9.67</td>
<td></td>
</tr>
<tr>
<td><strong>Unweighted</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTP</td>
<td>£1.16</td>
<td>69.8 per cent</td>
<td>£3.83</td>
<td></td>
</tr>
<tr>
<td>WTA</td>
<td>£4.10</td>
<td>54.9 per cent</td>
<td>£9.08</td>
<td></td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis
Notes: England only (851 responses, refusals coded as zero). 'Weighted' refers to weighting by frequency of prescription cashing visits to pharmacies.

4.95 Table 4.16 summarises the results. As expected, mean WTA (£4.13) is substantially higher than mean WTP (£1.19) and there was also a higher proportion of zero responses for the latter. We prefer to use WTP rather than WTA to evaluate the consumer benefit as it is the more conservative measure.
4.96 Since the purpose is to estimate a marketwide measure of the incremental consumer benefit of access to pharmacies that would not have existed in the absence of 2005 the reforms, we are not concerned to explain individual consumers’ responses statistically in terms of the characteristics of their preferred and alternative choices available to them, or the respondents themselves. However, these estimates are for all pharmacies, both new and established, and it is therefore essential to check and adjust for any systematic difference in the marginal benefit of visits to the two types.
TABLE 4.17: MEAN WILLINGNESS TO PAY (WTP) AND WILLINGNESS TO ACCEPT (WTA) FOR CHOICE OF PHARMACY BY REPORTED AGE OF PHARMACY

<table>
<thead>
<tr>
<th></th>
<th>Less than 5 years</th>
<th>More than 5 years</th>
<th>Don't know</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weighted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTP</td>
<td>£1.21</td>
<td>£1.24</td>
<td>£0.49</td>
</tr>
<tr>
<td>WTA</td>
<td>£5.75</td>
<td>£3.52</td>
<td>£4.74</td>
</tr>
<tr>
<td>Unweighted</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WTP</td>
<td>£1.24</td>
<td>£1.19</td>
<td>£0.38</td>
</tr>
<tr>
<td>WTA</td>
<td>£4.78</td>
<td>£3.79</td>
<td>£4.78</td>
</tr>
</tbody>
</table>

Source: DotEcon/GfK consumer research; DotEcon analysis
Notes: England only (851 responses, refusals coded as zero). 'Weighted' refers to weighting by frequency of prescription cashing visits to pharmacies.

4.97 In fact there is no such difference. Mean WTP for the consumer’s chosen pharmacy according to whether it opened before or after the reforms (see Table 4.12 earlier) is shown in Table 4.17. The difference in WTP for visits to pre- and post-2005 pharmacies is very small and statistically clearly insignificant, even after controlling simultaneously for other variables (stratum, store type, and frequency of use). Average WTA is in fact considerably higher for post-2005 pharmacies than for established ones although the difference again was statistically insignificant in view of the wide variance in individual responses.

4.98 The large proportion of zero responses to both questions is a typical result in contingent valuation studies and such responses can have two interpretations. On one hand they are often interpreted as 'protest zeros', that is, indications that the respondent found the payment scenario objectionable, despite holding a positive valuation for the superior option. In this interpretation zero responses are ignored and only the positive responses
are used to formulate the estimate of consumer value\textsuperscript{39}. On the other hand they may indicate that the respondent genuinely has a very low incremental WTP/WTA, so that he or she is virtually indifferent between the two options, in which case they should be retained. It is natural to use these two interpretations to provide upper and lower estimates of average WTP. Thus we will take £3.82 and £1.19 (Table 4.16, first row) as estimated bounds on the average marginal benefit to consumers of using their first choice of pharmacy relative to an alternative in which that pharmacy is not available to them.

4.99 To gauge the overall benefit of the availability of the new pharmacies to prescription customers due to the control of entry reforms, we apply these estimates to the number of visits that they currently attract. According to our analysis of the NHS BSA data supplied to us for this evaluation, as at July 2009 the 1,121 post-2005 entrants (accounting for 10.60 per cent of all 10,578 English pharmacies) had a share of 7.79 per cent of prescription items dispensed. To avoid attributing the ordinary 'churn' level of entry that would have occurred anyway to the 2005 reforms, we scale these numbers down to the level of net entry (855 pharmacies). This implies that 5.94 per cent of demand for prescriptions has migrated to new pharmacies that would not have entered the market if it were not for the reforms. Assuming, as in previous sections, 300 million annual pharmacy visits by prescription customers, and valuing consumers' revealed preference for these pharmacies at between £1.19 and £3.82 per visit implies a total consumer benefit in the range of £21.1m to £68.1m per annum at current levels of consumer adoption.

\footnotesize{\textsuperscript{39} All non-positive responses, whether zeros or refusals/non-responses, were coded to zero by the interviewers.}
BOX 4.1: SURVEY QUESTIONS TO ELICIT WTP AND WTA FOR FIRST CHOICE OF PHARMACY ON LAST OCCASION OF PRESCRIPTION MEDICINE COLLECTION

You described your experience of the last time you collected a prescription. For the last two questions, I would like you to think about what your second choice of pharmacy would have been on that occasion. These last two questions may seem a little strange but please answer them as honestly as you can.

[RANDOMLY ROTATE ORDER OF Q39 AND Q40 AND DELETE 'INSTEAD OF FEES' OR 'INSTEAD OF CASH PAYMENT' FROM THE FIRST ONE PRESENTED]

Q39. [Now, instead of cash payment,] Imagine that pharmacies were allowed to charge a fee for collecting a prescription, in addition to any prescription charge. On the last occasion we have just talked about, how much more would you have paid to still use that particular pharmacy, compared with your second choice of pharmacy?

INTERVIEWER, IF NECESSARY: if you do not know, please give me your best estimate

Q40. [Now, instead of fees,] imagine that pharmacies were offering a cash payment to customers who chose to collect their prescriptions from them. On the last occasion we have just talked about, how much more would your second choice of pharmacy have to have been offering for you to use it instead?

INTERVIEWER, IF NECESSARY: if you do not know, please give me your best estimate.

I just want to assure you that those questions were artificial. Pharmacies are not allowed to charge extra for prescriptions or to offer inducements to customers to cash their prescriptions for them, and we are not aware of any plans for that to change.

Benefits to non-prescription consumers (clinical services)

4.100 In addition to previous health services and traditional ad hoc advice, since the introduction of the community pharmacy contractual framework (CPCF)
in 2005, pharmacies in England (and Wales) now offer two tiers of non-dispensing services to consumers under a structured regime. These are advanced services (currently rolled out in the form of medicines use reviews or MURs) and local enhanced services (LES), which include a variety of clinical and other services (see Chapter 3)\(^{40}\).

4.101 Such services are a further area of public and consumer demand for pharmacy services potentially affected by the entry of new pharmacies following the 2005 control of entry reforms. However, while commissioning of these services is growing, consumer takeup and awareness are still nascent and any impact will be felt more strongly in the future.

4.102 Overall, provision of MURs by pharmacies that have entered the English market since the 2005 reforms is in line with pharmacies generally, once the still lower-than-average dispensing volumes of recent entrants are taken into account. Entrants provide a higher number of LES than existing pharmacies. Comparison with Wales, where the CPCF was introduced in 2005 as it was in England while the control of entry reforms were not, is consistent with total provision of these services being higher in England due to additional entry, but this is not conclusive. The available evidence is presented below.

\(^{40}\) Not all provision of non-dispensing services comes under these arrangements. PCTs can also contract directly with pharmacies to provide local pharmaceutical services (LPS), and pharmacies also offer and compete on providing services such as flu jabs, for which consumers themselves pay.
Medicines Use Reviews (MURs)

TABLE 4.18: MEAN MONTHLY MURS AND DISPENSING OF PHARMACIES IN ENGLAND ESTABLISHED PRE- AND POST-REFORM, JULY 2009

<table>
<thead>
<tr>
<th></th>
<th>Pharmacies</th>
<th>per cent offering MURs</th>
<th>Monthly MURs</th>
<th>Monthly items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pre-reform pharmacies</td>
<td>9,457</td>
<td>81.1</td>
<td>12.0</td>
<td>6,408</td>
</tr>
<tr>
<td>Post-reform entrants</td>
<td>1,121</td>
<td>76.3</td>
<td>9.1</td>
<td>4,572</td>
</tr>
<tr>
<td>Total</td>
<td>10,578</td>
<td>80.6</td>
<td>11.7</td>
<td>6,214</td>
</tr>
</tbody>
</table>

Source: DotEcon analysis of NHS BSA data
Note: Means to July 2009 from May 2009 (or from month of opening if later)

4.103 All pharmacies are entitled to offer MURs to customers provided they undergo accreditation of pharmacists and premises, including the provision of consulting areas. In mid-2009, 81 per cent of pharmacies were actively performing them (Table 4.18)\(^{41}\). The average monthly volume performed by post-2005 entrants was 75.8 per cent of that of pre-existing pharmacies, but this must be seen in the context of the consumers' ongoing adoption of these new pharmacies discussed earlier\(^{42}\) and the fact that their dispensing volumes were 71.3 per cent of those of pre-existing pharmacies at the same point in time.

4.104 Comparison with Wales suggests that there may be some positive impact of the entry of new pharmacies on the volumes of MURs performed\(^{43}\). In 2007-08, the latest year for which NHS IC data are available for both countries, 1311 MURs were performed in England for every million items dispensed, as

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\(^{41}\) Based on a three month period. The number of pharmacies performing one or more MURs on annual basis is higher as not all pharmacies do so in a given month or period.

\(^{42}\) See Figure 4.7 and the accompanying text.

\(^{43}\) The volume of MURs may be affected by the number and characteristics of pharmacies in a way that the volume of prescriptions demand is not. This is because demand for MURs, unlike demand for prescription medicines, is generated between pharmacist and consumer rather than by between doctor and patient, although it is tied to use of prescription medicines.
against 1021 in Wales. However, we caution about placing too much weight on uncontrolled comparisons between the two countries.

Local Enhanced Services (LES)

FIGURE 4.20: PHARMACIES IN ENGLAND PROVIDING LOCAL ENHANCED SERVICES

Source: NHS Information Centre
Note: Top ten LES only

4.105 Figure 4.20 shows the number of pharmacies in England providing each of the ten most heavily commissioned categories of LES. Provision of services in the new clinical categories has grown rapidly while commissioning of traditional access-related services, specifically out of hours opening and deliveries to care homes and consumer homes, has fallen. As we discuss later in connection with the public finance impacts of the reforms, this appears to reflect the expansion in opening times due to the 100 hours exemption, as well as the greater spontaneous provision of delivery services by pharmacies as a result of increased competition for prescription business that was discussed in the previous section.
4.106 Under the terms of the 2005 regulations, pharmacies entering via the control of entry exemptions must agree to provide LES prescribed by the relevant PCT within their NHS contract. According to DH, in the first year after the reforms exempt entrant pharmacies provided 3.7 per cent of LES while representing less than 1.35 per cent of total pharmacies in England. The responses to our questionnaire to PCTs report that post-2005 entrants provide a similar or slightly higher range and volume of these services (Figure 4.21).
As with MURs above, we also compared provision in England with that in Wales, where LES were introduced in 2005 in parallel with England but where the control of entry reforms were not. Figure 4.22 shows that the number of services commissioned per pharmacy in the latest available year is similar which, given the increase in pharmacy numbers in England due to the control of entry reforms, might suggest that total provision in England is higher than it would otherwise have been. Again, however, because of potential differences in health needs and commissioning practices, we think it is unsafe to base any conclusion about the impact on consumers on these data.

**Benefits to non-prescription consumers (OTC prices)**

This section reviews evidence on relative prices of OTC pharmaceuticals in different types of outlet over time. It draws on four sources:

- the original analysis of the evolution of prices for pharmacy-only medicines between January and December 2001 by the OFT and
Frontier Economics for the OFT 2003 Market Study\textsuperscript{44}, covering the
period immediately before and after the abolition of resale price
maintenance (RPM) on branded OTCs in May of that year

- DH analysis of price differentials in January 2003, cited in the full
  competition assessment for the 2005 reforms\textsuperscript{45}

- DH analysis of price differentials in June 2005 and June 2006 using
  IMS data, contained in the 2006 Progress Review\textsuperscript{46}

- base prices and monthly indices for three OTC items for February 2002
to June 2009 provided to us by the ONS.

FIGURE 4.23 PRICES OF PHARMACY-ONLY MEDICINES BY PHARMACY TYPE, JAN-DEC 2001

Source: OFT analysis of IMS data (reproduced from OFT 2003)

4.109 The OFT study analysed the evolution of the prices of a basket of pharmacy
(P) medicines during 2001 for independent, multiple and supermarket

\textsuperscript{44} OFT 2003 paras. 4.16-4.19 and Annex K1
\textsuperscript{45} DH, ‘Proposals to reform and modernise the NHS (Pharmaceutical Services) Regulations 1992’,
29\textsuperscript{th} August 2003, para.C3.2
\textsuperscript{46} DH, ‘Review of progress on reforms in England to the ‘control of entry’ system for NHS
pharmaceutical contractors’, November 2006
pharmacies, formed as a volume-weighted average price across all medicines sold (Figure 4.23). The data show a price gap emerging rapidly after the abolition of RPM in April 2001 with supermarket pharmacies offering prices around 20 per cent lower than independents by the end of the year. Relative prices in multiple pharmacy chains remained roughly constant and were about 10 per cent higher than in independents by the end of 2001.

FIGURE 4.24 PRICES OF A BASKET OF PHARMACY NON-PRESCRIPTION GOODS BY PHARMACY TYPE, JAN-DEC 2001

Source: Frontier Economics analysis of IMS data (reproduced from OFT 2003, Annex K1)
Note: VW = variable weights (monthly store volumes), FW = fixed weights (annual store volumes)

4.110 Frontier Economics also constructed price indices for a basket of fourteen goods including both P and General Sales List (GSL) medicines, health and beauty products and multivitamins (Figure 4.24). They suggest supermarkets went from about 5 per cent to about 15 per cent cheaper than independent pharmacies over the course of 2001, while multiples were around 2-3 per cent more expensive than independents throughout. These findings indicate that the price difference between supermarkets and other pharmacies for
GSL and other off-the-shelf products was lower than for P medicines. However, no separate analysis of GSL prices was given.

4.111 In its full competition assessment of the proposed reforms to the control of entry regulations, DH reported that in January 2003, based on a wider sample of products than used in the OFT Market Study, supermarkets were on average about 6 per cent cheaper than independent and multiple pharmacies on P medicines, a much smaller difference than the 20-30 per cent found in the OFT Market Study. On the other hand, supermarkets were found to be 20 per cent cheaper on GSL medicines.
<table>
<thead>
<tr>
<th>Outlet Types</th>
<th>Pharmacy medicines</th>
<th>General Sales List medicines</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Independent pharmacies</td>
<td>Multiple pharmacies</td>
</tr>
<tr>
<td>Pharmacy medicines</td>
<td>100</td>
<td>101</td>
</tr>
<tr>
<td>Independent pharmacies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Multiple pharmacies</td>
<td>101</td>
<td>100</td>
</tr>
<tr>
<td>Supermarkets with pharmacies</td>
<td>90.5</td>
<td>90</td>
</tr>
<tr>
<td>Supermarkets without pharmacies</td>
<td>70.5</td>
<td>73.5</td>
</tr>
<tr>
<td>Small supermarkets</td>
<td>101</td>
<td>101</td>
</tr>
<tr>
<td>Independent convenience stores</td>
<td>103</td>
<td>102</td>
</tr>
</tbody>
</table>
| Forecourts and service stations | 84 | 87.5 | 121 | 121 | 5 | 95 | 94 | `

Source: DH analysis of IMS data (DH Progress Review 2006); DotEcon calculations

Note: Two-way relative price indices based on all goods sold at both outlet types, using common volume weights

4.112 The 2006 DH Progress Review analysed data from June 2005 and June 2006 covering 30 products and a variety of store types. It found very similar
price differentials in each of the two years, which we have averaged for simplicity and shown in Table 4.19.

4.113 In supermarket pharmacies compared with independents, P medicines were about 10 per cent cheaper and GSL medicines were about 29 per cent cheaper. There was no difference in prices of GSL goods between pharmacy and non-pharmacy supermarkets. In pharmacy chains compared with independents, prices of pharmacy medicines were similar and prices of GSL goods were very slightly lower. Compared with the previous DH findings, these figures suggest a widening of the price gap between supermarkets and non-supermarket pharmacies between 2003 and 2005-2006, although it is not certain that the samples and calculations were strictly comparable.

4.114 We have not attempted to source data for a full-blown update of the DH analysis but looked instead for reassurance that the pattern of differentials has continued to hold. The Office of National Statistics was able to give us base prices and monthly price indices from February 2002 to June 2009 for three items in the non-prescription pharmaceuticals category of the Consumer Prices Index. The series were broken down by independents (fewer than 10 outlets) and multiples (10 or more outlets). They warned us that these unpublished data should be interpreted with caution since neither the products nor the stores sampled are necessarily held constant from month to month and the specification of the goods (brand, strength, pack size etc.) may differ between store types. Information on the identity of the products and the stores surveyed in each month could not be supplied.
4.115 Figure 4.25 shows the price difference between multiples and independents for each category of good over time at an annual level. Taking simple averages of the prices across months and products, multiples were on average 14.3 per cent cheaper than independents over the years 2006-2009, with relatively little fluctuation between products or years. It is puzzling, however, that the price of painkillers was 10 per cent higher among multiples than independents at the start of the period. This may be due to a number of factors, including products of a higher specification featuring in the multiples sample.

4.116 While the apparent price differentials cannot be relied on, these series nevertheless suggest that relative prices have been approximately stable since 2005-2006, from when the more detailed DH analysis dates. We therefore think it is reasonable to assume that the price differentials have continued to hold in the period since the control of entry reforms.
Estimated consumer savings on OTC medicines due to the control of entry reforms

4.117 In line with the approach to quantification in the OFT’s original market study, our analysis of consumer savings will focus on the first-order effects of greater access to supermarket outlets. That is, we will not attempt to quantify the impact of increased price competition or the consumer welfare effects of increased consumption in response to lower average prices. The fact that P medicine purchases appear to be advice-driven and that the choice of outlet is not significantly guided by price suggest that these second-order effects are small, although the pharmacy owners we spoke to reported that regular consumers of P medicines do shop around for the best prices, and mentioned typical products where this was true.

4.118 According to the Expenditure and Food Survey average weekly household expenditure on non-prescription medicines (item 6.1.1.2) in 2007 was £1.29, which equates to total annual expenditure of £3.32bn in England. Following the 2003 OFT study, we assume that 50 per cent of this expenditure, or £1.66bn, was on P medicines.

4.119 As discussed above, the analysis of price differentials carried out by DH as part of its 2006 Progress Review concluded that supermarket prices for P medicines were on average 10 per cent lower than at other pharmacy outlets in 2005 and 2006, while unpublished series provided to us by ONS suggest that price differentials have not changed since that time.

4.120 We assume that supermarket pharmacies’ volume share of P medicine sales is related to their share of dispensing volumes, while allowing for the fact that supermarkets have a higher ratio of OTC sales to prescriptions. Analysis of the pharmacy dispensing data provided to us by the NHS BSA shows that, at the time of the reforms, supermarkets represented 4.35 per cent of pharmacies and 4.28 per cent of average monthly prescriptions dispensed in England, while in July 2009 they represented 6.78 per cent of pharmacies.
and 5.14 per cent of average dispensing. Our consumer research shows that supermarkets’ share of pharmacy medicine purchases is three times higher than their share of dispensing volumes (see Annex III, Table III.6). Thus we assume that supermarkets’ combined volume share of P medicine sales is three times higher than their share of dispensing in both scenarios.

4.121 Putting these figures together implies that, to a first-order approximation, consumer expenditure on P medicines would have been £4.3m higher in the absence of the control of entry reforms.

4.122 This estimate is a substantially smaller than the estimate of £20m-£25m quoted in the 2003 OFT Market Study and it is worth tracing the reasons for the disparity.

4.123 The estimate in OFT 2003 was premised on full deregulation and entry of an additional 400-500 supermarket pharmacies. Under the more limited reforms introduced by the Government in 2005, the number of supermarket pharmacies has risen by just under 300. On the other hand, however, the OFT study assumed a market value for P medicines of £900m, as opposed to a value of £1.66bn used above.

4.124 Secondly, the data used in the Market Study suggested a price differential of up to 30 per cent between supermarkets and other outlets. However, the sample was based on a small number of headline products. The DH estimate of a 10 per cent differential was based on a more comprehensive sample.

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47 Total expenditure of £1.66bn can be written as (1-dw)QP where d is the percentage price difference (10 per cent), w is supermarkets’ actual share of volumes (15.5 per cent), and Q and P are total volumes and the non-supermarket price level respectively. Holding Q and P constant (that is, assuming first-order effects only) the ratio of counterfactual to actual expenditure is then (1-dw’)/(1-dw) where w’ is the counterfactual supermarket share (12.9 per cent). Applying this ratio to observed actual expenditure of £1.66bn gives our estimate of counterfactual expenditure in the absence of the control of entry reforms and exemptions.
4.125 Finally, the calculation in OFT 2003 assumed that each of the new supermarket pharmacies would generate sales of P-medicines equal to the average for existing supermarket pharmacies, as reported to the authors, but not directly quoted in the study. Our calculation is based on the assumption that P-medicine retail volumes are proportional to prescriptions dispensed, but inflated by a factor of three, derived from survey information. Evidently this results in a significantly lower figure for average supermarket pharmacy P-medicine sales. In addition, new supermarket pharmacies have a lower average dispensing volume than those that existed before the reforms, which leads us to estimate that P-medicine sales are also lower.

4.126 To summarise, based on prescription dispensing volumes while allowing for the higher share of P medicine sales at supermarkets, we estimate that supermarkets’ volume share of P medicine sales has risen from 12 per cent to 15 per cent as a result of the new entry. This would imply first-order consumer savings of somewhat over £4m, without taking account of competitive pressure on retail OTC prices or demand responses.

4.127 Finally, it remains to take account of increased use of cheaper supermarket GSL medicines. Although the markets for GSL and P medicines are of similar value, the volume of consumer switching to supermarket purchases of GSL products is likely to have been proportionately smaller than in the case of P medicines, as GSL medicines can anyway be carried on general sale, irrespective of whether the retailer is, or has, a pharmacy. On the other hand the price differential on these goods between supermarkets is three times greater than on P medicines. The 2003 OFT study estimated that likely savings of one-fifth the value of P medicine savings would result to consumers from pharmacist advice-driven sales of such medicines from an expansion in the number of supermarket pharmacies under a relaxation of entry controls. The supermarkets we spoke to reported that in stores where they have opened pharmacies under the 2005 reforms, GSL medicine sales have increased, although we did not seek detailed information from them.
Overall we consider that an estimate of first-order annual savings to consumers of £5m across both P and GSL medicines at current levels of consumer adoption of new supermarket pharmacies that have opened under the 2005 reforms is prudent.

The impact on funding, administrative and business costs

In this section we turn to the impact of the 2005 control of entry reforms on public and business costs associated with the funding and administration of the pharmacy market regime in England.

We consider three main areas of impact:

- the effect of the expansion in pharmacy numbers on the total public burden of pharmacy remuneration and reimbursement for core dispensing activity
- the effect on the volume and costs of additional services commissioned by PCTs from pharmacy providers
- the impact on the volume and the administrative and legal costs to PCTs and businesses of applications for regulatory approval of NHS contracting pharmacies and including subsequent appeals.

Public expenditure on pharmacy

The system under which pharmacies are remunerated for providing dispensing services and reimbursed for the cost of prescription medicines was summarised in Chapter 3 and is described in detail in Annex II, with reference to the February 2010 Drug Tariff.
4.132 As at July 2009, we estimate that fixed payments to new pharmacies that entered under the control of entry reforms were running at approximately £18m on an annualised basis\textsuperscript{48}.

4.133 However, as explained in Annex II, we understand from the Department of Health that neither the formula-based nor the negotiated components of increases in total funding (the Contract Sum) for essential and advanced services (dispensing and MURs) have so far been increased to reflect this additional burden. Instead, the additional fixed annual payments to pharmacies have been borne by existing pharmacies through a rebalancing of fees and reimbursement rates\textsuperscript{49}.

4.134 Thus, the control of entry reforms have not increased the total public funding burden for community pharmacy, and have therefore not displaced other health expenditures or led to an increase in general taxation relative to the counterfactual in which they were not introduced. Local Enhanced Services and other pharmacy services commissioned locally by PCTs are likewise unaffected, as funding for these services does not come from the Contract Sum.

4.135 Accordingly, the reforms have had zero impact on consumers and taxpayers via additional fixed payments to pharmacies. These payments have displaced only producer surplus, which falls outside the scope of impacts under evaluation.

\textsuperscript{48} Approximate calculation as follows. In the year to July 2009, or from their first month of dispensing where they entered the market within that period, 76.7 per cent of post-2005 entrants were running at more than 2,000 items dispensed per month, Therefore, we assume that 80 per cent of the 855 net additional pharmacies operating due to the reforms qualified for fixed payments of £26,600 pa, comprising the full establishment payment of £25,100 and the repeat dispensing fee of £1,500.

\textsuperscript{49} This implies a reduction in revenue of £18.2m/10,578 = £1720 per year for the average pharmacy.
Commissioning costs

4.136 The entry of additional pharmacies to the English NHS market as a result of the 2005 reforms has altered the provision and availability of pharmacy services to consumers in ways that are likely to have affected demand from PCTs for additional paid services. As shown in Figure 4.20 earlier, the number of pharmacies commissioned to provide access-related services has fallen since 2005, while commissioning of the new clinical and preventive categories has increased. As well as widening the platform for PCTs' procurement and delivery of non-dispensing services generally, the entry of over 450 pharmacies under the 100 hour exemption is likely to have relieved some of the need for PCTs to commission extended hours from local pharmacies as an additional, paid service.

4.137 We have found it difficult to identify published evidence on the impact of administrative payments for extended hours. Such an effect also needs to be distinguished from the raising of contractual opening hours from 30 to 40 that occurred in both England and Wales at the same time, which was not part of the control of entry reforms whose impact is under evaluation here, although that extension may not have affected availability outside normal working hours very much. To complicate matters further, some of the activity in commissioning extended hours was transferred to the out of hours category of the local enhanced services (LES) framework, also introduced in 2005.
FIGURE 4.26 PHARMACIES RECEIVING PAYMENTS FOR ADDITIONAL HOURS, ENGLAND AND WALES 1998-2008

Source: NHS Information Centre
Note: 2008-09 data for Wales unavailable

4.138 Figure 4.26 presents the available information, expressed as the proportion of all pharmacies receiving payments for extended hours under either the agreed additional hours heading or out of hours LES. No information is available as to the volume of extended hours commissioned or the costs to PCTs involved. The DH Progress Review of the control of entry reforms conducted in 2006 attributed the fall in pharmacies receiving additional hours payments in England in 2005-06 to a combination of the increase in contractual hours and the impact of the 100 hour exemption. However, as noted in a parliamentary written answer of 6th December 2006, some of these requirements were being met instead under the LES arrangements. As of 2006-07, numbers of pharmacies receiving agreed additional hours payments are no longer published in General Pharmaceutical Services in England & Wales, and publication of the numbers for Wales ceased a year earlier.
4.139 Although the proportion of pharmacies providing an out of hours service under the LES arrangements since their introduction has fallen in England while remaining constant in Wales, this could be due to the increase in the absolute number of pharmacies in England. Moreover, in both England and, more erratically, in Wales, the number of pharmacies receiving extended hours payments has been falling over time. From our conversations with industry sources we understand that rota systems and similar were falling away for some years prior to the reforms as pharmacies responded to the widening of GP surgery and prescribing hours by extending their hours.

4.140 PCTs' questionnaire responses with regard to the impact of the reforms on the costs of commissioning additional hours are summarised in Figure 4.28. Surprisingly, a minority of respondents reported that out of hours commissioning costs had in fact increased. However, analysis of the individual survey responses of these respondents shows that they all noted an improvement in the availability of pharmacies to consumers out of hours, which they attributed to the entry of 100 hour pharmacies. Thus it seems that this question may have been interpreted (not unreasonably given our wording) as covering the additional funding costs of 100 hour pharmacies rather than just the costs of commissioning additional hours.
4.141 For all these reasons, while it seems to us likely that the influx of pharmacies operating for unprecedentedly long core hours both on weekdays and at weekends due to the 100 hour exemption will have reduced the need for separate expenditure on out of hours commissioning, we are not able to offer quantitative estimates of the resultant saving in public costs.

**Administrative and legal costs**

4.142 In its 2003 market study, OFT estimated that abolition of entry controls would save an annual £10m in NHS administration costs and a further £16m in compliance costs to businesses. In forming its recommendation for full deregulation of the pharmacies market it also concluded that 'more modest changes would add complexity to an already complex and time-consuming process'.

Sources:

- DotEcon survey of English Primary Care Trusts, Nov 2009-Jan 2010

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**FIGURE 4.27: PCTS’ ASSESSMENT OF THE IMPACT OF THE CONTROL OF ENTRY REFORMS AND EXEMPTIONS ON EXPENDITURE ON OUT OF HOURS COMMISSIONING**

![Bar chart showing how expenditure on commissioning pharmacy services outside of normal hours within your PCT changed as a result of the above trends.](image-url)
4.143 PCTs overwhelmingly report an increase in their administrative and legal costs of processing applications under the revised control of entry system introduced in 2005 (Figure 4.28) and this appears to be not only a function of the increased scope for potential entry, but to the use of applications for gaming behaviour and to an increase in litigation by dissatisfied parties, either unsuccessful applicants for entry under the revised criteria or parties likely to be affected by discretionary entry granted in this manner. The DH 2006 Progress Review documented duplication of exempt and non-exempt applications for one and the same proposed pharmacy as well as copycat exempt applications resulting in strategic contests among several applicants in which the winner might not actually go on to open a pharmacy.\(^{50}\)

4.144 In addition, the existence of planned or existing local pharmaceutical services (LPS) pharmacies in a neighbourhood provides the only clause in the 2005 regulations under which an otherwise satisfactory application for exempt

\(^{50}\) Department of Health, ‘Review of progress on reforms in England to the ‘control of entry’ system for NHS pharmaceutical contractors’, November 2006, para. 6.15.
entry can be blocked. It appears that some existing pharmacies may have taken advantage of this clause by applying for LPS status in order to insulate themselves from competition from exempt entrants. Similarly, in at least some cases PCTs appear to have used their powers to designate areas or premises where LPS are to be planned as a means of containing such entry.

4.145 For example, a recent document by NHS Healthcare for London on the commissioning of pharmacy services for polyclinics describes PCTs' designation powers as 'a useful tool to protect a locality from applications while planning [LPS] services.' However, the DH 2006 Progress Review cites respondents from two representatives from London PCTs as reporting that 'there is also the view that this regulation is being used to block applications that will have no effect on the actual LPS provision.' Similarly, trade commentators observe that interest in LPS on the part of both contractors and PCTs is driven in part by its potential to forestall exempt entry. We heard of such instances from some of our industry interviewees.

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52 Department of Health, 'Review of progress on reforms in England to the 'control of entry' system for NHS pharmaceutical contractors', November 2006, para. 5.39.
53 See for example, Gianpiero Celino and David Reissner, ‘Getting to Grips with the LPS Scheme’, The Pharmaceutical Journal (Vol. 278), 23 June 2007
4.146 Figure 4.29 presents our estimates of the numbers of applications for NHS dispensing contracts in England under the control of entry test (that is, excluding the exemptions), and the number of appeals. In the latest complete year (2008/09), 958 applications were decided, almost three times the pre-reform annual average of 327. A total of 403 appeals were decided, almost two-and-a-half times the pre-reform average of 170. However, since appeal decisions tend to lag the decisions that give rise to them by six months or more, it is likely that the number of cases likely to result in appeals is somewhat higher.

Source: NHS Information Centre, 'General Pharmaceutical Services in England & Wales' (Nov 2008) and 'General Pharmaceutical Services in England' (Nov 2009); DotEcon analysis
Notes: Pre-2005 numbers for England estimated in proportion with the number of pharmacies as 93.7 per cent of England & Wales total. 113 out of 124 appeals under the 1992 Regulations in 2005/06 assumed to relate to applications made in England prior to introduction of the 2005 Regulations.
4.147 Data on numbers of applications for exempt entry are given in Table 4.20. In the four years to the end of March 2009 1,354 applications had been decided or withdrawn and a further 134 were outstanding. These figures imply an annual volume of 372 applications. The number of appeals against decisions on exempt applications is not separately broken out in the published data but is certainly low given the much simpler criteria for exempt entry compared with the control of entry test; the DH Progress Review of 2006 reported that only four appeals had been heard by the end of September 2006. We will assume that 2 per cent of exempt applications lead to an appeal.

4.148 The OFT market study (Annex B: The Cost of Administering the Control of Entry Regulations) estimated that the cost to business of an application under the control of entry regulations was £8,100 in management costs and a further £650 in administration costs, or £8,750 in total. It further estimated appeal costs at £5,400 in management, £500 in administration, and £600 in average legal costs or £6,500 in total. We have used these figures (without adjusting for wage inflation since 2003) in our calculations, but have assumed that the cost of an application under the exemptions is only 50 per cent of that of a non-exempt application.

4.149 DH estimates that the cost to a PCT of processing an application for a pharmacy contract, whether under the control of entry test or the
exemptions, is between £1,500 and £3,000\textsuperscript{54}, while the average NHS cost per appeal (incurred by the PCT and the NHS Litigation Authority) in 2007/08 was £6,400\textsuperscript{55}.

**TABLE 4.21: ESTIMATED ANNUAL IMPACT OF THE CONTROL OF ENTRY REFORMS ON NHS AND BUSINESS COSTS OF APPLICATIONS AND APPEALS**

<table>
<thead>
<tr>
<th></th>
<th>Non-exempt</th>
<th>Exempt</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Applications</td>
<td>Appeals</td>
</tr>
<tr>
<td>Additional cases</td>
<td>631</td>
<td>233</td>
</tr>
<tr>
<td><strong>Average costs</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHS</td>
<td>£2,250</td>
<td>£6,400</td>
</tr>
<tr>
<td>Business</td>
<td>£8,750</td>
<td>£6,500</td>
</tr>
<tr>
<td><strong>Total financial impact (£m)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NHS</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Business</td>
<td>5.5</td>
<td>1.5</td>
</tr>
<tr>
<td>Total</td>
<td>6.9</td>
<td>3.0</td>
</tr>
</tbody>
</table>

Source: DotEcon calculations based on sources cited in text.

4.150 Putting this information together leads to an estimate of total additional administrative costs due to the 2005 control of entry reforms and exemptions of £3.8m to the NHS and £8.7m to businesses annually as at the end of the 2008/09 fiscal year. The calculations are displayed in Table

\textsuperscript{54} DH, 'Review of progress on reforms in England to the 'Control of Entry’ system for NHS pharmaceutical contractors’, November 2006, estimated that the cost for a PCT to process an application varied between £1,482 and £2,937 according to its nature and complexity. DH, 'Impact Assessment of Implementing the Health Act 2006: Fees for NHS pharmaceutical applications’, 1 April 2008, states that the cost to PCTs of processing an application is 'a minimum of £1,500’.

\textsuperscript{55} DotEcon calculations based on DH, 'Impact Assessment of proposals to reform 'market entry’ based on Pharmaceutical Needs Assessments’, 18 December 2008.
4.21 and use the figures arrived at in the previous paragraphs. For each category of entry, non-exempt and exempt, we give the estimated annual number of applications and appeals that would not have occurred in the absence of the reforms (first row). These are then multiplied by the associated OFT and DH estimates of the costs for each application or appeal to NHS and business (second and third rows). Multiplying these together gives the total annual costs (fourth and fifth rows). Summing across the total rows gives the grand totals in the final column.
5 CONCLUSIONS AND LESSONS

5.1 Our remit for this evaluation was to analyse the impact on consumers of the OFT’s 2003 market study into the retail pharmacy market, as reflected in the relaxation of the control of entry regulations in response to its recommendations. While the OFT recommended that entry controls for community pharmacies be abolished altogether, the reforms of the control of entry regulations that took effect in England\footnote{The devolved administrations in Scotland, Northern Ireland, and Wales rejected the OFT’s conclusions, and did not modify entry controls.} in April 2005 introduced a criterion of consumer choice in the assessment of applications from new pharmacies, and designated a number of exemptions from the control of entry test.

Summary of findings

5.2 Measured against a counterfactual in which the control of entry regulations were maintained in their previous form, we estimate that the reforms have delivered quantified annual benefits to consumers of £24.7m-£32.8m (£16.4m-£24.5m in travel time savings, £3.3m in reduced waiting times and £5m in consumer savings on OTC medicines) against quantified annual regulatory costs to businesses and the NHS of £12.5m stemming from a larger volume of applications and appeals. These figures refer to mid-2009 levels of entry and consumer takeup of the new pharmacies.\footnote{They are therefore a snapshot of impacts that are still unfolding: entry to the market has continued and consumer adoption of the new pharmacies is not yet mature.}

5.3 Benefits that we are not able to quantify by bottom-up calculation include:

- the value of increased availability and use of extended opening hours, including an estimated redistribution of 1.6m annual prescription-related visits from the hours between 9am and 5.30pm to earlier and later times, mainly to the immediate post-working day period.
improved choice and convenience to consumers with diverse preferences

increased availability of collection and delivery services and other service enhancements

reductions, if any, in the general level of OTC prices

improvements in travel times, waiting times, opening hours, choice and convenience to non-prescription customers, and

a wider pharmacy base from which enhanced services can be locally commissioned, and reduced public costs from less commissioning of access-related services such as extended hours.

5.4 Compared with the bottom-up estimate of £25m-£33m, our survey-based estimate of £21m-£68m of benefits per year additionally reflects the first three of the above but excludes OTC expenditure savings. It suggests that a comprehensive estimate of the benefits of the reforms could be significantly higher than the quantifiable sum.

5.5 The unquantified costs of the reforms are:

any indirect increase in total NHS funding for pharmacy as a result of the increase in pharmacy numbers, and

the social, as opposed to financial, cost of additional NHS funds in terms of their value in other uses\(^{58}\) – namely of the £3.8m in additional

\(^{58}\) Current Department of Health practice in project appraisals based on value for money (VfM) is to multiply all impacts on NHS funds by 2.4 as an approximation to their social value. This multiplier is the ratio of a) an estimate of society’s willingness to pay for a quality-adjusted life year (QALY) (£60,000) to b) the midpoint of the NHS National Institute for Health and Clinical Excellence (NICE) working figure for the ’range of acceptable cost effectiveness’ for generating a QALY (£20,000-
administrative costs of applications and appeals, plus unquantified effects (if any) on total pharmacy funding and savings in local commissioning costs.

**Lessons learned**

5.6 The purpose of OFT evaluations such as this one is not only to assess the impact of OFT work and interventions, but to suggest lessons for the future.

5.7 The intention behind the 2005 reforms to control of entry in England was to 'move cautiously in the direction recommended by the OFT' as a safeguard against perceived risks to existing provision. The evidence of the reforms is that these risks have not materialised, and the OFT's analysis is supported in a number of key respects – albeit in the context of a more limited, and in some ways qualitatively different, set of reforms than the full deregulation of entry that the OFT proposed.

5.8 However, our analysis suggests to us that there is scope to improve the market regime for pharmacy to the benefit of consumers and taxpayers by considering more closely the interaction of entry rules and the shape of the funding system. This link was adumbrated in the OFT’s study, but with hindsight it could have pursued it more fully.

**Predictions of the OFT market study in the light of the 2005 reforms**

5.9 Albeit in the context of a different set of reforms than the OFT recommended, the evidence bears out the OFT’s key contentions about the likely effects of entry liberalisation.

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£30,000). In the context of this evaluation we have preferred to report the first-order (financial) costs of NHS administrative time, while recognising the opportunity cost among the other unquantified costs and benefits of the reforms.
5.10 First, the reforms have led to a net increase in the number of pharmacies and an improvement rather than a deterioration in general consumer access. The OFT reported two related arguments put to it by some in the industry that increased freedom of entry and flexibility of location would actually worsen consumer access on the whole: 1) the opening of pharmacies at popular locations such as supermarkets would cause a net exit of pharmacies closer to consumers' homes; or 2) new and existing pharmacies would leapfrog into prime positions around surgeries, deserting other areas and/or causing neighbourhood pharmacies to close. While the OFT study provided worst-case estimates of these putative effects, it considered that a removal of entry controls would be more likely to increase than to reduce the number of pharmacies and that pharmacies' incentives to locate where consumers wanted them, would on balance improve access.\(^{59}\)

5.11 In the event, not only has the number of pharmacies increased (by just under 9 per cent to July 2009), but it has done so without any increase in rates of closure above previous levels of churn (and without additional funding being made available to support the larger number of pharmacies). While clustering in areas of existing provision has occurred, our analysis shows that access to pharmacies – whether measured from surgeries or from homes – has improved both overall and across social groups.

5.12 Second, choice and convenience have improved through access to a wider range of pharmacy outlets, including a higher number of late opening pharmacies – partly enforced by the terms of entry under the 100 hour rule, but also reflecting increased local competition and the wider freedom for supermarkets (amongst others) to offer pharmacy services. Convenience-driven pharmacy users now can and do make a higher proportion of visits in post-working hours and/or alongside other shopping, while provision to

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\(^{59}\) A scenario in which consumers gravitate to out-of-the-way supermarket pharmacies to the detriment of local provision for vulnerable groups such as the elderly, those on low incomes and those without a car seems particularly unlikely since demand for pharmacy services is highest precisely among such groups.
customers who need or prefer the personality of more traditional outlets does not appear to have suffered.

5.13 Third, although the scope for competition among pharmacies on dimensions other than location – such as price, range and variety, and sales advice – is circumscribed by the regulated terms on which prescription medicines must be supplied, service competition has sharpened, as the OFT argued it would. Our evidence for this is based on the testimony of stakeholders rather than field research or direct surveying of pharmacies (which was beyond the scope or resources of this study). But our interviewees from both perspectives on the reforms, whether as entrants or incumbents (and sometimes as both), reported that where entry has occurred, existing pharmacies have sought to retain customers by improving their premises, staffing, hours, and the offering of collection and delivery services – improvements that a local monopoly pharmacy facing captive demand has little incentive to make.

5.14 Fourth, the OFT was sceptical of views expressed in the course of its study that reduced profitability would deter overall investment. While such arguments continue to be made, and were expressed to us also, there is no evidence that we know of that supports this view, and none was put to us. Although we acknowledge the difficulty in establishing the counterfactual, the notion that entry has disincentivised investments and service improvements is contradicted by what pharmacy chains told us, including those who have been exposed to increased local competition as a result of exempt entry, and by the lack of exit observed in the market. It also discounts the investments made by entrant pharmacies.

5.15 Fifth, wider access to lower-priced outlets has resulted in savings to consumers on OTCs, albeit smaller than projected in the OFT market study, partly because of the more limited extent of liberalisation than the OFT recommended but also due to differences in the data used.
5.16 Finally, as the OFT warned, costs and complexity to business and the NHS have increased under partial liberalisation – mainly for the simple reason that a larger volume of applications and appeals must now be handled by administrative processes, which has been compounded by unanticipated gaming and signalling behaviour and the disputed use of the LPS clause, by PCTs, to block exempt entry. (This is not to say that full deregulation of entry would have eliminated all regulatory burdens to businesses and the NHS, as candidates for NHS pharmacy contracts under any system must be properly assessed for their qualification and fitness to provide services to the public.)

Entry regulation and the regulated payment system

5.17 The OFT study did an effective job of dispensing with arguments that more freedom of entry would generally lead to less, or more and worse, provision of pharmacy services, and the reforms have so far confirmed its analysis.

5.18 An area which the study raised but which, with the great benefit of hindsight, it might have pursued more fully are the incentives for entry under the public remuneration system and the effects of entry – and entry controls – on public costs, particularly in the context of local markets with differing characteristics.

5.19 In typical retail markets, market outcomes – including the number and size of retail outlets – are shaped by consumer demand and consumers’ response to characteristics of supply, notably price. The willingness to pay of consumers for the services provided by new entrants link entry decisions – albeit imperfectly\(^{60}\) – to the social value that new entrants can generate. The

\(^{60}\) The academic literature shows that free entry does not necessarily lead to the optimum number of suppliers from a social point of view (and also that competition does not necessarily lead to the optimum amount of product differentiation). There is a substantial body of literature dealing with the issue of excessive entry following the analysis in Mankiw and Whinston (1986), ‘Free Entry and Social Inefficiency,’ RAND Journal of Economics, vol. 17(1), pp. 48-58. Similarly, Lancaster (1975),
presumption is that free entry will broadly lead to the number and size of outlets that consumers want, and strengthen competition.

5.20 In retail pharmacy, where consumer price signals do not exist for NHS medicines and services, it is government and its agencies that instead express the social willingness to pay. The regulatory payment system provides incentives for the volume and location of entry and the intensity of competition at the margin – which affect provision to consumers as end-users of pharmacy services, and at the same time determines the public cost – which affects consumers as taxpayers or, if the health budget is taken as fixed, as users of other NHS services.

5.21 This means that the question of an optimal market regime for pharmacy is wider than that of regulation or deregulation of entry and must include the way pharmacies are rewarded. Depending on the structure and 'generosity' of regulated revenue, unregulated entry may exceed the socially desirable level in the sense that, at the margin, the costs of extending the pharmacy infrastructure any further may exceed the public and consumer benefit that such an extension adds.

5.22 Indeed it was this situation that led to the control of entry regulations being introduced in the first place. The OFT study described how the remuneration system held responsible for previous excessive entry was redesigned in 198961, two years after control of entry was introduced, and suggested that a suitably structured payment system could eliminate the need for control of entry by providing the right incentives for contractors to enter and compete62.

'Socially optimal product differentiation,' American Economic Review, vol. 65(4), pp 567-85. shows that free entry in a monopolistically competitive market (competitors producing differentiated products) will result in the production of more than the socially optimal number of goods.

61 OFT 2003, paras. 3.8-3.12
62 OFT 2003, para. 6.30
5.23 However, as developments since the reforms have demonstrated, the 'right incentives' for entry vary across localities with different conditions of demand and supply. The pre-1987 pattern of clustered entry in areas of existing provision appears to have repeated itself at least to some extent.

5.24 Annex IV provides illustrations of this effect. A uniform remuneration system that is 'right' on average can be expected to give stronger and possibly excessive incentives for pharmacies to cluster in high density areas around sources of demand, and weaker and possibly inadequate ones for them to enter in lower-density areas (and the divergences are wider, the heavier the weight on fixed as opposed to variable payments).

5.25 However, as those illustrations also show, control of entry – even if perfectly applied – cannot fully remedy the underlying problem of excessive financial incentives for entry in certain areas, because it does not recoup the excess public remuneration that creates those incentives.

5.26 While the OFT study did not find direct evidence of excess profits in the pharmacy market, economic reasoning suggests that excess profits are or were being made in areas of high demand where the previous entry controls were observed to bite, as evidenced by entry in those areas after the reforms were made, and the lack of exit. The prior presence of excess profits is further suggested by entrants' willingness to use 100 hour opening as a means of securing exempt entry in such areas, as such hours – for which our analysis shows there is no precedent among operators free to set their own hours – entail significant additional operating costs that are not faced by established businesses.\(^{63}\)

\(^{63}\) Our analysis in Chapter 4 suggests there is very little demand for pharmacies to be open for as long as 100 hours a week. Consumers do not widely demand this service and the only pharmacies who provide it are those who are constrained to do so by regulation as a condition of entry. Even on the conservative assumption of an avoidable staffing cost of £32 per hour, eliminating 15 hours a
5.27 A system of payment terms that differed according to local conditions could provide appropriate signals for entry (and in principle exit) and do so at lower public cost. The OFT study hinted at this point when it argued that ‘increasing profitability across the market – especially by impeding entry – would be a wasteful if not counterproductive way’\textsuperscript{64} of ensuring good provision to consumers and that ‘if problems do occur in some areas, for whatever reason, we believe that the ESPS [essential small pharmacies scheme] provides a better solution, and at substantially less cost to consumers and taxpayers than the control of entry regulations’\textsuperscript{65}. However, the experience of the reforms suggests that a more refined system of financial incentives than a uniform payment scheme with revenue floors for selected pharmacies could improve the economic efficiency of the pharmacy market.

5.28 Any market regime for pharmacy requires government and its agencies (such as PCTs) to take a view as to need and the social willingness to pay. In view of the forthcoming statutory requirement on PCTs to produce local pharmaceutical needs assessments (PNAs) it is natural to ask why the principle of locally reflective payment terms, if it can be achieved in a robust and objective way, should not extend to dispensing services.

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\textsuperscript{64} OFT 2003, para. 5.26
\textsuperscript{65} OFT 2003, para. 5.60